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SAMENA TRENDS

EXCLUSIVELY FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

A SAMENA Telecommunications Council Newsletter


Articles

.....
Delivering Smarter SaaS
Performance and Security with
the Hybrid Network

Page 67

.....
SIM Boxes and Internet of Things
Pose Rising Fraud Threats in
The Middle East and Africa

Page 80



Mr. Ahmad Farroukh

CEO
Mobily

Page 04

Promoting market access and end-user participation in the age of digitization

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EDITORIAL

03.

TECHNOLOGY UPDATES

- 67. Delivering Smarter SaaS Performance and Security with the Hybrid Network
- 69. Technology News
- 80. SIM Boxes and Internet of Things Pose Rising Fraud Threats in The Middle East and Africa



04. EXCLUSIVE INTERVIEW

Mr. Ahmad Farroukh
CEO
Mobily

REGIONAL & MEMBERS UPDATES

- 06. Members News
- 17. Regional News

REGULATORY & POLICY UPDATES

- 28. Regulatory News
- 32. A Snapshot of Regulatory Activities in SAMENA Region
- 44. Regulatory Activities Beyond the SAMENA Region

WHOLESALE UPDATES

- 82. Wholesale News

SATELLITE UPDATES

- 86. Satellite News

Promoting market access and end-user participation in the age of digitization



The availability of telecoms infrastructure and digital access technologies not only promotes intra-sectoral development and market entry and access by players directly involved in digital communications and ICT development, but also assists entities from other sectors to enter and participate in the global marketplace.

Granted it all, fundamentally, is a game of investment and business sustainability that telecom operators carry out and require, respectively, policymakers and regulators have to set the right visions and create the best possible environments to operate in. Ultimately, the goal for every market, for every country, is to be integrated into the world economy, which is now being defined as digital economy. This global economic integration, over the years, has been made possible by the telecommunications industry, upon to investment efforts of which advancements and progress of various other industries and economic sectors function.

Economic participation and integration, whether within a given market or across the borders, are directly responsible for elevating standards of living for billions of end-users across the planet who are increasingly participating in digital service adoption. Most of the developed nations and many of the developing ones are increasingly sharing in the prosperity brought forth by socio-economic integration, driven by accelerated digitization. This, as the World Trade Organization maintains, has become important to world trade and to the opening up of markets across the borders for foreign market players.

Thus when telecom operators speak of the need to frame new regulatory frameworks that support their business needs and government policies that foster digital development, they indeed are speaking of the much larger need to making an economy open to international trade and investment, so that economic participation and integration are carried out at a faster pace. This openness, which is much easier today to achieve due to digitization and much more important given the globalized nature of the collective human endeavor, is crucial to achieving economic success.

A government policy mindset that, for instance, would encourage investments by telecom operators, provide level-playing field for all players within the telecoms and the digital value chain, provide incentives for intra and inter-sector participation across all economic sectors, promote services that require the citizen to participate in and benefit from digital platforms such as e-government m-education platforms, etc., is the same that would make the economy open to international trade.

Digitization, in all its forms and with its ability to impact the speed at which economies progress forward in creating a better future for their citizens, is among the greatest imperatives of the modern world. It is so important that it can create solutions to many of the problems that our societies and our environment face. To accelerate digitization, however, measures to support market access and to encourage investment and cross-sectoral participation have to be set forth. Every smart, digitally-driven developing society has such fundamental requirements to be fulfilled by its government visionaries.

Yours truly,



Bocar A. BA
Chief Executive Officer
SAMENA Telecommunications Council



Mr. Ahmad Farroukh
CEO
Mobily



Mr. Farroukh began his career in 1983 as the Finance Manager for Mediterranean Investor Group. By the early 1990s he focused on audit roles, first as an Audit Supervisor for KPMG, New York and then for Deloitte Touché, Saudi Arabia. In 1996 he joined Investcom Holding Group as its Group Finance Controller.

He then moved to Africa joining Scancom (Investcom Holding Group) in Ghana as Managing Director and Regional Manager for its West Africa operations. Following Investcom's acquisition by MTN Group, he was appointed as CEO MTN Nigeria, which, under his leadership, grew to 40 million subscribers with EBIDTA margins of 62%. This success propelled him to the role of Vice President West and Central Africa and later Group COO at MTN. In 2014 he was appointed as CEO for MTN South Africa.

Mr. Farroukh started his role in Mobily in July 2015, and he is still managing the executives of company which has about 20 million customers.

Q: What are Mobily's latest initiatives that are promoting digital service adoption among users?

A: There are several initiatives under Saudi 2030 vision to support digitalization, and definitely we are part of it by supporting our digital services. We are working on special design concepts and methodologies that encourage user adoption. For digital services, Simplicity, Self-care and convenient payment methods will help to encourage in adoption of digital. Meanwhile, our App will be a platform for allowing services.

Q: How can digital services such as mhealth, mfinance, and others be promoted through existing telecommunications programs?

A: Telecom operators play a core role in promoting mhealth in the society, and we definitely offer mhealth services that meet the domestic demand. Recently, Mobily unveiled "TransforME" App for Fitness and Health, which provides intelligent diet program with an integrated training and exercise program at the same time, which allows follow-up development in achieving food goal and sports exercise plans tailored for your body and fitness goal. This App is the first service of its kind to be based on subscriptions in the Kingdom of Saudi Arabia and we focus now on the lifestyle and fitness mhealth services because there is a high demand here in the Kingdom for such services. For mfinance, it is still to be approved by SAMA.

Q: In view of digital development goals, how do you correlate improved market access with improved user participation?

A: Increased market offerings, simplified display of those offerings, along with convenience of purchase and delivery options all are important elements to enhance both market access and user participation.

Q: What joint ventures within the telecoms/ ICT industry are bringing shareholder value to your business and are redefining your success as a telecom enabler?

A: ICT solutions for the business sector are a unique opportunity for telecom operator to bring value for the shareholder and expand operations. Especially, cloud computing is a cutting-edge service that witnesses a high demand because it is a secure, high-performing, enterprise-grade cloud computing platform. In addition, this service helps increase operational efficiency, ROI, and offer greater financial flexibility through the consumption-based billing model.

The service acts as a platform that allows businesses of all sizes a virtualized computing resource (memory, network, storage) on demand. As the foundation of all cloud-based managed services, it underpins the performance, availability and reliability of a wide variety of infrastructure managed services and application managed services built upon it.

Q: Under what ideal conditions would a telecom operator be willing to promote market access for non-ICT players entering the ICT market?

A: Facilities and regulations for non-ICT players, along with telecom operator enablers can be used altogether to encourage promotion of market access for non-ICT players.

Q: How do you avail of the planned developments of 2030 vision?

A: Definitely these developments have a direct impact on our sector. We are involved in several megaprojects in the petrochemical sector for instance with national companies, providing connectivity, disaster recoveries and all sorts of ICT services. We are ready to capitalize on these opportunities and are proud to be involved in these kinds of projects. Our staff base, which is 78% Saudi, is knowledgeable and I consider they are the future of our company, they are ready to meet the demands of the market.

Q: How Mobily as a brand is aligning itself with the government vision, with the societal needs and the rest of the business sector when it comes to showing the other side of Saudi Arabia to the world?

A: I think this is done through our participation in different forums across the world, through the engagement of the foreign investors. I don't know the "right ingredients" to shape international perceptions but I am absolutely sure that everybody is pushing on one direction which is definitely the betterment of Saudi Arabia. The in-country forums and the delegate visits continue to confirm that their experience in KSA was far above expectations.



MEMBERS NEWS

MEMBERS UPDATES



PTCL's financial performance in half-year 2016 with 10% cash dividend

Pakistan Telecommunication Company Limited (PTCL), the country's leading ICT services provider, has announced its financial results for half year ended June 30, 2016 at its Board of Directors meeting held in Islamabad on 19th July 2016. In the meeting, the Board of Directors has declared 10% interim cash dividend to the shareholders. PTCL Group earned Rs. 58.96 billion revenue during the first half of 2016 whereas PTCL's revenues were Rs. 36.2 billion during the period. DSL broadband revenues increased compared with same period last year. However, revenues from Voice services remained suppressed mainly



Dr. Daniel Ritz, CEO, PTCL

due to deregulation of ICH. PTCL operating expenses during the period were reduced by 4% compared with same period last year due to effective cost optimization measures in place. Net profit of the Company stood at Rs. 5.6 billion. Although the PTCL Group's net profit before tax was increased by 34% compared with same period last year mainly on account of increased operational efficiency of PTCL Group, the net profit after tax showed slight decrease of 2% due to increased new tax charge on account of 8% minimum tax requirements which was accounted for in the financial results of half year 2016. PTCL Group remains committed to provide cutting-edge ICT products and services to its diversified array of consumer base throughout the country at competitive prices using its vast communication infrastructure capabilities available across Pakistan."



AT&T and Orange collaborate on open source and standardization initiatives for SDN

AT&T* and Orange have signed an agreement to collaborate on open source and standardization initiatives that will

accelerate the standardization of software-defined networking (SDN) and network function virtualization (NFV) technologies. The companies are aligning on a strategic vision to move intelligence from customer hardware to the network, reducing cost and complexity. This effort will help the industry and business customers move faster towards a more agile, flexible and on-demand networking future. Today, deploying new virtual network services and functions is complex. Network service providers (NSPs) and businesses alike have to deal with proprietary standards, closed architectures and multiple equipment vendors that have different platforms and specifications. AT&T and Orange will identify appropriate forums for industry standardization discussions to drive standardization efforts forward. By introducing common standards and interfaces, the industry would simplify technological integration, increase operational efficiency and reduce costs, resulting in shorter deployment cycles and a faster pace of innovation. Building SDN and NFV technologies on common, open and interoperable standards will help solve today's challenges by delivering highly secure, intelligent, application-aware networking. This benefits both NSPs and business customers by enabling them to deploy services faster, customize their infrastructures in near real-time, and innovate more easily within an ecosystem of interoperable service and equipment providers. Through a network-centric approach, AT&T and Orange are committed to making the SDN and NFV vision and benefits more accessible for both businesses and the industry. The two companies will concentrate on the following areas: Make customer premises equipment (CPE) and services truly universal by creating common specifications for premise-based devices, allowing them to work in different NSP environments and with different network function software providers. Streamline the onboarding process for virtual network functions (VNFs) by introducing common guidelines and templates that will mature the VNF provider ecosystem and make VNFs more plug and play. Develop standardized APIs that will enable SDN architectures from different NSPs to interoperate with each other, making deployment of virtualized network services and functions faster and easier. "We're committed to defining a framework

that will accelerate the adoption of SDN. Driving the industry toward a standardized approach will reduce the cost and complexity created by proprietary implementation of equipment in the network and on the customer premise," said Roman Pacewicz, Senior Vice President, Offer Management and Service Integration, AT&T Business Solutions. "Everyone benefits when network services and functions are designed around a common ecosystem that is delivered on open platforms. Innovation can happen faster and more easily, and this model will also help improve reliability and security," said Didier Duriez, Senior Vice President, Global Solutions, Orange Business Services.



Saudi Telecom deploys Juniper Contrail SDN

Saudi Telecom Company (STC) has deployed Juniper Networks Contrail Networking and NFV to create automated cloud services for its customers. With dedicated cloud services powered by Contrail



Dr. Khaled H. Biyari, CEO, STC

Networking, STC now has a fully scalable, flexible resource to sell to subscribers and customers on-demand as their IT requirements evolve and change. Contrail Networking enables full automation, better scalability, security and flexibility for STC's NFV-based cloud computing services. Juniper's Contrail Networking SDN solution automates and orchestrates the creation of highly scalable virtual networks. It interoperates with an OpenStack cloud orchestration platform, enabling the agile creation and dynamic scaling of service instances with high availability and reliability. "At STC, we have a 'customer-

first' approach. We aim to earn our customers' trust and enrich society with comprehensive, innovative services and solutions. The network, underpinned by advanced NFV and automation capabilities, can deliver substantial value to our customers by providing the agility, speed and simplicity that today's businesses require. Juniper is an ideal partner with the same customer-centric approach, providing us with state-of-the-art technology for our cloud-based offerings," stated Dr. Tarig M. Enaya, senior vice president for enterprise at Saudi Telecom Company.



New Cisco research provides digital roadmap for capturing \$405 billion retail banking opportunity

Cisco announced a new research titled "Roadmap to Digital Value in the Retail Banking Industry", which reveals that retail banks have the potential to realize \$405.3 Billion from 2015 to 2017 as the Digital Value at Stake (VaS). Yet, in 2015, financial services as a whole captured just 29 percent of that opportunity. Of the challenges slowing growth and innovation, cybersecurity weakness is certainly at the forefront. Cybersecurity concerns have prevented retail banks from adopting digital technologies and business models. And this has contributed to them missing out on more than 70 percent of the potential revenue opportunity. "With the pressing realities of agile 'fintech' disruptors, digital consumer demands, and complex regulatory hurdles, the question of how retail banks can compete and capture the revenue opportunity at hand has come to the fore," says Mike Weston, Vice President, Cisco Middle East. "As the largest segment of financial services, retail banks play a critical role in any economy. The ability for digital technologies to create and drive new revenue opportunities, combined with the ability to lower operational costs through digitized business processes, brings tremendous opportunity. But, too many banks are moving slowly

or not at all. By waiting to digitize their businesses, or by delaying new technology initiatives, banks risk not only missing out on the potential Value at Stake, but are actually at risk for being put out of business altogether." The new research, "Roadmap to Digital Value in the Retail Banking Industry", outlines the Digital Value at Stake for retail banking – as well as a digital roadmap for success. The study reveals digital use cases that drive the fastest value and return on investment for retail banks. With the right technology investments such as analytics, mobility, video, and virtualized delivery models – and with a plan for navigating security risks – retail banks can create a blueprint for capturing their share of the hundreds of billions in Digital Value at Stake. Retail Banks Must Accelerate Digitization or Risk Extinction: "Fintech" startups are disrupting retail banks by unbundling their products and services. By doing this, they're able to seize a share of the banks' most profitable business while avoiding the barriers to entry that naturally come with being a full-service bank. These start-ups are digitizing their offerings. Retail banks that fail to drive their digital transformation may be put out of business completely. According to a 2015 study by the Global Center for Digital Business Transformation (DBT Center), an IMD Business School and Cisco initiative, 4 out of the top 10 retail banks will be displaced by digital disruption in the next three years. However, only 27 percent are taking a proactive approach by disrupting their own businesses. Cisco's research identified key digital use cases in the retail banking industry that drive more than 90 percent of the \$405.3 billion opportunity. These digital solutions include video-based advisors, workforce transformation, mobile payments, virtual tellers, information-based consulting, white-label services, connected ads, marketing, and more. Cybersecurity Weakness is Slowing Digital Innovation in Retail Banking: Despite the tremendous opportunity and competitive pressures that come with digital transformation, retail banks are still slow to digitize. A recent Cisco study, "Cybersecurity as a Growth Advantage" surveyed 1,014 senior finance and line-of-business executives globally and found that 71 percent agreed that cybersecurity risks and threats hinder digital innovation in their organizations. Another 39 percent of respondents said they've halted

mission-critical initiatives due to these concerns. Sixty percent admitted their organizations are reluctant to innovate in areas such as digital products and services because of the perceived risks. Specific digital initiatives delayed potentially include omnichannel capabilities, wealth management and asset transfers, mobile banking and mobile payment capabilities, self-service and virtualized delivery models. Cisco's economic analysis estimates that by not digitizing more fully, incumbent retail banks missed out on \$144 billion globally from 2011 to 2015. Bottom line – cybersecurity concerns do not need to be a hindrance to digital innovation. Retail banks can transform cybersecurity from a liability into an asset that supports customer trust, innovation, and growth. All of these digital solutions depend on a robust cybersecurity foundation. "By assessing, adopting and combining the right digital use cases for their needs, and doing it securely, retail banks will capture their share of the Value at Stake and be in a position to operate more agilely and compete. By innovating and driving relevant new products and experiences to the market quickly, they can be the new disruptors," Weston concludes. To calculate Digital Value at Stake, Cisco conducted the industry's most comprehensive economic analysis. Spanning across the private sector, it includes 16 industries – financial services being one. The analysis is rooted in customer engagements and evaluation of 350 private sector digital use cases. Thirty of those are focused on financial services. Read the full report, including the key digital use cases recommended for retail banks.



Turkey's Smart City Gaziantep and Turkcell launch beacon-powered transportation feature for the visually disabled

Turkcell and the Municipality of Gaziantep, which have previously joined forces to transform the city of Gaziantep into a "smart city", have announced a new phase in their

cooperation, this time with the goal of facilitating the lives of visually-disabled individuals. "My Dream Companion", a mobile application and service developed by Turkcell and the Young Guru Academy (YGA), will now include a beacon-powered transportation feature, live-trialed for the first time in Gaziantep. The feature allows visually-disabled individuals to use the buses on the city's public transportation system without requiring outside help. The traveler can access route and bus stop information on their smartphone, and receive alerts when their bus reaches the bus stop, and when it approaches their final destination. The system also allows the driver to receive a warning message if there is a visually-disabled individual waiting to board the bus at any specific bus stop. The rare application of the beacon technology in an outside setting ensures greater precision. The feature was tested in a live trial attended by Fatma Sahin, the Mayor of Gaziantep, Kaan Terzioglu, the CEO of Turkcell, members of Gaziantep's visually-disabled community and journalists. Turkcell and the Gaziantep Municipality aim to expand the service to the entire city in the coming months, following the pilot implementation. My Dream Companion's transportation feature is the latest addition to the award-winning mobile application. Other features include shopping center navigation and audio-description of movies, which was also offered for the first time globally on a mobile app through My Dream Companion. In addition to hosting the first implementation of the transport feature, Gaziantep also became the second stop after Istanbul for the



expansion of the shopping center navigation feature, also powered by beacon technology. Speaking at the press conference held in Gaziantep, Fatma Sahin, the Mayor of Gaziantep,

said: "We have a long-standing cooperation with Turkcell in employing technology to efficiently use our city's resources and to facilitate the lives of our citizens. Now we are expanding this cooperation into the field of making our city equally accessible to the disabled individuals as the non-disabled. Our goal is to provide the means for the disabled inhabitants of our city to fully and independently participate in all aspects of life. The transportation feature of My Dream Companion, launched for the first time in Gaziantep, as well as the other opportunities that this app unlocks is major steps in achieving this goal for the visually-disabled." Turkcell's CEO Kaan Terzioglu emphasized the role that mobile technologies play in ensuring equal participation of all segments of society in all aspects of life. "We serve the city of Gaziantep with our technology in a number of ways from our fiber backbone to machine-to-machine communication. My Dream Companion and more specifically, the launching of the transportation feature in Gaziantep, builds on this important foundation" said Terzioglu. "Our work does not stop here: With our partners, we will find new ways of serving our customers with life-enhancing technologies which will eventually include artificial intelligence, augmented reality and virtual reality. Joining forces with partners like Gaziantep Municipality and the Young Guru Academy helps us design solutions that speak to real needs and function well in real settings." "My Dream Companion" is a constantly-evolving service and application designed by Turkcell and the Young Guru Academy. It has received the GSMA's Global Mobile Award – or "Glomos" – twice, in 2014 and 2016, in the category of "best use of mobile for accessibility and inclusion". It is available for free to visually disabled customers of all mobile operators. "My Dream Companion" serves all mobile phone users with features such as audio recordings of daily newspapers, audio books, and location-based information; and provides further services to smartphone users through "My Dream Companion" app which includes transportation, shopping center navigation and audio-description.



Etisalat deploys its first live telecom cloud

UAE-based Etisalat, a leading telecom group in the region, has activated its first live Network Function Virtualization telecom cloud in Abu Dhabi. The telco cloud platform will help create a one-stop shop app/online portal with a fast, intuitive and pleasing user experiences and interfaces. It will also provide service capabilities, e.g. self configuration, self optimization and self healing functions.



The platform brings faster time-to-market in product development, rapid prototyping of services, collaborations including rich/open ecosystems, explore new innovations with lower risks and cloudifying consumer and business connectivity. Customers will also be empowered through the automation of services and operations with automatic capacity expansion and reduction. The NFV-based telco infrastructure has been built with Quanta servers, Arista switches and Canonical Ubuntu OpenStack, a multi-vendor combination integrated for production. Projects, proof of concepts and various experiments and tests to transform the corporation for the cloud era have started as early as 2013, with the telecom industry's fostering and adoption of Network Function Virtualization (NFV) and Software-Defined Networking (SDN), two enabling technologies commonly associated with smart cities, IoT and the upcoming 5G future. Based on the open-source OpenStack cloud platform used by the likes of NASA, CERN and leading web companies, activations are currently in progress in more sites across the UAE. On top of this telco cloud, the Middle Eastern telecom operator targets to virtualize

its infrastructure and services across its portfolios of data, communications and video, beginning with mobile services. The leap is meant to efficiently make telecom resources and services more fluid, automatic and open for innovation. "It's a different world that we've embarked into," said Esmaeel Alhammadi, senior vice president of Network Development in Etisalat and Sahaab program lead. "We thought it was a technological step, requiring a mere upgrade of the network and services. But it turns out to be more than that. It's a shift in mindsets and how things get done. It's not every year that we have technologies like these that have the potential of adapting to customer wishes faster and opening new avenues for future innovations and collaborations." Etisalat has launched a corporate-wide program in 2016 to "cloudify the network", dubbed Sahaab—an Arabic word that translates to 'cloud'. The program aims to harmonize between the hardware-centric telecom services and the software-centric cloud services across the corporation. "Etisalat is demonstrating real vision and innovation by the speed at which they are embracing network function virtualization," said Anand Krishnan, EVP, Cloud, Canonical. "We are delighted that Etisalat has selected Canonical OpenStack as their NFV infrastructure and Juju as their generic VNF manager. As the global leader in OpenStack deployments, we will work closely with Etisalat to ensure its customers can benefit from the virtualization and cloudification of network functions that this will deliver."



Eutelsat looking to sell stake in Spain's Hispasat

Eutelsat announced that it has initiated the process of divesting its 33.69 percent stake in Spanish satellite operator Hispasat by exercising the put option granted in 2008 by Hispasat's majority shareholder, the Abertis Group. Under the terms of the put option agreement, the value of the Hispasat stake will be determined by an independent expert, said Eutelsat in a statement. However, Abertis subsequently replied that the

process initiated by Eutelsat is not valid and that the company doesn't recognize the put option under which Abertis would have to buy the stake. "The compromise to remain in the company, at least until the end of July 2017, assumed by the shareholders via the Shareholders Agreement, conditions the efficacy of the put," said Abertis in a statement to Spain's markets regulator CNMV. Construction Company Abertis, which controls 57 percent of Hispasat, added that, in any event, the execution of the transaction requires the approval of Spain's Council of Ministers.



Microsoft to offer GE industrial internet capabilities

GE and Microsoft announced a partnership that will make GE's Predix platform for the Industrial Internet available on the Microsoft Azure cloud. The agreement, which marks the first step in a broad strategic collaboration between the two companies, will allow customers to capture intelligence from their industrial assets and take advantage of Microsoft's enterprise cloud applications. Specifically, the Azure cloud will provide Predix customers with scalable infrastructure, data sovereignty, hybrid capabilities, and advanced developer and data services. In addition, GE and Microsoft plan to integrate Predix with Azure IoT Suite and Cortana Intelligence Suite along with Microsoft business applications, such as Office 365, Dynamics 365 and Power BI, in order to connect industrial data with business processes and analytics. "Connecting industrial machines to the internet through the cloud is a huge step toward simplifying business processes and reimagining how work gets done," said Jeff Immelt, CEO of GE. "GE is helping its customers extract value from the vast quantities of data coming out of those machines and is building an ecosystem of industry-leading partners like Microsoft that will allow the Industrial Internet to thrive on a global scale."

PCCW Global

PCCW and Singtel launch premium Viu

PCCW Media's OTT video service, Viu, has launched premium subscription service in Singapore with telco partner, Singtel, the largest telecommunications company in Singapore, offering viewers unlimited downloads of their favorite content. Hailed as Southeast Asia's first unlimited downloads* OTT video service, Viu leverages on the quality network of Singtel to provide Viu premium subscribers with priority viewing of a vast library of content, such as the current Korean hit drama, Uncontrollably Fond, which premiered on July 6 and is aired with English subtitle right after Korean telecast for Viu premium subscribers. The fast turnaround with subtitles, first-ever in the region, is also available on Viu at the same time frame in Hong Kong, Malaysia and Indonesia. Viu premium subscribers also get to watch the latest Korean dramas and variety shows from the Big 4 Korean broadcasters and Japanese dramas as fast as 8 hours after telecast in Korea, enjoy 1080p HD quality and exclusive content window of the latest content with very limited ads. Meanwhile, Viu freemium users will continue to have access to Viu's huge catalogue of Asian content for free. All users can also enjoy Viu's user-friendly functions such as multi-screen access, download-to-stream capability and multi-device synchronization when streaming, providing users with a truly seamless viewing experience on-the-go. Initially launched as a freemium OTT service last October, Viu has seen tremendous growth in Hong Kong, Singapore, Malaysia, India and Indonesia. In Hong Kong, Viu app downloads already surpassed 1.6 million while in Singapore, it has recorded over 500,000 downloads in the short span of four months following its January launch**. Meanwhile, Viu is well-supported by a host of advertisers in the region. More importantly, users are actively engaged, averaging 1.82 hours^ of viewing time daily on the mobile app. "This strategic tie-up between Viu and Singtel is a win-win for consumers as they can enjoy the best Asian entertainment content at the most competitive offering across

the best network in Singapore. With the rise of digital content, we are seeing a rapid shift in the way media content is being consumed, especially by millennials. By sharing the same vision to bring the most compelling content to viewers anytime, anywhere on any mobile device, Viu and Singtel are strategically aligned to focus on adapting to meet the needs of today's viewers," said Ms. Janice Lee, Managing Director of PCCW Media. "86% of Singapore citizens regularly stream or download video content, of which 60% are watching dramas+. These numbers show the immense potential in the OTT video streaming market where we are spearheading change in the way consumers engage with and consume digital content," added Ms. Lee. To assure viewers of a stable viewing experience, Viu has forged strategic telco partnerships with networks such as CSL in Hong Kong, Singtel in Singapore, Telekom Malaysia Berhad, Maxis, Digi and U Mobile in Malaysia as well as Telkom Indonesia in Indonesia. Ms. Lee said, "The strategic partnerships we have built with top broadcasters and leading telcos all over Asia to deliver the best Asian content at the fastest speeds on quality networks has enabled Viu's growing success. The recent airing of Descendants of the Sun has shown us that what consumers want today is fast, convenient access to digital content, and Viu was able to cater to that mass demand by being the first platform with such a large library of authorized Korean content where fans could catch it in Singapore." Viu has built a relevant and personalized experience with exclusive unique innovative content based on the a freemium model and its achievement is duly recognized in the industry, garnering the Gold Award for Best Mobile App at the HKICT Awards 2016, Telecom Asia's 19th Annual Award for Best OTT Video Service this year, and most recently named Asia Pacific Telco Digital Service Provider of the Year by industry research group Frost & Sullivan at its Asia Pacific ICT Awards 2016. "We will continue to leverage our research to gain insights to our viewers' preference so that our content and features are uniquely tailored to their needs thus enabling continued relevance to our viewers," added Ms. Lee.

PCCW Global

PCCW supports university research to promote innovation and technology development in Hong Kong

PCCW has launched a program to cooperate with local universities in ICT research projects as part of its efforts to promote innovation and technology development in Hong Kong. The landscape of the ICT sector has been rapidly changing with technology advancement. As a major player in the ICT sector in Hong Kong, PCCW has over the years invested heavily in product and service innovation and infrastructure to be well prepared to serve our customers as technology continues to evolve. Nowadays, working together across boundaries is key to seizing the opportunities and addressing the challenges facing us in this interconnected world. PCCW aims to encourage cross-sector cooperation through a series of research projects, bringing business and academic insights together to provide new momentum for overall industry development. These research projects will cover different aspects of the ICT industry, including enhancement and future advancement of wireless networks, optic fiber, network security and other information technologies. The research results will be published for industry application and/or further research and development purposes. PCCW has kicked off the program with a research project focusing on video quality in different wireless transmission environments, which is a collaboration between the PCCW Group and the Department of Electronic and Information Engineering (EIE), The Hong Kong Polytechnic University (PolyU). In addition to financial support, PCCW will provide PolyU with professional advice and assistance, laboratory testing environment, network statistics and mobile network data of the telecom business of the PCCW Group. The project is expected to be finished in 15 months. The research result of the PolyU project is expected to facilitate PCCW's future resource planning for network quality enhancement of the telecom business



of the PCCW Group. The independent research result developed by PolyU may also be useful to other network providers or industry practitioners, thereby benefitting the industry as a whole. PCCW's cooperation with other local universities in research projects will be announced in due course. Ms. Susanna Hui, Group Chief Financial Officer and an Executive Director of PCCW, said, "PCCW's collaboration with PolyU signifies the first step of a campaign to encourage local academic research and drive the development of innovation and technology in Hong Kong. We believe that this initiative will help PCCW and the industry to respond to the dynamic operating environment and better meet the fast-evolving needs of customers." Ir Professor Ping-kong Alexander Wai, Vice President (Research Development) of PolyU, said, "We are pleased to receive the support of PCCW which is a leading ICT service provider in Hong Kong. Having the backing of the business sector is crucial especially for such a research project which requires real network data and industry insights to produce practical and useful research result."



Ooredoo Oman completes landing of SEA-ME-WE 5 Cable

Ooredoo Oman has concluded the landing of the Southeast-Middle East-Western Europe 5 (SEA-ME-WE 5) submarine cable system. Installed at its

base station in Qalhat, in the Sharqiyah South governorate, the 20,000km cable is being developed as a multi-regional data superhighway that will substantially improve data transmission across affected regions. The SEA-ME-WE 5 submarine cable has been designed with the latest upgradable 100Gbps technology, enabling an initial system capacity of 24Tbps per second on three fiber pairs. Jim Maxwell, Ooredoo's chief legal, regulatory and wholesale officer, said the SEA ME WE 5 is a step towards realizing the future of international cable systems in terms of capacity, diversity and network access for valued customers. The system will link East Asia, the Middle East, Africa and Europe, providing the lowest latency and highest data rates of any fiber-optic system. Construction of the intercontinental undersea cable began in September 2014 and is due to be completed by the end of this year. The project is being developed through a collaboration of 19 leading global players from around the world.



Batelco to launch super-fast 4G+ In Bahrain

Bahrain-based telecom group Batelco has announced plans for the rollout of superfast 4G+ for its customers, the first telecom in the Kingdom to start rolling out the service. LTE Advanced is the latest mobile technology launched to support the massive increase in mobile data demand and additionally it will deliver super-fast data speeds.

4G+ is about more than just speed, as the solution will enable a smoother service while on the go, thanks to the enhanced reliability of the connectivity. Batelco Bahrain CEO Muna Al Hashemi said that 4G+ is the next major step in the evolution of Batelco's mobile network; the network roll-out has just started and the network will be growing over the coming months. "We are very pleased to continue with our successful LTE enhancements by being first to roll out LTE Advanced. The new network technology equates to better coverage, greater stability and faster performance. Our 4G+ service will provide the ultimate mobile experience with amazing download speeds and it promises to significantly boost customer experience," she added. Batelco CMO Mike Stanford added that this is the perfect solution to satisfy the requirements of customers using bandwidth-intensive applications noting that it will transform their digital lifestyles tremendously. "The 4G+ network also serves to enhance Bahrain's global position in terms of providing advanced telecommunications services for consumers and businesses. Our provisioning is the result of our ongoing commitment and investment in the Kingdom's infrastructure," Stanford said. "Our technology partner Ericsson with their experience in implementing cutting edge communications solutions have been invaluable attributes in supporting Batelco's aspiration to stay in the forefront of the telecoms industry in Bahrain," he concluded.

be interconnected with other regional submarine cables giving access to onward connectivity to Europe and Asia and major regional landing stations. Batelco CEO Muna Al Hashemi commented: 'Batelco is investing in the new system and also highly reliable equipment to operate and maintain it, as part of our endeavors in developing world class networking services to support the Kingdom's efforts and promote Bahrain as a hub for innovative communications services.'



Microsoft to buy LinkedIn for \$26.2 billion; LinkedIn to keep the identity

Microsoft Corp will buy LinkedIn Corp for \$26.2 billion in its biggest-ever deal, a bold stroke by Microsoft CEO Satya Nadella in his efforts to make the venerable software company a major force in next-generation computing. By connecting widely used software like Microsoft Word and PowerPoint with LinkedIn's network of 433 million professionals, the combination could enable Microsoft to add a suite of sales, marketing and recruiting services to its core business products and potentially challenge cloud software

rivals such as Salesforce.com Inc. "LinkedIn and Microsoft really share a mission" of helping people work more efficiently, said Microsoft CEO Nadella in a conference call with analysts. "There is no better way to realize that mission than to connect the world's professionals." The \$196-per-share price tag represented a premium of almost 50 percent over LinkedIn's stock market value as of Friday, but was still well below the social media company's all-time high of \$270. Analysts said the price was rich, and Microsoft's stock closed down 2.7 percent at \$50.14. Still, there was cautious optimism that this could be one of the relatively few tech mega-mergers that works out well. "It's a massive growth play for Microsoft," said Forrester analyst Ted Schadler. The deal may also help spur further mergers and acquisitions in the tech sector, where a broad correction is bringing down the prices of public and private companies even as a handful of major players sit on large cash piles. For LinkedIn, founded in 2002 and launched the following year by Reid Hoffman, one of Silicon Valley's most-visible investors and entrepreneurs, the sale marks the end of a classic startup run: funding from top-tier venture capitalists, a long period of building the company and developing a revenue base, then a big initial public offering, followed by a roller-coaster stock price and finally an acquisition. The company makes most of its \$3 billion in annual revenue from job hunters and recruiters who



Batelco, GCCIA launch BGN cable system

Bahrain Telecommunications Company (Batelco) has announced the launch of Batelco Gulf Network (BGN), in a venture with the Gulf Cooperation Council Interconnection Authority (GCCIA). The BGN terrestrial fibre-optic cable system spans 1,400km and runs over the GCCIA electricity power grid, offering high bandwidth and capacity connectivity to all Gulf Cooperation Council (GCC) countries, with Batelco given full responsibility for managing the network. The cable can



pay a monthly fee to post resumes and connect with people on what's often known as the social network for business. The company's growth has slowed recently and investors have become far more cautious on the high valuations of many tech companies - both of which likely figured into LinkedIn's decision to sell, analysts said. For Microsoft, the LinkedIn deal is a chance to reverse a terrible track record with acquisitions, including paying \$9.4 billion for phone maker Nokia in 2014 and \$6.3 billion for ad business aQuantive in 2007. In 2012, it wrote down its aQuantive acquisition by \$6.2 billion, and its cumulative write downs for Nokia total \$8.55 billion. It also paid \$1.2 billion for business network Yammer in 2012 and \$8.5 billion for video-calling tool Skype in 2011. The LinkedIn acquisition could help Microsoft play to its strengths in analytics, machine learning and artificial intelligence, Nadella said on the investor call. LinkedIn and Microsoft both have enormous amount of data about their customers that can potentially be mined to offer automated suggestions and other features that make business processes quicker and simpler. Microsoft noted that the deal brings in a big new customer base: after adding in LinkedIn, the total potential market size of Microsoft's productivity and business-process segment sits at \$315 billion, up from \$200 billion without LinkedIn. Microsoft Chief Financial Officer Amy Hood said the deal would be financed mainly with debt, a way for the cash-rich company to reduce its tax bill. The company has \$105 billion in cash and other liquid assets. Moody's said it was reviewing Microsoft's rare AAA debt rating for a possible downgrade. LinkedIn CEO Jeff Weiner will remain with the company, which will be operated as a separate unit and retain its name.



Batelco first telco in the region to achieve the new ISO 9001:2015

Batelco, Bahrain's leading digital communications provider has been announced as the first

telecommunications company in the Middle East to be awarded with ISO 9001:2015 certification from the BSI Group (British Standards Institution). Batelco successfully completed the certification audit to the newly revised ISO 9001:2015 Standard on March 30 surpassing the internationally agreed 3-year transition period. In addition to being the first telecom company in the Middle East to receive the certification, Batelco has the honor of being the first company in Bahrain to achieve this standard. The British Standards Institution which shaped the original Quality Management Standard that became ISO 9001 has worked with Batelco since 1996, helping the organization to embed the standard to cover all business units of Batelco and to achieve sustainable performance improvements. ISO 9001 was originally written with the customer in mind and that remains the priority for ISO 9001:2015; this is in line with the strategy adopted by Batelco which addressed each layer of the organization towards Superior Customer Centricity. The ISO 9001:2015 certificate was presented to Batelco Bahrain Chief Executive Eng. Muna Al Hashemi by BSI Middle East and Africa Regional Managing Director Theuns Kotze at a ceremony held at Batelco's Headquarters in Hamala on June 9. A number of Batelco executives and officials who were instrumental in completing the ISO process were in attendance. Mrs. Al Hashemi said that Batelco was really delighted to be the first telecommunications company in the Middle East and the first company in Bahrain to achieve certification to ISO 9001:2015. "I extend my appreciation to all our staff who worked so diligently to reach this notable achievement which makes us very proud." The ISO 9001 Quality Management System, the world's most popular management system standard, is used by over one million organizations around the world. Batelco General Manager HR & Corporate Services Suhaila Alnowakhda added that the recognized Quality Management System helps organizations to run more efficiently and profitably by providing a framework for consistent performance, reliable service and long-term continuous improvement. "Quality has always been at the heart of Batelco, and this certification is another successful step towards an efficient Quality Management System that improves efficiency and ultimately

improves customer satisfaction. Batelco has achieved this by combining the process approach with risk-based thinking, and employing the Plan-Do-Check-Act cycle at all levels," she added. Commenting on the occasion Mr. Kotze said that ISO 9001 outlines ways to achieve, as well as benchmark consistent performance and service, by putting in place processes that allow companies to improve the way they operate at all levels and place the needs of its customers as a priority. "This certification is evidence of Batelco's continuous effort and commitment to best practices. I would like to congratulate the entire project team, senior management and all staff members who were involved in this project." Formed in 1901, BSI was the world's first National Standards Body and, over 100 years later is globally recognized as the champion of best practice. BSI is also responsible for originating many of the world's most commonly used management systems standards and currently has 37,384 standards in their portfolio. BSI works with over 80,000 clients in 182 countries worldwide to help them adopt and cultivate the habits of best practice.



Microsoft to continue building the ecosystem

Back in March, Microsoft had announced that Windows 10 has surpassed 300 million active devices since its launch in July 2015 and now the company claims it is the most successful operating system till date. Despite the initial success, Microsoft is moving away from excessive dependence on Windows to new growth areas like artificial intelligence and conversational bots. At the Build Tour event in Pune, Microsoft announced how the company is realigning its strategies on three pillars—cognitive computing, augmented reality and conversational bots. Microsoft is now relying on platforms like cloud computing and Cortana intelligence suite for its next growth verticals. At the Build Tour, the consensus was strongly in favor of Windows 10. According to NetMarketShare, Windows 10 has

gained lately to reach 17% of desktop platform while Windows 7 is still running on over 48% desktop devices. Technically, that might seem a small number but that market share has come in a matter of just 10 months. Microsoft says Windows 10 users have spent over 75 billion hours using the operating system since the launch and there have been over 5 billion store visits. For Microsoft, the immediate priority is to engage more and more developers and enrich the whole gamut of Universal Windows Platform. At Build 2016, Microsoft CEO Satya Nadella had said, "Our goal is to empower every developer in this world." At the recently held Build Tour in Pune, Microsoft India GM for Developer Experience, Narendra Bhandari said, "Our goal is to provide best tools to developers and help them build great apps for cross-platform utilization." The difference here is cross-platform and not Windows. In the last two years under CEO Satya Nadella, Microsoft has opened its platform to more audience than ever. At Build Tour, the company showed how developers can build apps using Visual Studio and run Xamarin test to simulate the code on Android, Windows and iOS, all at one time. With over 600 developers in attendance, Microsoft senior program manager Jeffrey Burttot said, "We will provide any of the tools developers need to a build scalable platform. Our effort will be to go out to developers wherever they are and bring them onboard with Universal WindowsPlatform." Microsoft, in 2016, wants consumers and developers to see Windows, Office and Azure as intelligent platforms that work together. Microsoft, which lags Amazon's AWS, in terms of revenue announced that over 85% of Fortune 500 companies are using its cloud services. Narendra Bhandari said over 50% enterprises in India rely on Microsoft Cloud for deploying their products or services. He further adds, "With three new data centers now operating out of India, we are poised to reach more startups than ever before." Microsoft is gaining ground on cloud platform but its future is totally dependent on success of its 'Conversation as a platform' bot framework. It differs from other AI majors by creating a platform rather than a product. Microsoft wants developers to again use its framework to build their own conversational bots. The company already has given out

APIs to developers who are building new conversational bots for superior shopping experience with multilingual support. Microsoft's Bhandari said, "The Company wants to develop a platform rather than just a product." Microsoft wants to do what it does best—build ecosystem. Now it wants developers to cash in just like they did when Windows 95 was announced.



Orange Business Services wins Henkel hybrid network, security deal

Orange's enterprise arm will supply a hybrid network covering 355 locations to consumer and industrial goods manufacturer Henkel after winning a five-year deal. The contract sees Orange Business Services provide a range of services to around 50,000 staff at the owner of the Persil, Schwarzkopf and Loctite brands. OBS will combine multiple technologies including Business VPN Internet and a managed security solution that enables Henkel to apply real-time controls to respond to emerging threats. Financial details of the contract, which covers North and South America, Central and Eastern Europe, Middle East and Africa, were not disclosed. Uwe Wirtz, Head of Service Delivery IT, Integrated Business Solutions at Henkel, said: "Seamless global communications with outstanding security capabilities are vital for us." Anne-Sophie Lotgering, Senior Vice President, Europe, Russia and CIS at Orange Business Services, added: "This new partnership between our companies will enable Henkel to grow their business on a global scale with confidence in our managed security services, while meeting their objective of reducing overall IT and telecommunications costs." OBS saw revenues grow over two percent in the first three months of the year thanks to an increase in sales of IT and integration services. Last month, OBS expanded its presence in Lagos as businesses in Nigeria, notably in the financial sector, show high growth rates.



Omantel confirms landing of submarine cable system

Oman Telecommunications Company (Omantel) celebrated the milestone landing of the Asia Africa Europe-1 (AAE-1) submarine cable system in Oman at a ceremony on Monday in the Al Bustan area of Muscat. The third longest submarine cable in the world spanning approximately 25,000 kilometers, the AAE-1 is one of the first unique cable systems to connect 18 countries across Asia, Africa and Europe, all via Oman. The cable will provide an alternative and low latency short route between the east and the west while covering 50 per cent of the world's population. Commenting on the historic achievement for the AAE-1 cable landing, Omantel CEO Talal Al Mamari said, "Today we are actualizing yet another embodiment of our new strategy Omantel 3.0 witnessing the milestone landing of the AAE-1 cable in Oman. As one of the longest submarine cables in the world, this achievement for Omantel and the Sultanate is undoubtedly making us feel proud." "The AAE-1 cable represents another step in enhancing our position as a truly international telecommunications player. Already over half of the international submarine cables that connect to the Arabian Gulf are connected through Omantel here in Oman. In the coming years, further extending our reach internationally is a key focus for Omantel, and a central goal of our 3.0 transformation strategy," he added. Omantel's extensive international network will provide additional protection and diversity to the AAE-1 cable system through other systems like EPEG, which is another major high-capacity system consisting of redundant undersea cables to Iran and onwards terrestrial cable all the way via Azerbaijan and Russia to Frankfurt avoiding existing heavily congested cable systems and crowded bottlenecks on the route between Asia and Europe. The cable will provide additional capacity and diversity for telecommunications capabilities in Oman. "Throughout history Oman has always been a gateway to the region,

facilitating trade and commerce from East to West and West to East. At Omantel, we aim to continue our nation's proud tradition, this time facilitating the transfer of information, in this new digital age," continued Talal Al Mamari. Recently, Omantel landed the AAE-1 cable in the southern French city of Marseille, becoming the first GCC operator to land a submarine cable in Europe. Earlier this year the Company also joined in a consortium with several East African telecommunications providers to lay the Gulf to Africa (G2A) undersea fiber optic cable. The move represented the first phase of Omantel's planned expansion into East Africa. In the international wholesale arena, Omantel is considered one of the most prominent and competitive wholesale telecommunication providers in the Middle East. In addition, it is one of the leading companies in the field of undersea cable networks and a key participant in several submarine cables, complemented by direct terrestrial links, which link Asia, Europe and America passing through Oman to meet the growing international capacity requirements of customers locally and internationally, thereby sustaining the Company's leading position among its competitors. Omantel's wholesale strategy is to be a carrier of carriers and to be the link between the East and the West for the region and beyond.



Facebook as well as Turkish public and private sectors. Turkcell's new data center is spread over a total area of 33,000 m2. The active area – known as the "white space" - consists of 20 rooms of 500 m2 each. The building has 33 thousand meters of fiber connections. The infrastructure is supported by a 30-megawatt energy capacity and 25 generators of 2500 KVA each. Security is maintained with retina-scanning technology, 146 cameras and 6400 control sensors. Designed as a data center from the onset, Turkcell's building in Gebze has a Tier III design certificate as well as a Leed Gold certificate - a mark of sustainability and energy efficiency. With 312 earthquake isolation units, the datacenter can withstand earthquakes of magnitudes of up to 9.0 on the Richter scale. The walls and doors of the building are fire-resistant. As the leading provider of fiber services in Turkey, Turkcell cooperates with international partners like Deutsche Telekom, Telecom Italia, Telekom Austria Group, KPN and Tata Communications. Turkcell network supports more than 2 Tbps bandwidth in its international connections. In addition to the data traffic of Turkey, 50% of the data traffic to Georgia, Iraq and Iran goes through the Turkcell network. In addition to serving its local customers, Turkcell now aims to expand its international collaborations into providing cloud services for global content companies and act as a node for international data traffic. As the global landscape of industrial production shifts to an ICT-focused mode with Industry 4.0, storing data safely and securely, and attaining the ability to analyze it become essential. With this new data center, we are providing the infrastructure for

Turkey-based companies to benefit from these capabilities using the state-of-the-art technology at the highest global standards." said Kaan Terzioğlu, CEO of Turkcell. "With our technology leadership in Turkey and international collaborations, we will establish a new Silk Road of information on fiber, and contribute to raising the profile of our country as a regional hub of information." With the new data center in Gebze, Turkcell triples its total data center space, reaching 52000 m2. The company also announced plans to open two new data centers in Ankara and Izmir, the second and the third largest cities of Turkey, in the coming 18 months. Upon completion of these two data centers, Turkcell will have 107,000 m2 of data center area.



Turkcell opens Turkey's largest data center

Turkcell unveiled Turkey's largest data center in Gebze, near Istanbul. With its new building, Turkcell aims to transform Istanbul into a regional hub of data, and serve global internet companies such as Google and



Mr. Kaan Terzioğlu, CEO, Turkcell



Zain wins five prizes at Global Telecoms Business Innovation Awards

Zain Group, a leading mobile telecom innovator in eight markets across the



Mr. Scott Gegenheimer, CEO, Zain Group

Middle East and Africa, announces the unprecedented award of five prizes at the prestigious 2016 Global Telecoms Business (GTB) Innovation Awards held in London last week. Zain Group Chief Strategy and Business Development Officer (CSBDO), Emre Gurkan was on hand to accept several of the awards, having earlier being a key-note speaker at GTB Innovation Summit where he outlined Zain Group's innovation strategy to a distinguished audience of telecom executives from across the globe. Zain's first prize of the night was for Customer Service Innovation and Offerings based on Disruptive Technological Platforms due to its cooperation with UBER, which it announced in September 2015 and is based on a partnership to offer Zain customers discounted and preferential services when using the UBER platform locally and abroad. Ovum identified that for Zain, UBER's continual growth across the region is a bonus having the potential to create incremental revenues, attract new customers, and increase customer loyalty, all factors which captivated the judging panel of GTB. Thanking the judging panel on the numerous wins at this year's GTB Innovation Awards, Zain Group CEO, Scott Gegenheimer said, "The breadth and depth of the prizes we have won this year across several of our operations signifies that we are not just innovating for innovation's sake, but that the services and initiatives we are developing are really impacting people's lives positively. I would like to thank all Zain staff members for their dedication and focus, which allows us to be recognized in such a fashion." The life-enhancing mobile service was launched in partnership with eServGlobal. Zain's operation in Jordan received further accolades as it was recognized for the launch of its "Al-Basmah" prepaid line tailored specially for the deaf. The line was launched in collaboration with the Higher Council for Special Needs and the Public Security Directorate. The "Al-Basmah" line, a name meaning "smile" in Arabic, includes several features that assist deaf people, providing them a bundle of on-network video calls, voice calls, SMS and internet access on its 4G network. Touch the mobile operation managed by Zain in Lebanon, was drawn out for

special mention in two categories, the first being in recognition of its strategy to penetrate the digital world having developed and introduced the touch app on Apple watch. Created by FOO, a mobile solutions entity that Zain recently made a strategic stake in, the distinctive app allows customers to check their line balance, credit and validity, in addition to bundles (voice, SMS and/or data) consumption, on-the-go and in real-time. The application is one of only a few of its kind in the region, and it has received one of the highest rankings for self-care apps on Android. The application builds on touch's strong app positioning (over 850,000 downloads). The second award for the Lebanon based operator saw Touch recognized for introducing an augmented reality feature to engage customers using a unique popular mobile app, again created by FOO Solutions that saw over 800,000 downloads during the holiday seasons. Having been customized to reflect the festive period, various themed animations were triggered by snapping the touch logo through the camera interface of the mobile app. Customers shared these animations along with selfies and photos creating creative augmented reality art. Customers also mentioned #touchgreetings in their posts and won valuable prizes. Emre Gurkan, Zain Group CSBDO concluded, "The complexity of the telecommunications sector is ever changing and in order to stay abreast of it and remain successful, it is necessary to review and adapt our innovation strategy on a regular basis, in order to move Zain Group successfully to a digital future." Gurkan added, "We established the Zain Digital Frontier and Innovation (ZDFI) business unit to thrust Zain into the digital space by identifying new business areas, value-adding strategic partnerships, accretive acquisition opportunities and synergistic corporate venturing investments. Collectively, these activities look to create new revenue streams to maximize the group's high-speed 4G-LTE broadband networks, customer assets, network intelligence and payment and billing frameworks. ZDFI focuses on the areas of innovation; digital services; corporate venturing; and smart cities."



Ooredoo launches 1-Gbps fiber broadband in Qatar

Ooredoo Qatar has launched a 1-Gbps fiber broadband offering and a new premier WiFi service designed to provide better coverage for customers living in large homes. The telco announced the arrival of 1-Gbps fiber at the weekend, although it has not disclosed how widely available the service is. "We are one of the first operators in the world to launch 1-Gbps fiber home services and the very first in Qatar," said company CEO Waleed Al Sayed, in a statement. "Ooredoo believes in future-proofing our network, and we continue to strive to bring our country the latest technology first," he said. The 1-Gbps service costs 1,900 riyals (€469) per month, including a landline service and access to Ooredoo TV. However, customers upgrading from an existing fiber package will be given the first two months at no extra charge. By way of comparison, Ooredoo's 300-Mbps service, also including landline and TV, is priced at QAR700 per month, while its entry-level 10-Mbps offer costs QAR250 (€62) per month. There are other packages in between. Alongside the 1-Gbps launch, Ooredoo presented its new Platinum HomeZone product designed, in its own words, to offer "full WiFi Internet coverage for customers with large villas and mansions." Essentially, the service provides additional Internet points in large houses, ensuring a better WiFi signal in-building and throughout the grounds. "Customers can even enjoy WiFi coverage in their gardens and swimming pools by deploying the service," the telco said. "We heard from our VIP customers that they wanted comprehensive WiFi coverage in their villas, and have partnered with companies who can deliver the additional hardware and ensure it blends seamlessly into their home environments," Al Sayed said. Ooredoo worked with wireless networking specialist HPE Aruba on the service, as well as IT solutions firm GBM, which will handle installation and operation on its behalf.



▼ REGIONAL NEWS

REGIONAL UPDATES

Telecom Egypt, Etisalat negotiating €500m-plus loans for 4G licenses

Telecom Egypt and rival Etisalat Egypt are reportedly in talks with financial institutions with a view to securing loans to cover the cost of their 4G licenses. Both operators are holding discussions with banks for loans of 5 billion Egyptian pounds (€511 million) each, Reuters reported on Thursday, citing unnamed sources from the banking community. The newswire did not provide further information. A month ago Orange's Egyptian unit revealed that it had been asked to pay EGP3.54 billion for a 4G concession. At the time Reuters quoted the Egyptian regulator, the National Telecom Regulatory Authority, as confirming that it has approached all three of the country's mobile network operators regarding 4G licenses. However, the license terms and conditions, including price, are not the same for all three. Telecom Egypt is not currently a mobile network operator in Egypt, but has been working towards becoming a unified player. It holds a unified services license that, once activated, will enable it to offer mobile services in its own right, as opposed to its current MVNO arrangement with Vodafone's local unit. Reuters said Telecom Egypt has been granted a 4G license, but did not specify how much it has agreed to pay.

Mideast digitization of governments services on the rise

As global organizations are digitizing faster and moving online and mobile to conduct business, the Middle East is catching up with the rest of world in terms of data growth and digitization, according to Deloitte's latest report "Are you a data driven organization?" "There are several initiatives underway in the Middle East towards greater digitization of the Government Services. For example, as a part of the preparation for Expo 2020, the UAE government is working towards delivering world-class smart services and infrastructure to its citizens" said Rajeev Lalwani, consulting partner and technology leader at Deloitte in the Middle East. "The UAE Smart Government is another initiative that will drive digitization of all essential services for its citizens and residents and will result in tremendous data growth." "Organizations that harness data to gain insights of their customers will position themselves for better success in the long haul. And while the market is going through a hype cycle particularly around the big data and internet of things it is critical to note that a strong data foundation is required to handle the future data growth" he added. According to the Deloitte report, the data foundation of any organization is laid out by enabling many data management functions as

outlined below: Data governance: it is a discipline originating from enterprise information management. A typical data governance framework will have four guiding principles including: viewing data as a strategic asset, linking to strategic initiatives, enabling a comprehensive change management program, and being driven by business value. Data quality: it is typically measured in terms of accuracy, consistency, relevance, integrity, accessibility and serviceability. A typical data quality framework will address the data quality issues of an organization from three angles: people, process, and technology. Data architecture: it is an important part of information management as it allows data integration across the enterprise. Laying the foundation for data architecture enables data modeling, master data management and metadata management. "Establishing data-management capabilities requires significant investment in financial, organizational and human resources, and the benefits will be realized over a longer term as opposed to immediate results," concluded Lalwani. "Companies that invest proportionally to manage data as a strategic asset will stand a greater chance of success in today's competitive global economy."

Challenges for MVNOs to deliver quality in the South-Asian market

With the telecom regulator issuing guidelines for mobile virtual network operators (MVNOs, or VNOs) earlier this month, India is set to herald an era of no-frills telecom services. Consider them the low-cost airlines of the telecom industry. MVNOs buy airtime in bulk from existing telecom operators and sell branded SIMs to users in niche markets, which could include specific user groups - low-paying users, data-only users, roaming users (for both calls and data), non-roaming users, migrants and youth. In mature markets, they've captured as much as 10 per cent of the subscriber base. In India, Future Group, Datawind and Paytm have expressed interest in MVNO operations. However, India may have mistimed its MVNO foray. For one, in a market where the primary telecom operators themselves are offering sub-standard voice and data services, MVNOs - who buy connections from networks, such as Airtel, Vodafone, Reliance, Idea, etc. - are unlikely to be

able to offer any better services. In fact, they will be in no position to address subscribers' grievances about poor services, since they have no control over the physical infrastructure of the host operator. Two, while most markets where MVNOs have been successful have four to five operators, at best, in India, most states have up to 12 operators. Besides, since they sell lower-priced voice and data packs, MVNOs will have a tough time creating a market for themselves. The average revenue per user (ARPU) in India are already among the lowest in the world. Undercutting that will either extend MVNOs' gestation period or leave them deep in the red. As per a McKinsey & Co 2014 report titled Virtually Mobile: What drives MVNO success, "depending on the MVNO operational model and the segment of the target market, investment payback can usually be expected in four to six years". Also, historically, carriers have refrained from entering into agreements with MVNOs fearing they may lose premium customers to them. In France, for instance, some carriers have resisted renting 3G airwaves to MVNOs. The scenario is changing, though. Telecom players may not give the same attention to their potential customer groups, because these niche markets lie beyond the traditional marketing approaches or are too costly to serve. MVNOs have had a rough experience in India. In 2008, Virgin Mobile tied up with Tata Teleservices to launch its MVNO service targeted towards the youth. Like Tata Teleservices' core business, the venture did not do well and was merged with Tata DoCoMo last year. Managing costs seems to be the key. MVNOs have to work on multiple fronts - for instance, decide on which services should be outsourced and which have to be managed in-house. "Winning MVNOs minimize costs by selecting the right mobile virtual network enablers to assist with key operations such as billing and administration," says the McKinsey & Co report. Almost 80 per cent of MVNOs' costs such as wholesale airtime costs, customer acquisition and marketing expenses are variable. The success of MVNOs like Telmore (Denmark), Simyo (Germany) and TracFone (US) suggests that they can achieve commercial viability by being innovative with the cost structure. For instance, TracFone has kept acquisition costs low by relying on neighborhood grocery stores. As per GSMA research, MVNOs largely operate in markets

where mobile penetration is over 100 per cent because operators are looking at newer ways to attract new customers. India's market penetration stands at around 75 per cent, which is different from the global scenario. But in mature markets like Delhi and Mumbai, it has crossed 100 per cent. Striking the right partnership with carriers is crucial as MVNOs can ensure that their wholesale airtime rates are low enough to prevent the host network from reducing its own customer-facing prices. On an average, a host network takes away around 30 per cent of MVNOs' revenues for using their network. Globally, there are over 1,000 MVNOs; the largest multinational players being Lycamobile, Lebara and Virgin Mobile. Walmart, WhatsApp, Xiaomi, Alibaba and Tesco also have MVNO services. As per GSMA Intelligence, around 9 per cent of MVNOs offer data-only services via dongles and Mi-Fis. The international MVNO market has gone through several phases. The first dates back to the start of the millennium when players offered basic products. The next phase began in mid-2000s, when the voice market got saturated and 3G technology was taking off. By the end of the last decade, most players folded up due to over-segmentation of the markets. Players with a focus on budget prepaid segment and sub-brands of some telcos - Virgin Mobile and Boost Mobile - survived. Since 2012, the market is seeing a sudden rush of players setting up MVNO operations. Why now? Till a few years ago, telecom players adopted prohibitive pricing for MVNOs, making their business models unsustainable. However, they have become flexible of late. According to Transparency Market Research, the global MVNO market is projected to expand at a CAGR of 7.4 per cent between 2015 and 2023. In 2014, the value of this market was pegged at \$39.1 billion. In developed countries, MVNOs typically capture between 10 and 40 per cent of the total market. It takes about \$0.7 million to start MVNO operations. Meanwhile, this space is witnessing deals. In April, telecom and mobile payments technology provider MIUS joined hands with UK-based MVNO management consulting firm Hebitel to help companies launch MVNOs in India. The new norms may have some takers early on and will certainly add depth to the telecom market. However, given the changes in the telecom sector currently, the scenario looks slightly hostile for MVNOs.

UAE's mobile phone market estimated at \$1.8 billion

Mobile phone sales in the UAE count for 700 to 800 thousand phones per month, of which 80 to 85 per cent is smart phones, while the value of the market is estimated at \$1.8 billion, according to Ali Salem, Founder, Fast Telecom, the UAE prominent group specializing in smart devices and tablets. "The smart phone market in the UAE is supported by several factors that contribute to the continued growth of the market," Salem said in a press briefing recently in Dubai. The use of more than one device per user, the local culture of replacement and users shifting from traditional to smart phones as prices have dropped to reasonable levels are among other reasons." He noted that mobile phone market in the UAE is robust and vital, as the country is an ideal platform to launch the state-of-art devices and a global hub for launching new brands and distribution of devices in the Gulf and regional markets, it also has the momentum of a large tourist attraction as well as high purchasing power. Salem also pointed out to the fierce competition between "Etisalat" and "du" in offering packages of free data and calls for the customers who buy a selected smart phone, thus encouraging users to buy smart phones without down payments and benefit from packages of data and calls, as well as purchasing gifts for residents and visitors as well. Established in 2002, Fast Telecom has currently eight outlets to distribute devices in the UAE and 12 branches in all Arab countries, most notably in the UAE, Saudi Arabia, and a large number of countries in the region including Egypt, Iraq, Tunisia, Morocco and Jordan. The Group is also the agent of 21 brands covering most of the smart phones and the most famous devices around the world. As for "Fast Telecom" plans to provide projects and ideas related to the "government" and "Smart Dubai", Salem made sure his group offers a range of innovative ideas and projects that relate to the Dubai transformation of smart government initiatives "We plan to the expand the distribution work with telecom operators in the Gulf countries and the region through partnerships. We began with signing an agreement with the "Emirates Telecommunications" nine months ago, and planning to sign with "Etisalat"

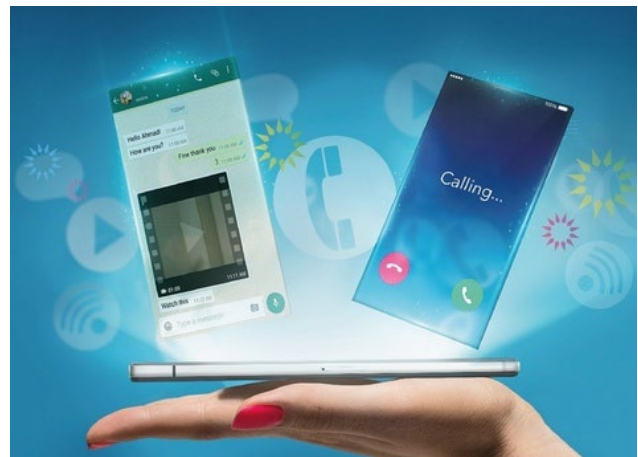
soon, in addition to strengthening our partnerships with other players such as "Omantel" and "Zein". He mentioned that his company expects 3 per cent growth in the smart phone market this year compared to 2015 after the market has achieved significant growth rates over the past few years. He made clear that "Fast Telecom" tends to start the distribution of tablet devices in schools and higher education sector through signing agreements that ensure the supply of devices within the smart education initiatives adopted by schools and universities in the UAE market. Salem pointed out that "Fast Telecom" has also repair and maintenance centers in the UAE, with high efficient staff. They received awards from global brands in this regard, the latest of which was from "Samsung" for the high quality maintenance and repair of devices. He believed that mid-priced smart phones harvested a very large share of the market which encouraged the spread of smart phones in the market in general.

Ooredoo Algeria announces 'pre-commercial' 4G launch

Ooredoo Algeria has announced a pre-commercial launch of 4G LTE in Tlemcen, one of three provinces (wilayas) chosen for its first-phase 4G deployment alongside Tizi-Ouzou and Bechar. A pre-commercial launch event was held on 11 July in the presence of local authorities, director general of Ooredoo Joseph Ged, and the press. Ooredoo received its 4G LTE operating concession in late-May alongside rivals Algerie Telecom Mobile (Mobilis) and Optimum Telecom Algerie (Djezzy), and that month also completed LTE tests in partnership with Nokia, reaching a maximum mobile data speed of 75Mbps. Regarding the upcoming commercial 4G launch, Ooredoo stressed that 4G prices for users will be the same as 3G, and that network coverage of 48 provinces can be achieved 'very quickly'.

Zain Kuwait launches VoLTE

Zain Kuwait has announced the commercial launch of voice-over-LTE (VoLTE) technology on its LTE-Advanced (LTE-A) network, reports Zawya. After completing 'extensive research to test the readiness of its network', the cellco has confirmed VoLTE as currently being compatible with the following devices: iPhone 6/6s, iPhone 6 Plus/6s Plus, iPhone SE, Galaxy S6, and Galaxy S6 Edge.



VimpelCom to make \$1 billion investment in Pakistan over five years

One billion dollars investment would be made in Pakistan during the next five years, Chief Executive Officer of VimpelCom Jean-Yves Charlier said here. Addressing a press conference, he said, "Mobilink and Warid will benefit from VimpelCom's \$1 billion investment in building one of the largest and most ambitious IT infrastructures in the industry. The new digital systems will enable faster roll-out of new local products and services, particularly in the areas of mobile entertainment, communications, the Internet of things and mobile financial services. He said that 50,000 new jobs across Pakistan would also be created in next five years. He added: "Over 50 million customers in Pakistan will benefit from high-speed mobile telecommunications and a best-in-class digital mobile network. The combined Mobilink and Warid entity will be the leading telecommunications provider of 2G, 3G and LTE services in Pakistan, providing higher quality national voice and data coverage, faster downloads, and a wider portfolio of products and services. He said around 1500 Mobilink-Warid franchisee shops would be opened across the

country. The CEO said, "Our focus in future will be to improve and provide better services to the customers. He said that 38 million of customers of Mobilink will be provided 4G while 12 million consumers of Warid will be given 3G services. "We have made a commitment with Prime Minister Muhammad Nawaz Sharif during a meeting to provide our services in remote areas," he added. To a question, he said, "Pakistan has quality and dynamic workforce".

Nepal's Ncell requests new spectrum

Nepal's largest mobile operator by subscribers, Ncell, has requested additional wireless frequencies from the regulator, the Nepal Telecommunication Authority (NTA). Ncell is looking to boost its frequencies so that its holdings match those of rival operator Nepal Telecom (NT). According to a report from the Kathmandu Post, Axiata subsidiary Ncell has requested 1.6MHz in the 900MHz band to give it 9.6MHz, 4MHz at 1800MHz to give it 15MHz, 5MHz in the 2100MHz range to give it 15MHz, and a brand new allocation of 30MHz in the 2300MHz band to match the frequencies that NT currently holds for WiMAX-based services. The NTA says it will look at awarding the spectrum once the country's radio frequency policy has been amended; a new draft of the policy has been submitted to the Ministry of Information and Communication (MoIC) for review and approval. It is being altered to allow for technology neutrality, enabling operators to use their existing 1800MHz spectrum for 4G services.

Etisalat launches VoLTE

United Arab Emirates (UAE) telco Etisalat has launched voice-over-LTE (VoLTE) services for both pre-paid and post-paid mobile customers. The company says it expects the technology to bring 'major improvements' to the quality of voice and video calls, while also reducing call set-up time. Etisalat Group's chief executive officer Saleh Al Abdooli commented: 'Although internet-based chat apps and messengers have gained popularity in recent years, voice calls continue to matter most when people want real-time, interactive and instantly gratifying connection with their families, friends or colleagues.'

Mobilink, Warid merger deal closes

Aamir Ibrahim takes over as CEO of both companies following completion of financial transaction; legal merger due to be completed within six months. The parent companies of Mobilink and Warid Telecom on Friday announced they have completed the transaction that will enable them to merge the two companies, consolidating the former's position as Pakistan's largest mobile operator. A deal announced in November made provision for VimpelCom-owned Mobilink to acquire 100% of Warid's shares, in return for Warid owner the Dhahi Group buying 15% of Mobilink's shares, with Warid then to be merged into Mobilink. The companies did not place a value on the deal. Those share transactions have now taken place, VimpelCom and the Dhahi Group confirmed. Regulatory body the Pakistan Telecommunication Authority (PTA) approved the merger just over a month ago, subject to certain conditions geared towards protecting competition in the market. Together the two operators had 50.1 million mobile customers at the end of May, according to the PTA, giving the combined entity a 37.5% market share; there are 133.5 million mobile customers in Pakistan. The completion of the deal is "very positive news" for the Pakistan economy, Dhahi Group Chairman Nahayan Mabarak Al Nahayan said, thanking the relevant authorities for supporting the transaction. "I am confident that together, the combined businesses will continue to deliver excellence to their customers while contributing positively to the business environment in Pakistan," he said. VimpelCom said the merged entity will benefit from its US\$1 billion IT transformation project, announced last month. The upgrade of its BSS systems will enable it to roll out local products and services more quickly, particularly in the areas of mobile entertainment, communications, the Internet of Things (IoT) and mobile financial services. "Through this, Pakistan's digital development will be elevated to the next level, further reducing the digital divide," the telco said. The integration of the two mobile operators will be overseen by a new CEO. Mobilink chief executive Jeffrey Hedberg will step aside, effective immediately, handing the reins to Aamir Ibrahim, who currently serves as chief commercial officer and deputy CEO of Mobilink.

"I have worked closely with Aamir and the team over the last two years and as I hand over the baton, I have full confidence that Mobilink and Warid will grow from strength to strength," Hedberg said, of his replacement. Al Nahyan becomes chairman of Mobilink, with Jon Eddy, VimpelCom's head of emerging markets, serving as his vice chair. Mobilink finance chief Andrew Kemp also assumes the role of Warid CFO. The legal merger of the two companies is expected to be completed within around six months. Mobilink and Warid will file a petition to the Islamabad High Court in order to commence the process of a legal merger in the near future.

Etisalat demands fair market regulations before 4th operator TE enters

CEO of Etisalat Egypt Hazem Metwali called for putting forth fair market regulations for the mobile market in Egypt, as Telecom Egypt (TE) gets ready to launch as the country's fourth mobile service operator. Metwali directed his call to the National Telecommunications Regulatory Authority (NTRA), as fourth generation (4G) frequencies are being introduced to the Egyptian market. With TE owning the telecommunication infrastructure in Egypt, Metwali stated that negotiations regarding trade agreements of infrastructure rental prices with TE had been ongoing for a few years. However, a final agreement with the company has not been reached until now. "Etisalat is looking into the trade agreements with TE, but everything is still pending," Metwali said. He added that there were no clear details about letters sent by the NTRA about the availability of frequencies for the 4G licenses. It is expected that Etisalat will pay EGP 4.5bn in exchange for a 4G license. Metwali noted that the company has had several meetings with the NTRA, looking into the technical, financial, and regulatory conditions of offering 4G services. Clear regulatory frameworks need to be put in place, regarding the advantages, services, licenses, and frequencies that the company will obtain, Metwali stated. He added that equality, justice, fair competition amongst operators, and a general growth in the sector are key pillars for this framework, assuring that the service users are the ones who will mainly benefit from these regulations. Etisalat Egypt has invested more than EGP 37bn in the local market since

entering it in 2006. An official in one of the mobile operator companies, wishing to remain anonymous, said that pending issues in the Egyptian telecommunications sector must be resolved before approving the 4G licenses and allowing TE to offer 4G as a competitor. He added that TE is the sole owner of the infrastructure in the Egyptian market, which will allow it to monopolize the sector. Moreover, it will be offering mobile and 4G services once it is provided with the license, which will harm the competition in the market. The source wondered why TE was allowed to become a competitor in the mobile market, while monopolizing the sector's infrastructure, and also owning 45% of Vodafone Egypt. This results in unfair market competition.

Maroc Telecom expands FTTH footprint

Maroc Telecom has extended its fiber-to-the-home (FTTH) network to every major city in Morocco, following trials in selected districts of Casablanca and Rabat. The operator currently offers two fiber subscription plans: a 50Mbps connection with unlimited data allowance costs MAD600 (USD61), while the premium 100Mbps subscription is charged at MAD1,000. According to TeleGeography's GlobalComms Database, Maroc Telecom launched FTTH services in selected areas on May 20, 2014.

Transworld Completes 100G Upgrade of its TW1 Undersea Cable

Transworld Associates Private Limited (TWA) has successfully completed the 100G upgrade of its undersea cable TW1, said a statement issued moments ago. The 100G upgrade will combine submarine and company's terrestrial systems into a unified network to ultimately enhance the operational and management capabilities of the TW1 system. Using the state of the art 100G transmission technology, original system design capacity has been increased by six times; adding 36 x 100G wavelengths on each fiber pair and total of 72 x 100G wavelengths which will boost the network assets and enhance the life of the overall cable system. Through this cutting-edge system upgrade Transworld has accelerated and expanded the capability to deliver

to its end users a much improved quality of service experience for our customers. "Transworld is dedicated to providing high-speed, cost-effective, reliable international bandwidth. The 100G upgrade will increase system capacity to meet the expectations for high-quality international connectivity services for our customers," said Kamran Malik (President of TWA). He further added "The flexible upgrade solution will provide options for us to upgrade 400G or 1 Terabit in the future, allowing greater flexibility, while enabling us to maintain our quality and reliability commitments to our valued customers."

Batelco aiming for Kingdom's fastest '4G+'

Bahraini telecoms group Batelco has announced plans for the rollout of '4G+' LTE-Advanced (LTE-A) upgrades across its 4G network, which it claims will be the first of its type in the Kingdom. Rival cellco Viva Bahrain last month announced the completion of a 4G LTE network upgrade boosting maximum theoretical end-user mobile data speeds from 100Mbps to 150Mbps, but Trade Arabia quotes Batelco's Bahrain CEO Muna Al Hashemi as saying that her company will be the first to roll out LTE-A in the market, giving 'better coverage, greater stability and faster performance'. According to Batelco, the 4G+ network rollout has started and will accelerate over the coming months in partnership with Swedish technology vendor Ericsson.

China links Nepal with optical fiber via Tibet

For the first time, China and Nepal have been connected with an optical fiber network via Tibet as infrastructure between the two countries is being firmed up to extend high-speed Internet services to Nepal and end its "sole dependence" on India, Chinese state media reported today. China has extended its optical fiber network to Nepal via Geelong (Keyrong)-Rasuwgadhi border point, "which has ended Nepal's sole dependence on India", Xinhua news agency reported. State-owned Nepal Telecom (NT) said its optical fiber network has been connected to China Telecom Corporation Limited. "After establishing connection, we conducted technical test about two weeks ago," Dilliram Adhikari, joint spokesperson of NT was quoted as saying in the report. Adhikari

said NT would start commercial use of the fiber cable soon. As a result of this Nepal now can be directly linked with Hong Kong Data Centre, which is one of the two biggest global data centers in Asia, through the Chinese mainland, he said. "The use of the Chinese route to connect with Hong Kong Data Centre will help enhancing quality of internet services in Nepal because of shorter distance," he said. Following the setting up of the Chinese optical fiber, Nepal can now purchase Internet bandwidth from Chinese firms. The fiber network brings Nepal Internet services under the ambit of Chinese telecom networks. At present, Nepal's Internet service providers purchase bandwidth from companies from India and other countries. "This will create a competitive environment for purchasing internet services which could reduce the cost of Internet service here," Adhikari said. China has been ramping up its rail and road connectivity with Nepal and backing Prime Minister KP Oli's government in dealing with the Madhesis, largely of Indian-origin, who has been protesting against the new Constitution claiming a raw deal for them. Their months-long protests, blocking Nepal-India border trade points had created a severe crunch of essential supplies in the landlocked Himalayan nation. Besides restarting previously damaged roads to Nepal via Tibet, China in a strategic move last month opened combined road-and-rail services to Kathmandu to speed up supplies. The two have also beefed up their military relations. Admiral Sun Jianguo, deputy chief of the Joint Staff Department of China's Central Military Commission, and Chief of Army Staff of the Nepalese Army Rajendra Chhetri discussed military-military and bilateral ties during Sun's visit to Kathmandu two days ago.

Batelco, GCCIA launch BGN cable system

Bahrain Telecommunications Company (Batelco) has announced the launch of Batelco Gulf Network (BGN), in a venture with the Gulf Cooperation Council Interconnection Authority (GCCIA). The BGN terrestrial fiber-optic cable system spans 1,400km and runs over the GCCIA electricity power grid, offering high bandwidth and capacity connectivity to all Gulf Cooperation Council (GCC) countries, with Batelco given full responsibility for managing the network. The cable can be interconnected with other regional submarine cables giving

access to onward connectivity to Europe and Asia and major regional landing stations. Batelco CEO Muna Al Hashemi commented: 'Batelco is investing in the new system and also highly reliable equipment to operate and maintain it, as part of our endeavors in developing world class networking services to support the Kingdom's efforts and promote Bahrain as a hub for innovative communications services.'

Qatar's commercial sector to spend \$2.8 billion on ICT by 2019

Total ICT (information and communications technology) spending by Qatar's "commercial sector" is projected to increase to nearly \$2.8bn by 2019, shows a new report by the Ministry of Transport and Communications. The total ICT spending by the country's commercial sector stood at \$1.9bn in 2015, according to "Qatar's ICT Landscape 2016: Business". For more than a decade now, Qatar's investments in state-of-the art ICT infrastructure, skills development and e-government have created a positive impact on all sectors in the state. In 2014, the total revenue generated by the ICT providers in Qatar was estimated to be close to QR9bn, reflecting a compound annual growth rate (CAGR) of 15.4% for the period 2012-2014. In addition, ICT investments are transforming businesses of all kinds. ICT has improved the quality of products and services, provided access to new geographic markets, allowed better customer relationship management and provided access to better quality raw materials and services. The report shows that 83% of establishments who were surveyed believe their businesses have benefited from ICT, with nearly half saying that ICT helps them access customers in new geographies and expand their potential market. Improved quality of products and services was cited as a key benefit by 37% of surveyed businesses, followed by faster delivery (30%) and better customer relationship management (23%). In addition, following the worldwide trend, the ICT industry is helping to fuel the growth and diversification of Qatar's economy. While the ICT industry in Qatar is still mainly import dependent, all leading ICT products and services are currently available in Qatar, mainly through resellers and service providers. The ICT enterprises

(close to 550 estimated to be operating in Qatar) have largely benefited from ICT-related government projects and view the government as a key driver in the future growth of the sector. A total of 83% of the ICT enterprises in Qatar reported having worked with government organizations at least once between 2012 and 2014, and about one-quarter reported working on more than 10 government projects. Moving forward, the economic growth of Qatar (27%) and the increasing use of IT solutions in all industries (25%) were cited by the ICT industries interviewed as the top two drivers of ICT industry expansion in Qatar. In addition, nearly 40% of the ICT enterprises also reported that government initiatives, the FIFA World Cup and the Qatar National Vision 2030 also played a critical role in driving the ICT market. These and other findings are part of this broad-based research study that examines the current levels of ICT access and usage among businesses in Qatar and measures the development of the ICT sector. The study, based on a survey of some 1,093 business establishments spread across industry sectors, was conducted between March 2015 and May 2015. In addition, in-depth, face-to-face interviews were conducted with 300 ICT providers during that same period. The report estimates that in Qatar there are 44,439 business establishments (excluding specific government bodies) employing 1,233,110 people. Overall, a review of the ICT landscape showed that since 2010, Internet penetration had shown a steady increase and stood at 70% among business establishments in 2015, while computer penetration remained flat and was at 76% last year. The web presence nearly doubled from 20% in 2010 to 39% in 2015; however it has remained relatively flat since 2012.

Pakistan Transparency & Fairness Recognized by World in Spectrum Award: Anusha

The recent award of 850 MHz to Telenor by Government of Pakistan is again a success story as its transparency and fairness is recognized by the global ICT Industry-said by Anusha Rehman in a post award press briefing at Pakistan Telecommunication Authority (PTA) Headquarters. PTA has earlier announced "Telenor Pakistan" as the winner of its 850 MHz spectrum

award in Pakistan. Following were the details shared by the Chairman PTA of entire 850 MHz Spectrum Auction 2016: Broadband

Proliferation plays major role in socio-economic development of a country in the modern world. Government of Pakistan has always taken steps for the growth of telecommunication sector keeping in view the future market trends and technological advancements. The NGMSA spectrum auction held in 2014 is a testament of government's commitment to bring the latest technologies for proliferation of mobile broadband in the country. 3G and 4G services usage trends show the appetite for high data rates in the market. Pakistan Mobile Broadband percentage is now more than India, Nepal and Bangladesh. At the end of April 2016 the Mobile Broadband Subscribers were 28.7 Million. PTA hired a UK based consultant, Inter Connect Communications (ICC), for market assessment on October 31, 2015. Subsequent to the consultation, MoIT&T issued a Policy Directive for the "Unsold Next Generation Mobile Services (Spectrum) in Pakistan". The policy directive identified one block of 10 MHz in 850 MHz band i.e. UL: 824 – 834 MHz/DL: 869 – 879 MHz with a base price of USD 395 Million. The Information Memorandum (IM) was prepared and published on PTA website followed by advertisements both in local and foreign print media. The IM contained all the necessary details from submission of applications to award of the license. Salient features of the IM are listed below:

- One block of 10 MHz paired spectrum UL: 824 – 834 MHz/DL: 869 – 879 MHz is offered for auction.
- The base price is USD 395 Million.
- Existing licensees as well as new entrants are encouraged to participate.
- Applicants shall apply as per the provided checklist.
- Interested parties can raise queries (if any) within 15 days from 2nd May 2016.
- An information session will be held with the prospective applicants for further clarifications.
- In case of one applicant, spectrum will be awarded at the base price.

In accordance with the IM, an information session was held on 23rd May 2016 to clarify any queries by the prospective bidders. Chairman

PTA, Dr. Syed Ismail Shah chaired the session whereas representatives from Mobilink, Telenor, WorldCall, Multinet and senior officers from PTA attended the session. The participants were briefed about different aspects of upcoming auction process and arrangements. The information session provided professional analysis on the whole bidding process as per PTA's Information Memorandum (IM) and for the successful completion of auction in a transparent manner. The application of Telenor was evaluated in accordance with the terms and conditions of the IM and found complete in all respects. The applicant has been notified accordingly.

Since only one applicant, Telenor, has applied, hence in NGMS spectrum of 850 MHz band it will be awarded:

UL: 824 – 834 MHz

DL: 869 – 879 MHz

Telenor will be awarded this spectrum on base price of USD 395 million in accordance with the schedule given in the IM. The license will be awarded to Telenor within 30 days of payment.

Qatar could further propel global \$23 billion digital signage industry

Qatar will play a significant role within the \$23bn global digital signage sector. The major driving force for this growing demand is expected to come from retail, commercial, healthcare, tourism, education and the massive infrastructure development sectors, says a top official of a UAE-based consulting firm. Abdul Rahman Falaknaz, Chairman of International Expo Consults (IEC), referring to a report by Global Market Insights Inc, said that the global digital signage industry is expected to touch \$23.02bn by year 2023. "Investments within the government and educational sector and the need for enriched user experience and subsidized prices for display panels will all facilitate the growth of this sector. Several mega projects in the GCC region are in various stages of construction. With global mega events, particularly FIFA World Cup 2022 in Qatar and the World Expo 2020 in the UAE and the will also trigger the need for high-end digital sign ages in this region. Despite the oil and market conditions, the retail establishments in the middle east market are upbeat on this digital signage technology," said Falaknaz. IEC is the organizer of 'The SGI Dubai show', one of the

most anticipated events of the year in the Mena region within the signage, digital signage, retail signage solutions, outdoor media, screen and digital printing industries. To address the growth in this demand the company aims to bring in exhibitors from across the globe within touch, multi touch, gesture control, mobile, signage with augmented reality and social media integration, animated displays, digital score cards, display panel technologies, video walls and other state-of-the-art mounting systems. "The need for digital signage in organizations includes navigation, point of sale, point of transit, communication, promotion and advertising and infotainment. Competition between prominent vendors and new players is anticipated to effect in product innovation for attaining diversity in digital signage. There has been a surge in demand in niche segments like healthcare services and educational institutions which has contributed to this particular technology implementation," added Sharif Rahman, CEO, International Expo Consults. There are several distinct advantages of employing digital signage over static displays. The attention can be diverted and the purchasing decision right at the point of purchase can be encouraged by the means of the digital signage content. The related costs of creating and distributing print-ad campaigns can be excluded by the implementation of digital signage. The capacity to change promotions immediately for different customers or various products is quick as it offers immediate results. Digital signage has come across not as just another option but a vital tool within the marketing mix as the industry unveils innovative offerings.

RCOM and Aircel to agree on merger terms in early July

Reliance Communications (RCOM) and Aircel are expected to finalise a merger agreement in early July, the Economic Times reports, citing officials with knowledge of the matter. According to the sources, negotiations are in their advanced stages and the duo are finalizing various legal and commercial terms of the agreement. Under the deal, RCOM will spin off its wireless operations into a new company which would then be merged with Aircel. The enlarged cellco will operate under a new brand name and will be split 50:50 between the two partners. Following the merger,

the two companies plan to introduce another foreign investor, with Sistema – whose Sistema Shyam Teleservices Limited (SSTL) is due to be rolled into RCOM via a separate deal beforehand – and US investors reportedly amongst those under consideration. The merger is expected to generate costs savings of around INR25 billion (USD372.6 million) annually, and the combined entity is anticipating EBITDA of INR50 billion to INR60 billion in the financial year ending 31 March 2018.

Operator to consider launch digital health initiative in Pakistan

Telenor will consider launching its digital health service 'Tonic' in Pakistan if it succeeds in Bangladesh, Daily Times has learnt. Recently, Telenor unveiled its first move to improve healthcare in emerging markets, with the introduction of its digital health service Tonic in Bangladesh. Sajid Rahman, Chief Executive Officer (CEO) Telenor Health, responding to a question, said 'We have decided to focus on Bangladesh in the initial phase. However if this is a success in Bangladesh, we will consider launching it in other countries as well, including other Telenor markets'. In Pakistan, Telenor is already looking into some smaller scale Health initiatives, added Rahman. Tonic is one of the first digital offerings to connect the dots across the healthcare ecosystem and address the full spectrum of wellness and health needs through a mobile-based integrated digital service. From prevention-focused digital content to phone-based primary care information to financial assistance (discounts and insurance) for hospital care, Tonic focuses on each member's unique health needs and is designed to provide incentives that promote greater health over the long term. "Harnessing technology in order to address basic health challenges is an area of growing interest for Telenor, especially in countries like Bangladesh," said Sigve Brekke, President and CEO of Telenor Group. Currently, Telenor serves more than 185 million customers across Asia. Tonic Doctor enables members to access high quality and immediate medical advice on basic health topics via phone at any time, any day, at an affordable rate of BTK 5 per minute, without the traditional barriers of distance, cost, or safety concerns. Tonic Doctor is designed to decrease the healthcare burden on the brick and mortar system. Tonic Discounts offers exclusive

discounts up to 40% on key services at more than 50 popular hospitals across Bangladesh. Via a quick SMS with the partner code to 789, Tonic members can access care at a lower cost. Tonic Cash provides members Tk 500 if they have been hospitalised for three consecutive nights or more, paid directly to a member's mobile banking wallet. Members can claim Tonic Cash up to four times a year, and this facility can be availed for any disease or ailment. It is in partnership with local insurance partner Pragati Life Insurance Limited. The United States Agency for International Development (USAID) and Telenor had signed a Memorandum of Understanding (MoU) to work for the socio-economic progress of Pakistan. Their main aim would be to support initiatives in the fields of health, governance, education and agriculture.

State of digital payments in Morocco

According to the 2015 annual report from Morocco's central bank, Bank Al-Maghrib, electronic payments such as in-store credit card payments and online transactions in the country were worth \$2 billion per year and averaged 600,000 transactions per day. But, as an example of how absent digital payments are from the Moroccan market, the report had no discussion around mobile payments at all. A 2015 study on mobile money in Africa by consulting firm BCG (formerly Boston Consulting Group) argues that over the last 10 years, 52 percent of the active population in Sudan uses mobile banking services, 50 percent in Gabon, and 42 percent in Algeria. In the same year in Kenya, mobile payment transactions accounted for 60 percent of GDP, a country with an economy and population close to that of Morocco. Further, one in every three Kenyans - that's 18 million people - use mobile money to pay for items both online and offline in grocery stores, supermarkets and souks, according to French business journal *LesEchos*. Yet Morocco has advantages that should make mobile money and payments more popular: a young population with an average age of 28; a bancarization rate - or the number of people with bank accounts - within the world average of 64 percent, according to Bank Al-Maghrib; one of the most developed



telecom infrastructures in Africa; and a remarkably high mobile penetration rate which is as high as 130 percent according to the ANRT. Morocco boasts regulations around banking and financial services as complex as that of more developed European countries, and that's its problem. Most successful mobile payment solutions in the world have been launched by telephone operators such as SafariCom, which is behind M-Pesa in Kenya, and Orange which is behind Orange Money in Senegal. In Morocco, the law bans any organization that is not a bank to seek deposits from individuals and companies and offer payment options. So, from a legal point of view a solution like M-Pesa, which is based on phone companies facilitating payments, cannot exist in Morocco. For example, before 2014 only Maroc Telecommerce was authorized to process online credit card payments in the country. Since this monopoly nominally came to an end in 2014 three other providers have appeared: AmanPay (disclosure: the writer works for AmanPay), PayZone, and F-Pay. With these new players the number of e-shops has doubled and the quality of ecommerce services is improving. But, while the online payments sector has been opened up to competition, payment via credit cards is still controlled by the Centre Monétique Interbancaire (CMI - which also owns Maroc Telecommerce), a private company created and owned by all but two of the country's banks. The CMI is still the only active entity that provides shop owners with payment terminals and therefore decides the

fees and services available to them. The informal economy - or business activities that are not reported to the government - could also be a barrier to the adoption of digital payment more generally, rather than mobile payments specifically. According to the last report, published in 2008, by Moroccan government statistics department the Higher Planning Commission, the informal sector made up over 14 percent of Morocco's GDP in 2007. One should add to that number, the registered shops that accept cash payments in addition to their declared income. The financial flexibility that undeclared cash provides could mean that some businesses might be reluctant to adopt more traceable methods of payment. The last obstacle is related to the Moroccan dirham. The dirham is a non-convertible currency, meaning it can't be exchanged for an international currency such as the US dollar or the euro outside of Morocco. Further, Moroccans can't pay in dirhams abroad - they have to do so in foreign currencies - and getting dirhams out of the country is forbidden by the state. This means all modes of payment must be operated by an entity based in Morocco. It is therefore very difficult for foreign investors to invest in payment methods targeting Morocco. Therefore, modes of payment such as Paypal are pretty much absent from the Moroccan market. It's almost impossible to transact in Bitcoin and it's time-consuming for services such as Airbnb and Uber to get into the country partly because they have to find ways to work around the currency

issue. The government is working on finding solutions to these problems such as modifying banking laws and the legal framework around the payment services and methods. Digital payments regulations and technology in Morocco are still well behind those in other African countries. While the government is taking some steps towards allowing the country's entrepreneurs push payments in the 21st century, there is a long way to go yet.

Pakistan doubles 3G/4G users in 9 months

Pakistan's 3G and 4G subscriber base more than doubled over the past nine months to 27.87 million as the country's nine operators added more than one million high-speed mobile connections per month. To expand and upgrade their networks operators invested \$589 million during the July-March period, with cellular networks accounting for 95 per cent of the investment, the Pakistan Observer reported. The total number of mobile subscribers fell to 131.4 million, a decrease of about 7 per cent, due to the country's biometric re-verification of SIMs last year, which has culled millions of users from operators' books. The country's telecoms sector generated PKR333.2 billion (\$3.18 billion) in revenue in the first three quarters of fiscal year, with operators paying PKR106 billion to the government in duties and taxes, or 32 per cent of their total turnover. Operators also collected PKR31.2 billion in GST during the nine months from July 2015 to March, according to the government's Economic Survey. Revenue growth has picked up since last fiscal year when revenue fell 3 per cent to PKR450 billion from the previous year. The Pakistan Telecommunication Authority (PTA) and mobile operators have long called on the central and state governments to reduce taxes on the telecoms sector to spur growth.

Tecnotree selected by Nepal Telecom to deploy convergent mediation and interconnect system

Tecnotree, a global provider of telecom IT solutions, has been selected by Nepal Telecom to supply its Agility™ Mediation and Interconnect system. The new system

will enable the rapid rollout of new services for Nepal Telecom's 14 million subscriber base. The Tecnotree Agility™ Mediation and Interconnect system will replace Nepal Telecom's existing systems for GSM and other networks - and supports mobile, fixed line and broadband lines of business as well as future services. The solution will be delivered as a turnkey project, including complete hardware and third party software implementation. "By enabling the integration of new and legacy network components we are pleased to help Nepal Telecom to execute its convergence strategy and achieve its objective of complete optimized Business Support Systems," said Padma Ravichander, CEO, Tecnotree.

Oman tests microwave backhaul, eyes multi-gigabit capacity

Ericsson and Ooredoo Oman have joined forces to demonstrate the viability of microwave backhaul to provide multi-gigabit capacity for fixed and mobile networks. Ooredoo Oman and Ericsson trialed a range of solutions that can deliver gigabit backhaul capacity, supported by the availability of new radio access spectrum. E-band (70/80GHz) spectrum is the key to supporting microwave and meeting increased capacity requirements for both backhaul and fronthaul. The world's highest-capacity E-band radio, the new Ericsson MINILINK 6352 was successfully trialed, providing 5.7Gbps over one carrier. Four carriers in traditional frequency bands and narrower channels were bonded together to provide 1.6Gbps. The success of the trial proves the capability of microwave to address growing data traffic demands and support operators in offering superior mobile broadband experiences to their customers. Wolfgang Wemhoff, Chief Technology Officer, Ooredoo Oman, says: "Ooredoo is constantly working toward responding to changes in customer needs and providing them with the products, services and offers they want, through both mobile and fixed offerings. "Our partnership with Ericsson allows us to inspire and innovate new methods to meet the ever-changing needs of our customers and businesses in all sectors across the Sultanate of Oman." Rafiah Ibrahim, Head of Region Middle East and East Africa, Ericsson, says: "Microwave backhaul will represent up to 20 percent of new deployments in 2020,

with traditional bands accounting for 70 percent. "Our collaboration with Ooredoo Oman showcases the benefits of microwave backhaul for operators around the region. It also empowers Ooredoo Oman to pave the way for innovative traffic management solutions." Network demands and maturity vary around the world, and differences exist even within individual countries. Regardless of the situation, operators want to achieve the same goal - to provide the best possible performance and quality of experience in the most cost-efficient way. Microwave is an important backhaul solution to address an increase in traffic for both mobile and fixed networks for Ooredoo Oman.

Telecom imports in Pakistan fall 1.83%

The imports of telecom sector related items into the country fell by 1.83 percent in first 10 months (July-April) of current fiscal year compared to the same period last year. The telecom imports decreased to \$1.157 billion during the period July-April (2015-16) from \$1.18 billion during same period of the year 2014-15. According to latest data released by Pakistan Bureau of Statistics (PBS), on month-on-month basis, the telecom imports fell by 9.38 percent from \$122.201 million in March 2016 to \$110.715 million in April 2016. However, the telecom imports posted a growth of 1.84 percent on yearly basis, as it went up to \$110.715 million from \$108.713 million in April 2015. The import of mobile phone during first 10 months of current year posted a growth of 6.64 percent from \$595.778 million last year to \$635.342 million during the period of current fiscal year. On



year-on-year basis the mobile phone import increased from \$56.196 million in April 2015 to 62.059 million, showing a growth of 10.43 per cent. However on month-on-month basis, the mobile phone import posted a negative growth of 18.44 percent as the import during the month of March was recorded at \$76.094 million.

Telenor Boosts Radio Spectrum Holdings

Telenor has provisionally won a radio spectrum auction in Pakistan that will let it expand its 3G services. The telecoms regulator, the Pakistan Telecommunication Authority (PTA) said that Telenor Pakistan was the sole bidder for the 10-MHZ block of 850-MHZ band spectrum. Telenor currently operates its 3G services on a 5-MHZ block of 2.1 GHz spectrum. "In case where the auction is not required due to no-excess demand, the applicant that submits a pre-bid offer, supported by a correct pre-bid deposit, is awarded the amount of spectrum stated in their pre-bid deposit form," the regulator stated. The reserve price for the spectrum had been set at USD395 million, a third higher than similar blocks sold in 2014. The higher reserve price is thought to be why none of the other companies which had showed an interest went forward with bids.

Women want to invest in telecommunications in KSA

A total of 380 Saudi women have expressed their willingness to invest in the telecommunications and mobile industry. The announcement was made by the Ministry of Labor and Social Development. According to an official from the ministry, the women have applied for entrepreneurship through a program called "Start Your Small Business" introduced by the National Entrepreneurship Institute. It is carried out by the institute in cooperation with the Saudi Credit and Savings Bank. The program conducts four training sessions with each one lasting five days. The program aims to tell trainees how they should invest and develop small enterprises which will lead to successful projects. The training session seeks to give a comprehensive experience to enable the successful trainees to conduct their small businesses in their own ways in the telecommunication and mobile industry. The program will also help the participants get SR200,000 to encourage them to enter the mobile industry which will in turn help the government reduce the unemployment problem among women in the Kingdom. The institute receives project funding requests electronically through the website of the institute at www.riyadah.com.sa. The requests will be followed by an

oral test and eligible candidates will be selected for training so they can avail themselves of the other facilities and services. Those who qualify for training should be between 18 and 60 years of age and should agree to repay the loans given by the respective banks. The Ministry of Labor recently directed that non-Saudis should not work in the mobile and telecommunications industry in the Kingdom after September 2. Spokesman for the Ministry of Labor Khalid Aba Al Khail said that the rule applied to all expatriates without exception. "We need the sector to be fully Saudized at the beginning of September." He said inspection campaigns would be carried out in all sectors in the mobile industry beginning in Ramadan. "We are very keen to employ our young Saudi men and women in this sector," he added. The training program will cover areas such as customer service, sales management, the basics of mobile maintenance and maintenance of advanced mobile phones. The new plan is to create jobs for Saudi men and women that will give them financial stability and minimize cover-up activities. The decision will be enforced across the country and will include small, medium and large businesses. The HRDF will provide employment support services to enterprises and job-seekers in the telecommunications industry; the services are accessible at www.taqaat.sa. There will also be support provided in paying part of the salaries of the Saudis employed. The ministry has warned that violators, particularly businesspeople and their employees involved in cover-up businesses would be subject to heavy penalties.

Qatar may be first to launch 5G services

Qatar is expected to become the first country in the world to launch 5G mobile network services, said a top official of Ooredoo Qatar, country's leading telecom services provider. In this regard, Ooredoo, the Qatar-based telecom giant, is negotiating with various stakeholders and organizations, including the Geneva-based International Telecommunication Union (ITU), to advance the launch date of 5G services. The 5G technology is expected to go on trial by the end of 2018, which is slated to be launched commercially by 2020 worldwide. "We believe 2020 is very far away. So we are trying with manufacturers and other concerned entities such as

ITU and GSM Association (organizer of Mobile World Congress) to bring the launch date forward," Waleed Al Sayed, CEO of Ooredoo Qatar told The Peninsula. He added: "Although this is not in our hands but we are trying our level best for this. We also want to promise the people of Qatar that we will be the first in the world to launch 5G services." He said that the company always strives to provide a very high bandwidth on mobile broadband. And in this regard, Ooredoo signed an agreement with Huawei in Barcelona to build the region's first 5G R&D Centre in Qatar, aiming to conduct all kinds of possible research studies related to the future technology and innovation. The works on the Centre, according to Al Sayed, is progressing in full swing in a very high security area. Once ready Ooredoo will announce about it in a media gathering. He said that the local engineers and students from Qatar-based universities will also be allowed to have access to the R&D Centre for experiments. "We are doing everything possible for people, things, and organizations in Qatar to get connected with the rest of the world. Being the only telecom service provider with high bandwidth capability, we are also working as a catalysts to attract businesses to invest in the country," Al Sayed added. "Our company has signed agreements with scores of organizations in Qatar, including the Ministry of Foreign Affairs to connect all the embassies. We have also signed agreements with Al Jazeera Network and beIN (sports TV network) to connect their offices across the world." Asked about the impact of the pervasive use of Internet Protocol Mode, such as WhatsApp, Skype and Viber, to make voice calls, especially overseas, on the Company's revenue, he said that initially Ooredoo was worried about it as the demand for traditional voice call and SMS services started going down significantly, but the Company adapted the situation instead of fighting against it, by transforming the challenge into an opportunity. "We at Ooredoo do not see these apps as a threat. Nearly two years ago we started working on it taking it as a new opportunity. We have migrated our business to become a data enabler. And today we sell more data than selling voice and SMS services. By the end of this year, the share of revenues from data is expected to be more than 60 percent," he said. Al Sayed cautioned that companies that are continuing to stick with voice and SMS services are going to face a very big failure in the future.

Qualcomm Adds Snapdragon Support for Europe's GPS Service, Galileo

Qualcomm says that it is adding support for Europe's own GPS location system, Galileo into its chips. While Qualcomm began implementing hardware support for Galileo several years ago in select chipsets, this announcement signals the mobile industry's first pervasive, end-to-end location-services platform for smartphone, computing, infotainment, telematics, and IoT applications. With these optimized software enhancements, the Qualcomm IZat location services platform now utilizes up to six satellite constellations concurrently without incremental device hardware or cost. Users now benefit from more than 80 different satellites when calculating global position for navigation or location-based applications. The addition of another GNSS is intended to provide more accurate location performance faster time-to-first-fix, and improved robustness all over the world, particularly in challenging urban environments where the combination of narrow streets and tall buildings can reduce accuracy. "Accurate, reliable, and rapid position location is an important part of the mobile experience," said Alex Katouzian, senior vice president, product management, Qualcomm Technologies, Inc. "Qualcomm Technologies is helping to improve consumers' experiences with location-based services by adding Galileo support to our IZat location platform and deploying it broadly across our modem and application processor portfolios." This feature is integrated in the latest Qualcomm Snapdragon 800, 600, and 400 processors and modems. Galileo will be supported on smartphones and compute devices with the appropriate software release on Snapdragon 820, 652, 650, 625, 617, and 435 processors, automotive infotainment solutions utilizing Snapdragon 820A, and telematics and IoT solutions with Snapdragon X16, X12, X7, and X5 LTE Modems, and Qualcomm 9x15 and MDM6x00 modems. "The Galileo constellation relies on 14 satellites in orbit today. Following our cooperation on Galileo integration, we welcome the announcement that Qualcomm Technologies is contributing to the rapid adoption of Galileo, in view of the

Initial Services foreseen by end of 2016. The Galileo signal has demonstrated high performance and we believe will enhance user experience with more accurate and robust positioning," said Carlo des Dorides, executive director, European GNSS Agency. The Snapdragon modem and application processor platforms' widespread ecosystem reach can accelerate mobile industry support for Galileo. To date, over 200 Galileo-enabled Qualcomm Technologies-based designs are already planned, and Qualcomm Technologies expects general availability of the required software in the 3rd quarter of 2016. IZat location solutions have been shipped in more than 5 Billion devices globally.

Qualcomm Technologies prototype system to test, demonstrate and trial 5G designs to drive 3GPP 5G NR standardization

Qualcomm products mentioned within this press release are offered by Qualcomm Technologies, Inc. and/or its subsidiaries. Qualcomm Incorporated along with its subsidiary, Qualcomm Technologies, Inc., announced Qualcomm Technologies' 5G New Radio (NR) prototype system and trial platform. The 5G NR prototype system operates in the sub-6 GHz spectrum bands and is being utilized to showcase the Company's innovative 5G designs to efficiently achieve multi-gigabit per second data rates and low latency. 5G will make the best use of a wide range of spectrum bands, and utilizing spectrum bands below 6 GHz is a critical part of allowing for flexible deployments with ubiquitous network coverage and a wide range of use



cases. Designs implemented on the prototype system are being utilized to drive 3GPP standardization for a new, OFDM-based 5G NR air interface. The

prototype system will closely track 3GPP progress to help achieve timely 5G NR trials with mobile operators, infrastructure vendors, and other industry players, as well as future 5G NR commercial network launches. The new prototype adds to Qualcomm Technologies' existing 5G mmWave prototype system, operating at 28 GHz and capable of robust mobile broadband communications in non-line-of-sight environment, utilizing advanced beamforming and beam-steering techniques. The 5G NR prototype system consists of a base station and user equipment (UE), serving as a testbed for verifying 5G NR capabilities. It supports wide RF bandwidths over 100 MHz, capable of delivering multi-gigabit per second data rates. It also supports a new integrated subframe design for significantly lower over-the-air latency than what is possible in today's 4G LTE network. The prototype system continues Qualcomm Technologies' development and testing of their innovative 5G designs, which they are actively contributing to 5G NR 3GPP standardization. The 3GPP 5G NR study item has begun as part of Release 14 and will feed into Release 15 work items. "The 5G NR prototype further demonstrates our leadership in developing a unified, more capable 5G air interface, building upon our long-standing expertise in delivering OFDM chips and technology with LTE and Wi-Fi," said Matt Grob, executive vice president and chief technology officer, Qualcomm Technologies, Inc. "We are excited to collaborate with leading network operators like China Mobile Communications Corporation on 5G technology development and testing to support the work required for 3GPP 5G standardization." "We are happy to be working with Qualcomm

to showcase the sub-6 GHz 5G prototype system at Mobile World Congress Shanghai," said Madam Huang Yuhong, the DGM of China Mobile Research Institute. "This is a great example of the 5G technology collaboration we set out to accomplish when we announced the 5G Joint Innovation Center earlier this year."



▼ REGULATORY NEWS

REGULATORY UPDATES

BEREC launches net neutrality consultation

European regulator group proposes that telco watchdogs judge zero-rating, 'specialized services' on case-by-case basis. The Body of European Regulators for Electronic Communications (BEREC) on Monday launched a consultation seeking feedback on proposals for how to implement the EU's net neutrality law. The legislation, rubber-stamped in June 2015, prevents unfair blocking and connection-speed throttling, and the paid prioritization of Web traffic. However, telcos are still allowed to provide so-called 'specialized services' like Internet TV, provided it does not degrade the performance of the public Internet. BEREC's consultation aims to hammer out the details, proposing, for instance, in the case of specialized services, that regulators should consider whether said service could be provided adequately using a best-effort connection. Furthermore, a service that is deemed to require special treatment today, might not qualify as a specialized service in future, once the general quality of the Internet has improved, BEREC said. The consultation also addresses zero-rating, where the data traffic generated by a specific service or category of services, such as video, is free and does not count towards the customer's data allowance. Under BEREC's proposed guidelines, continuing to provide access to zero-

rated services once the customer has used up their data allowance would contravene EU net neutrality rules. Regulators would also be advised to review the market strength of the ISP offering the zero-rated tariff and that of the service being zero-rated, and consider the impact that it could have on competition and end-user choice. BEREC's consultation also contains potentially good news for advertisers. The section about prohibited traffic management practices specifically states that "ISPs should not block, slow down, alter, restrict, interfere with, degrade or discriminate advertising when providing an IAS (Internet access service)." Ad-blocking would be permitted if carried out to prevent the spread of illegal content, viruses, or to mitigate temporary network congestion. Ad-blockers installed by users on their handsets would not break the rules, BEREC said. However, it means that action taken by the likes of 3UK, which plans to trial network-level ad-blocking next week, could be breaking the rules.

TIA Issues Comments on IoT Regulation

The Telecommunications Industry Association (TIA), the leading association representing the manufacturers and suppliers of high-tech communications networks, today issued comments regarding the Internet of Things (IoT) to

the U.S. Department of Commerce (DOC) National Telecommunications and Information Administration (NTIA). In its comments, TIA says, "Network technology and interoperability standards are vital elements of fostering IoT growth... Policymakers should employ a technology-neutral approach in order to promote the full spectrum of IoT offerings. The U.S. Government should adopt policies that incentivize research and development on how to enhance underlying network capabilities and to maximize the use of limited resources such as spectrum." TIA also warns against ignoring the connection between IoT verticals, saying, "Policymakers should adopt a coordinated, horizontal policy approach whenever possible, followed by tailoring for specific vertical applications. Past policy discussions have developed in a vertical market silos and have overlooked the relation of connected devices to the larger Internet of Things."

TIA calls-out three key elements of government policy that will allow IoT to meet its immense potential:

- Incentivize investment and development of the multiple components of the IoT system;
- Adhere to technology-neutral and competition-neutral principles and;
- Involve collaboration with global partners.

On the important issues of cybersecurity and global cooperation, TIA says, "Policymakers should avoid heavy-handed regulation that cannot keep pace with the constantly evolving threat and risk landscape and should instead work in public-private partnerships to collaborate on identifying and addressing threats... All regulatory efforts should attempt to include cross-border coordination and alignment with policies of foreign entities as the marketplace for IoT goods and services will not be cordoned off by geographic or country borders."

3UK seeks limits to BT's spectrum-buying power

Mobile operator calls on OFCOM to impose restrictions on U.K. incumbent at this year's auction. 3UK chief Dave Dyson has called on OFCOM to impose restrictions on the country's

big guns at this year's planned spectrum auction. In a Financial Times report on Sunday, he warned that BT in particular has the means and incentive to bid strategically to prevent a smaller player like 3UK from acquiring frequencies that would improve its competitiveness. "OFCOM wants credible operators. But to be credible you need enough spectrum," Dyson said, in the report. "Hopefully OFCOM will make some pro-competition choices in the design of the auction." This could include requiring BT to hand back spectrum before allowing it to bid for more, he said. OFCOM plans to auction 40 MHz of spectrum in the 2.3 GHz band and 150 MHz in the 3.4 GHz band later this year. It has set a reserve price of £70 million (€97 million) for the airwaves. OFCOM had planned to conduct the auction in 2015, but it was put on hold until the European Commission issued its decision on 3UK's proposed merger with rival O2. With that merger having now been blocked, and with BT being allowed to acquire EE without making significant concessions, 3UK is under intense pressure to remain competitive. Dyson told the FT that this means improving quality by adding more base stations and refarming 3G spectrum for 4G services, and focusing on being the U.K.'s best mobile-only operator. "You have to move forward and make the most of the cards you're dealt even if you disagree with the decision," he said.

EU telecom regulators see free Internet services as next battle

Exempting some online applications, such as Facebook, from consumers' monthly data caps and treating them as free is seen as the next front in a battle over how telecoms operators can manage the traffic on their networks as regulators prepare to enforce Europe's first-ever "net neutrality" rules. BEREC, the body comprising the European Union's 28 telecoms regulators, on Monday produced a set of draft guidelines on implementing the net neutrality rules which require operators such as Orange, Deutsche Telekom and Telefonica to treat all Internet traffic equally. Deciding whether operators should be allowed to devote part of their network to certain services, such as remote healthcare, will be much

simpler than deciding whether offering content for free, such as Facebook and Spotify, breaches the principle of net neutrality, Sebastien Soriano, head of France's telecoms regulator ARCEP, told Reuters. "This is really in the grey area of the regulation," Soriano, who will preside over BEREC next year, said. The EU's net neutrality rules, agreed last year, neither explicitly allow the practice of zero-rating - exempting certain applications from a customer's data allowances - nor forbid it, leaving regulators in a bind. Some countries, such as the Netherlands, Slovenia and India, have banned zero-rating on the grounds that it violates the principle of net neutrality and gives some applications an unfair competitive advantage. "Zero-rating allows ISPs (Internet service providers) to make certain applications more attractive than others, thereby picking winners and losers online," the European Digital Rights association said. Telecoms operators argue that zero-rating is beneficial for consumers and can be used to give low-income customers improved Internet access, much like Facebook Inc's attempt to offer its own social network and messaging service for free in India. BEREC's guidelines say that regulators should decide whether zero-rating is allowed depending on the market share of both the operator and the company providing the free content. Soriano said that as a result, the issue will have to be treated on a case-by-case basis. "Maybe in one country, one practice of zero-rating will be OK considering the market shares of the operators or the partners



... and in other countries it will raise many problems." For example, treating a music service such as Spotify as free and therefore exempting it from a customer's data allowance "creates an economic incentive to use that music application instead of competing ones," the guidelines say. BEREC said that blocking access to all content

except that which is treated as free once a customer hits his data cap will be forbidden. But sponsored data, whereby content providers such as Spotify or Netflix pay operators to deliver their services for free, raises more difficult issues because no content is actually being blocked. "Technically all the traffic is treated in the same way, but at the tariff level, some services are untariffed and others are," Soriano said. "This question is open. This is at the heart of the grey area of what is allowed or not."

European telco CEOs confront EU officials about regulation

The CEOs of several major European telcos along with lobby group ETNO met with a number of EU commissioners on Tuesday to advocate for a pro-investment approach to regulation. "At a time in which Europe moves towards a 5G society, ETNO companies believe that an unequivocal pro-investment stance in the upcoming telecoms framework review is a pre-requisite to massive network deployment," said a statement from ETNO. The delegation included Eelco Blok, CEO of Dutch incumbent KPN; Deutsche Telekom CEO Tim Hoettges; Dominique Leroy, CEO of Belgium's Proximus; BT chief Gavin Patterson; Alejandro Plater, CEO of Telekom Austria; and Telenor Norway CEO Berit Svendsen. ETNO's executive chairman Steven Tas, and director general Lise Fuhr, were also in attendance. They met with digital economy and society commissioner Günther Oettinger; competition commissioner Margrethe Vestager; and Jyrki Katainen, vice president for jobs, growth, investment and competitiveness. The European Commission is in the process of drawing up proposals to update its approach to telecoms regulation. Respondents to an EU consultation on the subject earlier this year said the current framework has stimulated competition, leading to a broad choice of affordable services for consumers. However, they said the rules need overhauling in order to promote investment in next-generation networks. They also called for a more coordinated approach to developing new standards, including 5G, and highlighted the need for a more flexible use of spectrum. Unsurprisingly, operators also want

over-the-top (OTT) communication providers to be subject to the same rules as telcos, something that the OTTs disagree with. "Both consumers and the digital ecosystem will benefit from more telecom innovation," ETNO said. "For this to happen, the current sector-specific approach to service regulation should be abandoned to the benefit of a horizontal, principle-based one." The Commission is due to present its telecom framework proposals later this year.

3G/4G Auction: 850MHz Spectrum Might Carry Co-Channel Interference

Government may not be able to offer clean (clear from interference) spectrum in the 850 MHz range that it is planning to auction next month in the upcoming Next Generation Mobile Services auction. Cellular operators will have to face interference issues in the 850 MHz range as some degree of co-channel interference along borders with neighboring countries will persist, documents available with ProPakistani revealed. Pakistan Telecommunication Authority (PTA) on May 23 arranged an information session for prospective bidders to explain the auction process, rules and other details. The meeting was attended by Mobilink, Telenor, World Call and Multi Net. Stakeholders presented and raised a number of questions with respect to upcoming spectrum auction. The Auction committee of PTA after preparing the responses to proposals/demands of telecom operators on Information Memorandum (IM) and license template and shared with all stakeholders. Telecom stakeholders had raised questions with respect to 850 MHz / 900 MHz coexistence and stated that Pakistan has had a mixed band plan for a long time. They said that co-existence between 850 MHz and 900 MHz networks typically requires transmit filters on the 850 MHz base stations and receive filters on at least some 900 MHz base stations. They further stated that 900 MHz operators may have benefited from the absence of a 850 MHz operator and omitted external receive filters on their base stations. However, with the auction of 850MHz band, the situation will change as operators may need to install receive filters (for their 900MHz bands) in order to coexist with the 850 MHz network in future. In cases where interference is discovered, Frequency

Allocation Board will ensure that the situation is addressed and that the sources of interference are removed. In the unlikely case that FAB is unable to remove interference from a significant part of city or a region, the 850 MHz operator can expect that the same principles will apply to it as we saw in the past when Zong had faced issues for the spectrum it had bought. In such cases, 850 MHz operator may be offered compensatory spectrum in the city or region where significant and persistent interference cannot be removed. "The 850 MHz must, however, expect some degree of co-channel interference along borders with neighboring countries", confirmed the Auction Committee. It won't be out of place to mention that PTA is planning to auction a block in 850MHz spectrum at a base price of \$395 million.

China Pushes for Phone Registration by Cut-Off Deadline

Chinese authorities have started reminding mobile users that they have to register their phone, or face being disconnected. All numbers have to be registered by the 30th June 2017. Although a year away, a registration drive has been under way since 2013 and the uptake has not been promising. Telecom companies will start contacting phone numbers being used by people who have not registered using their real names or whose registered information is incomplete or incorrect, urging them to finish the process by the deadline. If the phones are cut off, they will still be able to make emergency calls, and if a final notice is ignored next July, then they will be completely shut-down. As the registration for existing users has been going slowly, the Ministry of Industry



and Information Technology released a notice on May 24 asking all telecom companies to ensure that at least 95

percent of their users have registered with accurate information by the end of this year and 100 percent before June 30, 2017.

Belgium frees up spectrum for 5G testing

The Belgian government has given the go-ahead to the country's telecoms regulator to open up high-bandwidth spectrum to companies seeking to conduct trials of 5G mobile technology. Alexander De Croo, whose role includes serving as minister of telecoms and the digital agenda, confirmed to Belgian newspaper L'Echo that the state instructed the Belgian Institute for Postal services and Telecommunications (BIPT) to find spectrum that could be temporarily



allocated to businesses and research centers looking to undertake 5G trials. BIPT is already working with Ericsson to analyze the best frequency bands for 5G, concentrating primarily on high band spectrum, the paper explained. The state has set out a number of conditions governing the temporary licenses, including requiring that Belgian researchers or start-ups must be involved in any project. It has yet to be established how investment in 5G will be financed, but methods exist to avoid the entire burden falling on operators, the report said. In line with current thinking elsewhere in the world, the paper added that commercial 5G deployments are unlikely to emerge before 2020.

Mobilink confirms it will not bid for 850MHz spectrum

Pakistan's largest cellco by subscribers, Mobilink, has confirmed that it will not be participating in the upcoming auction of 850MHz spectrum, ProPakistani writes, citing deputy

CEO of Mobilink Aamir Ibrahim. The cellco had previously expressed its reservations over the auction with sector regulator the Pakistan Telecommunication Authority (PTA), but its merger with Warid will also reduce Mobilink's need for additional airwaves and bar it from competing. Ufone, meanwhile, has also reportedly decided not to take part in the tender, leaving just Telenor and Zong of the incumbents to vie for the airwaves.

Stockholm court rules in favor of Tele2 in ADSL case; Telia to pay USD28.7m plus interest

The Stockholm District Court has ruled in favor of Tele2 in a court case over alleged market abuse in the ADSL sector by Telia, ordering the latter to pay out SEK240 million (USD28.7 million) plus interest in compensation. In the case, Tele2 had argued that its rival abused its dominant position in the supply of broadband ADSL connections in the early 2000s, leading it to submit a claim for losses amounting to a little over SEK700 million for price squeezing in its wholesale rates, which Tele2 claimed were prejudicial to its ability to make a profit. The Stockholm District Court upheld its claim – in part – awarding it damages plus interest on the amount from a period starting 2005. Telia now have a maximum three weeks in which to submit an appeal.

Competition commission claims Filipino duopoly not anti-competitive

The Manila Bulletin quotes the Philippine Competition Commission (PCC) as reasserting its claim that, under current telecoms legislation, the recent move by PLDT and Globe Telecom to buy out the PHP69.1 billion (USD1.48 billion) telecoms assets of San Miguel Corp (SMC) does not constitute an 'abuse of dominant market position'. With calls growing for a greater examination of competition in the Filipino mobile market – only last week president-elect Rodrigo Duterte described the mobile market as a 'cartel' and called for an urgent improvement in its performance – PCC chairman Arsenio Balisacan told reporters that the Law does not prohibit either a monopoly or duopoly developing, adding: 'Let me clarify, the

Competition Law does not prohibit bigness, monopoly or duopoly but prohibits abuse of dominant position.' Balisacan confirmed that Section 20 of the Competition Law on Mergers and Acquisitions states that 'merger and acquisition agreements that substantially prevent, restrict or lessen competition in the relevant market or in the market for goods or services [as] determined by the Commission shall be prohibited'. That being said, he conceded that the details of the SMC asset sale had still to be fully ratified as the PCC is waiting for the National Telecommunications Commission (NTC) to forward the relevant documents for review before it is signed off.

Orange in talks with MIC over potential takeovers in Africa

France's Orange Group has begun informal talks with Millicom International Cellular (MIC) regarding a potential takeover of the latter's mobile operations in Senegal, Chad and Ghana, Bloomberg writes, citing two people familiar with the matter. The unnamed sources were quoted as saying that MIC is looking to discard its assets in West and Central Africa, where it has come under pressure from regulators to extend its network into rural areas. The development follows Orange's acquisition of MIC's subsidiary in the Democratic Republic of Congo (DRC), Tigo DRC, which was completed in late April this year. According to TeleGeography's GlobalComms Database, Tigo Ghana is the third largest cellco in the country, with a market share of 14.0% at end-March 2016, behind Vodafone Ghana (21.8%) and MTN Ghana (47.1%). In Chad, meanwhile, Tigo has a market share of approximately 56.2%, whilst its main competitor Airtel Chad claims around 43.0% of the space, with state-owned Groupe Sotel Tchad taking the remaining 0.8%. Orange already has a presence in Senegal, where it leads the market by a substantial margin. The cellco already controls approximately 56.1% of the market, and a merger with Tigo Senegal would boost that figure to around 79%.



▼ A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

REGULATORY UPDATES

Algeria



President: Mr. Mohamed Ahmed Nacer

[Regulatory Authority for Post & Telecommunication (ARPT)]

Algerian cellcos Optimum Telecom Algerie (OTA, operating as Djezzy) and Algeria Telecom Mobile (Mobilis) have applied for extensions of their GSM licenses, which will expire on July 31 and August 4 respectively. Both operators have requested a renewal of their authorizations for 15 years. In its 2015 annual report, the Regulatory Authority for Post and Telecommunications (ARPT) said that it has started work on a recommendation for extension, as the two applications were in line with the requirements for renewal. (July 18, 2016) Agence Ecofin

Bahrain



Chairman: Dr. Mohammed Alamer

[Telecommunication Regulatory Authority (TRA)]

Bahrain is preparing to bring a big change in the telecom sector by permitting the establishment of environment friendly masts and towers in the Kingdom, it was announced. Telecommunications

Regulatory Authority (TRA), as part of the plan, is developing a mast permitting project, which would also makes the Kingdom first in the MENA region to establish a complete regulatory and permitting framework in this regard. This, according to TRA, should enable state-of-the-art telecommunications wireless networks and facilitating innovative and environment friendly small cells for paving the deployment of future technologies and services. TRA is also working to introduce a centralized mast information system to maintain all masts information and automate the permitting processes. The system is expected to speed up the permitting process and provide on line performance monitoring dashboards. This was revealed during a workshop held from 15 to 16 June 2016 at TRA's headquarters with the participation of stakeholders to commence the permitting of new and existing masts and towers. The workshop was attended by representatives from the Ministry of Transportation and Telecommunications, the Ministry of Municipalities, the Supreme Council for Environment, the Civil Aviation Affairs and the Bahrain Defense Force. Commenting on the move, TRA's Director of Technical and Operations Mohamed Alnoaimi

stated, "Since assigning the responsibility of governing and permitting telecommunications masts and towers by the new Prime Ministerial decision number 45 of 2015, TRA has worked closely with the government planning authorities to design necessary permitting processes and engineering specifications. It is expected that the new processes and specifications will enable the deployment of environment friendly towers while ensuring the availability of latest wireless technologies." Explaining further, Alnoaimi said, "In order to ensure the seamless implementation of the permitting process, TRA will sign a memorandum of understanding with the related government planning authorities." The Project Manager, Adel Alshowaikh, outlined that "In collaboration with the planning authorities, TRA has completed the design of all necessary business processes that should be used for permitting new and existing masts."

(June 28, 2016) newsfobahrain.com

A Public Consultation Paper on Consumer Protection Regulation was issued by Telecommunications Regulatory Authority (TRA) last week to further enhance coverage of consumer rights. Its necessity comes from the need to define in detail a set of legal and regulatory tools to ensure the protection of consumers within the Kingdom of Bahrain. "The regulation is a proactive approach to increasing obligations to safeguard rights which the consumer will benefit from and should be aware of", Says Ms. Taiba Albinali, TRA's Acting Director of Consumer Affairs and Media. "We believe that this will lead to a significantly improved consumer experience in the industry, and that people will have more peace of mind in using their telecom services." The scope of the regulation will address misleading advertising, unfair contract terms, comparative advertising, billing, service quality levels, standard contract terms, and several other aspects. The proposed regulation presents the opportunity to promote consumer rights and increase consumer welfare and raise awareness of the obligations set by the regulation on service providers. TRA urges stakeholders and consumers to review and provide their comments by the 3rd of July 2016 to ensure that the final regulation addresses all stakeholders input.

(June 16, 2016) www.tra.bh

Eighty Six percent of broadband speeds are performing as advertised, according to the latest broadband analysis report by the Telecommunications Regulatory Authority (TRA). The report was performed based on 8Mbps, the average package subscribed to by consumers for fixed broadband. The maximum speed offered by ISP's was also tested to measure fixed wireless broadband. "We perform this analysis report to give consumers much needed insight which lets them decide which broadband service to choose." Says Eng. Mohammed Al Noaimi, TRA Director of Technical Operations "We perform this report quarterly to monitor the latest changes and ensure the consumer has the right information available to them at all times." The TRA has published the quarterly Broadband Quality of Service (QoS) Report for the 1ST quarter of 2016 with further enhancements and new introductions to the report such as mobile voice and data testing, Internet application testing as well as business broadband services. The report revealed that the average download speed to access websites and

web browse for the 1st quarter has reached 6.9 Mbps for ADSL packages and 7.0 Mbps for Fixed wireless packages; this translates to the time it takes for websites to load when browsing. (June 12, 2016) www.tra.bh

The Ministry of Transportation and Telecommunications (MTT)'s Assistant Undersecretary for Bahrain Post, Shaikh Badr bin Khalifa Al Khalifa, headed Bahrain's delegation to the 27th Meeting of GCC Posts and Telecommunication Ministries in the Saudi capital, Riyadh. The meeting was opened by Saudi Arabia's Deputy Governor of Telecommunication and IT Affairs Authority, Dhaif-Allah bin Ahmed Al Zahrani. During their meeting, the officials discussed the meeting's business agenda items, including future work plan of Gulf posts, ways of boosting cooperation in this vital sector and various topics to develop the postal services that support government services and e-business before submission of their recommendations to the GCC Telecommunications Ministerial Committee. They also discussed several topics related to the telecommunications sector in the Gulf Cooperation Council (GCC) states, and topics pertaining to reviewing the duties of the sector's relevant committees inside the Secretariat, the protection of telecommunication service beneficiaries in the GCC countries, the GCC indicators for the telecommunications sector as well as dialogue with regional and international blocs to enhance the sector's services and reap the benefit to users of the telecommunication services. (June 1, 2016) bahrainbiznews.com

Bangladesh



Chairman: Sahjahan Mahmud

[Bangladesh Telecommunication Regulatory Commission (BTRC)]

Telecoms groups Bharti Airtel of India and Malaysia's Axiata have deferred their agreement for merging their Bangladeshi mobile operations until September 26, 2016 'or such other date as the parties may agree', a statement from Bharti disclosed on Friday evening. The merger of Airtel Bangladesh and Robi Axiata – agreed in January 2016 – had originally been expected to be completed within the first half of the year. (June 27, 2016) telegeography.com

Telecom regulator has decided to roll out mobile number portability services this year in an effort to make the market more competitive and improve quality, The Daily Star reported online. This will empower customers to switch operators anytime without changing their 11-digit number, Chairman of BTRC told reporters. If a subscriber becomes dissatisfied with an operator's services, they can immediately switch to another for a charge of BDT 30. They, however, will have to stick with the new operator for at least 90 days. The services will be licensed to only one company, which will be determined through an open auction on September 21. Applications for the tender must be submitted to the regulator by August 11, after attending the pre-bid meetings. The telecom regulator fixed the price of an application form at BDT 0.1 million and BDT 1 million as earnest money to be paid to attend the auction. In the auction, the floor price will be BDT 10 million. The winning company, which will have to pay BDT 10 million as bank guarantee, will get the license for 15 years. It will also have to share

5.5 percent of its revenues with the government from the second year onwards. The operator must provide the service within 180 days of getting the license or face penalty. Any company owned by Bangladeshi nationals, resident or non-resident, that are registered in the country will be eligible to bid in the auction. Foreign companies with a partnership with Bangladeshi nationals can also take part. A foreign company can hold a maximum of 51 percent shares but must invest in foreign currency and they will not be able to mobilize the funds from Bangladesh. (June 16, 2016) telecompaper.com

Bangladesh's government has decided to charge cellco Robi Axiata a total of BDT6.07 billion (US\$75.7 million) in merger fees and additional spectrum charges as a condition of approval for the planned merger with rival Airtel Bangladesh under the Robi name. The Dhaka Tribune reports that the decision was taken at a meeting attended by Finance Minister AMA Muhith, State Minister for Posts & Telecommunication Tarana Halim, and Bangladesh Telecommunication Regulatory Commission (BTRC) Chairman Shahjahan Mahmood. The total amount includes BDT5.07 billion in spectrum charges and BDT1.00 billion merger fees. The BTRC chair told the Tribune: 'The figure is reasonable. Hope this will be satisfactory to the operators.' Airtel's 1800MHz frequencies were awarded in 2005 for 15 years at a cost equivalent to BDT15.1 million per year, compared to spectrum issued in the same band in 2011 to Robi and other operators which cost the equivalent of BDT100 million per year. The government indicated in April that if the merged Robi-Airtel intends to retain both portions of 1800MHz spectrum, it will have to pay fees to match the 2011 price. Bharti Airtel of India and Malaysia's Axiata signed a definitive agreement to merge their respective Bangladeshi mobile subsidiaries in January, to overtake Banglalink as the country's second largest operator behind GrameenPhone, whilst reducing the number of market players to five. Under the agreement of undisclosed value, Axiata will take a 68.3% controlling stake in the combined entity, while Bharti will hold 25%, and the remaining 6.7% will be held by Robi's existing minority shareholder NTT DOCOMO of Japan. The merger had originally been expected to be completed within the first half of the year, but with approval still pending, Bharti and Axiata have deferred the deadline for finalization of the deal until 26 September.

(July 13, 2016) telegeography.com

Egypt



Acting Executive President: Eng. Mustafa Abdul Wahid

[National Telecommunication Regulatory Authority (NTRA)]

CEO of Etisalat Egypt Hazem Metwali called for putting forth fair market regulations for the mobile market in Egypt, as Telecom Egypt (TE) gets ready to launch as the country's fourth mobile service operator. Metwali directed his call to the National Telecommunications Regulatory Authority (NTRA), as fourth generation (4G) frequencies are being introduced to the Egyptian market. With TE owning the telecommunication infrastructure in Egypt, Metwali stated that negotiations regarding trade agreements of infrastructure rental prices with

TE had been ongoing for a few years. However, a final agreement with the company has not been reached until now. "Etisalat is looking into the trade agreements with TE, but everything is still pending," Metwali said. He added that there were no clear details about letters sent by the NTRA about the availability of frequencies for the 4G licenses. It is expected that Etisalat will pay EGP 4.5bn in exchange for a 4G license. Metwali noted that the company has had several meetings with the NTRA, looking into the technical, financial, and regulatory conditions of offering 4G services. Clear regulatory frameworks need to be put in place, regarding the advantages, services, licenses, and frequencies that the company will obtain, Metwali stated. He added that equality, justice, fair competition amongst operators, and a general growth in the sector are key pillars for this framework, assuring that the service users are the ones who will mainly benefit from these regulations. Etisalat Egypt has invested more than EGP 37bn in the local market since entering it in 2006. An official in one of the mobile operator companies, wishing to remain anonymous, said that pending issues in the Egyptian telecommunications sector must be resolved before approving the 4G licenses and allowing TE to offer 4G as a competitor. He added that TE is the sole owner of the infrastructure in the Egyptian market, which will allow it to monopolize the sector. Moreover, it will be offering mobile and 4G services once it is provided with the license, which will harm the competition in the market. The source wondered why TE was allowed to become a competitor in the mobile market, while monopolizing the sector's infrastructure, and also owning 45% of Vodafone Egypt. This results in unfair market competition.

(June 28, 2016) dailynewseggypt.com

Egypt said it will offer 4G mobile licenses in an international auction if they are not taken up by carriers already operating in the country. The sale of 4G licenses is part of a long-awaited plan to reform Egyptian telecoms and the regulator has approached the three companies currently offering mobile services - Orange Egypt, Vodafone Egypt, and Etisalat about buying them. Egypt's government will finalize technical negotiations with telecoms groups over the licenses next week and start financial negotiations the week after, Communications and Information Technology Minister Yasser al-Kadi told Reuters. "If any of the companies say they don't want the 4G license we will offer it in an international auction," he said. The reforms will enable landline monopoly Telecom Egypt to enter the mobile phone market directly, while allowing the mobile operators to offer fixed line services, ending Telecom Egypt's domination of the sector. Telecom Egypt will not be required to sell its stake in Vodafone Egypt but will eventually dispose of it when it gets a good offer, telecommunication sources told Reuters. The state-owned company owns a 45 percent stake in Vodafone Egypt but hopes to offer mobile phone services itself following the introduction of high-speed 4G technology. Telecom Egypt said earlier this week it was studying the terms in detail ahead of applying for the 4G license. Egypt said in 2014 when it laid out the 4G plan that Telecom Egypt would be allowed to offer mobile services if it paid 2.5 billion Egyptian pounds (\$282 million) and sold its Vodafone stake within a year of offering the services. The government says a unified

license will put all four telecoms companies on an equal footing and end a monopoly, it also hopes to collect a total of 22.3 billion Egyptian pounds from license fees, which will be collected in a lump sum and not over installments, Kadi said. All four companies have to submit applications for the license by the first week of August. The mobile operators will also be able to apply for landline and international gateway licenses.

(June 24, 2016) Reuters

Orange Egypt said that Egypt's telecommunications regulator has set the price of a license to provide 4G mobile services at EGP 3.54 billion (EUR 342.6 million), half of which must be paid in dollars. It said in a statement on the Egyptian stock exchange that the regulator had set the cost of acquiring a fixed line license at EGP 100 million and the cost of a license to offer customers international calls at EGP 1.8 billion. Orange said it was looking into the license offers and had yet to make a decision, Reuters reported. A spokesman for the regulator has confirmed that it approached the three companies that currently offer mobile services in Egypt about applying to buy 4G licenses but did not give details or prices. The other mobile operators in Egypt are Vodafone and Etisalat. Telecom Egypt (TE) also said it had received a letter from the National Telecommunications Regulatory Authority (NTRA) concerning its right to obtain a license to provide 4G services. The final terms and conditions of the license must be decided by the first week of August, the operator said. The spectrum award will allow TE to realize its goal of becoming an integrated operator, offering both fixed and mobile services. (June 20, 2016) telecompaper.com

Iran



Chairman: Dr. Ali Asghar Amidian

[Communication Regulatory Authority (CRA)]

Iran has purchased the rights to two geostationary orbit positions from the International Telecommunications Union, the deputy director of Iran's Space Agency announced. In an interview with Mehr News Agency, Mohammad Homayoun Sadr added that the two registered positions at 24.19 and 34 degrees will be used for nationwide telecommunications, TV and radio transmissions. He also explained procedures regarding registering and maintaining positions on geostationary orbit positions. According to Sadr, regulations for utilizing geostationary orbit positions have changed in recent years with lifespan and replacement of satellites being key areas of change. He added that the right to utilize these two positions will be granted immediately after Iran starts its satellite manufacturing program that will occupy the slots mentioned above. The official underlined that Iran aims to launch indigenous geosynchronous satellites into orbit by 2025. "A 10-year plan has been put on the agenda for the construction of two remote sensing and telecommunications satellites; the remote sensing device aims to localize a satellite capable of producing professional high precision images, while the telecommunications satellite seeks to be 'world-class', an objective that will hopefully be achieved by 2025," he said. Sadr mentioned the possibility of launching a prototype remote sensing satellite in the

next Iranian year (starting March 21, 2017). "Iran aims to launch satellites to higher altitudes, which would enable the agency to capture more precise imaging," he said.

(June 28, 2016) financialtribune.com

The International Telecommunication Union (ITU) has reinstated Iran's license on two orbital slots, Deputy Head of Iranian Space Agency (ISA) said on June 27. Homayoun Sadr said that at the moment, the ITU has reinstated two orbital slots for Iran, located at 34 degrees east and 24.19 degrees; "these two slots are reserved for national telecommunication satellite and a radio and television broadcasting satellite," he said, adding "we can make use of the slots as soon as programs for constructing these satellites have begun." Sadr went on to add that Iran also holds rights to a number of orbital positions so that it will be able to make use of them one day; "the condition on being able to use an orbital position is to having placed a satellite there," he said. According to Sadr, the ITU regulations no longer allows a country to permanently keep an orbital slot; "once a satellite's useful life ends, countries must start planning for the next satellite to take its place," he said. If countries do not intend to place a satellite in their orbital slot, the rights will be temporarily given to other countries under an MoU, he added. "Right now, we are on our way to obtain the right to make use of our orbital slots," he said. The International Telecommunication Union (ITU) headquartered in Geneva, Switzerland, is part of the United Nations system. The ITU has 193 Member States and almost 800 Sector Members and Associates and acts as a forum for governments and the private sector to coordinate technical and policy matters related to global telecommunications networks and services.

(June 26, 2016) Mehr

Iran's dominant fixed line operator, Telecommunication Company of Iran (TCI), has signed a EUR1 billion (US\$1.13 billion) finance agreement with an unnamed overseas vendor for the expansion and upgrade of its networks. The deal follows the lifting of international trade sanctions against Iran earlier this year after the country promised to restrict its nuclear testing program. Alongside the new financing deal, TCI recently signed cooperation agreements with foreign telcos KT Corp of South Korea and Kazakhtelecom of Kazakhstan, as well as Italian equipment supplier Italtel. TCI and its subsidiaries hold a virtual monopoly in Iran's fixed telephony sector and it is also the largest broadband internet provider, while sister company MCI is the country's leading cellco by subscribers. (June 14, 2016) IRNA

Iran is in the process of reclaiming its Mesbah satellite from Italy which refused to hand it over to Iran under the pretext of international sanctions on Iran, said Head of the Iranian Space Agency (ISA) Mohsen Bahrami on June 6. "Iranian researchers are now estimating the options to decide over the launch of Mesbah satellite into the orbit," he added. Iran's Mesbah satellite was built in collaboration with Italy's Carlo Gavazzi Space S.p.A in 1998 and was unveiled in 2005. Mesbah, a low earth orbit telecommunication satellite, was never launched as both Russia and Italy refused to continue cooperation with Iran on space projects due to the sanctions regime against Iran. (June 7, 2016) Mehr

Jordan



**Chairman of the Board of Commissioners/
CEO: Eng. Ghazi Al-Jobor**

[Telecommunication Regulatory Commission (TRC)]

Investors have shown strong interest in starting up new projects in the information and communication technology (ICT) sector, the Jordan Investment Commission (JIC) said. In a statement, JIC President Thabet Al Wir said ICT investors have applied to build up projects, worth JD20 million. The projects are expected to provide around 900 job opportunities. The JIC attributed the growing interest to fresh incentives and recent tax cuts granted to ICT investors, in pursuance of a Cabinet decision. Wir said the projects will create no less than 894 job opportunities for Jordanians, explaining that this month the JIC received applications for 16 ICT projects. Investors' envisaged projects cover different ICT business areas, including the development of software, different mobile and Internet apps, digital services and electronic games, Wir noted, underscoring the importance of the ICT sector for the economy. Goods needed to facilitate the ICT projects, whether imported or purchased from the local market, will benefit from a zero per cent sales tax. Wir urged investors to benefit from current incentives and start up ICT projects that can create jobs and provide a chance to make use of and further build young people's innovative skills. In April, the government endorsed a set of incentives to boost growth in the ICT sector, whose contribution is deemed vital to the country's gross domestic product. The ICT sector's revenues dropped by 14 per cent in 2014 compared to 2013, down to JD546 million, according to figures of the ICT Association of Jordan (int@j). The decline was attributed to several local and external factors, including lack of incentives in previous years to boost the sector. (July 17, 2016) [zawya.com](#)

Kuwait



Chairman and CEO: Salim Alozainah

[Communication and Information Technology Regulatory Authority (CITRA)]

Kuwait's Zain has reached out to Egypt's telecommunications regulator to register a preliminary interest in obtaining a 4G mobile concession, according to a report from Reuters, which cites a bourse filing made by the operator. In this, the Kuwaiti company confirmed it 'is studying a number of investment opportunities available in the region, one of which is the Egyptian telecommunications market as a strategic market in the Middle East and Africa'. It is understood that the approach by Zain to the Egyptian authorities has been made through one of its subsidiaries.

(July 18, 2016) [telegeography.com](#)

Nepal



Chairman: Mr. Digambar Jha

[Nepal Telecommunication Authority (NTA)]

Nepal reached 30.3 million voice telephony subscribers at March 14, up from 29.9 on February 13. The country's mobile voice subscriber base amounted to 28.6 million

users at March 14, up from 28.2 million in February, according to data from the Nepal Telecommunications Authority (NTA). The total includes 27.26 million GSM users in March, up from 26.89 million in the previous month, with the remaining 1.38 million use Nepal Telecom's CDMA service, up from 1.36 in February. NDCL led the country's voice telephony services market in March, with a total of 14.43 million subscribers, followed by Ncell with 13.63 million. Nepal had a mobile teledensity of 106.66 percent at mid-March, while fixed teledensity reached 3.20 percent. Nepal also had 13.2 million data/internet services users at March 14, and an internet penetration of 50.11 percent.

(July 18, 2016) [telecompaper.com](#)

The Nepal Telecommunications Authority (NTA) has – as requested by the government last week – submitted an amended frequency policy to the Ministry of Information and Communications to allow the country's mobile operators to utilize their existing 1800MHz spectrum holdings for 4G LTE services. The annual spectrum fee for the 1800MHz band will be increased from NPR8 million (USD75,500) per MHz to NPR19 million, according to a report from the Kathmandu Post. 1800MHz frequencies are currently being used for 2G services in Nepal, but the government is looking to encourage operators to launch 4G technology. Alongside the 1800MHz plan, the NTA has also amended the policy to allow existing 2G 900MHz spectrum to be opened for 3G services, with the annual spectrum fee rising from NPR12 million per MHz to NPR24 million. The changes only apply to those operators holding unified licenses, i.e. Ncell, Nepal Telecom (NT) and Smart Telecom. According to TeleGeography's GlobalComms Database, Nepal was home to around 26.6 million mobile subscribers at the end of March 2016, split between Ncell and NT, while Smart offers GSM-based limited mobility services (LMS) to around 1.4 million users. (July 8, 2016) [telegeography.com](#)

The government of Nepal has begun the process of converting existing wireless licenses to technology neutral permits, enabling operators to use their current 1800MHz frequency holdings to offer 4G LTE services. A report from the Kathmandu Post says the Ministry of Information and Communications (MoIC) has already decided to adopt a technology neutral approach and has called on the industry regulator, the Nepal Telecommunications Authority (NTA), to devise an action plan for the conversion of licenses. The Ministry is expecting that the country's two mobile operators – Ncell and Nepal Telecom (NT) – will be free to launch 4G services as early as the middle of next month. Separately, the MoIC has also asked the NTA to prepare a detailed work plan on how best to spend money held in the Rural Telecom Development Fund (RTDF), which is contributed by telcos and supports infrastructure rollouts in rural areas. In August 2015 the government unveiled plans to spend NPR1.48 billion (US\$14 million) from the RTDF in the fiscal year to mid-July 2016. The planned investment represented just 14% of the funds available under the RTDF at that time. The investment has gone towards four main projects: the District Optical Fiber Project (NPR1 billion of the total spend); broadband infrastructure development in 14 earthquake-affected districts (NPR330 million); the establishment of one

model e-village development committee in each of the country's 75 districts (NPR75 million); and the extension of internet services to 500 rural community schools and colleges (NPR75 million). (June 27, 2016) telegeography.com

Cadres of a hardline Maoist group in Nepal today set on fire five towers of a private telecommunication company across the country. As some leaflets, published by the Netra Bikram Chand-led CPN-Maoist, were recovered from some sites, police suspected that the party made the multiple attacks on the telecom company. According to the Nepal Police Headquarters, the towers in Shivasatakshi of Jhapa, Kubhinde Daha of Salyan, Laxmipur of Dang, Ashrang of Gorkha and Yangsila of Morang districts were set on fire by the Maoist cadres. Equipment worth thousands of rupees were destroyed in the arson attacks, police said. The Ncell has recently come under attack from various corners for refusing to pay the capital gains tax it owed to the government when Teliasonera sold Ncell for Rs 143 billion equivalent to 1.40 billion US Dollar to Axiata Group.

(June 24, 2016) telecom.economictimes.indiatimes.com

Nepal reached 29.9 million voice telephony subscribers at February 13, 2016, up from 29.2 in December 2015. The country's mobile voice subscriber base amounted to 28.2 million users at February 13, 2016, up from 27.51 million in December 2015, according to data from the Nepal Telecommunications Authority (NTA). The total includes 26.89 million GSM users in February this year, up from 26.18 million at end-2015, with the remaining 1.36 million use Nepal Telecom's CDMA service, up from 1.33 in December 2015. (June 20, 2016) telecompaper.com

Oman



Executive President: Dr. Hamed Al-Rawahi
[Telecommunication Regulatory Authority (TRA)]

Oman is going totally mobile and it now has 2,235,488 more mobile subscriptions than the number of people in the Sultanate, according to the latest statistics from the Telecom Regulatory Authority (TRA). There are 6,661,166 mobile subscribers in Oman, a country with population of 4,425,678. That is around 1.5 mobile subscriptions per capita. The penetration of mobile subscriptions (155% per inhabitants) surpassed fixed line (10.11% of inhabitants) and fixed Internet (41.04% of households) penetration in 2015 end, according to the Report for the Indicators of Telecom Sector of Oman, issued by the Telecommunication Regulatory Authority (TRA). Prepaid mobile subscribers by the end of April 2016 stood at 6,063,434, up from 6,045,312 in March last year, while post-paid mobile connections stood at 597,732 by the end of April, up slightly from 597,558 subscribers at the end of March last year. The number of internet subscribers at the end of April rose to 256,834, from 252,886, a year ago in March. The number of subscribers for fixed broadband, including DSL and WiMAX-leased lines experienced a 9 per cent fillip at the end of April to reach 254,178 subscribers. NCSI data also showed a growth of 4 per cent in the number of active mobile broadband subscribers to over 3,385,544 at the end of April, up from 2015. The Sultanate's total number of fixed

telephone lines, including post and prepaid, public, WLL, and ISDN channels registered a growth of 3.6 per cent, as of the end of April, compared with the end of 2015. The fixed telephone subscriber base stood at 450,443 at the end of April, up from the end of 2015, while the number of telephone lines was pegged at 446,918 last March, according to the figures issued by the National Centre for Statistics and Information (NCSI). Among fixed lines, fixed prepaid (card fixed) telephones witnessed a growth of 8 per cent, taking the total to 60,475 lines, while post-paid connections stood at 336,175. The Sultanate had a total of 6,801 public telephones by the end of April this year. The number of integrated services digital networks (ISDN) stood at 45,238, whereas the number of wireless fixed lines slipped 1 per cent. (June 18, 2016) world.einnews.com

Pakistan



Chairman: Dr. Syed Ismail Shah
[Pakistan Telecommunication Authority (PTA)]

ITU-PTA Asia-Pacific Regulators' Roundtable" and the "ITU-PTA International Training Program (ITP) 2016" started in Islamabad under the aegis of Pakistan Telecommunication Authority (PTA) and International Telecommunication Union (ITU). Representatives from more than 20 countries from Asia Pacific Region are participating in the events. The Chief Guests of the inaugural ceremony of this event were Anusha Rahman Khan, Minister of State for Information Technology and Telecommunication and Houlin Zhao, Secretary-General, ITU. Chairman PTA Dr. Syed Ismail Shah welcomed the guests. Members of PTA, Members of Ministry of IT, and regulatory heads of different countries, representatives from telecom mobile operators, internet service providers, academic institutions, banks, ICT entrepreneurs, and commercial companies attended the event. On this occasion Secretary General ITU said that it is a great pleasure and a privilege to be at the Asia-Pacific Regulator's Roundtable jointly organized by the PTA and the ITU with support from the Department of Communications and the Arts, Government of Australia. "At this esteemed Roundtable, we are greatly honored by the presence of high level regulatory and policy decision makers from more than 20 countries from the Asia-Pacific region and beyond", said Secretary General ITU. He further said that this Regulators' Roundtable for Asia-Pacific 2016 is of particular importance as it is the first Symposium in this region since the United Nations General Assembly adopted the Sustainable Development Goals (SDGs), otherwise referred to as the 2030 Agenda for Sustainable Development. He said that ICTs are the foundation upon which economic and social development can grow. "ICTs have incredible potential to improve development outcomes in both the developing and the developed world. All three pillars of sustainable development — economic development, social inclusion and environmental protection — need ICTs as key catalysts, and ICTs will be absolutely crucial for achieving the SDGs". He said that the Asia-Pacific Region took its own initiative to organize this annual roundtable to provide telecommunication/ICT regulators in the region with a platform that fosters dynamic and strategic discussions, as well as sharing of information, relevant

experiences and practices and to conclusively debate on possible solutions and opportunities for potential collaboration to address emerging regulatory issues and challenges. He said that ITU will also like to contribute to Pakistan telecom sector and would sponsor more ITU training programs in future in Pakistan to further develop the capacity of telecom sector. On this occasion, Anusha Rahman Khan said that presence of Secretary General of ITU is a big achievement for the telecom sector of Pakistan. She also appreciated the role PTA in organizing Asia-Pacific Regulators' Roundtable" and International Training Program. The Minister said that the traditional regulatory rules have diminished and the telecom regulators are now emerging in the new digital era. Pakistan is passing through telecom revolution and this revolution is witnessed everyday when telecom companies get more and more subscribers in the 3G/4G segment. ICTs have become a way of life for Pakistan. She said that potential of ICTs is to be used for innovation and technological advancements. For this we need to review the policies all the time and we need to look at regulatory paradigms that control the frame works. She said that the government of Pakistan fully realizes the potential of ICTs which is to be used to spur socio economic growth and now the time has come the digital Pakistan is the only way forward. She said that 3G/4G/LTE services had started from November 2014 and around 32 million mobile broadband subscriptions have been added. She said that people of unserved/underserved areas are benefiting with the technological advancement in the country. The Minister praised the role of PTA in organizing Regulators' Roundtable" and International Training Program. Chairman PTA Dr. Syed Ismail Shah — in his welcome speech — said that the theme of this conference is "collaborating regulations for smart digital society". Chairman said that our vision is vibrant telecom market with affordable access to services for consumers of all strata. This is fully aligned with the vision of ITU. We all have benefited from the principles and standards of ITU like IT advanced, IT 2020 most popularly known as 3G/4G and 5G technologies by providing meaningful input into all other areas. "I am sure that every regulator of the region is playing its crucial role for the provision of better telecom services to the consumers. However, we the regulators need to re-imagine our regulatory approach in the wake of new trends and challenges", Chairman PTA further added. It may be mentioned that, ITU-PTA Asia-Pacific Regulators' Roundtable" and the "ITU-PTA International Training Program (ITP) 2016" are being held for the first time in Pakistan. (July 18, 2016) propakistani.pk

Pakistan has decided to take up the issue of spillover effects of mobile signals coming from Afghanistan at the upcoming Roundtable International Conference to be held in Islamabad from July 18 – July 22. Pakistan has long been trying to block mobile signals from Afghanistan in order to control terrorist activity. The PTA has blocked several Afghani SIMs after they were linked to suspicious activities in the country. However, those SIMs still work along the Pak-Afghan border due to the spillover effect of mobile signals. Following the Peshawar APS Massacre, PTA raised concerns that Afghan telecom companies should block their signals along the border. There have been no optimistic turnouts as Afghanistan continues to

ignore a Memorandum of Understanding sent to Kabul in this regard. In their continuing efforts to curb terrorist activity, Chairman Pakistan Telecommunication Authority (PTA), Dr. Ismail Shah said: "Yes, we will raise the issue of spillover effects of mobile signals in the bordering areas with Afghanistan during the upcoming international conference of regulators in which representatives of 23 countries belonging to Asia Pacific will participate." Representatives from several countries of the region will be attending the conference including China, India, Iran, Afghanistan, Bangladesh and others. PTA is also organizing the Asia-Pacific Regulators Roundtable for the first time in Pakistan. The conference will serve as a platform for telecommunication/ICT regulators in the region that fosters dynamic and strategic discussions, sharing information, relevant experiences, and practices.

(July 18, 2016) The News

Norwegian-backed cellco Telenor Pakistan has challenged the government's imposition of a 10% sale tax on its recent award of 850MHz spectrum, ProPakistani reports, citing a petition filed by the operator with the Islamabad High Court. The spectrum was auctioned earlier this month and, as the only operator to submit an offer, Telenor won the tender with a bid of USD395 million. The cellco has deposited half of the spectrum fee and had agreed to pay the remainder in five equal installments, but the Pakistan Telecommunication Authority (PTA) has withheld the concession until Telenor pays advance income tax of US\$39.5 million, or 10% of the total auction price. According to the Norwegian-owned provider, the Federal Board of Revenue (FBR) has 'grossly misinterpreted and twisted the law' and the deduction of withholding tax of 10% of the gross sale price is unlawful. In its petition, the cellco explained that the transaction cannot be called a 'sale' as there has been no transfer of property, pointing out that: there is no property to transfer, no current owner (it states that the government does not own the frequencies, only the right to control the resource) and no transfer of title. Further, the license does not grant Telenor any proprietary rights, only permission to use radio spectrum. (June 29, 2016) telegeography.com

PTA's latest report for the month of May demonstrate Pakistan's over-all Cellular Subscribers. Indicators for increase in May-16 are under observation according to the PTA's statistics. The number of mobile subscriber improved from 132 Million in April to 133 Million in May. The number of 3G & 4G mobile users stretched 29 million. The cellular Teledensity reached 69.34%. In May-16, Ufone again lost its 388,067 subscribers. At the same place Warid increases 0.1% as was in the previous month. Here are the graphs that are showing increase/decrease in cellular subscribers. According to PTA's statistics, here are the details for 5 Pakistani 3G/4G operators. Namely Telenor, Ufone, Mobilink, Warid and Zong by May 2016.

- Mobilink: With 38.5 million at the end of April-16 Mobilink reached at 38.9 million at the end of May-16.
- Telenor: With 37.4 million at the end of April-16, Telenor reached at 37.9 million at the end of May-16.
- Zong: With 24.9 million at the end of April-16, Zong reached at 25.1 million at the end of May-16.

- Ufone: With 20.7 million at the end of April-16, Ufone decreased and reached at 20.3 million at the end of May-16.
- Warid: With 11.0 million at the end of April-16, Warid reached at 11.1 million at the end of May-16.

(June 17, 2016) phoneworld.com.pk

The government may not be able to present clean (clear from interference) spectrum in the 850 MHz range (3G) for auction to the Cellular Operators in the upcoming Next Generation Mobile Services process, it is learnt. Cellular operators will have to face interference issues in the 850 MHz range as some degree of co-channel interference along borders with neighboring countries will persist, official sources revealed to Business Recorder on Saturday. Pakistan Telecommunication Authority (PTA) on May 23 arranged an information session for prospective bidders to explain the auction process, rules and other details. The meeting was attended by Mobilink, Telenor, World Call and Multi Net. The stakeholders presented and raised a number of questions with respect to upcoming spectrum auction. The auction committee of PTA has prepared response to proposals/demands of Telecom Operators on Information Memorandum (IM) and license template and shared with all stakeholders. Telecom stakeholders raised questions with respect to 850 MHz /900 MHz coexistence and stated that Pakistan has had a mixed band plan for a long time. Further co-existence between 850 MHz and 900 MHz networks typically requires transmit filters on the 850 MHz base stations and receive filters on at least some 900 MHz base stations. They further stated that 900 MHz operators may have benefited from the absence of an 850 MHz operator and omitted external receive filters on their base stations. This situation will persist, and may need to install receive filters in order to coexist with the 850 MHz network in future. In cases where interference is discovered, Frequency Allocation Board (FAB) will ensure that the situation is addressed and that the sources of interference are removed. In the unlikely case that FAB is unable to remove interference from a significant part of city or a region, the 850 MHz operator can expect that the same principles will apply to it as have applied eg to Zong in the 900 MHz and 2100 MHz band. This means that under some circumstances, the 850 MHz operator may be offered compensatory spectrum in the city or region where significant and persistent interference cannot be removed. "The 850 MHz must, however, expect some degree of co-channel interference along borders with neighboring countries", operators added. The PTA auction committee responded that their understanding about the discussion was correct. The spectrum in the 850 MHz range, the government is going for auction will have interference issues, especially in the borders areas, the official added. China Mobile Pakistan (CMPak) had sent a legal notice last year to the PTA demanding that it be allocated a substitute band of spectrum as well as a partial refund of its spectrum costs and \$40 million in damages for loss of market share and loss of revenues.

(June 3, 2016) Business Recorder

According to the Pakistan economic survey 2015-16, cellular mobile operators invested US\$557.3 million to upgrade their 3G/4G broadband networks in the first nine months (July 2015 to March 2016) of the outgoing

fiscal year, but revenues continued to decline. The sector's monthly revenue has declined by Rs1.6 billion per month in the outgoing fiscal year compared to the previous fiscal year. From the month July to March, the total investment observed was \$589. It covers the investment from entire sector which includes Long Distance and International and Local Loop segments. The survey says that: "...operators are adding back customers that were lost due to blocking of SIMs during biometric re-verification drive last year." One of the major reasons for the decline in the investment is the heavy taxes paid by the cellular companies. Telecom sector has paid a sum of Rs105.92 billion in duties, taxes and levies to the national exchequer in 9MFY16. This calculation suggests that full-year tax payment to the government would surpass previous fiscal year's taxes of Rs.126.26 billion with the addition of last quarter (Apr-June 2016) taxes – estimated to be Rs. 35.30 billion. The survey suggests that Pakistan's telecom industry can improve its revenue generation by expanding their value added services and entering into new avenues of growth such as branchless/ mobile financial services and other ICT enabled services in collaboration with other service providers in the economy. PTA survey also gives the ray of hope by proving the increased number of people from the last year. At the end of April 2016, the number of mobile phone users has surged to 132.65 million as compared to 114.65 million at the end of the previous fiscal year on June 30, 2015. Telecom Policy 2015 is aimed at facilitating the attainment of an all-embracing national agenda and to transform Pakistan into an economically vibrant, knowledge-based, middle-income country by 2025. (June 3, 2016) phoneworld.com.pk

The Pakistan Telecommunication Authority (PTA) has received a single bid for 3G/4G compatible spectrum in the 850MHz band, the regulator announced today. Norwegian-owned cellco Telenor Pakistan was the only provider to submit an offer by the deadline, which closed yesterday. The sole concession consists of 2x10MHz at 824MHz-834MHz/869MHz-879MHz and is valid for 15 years, with a reserve price of US\$395 million. In its statement, the PTA notes that on May 23 it held an 'information session' with prospective bidders including Mobilink, WorldCall and Multinet. (June 2, 2016) telegeography.com

Qatar



President: Mr. Mohammed bin Ali Al Mannai

[Communications Regulatory Authority (CRA)]

Qatar's mobile subscriber base may end 2016 with 4.86mn mobile subscribers, and rise to 5.42mn by 2020, BMI Research has said in its latest report. The Fitch Group company maintains its prediction that broadband subscriber numbers will grow steadily from an estimated 527,000 at the end of 2015 to more than 803,000 by end-2020. This will be equivalent to a penetration rate of 32.7%, up from 23.6% in 2015. BMI has left its 3G and 4G subscriber forecasts unchanged this quarter (Q3, 2016). Growth has historically been strong and BMI predicts that 3G/4G penetration will reach 60.8% in 2016; jumping to over 3.98mn 3G and 4G enabled phones by 2020, with a market penetration of 73.5%. "There are many upsidest to our 3G forecast as heavy infrastructure

developments by Ooredoo in the 3G, 4G and 5G sector, such as Ooredoo Qatar and Nokia Networks launching an LTE-advanced (LTE-A) network in Qatar in December," BMI said. The Fitch Group company maintains a "positive outlook" for Qatar's telecommunications sector. A booming construction sector fuelled by infrastructure investments linked to the 2022 FIFA world cup buoyed the telecoms sector growth in 2014 and 2015. Migrant workers and their families have buoyed the adoption of mobile and wireline broadband subscriptions over the past two years. This trend is expected to continue throughout BMI's 2015-2020 forecast period. BMI expects the increase in competition in Qatar's 4G market to stimulate aggressive network expansion and service pricing strategies by the country's service providers. This development, along with the proliferation of affordable smartphones, will drive mobile data subscriptions in the country. By 2020, there will be 3.98mn 3G/4G subscriptions, or 73.5% of the overall mobile market. BMI has based its forecast on a number of industry-specific and macroeconomic factors, notably price competition, aggressive network expansion, declining average selling price (ASP) of smartphones, and Qatar's strong private consumption growth outlook over its forecast period. "We believe that lower tariffs and cheaper smartphones will drive uptake among migrant workers, arguably the fastest growing consumer segment owing to the influx of construction workers and other expatriates involved in the country's preparation to host the 2022 FIFA World Cup," BMI said. BMI believes the rising take-up of mobile data services will also help sustain Qatar's ARPU levels during its forecast period. Although competition has forced Ooredoo's ARPU down nearly to the same level as Vodafone's over the last year, BMI expects neither operator will be interested in pushing these down much further than the present level. "The duopoly in the market will therefore act as another important buffer against faster ARPU depreciation in Qatar throughout our forecast period. We do highlight the risk that devices such as tablets, with a lower ARPU, might dilute the overall figure should uptake continue to increase. Vodafone could also use price competition to attract users onto its network," BMI said. (July 17, 2016) zawya.com

The telecommunications market in Qatar is witnessing a steady growth with around 5 million fixed line and mobile subscriptions (including broadband) and market revenue of over QR10m last year, says the first annual report of the Communications Regulatory Authority (CRA). Fiber broadband connection speeds in Qatar reach up to 100Mbps. Qatar has one of the highest mobile SIM penetration rates in the world, and competition has brought significant uptake in mobile data services, says the report. The report highlights the progress CRA has made in promoting competition and safeguarding the interest of consumers, contributing to Qatar's transition to a smart, digitally connected nation with a growing, diversified economy. CRA is developing a quality of service (QoS) framework that will make the performance obligations of networks and service providers clear. It is also focusing on regulation in wholesale markets to decrease retail regulation, which is expected to benefit fixed lines in particular, and to reproduce some of the steady growth in mobile. The intent is to gradually remove, where possible, intrusive regulation at the

retail level to encourage service providers to develop better services and innovative products, said the report. "As the report outlines, the hallmarks of Qatar's regulatory framework will remain predictability and clarity, ensuring that Qatar continually enhances its rich landscape of services. We will continue to analyze the state of competition in the telecommunications market and determine where further measures are needed to develop communications services, including in the fixed market," said Mohammed Ali Al Mannai, President of CRA, while releasing the report. The report indicates that the telecom market is healthy and growing, and investment remains strong, with increased revenues, new products, and overall net profits. Both Ooredoo and Vodafone Qatar invested in their networks with the launch of LTE/LTE+ networks in 2014-15. Competition in mobile has developed, although competition in fixed lines has yet to fully emerge, which will impact the future growth of that sector. Consumers are benefiting from wide-ranging consumer protection efforts, including a dispute resolution mechanism, a new advertising code of conduct, the Consumer Protection Policy (CPP), and a mobile app—Arsel—that allows dissatisfied consumers to send instant comments and feedback to CRA directly. "While a great deal of work has been done in the area of consumer rights, CRA is continuing to strengthen the codes and frameworks that will protect consumers in the future," said the report. A robust regulatory and legal framework that supports the development of the sector continues to be put in place. A recently developed competition policy framework is aimed at creating a certain and stable environment in which market participants understand under what circumstances CRA will undertake investigations into anti-competitive behavior—targeted at segments that pose challenges in the delivery of effective competition and good outcomes for consumers. Terms and conditions for access to and/or sharing of civil infrastructure have been put in place. A large-scale survey of consumers in 2014 found that while a majority of telecommunications users in the country are generally satisfied with the quality of service offered by their service providers, pricing, rate plans, and complaint resolution were cited as key areas for improvement. From February 2014 to December 2015, CRA resolved 99 percent complaints and inquires (3,586) that consumers couldn't resolve with their service providers. CRA issued 5,492 spectrum licenses, 2,278 Type Approvals for Radio and Telecommunications Terminal Equipment (RTTE), 1,839 frequency assignments, and 1,233 new Import Authorization licenses for RTTE, investigated 115 interference cases, and conducted 18 QoS investigations. A total of 75,044 customs clearance applications were also processed. The number of registered domains in Qatar reached 21,113. (June 14, 2016) thepeninsulaqatar.com

Saudi Arabia



Governor, Deputy Chairman of the BoD:

Dr. Abdulaziz Bin Salem Al Ruwais

[Communication & Information Technology Commission (CITC)]

Saudi Arabia's regulators plan to inspect local mobile phone retailers to ensure that at least half the employees are native Saudis. The government announced earlier this year that it will ban foreign staff from working in

the mobile phone retail sector, and set a deadline of this week for at no more than half of staff to be foreign nationals. By the September 3, all staff will have to be Saudi nationals. The Ministry of Commerce and Investment (MCI) said that will start inspections of stores this week to ensure they have complied with the first deadline. Businesses not complying with the new regulation will face penalties under the provisions of the Anti-Commercial Concealment Law. If found guilty, the business owner could face up to two years in jail, and if a foreign national, would be deported from the country afterwards. Saudi nationals would be banned from operating a phone retail store for five years.

(June 7, 2016) cellular-news.com

Sri Lanka



Director General: Mr. Sunil S. Sirisena

[Telecommunication Regulatory Commission (TRC)]

Sri Lankan mobile operators Dialog Axiata and Mobitel recently carried out trials of LTE-Advanced Pro technology. The test was carried out on its LTE network in partnership with Chinese vendor Huawei, Dialog Axiata said. "The demonstration established the capability of the network to deliver throughputs in excess of 1 [gigabit per second] on the LTE Radio (Air) Interface, setting a solid foundation for the future evolution of the nation's 4G services to a technology generation well ahead of neighboring markets," Dialog Axiata said in a statement. "Following the '4.5G' technology capability test, Sri Lanka joins a select circle of 20 countries where 4.5G capabilities have been demonstrated," the operator, which initially launched commercial 4G LTE services in 2014, said. Mobitel also confirmed it has reached speeds exceeding 1 gigabit per second in its trials of LTE-Advanced Pro technology with partners Huawei and ZTE; tests were conducted in a Mobitel facility. "Having successfully tested the 4.5G LTE-Advanced Pro technology, Sri Lanka telecom Mobitel is looking forward to commercially deploy the 4.5G services to the nation for further strengthening the evolving [information and communications technology] industry," Mobitel said in a release. However, the telco did not provide further information on the future launch. ZTE partners with China Mobile Research Institute to complete 5G high-frequency technology phase test. In other APAC news, Chinese ICT services provider ZTE has completed its prototype verification and performance testing of key "5G" high-frequency technology in partnership with the China Mobile Research Institute in Shanghai. The joint test verified multiple technical performance indicators, including indoor transmission performance of the 5G high-frequency prototype in the 15 GHz band, single-user peak rate, transmission rate in line-of-sight/non line-of-sight scenarios and indoor penetration loss and coverage. The test achieved a single-user peak rate over 3.7 gigabits per second and service transmission performance for direct wave, reflection and transmission scenarios were deemed good. "High-frequency communication is one of the key 5G technologies. It takes advantage of broadband transmission to multiply system capacity and can be applied in hot-spot large-capacity scenarios," the vendor said. (June 22, 2016) rcwireless.com

Sudan



Director General: Dr. Yahia Abdalla Mohamed

[National Telecommunication Corporation (NTC)]

Sudan's Bank of Khartoum has agreed to buy Abu Dhabi-listed Etisalat Group's 92.3 percent shareholding in Sudanese fixed line operator Canar for 349.6 million dirhams (\$95.2 million), Etisalat said. The deal comes after Bank of Khartoum, which already owns 3.7 percent of Canar, exercised its right as a shareholder to block an agreement by Etisalat to sell its stake to Kuwaiti telecommunications firm Zain, Etisalat said. Etisalat had announced the agreement with Zain at the same price on May 2, subject to approval from Sudanese authorities. A spokesman for Zain told Reuters that the company had nothing to add beyond Etisalat's statement and that Zain's offer remained valid until any deal with another party was concluded. Etisalat's deal with Bank of Khartoum, Sudan's biggest privately owned bank, remains subject to certain conditions, including the approval of Sudanese authorities, Etisalat said. The Abu Dhabi firm took a stake in Canar in 2004 and three years later spent 584 million dirhams to more than double its holding. But in 2012 it took an impairment charge of 459 million dirhams on its investment because of inflation, currency moves and difficult economic and political conditions in Sudan. Mobile phone penetration in Sudan was 72 percent in 2014, according to the International Telecommunication Union, placing the country 165th globally and indicating substantial growth potential.

(June 13, 2016) arabianbusiness.com

Tunisia



President: Prof. Hichem Besbes

[National Telecommunication Commission (INTT)]

Tunisia and India have signed agreement for strengthening bilateral cooperation in the field of IT, telecom and digital economy. "The Union Cabinet under the Chairmanship of Prime Minister has been apprised of a Memorandum of Understanding (MoU) signed between India and Tunisia on June 2, 2016 for strengthening bilateral cooperation in the field of Information and Communications Technology (ICT) and Digital Economy," an official statement said today. The agreement intends to foster active cooperation and exchange between private entities, governments, institutions involved in enhancing capacity building and other public and private organizations of the two countries in the field of ICT and Digital Economy, it added. (July 21, 2016) telecom.economicstimes.indiatimes.com

The Tunisian government is planning to list a portion of its 65% stake in incumbent telco Tunisie Telecom (TT) on the local bourse. Minister of Information Technologies and Communication Noomane Fehri announced the plan but did not specify how much of the government's stake would be sold off. The funds will be used to help drive international expansion, with the operator set to acquire GO Malta, as well as its domestic development plans. Mr. Fehri explained that the state's resources alone would be insufficient to support the telco's plans, so the decision was taken to expand the company's ownership.

(June 6, 2016), Agence Ecofin

United Arab Emirates



Director General: Hamad Obaid Al Mansoori

[Telecommunication Regulatory Authority (TRA)]

Telecommunications Regulatory Authority (TRA) has launched 'Erteqa' a new initiative which aims to increase the level of customer services across the telecoms sector in the country. It will adopt six major standards for the evaluation of customer service centers and several minor criteria including rating the ease and smoothness of service delivery and the customer's experience with employees in terms of professionalism, efficiency and interaction. The ratings standards will also assess the service centers' facilities, prominent display of products and services, as well their innovativeness. Hamad Obaid Al Mansoori, the Director General of the TRA, said: "At the TRA, we believe that the customer should be at the heart and priority of our services to achieve excellence and promote leadership." The UAE, he stated, puts its own touch when it comes to quality and excellence. "This unique effort makes our standards different from anywhere else in the world, as we work to always become number one in our initiatives – having learned from our wise leadership to not compromise on excellence," remarked Al Mansoori. Saleh Al Abdooli, the CEO of Etisalat Group, said: "It is our honor to be part of the 'Erteqa' initiative, which reflects the strategic orientation of the UAE Government to promote happiness for individuals and society." "In response to this initiative, Etisalat will mobilize our resources and human abilities towards innovation in the various fields to promote our services to a level where we can achieve the highest customer satisfaction and happiness," he added. Osman Sultan, the chief executive of Du, said: "We are fully committed to following the methodology set forth by the TRA, and we are proud to play our role in developing services that enhance the happiness levels of individuals and communities in our society." "As we grow our Smart City, we have come to the realization that telecom services play a key role in day-to-day life and we are completely dedicated to steadfastly digitizing and developing smart telecommunications services throughout the UAE. We are working hand in hand with our partners in this initiative, TRA and Etisalat, for the benefit our country and its progress," he added.

(June 24, 2016) TradeArabia News Service

Telecommunications Regulatory Authority (TRA) is discussing plans to allocate new bandwidth frequencies compatible with 5G mobile networks, enable airlines to provide high-speed broadband internet connection during flights at lower costs, and develop a global maritime distress system. These initiatives were revealed during its participation at a recently-held seminar organized by the International Telecommunications Union (ITU) in Geneva. The TRA, which is heading the Preparatory Meeting for World Radiocommunication Conference (WRC), raised several important clauses about the event, which will take place in 2019. It reviewed the suggested clauses on using space telecommunications in terms of current capabilities, considering that space telecoms is a major aspect of the space sector along with satellites and other related space communication technologies. Manager for International Organizations, Corporate Development

Department and TRA spokesperson, Khaled Al Awadhi, said, "The UAE's participation in the seminar as official speaker is a significant step for the country as a trusted nation capable of leading such events and confirms our established partnership with the ITU in various initiatives for the sector." This is not the first time the UAE has been invited to lead as an official speaker in global seminars and this reflects upon our ability to discern the weak and strong points and present ideas transparently, he said. "The UAE's leadership in telecommunications is central to the TRA's strategic goals and we are working to achieve this through technical and infrastructure developments as well as strategic partnerships. Leading the Preparatory Meeting for WRC-19 is another testament of the country's position globally as a trusted partner in telecommunications." Al Awadhi added "The TRA has proposed various technical aspects that require close collaboration between the telecoms and space sectors, especially in terms of enhancing the quality of telecommunications services and providing customers with easy access and reach as our way of helping our customers achieve happiness." The TRA has discussed the importance of using space services and providing new frequencies that can accommodate 5th generation mobile devices, which will require expanding broadband services or improving the efficiency of current capabilities. The TRA has discussed broadband application using satellites to serve the aviation sector which will allow airlines to easily provide high-speed internet connection in-flight. At present, there are some technical challenges to fully offer Internet connection while onboard flights because of lack of capabilities and high cost. Al Awadhi stated that the federal agency was invited to become part of an initiative to develop the Global Maritime Distress and Safety System, an electronic identification technology which will track ships navigating across oceans to ensure their safety from pirates and immediately get a response during emergencies. The project can be done by allocating new spectrum bands. "Emirati engineers are very much capable of contributing significant innovation in the space sector as we have seen them launch many projects under the sponsorship of technology firms and service providers. The TRA is continuously working to meet the requirements of those projects which may need to be tested and applied internationally. This is where we come in - to facilitate their implementation through coordination with ITU," Al Awadhi emphasized. The TRA won the chairmanship of the WRC 2019 Preparatory Meeting during its participation at the Radio Communication Assemblies meetings held in October 2015. (June 15, 2016) emirates247.com

The UAE's Telecommunications Regulatory Authority (TRA) says it has held a high-level meeting with a delegation from the Communication and Information Technology Regulatory Authority (CITRA) of Kuwait to present TRA's advanced strategies and latest approaches in corporate communication. The exchange of experiences and knowledge was part of the TRA's commitment to promote joint initiatives among the federal entity's counterparts in the region and the world. The Kuwait delegation reviewed the TRA Corporate Communications Department's current practices and commended its communications plan, which aims to

strengthen effective communication with its target audience and achieve the desired outcome. The parties outlined ideas and suggestions focused on crafting press and media content, brochures and leaflets, campaigns and website content. Ahlam Abdulrahman Al Feel, Director for Corporate Communication at the Corporate Communication Department of the TRA, presented its strategic annual plan and explained the communication strategies being used by the TRA to communicate with these audiences using social media channels.

(June 7, 2016) q8dailynews.com

The Telecommunications Regulatory Authority (TRA) has issued a directive ordering the region's operators Etisalat and du to place a hard cap on mobile data bundles to protect consumers from additional charges. The Directive (1) of 2016 applies to all mobile data bundles, whether included as part of the main subscription or purchased as an optional add-on. The directive obligates the operators to limit the supply of mobile data to the size of the bundle, once the bundle is exhausted, the licensee cannot supply further mobile data unless the consumer gives express consent. The directive serves as a safety net measure to protect mobile data subscribers from that the TRA calls "bill shock". TRA Director General, said: "We are concerned with the potential for consumers to receive larger-than-expected charges for their out-of-bundle mobile data usage. We acknowledge that both Etisalat and du have provided various tools to enable their customers to monitor their data usage and manage their costs. However, we note that not all consumers use such tools. It is also inherently difficult to estimate how much data is actually being consumed while, for example, browsing the internet or sending e-mails." "Consumers may not be aware of the actual costs associated with such mobile data usage and this could lead to 'bill shock.' We aim to address the issue once and for all through this new directive," Director General added. The TRA was concerned about the current arrangements as consumers may or may not know when their bundle has been exhausted and when the over-bundle rates are being charged. Furthermore, the TRA considers it to be unfair to consumers for operators to price the over bundle rate at the same level as the no bundle rate. Both Etisalat and du can only supply additional data to consumers during this out-of-bundle period if they subscribe to another mobile data bundle, opt-in to be charged at an over-bundle rate; or specifically instruct their service provider to remove the hard cap. As such, the operators must at all times, record the consent and instructions of their subscribers. According to the TRA, consumers who are currently subscribed to any alternative usage cap mechanisms for mobile data must be migrated to the hard cap mechanism. However, those subscribers may be provided with an option to opt-out of the hard cap in favor of their existing cap mechanism. The TRA also urged Etisalat and du to design and introduce pricing plans that are fairer to the consumer by charging lower rates for over bundle data than the rates charged for no bundle data. (June 1, 2016) itp.net

Telecommunications Regulatory Authority (TRA) has signed a Memorandum of Understanding (The MOU) with the Regulatory Authority for Telecommunications and Posts of Senegal as part of TRA's strategic

partnership program with telecoms regulatory authorities worldwide to share best practices in the sector. The MOU was signed on the sidelines of the 2016 session of the International Telecommunications Union (ITU) Council being held in Geneva from May 25 to June 2, 2016. The MOU aims to provide a general framework of collaboration for sharing best practices in information and communications technology (ICT) between the two countries, including the regulatory tools being developed in countries, the development of human resources, research and development, and the promotion of commercial activities in the sector. Under the terms of the MOU, both parties will establish a yearly calendar to identify the mutual programs and activities to spotlight on the work plan and the means of implementation to achieve the goals set in the agreement. The two countries seek to develop the ICT sector to meet current industry demand and keep pace with new technologies, as well as enable their respective Authorities to address the challenges faced by the sector. Mr. Hamad Obaid Al Mansoori, TRA's Director General, said: "The TRA continues to play its role in advancing the UAE's development in the telecoms sector. As an elected member of the ITU Council, we strive to promote the country's willingness to participate in joint initiatives which will contribute to ICT development in the region and the world." "It is our pleasure to sign the MOU with Senegal in our joint efforts to develop and improve the ICT sector. This agreement signifies the importance we assign to information exchange and the sharing of experiences as we face common challenges, as well as keep pace with the fast speed of development in the sector," H.E. added. The TRA is participating in Geneva to represent UAE at the ITU Council annual session as an elected member in the Council. The TRA has nominated a number of initiatives during the meeting, including an innovative white paper for ITU to shift to an electronic system of electing council members, ITU Chairman, and Radio Regulations Board members. (June 1, 2016) albwaba.com



REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

REGULATORY UPDATES

Argentina



Argentinean President Mauricio Macri announced a plan to encourage take-up of 4G handsets via subsidies and payment in installments. The initiative will require telecoms operators and equipment makers to invest a total of US\$ 5 billion as part of a plan also encompassing new mobile antennas and fiber networks, he said. Macri said the 4G programme, which will run until 30 October, sets a unit price of ARS 2,200 for handsets, which will be available with interest-free credit and is aimed at helping the country make up lost ground following a decade of under-investment. There are currently 7.7 million 4G handsets in Argentina, compared to 8 million 2G devices and 8 million near-obsolete 3G phones and Macri is aiming for sales of 16 million 4G units over the coming year. The subsidy programme concerns the following models: Huawei Y3 II, LG Leon K120 K4, Samsung J1 ACE, BGH Joy A20, Microsoft Lumia 640, Noblex N 453 and the Hyundai Ultra Dream. Public partners in the programme will include the communications and production ministries and telecoms regulator Enacom, which he said was making important progress in freeing up the 700

MHz band for mobile-phone use. Macri's presentation followed the announcement of two decrees, one calling for improved telecoms services in rural areas and another for better mobile services.

(July 20, 2016) telecompaper.com

The government has said that it will let telecoms operators have access to state owned properties at no charge in order to make it easier for them to expand their network coverage. According to a decree published by the government, private telecoms networks will be granted reasonable access to "terraces, roofs, towers or any other facility, plant or property of the state that seems suitable." The aim is to speed up the expansion of mobile phone coverage and increase competitiveness of the market. It comes after a report suggesting that mobile networks were struggling to find suitable sites for their antennas. In related news, the mobile networks have also been offered the opportunity to expand their licenses by up to four years if they agree to share some elements of their network infrastructure. (June 23, 2016) cellular-news.com

Nextel Argentina has reportedly acquired five wireless broadband operators for a

total of US\$138.2 million. The companies in question have been named as Netizen, Trixco, Skyonline Argentina, Infotel and Callbi, which between them hold radio spectrum in the 900MHz and 2.5GHz bands. 900MHz frequency holder Trixco was bought from Gridley Investments, while the other four companies were acquired from co-owners WX Telecommunications and Greenmax Telecommunications. A Nextel spokesperson commented: 'This transaction marks the beginning of a process of investment in technology and networks that will enable Nextel enhance their existing services and incorporate new value-added services such as mobile data. With these acquisitions, Nextel aims to complement its existing spectrum capacity, a necessary step to remain competitive in the field of mobile communications.' Media conglomerate Grupo Clarin acquired 51% of Nextel Argentina in January this year, after agreeing to buy an initial 49% stake in September 2015. (June 24, 2016) Clarin

Argentina's National Entity for Communications (ENACOM) has issued Resolution 2531/16, which seeks to vacate spectrum in the 512MHz-698MHz (600MHz) band, as currently held by pay-TV operators, with a view to repurposing the frequencies for mobile use. As such, pay-TV providers will be migrated onto the 12.2GHz-12.7GHz band within the next two years. According to the watchdog the plan 'will allow more efficient radio spectrum management, stimulating the development of services according to demand'. (June 1, 2016) telegeography.com

Australia



Telstra's varied Migration Plan, which details the way in which it will progressively migrate voice and broadband services to the National Broadband Network (NBN) as it is rolled out, has been approved by the Australian Competition and Consumer Commission (ACCC). Confirming its decision in a press release, the ACCC's chairman Rod Sims said: 'The changes to the Migration Plan offer further safeguards for telecommunications customers so they can maintain access to the services they value during migration to the NBN ... These changes will allow retail service providers more time to complete their migration activities before managed disconnection, and are intended to promote a more positive experience for customers as they move to NBN services.' The variation to the Migration Plan will provide for improved disconnection arrangements based on current, practical experience of migrating services to the multi-technology mix NBN, and includes further changes to accommodate the migration of business services by NBN access technology. (July 21, 2016) telegeography.com

Feedback has been invited on the proposed variation to nbn's Special Access Undertaking (SAU), which is a key part of the regulatory framework for governing prices and other terms upon which the company will supply services over the National Broadband Network (NBN) to retailers until 2040. With nbn having lodged a proposed variation to the SAU in May 2016, the Australian Competition and Consumer Commission (ACCC) has now published a consultation paper describing the main changes being proposed for the undertaking and outlining other key

issues. In a press release the regulator noted that the main proposed changes to the SAU are to incorporate fiber-to-the-node (FTTN), fiber-to-the-basement (FTTB) and HFC technologies into the undertaking. In addition, nbn is also seeking to: expand the service description to reflect the additional technologies; add new clauses to address specific matters relating to FTTN and FTTB services during the NBN rollout; and change the nature and extent of commitments to report rollout progress information. With a closing date for submissions set as 26 August 2016, ACCC commissioner Roger Featherston was cited as saying of the matter: 'The ACCC is especially interested in receiving feedback on industry's experience in accessing and re-supplying NBN services to date ... Changes to the Special Access Undertaking are needed to accommodate services under the multi-technology NBN model. We want to be sure the commitments in the undertaking continue to promote competition in NBN markets and remain in the long-term interests of consumers.' (July 21, 2016) telegeography.com

The Australian Competition and Consumer Commission (ACCC) has published nbn's (formerly NBN Co's) proposed variation to its Special Access Undertaking (SAU), the framework which governs the price and other terms on which the company will supply wholesale services over the National Broadband Network (NBN). The regulator noted that nbn is looking to vary its existing SAU, which has been in operation since it was accepted by the ACCC in December 2013. According to the ACCC, the main purpose of the SAU variation is to incorporate fiber-to-the-node (FTTN), fiber-to-the-basement (FTTB) and HFC as technologies to which the SAU will apply, in order to reflect the current NBN model. Doing so, it has been claimed, will ensure that the SAU applies to all network technologies that have been introduced by nbn. Although FTTN, FTTB and HFC are not reflected in the existing SAU, it was noted that nbn has so far been offering these services in a way that is consistent with the SAU. As such, the SAU variation will seek to formalize the arrangements that are currently in operation but have not yet been incorporated into the SAU. Meanwhile, nbn is also proposing to make a number of other changes to the SAU including changes to the nature and extent of rollout progress information that it would be obliged to provide to NBN access seekers and minor changes to dispute resolution arrangements. Submissions on the proposals have been invited by a deadline of August 26, 2016. (June 1, 2016) telegeography.com

Bahamas



The Bahamian government has instructed telecoms watchdog the Utilities Regulation and Competition Authority (URCA) to proceed with the allocation of the country's second wireless license to Cable Bahamas Ltd (CBL). The announcement follows the completion of certain conditions of the license, including the establishment of a new entity – 'NewCo' – to utilize the license, which will be 49%-owned by CBL and 51%-owned by Bahamian shareholders through a new holding company, 'HoldingCo'. Commenting on the decision, and the company's plans for launching services, CBL's president, Anthony Butler noted that CBL

would publish a full timeline for its network rollout and activation shortly. The official added: 'We understand the market and the expectations of Bahamians. The mobile service needs to be reliable, affordable and fully support applications that customers want to use, and that is what Bahamians can look forward to from us.'

(June 1, 2016) The Bahamas Weekly

Belgium



Belgium's parliament has voted to approve the government's plan to register details of all pre-paid SIM card users in an attempt to crack down on the anonymous use of mobile phones for terrorism and criminal offences. In May this year, the legislation, which is expected to be introduced later this year, will cover both new and existing pre-paid SIM cards. New numbers will not go live until the user has registered their details, while existing pre-paid customers will be given six months to confirm their identity or face their number being blocked. Mobile operators will be responsible for ensuring their users register their details and for storing the customer information. (July 22, 2016) telegeography.com

The Belgian Institute for Post and Telecommunications (BIPT) has said it will allow the country's mobile operators to begin trials of 5G technology using temporary licenses. The regulator is working with Swedish vendor Ericsson to determine which spectrum bands will be most suitable for tests. Belgium's Minister of Development Cooperation, Digital Agenda, Telecom and Postal Services, Alexander De Croo, has said that 5G is expected to bring a 'paradigm shift' to the communications market, and the early release of spectrum for trials will benefit telcos and application developers. The first commercial 5G services are expected to be launched in Europe around 2022.

(June 2, 2016) L'Echo

Benin



The Republic's Interior Minister Sacca Lafia said that mobile subscribers will once again be required to register their identities alongside their phone number/SIM card with their network operators, for national security reasons. The minister made the statement on July 10 during a broadcast on private radio station Frisson Radio, adding that alongside the requirements for a user to provide an identity card to register their name, their fingerprints and photo will be stored with their SIM card details. The minister also said that the scheme would be aimed at limiting multiple SIM ownership by individuals, whilst juveniles could own a SIM with parental consent. Benin's previous scheme to register all mobile users came into effect in June 2011, under which existing subscribers were told to provide official identification to their operators, or risk the deactivation of their SIMs, whilst ID was also officially required to purchase a new SIM card (although no deadline was set at the time for existing customers to register before disconnection).

(July 12, 2016) ORTB

Brazil



TIM Brasil and Claro have both launched their first LTE-Advanced (LTE-A) 4G networks using the recently freed 700MHz band. The two operators have begun using the 700MHz band in Rio Verde after the city became the first in Brazil – and in South America – to switch off its analogue TV signals on March 1 this year. Claro and TIM are both utilizing carrier aggregation (CA) in the 700MHz, 1800MHz and 2600MHz bands to boost speeds for 4G subscribers with compatible handsets. The next Brazilian city due to switch off its analogue TV transmissions is Brasilia on October 26.

(June 17, 2016) telegeography.com

British Virgin Island



The Telecoms Regulatory Commission (TRC) of the British Virgin Islands (BVI) has confirmed that it will re-stage last October's controversial 4G spectrum tender process later this month. According to regulatory documentation, the deadline for application submissions is July 26, and successful applicants will be notified on August 16. Going forward, frequencies will be authorized and granted on August 23.

In January this year Caribbean Cellular Telephone (CCT) confirmed that the Eastern Caribbean Supreme Court had backed its legal case against the TRC regarding the cellco's exclusion from last year's 'Spectrum Award 2015' process. In October 2015 TRC chief executive Guy Malone announced that only two of the country's three mobile operators – Digicel and LIME (now Flow) – had applied for 4G spectrum, prompting locally-owned CCT to take legal action. CCT claimed that its application had been unfairly rejected by the TRC, resulting in it being prevented from bidding for 4G-suitable 700MHz spectrum. (July 19, 2016) telegeography.com

Cameroon



Ministry of Posts and Telecommunications has announced it will deactivate all unregistered SIMs from June 30, 2016, in accordance with Law No. 2010/13 of December 21, 2010 and amendments made via Decree No. 2015/3759 of September 3, 2015. In a press release, the ministry noted that: all operators had been ordered to commence suspension of unidentified SIMs as of June 10; all operators will have to use a system to detect the MRZ code on identity cards produced by their subscribers; and operators must deploy teams nationally to ensure the registration is implemented.

(June 16, 2016) telegeography.com

China



The Ministry of Industry and Information Technology (MIIT) has approved plans for China Telecom to begin offering LTE services on the 800MHz band. The watchdog has also greenlit a request from China Unicom, allowing the cellco to carry out tests of frequency

division duplex LTE (FDD-LTE) in the 900MHz band in 14 provinces, including Shanghai, Jiangsu, Zhejiang and Anhui. In a related development, China Unicom has also unveiled plans to begin trialing 400G and 1T fiber-optic backbone networks in H2 2016. (June 20, 2016) C114

Cyprus



Cyprus this week published the results of a spectrum auction in which it sold off three packages of frequencies in the 800 MHz and 2.6 GHz bands, raising €17.5 million in total. The country's Department of Electronic Communications, part of the Ministry of Transport, Communications and Works, on Monday revealed that incumbent mobile operators Cyta and MTN picked up two of the available licenses, while cable operator Cablenet secured the third. Mobile market newcomer Primetel, which launched services a year ago, took part in the bidding, but came away with nothing. Sharing the provisional results of the sale, which was concluded on June 1, the Department of Electronic Communications noted that Cyta, which offers mobile services in the country under a partnership deal with Vodafone, spent the most at €6.5 million. MTN racked up a €6 million bill, while Cablenet agreed to pay €5.5 million for its spectrum package. All three operators secured licenses comprising 2x10 MHz of 800-MHz spectrum, 2x20 MHz of 2.6-GHz spectrum, and 15 MHz of unpaired frequencies also in the 2.6 GHz band. (June 7, 2016) totaltele.com

Czech Republic



The Czech Telecommunication Office (CTU) has confirmed that the sale of the remaining frequencies in the 1800MHz and 2600MHz bands has been completed, with the three existing operators – O2, T-Mobile and Vodafone – agreeing to pay a total of CZK2.643 billion (US\$109.967 million) for the seven blocks on offer; broken down, O2 agreed to pay CZK1.472 billion, T-Mobile CZK729.9 million and Vodafone CZK442.0 million. The sale of the frequencies is aimed at boosting network capacity for the trio, to meet current and future data needs of consumers. The CTU confirmed that in the 1800MHz band, O2 won two blocks of 2x2.9MHz and one of 2x5MHz, while Vodafone secured a similar 2x5MHz block. Meanwhile at 2600MHz, T-Mobile snapped up 2x10MHz in the paired part of the band, and one unpaired block of 25MHz, while O2 also took an unpaired block of 25MHz – thereby concluding the sale of all blocks on offer. As per the terms of the previous auction of 4G-suitable spectrum in 2013, the CTU has stipulated that the frequencies must be used to support the provision of mobile internet services. (June 15, 2016) telegeography.com

European Union



The European Commission (EC) has accepted a revised regulatory proposal from Germany's telecoms regulator, the Federal Network Agency (FNA), to allow incumbent Telekom Deutschland (TD) to upgrade its network with Vectoring technology, but says it

expects further developments to ensure competition is maintained. In May the EC raised concerns about the potential impact that the FNA's original proposal – which would allow TD to upgrade its network with Vectoring in areas close to its exchanges – would have on the development of competition and on longer term incentives for investment in future-oriented networks. While recognizing that the proposal would lead to broadband speed gains in parts of Germany (roughly 1.4 million would receive download rates of above 50Mbps for the first time), the EC said it believed that the alternative access solutions for rivals offered by the FNA were not yet sufficient to ensure safeguarding of competition. For example, virtual access to TD's street cabinets was restricted to one alternative operator per cabinet, while any altnet wishing to migrate to the street cabinet would have to invest in their own fiber. Following the EC's opening of an in-depth investigation, the FNA agreed to address the vast majority of concerns and amended its proposals accordingly, with Brussels stating that the 'revised plans constitute a clear improvement ... on each of the points raised in the Commission's serious doubts letter.' The revised proposal removed the limit on the number of access seekers at a street cabinet, and granted access to ducts and dark fiber for two years to altnets currently present at the local exchange and wishing to use virtual access at the street cabinet. The plan will give TD's competitors access to Vectoring in more areas and improve the conditions for virtual access to the last mile, while the FNA also agreed to develop the conditions for an alternative 'Layer 2 Access Product', which will then be subject to EC scrutiny. Brussels expects the FNA to notify it of these conditions 'as soon as possible after the summer break'.

(July 21, 2016) telegeography.com

A group of European operators have made a pledge to move quickly to launch 5G services, while at the same time calling for a change to net neutrality guidelines, Financial Times reported. The move comes as the European Commission is set to discuss its "5G Manifesto for timely deployment of 5G in Europe" today. BT, Deutsche Telekom, Telecom Italia and Vodafone Group are among the companies which have said they will launch 5G networks in at least one city in every European country by 2020. This is broadly in line with the launch plans of operators in Asia and the US. But this comes with a caveat. "The telecom industry warns that the current net neutrality guidelines create significant uncertainties around 5G return on investment," the group cautioned, adding that "investments are therefore likely to be delayed unless regulators take a positive stance on innovation and stick to it". The European authorities have put a lot of weight behind 5G development plans. Not only is there a desire not to lag Asia and the US, but there is also an appetite to capitalize on other growth opportunities enabled by the technology, such as self-driving cars and advanced healthcare applications. Net neutrality, on the other hand, is a complex issue, with a number of differing viewpoints depending on the holder's position in the value chain. Operators are looking for a way to protect their investments in 5G, having seen a shift in value with 3G and 4G from connectivity to the services provided over-the-top – and often taken by infrastructure-light new-entrants. One of the consistent calls is for

communications apps such as WhatsApp, Facebook Messenger and Skype to be subject to the same rules as telco-provided services. While conflating the two is not particularly surprising, the operators are nonetheless taking a bullish stance with the watchdogs. A statement from the European Commission this morning said its 5G Manifesto “outlines the main opportunities and challenges linked to the deployment of 5G infrastructure in Europe. In particular, it provides recommendations for a common vision and a calendar for deployment in Europe, investments, standards and the synchronized introduction of services. It underlines the need for the coordination of radio frequencies and improved regulatory conditions to support innovation.” Ahead of the meeting, Commissioner Gunther Oettinger said: “I very much welcome the 5G Manifesto and discussions today with the high-level industry group. These will help us focus on the key levers to ensure European digital leadership in 5G. I will come forward with a 5G Action Plan in the autumn.” (July 7, 2016) [mobileworldlive.com](#)

The European Commission made clear its desire to modernize standards setting within the EU, while announcing how it intends to improve the partnership between European institutions and the standardization community. “If we want the European market to have the first-mover advantage, we need to speed up and better priorities standard setting across the board,” said Jyrki Katainen, EU vice president for jobs, growth, investment and competitiveness. “With today’s standardization package, we are helping raise competitiveness, power innovation and create a predictable and stable investment framework in the EU,” added Katainen. The announcement is wide ranging, not just concerned with standards in the tech sector, although the commission previously identified ICT, along with services, as priority sectors. In April, the commission proposed measures to speed standards setting in five areas: 5G, cloud, Internet of Things, data technologies and cybersecurity. Now the commission is recommending a renewed focus on the services sector too. In addition, the EC announced next steps on its Joint Initiative on Standardization (JIS), which brings together European and national standardization bodies, as well as industry, SMEs, consumer groups, trade unions, environmental bodies, member states and the commission itself. The partners will commit to modernize and speeding up the delivery of standards by the end of 2019. A framework for the JIS will be formally launched on June 13 in Amsterdam.

(June 1, 2016) [mobileworldlive.com](#)

The EU council has published a proposal to free up the 700 MHz band spectrum for wireless broadband in Europe by 2020, making the spectrum exclusively for mobile broadband services. The low band spectrum enables high speeds and good penetration, making it ideal for mobile internet services and to promote the take-up of 4G in Europe. Broadcasting services would keep priority in the sub-700 MHz band at least until 2030. The use of 700MHz spectrum is expected to make it easier to roll out 5G as soon as it becomes available (around 2020) that will allow effective deployment of innovative services such as connected cars, smart cities and remote healthcare. According to the Council position, EU countries must reassign the 700 MHz band

(694-790 MHz) to wireless broadband services under harmonized technical conditions by June 30, 2020. Member states must adopt a ‘national roadmap’ by June 30, 2018, setting out how they will implement the decision. The Council position stipulates that member states must ensure the availability of the sub-700 MHz (470-694 MHz) band for digital television and wireless microphones at least until 2030, based on national needs. The 470-790 MHz range is currently widely used for digital television broadcasting and for wireless microphones, for instance in theatres, concerts and sporting events. (June 1, 2016) [thefastmode.com](#)

France



French telecoms regulator ARCEP said that it will be given new power to settle disputes between infrastructure access providers in the coming weeks, under the government’s initiative to implement European directive on ‘civil engineering’ of May 15, 2014, which was approved in France in April this year. In order to complete the process, the French government has now proposed the adoption of a number of supplementing directives, granting operators the right to access existing civil engineering infrastructures under reasonable technical and pricing terms and conditions for the purpose of deploying their superfast networks. ARCEP said the directives relate to infrastructure belonging to providers operating within the communications, transport, energy and water sectors. By encouraging synergies between the different network industries, whenever relevant, these new provisions will help to further fixed and mobile superfast network rollouts and to improve connectivity and coverage in general, particularly in the more sparsely populated areas and within constrained environments. In addition, more detail has been brought to existing provisions on coordinating civil engineering works, which have also been strengthened.

(June 21, 2016) [telegeography.com](#)

French telecoms watchdog the Authority of Regulation for Electronic Communications and Posts (ARCEP) has revealed that it received two revised network sharing agreements for consideration, following the publishing of its updated network sharing guidelines, which propose a gradual termination of all roaming agreements in metropolitan France. ARCEP said that the amendments relate to the gradual termination of the 2G/3G contract between Free Mobile and Orange, and the 2G/3G/4G network sharing agreement between Bouygues Telecom and Numericable-SFR (SFR). Orange and Free signed an agreement last week to gradually terminate their national 2G/3G roaming deal (inked in 2011) by the end of 2020; under the plan, the phasing out of Free’s roaming over the networks of Orange France is scheduled to start from January 2017. In regards to the Bouygues-SFR deal, Bouygues Telecom disclosed that the sharing of the two operators’ 4G networks is scheduled to end in late 2018, at which date the operator pledged to offer population coverage of between 98% and 99% over its own LTE network. In January 2016 ARCEP opened a public consultation on its draft guidelines on mobile network sharing by proposing a gradual termination of all roaming agreements in metropolitan France. Regarding

the Free/Orange deal, the regulator proposed that the termination process should start before the existing contract expires, with 3G roaming between Orange/Free scheduled to end between 2018 and 2020. For 2G (voice, SMS and data) services the termination date should be between 2020 and 2022. (June 20, 2016) [telegeography.com](#)

Gabon



The Regulatory Authority for Electronic Communications and Posts (ARCEP) has finalized the latest phase of its universal service strategy, as it seeks to eliminate so-called mobile coverage 'white spots'. Rules governing a new pilot project were presented to Pastor Ngoua N'Neme, the minister of digital economy on July 7, by Serge Essongue, executive secretary of ARCEP. The first area to receive improved connectivity has been named as the Ogooue-Ivindo province, which is the north-eastern-most of the nine provinces of Gabon. (July 12, 2016) [TICmag.net](#)

The government of Gabon has enlisted London-based international law firm Bird & Bird to redesign the regulatory framework governing its telecoms sector. The government is keen to create a more welcoming climate for potential investors; close a number of legal loopholes, which complicate business matters; and 'lay the foundations for an integrated regulatory and legal framework consistent with the trends prevailing in the international and regional economic communities'. The funding will be drawn from moneys previously allocated to the Central African Backbone (CAB) project, the report adds. The Gabonese telecoms sector is governed by Law No. 005/2001 of June 2001, which was chiefly concerned with reorganizing the postal and communications sectors, separating out the functions of former monopoly operator l'Office des Postes et des Telecommunications (OPT). Industry watchdog the Regulatory Authority for Electronic Communications and Posts (ARCEP) is expected to actively participate in the discussions. (June 9, 2016) [AfricTelegraph.com](#)

Georgia



Georgian telecoms operator MagtiCom has secured mobile spectrum in the 800MHz band through an auction held by the Georgian National Communications Commission (GNCC). The company says it will use the new frequencies, for which it paid GEL25.391 million (US\$11.8 million), in combination with its existing 1800MHz spectrum to launch an LTE-Advanced (LTE-A) network. In a separate announcement, MagtiCom revealed that it has signed an 'Agreement on Sale of Independent Business Unit' with Caucasus Online, after reaching a deal to acquire the ISP's retail operating assets earlier this year. The process of handing over the corporate and retail service assets to MagtiCom is scheduled to begin from August 1 and is expected to be completed by the end of the year. Following the integration of Caucasus' networks and assets, MagtiCom will be able to offer a full quad-play service comprising mobile telephony and data, fixed telephony, broadband internet access and television (satellite and IPTV). (June 1, 2016) [telegeography.com](#)

Germany



The German government has pledged to allocate a further €1.3 billion of public funding to the rollout of high-speed broadband networks in difficult to reach areas. The country's Transport and Digital Infrastructure Ministry made the announcement on Friday, noting that the new funding will take the total invested by the state in high-speed broadband to €4 billion. "The money will be invested specifically in underserved regions where network expansion would otherwise not be economically viable," the ministry said, in a statement. "We are investing in the development of the gigabit society," added Alexander Dobrindt, minister for transport and digital infrastructure. "For this we need superfast Internet for all, throughout Germany." In October last year the government allocated €2.7 billion for the rollout of networks capable of providing Internet access at speeds in excess of 50 Mbps with a view to covering the whole country by 2018. €1.3 billion of the sum came from revenue generated by the auction of mobile spectrum, in addition to €1.4 billion from the state budget. There are a number of funding models available. Municipalities can apply for funding to build their own infrastructure which they would then lease to operators, or use the funding to plug the profitability gap of a private operator, the ministry explained last year. It said grants are available to cover up to 50% of the costs of a project, rising to 70% in particularly depressed areas. The maximum grant for a single project is €15 million, but it is possible to combine state funding with the support programs of the federal states, the ministry explained. (July 4, 2016) [totaltele.com](#)

Telecoms regulator has reworked its plan to allow Deutsche Telekom to use vectoring technology to boost network speeds in a bid to address competition concerns from the European Commission. Bundesnetzagentur acknowledged the Commission's objections to the plan, which centre on the need to safeguard competition, and said it will present an amended version of its draft decision on the subject next week. The national regulator allowed Deutsche Telekom to push ahead with vectoring and sent a draft proposal on the subject to the European Commission in April. The following month the Commission launched an in-depth investigation into the proposal. "Our aim is to allow both a network upgrade and high quality access for competitors," digital economy commissioner Günther Oettinger said at the time. "For this, we need sufficient safeguards to protect sustainable competition and create incentives to invest in future-oriented networks for the gigabit society, a society where citizens and businesses benefit from ultra-fast connectivity (1000 Mbps)," he said. Despite efforts to make virtual unbundling offers available to rival players, Deutsche Telekom competitors have complained about the vectoring plan. Vodafone has been particularly vocal, hitting out at the regulator for supporting what it believes is a short-term stopgap technology, rather than pushing for investment in fiber. The regulator is undeterred though. In a statement Bundesnetzagentur President said he hopes the regulator's new plans will dispel the Commission's concerns about the competitive aspect of vectoring, enabling it to move ahead with determining the rules for the use of the technology. (June 17, 2016) [totaltele.com](#)

Greece



The Greek telecoms regulator, the Hellenic Telecommunications & Post Commission (EETT), has called for expressions of interest for the granting of rights to use frequencies in the 1800MHz band. The frequencies are currently held by two of the country's three incumbent mobile operators, Vodafone and Wind Hellas, but their usage rights are due to expire in August. The watchdog is offering six packets of spectrum in total: three 2x5MHz tranches of paired frequencies at 1735MHz-1750MHz/1830MHz-1845MHz (currently used by Vodafone); and three 2x5MHz packets at 1710MHz-1725MHz/1805MHz-1820MHz (held by Wind Hellas). Applications for the spectrum are being accepted until 5 July. (June 23, 2016) [telegeography.com](#)

GSMA



The GSMA welcomes the 3rd Generation Partnership Project's (3GPP) decision to standardize three Low Power, Wide Area (LPWA) technologies in licensed spectrum in Release 13. The specifications which were completed today, address the growing IoT market and include a new technology called Narrow-Band IoT (NB-IoT), as well as pre-existing evolved technologies, EC-GSM-IoT and LTE-MTC Cat-M1, that will cover all LPWA use cases, ensuring customer choice and helping the Internet of Things (IoT) market to flourish. "The GSMA established the Mobile IoT Initiative with the specific purpose of aligning the mobile industry behind common and complementary LPWA technologies in licensed spectrum and we are pleased that the industry has moved so quickly to adopt them and that they have now been ratified by 3GPP," said Alex Sinclair, Chief Technology Officer, GSMA. "Mobile operators have already started a number of pilots around the world and this agreement over common standards will help accelerate the development of commercial solutions and ensure they are in market much faster, providing customers with more choice." LPWA networks are an emerging, high-growth area of the IoT that complement and extend conventional wide area networks that make use of 2G, 3G and 4G cellular technologies. These new standards will allow operators to optimize their existing high-quality mobile network infrastructure through an upgrade to EC-GSM-IoT for 2G networks and LTE-MTC for LTE networks, while NB-IoT can use both 2G and 4G spectrum to deliver a secure, reliable and robust performance. The GSMA Mobile IoT initiative is backed by 30 global mobile operators, device makers and chipset, module and infrastructure companies and has helped the industry align on common technology standards in licensed spectrum for the emerging LPWA market. LPWA networks are designed for M2M applications that have low data rates, require long battery lives and operate unattended for long periods of time, often in remote locations. They will be used for a wide variety of applications such as industrial asset tracking, safety monitoring, water and gas metering, smart grids, city parking, vending machines and city lighting. (June 24, 2016) [bahrainbiznews.com](#)

Guyana



Recently approved Telecommunications (Amendment) Bill 2016 includes measures for the establishment of a fund to bankroll the expansion of networks into unserved areas. Demerara Waves quotes Minister of State Joseph Harmon as saying that: 'Where you have unserved communities that do not have the benefit of telecommunications services...where the telecommunications provider[s] do not consider it economically feasible to carry the services there, this is what the fund will be used for.' Mr Harmon did not specify how the funds would be raised, however, nor which ministry or agency would be responsible for managing the finances. The official made the comments in response to objections that the government planned to use money earmarked for reducing emissions from deforestation and forest degradation (REDD) to finance ICT initiatives in Guyana's hinterland. Mr. Harmon defended the government's plan to use money from the Guyana REDD Investment Fund (GRIF), saying that it was a short term measure, until the new telecom fund could be established: 'We don't believe we can postpone the development of these communities in any way by waiting on what is going to come in.' (July 22, 2016) [telegeography.com](#)

Guyana's long-awaited Telecommunications (Amendment) Bill has been passed into law after narrowly clearing a parliamentary vote, with 33 MPs in favor and 32 against. The legislation is designed to liberalize the fixed line market and paves the way for the government to end the monopoly of Guyana Telephone and Telegraph Company (GTT) on international voice and data transmission. In addition, the bill included reforms to the nation's regulatory structure, such as the creation of a new watchdog, the Telecommunication Agency, that would incorporate the National Frequency Management Unit (NFMU) and oversee the sector alongside existing regulator the Public Utilities Commission (PUC). Reforms to the telecommunication sector have been under way since 2009, but have been delayed and postponed on numerous occasions. One of the major barriers to passing the bill was a dispute between the government and Atlantic Tele-Network (ATN), GTT's parent company, over the operator's monopoly status: ATN claimed that it would be entitled to damages and other compensation if GTT's monopoly was ended through any means not agreed with the telco. The bill has had a mixed response, with opposition politicians praising the passing of the critical legislation but warning that it may concentrate too much power in the hands of the telecommunication minister. Similarly, Digicel and GTT were cautiously optimistic about the reforms. A spokesperson for the former described the 'laudable achievement' as merely the first step towards the long overdue ending of GTT's monopolies. For its part, GTT's stance has remained unchanged, with the operator saying that it supported opening the market but adding that it would only be possible through negotiations between the telco and the government. (July 21, 2016) [Demerara Waves](#)

Haiti



The telecoms regulator Conseil National des Telecommunications (CONATEL) has informed the public that 'no person has been granted a concession for the operation and marketing of 4G LTE mobile phone services' in the country, Radio Television Caraibes writes. According to CONATEL's Managing Director, Jean-Marie Altema, the general directorate of CONATEL is working on establishing the terms and conditions for auctioning the 4G concessions. The official also added that one operator – National Telecom (Natcom) – is currently authorized to trial the technology.

(June 7, 2016) telegeography.com

Honduras



The Honduran government has authorized the National Telecommunications Commission (Comision Nacional de Telecomunicaciones, CONATEL) to stage a multi-band spectrum auction comprising frequencies in the 700MHz, 900MHz and 2500MHz bands. According to local news site El Heraldo, the government has granted CONATEL HNL12 million (US\$521,152) to carry out the tender, which will be geared towards attracting a fourth mobile operator to the market. The decision was confirmed by Executive Agreement 033-2016, which was published in the Official Gazette last month. Further, the government expects the new player to invest between USD400 million and US\$700 million in its first four years of operation, and create as many as 3,000 direct and indirect jobs. According to TeleGeography's GlobalComms Database, Honduras is currently home to three mobile operators: market leader Tigo Honduras, Claro Honduras and state-owned Hondutel Movil. The acquisition of Digicel Honduras by Claro owner America Movil (AM) back in November 2011 saw the market contract from a competitive four-player market.

(June 28, 2016) telegeography.com

Honduran regulator the National Telecommunications Commission (CONATEL) has announced that it has switched on the country's first internet exchange point (IXP). According to a press release issued by the watchdog, the IXP-HN facility will be housed at the National Autonomous University of Honduras (Universidad Nacional Autonoma de Honduras) in capital city Tegucigalpa. The executive commission in charge of managing the IXP comprises CONATEL personnel, representatives from local ISPs, university officials and other stakeholders. IXP-HN is expected to help improve internet access in the Central American nation by eliminating the dependence on international connectivity for local internet traffic exchange. CONATEL notes that domestic users could now experience download speeds that are up to ten times faster than those available previously. (June 14, 2016) telegeography.com

Hungary



Hungary's National Media & Infocommunications Authority (NMHH) has announced the award of wireless broadband spectrum in the 3400MHz-

3800MHz band to Vodafone Hungary and pay-TV/broadband operator DIGI Telecommunications, which were the sole participants in the auction process. According to the regulator, UK-owned mobile operator Vodafone paid a total of HUF648.6 million (US\$2.4 million) for 60MHz of spectrum in the 3400MHz-3600MHz range, while DIGI, which is owned by Romanian cable group RCS&RDS, bid HUF248.0 million for a 20MHz block in the 3600MHz-3800MHz frequency band. The NMHH points out that, in addition to mobile broadband access services, the 3400MHz-3800MHz spectrum also supports wireless backhaul and high speed fixed-wireless access (FWA). It added that the auction was aimed at meeting broadband demand in underserved areas and boosting the available capacity in urban areas which experience intensive usage. In related news, last month, the Budapest Business Journal cited the NMHH's chief director, Janka Borcs Aranyos, as saying that the regulator is also preparing to sell off licenses in a number of additional frequency bands to meet growing demand for mobile broadband and broadcasting services. Licenses up for auction include spectrum allocations in the 700MHz, 1400MHz-1500MHz, 2100MHz, 2300MHz-2400MHz and 2600MHz bands. (June 8, 2016) telegeography.com

Iceland



Icelandic telecoms watchdog the Post and Telecom Administration (Post-og Fjarskiptastofnun, PTA) has revealed that it plans to hold an auction for frequencies in the 700MHz band by the end of 2016. The decision was prompted by an application for 2x20MHz of 700MHz spectrum submitted by Icelandic telecoms operator Siminn in February 2016, and a subsequent hearing involving Siminn, Vodafone Iceland (Fjarskipti), Nova, Gagnaveita Reykjavikur (GR) and Neydarlinan, which revealed that demand for spectrum in the aforementioned band was equal and/or greater than the supply. The PTA disclosed that it will offer three lots of 2x10MHz spectrum, with a 15-year validity each. The three blocks will also come with specific terms and obligations. In addition, the PTA will consider the auctioning of spectrum in the 2100MHz and 2600MHz bands, though the watchdog plans to consult with all relevant stakeholders before it makes a decision on the auction terms and conditions. In February 2016 the PTA revoked legislation banning it from allocating 2100MHz spectrum on a technology-neutral basis. The regulator said at the time that it was planning to launch a tender for vacant frequencies in the 2100MHz band later this year, in addition to auctioning spectrum for high speed mobile broadband services in the 900MHz (2016), 2600MHz (2016) and 700MHz (2017/18) bands.

(July 21, 2016) telegeography.com

The Post and Telecom Administration (Post-og Fjarskiptastofnun, PTA) of Iceland has issued a decision limiting a frequency sharing agreement between domestic cellcos Vodafone Iceland (Fjarskipti) and Nova. According to the amended terms of the spectrum deal, the frequencies shared by Vodafone/Nova will be capped at a maximum total of 20MHz, effective August 15, 2016. In November 2013 the two companies signed an agreement to establish a common infrastructure

company, with PTA authorizing the shared use of frequencies in the 800MHz, 900MHz, 1800MHz and 2100MHz bands by the two cellcos in March 2014. Under the terms set out by the deal, the two companies said they would provide an equal initial contribution to the 50/50 joint venture. The deal was endorsed by the PTA in July 2014, while the Icelandic Competition Authority (ICA) granted its approval in February 2015. The new company – dubbed Sendafelagid – commenced operations in November 2015. (July 18, 2016) [telegeography.com](#)

Telecoms regulator the Post and Telecom Administration (Post-og Fjarskiptastofnun, PTA) has revealed that it will reallocate Siminn and Vodafone's frequencies in the 900MHz band, under Decision No. 7/2016. Currently, the two operators could utilize their respective 2x5MHz blocks in the band until February 13, 2017, though the regulator has extended the validity of the concessions for an additional five years. Further, the spectrum will become technology-neutral on February 14, 2017. The proposal was subject to public consultation in March 2016. (June 24, 2016) [telegeography.com](#)

India



India shuffled its ministers, in the process splitting the communications and IT ministry and appointing a new custodian of the telecoms portfolio.

Former telecoms and IT minister Ravi Shankar Prasad takes up a new post as law and justice minister, as well as retaining control of electronics and information technology. Meanwhile, Railways Minister Manoj Sinha takes on communications, in addition to his existing role. The change comes at a pivotal time for India's telecoms sector. Six weeks ago Prasad approved plans for a massive multi-band spectrum auction to take place in the coming months. If all the available frequencies sell, the process could raise 5.6 trillion rupees (€74 billion) for government coffers, however this week analysts predicted that the actual sum generated from the sale will be significantly lower as telcos choose carefully which frequencies to bid on. Nonetheless, Crisil Research still estimated that the auction will raise around INR1 trillion (€13.3 billion), which is no small sum. The auction will take place against a backdrop of change in the market, with many telcos looking either to bulk up in advance of the planned launch of Reliance Jio's Infocomm's nationwide 4G service, or sell out as the competition heats up. Reliance Communications and Aircel are working on a merger deal that will create the third largest player by customers in the Indian mobile market, while Bharti Airtel recently closed the acquisition of small operator Videocon's 1800-MHz spectrum in six circles. A fortnight ago Japan's NTT DoCoMo revealed that a U.K. arbitration court ruled in its favor regarding its exit from the Indian mobile operator joint venture it shares with Tata Sons, ordering the latter to pay US\$1.172 billion in damages for breach of the pair's shareholder agreement with regard to Tata Teleservices Ltd, known as Tata DoCoMo. Last year there was talk of Tata exiting the Indian mobile market altogether, and more recently there have been similar rumors regarding Telenor, which arguably lacks the scale to compete effectively going forward. (July 6, 2016) [totaltele.com](#)

India's cabinet has approved the nation's largest auction of mobile frequencies but has deferred a decision on the spectrum usage charge (SUC) that will apply to spectrum bought through the tender and how the overall SUC will be calculated, the Economic Times reports. The tender will feature a combined total of more than 2,200MHz of spectrum across multiple bands, worth more than INR5.44 trillion (US\$D80.31 billion) – based on the reserve prices for the airwaves. The upcoming tender will include frequencies in the 700MHz band for the first time, although the reserve price of INR574.25 billion for 2x5MHz block of pan-India spectrum is expected to limit telcos' interest in the airwaves. Indeed, the head of industry body the Cellular Operators Association of India (COAI) commented that: 'We are glad that the spectrum shortage issue has been addressed but pricing is a concern.' Consequently, only around 40% to 50% of the frequencies are expected to sell, with spectrum in the 1800MHz, 2100MHz and 2300MHz ranges expected to be in the highest demand as operators look to plug gaps in their existing holdings. Regarding the SUC, the cabinet referred the matter back to the Telecom Regulatory Authority of India (TRAI) for its views. The Telecom Commission had previously green-lit proposals for the rate to be lowered from 5% of annual gross revenue to 3%, with the rate extended to 4G spectrum purchased in 2010. Spectrum from the sale would also be excluded from the weighted average formula used to calculate overall SUCs for each cellco, although the TRAI had previously recommended the introduction of a flat SUC of 3% for all airwaves. (June 23, 2016) [telegeography.com](#)

India's cabinet reportedly approved a mammoth spectrum auction plan, proposed by regulators, which is expected to raise a record INR5.6 trillion (\$85 billion). In a report released today, Times of India quoted an "official source" which claims that the spectrum auction plan "has been cleared", although no official confirmation has yet been released. The upcoming auction, which for some time has been touted as potentially the country's largest ever, will see airwaves up for grabs in the premium 700MHz band, as well as 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz and 2500MHz frequencies, and will be held in September, adds the report. If estimates are correct, it will significantly surpass the country's last auction, held in 2015, which raised a then record INR1.1 trillion, with eight winners in total. Spectrum in the 700MHz band will cost the most, the paper added, with the reserve price set at approximately INR11.5 billion per 1MHz, meaning a company will have to spend a minimum INR57.5 billion for a block of 5MHz. According to the report, the cost of delivering services in the band is estimated to be 70 per cent lower than the 2100MHz band used for 3G. The sale of 700MHz looks set to go ahead despite operators in India voicing their concerns over the move, arguing that it should be put off for two years until the 4G ecosystem in the country has developed more. Sources add that a notice inviting application is likely to be issued on July 1, followed by preliminary bidding on July 6. (June 22, 2016) [mobileworldlive.com](#)

Telecom Minister Ravi Shankar Prasad has rejected a call to amend the Telecom Regulatory Authority (TRAI) Act to grant the watchdog greater powers regarding dropped calls. The Economic Times writes that Rajeev

Chandrasekhar, a member of the Rajya Sabha (India's Upper House), had written to the minister, expressing the need for the TRAI to have 'broad power to protect consumers,' adding that '[the] entire technology sector has changed since the time the TRAI Act was made' and that the regulator needs more power. The minister rejected the call, however, stating that the TRAI already has 'wide ranging powers' and as such, 'the need to change the TRAI Act is not felt at this juncture.' Mr. Prasad's dismissal may not be the final word, though, as the paper cites a source within the Department of Telecommunications (DoT) as saying that the ministry is 'taking a relook' at the matter, having received a similar request from the TRAI itself. In a letter earlier this month, the TRAI requested power to levy financial penalties of up to INR100 million (US\$1.48 million) on companies and custodial sentences of up to two years for executives of companies that fail to comply with regulations. The request has already met resistance, with operators describing the plans as 'draconian,' whilst Telecom Secretary J S Deepak commented: 'in my personal opinion I do not think an executive should be sent to jail for every call drop.' (June 15, 2016) [telegeography.com](#)

The Telecom Regulatory Authority of India (TRAI) issued a consultation paper to improve telecom services inside buildings by providing companies unhindered access and encouraging them to use shared infrastructure. The paper has sought stakeholders' responses on whether the sharing of telecom infrastructure should be made mandatory and what practices should be included in the National Building Code to facilitate equal and unrestricted access for all telecom service providers. This comes at a time when tension between the telecom regulator and service providers has peaked, following the TRAI's recent test drive in Delhi to assess quality of service. Last week, the TRAI said all operators except Reliance 2G (second generation) and Vodafone 3G failed its call drop test, while the telecom industry accused the regulator of deliberately conducting the test in problem areas. With this consultation paper, the regulator seeks to enhance the quality of the telecom service inside residential buildings, malls, hotels and commercial complexes as well as providing telecom companies equal in-building access. At present, in-building deployment is achieved through commercial agreements between the mobile operators and the building owner or developer or resident welfare association. "It has come to the notice of the authority that in many areas there are problems in getting the access to buildings. Generally, an infrastructure group or builder enters into an exclusive agreement with one of the service providers for providing telecom services to consumers living or doing business from a particular location," the TRAI noted. "However, in such cases, only that service provider is allowed to lay the telecom infrastructure in the premises and other service providers are denied access, thus creating an artificial barrier," it added. Only contracted service providers were allowed to install in-building solutions but those service providers, in turn, did not allow others to share them or demanded prohibitively high prices for sharing them, noted TRAI. In some cases, building owners allow access to the service providers at exorbitant rates. "Such practices not only limit competition, they also leave no choice

to consumers but to take services from the contracted service provider," it said. "There is a requirement to evolve a framework applicable to in-building facilities to enable the telecom operators to obtain efficient access on reasonable terms," it added. "It is important to ensure that all service providers are able to provide mobile and landline services to all the subscribers without any artificial restrictions or hindrance. The choice of service provider should be made by the subscriber, not by the building owner," it said. Sharing telecom infrastructure will not only reduce the cost involved, but also spare multiplication of network. To provide equal access inside buildings, the TRAI has suggested disallowing service providers and infrastructure providers from entering into exclusive contracts. Another possible option, the TRAI said, could be that the local administration made it mandatory to have adequate provision for ducts, optical fiber and in-building solutions while approving the construction of multiplexes, malls and hotels. These facilities should not be seen as a "revenue source, but as essential infrastructure, therefore, no charges should be levied by the building owner", the TRAI said. The regulatory body has sought suggestions on provisions to facilitate common telecom infrastructure that can be included in the National Building Code, which is in process of being framed by the Bureau of Indian Standards. (June 7, 2016) [business-standard.com](#)

The telecoms regulator is calling for more powers to impose fines on mobile networks that miss its quality of service tests, after a drive test found almost all the mobile networks missed its minimum standards. The regulator, the TRAI conducts drive tests in Delhi early last month and says that all the companies missed its drop call standard of no more than 2 percent of calls being dropped. The only exceptions were RCom's 2G network and Vodafone's 3G network. The regulator tested 2G, 3G and CDMA services, with drive test routes covering approximately 600 km across the city. "All operators are performing below the CDR and it has degraded further compared to previous tests," said TRAI advisor Robert A Ravi. However, although the regulator has imposed a below 2 percent failure rate, it lacks any legal footing to enforce the regulation. It now plans to seek an amendment to the law governing the regulator to add drop calls to the list of QoS areas where it can impose penalties on the mobile networks. The mobile network's own representative, the COAI claims that the drop call tests were carried out in a small part of New Delhi where problems are known to exist, and that city-wide, the networks are not under performing. (June 2, 2016) [cellular-news.com](#)

Ministry of Defense (MoD) has agreed to return spectrum in the 1800MHz and 2100MHz bands worth a total of INR300 billion (US\$4.46 billion), based on the current reserve prices for the airwaves. The MoD will exchange its 15MHz of spectrum in the 2100MHz band in all 22 circles for the same amount in the 1900MHz band, and will also return 201MHz of spectrum in the 1800MHz band. The frequencies will be included in the upcoming auction, increasing the total value of spectrum on offer to INR5.66 trillion. The tender will feature spectrum in the 700MHz, 800MHz, 900MHz, 1800MHz, 2100MHz, 2300MHz and 2500MHz bands. (June 1, 2016) [The Economic Times](#)

Italy



Telecoms regulator AGCOM has published the results of its study into electronic communications services, and in particular over-the-top (OTT) social messaging tools such as WhatsApp, Skype, iMessage and Facebook Messenger. The watchdog says it is considering introducing regulations for such apps which will help to create a more level playing field to compensate network operators for the lost voice traffic on their own networks. It plans to examine regulations – both at a national and an EU-wide level – to see where changes can be made to benefit operators whose networks support the OTT apps with little financial benefit for themselves. AGCOM adds, however, that it is still too early to discuss factors such as implementing charges on OTT operators.

(June 29, 2016) telegeography.com

ITU



The ITU's Focus Group on Digital Financial Services (DFS) has published new reports on regulation in the DFS ecosystem and on consumer protection. The UN body is seeking to develop an international framework of good practice guidelines for regulators, operators and providers in the telecoms and financial services sectors. The paper on 'Regulation in the Digital Financial Services Ecosystem' identifies categories of regulation and addresses a number of issues relating to managing the regulatory environment. It includes an analysis of how regulators currently work together and provides a model memorandum of understanding that national regulators can adopt to formalize their collaboration and interaction in view of co-regulating the DFS marketplace. "Both telecom and financial services regulators have a crucial role to play in rolling out digital financial services that are accessible to everyone around the world. Collaboration between the telecom and financial services regulators can therefore ensure a conducive regulatory environment for digital financial services to flourish," said Chaesub Lee, director of the ITU's Standardization Bureau. Meanwhile, the paper entitled 'Commonly identified Consumer Protection themes for Digital Financial Services' identifies four common themes that policy makers or regulators may want to consider when developing laws, regulations or guidelines around consumer protection. This includes provision of information and transparency, fraud prevention, dispute resolution and data privacy and protection. "Trust is an essential ingredient for digital financial services to succeed. The move away from cash will only work if the solutions and processes being put in place to replace it are reliable, trustable and easy to use. This is why consumer protection is an essential part of the work we have been doing," commented Sacha Polverini, Chairman of the Focus Group and Senior Program Officer of the Bill & Melinda Gates Foundation's Financial Services for the Poor program. ITU Secretary-General Houlin Zhao said regulation must nurture the development of a strong and healthy digital finance sector. "Given the complexity of the regulatory environment, it can often be a challenge for telecom and financial services regulatory bodies in many emerging markets to collaborate in developing national guidelines," he said. (July 18, 2016) telecomasia.net

Jamaica



The launch of Jamaica's prospective third cellular network has been put in doubt after the Office of the Contractor General (OCG) released a study which recommended that the government should not sign off on its mobile license. Kingston-based Symbiote Investments announced earlier this year that it planned to launch wireless services under the 'Caricel' brand to compete with incumbent operators Digicel and Flow. The OCG report finds, however, that there are links between Symbiote and local businessman George Neil, who has 'adverse traces' linked to his name following an earlier OCG investigation in 2009 which related to the granting of a telecoms license to a firm trading as Gotel. Gotel later merged with a company called NewGen and began trading as Symbiote. For its part, Symbiote says it was not contacted for comment prior to the publication of the OCG report, and it claims that several of the queries raised by the study could easily have been clarified using documents already in the possession of regulators. A report from the Jamaica Gleaner cites Symbiote's lawyer Patrick Bailey as saying that there are several findings in the report 'which require legal advice and consultation'. Symbiote is calling for the government to proceed as planned with its license award. (July 22, 2016) telegeography.com

Kenya



The technical committee of the Communications Authority of Kenya (CA) has approved the issuance of 4G spectrum licenses to the country's three incumbent mobile operators, the regulator's director general Francis Wangusi told. Safaricom, Airtel Kenya and Telkom Kenya will each be required to pay a fee of US\$25 million for the 800MHz concessions, which will be awarded next month following final approval from the CA's board. The trio will also be obliged to share at least 30% of their 4G network capacity with smaller players, including MVNOs and tier-two infrastructure providers. Mobile market leader Safaricom is currently the market's sole provider of LTE services, which were launched on a limited basis in Nairobi and Mombasa in December 2014. (June 28, 2016) Business Daily

The Communications Authority (CA) has announced that it has reviewed the procedures and guidelines for mobile number portability (MNP), following a consultation with industry stakeholders and the general public. Under the revised guidelines, consumers will no longer have to pay porting fees if they wish to transfer their number to a different mobile service provider. The CA has also shortened the porting process to no more than four hours, in a move aimed at encouraging take-up by simplifying the procedure, which was first introduced in Kenya on April 1, 2011. Under the previous guidelines, any subscriber wishing to port their number to a different network was required to pay a one-off fee of KES199.80 (US\$1.9), while the maximum execution and porting period was 48 hours between Monday and Friday excluding public holidays. The plan moves the contract into ICANN's hands and so removes the US government from its position of direct control – an important change in an ever more global internet. Following the formal

approval, the transition is in line to be completed by the end of the current IANA contract –September 30, 2016.

(June 14, 2016) telegeography.com

France's Orange Group has completed the sale of Telkom Kenya to UK-based, Africa-focused private equity firm Helios Investment Partners, after the deal received approval from the relevant authorities. The agreement was announced by Orange in November 2015, twelve months after a deal to sell its entire 70% stake to Vietnamese telecoms firm Viettel Group fell through. The French company reiterated that the Africa and Middle East region remains a strategic priority for the group, adding that the divestment reflects Orange's 'constant focus on optimizing its portfolio of assets'. Kenya's National Treasury Cabinet Secretary said that under the terms of the deal, Helios acquired a 60% stake in Telkom Kenya through its wholly-owned subsidiary Jamhuri Holdings Limited, while at the same time the Kenyan government increased its holding in the firm from 30% to 40%. (June 13, 2016) Capital FM

Kyrgyzstan



The auction for 100% of shares in Kyrgyzstan government-owned Alfa Telecom (Megacom) – scheduled to take place on 16 June 2016 – has been declared invalid due to lack of bids, cited in a statement from the State Property Management Fund. In May this year the government had postponed the auction of its Megacom shares from a previously mooted date of May 10, 2016, setting a new deadline for applications to participate in the tender to June 15. The change of date was reportedly to allow potential investors more time to examine the company up for privatization.

(June 17, 2016) Tazabek

Kyrgyzstan will complete the transition from analogue to digital terrestrial television (DTT) by July 31, 2016; according to reports citing information announced by the Ministry of Culture, Information and Tourism on June 9. It is understood that the third phase of the migration has taken place, taking DTT coverage to 85% of the Kyrgyz population. The fourth and final phase, which has been allocated KGS37 million (US\$544,000), will increase coverage to 95%. Tariffs for DTT services have reportedly been approved by the National Communications Agency (NCA). The analogue TV switch-off will free up additional frequencies suitable for 4G mobile broadband.

(June 10, 2016) Tazabek

Kyrgyzstan is relaunching an auction for defunct CDMA Company Zheti Mobile, which until last month operated small-scale CDMA services under the 7Mobile banner, based on the restructured assets of bankrupt CDMA operator Aktel (Fonex). The auction will take place on June 13, 2016 with an initial price for an ownership stake quoted as US\$2.295 million. Previous sale attempts for the former Aktel assets failed in June-July 2015, whilst on May 7, 2016 the Kyrgyz economy ministry posted a notice on its website announcing a new public auction for the sale of Aktel's former base stations and other telecommunications equipment with a starting price of KGS47.664 million (US\$697,000), scheduled for May

24, 2016, although results of this auction were not announced. (June 7, 2016) Tazabek

Lesotho



The Lesotho Communications Authority (LCA) is examining the potential introduction of SIM card registration in the country, in a bid to curb crime committed using mobile phones. 'The regulator in Lesotho has recently commenced engagement with the sector on the proposed introduction of customer registration regulations in that country,' Chairman of South Africa-based telecoms firm Vodacom Group said. Lesotho remains one of only a handful of African countries without any form of SIM registration legislation in place. Vodacom has also revealed that its local unit's mobile service license was extended on June 1, 2016 for a further 20 years. Vodacom is Lesotho's largest mobile operator by subscribers, with a total user base of 1.399 million at the end of March 2016, well ahead of sole rival Econet Telecom Lesotho (ETL) with around 512,000 cellular customers at the same date.

(June 24, 2016) telegeography.com

Macedonia



Telecoms regulator, the Agency for Electronic Communications (AEK), is reportedly planning to 'create conditions' for the entry of a new mobile network operator and an MVNO in Macedonia, following a 15% rise in mobile tariffs. AEK Director Saso Dimitrijoski said that competition in the Macedonian market has been negatively affected following the merger of Makedonski Telekom (MakTel) and T-Mobile (completed in July 2015) and the convergence of Macedonian cable operator Blizoo and its sister company One.Vip – which was itself established after Telekom Slovenije's subsidiary ONE and Telekom Austria's domestic unit Vip Operator agreed to combine their operations in October 2015 – on May 11, 2016. He added that the regulator will not allow citizens to pay more for the same services following the market changes. As a result, the AEK has sent over 70 letters of interest to leading global operators regarding the new conditions for the opening of the market for new entrants. (June 10, 2016) Daily Verec

Malaysia



A nationwide pre-paid registration audit on dealers and agents of communication companies offering mobile cellular services is currently being conducted, the Malaysian Communications and Multimedia Commission (MCMC) has announced. In a press release the regulator said that the purpose of the audit is to 'check on the accuracy and validity of the records of subscribers taken by dealers and agents at the point of registration', while it also aims to ensure that customers' personal information is protected. According to the MCMC, the results of the audit will be used to strengthen and support the review of both the 'Guidelines on Registration of the End-Users of Prepaid Public Cellular Services' and the 'Dealers and Agents Code of Ethics', which are scheduled to be completed by the end of 2016 and in 2017, respectively.

The audit is already underway, having started in the Northern region, in the states of Perlis, Kedah, Penang and Perak, with data being checked at some 9,513 registered dealers. Audits for other regions in Malaysia meanwhile are expected to be completed by the end of this year. (June 27, 2016) telegeography.com

Mexico



Mexico's Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, Ifotel) will delay its announcement of the winners of its nationwide 700MHz open access network tender until November 17, 2016, citing the complexity of some 900 queries submitted by the bidders, as well as certain requests from international financial institutions interested in backing the project. The Secretariat of Communications and Transport (Secretario de Comunicaciones y Transportes, SCT) was initially expected to declare the tender winners on August 24. In light of the postponement, interested applicants now have until October 20 to submit bids. Final contracts will be signed on or before January 27, 2017. The shared network, which will have exclusive use of a 90MHz block of spectrum in the 700MHz band, was written into Mexico's constitution in 2013 as part of a sector overhaul designed to curb the dominance of America Movil (AM)-backed Telcel. The plan calls for groups of private companies to bid for the right to build and run the network, which would rent capacity to mobile providers. Current government assumptions price the overall project at around US\$7 billion, down from an original US\$10 billion ten-year projection, with the number of cell towers likely to be closer to 12,000 than the initially forecast 20,000. (July 21, 2016) telegeography.com

Telecoms regulator has officially granted 4G licenses that were won by AT&T and America Movil at auction earlier this year. In total, 80 MHz of AWS-1 and AWS-3 spectrum were tendered. AT&T picked up two blocks of AWS-1 spectrum with a bid of 1.87 billion pesos (€90.61 million), while America Movil, which offers mobile services in Mexico under the Telcel brand, bid MXN2.13 billion for six 5 MHz blocks, two in the AWS-1 band and four in the AWS-3 band. Some AWS-3 spectrum remained unsold. The auction ended in February, and the results were confirmed by telco watchdog the Instituto Federal de Telecomunicaciones (IFT) in March. In a statement released over the weekend, the IFT said AT&T and Telcel each paid the first installment of their license fee on time. (June 1, 2016) totaltele.com

Mexico's Federal Telecommunications Institute (IFETEL) has confirmed that it has formally handed over the Advanced Wireless Services (AWS) spectrum blocks that were awarded to America Movil (AM)-backed Telcel (registered as Radiomovil Dipsa) and AT&T Mexico (registered as AT&T Comunicaciones Digitales), in February this year. AT&T initially bid on paired AWS-1 spectrum in the 1730MHz-1755MHz/2130MHz-2155MHz bands, while Telcel was allocated spectrum at 1710MHz-1730MHz/2110MHz-2130MHz, as well as AWS-3 spectrum in the 1760MHz-1780MHz/2160MHz-2180MHz bands. On 17 May, however, Telcel requested

permission to swap its AWS-3 spectrum with its rival's allocation, in order to secure contiguous blocks of spectrum in the 1710MHz-1755MHz and 2110MHz-2155MHz bands. This request was approved on May 25, in an extraordinary session, as it is perceived to encourage more efficient use of the resources. The full cost of the concessions will be spread over the course of the licenses' 15-year lifespans, while initial payments have been set at MXN2.1 billion (US\$117.4 million) for Telcel and MXN1.0 billion for AT&T. In total, the process will generate MXN43.7 billion for the Mexican government, of which Telcel will pay MXN31.0 billion and AT&T MXN12.7 billion. (June 1, 2016) telegeography.com

Myanmar



Myanmar's internet user base has increased from 2 million in 2014 to more than 39 million in mid-2016. The number of SIM cards in circulation has also increased by almost 400 percent in the period. Myanmar ended May with 43.72 million SIM cards sold by Myanmar's four operators Telenor, Ooredoo, state-owned Myanma Posts and Telecommunications (MPT), and MECTel, a subsidiary of military-run Myanmar Economic Corporation. The figure represents a mobile penetration of 89.38 percent of the country's population, said U Soe Thein, director general at the Posts and Telecommunications Department. This compares to a mobile penetration of 6.99 percent at end-2012. According to U Soe Thein, most internet users in Myanmar go online using 3G mobile broadband connections. "Before we initiated telecoms reforms, less than 2 million people used the internet. By 2015-16, there were 39 million internet users in Myanmar," he said. The number of towers deployed across the country also increased from 3,000 in 2013 to 11,700 in 2016, while the national fiber backbone has expanded from 7600 kilometers in 2013 to 31,000 km in mid-2016. (July 21, 2016) Myanmar Times

The establishment of Myanmar's fourth cellco has been delayed by prolonged negotiations between the three stakeholders in the new firm: government shareholder Star High Public Company Ltd, Vietnamese operator Viettel and Myanmar National Telecom Holding, a consortium of local companies. The Myanmar Times cites a source familiar with the matter as saying that talks between the trio have encountered a number of sticking points, particularly around decision-making and the role of the future CEO, and financing. Commenting on the talks, U Zaw Oo, the chair of the joint venture formation and tender selection committee said: 'We are going into very detailed negotiations. The stakeholders think it is important to get everything onto the table and try to get an agreement rather than wait and see.' Meanwhile, the unnamed source also stated that the new company could incorporate the existing business of MECTel, which, along with Star High Public Company Ltd, is owned by military-controlled Myanmar Economic Corporation (MEC). MECTel currently operates as an MVNO over the network of Myanmar Post and Telecommunications (MPT). 'As a general principle, the idea is to leverage MECTel's assets – at least those ones that can be commercially used – as well as the existing subscriber base, to make sure there [are] four operators, not five,' the source explained, adding: 'The idea is also that MECTel, through

Star High, together with an international operator and the local consortium, becomes a full part of the licensed telecom landscape consisting of four telecom operators.'

(July 14, 2016) telegeography.com

Netherlands



The Authority for Consumers and Markets (ACM) is proposing a relaxation of regulation in the country's residential fixed telephony market. The watchdog says that no one company has a dominant position in terms of fixed voice services for home users, with incumbent telco KPN having seen its market share whittled away by the likes of cableco Ziggo and smaller operators such as Tele2 and Caiway. ACM says that the traditional PSTN sector has declined in recent years; 85% of connections are now via IP-based access and the regulator expects this figure to rise to 95% by 2019. Most fixed lines are now taken as part of multi-play bundles with internet and/or TV services. The business services sector will remain regulated, however, as KPN retains its dominant position in that market. ACM is calling for comments on its plans before it submits a final proposal to the European Commission (EC) for approval.

(July 19, 2016) telegeography.com

New Zealand



New Zealand's Commerce Commission is opening an investigation into the prospective competition issues arising from Vodafone and Sky's merger plan, with a particular focus on whether the merged entity would be able to push out rivals or make them less able to compete. Vodafone New Zealand and Sky Network Television announced their NZ\$3.44 billion tie-up six weeks ago and submitted separate merger clearance applications to the Commerce Commission in late June; both insisted that the transaction will not lessen competition in the residential broadband or pay TV sectors, where they do not currently compete. The regulator seems inclined to agree, to a certain extent. The Commerce Commission said it will look at the unilateral effects of the deal – whether the merged entity will be able to raise prices or reduce quality – but notes that this is an unlikely outcome, given that the firms operate in different markets. It "appears to be the case," that there is no meaningful competitive overlap between the two operators at present, it said. However, "we will consider whether the parties would become more meaningful competitors without the merger," it added, noting that the investigation will consider whether, in absence of the merger, Vodafone might start providing content on a standalone basis to compete with Sky, or whether Sky could launch telecoms services, for example. "If such expansion would be likely without the merger, then any potential competitive constraint from this would be lost as a result of the proposed merger," the regulator said. "This could result in higher prices or decreased service levels relative to the 'without the merger' scenario." The Commerce Commission explained that the main focus of its investigation will be on "the vertical and conglomerate effects" of the merger; that is, it will consider whether the combined business would make it more difficult for

rivals to compete effectively. The commission presented these points in its Statement of Preliminary Issues late last week. Interested parties have until July 28 to submit comments on the statement. The regulator will make a decision in the case by November 11 or possibly sooner, if its investigation does not uncover any major issues.

(July 18, 2016) totaltele.com

New Zealand's Ministry of Business, Innovation and Employment (MBIE) has opened a consultation into proposed changes to the country's Telecommunications Act to introduce a 'utility-style' regulatory framework for fixed line communication services. The options paper also discusses the future of mobile regulation, as well as digital convergence and net neutrality issues, and improving the handling of consumer complaints by the telecommunications sector. John Wesley-Smith, General Manager for Regulation at dominant fixed line provider Spark, has welcomed the review, saying: 'We see this as another step towards the provision of certainty to the industry and, ultimately, ensuring that New Zealand telecommunications regulation is fit for purpose in the digital age and will support investment and innovation, as well as a healthy, competitive market for the benefit of consumers. We are especially pleased to see the importance of network quality regulation recognized in the paper, considering the high level of consumer and industry frustration we are seeing in the current model.'

(July 12, 2016) telegeography.com

New Zealand's mobile market leader Vodafone NZ is to merge with local pay-TV operator Sky Network Television. Sky, which is New Zealand owned and not part of the European satellite TV group of the same name, says it is looking to create a 'leading integrated telecommunications and media group' which will offer 'New Zealand's best entertainment content across all platforms and devices in a rapidly evolving media and telecommunications market'. Sky will acquire all of the shares in Vodafone NZ for a total purchase price of NZD3.437 billion (US\$2.33 billion) through the issue of new Sky shares – giving UK-based Vodafone Group a 51% interest in the merged company – plus a cash consideration of NZD1.250 billion, to be funded through new debt. The combined group is expected to deliver cost, capital expenditure and revenue synergies with a net present value of approximately NZD850 million. Vodafone NZ is New Zealand's leading cellco and number two broadband provider, with over 2.35 million mobile connections and more than 500,000 fixed line customers, while Sky is the country's largest pay-TV operator, with over 830,000 subscribers. Vodafone recently announced the completion of its rollout of wireless broadband networks under the government-backed Rural Broadband Initiative (RBI), with 154 new cell sites deployed under the NZD300 million schemes.

(June 9, 2016) telegeography.com

Nigeria



The Nigerian Communications Commission (NCC) has announced that MTN Nigeria, the country's largest mobile operator by subscribers, emerged as the sole approved bidder in the recently concluded

2600MHz spectrum allocation process. The regulator has provisionally awarded 2×30MHz blocks of frequencies in the 2600MHz range to the South Africa-based firm, which has 21 days from the date of provisional award (June 13, 2016) to pay the US\$96 million fee for the ten-year nationwide license. If it fails to do so, MTN will lose the license and also forfeit the intention-to-bid deposit. NCC resumed the procedure for its 2600MHz spectrum auction in March, after the process was postponed twice last year 'for administrative reasons'. A total of 14 lots of paired 2×5MHz frequency division duplex (FDD) spectrum in the 2500MHz-2570MHz and 2620MHz-2690MHz bands (totaling 2×70MHz) was offered up, with each lot having a reserve price of US\$16 million. Last month it was announced that MTN, the sole qualified bidder, had expressed an interest to bid for six of the lots on offer, equivalent to 2×30MHz of spectrum. According to the rules of the auction, 'if the aggregate demand from approved bidders is less than, or equal to the number of lots on offer ... the Commission will provisionally award the license to the party/parties at the reserve price', totaling US\$96 million for the six lots.

(June 23, 2016) telegeography.com

MTN Group has announced that it has agreed to pay the federal government of Nigeria a total of NGN330 billion (US\$1.7 billion) over three years, in a full and final settlement of the fine it received last year for failing to disconnect around 5.1 million incompletely registered subscribers. The NGN50 billion 'good faith' payment made by MTN Nigeria on February 24, 2016 forms part of the monetary component of the settlement, leaving a balance of NGN280 billion outstanding, which will be discharged as follows: NGN30 billion on July 8, 2016, NGN30 billion on March 31, 2017, NGN55 billion on 31 March 2018, NGN55 billion on December 31, 2018, NGN55 billion on March 31, 2019, and finally NGN55 billion on 31 May 2019. In addition to the fine, South Africa-based MTN Group said it would 'take immediate steps to ensure the listing of its shares on the Nigerian Stock Exchange as soon as commercially and legally possible after the date of execution of the settlement agreement'. MTN Chairman said that the local listing will be carried out when market conditions are appropriate and will not result in the parent company losing control of the unit. MTN Nigeria was initially fined a total of NGN1.04 trillion by the NCC in October 2015, based on a penalty of NGN200,000 for each unregistered subscriber, although this was cut by the regulator to NGN780 billion in December. MTN launched legal action against the fine later that month, before withdrawing its lawsuit in February and paying NGN50 billion to the government, on the basis that this would be applied towards a settlement. In a possible complication to the settlement, however, the House of Representatives has said it was surprised by the deal, as its own investigation into the fine has not yet been concluded. (June 13, 2016) Bloomberg

Philippines



Telecoms watchdog the National Telecommunications Commission (NTC) has given the country's two dominant operators, Philippine Long Distance Telephone Company (PLDT) and Globe Telecom, one

year to effect an improvement in their mobile internet services and to expand coverage. The regulator's ruling comes in the wake of the recent decision to approve the joint use of mobile frequencies – including precious 700MHz spectrum – previously controlled by a number of San Miguel Corp (SMC) telecoms subsidiaries. With the NTC currently reviewing the PHP69.1 billion (US\$1.48 billion) deal for SMC's assets, its Deputy Commissioner Edgardo Cabarios has urged PLDT and Globe Telecom to begin using the additional bandwidth immediately, warning that failure to comply will mean the recall of the frequencies. Further, the watchdog has told the pair that in the next 60 days they must each submit a three-year network rollout program detailing how they intend to cover a minimum 90% of all cities and municipalities after gaining access to the so-called valuable spectrum frequency (VSF) 700MHz band. On May 27 the NTC approved the use by both operators of certain radio frequencies in the 700MHz, 900MHz, 1800MHz, 2300MHz and 2500MHz bands. Cabarios notes that approval for use of the 700MHz and 1800MHz frequencies means that PLDT and Globe will not necessarily need to build more cell sites to improve services in the short term. Given that a cell site takes an average of six months to one year to build, with the spectrum available for their immediate use, the two companies now need only to install radio equipment at existing sites. It is understood that as part of the SMC deal, PLDT and Globe acquired a total of 2,000 cell sites spanning from Pampanga to Batangas. (June 2, 2016) telegeography.com

Poland



Poland's telecom regulator has finalized the allocation of spectrum suitable for LTE services, resolving a situation that was created when one of the license winners pulled out of the process earlier this year. Regulatory body the Office of Electronic Communications (UKE) announced the results of a long-running auction of frequencies in the 800 MHz and 2.6 GHz bands in October last year and in January formally allocated the spectrum to the winning operators, giving them two weeks to pay the sums pledged. However, Netnet, which won one 5-MHz block of 800-MHz spectrum, reneged on the deal, triggering discussions between the regulator and the remaining license winners regarding the destination of that spectrum block and the position of other frequency allocations. The UKE confirmed that the remaining 5 MHz of 800-MHz spectrum would go to T-Mobile Polska, as expected and shared details of the positions awarded to the other two winning companies, Orange and P4. T-Mobile, which initially won one 800-MHz spectrum block in the sale, was granted two contiguous blocks at 806 MHz-816 MHz/847 MHz-857MHz. Orange's two blocks stand at 791 MHz-801 MHz/832 MHz-842 MHz, while P4 comes in between its rivals with one block at 801 MHz-806 MHz/842 MHz-847MHz. UKE president Magdalena Gaj described the process of finalizing the spectrum allocations as the most important in recent years. The process "opens a new stage in the development of the mobile Internet in Poland," she said, in a local language statement. Allowing T-Mobile and Orange contiguous frequencies in the 800-MHz band will make more efficient use of the band, Gaj noted. The regulator did not change any spectrum

positions in the 2.6 GHz band, which is split between Orange and T-Mobile with three paired 5-MHz blocks each, and Polkomtel and P4 which each hold four blocks.

(June 27, 2016) totaltele.com

Russia



Beeline this week issued a pessimistic forecast for Russia's mobile market in 2016, as competition between the country's Operators heats up. In its annual market report, published on Monday, the Vimpelcom-owned operator said 2015 was the first year of declining revenue growth in Russia, caused by various factors, not least of all the cannibalization of traditional mobile services by over-the-top (OTT) players, particularly WhatsApp. Beeline said mobile network expansion and the depreciation of the rouble have squeezed margins, while increasing competition forced operators to constantly review their price plans. Russia is home to four major mobile operators: MTS, MegaFon, Beeline and Tele2, the last of which has embarked on an aggressive rollout plan following its 2014 merger with Rostelecom. According to Beeline, SIM-card penetration stands at nearly 190%. In 2015, Beeline said the big four saw combined service revenue fall 0.1%, compared to growth of 2% in 2014. Beeline said it expects this trend to continue for the next one to two years, with competition ramping up further in 2016 as players copy each other's initiatives in a bid to steal market share. The "Russian market has moved into a phase of stagnation," Beeline said, predicting that it will contract by 0.3% this year. (June 2, 2016) totaltele.com

Yekaterinburg-based regional operator MOTIV (registered as Ekaterinburg-2000) has been given permission to introduce voice-over-LTE (VoLTE) technology by the Russian regulatory authorities. MOTIV technical director Alex Artemas commented: 'VoLTE guarantees high voice quality ... subscribers will definitely feel the difference'. Ericsson rolled out MOTIV's 1800MHz LTE network, which was commercially launched in December 2014 in the main population settlements within its network footprint. In February 2016 MOTIV increased its 4G resources by winning a time division duplex LTE (TD-LTE)-suitable (2600MHz) license in the 2570MHz-2595MHz band. The concession covers Sverdlovsk, Kurgan, Tyumen, Ugra and Yamal.

(June 2, 2016) ComNews.ru

Senegal



Senegalese mobile network operators (MNOs) Tigo and Espresso Telecom have opened talks with the country's telecoms regulator the Regulation Authority of Post and Telecoms (Autorite de Regulation des Telecoms et des Postes, ARTP) to secure 4G operating licenses. The move comes hard on the heels of the recent award of a next generation concession to Sonatel – operator of the Orange brand in the country. Last week ARTP confirmed the renewal of the operating licenses of state-owned fixed and mobile operator Sonatel, for a total consideration of XOF100 billion (US\$171 million), including the 'extension of its scope' to offer 4G. ARTP

said that under Article 23 of Law No. 2011-01 of February 24, 2011 on Telecommunications Code, it is renewing the operating concessions of the telco for fixed, 2G and 3G services for a period of 17 years – starting August 8, 2017 – while also licensing mobile arm Orange to offer 4G LTE for a similar period, from the date of the award. According to the regulator, Sonatel will pay XOF32 billion for the 4G license which comprises 10MHz of spectrum at 1800MHz and 10MHz in the 800MHz band. The operator is obliged to begin marketing 4G within two months of the frequency assignment date – i.e. August. Sonatel (Orange) is required to provide coverage of 70% in five years (up from a 65% stipulation previously) and 85% to 90% in ten years. The ARTP also notes that it has removed rights to use the 700MHz band and trimmed the duration of the operating license from the original 20-year term it had proposed. (June 27, 2016) telegeography.com

Senegal's industry watchdog, the Regulation Authority of Post and Telecoms (Autorite de Regulation des Telecoms et des Postes, ARTP), has confirmed that it has renewed the operating licenses of state-owned fixed and mobile operator Sonatel, for a total consideration of XOF100 billion (US\$171 million), including the 'extension of its scope' to offer 4G. ARTP said that under Article 23 of Law No. 2011-01 of February 24, 2011 on Telecommunications Code, it is renewing the operating concessions of the telco for fixed, 2G and 3G services for a period of 17 years – starting 8 August 2017 – while also licensing mobile arm Orange to offer 4G LTE for a similar period, from the date of the award. According to the regulator, Sonatel will pay XOF32 billion for the 4G license which comprises 10MHz of spectrum at 1800MHz and 10MHz in the 800MHz band. The operator is obliged to begin marketing 4G within two months of the frequency assignment date – i.e. August. Sonatel (Orange) is required to provide coverage of 70% in five years (up from a 65% stipulation previously) and 85% to 90% in ten years. The ARTP also notes that it has removed rights to use the 700MHz band and trimmed the duration of the operating license from the original 20-year term it had proposed. In January 2016 the ARTP announced that the call for applications for fourth-generation mobile licenses had received no bids from the three incumbents – the other two being Tigo, a unit of Millicom International Cellular (MIC), and Sudatel's Espresso Telecom – suggesting they may have boycotted the process over a disagreement on the license fee. With the regulator refusing to revise its reserve price of XOF30 billion for the 20-year concessions, the ARTP confirmed that on December 17, 2015 it received 'in open violation of the Public Procurement Code and the consultation regulations (Article 3.4 and Article 7.14 of the Regulations of Call for Candidacy) ... a signed letter [from the] three operators to report their concern about the license reserve price'. At the time, ARTP Director reiterated that the watchdog considered the license fee to be appropriate, adding that it was set as a result of 'a benchmark of over 20 countries in the world, taking into account the quality and quantity of available frequency bands (700MHz, 800MHz and 1800MHz), the population, income of the telecom market in Senegal and obligations of the license for 4G coverage.

(June 23, 2016) telegeography.com

Serbia



The European Bank for Reconstruction and Development (EBRD) has reiterated its interest in investing in Serbia's state-owned telco Telekom Srbija, which offers services under the MTS brand. EBRD's Director for Serbia, Daniel Berg said that the bank is planning to invest more than EUR300 million (US\$341.4 million) in Serbia, as part of a program to channel over EUR1 billion into the western Balkans. During the most recent attempt to privatize the telco, the EBRD was one of six bidders to submit an offer for the government's majority stake. None of the bids reached the government's minimum price of around EUR1.4 billion, however, and in December 2015 Belgrade confirmed that MTS would remain in state hands. (June 9, 2016) News Portal Vesti

Singapore



The Infocomm Development Authority of Singapore (IDA) has issued clarifications to queries relating to the 700 MHz, 900 MHz, 2.3 GHz, and 2.5 GHz spectrum rights auction. IDA has also issued the final Information Memorandum and Auction Rules. Interested bidders can submit the Expression of Interest Document to IDA by September 1. The auction will determine Singapore's fourth mobile network operator. Interested companies should submit their application forms, including supporting documentation to prove they have sufficient funds. The regulator will take 20 days to assess their Expression of Interest applications and provide the necessary training to participants on how to use the IDA's computerized auction system. IDA plans to start the sale of frequencies in early October, and award the fourth MNO license in Singapore in April 2017. (July 18, 2016) telecompaper.com

IDA issues updated rules for forthcoming auction of mobile frequencies in 700 MHz, 900 MHz, 2.3 GHz and 2.5 GHz bands, including reserved airwaves for market newcomer. Would-be new entrants to Singapore's mobile market have until 1 September to file documents expressing their interest in taking part in the upcoming spectrum auction, the country's telecoms regulator announced. In an amended auction rules paper, the Infocomm Development Authority of Singapore (IDA) said it will make a decision within 20 business days of the deadline on whether or not to qualify prospective bidders for the new entrant auction. It did not specify exactly when the auction will take place. It is likely to happen before the end of the year though, with the spectrum up for grabs having a start date of April 1, 2017. As previously announced, the IDA has reserved a package of 60 MHz of spectrum in the 900 MHz and 2.3 GHz bands for a newcomer, setting a reserve price of S\$35 million (€22.5 million). Companies that do not already operate a nationwide mobile network in Singapore will be able to take part in the new entrant auction, provided they pass the prequalification phase, the regulator said earlier this year, noting that it has witnessed strong interest in the process. Indeed, there appear to be a number of names in the frame, including OMGTel and MyRepublic. Once the new entrant auction has taken place, the IDA will sell off the remainder of its available spectrum to the

country's existing mobile network operators, Singtel, StarHub and M1; the new entrant, presuming it exists at that stage, will also be permitted to take part. The main auction will include 175 MHz of spectrum across the 700 MHz, 900 MHz, 2.3 GHz and 2.5 GHz bands. The 700-MHz and 900-MHz frequencies will be split into lots of 2x5 MHz and will carry a minimum price of S\$20 million per lot. 5-MHz lots of 2.3-GHz and 2.5-GHz frequencies have a reserve price of S\$3 million. Licenses in the 700 MHz band will start from January 1, 2018 and will have duration of 15 years. All other bands are available from April 1, 2017 and licenses will last for 16 years. (July 15, 2016) totaltele.com

Telecoms regulator, the Infocomm Development Authority (IDA), has laid down strict 4G rollout targets for the city-state's mobile operators, requiring that they provide coverage of more than 95% of outdoor areas from July this year, rising to over 99% in July 2017 and more than 99% of tunnels by July 2018. The IDA has announced its rollout guidelines amid growing calls for strengthened regulation, noting that by January 2019 it expects 4G licensees to have boosted in-building signal coverage to more than 85%. Furthermore, the watchdog says that any new network operators will also have to adhere to the new standards, although they will be given more time to deploy their networks. As at March 31, 2016, between them the country's three incumbent cellcos – Singtel, StarHub and M1 – had a total of 4.242 million 4G subscribers, of which 3.771 million were on post-paid contracts. (June 1, 2016) telegeography.com

Slovenia



The Agency for Communications Networks & Services (Agencija za komunikacijska omrežja in storitve, AKOS) has cancelled its tender for 1800MHz and 2100MHz spectrum and relaunched the sale. The regulator says it received two bids for frequencies by the July 4 deadline, from Telekom Slovenije and Telemach, but under the conditions of the sale it must receive at least two competing bids for each block. A new auction has been launched and will run until August 8. At the start of June, AKOS is offering 2x10MHz in the 1800MHz band (1775MHz-1785MHz paired with 1870MHz-1880MHz) valid until 2031, plus 2x5MHz at 2100MHz (1955MHz-1960MHz paired with 2145MHz-2150MHz) valid until 2021. The 1800MHz spectrum carries a reserve price of EUR2.6 million (US\$2.95 million) per 2x5MHz block, while the 2100MHz block has a reserve price of EUR1.3 million. (July 12, 2016) telegeography.com

The Agency for Communications Networks & Services (AKOS) has opened a tender for spare spectrum in the 1800MHz and 2100MHz bands. The regulator is offering 2x10MHz in the 1800MHz band (1775MHz-1785MHz paired with 1870MHz-1880MHz) valid until 2031, plus 2x5MHz at 2100MHz (1955MHz-1960MHz paired with 2145MHz-2150MHz) valid until 2021. The 1800MHz spectrum carries a reserve price of EUR2.6 million (US\$2.95 million) per 2x5MHz block, while the 2100MHz block has a reserve price of EUR1.3 million. The deadline for submission of tenders is 4 July. (June 6, 2016) telegeography.com

South Africa



South Africa's telecom regulator has formally invited applications to take part in an upcoming auction of spectrum in the 700 MHz, 800 MHz and 2.6 GHz bands. The Independent Communications Authority of South Africa (ICASA) made the announcement late last week, bringing to an end years of debate over spectrum allocations in the country. "The main aim of licensing 700-MHz, 800-MHz and 2600-MHz is to ensure nationwide broadband access for all citizens by 2020 in line with the National Development Plan (NDP) and SA Connect Policy," ICASA said. The allocation of more spectrum will help boost affordability and quality of services, as well as promoting investment in the telecoms sector and thereby facilitating economic growth, the regulator added. Like many markets, South Africa's operators need more spectrum to keep up with the growing demand for mobile data. "The lack of availability of spectrum for IMT brings constraints and challenges in the provision of broadband services," ICASA said. "In order to address South Africa's bandwidth deficiency, the current allocated bandwidth of 567 MHz IMT spectrum needs to be increased." The regulator did not provide further details of the auction in its official statement, but Bloomberg secured additional comment. The state is selling five spectrum blocks at a reserve price of 3 billion rand (€189 million) each, the newswire said. It has invited major telcos, including Vodacom and MTN, to take part in the process. (July 19, 2016) totaltele.com

Sipho Maseko, CEO of South African telecoms operator Telkom, has disclosed that his company is planning to reform a portion of its spectrum holding in the 1800MHz band for 4G LTE technology. Telkom's decision follows the collapse of its proposed network sharing and infrastructure outsourcing deal with MTN South Africa in August 2015; the agreement was opposed by local antitrust authority the Competition Commission (CompCom). Telkom applied for 2x12MHz of spectrum in the 1800MHz band from market regulator the Independent Communications Authority of South Africa (ICASA) in February 2008, and launched 2G services in the band in October 2010. (June 8, 2016) telegeography.com

South Korea



South Korea's Fair Trade Commission (FTC) has reconfirmed that it will not give its approval for the controversial planned acquisition of cableco CJ HelloVision by SK Telecom. Speaking at a press briefing Shin Young-sun, Secretary General of the antitrust watchdog, explained the reasoning behind the decision, saying: 'After reviewing SK Telecom's acquisition of CJ HelloVision and merger between SK Broadband and CJ Hellovision, we concluded that the deal may effectively limit competition in the paid broadcasting market as well as the telecom retail and wholesale markets.' Meanwhile, responding to questions over why the FTC had opted to oppose the merger, rather than demand a partial stake sale or impose a ban on the enlarged entity raising cable TV subscription rates, Shin argued that such measures would not be sufficient to limit the repercussions of the tie-up. In response to the FTC's latest announcement,

SK Telecom said it would respect the decision, adding that it would 'do its best to help the domestic media industry leap one step further in the global arena'. Nonetheless, the mobile market leader said it regretted that it had been unable to persuade the authorities to allow the transaction, adding: 'Global media companies are waging "borderless warfare" in the over-the-top content business [delivery of audio and video content over the internet], and changes and innovations are urgent when Korea cannot be an exception in the competition.' SK Telecom's rivals have – as might be expected – proved happier with the ruling, with a joint statement issued by KT Corp and LG Uplus stating: 'We greatly feared more monopoly in the broadcasting and telecom markets and the loss of consumer welfare caused by SK Telecom's acquisition of CJ HelloVision ... So we have been expressing the view that the M&A should be banned, and the FTC's decision reflects this.'

(July 19, 2016) The Korea JoongAng Daily

Sweden



Sweden's telecoms regulator has invited bidders to submit applications for two mobile spectrum auctions that will take place before the end of the year. Most significantly, the Swedish Post and Telecom Authority (PTS) plans to auction off 700-MHz frequencies on December 1 and has given would-be bidders until 1 November to apply to take part. It has 30 MHz of paired spectrum available, which it has split into four 5-MHz blocks and one 10-MHz block; the latter carries a coverage obligation for the rollout of voice and broadband services in hard-to-reach areas. Bidders will be restricted to a maximum of 2x20 MHz each. This guarantees that at least two winners will emerge, but not preclude more players walking away with spectrum, the PTS explained, in a statement. The licenses will run from April 1 next year until the end of 2039. The PTS made a new announcement, inviting interested parties to apply to participate in a separate auction of spectrum in the 1800 MHz band that will take place in the autumn. It is auctioning off a single 5-MHz block of paired 1800-MHz spectrum on October 24 and has set an application deadline of 10 October. The spectrum in question is currently held by Net4Mobility, a joint venture between Telenor and Telenor, but the license is due to expire at the end of May next year. The new license will run from June 1, 2017 to December 31, 2027. The regulator has set a reserve price of 40 million kronor (€4.2 million) (July 5, 2016) totaltele.com

Sweden's parliament has adopted a law which aims to promote broadband deployment, based on an EU directive. The new law is designed to lower costs for the expansion of broadband and to support the coordination of various parties involved in deploying, accessing, providing or sharing fixed and wireless broadband infrastructure, regulator PTS reports.

The Act gives rights to those who want to develop broadband, including:

- the right to access information about the infrastructure and construction projects
- the right to request access to other infrastructure

- the right to coordinate construction projects with other building owners ('the right applies if the latter is a public body, or if the project is financed by public funds').

Similarly, obligations are imposed on infrastructure owners, including obligations to provide information, provide access to infrastructure and to coordinate deployment. However, there are opportunities for the broadband system operator, under certain conditions, to deny access, the PTS adds. The regulator notes that when the law comes into force on July 1, 2016, new procedures will be needed for dealing with dispute resolution and enforcement, whilst a new portal is being launched for coordinating/sharing infrastructure. Besides telecoms infrastructure itself, the new rules under the 'Law on Measures for the Development of Broadband Networks' also cover access to/information on civil/other infrastructure in areas such as transport, sewerage, electricity and heating.

(June 10, 2016) telegeography.com

Tanzania



The Tanzania Communications Regulatory Authority (TCRA) switched off 1,713,337 invalid International Mobile Equipment Identity (IMEI) numbers on June 16. Innocent Mungu, TCRA's Head of Corporate Communications, clarified that it is not that 1.7 million handsets have been switched off. It is IMEIs that have been switched off. One mobile phone handset can have up to four IMEIs. A reported 117,389 IMEIs were found to be duplicates, equating to 0.09% of all IMEIs, with 2.96% of the total said to be invalid, and 96.95% believed to be genuine. TCRA acting Director General James Kilaba warned that users caught duplicating IMEIs risk a fine of TZS10 million (US\$13,362), 30 years in jail, or both, in accordance with the Electronic and Postal Communications Act. Six operators have been fined a total TZS651.5 million for violating SIM card registration regulations, namely Benson Informatics, Zantel and the local units of Airtel, Millicom, Viettel and Vodacom.

(July 7, 2016) The Citizen

The Tanzanian government and Bharti Airtel of India have signed a Memorandum of Understanding (MoU) to complete the state's full takeover of national PTO Tanzania Telecommunications Company Limited (TTCL). The MoU, which was signed in Dar es Salaam on June 23 by the Treasury Registrar, Mr. Lawrence Mafuru, and the CEO of Bharti Airtel Africa, Mr. Christian De Fariasees, has seen Airtel transfer its 35% stake in TTCL to the state. TTCL's Board Chairman, Professor Tolly Mbvette, is cited as saying that the repossession of shares will allow the operator to implement its business strategy, while it is noted that TTCL plans to list on the Dar es Salaam Stock Exchange as part of its five-year plan to raise USD330 million to improve and expand its operations. The 35% stake has been valued at around TZS14.6 billion (US\$6.7 million), with Bharti Airtel having rejected a former TZS5 billion offer from the government in November 2014.

(June 27, 2016) The Daily News

Mobile operators in Tanzania will now pay excise duty on all 'M-Pesa' mobile financial services (MFS) commissions. Unveiling his 2016/17 national budget, finance and planning minister Dr. Philip Mpango said a new 10% excise duty on mobile money transactions will apply for both sending and receiving transactions. According to the report, commission is currently only taken from senders. The Minister hopes that the plan will plug tax evasion loopholes in the ever-expanding MFS business, where billions of shillings are moved annually. The country is home to 37.64 million mobile users, of whom around 16 million are believed to utilize mobile cash transfers. (June 10, 2016) All Africa

Thailand



Thailand Jas Mobile has been fined almost THB200 million (US\$5.6 million) by the National Broadcasting & Telecommunications Commission (NBTC) for its failure to pay for the technology-neutral (4G) 900MHz mobile license it won at auction in December. Jas has the right to file an appeal with the Civil Court if it disagrees with the decision. Meanwhile, it has been confirmed that the authorities will not revoke fixed broadband or digital TV licenses held by Jas Mobile's parent company Jasmine International Public Company as punishment, with NBTC Secretary General Takorn Tantasith cited as saying that the regulator had no authority to revoke such concessions as it could violate telecom laws and regulations. With regard to the fine itself, Takorn noted this had been calculated based on three elements: compensation for operating expenses incurred during the auction in December 2015; the cost of the re-auction of the spectrum last month; and interest starting from the date of Jas Mobile's default on payment in March 2015. Specifically, interest of THB169 million was said to be based on an interest rate of 7.5% applied to the first installment of THB8.04 billion that had been due by 21 March, with interest calculated from this date until 30 June, when Advanced Info Service (AIS), which acquired the 900MHz spectrum forfeited by Jas Mobile, is due to make its first payment. (June 3, 2016) telegeography.com The Telecom Regulatory Authority of India (TRAI) is seeking greater powers to penalize cellcos for missing quality of service (QoS) standards, after the Supreme Court overturned its order obliging providers to compensate consumers for dropped calls. The Economic Times quotes TRAI secretary Sudhir Gupta as saying that the watchdog will write to the Department of Telecommunications (DoT) to request an amendment to the TRAI Act to give the authority more powers: 'We have sought powers to levy penalties for consumer redressal'. The announcement follows a QoS test carried out by the regulator in the capital which found that most carriers had not met the 2% threshold for dropped calls, and that service quality for several operators had degraded since the previous test. Further, according to the regulator, Radio Link Timeout (RLT) technology is being used to mask dropped calls, by keeping calls connected even when service quality drops. In these cases, calls are ended by the user and are not counted as dropped calls. The Cellular Operators Association of India (COAI) rejected the claims that RLT

manipulation was being used to hide dropped calls. The DoT's monitoring arm, Telecom Enforcement, Resource and Monitoring (TERM) Cells is investigating the claim, a TRAI official added. (June 3, 2016) *The Bangkok Post*

The regulator, National Broadcasting and Telecommunications Commission (NBTC) is reportedly mulling plans to allocate up to 10MHz of spectrum in the 800MHz band to support the development of wireless broadband internet both in high speed trains and the wider telecoms sector. The NBTC and the Transport Ministry have signed a Memorandum of Understanding (MoU) on 'allocating the bandwidth for wireless railway communication under the high speed rail projects, using Global System for Mobile Communications-Railway (GSM-R) technology'. Confusing the issue, however, Thai telcos are petitioning to use the 800MHz spectrum to beef up their mobile services – particularly in more rural areas where the lower band provides wider service coverage. The paper notes that the spectrum in question is currently being used by Total Access Communication (DTAC) under a CAT Telecom concession that will expire in September 2018. Although the regulator auctioned off two licenses for 900MHz services in December last year – True Corp and Jasmine International subsidiary Jas Mobile Broadband each winning a concession, although the latter has since had its application rescinded for non-payment of the first installment, with it instead being issued to Advanced Info Service subsidiary Advanced Wireless Network – the 800MHz band is seen as vital given the paucity of available lower-band spectrum.

(June 1, 2016) *The Nation*

Trinidad & Tobago



The Telecommunications Authority of Trinidad & Tobago (TATT) intends to issue long-delayed 4G LTE mobile licenses in September this year, according to the regulator's director Gilbert Petersen, quoted by *TeleSemana*. With licensing having been delayed from an original 2014 schedule, two concessions are now reportedly earmarked for existing mobile operator Digicel T&T and cable/fiber operator Flow T&T. The licensing of the latter is complicated, however, by the fact that Cable & Wireless Communications (CWC) is still yet to offload its 49% stake in government-backed quadruple-play operator Telecommunications Services of Trinidad & Tobago (TSTT) to fulfill the conditions of its March 2015 takeover of Flow, which itself does not yet possess a mobile operating license. To date, TSTT provides the only LTE-based service in Trinidad & Tobago, based on a TD-LTE 2600MHz wireless broadband platform, whilst the TATT's delayed LTE license tender includes spectrum in the 700MHz, 850MHz and 1900MHz ranges. Mr. Peterson says that he does not expect to implement number portability (NP) in August this year as had previously been proposed (following the postponement of an earlier schedule of March). According to the regulator, neither TSTT nor Digicel have yet completed the necessary technical tests for NP. (July 18, 2016) *TeleSemana*

United States



Some of the U.S.'s biggest mobile operators and TV providers are among the 62 bidders to have qualified to take part in phase two of the country's 600-MHz spectrum sale, with bidding due to kick off in one month's time, the Federal Communications Commission (FCC) announced late last week. The qualified bidders include AT&T, Verizon and T-Mobile US; as expected, Sprint does not appear on the list, having announced last year that it has no need for additional spectrum. The list also includes CC Wireless Investment, which according to the FCC's database is an entity controlled by cable operator Comcast, while satellite player Dish Network is bidding as ParkerB.com Wireless. The U.S. regulator plans to open bidding in the second part of the auction, the forward auction, on 16 August. Part one, or the reverse auction, was completed in late June after almost three months. Under the reverse auction, the broadcasters holding 600-MHz airwaves committed to freeing them up for mobile use...albeit at a price. The reverse auction placed a US\$86.4 billion price tag on the forward auction, naturally raising questions over the telecoms industry's ability and willingness to commit such a hefty sum to more spectrum. Should cumulative bids in the second phase of the sale not reach that level; the FCC will be forced to reopen the reverse auction in order to bring the minimum price down. Such a move would also reduce the volume of spectrum available in the forward auction. As it stands, operators are being asked to pay around \$2.15 per MHz per capita; on balance analysts think it unlikely they will do so. Which means the so-called incentive auction is likely far from over. Bidding could well start in a month, but the end is not really in sight. (July 18, 2016) *totaltele.com*

The US Federal Communications Commission (FCC) has completed the arrangements for the reverse auction stage of repackaging the 600MHz spectrum. It is currently used for TV broadcasting, but the intention is to convert it for mobile wireless internet use. The FCC has calculated the minimum cash-out that broadcasters would accept in order for the auctions process to end. The amount is \$86,422,558,704. The FCC has cleared 126 MHz of 600-MHz spectrum. According to auction regulations, operators' cumulative bids in the forthcoming forward auction must hit that \$86.4 billion figure in order for the spectrum to be sold. At \$86.4 billion, or approximately \$2.15 per MHz per capita, the FCC will almost certainly have to conduct more rounds of the reverse auction in order to lower the price. This will also have the effect of reducing the volume of spectrum available. The last major U.S. spectrum auction concluded in January 2015, and saw bidding for 65 MHz of spectrum in the 1700 MHz and 2.1 GHz bands reach almost \$45 billion. The last time sub-1GHz spectrum went under the hammer was in 2008, when the FCC sold off 84 MHz of 700-MHz spectrum, and raised \$18.6 billion. Many US analysts and commentators are skeptical that the money will be available from even the wealthiest carriers to afford these prices. The forward auction is expected to begin late in July or early August. (July 3, 2016) *globaltelecomsbusiness.com*

The U.S. completed the reverse auction stage of its two-part incentive auction, placing a hefty US\$86.4 billion (€77.8 billion) price tag on clearing TV airwaves so they can be reused for mobile services. In total, the Federal Communications Commission (FCC) cleared 126 MHz of 600-MHz spectrum. According to the auction rules, operators' cumulative bids in the forthcoming forward auction must hit that \$86.4 billion figure in order for the spectrum to be sold. If that target is not met – and at \$86.4 billion, or approximately \$2.15 per MHz per capita, that seems a highly likely outcome – then the FCC will have to conduct further rounds of the reverse auction in order to lower the price, which will have the effect of reducing the volume of spectrum available in the forward auction. "Broadcasters have done our part; now it's up to the wireless industry to demonstrate the demand is there for low-band TV spectrum," said Dennis Wharton, EVP of the National Association of Broadcasters (NAB). The last major U.S. spectrum auction concluded in January 2015, and saw bidding for 65 MHz of spectrum in the 1700 MHz and 2.1 GHz bands reach almost \$45 billion. The last time sub-1-GHz spectrum went under the hammer was in 2008, when the FCC auctioned 84 MHz of 700-MHz spectrum, raising \$18.6 billion. One could argue that the price of spectrum is bound to increase, what with the ongoing growth in data demand and the fact that 126 MHz is a very large amount of spectrum; however, \$86.4 billion will be a stretch for even the wealthiest U.S. telcos. "No one in their right mind can think the carriers and whatever others are going to come up with \$86 billion," said Roger Entner, founder of Recon Analytics, in a Bloomberg report. In April 2015, the U.S. Congressional Budget Office estimated that the incentive auction would raise \$10 billion-\$40 billion; however, it confessed that it was hard to predict an outcome because the FCC had never carried out an incentive auction before. Wells Fargo analysts polled by Bloomberg in January predicted that bids would total \$33 billion, with AT&T, Verizon and T-Mobile accounting for approximately \$23 billion. Those three nationwide operators are among the 104 companies that applied to participate, but the fourth, cash-strapped Sprint, ruled itself out early on. So did Google, while cablecos Charter and Cablevision – the latter of which was recently bought by acquisitive cable group Altice – are not expected to bid either. However, some other big names are likely to be involved. Cable giant Comcast is expected to take part, as is satellite provider Dish. Buying up more spectrum and launching mobile services is seen as a logical way for TV providers to defend themselves against the likes of AT&T and Verizon, which has been muscling in on the TV market lately. Telcos themselves have kept quiet, while their lobby group the CTIA, played it cool. "We are pleased to see the 600 MHz incentive auction move closer to delivering spectrum for wireless providers so they can meet Americans' mobile-first lifestyles," said CTIA chief Meredith Attwell Baker, in a statement. "With mobile data usage expected to rise six-fold by 2020, we will need to use all tools, including an effective incentive auction process and high band spectrum, to meet consumer demand and continue our wireless leadership." Will telcos 'do their part' as NAB's Wharton demands, or will they try to avoid ruining their balance sheets by spending less than \$86.4 billion? I'm pretty confident that even I can guess the answer to that one. (July 1, 2016) totaltele.com

The U.S. Federal Communications Commission said the price of 126 MHz of television airwaves taken from broadcasters to be sold for wireless use in an ongoing auction is \$86.4 billion. But analysts said wireless providers may not be willing to pay the staggering amount for the airwaves to expand their networks, which could prompt the FCC to hold another round of auctions. The FCC disclosed the price in a statement after completing the first part of an auction to repurpose low-frequency wireless spectrum relinquished by television broadcasters. "Strong participation from broadcast stations made this initial clearing target possible," Gary M. Epstein, chair of the FCC's incentive auction task force, said in a statement. The so-called "broadcast incentive" spectrum auction is one of the commission's most complex and ambitious to date. In this round, called a reverse auction, broadcasters competed to give up spectrum to the FCC for the lowest price. In the next stage, the forward auction, wireless and other companies will bid to buy the airwaves for the highest price. If wireless companies are unwilling to pay \$86.4 billion, the FCC may have to hold another round of bidding by broadcasters and sell less spectrum than had been expected, analysts said. Recon Analytics analyst Roger Entner said the results confirm that broadcasters have "significantly inflated expectations." "In an election year, with a lot of uncertainty with Brexit making the debt markets jittery," it is unlikely that wireless operators with deep pockets, such as AT&T Inc (T.N) and Verizon Communications Inc (VZ.N), would raise more debt to bid in the auction, Entner said. A second round of the reverse auction later this year is likely, Dan Hays, principal at audit firm PwC's consulting arm Strategy&, said in an email statement. "Indeed, we could well see the proceedings drag on into early 2017 before coming to a final conclusion," Hays said. "Now it's up to the wireless industry to demonstrate the demand is there for low-band TV spectrum," National Association of Broadcasters spokesman Dennis Wharton said in a statement. Companies that have applied to bid for spectrum include wireless providers Verizon, AT&T and T-Mobile US Inc (TMUS.O); and pay-TV providers Comcast Corp (CMCSA.O) and Dish Network Corp (DISH.O). S&P Global Market Intelligence estimated in April that a dozen broadcasters, such as Univision Communications Inc [UVN.UL], CBS Corp (CBS.N), Sinclair Broadcast Group Inc (SBGI.O) and Media General Inc (MEG.N), could generate up to \$13 billion in the spectrum auction at the high end of participation.

(June 29, 2016) reuters.com

Federal Communications Commission (FCC) Chairman Tom Wheeler this week talked up the role of the U.S. in the development of the fifth generation of mobile technology and proposed new rules designed to free up more spectrum for 5G. FCC commissioners will vote on the proposal on 14 July, Wheeler said in a speech delivered to the National Press Club, and reproduced on the U.S. regulator's Website. "5G is a national priority," Wheeler said, having waxed lyrical about the possible applications for high-bandwidth, low-latency mobile, touching on healthcare, education, connected cars, smart energy and other areas. "This Thursday, I am circulating to my colleagues proposed new rules that will identify and open up vast amounts of spectrum

for 5G applications,” Wheeler said. Operators have the opportunity to gain more low-band spectrum suited for wide-area coverage at the ongoing incentive auction that will free up frequencies in the 600 MHz band. Meanwhile, the FCC has put rules in place for spectrum-sharing in the 3.5 MHz band and is looking for other opportunities in the mid-band. But the focus of next month’s vote is on high-band spectrum. According to Wheeler, the proposal he has circulated to his colleagues will make the U.S. the first country in the world to open up high-band spectrum for 5G. “Unlike some countries, we do not believe we should spend the next couple of years studying what 5G should be, how it should operate, and how to allocate spectrum, based on those assumptions,” Wheeler said. “Turning innovators loose is far preferable to expecting committees and regulators to define the future,” he insisted. “We won’t wait for the standards to be first developed in the sometimes arduous standards-setting process or in a government-led activity. Instead, we will make ample spectrum available and then rely on a private sector-led process for producing technical standards best suited for those frequencies and use cases.” Technological advances mean that high-band, millimeter wave (mmWave) spectrum can be used in 5G rollouts in dense urban areas served by sizeable numbers of small cells. Use of high-band frequencies means bigger blocks of spectrum will be available, Wheeler said. Rather than blocks of 5 MHz and 10 MHz that are currently licensed to mobile operators, with 5G “we are looking at blocks of at least 200 MHz in width,” he explained. “This will allow networks to carry much more traffic per user – gigabits of throughput instead of megabits.” Wheeler also noted that commissioners will consider unlicensed spectrum, which he said will play a “critical role” in 5G. He proposes the creation of a 14-GHz band of unlicensed spectrum with flexible usage rules. Spectrum-sharing is also on the agenda for Wheeler, as are planning rules that will govern the positioning of small cell antennas, and the importance of backhaul.

(June 22, 2016) totaltele.com

US government development finance institution the Overseas Private Investment Corporation (OPIC) has announced its first investment in Myanmar’s burgeoning telecoms sector with a \$250 million loan to Apollo Towers Myanmar. Apollo has built around 1,800 towers to support Myanmar’s mobile sector since its launch in 2014, and plans to build more than 2,000 additional towers in the next phase of its development. Existing Apollo investors TPG Growth, Tillman Global Holdings and Myanmar Investments International facilitated the loan process and plan to continue to partner with Apollo on its expansion, OPIC said in a statement. “Apollo has been able to capitalize on a buoyant demand for mobile and telecommunications services, working closely with global network operators such as Telenor and Ooredoo, as well as locally based Myanmar Posts and Telecommunications,” Apollo founder Sanjiv Ahuja said. “This watershed OPIC financing, a unique collaboration between the private and public sectors, helps expand the critical infrastructure needed to bring telecommunications services to a larger portion of the Myanmar population.” TPG Growth’s 2014 investment in Apollo was the first ever investment in Myanmar by a major Western private equity firm, following the

government’s efforts to liberalize the telecoms and other sectors. (June 21, 2016) telecomasia.net

The US Court of Appeals for the District of Columbia Circuit upheld the Federal Communications Commission (FCC’s) Open Internet (net neutrality) rules, effectively handing a defeat to telecoms operators trying to fend off tighter oversight of the consumer broadband sector. The ruling is likely to be considered a major victory for the Obama administration and companies such as Netflix and Google, and potentially paves the way for further pending regulatory steps that telecoms players have resisted thus far. The lawsuit against the FCC was filed by a mix of broadband industry lobby groups and ISPs, and follows the regulator’s controversial February 2015 introduction of the 2015 Open Internet Order, in which it reclassified broadband as a telecoms service, subject to common carrier regulation under Title II of the Communications Act. Previously, the Court of Appeals had weighed in on Comcast Vs. FCC (2010) and Verizon Vs. FCC (2014). FCC chairman Tom Wheeler commented: ‘Today’s ruling is a victory for consumers and innovators who deserve unfettered access to the entire web, and it ensures the internet remains a platform for unparalleled innovation, free expression and economic growth. After a decade of debate and legal battles, today’s ruling affirms the Commission’s ability to enforce the strongest possible internet protections – both on fixed and mobile networks – that will ensure the internet remains open, now and in the future.’ (June 15, 2016) telegeography.com

The US Commerce Department’s National Telecommunications and Information Administration (NTIA) has approved the global internet multistakeholder community’s proposal to transition the US government’s stewardship role for the Internet domain systems (DNS) technical functions, known as the Internet Assigned Numbers Authority (IANA) functions. The announcement marks an important milestone in the US government’s effort to transition the internet’s domain name system and ensure that the internet remains a platform for innovation, economic growth, and free speech. NTIA said the transition proposal must have broad community backing and maintain the openness of the internet. The organization said it would not accept a plan that replaced its role with a government-led or intergovernmental organization solution. For the last 18 years, the United States has worked with businesses, technical experts, governments, and civil society groups to establish a multistakeholder, private-sector led system for the global coordination of the DNS. To accomplish this goal, in 1998, NTIA partnered with the Internet Corporation for Assigned Names and Numbers (ICANN) to transition technical DNS coordination and management functions to the private sector. In 2014, NTIA initiated the final step in the privatization process by asking ICANN to convene global stakeholders to develop a plan to complete the transition away from NTIA’s remaining legacy role. In March 2016, ICANN submitted a proposal that addresses both the technical performance of the IANA functions as well as enhancements to ICANN’s accountability. The proposal replaces NTIA’s stewardship for these functions with direct agreements between the operator of the IANA functions and the customers specifying the terms for performance. ICANN has run the IANA functions –

which cover the highest level of internet: the DNS, IP addresses, and internet protocols – since the day it was incorporated in 1999, but through a contract awarded repeatedly to it by the NTIA. (June 10, 2016) telecompaper.com

Zimbabwe



The government of Zimbabwe has stepped in to force the Postal and Telecommunications Regulatory Authority (POTRAZ) to withdraw plans to allow telcos to renew their licenses using long-term annual payment plans. According to a report, wholesale carrier Liquid Telecom – part of the Econet Wireless group – was offered a concessionary ten-year installment plan to pay for its license renewal, which the Ministry of ICT, Postal and Courier Services (MICTPCS) says contravenes the country's Postal and Telecommunications Act. ICT Minister Supa Mandiwanzira has written to POTRAZ to express his disapproval for the payment plan. He said: 'The MICTPCS understands that POTRAZ is currently considering authorizing a framework for license renewal payments that gives operators access to flexible payment terms. It has also come to our attention that, in anticipation of the board's approval, POTRAZ management has already entered into an agreement with another operator under a concessionary ten-year payment plan for their license renewal. Mandiwanzira then added: 'We wish to alert you to the Ministry's grave reservations of such considerations and actions. We consider such an approach unacceptable given the need to urgently support central Government efforts to raise money for the Treasury.' The Herald says that POTRAZ acting director general Cecilia Nyamutswa has now written to Liquid Telecom to say: 'We refer to previous correspondences on this matter and advise that the renewal fees are payable in advance before the license is issued ... We trust that this clears any expectations of a different arrangement with the authority.' POTRAZ had previously been criticized by the government for offering struggling mobile operator Telecel a seven-year plan of annual installments to pay off its US\$137.5 million license renewal fee in 2013. The government said in 2015 that the regulator had no authority to offer such payment plans to telcos. (June 16, 2016) The Herald

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) has responded to criticism from the country's largest mobile operator, Econet Wireless, that it is not treating all operators equally. Econet's Chief Executive Officer, Douglas Mboweni, has been quoted by local news portal TechZim as saying that there is an 'uneven playing field when it comes to competition in the Zimbabwean telecoms industry', going on to highlight the fact that some operators have not renewed their licences. But POTRAZ has hit back by saying that all four of the country's mobile licensees – Econet, NetOne, Telecel and TelOne – are operating under valid concessions. It says that while Econet and Telecel have renewed their permits, NetOne and TelOne are still using old licenses which are not yet due for renewal. Econet is the only fully independent cellco in Zimbabwe, with the other three wholly or partially owned by the state. January this year Econet launched a US\$132 million

legal case against POTRAZ, claiming the regulator had no authority to order mobile operators to reduce tariffs by 30% from January 1, 2015 and suing for lost profits. In addition, Econet said that while it paid a US\$137.5 million fee to renew its operating license in mid-2013, NetOne, Telecel and TelOne failed to pay for their own license renewals, and this action was 'discriminatory'.

(June 8, 2016) TechZim

Zambia

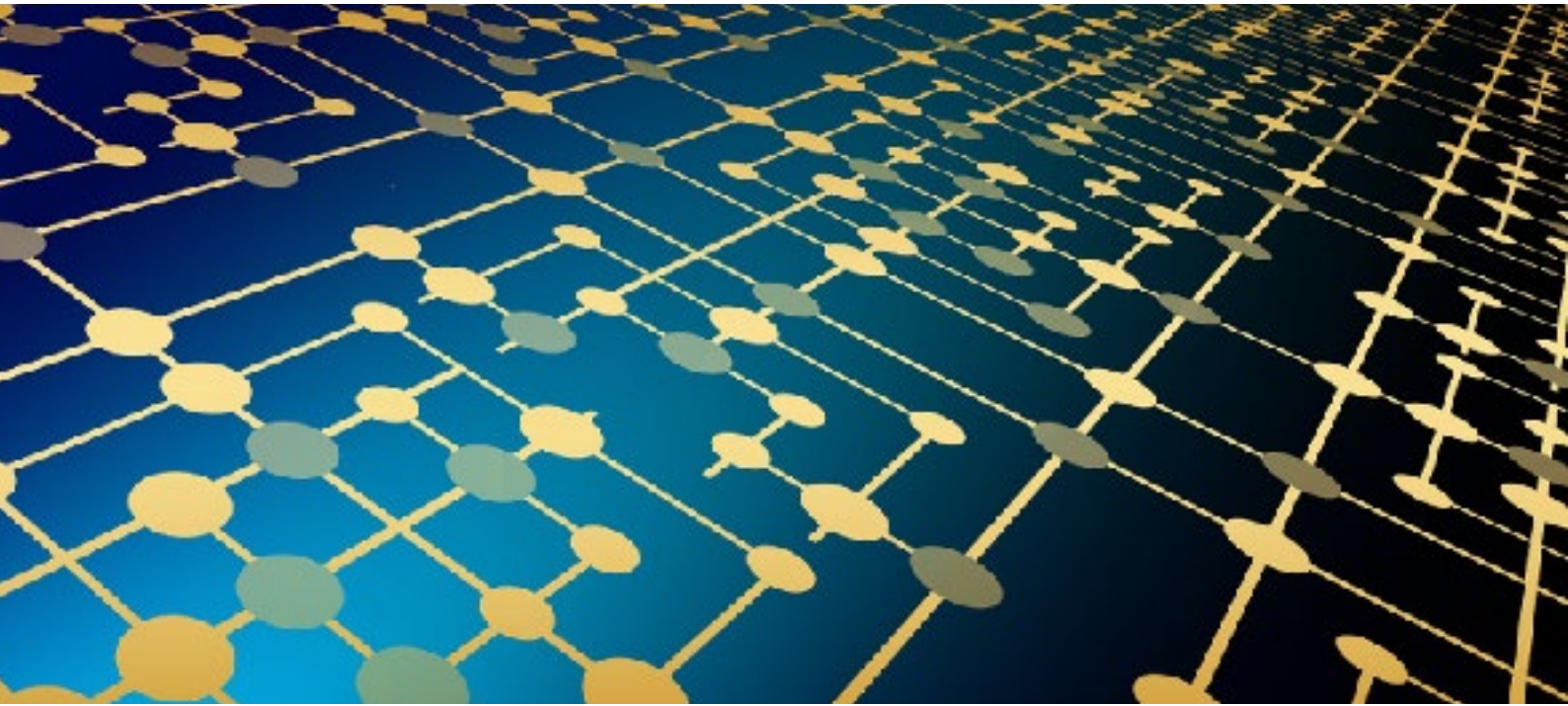


Hot on the heels of the announcement earlier this week that UK telecoms giant Vodafone Group and sub-Saharan Africa 4G operator Afrimax Group had inked a new Partner Market agreement for Zambia, the local telecoms regulator has stressed that it has not issued a new mobile voice concession. In a statement the Zambia Information and Communication Technology Authority (ZICTA) has clarified that Mobile Broadband Zambia Limited, which will trade as Vodafone Zambia, has not been granted a mobile voice license. Head of Public Relations at the ZICTA, Ngabo Nankonde, confirmed that the company's license restricts it to offering internet services only, saying: 'In light of the rising speculation from the general public and other stakeholders ... the Authority wishes to dispel the perception that Mobile Broadband Zambia Limited, trading as Vodafone Zambia, is entering the market as a voice provider ... Mobile Broadband Zambia Limited currently only holds the following licenses: 1. A class Network (wireless internet) license; and 2. A class Service (internet) license.' These concessions, it was noted, will only enable the operator to construct a data network and to provide data services to the public. Stressing once more that the new player's service offerings are restricted, Mrs. Nankonde added: 'Mobile Broadband Zambia Limited's scope of operations and service offering are therefore strictly limited to the provision of mobile data services and not voice services.' Under the non-equity agreement previously announced by Vodafone Group and Afrimax Group the companies themselves had, in fact, confirmed their intentions in line with regulatory restrictions. As such, the duo had revealed that they plan to offer customers high speed 4G data services under the Vodafone Zambia brand, with the service roll out including the opening of Vodafone branded retail stores and kiosks in key locations, with the operator's presence to be bolstered by a network of distributors and resellers offering a full range of 4G handsets and devices. Vodafone Zambia will offer businesses of all sizes a range of connectivity products at retail and through direct sales channels, including 4G and Wi-Fi mobile data services, fixed internet and a suite of office solutions. (June 7, 2016) The Lusaka Times

Javaid Akhtar Malik

Regulatory Affairs
SAMENA Telecommunications Council

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Delivering Smarter SaaS Performance and Security with the Hybrid Network



Spyros Salpeas
Head of Global Services, Middle East, North Africa and Turkey, Orange Business Services

Cloud services growth shows no sign of abating as businesses continue to flock to on-demand technology to drive their digital transformation initiatives. Gartner, the analyst group, predicts that the worldwide market for public cloud services will hit \$204 billion in 2016, up 16.5% from last year. Infrastructure as a service (IaaS) is up 38.4%, followed cloud management and security, up 24.7%, and software as a service (SaaS), which has grown by 20.3%.

Companies see SaaS as an ideal solution to help them reduce spending on data centers and software, while increasing flexibility and scalability. Although there's little doubt of these benefits for companies, the cloud also creates new security and performance challenges. While consumers can directly access cloud applications seamlessly in their homes via their broadband internet connection with little trouble, the situation with enterprises is far more complex. Microsoft Office 365, Salesforce

and other SaaS solutions store customer data in a data center closest to where the IT team registered for the service. If you work on the other side of the world, this is a problem.

The speed of light is finite and application latency increases with the distance to the end user. This means simple tasks, such as opening a large PowerPoint file, can take minutes if you are in Australia and being provisioned from Europe or the US. As a "best effort network" the Internet can't even be relied on to deliver predictable cloud application performance if you're local. In addition, cloud data security over public links is also a major concern everywhere in the world.

Lack of visibility and control

Although the IT department is held accountable for poor application performance, it's hindered by a lack of visibility into what is actually running on their network. IT teams are unable to see the end-to-end SaaS workflows from the

data center, across the network and to the end-users in their global branch offices. This makes it difficult to gain a true picture of response times for users and pinpoint the components that cause delays or interrupt processing. Increasing adoption of shadow IT by line-of-business departments is also a problem.

The first step, therefore, is to understand what is running on the network and what impact each application, including SaaS, is having on the infrastructure and each other. This then allows IT departments to prioritize business-critical applications and determine the best approach for optimization.

In addition, some “chatty” cloud applications are not architected particularly well for over-the-Internet delivery, which means that latency can make performance grind to a halt. By optimizing these transmission and receipt messages, such as by eliminating redundant information, you can reduce network latency significantly.

Dynamically choosing networks

It's now possible to enhance Internet performance and make it faster and more reliable for SaaS traffic in a variety of ways. For example, Orange Business Services uses the global Akamai Intelligent Platform, which is an overlay network that includes nearly 200,000 servers across more than 110 countries and includes advanced optimization technologies. The servers are able to test the performance of different Internet routes and send the traffic down the one with the least congestion and latency. This can increase cloud application performance by up to 10x in the most extreme cases.

Another option is SD-WAN, which Orange offers using Cisco SP-IWAN platform, enhanced with best-in-breed Riverbed and Zscaler optimization and security plug-ins. This enables multiple Internet links – or an Internet link and a MPLS and Internet link – to be used dynamically as one circuit, depending on real-time traffic.

In some cases, it might even be preferable for SaaS traffic not leave the corporate network at all with direct, private connectivity into the cloud data center. This is possible via Business VPN Galerie, which offers a private high speed direct link into over 50 leading cloud services, meaning that no Internet transport at all is required. This also provides the highest level of security for business-critical traffic.

Plugging security gaps

In addition to creating performance challenges, the growing use of cloud and Internet applications also demands a rethink of traditional IT security. Enterprises no longer have a “front door” that they can defend against attack using appliances such as firewalls and intrusion prevention. By assessing cloud applications and allowing potentially confidential information to travel over the Internet, users are essentially punching large holes in the perimeter of their network.

Your choice of Internet gateway to and from your private corporate network and the Internet has a big role to play here. Enterprises have three choices depending on the risk profile of the data.

A cloud-based security platform – provisioned from regional distributed Internet gateways – can inspect this encrypted traffic at high speed. It protects smartphones, tablets, PCs and servers with continuous updates in response to emerging threats. In contrast, traditional branch office appliances are unable to support deep content inspection due to the latency created by the distance to the data center. These legacy solutions leave mobile devices vulnerable to attack and are time consuming to update and scale.

Dedicated gateways eliminate the risks associated with shared infrastructures. While local Internet gateways keep low-risk traffic private until it reaches cost-effective, local break-out points using secure IPSec tunneling. Sensitive data, such as customer records in Salesforce, can also be encrypted and tokenized before being moved across Internet network and stored in private sovereign data centers or a virtual private cloud for added security.

The key in all of this is to have the flexibility to choose the best network dynamically based on the application, network performance and criticality. Enterprises should no longer see their security as separate from the network. Instead they need to consider a hybrid network strategy that secures enterprise networks, the Internet and cloud holistically. In addition, this needs to be centrally managed, so that consistent policies and updates can be applied across the entire infrastructure.

Ultimately, cloud transformation has the potential deliver massive benefits to companies. However, without adequate attention paid to both performance and security, cloud initiatives will fail. Employees demand at least as good performance from the cloud as from existing on-premise applications. Without adequate visibility and control this will be impossible to deliver for multinational companies.



TECHNOLOGY NEWS

TECHNOLOGY UPDATES

Docomo targets 1 GB/s speeds before 5G in 2020

While NTT Docomo has announced ambitious plans for 5G, it is also continuing its LTE investment and is targeting 1Gb/s speeds before it rolls out its 5G network from 2020. NTT Docomo CTO Seizo Onoe (pictured) told Mobile World Live in an interview that 4G will of course be important until the launch of 5G service. The company has described its investment and commitment in LTE as a "solid step forward" in paving the way for 5G services in 2020. With plans to move to 1Gb/s speeds on 4G networks, he said "we need 5G speeds over 1Gb/s beyond 2020". The operator, Japan's largest with a 37 per cent market share, already offers 375Mb/s service and plans to upgrade to 500Mb/s before the end of the current financial year (March 2017). Onoe said that 5G will certainly create "unexpected new services – that always happens". He noted that the most important thing at this stage of 5G development is standardization. "I'm sure 3GPP will release Release 15 in 2018, and then we can launch 5G in 2020." The operator said last year it wants to launch the technology in time for the 2020 Olympics in Tokyo. Docomo carried out a variety of 5G trials with five equipment vendors in the last quarter of 2015.

GSMA manages one more bang on the RCS drum

Industry group insists there is end-user demand for operators to offer rival versions of WhatsApp, WeChat. There is still time for the GSMA's Rich Communications Services (RCS) to mount an unlikely comeback, if a new report published by the industry group this week is anything to go by. According to a survey of 4,045 mobile users in China, India, Spain and the U.S. carried out by Context Consulting on behalf of the GSMA, there is still end-user demand for operators to provide their own versions of WhatsApp, Facebook Messenger, WeChat, and so on. 79% of respondents said that rich, IP-based communication services that support in-call media and file-sharing - on offer from their operator - would be relevant to them. The report said that respondents are particularly interested in being able to carry out financial transactions from within a messaging app, or being able to indicate the importance and subject matter of a phone call. "Although Internet-based messaging services are incredibly popular, they are siloed and closed, requiring users to download an app that their contacts might not be on. Mobile operators have an important role to play in offering evolved, secure and reliable messaging services that are interoperable, universal and work directly from any device and on any network," said Alex Sinclair, the GSMA's chief technology officer, in a statement on Tuesday. However, according to the GSMA, only 47

operators in 34 countries have launched RCS services to date. By comparison, the vast majority of operators offer a means of downloading and installing an OTT communications app. The GSMA talks of OTT services being siloed, with closed user groups, but when only a minority of operators deploy RCS, and then an even smaller minority go to the effort of interconnecting their RCS infrastructure with one another, they are left with an even smaller, closed user group. That hasn't deterred the GSMA though: its new report claims that operators in developed markets that leverage advanced communication services could add US\$5 billion to their revenue between 2015 and 2020. "Operators must meet this demand for advanced communications services by deploying RCS and VoLTE, which, when connected with other operators, allows users to reach anybody on any network and provides incredible messaging experiences," said Sinclair.

5G: A bargaining chip for Europe's telecom industry

Are telcos bluffing or will the development of 5G depend on the regulatory agenda?

Last week, Europe's telecom industry warned policymakers that the business case for "5G" is hanging in the balance. Ensuring the elephant in the 5G room was well and truly visible, the CEOs of leading European telcos and their suppliers contended that strict net neutrality rules could scupper

many potential industrial "internet of things" applications. By publishing a 5G manifesto endorsed by 17 CEOs, telcos are stepping up their efforts to negotiate a better regulatory deal at a time when their revenue is being squeezed by more agile internet-based players. As European policymakers are desperately keen for the region to be a global leader in 5G, the telcos now have a potentially strong bargaining chip. The telcos' main argument boils down to this: Not all IP traffic is equal and connectivity isn't a commodity; some 5G applications will need a fast lane, a secure lane or an ultra-reliable lane. "The current net neutrality guidelines, as put forward by BEREC (a pan EU group of national regulators), create significant uncertainties around 5G return on investment," the manifesto says. "Investments are, therefore, likely to be delayed unless regulators take a positive stance on innovation and stick to it."

Trying to make 5G attractive for investors

How much of this is posturing? Would European telcos really hold back on 5G investment if they can't get a better regulatory deal? Although that would be a bleak scenario for Europe's telecom industry and the wider economy, it could happen. Investors aren't going to let telcos roll out new infrastructure unless they can achieve an ROI equivalent to that available elsewhere. Telcos are effectively competing for investors' money with other sectors, such as pharmaceuticals, energy and retail. In their 5G manifesto, the telcos rightly note that 5G will require significant investments in a new radio access layer, high bandwidth backhaul links, core network upgrades and, for certain scenarios, denser cell sites. To pay for these investments, the manifesto argues that Europe's new net neutrality laws need to be implemented in a way that allows for both innovative industrial services, such as automated driving, smart grid control and public safety services, and quality internet access for consumers. The telecom industry envisions that 5G networks will be divided

into slices, each supporting separate industrial and consumer services while still using a shared infrastructure and benefitting from economies of scale. But balancing all the competing demands for connectivity won't be easy and telcos say they need to be able to optimize their own networks, rather than having to follow a rigid rulebook. The manifesto contends that BEREC's draft implementation rules, which are due to be finalized at the end of August, are "excessively prescriptive and could make telcos risk-averse, thus hampering the exploitation of 5G, ignoring the fundamental agility and elastic nature of 5G network slicing to adapt in real time to changes in end-user/application and traffic demand." Another potential regulatory sticking point for 5G is the difficulty in deploying new cell sites: In densely populated Europe, local governments often seek to block or delay the rollout of telecom infrastructure on aesthetic, environmental or health grounds. The manifesto called for the removal of these deployment barriers.

Carrots as well as sticks

The manifesto also dangled a carrot in front of EU policymakers. Telcos are targeting launching 5G in at least one city in each of the 28 European member nations by 2020, adding that "these smart cities will be strong and tangible innovation platforms for Europe, as hubs of social and economic activities." Launching 5G in all 28 member nations by 2020 is ambitious, but the statement reflects the realpolitik of the EU – investment really needs to be spread right across the member nations to win support across the three key EU institutions – the Commission, the Parliament and the Council. Responding to the manifesto in a blog post, Günther Oettinger, European Commissioner for the Digital Economy and Society, again emphasized the importance of 5G to Europe's competitiveness and the speed with which the U.S., South Korea and China are moving. But he didn't comment on the industry's call for more flexible net neutrality and network deployment rules. Commissioner Oettinger continues to prod the European telecom industry to work with other key European industries to test how new technologies can transform these sectors. Last week, various telecom and automotive trade bodies launched a joint project to test automated driving, road safety and traffic efficiency, and greater digitalization of transports and logistics. The project promises



to explore high-density platooning, cooperative collision avoidance, remote-control parking, local-hazard warnings and traffic flow optimization using 4G technologies between 2017 and 2019, followed by a combination of 4G and 5G technologies thereafter. Europe's telcos are participating in such projects, but are looking for the public sector to share the risk. In the manifesto, they called for EU grants of between 500 million euros and 1 billion euros (\$554.32 million and \$1.10 billion) to incentivize vertical industries to experiment with new services that are enabled or enhanced by 5G. They also asked for the EU to establish a 1 billion euro EU venture fund to invest in startups developing 5G technologies and applications across verticals. As it already spends billions of euros on research and development, the European Commission will probably stump up these funds. But European telcos' call for less regulation and more freedom will be greeted with suspicion by many EU policymakers. In fact, it seems likely that the development of 5G in Europe is going to be subject to an elaborate game of poker between the public and private sectors. Last week, the telecom industry put a bid on the table. When the final net neutrality guidelines arrive at the end of the summer, it will be clearer whether EU policymakers believe the industry is bluffing.

SK Telecom and Ericsson Demonstrate Software-Defined Infrastructure for 5G

South Korea's SK Telecom announced that it, together with Ericsson,



demonstrated for the first time in the world 'Software Defined Telecommunications Infrastructure (SDTI)' based on Hyperscale Datacenter System 8000 on June 20, 2016 at '5G Playground,' the company's 5G technology innovation center located in Bundang, Korea. SDTI refers to an infrastructure platform where all mobile network infrastructure components, such as CPU, memory and storage, are disaggregated as customizable modules that can be flexibly and dynamically recomposed together to provide the optimal level of infrastructure scale for various 5G services based on their requirements. Based on the concept of infrastructure slicing, it allows for the dynamic composition and lifecycle management of infrastructure at the physical hardware layer, ranging from ultra-mini servers for personalized services such as individual broadcasting and personal blogs to massive scale servers for services such as mobile telecommunications and OTT services. Moreover, SDTI enhances efficiency in network infrastructure upgrades as the disaggregated module of the server can be separately upgraded. It also offers strengthened security by physically separating each user's infrastructure. Through the demonstration of SDTI, a key technology for end-to-end 5G Network Slicing, the companies showed that network slicing concept may as well be applied at the physical infrastructure domain to best support their slicing counterparts in the virtualized network functions and network domain, thus completing the missing puzzle piece in the end-to-end network slicing technology. End-to-End 5G Network Slicing is a virtualized and logically separated network, tailored and optimized for a particular user or service, consisting of network slices of different domains in the mobile network including radio access network, IP transport network, core network, and physical infrastructure. SK Telecom expects that, as there are active discussions on virtualized infrastructure platform for 5G by international organizations such as Open Compute Project (OCP) and Telco Infra Project (TIP), the world's first demonstration of SDTI is expected to draw a lot of attention from both industry and standardization communities. Building on this milestone, SK Telecom and Ericsson plan to jointly build end-to-end 5G pilot system - which consists

of 5G device, radio, core network, and SDTI - by the end of 2016, and verify the technical feasibility and performance of the 5G system. "SDTI is an innovative technology that enhances network efficiency by flexibly constructing hardware components to satisfy the infrastructure performance requirements of diverse 5G services," said Park Jin-hyo, Senior Vice President and Head of Network Technology R&D Center of SK Telecom. "SK Telecom will continue to work closely with Ericsson to develop and verify innovative virtualization technologies to optimally support both new and existing services over the 5G network."

Five Personal Technologies That Will Disrupt Your Business

Personal technologies such as wearables, immersive virtual and augmented reality, sensors such as those found in Internet of Things (IoT) applications and the next wave of mobile apps will soon have a major impact on every business. Speaking at the Gartner Business Transformation & Process Management Summit in Sydney, Brian Blau, research vice president at Gartner, gave his top five picks for personal technologies that will break away from the hype and prove to be an integral component in business over the coming years.

1. Immersive Augmented and Virtual Reality

As was apparent at major technology shows like CES this year, device vendors and big platform owners such as Google and Microsoft are investigating how to exploit immersive technologies like augmented reality (AR) and virtual reality (VR) to expand the experiences associated with existing device categories (notably smartphones) and to find opportunities among new ones (like head-mounted displays). While consumer adoption of VR outpaces enterprise adoption, AR is seeing business adoption first. "The potential is huge in both consumer and enterprise environments," Mr. Blau said. "An immersive user experience enables deeper workplace engagement and can open the door to behavior change," Mr. Blau said. For example, logistics giant DHL has been able to improve warehouse operations through the use of advanced wearable displays and augmented reality. Head

mounted displays (HMDs) replace the use of handheld scanners and paper pick lists, improving efficiency, reducing errors and making the workplace more enjoyable.

2. Wearable Devices

From head-worn cameras and displays, sensors and activity trackers to smart shoes and socks, wearables are expanding the body's potential in business. The smartwatch will become mainstream and new solutions and platforms will drive enterprise adoption. Gartner forecasts that annual sales of wearable devices will exceed 227 million by 2020, up from 88 million this year. Form factors will move from bulky to inconspicuous and usability will improve as devices begin to anticipate user needs and wants.

3. Personal IoT Sensors

By the year 2021, one million new IoT sensor devices will be purchased every hour of every day. New devices will open up new opportunities for business, for example, predictive maintenance and support for autonomous "things". Gartner predicts that by 2018, six billion connected "things" will be requesting support.

4. Virtual Personal Assistants and Bots

Mobile app usage is stabilizing. Downloads have plateaued as users stick with tried-and-tested apps. Apps won't vanish anytime soon. However, their interfaces will fade and new interaction techniques will take their place. Apps currently offer siloed interactions, but the next wave will offer an integrated experience, Mr. Blau said. Future apps will report to us via our virtual personal assistant (VPA), or apps will simply be hidden in the background, and their interfaces will be more seamlessly integrated into an overall flow of content. The VPA will become the vital link for consumers and, later, business users to simplify access to their apps, data and content. Businesses should evaluate VPAs for their potential to provide better customer experience.

5. Advanced Camera and Vision Technologies

In 2016 and 2017, Gartner expects cameras to remain a top differentiation

priority for smartphone vendors. The incorporation of advanced autofocus, wide-angle lens and, above all, multilens capabilities to be a key trend this year, delivering new experiences. There are many potential applications in the enterprise. For example, customer digital assistants in retail outlets will recognize individuals by face and voice across channels and partners, proving opportunities to enhance the in-store experience. At the same time, consumer video consumption is at all-time high, especially on mobile devices. For the enterprise, the revolution in 360-degree and multilens cameras could improve collaboration through shared virtual surfaces and immersive remote meetings, while video and scene analytics will decode meaning and add more value to video content. Instead of seeing consumerization of technology as a force happening to the organization, Gartner recommends taking a proactive approach. Set up a process for evaluating personal technologies and identify opportunities to improve workplace process and actions.

Global 5G subscriptions to reach 24m in 2021

Ovum predicts networks will be up and running in 20 markets in five years. Global 5G subscriptions will reach 24 million by the end of 2021, predicted Ovum. By then, the analyst firm expects 5G services to have launched in 20 markets worldwide. North America and Asia will each account for more than 40% of global subscriptions, with the vast majority concentrated in the U.S., Japan, China, and South Korea. Meanwhile, Ovum expects Europe will make up more



than 10%, while Africa and the Middle East will account for the remainder. Ovum has issued a more conservative outlook than Ericsson, which last November predicted 150 million

5G subscriptions by the same year; however, Ovum says that its forecast concerns 5G broadband connections, and doesn't include other types of 5G connection, such as narrowband IoT, for example. "The main use case for 5G through 2021 will be enhanced mobile broadband services, although fixed [wireless] broadband services will also be supported, especially in the U.S.," predicted Mike Roberts, Ovum practice leader for carrier strategy and technology. "Over time 5G will support a host of use cases including Internet of Things and mission-critical communications, but Ovum does not believe those use cases will be supported by standardized 5G services through 2021," Roberts said. Then there is the issue of what counts as 5G. For Ericsson, devices must support 'LTE Evolved' – comprised of upgrades to access technology that use existing mobile spectrum – and/or 'NX' – new access technologies that use spectrum where LTE has not been previously deployed. Ovum's definition appears to be narrower, excluding any pre-standard 5G technology from its forecast. The analyst firm defines a 5G subscription as an active connection by a 5G device to a 5G network, both of which have to comply with 3GPP's LTE Release 15 standards. Roberts said Ovum plans to update its 5G forecast every six months due to the fact that "5G is at an early stage and there is a high degree of uncertainty around 5G deployment and adoption."

3GPP completes NB-IoT standardization

3GPP revealed this week it has completed the standardization of narrowband Internet of Things (NB-IoT), a cellular technology for low power, wide area (LPWA) networking. NB-IoT can provide coverage to hard-to-reach places, supporting two-way communication with large numbers of low throughput, low cost devices that consume very little power. It uses licensed spectrum, which holds the promise of assured reliability and quality compared to standards that use unlicensed spectrum. "It took us only nine months to standardize the new technology

after the study phase," said Dino Flore, chairman of the 3GPP RAN group. "Once again 3GPP demonstrated the ability to quickly respond to the emerging market needs." Vodafone is one of the more vocal backers of NB-IoT. The U.K.-based telco's R&D chief R&D Director Luke Ibbetson is chairman of the NB-IoT Forum, and the company has carried out pre-standard trials in Australia, Spain and Turkey. Vodafone aims to begin rolling out NB-IoT in various markets during 2017. NB-IoT is one of three LPWA technologies included within LTE-Release 13, also known as LTE-Advanced Pro. The other two are extended coverage GSM IoT (EC-GSM-IoT) for 2G networks, and LTE Cat-M1 for 4G networks. "We are pleased that the industry has moved so quickly to adopt them and that they have now been ratified by 3GPP," said Alex Sinclair, CTO of the GSMA, on Thursday. "Mobile operators have already started a number of pilots around the world and this agreement over common standards will help accelerate the development of commercial solutions and ensure they are in market much faster, providing customers with more choice," he said.

Huawei and Telefónica begin work on 'no-cell' 5G RAN

Huawei and Telefónica have announced a joint effort to explore the requirements and potential solutions for the 5G RAN, including a "no cell" approach. Focusing on 5G and the next generation radio access

connections 5G will need to deliver means the current cellular network needs overhauling.

Telenor tests Wi-Fi Calling in Denmark

Danish telecoms provider Telenor has embarked on a trial of Wi-Fi Calling, which bypasses the cellular network and uses the Wi-Fi connection for voice calls and SMS messages. The cellco claims that the technology will be particularly beneficial to subscribers currently experiencing indoor coverage issues. During the pilot period, Wi-Fi Calling will be available to users using the Apple iPhone 6, 6 Plus, 6S and 6S Plus handsets, with more compatible devices to follow. Telenor's network director Peter Ditlev Nodbak said: 'We are close to having the technology ready, although there are many different factors that can affect the use and experience of Wi-Fi Calling. Therefore, we are now testing the technology among our customers, so we can gain experience before the actual launch later this year.' Telenor also said that it now covers 94% of all Danish households with LTE and is continuously expanding its 4G coverage.

Samsung Electronics to invest about \$1.2 billion in the US over the next four years on internet of things (IoT)

Samsung Electronics, the world's top smartphone maker, said on Tuesday it

Global Innovation Center in order to develop relevant technologies and strengthen cooperation with startup companies. The firm did not elaborate on its plans.

Sri Lankan operators trial 4.5G technology, achieve 1Gbps speeds

Sri Lankan operators Dialog Axiata and Mobitel have each announced successful trials of 4.5G technology, demonstrating download speeds in excess of 1Gbps. In a press release, Dialog confirmed that its test was carried out over its LTE infrastructure in partnership with Huawei, with the throughput delivered via the LTE Radio (Air) Interface. Dialog notes that following the test, it has joined 20 countries where 4.5G capabilities have been demonstrated. Rival cellco Mobitel, meanwhile, announced on the same day the trial of what it termed 4.5G LTE-Advanced Pro (LTE-A Pro) technology, achieving top download rates of more than 1Gbps. The operator partnered with Huawei and ZTE to test the speeds in its lab, and claims that the 4.5G LTE-A Pro technology is capable of utilising a combination of 4x4 MIMO, 256 QAM and up to '5CC [component carrier]' to provide the gigabyte speeds. According to TeleGeography's GlobalComms Database, both Dialog (Sri Lanka's largest mobile service provider in terms of subscribers) and Mobitel (the country's second largest cellco), launched LTE networks in 2013, while Dialog moved on to initiate customer trials over an LTE-A network in July 2015, with a commercial launch expected this year.

FET and Ericsson sign MOU to establish 5G laboratory

Taiwanese multi-service operator Far EasTone (FET) has signed a memorandum of understanding (MOU) with Sweden's Ericsson under which it will establish what it claims will be the nation's first 5G laboratory. According to the Taipei Times, the collaboration between the two companies is part of FET's efforts to create an open 5G ecosystem, while it is looking to begin trials of next generation mobile technology in 2018, ahead of a commercial launch in 2020. Under the terms of the MOU,

network (NG-RAN), the agreement will look to create new solutions to manage the bandwidth requirements of data heavy mobile applications, internet and IoT services. According to Huawei, the ultra-high throughput, low latency and massive number of

plans to invest about \$1.2 billion in the US over the next four years on so-called internet of things (IoT) technologies. In a statement, Samsung said it will make the investments through its Silicon Valley arms such as the Samsung



FET will set up its 5G laboratory in New Taipei City's Banciao District in the next quarter, and, with a view to accelerating research progress, the facility will be open to hardware makers, software developers and platform developers. 'We are seeking a clearer picture of the 5G business. The cooperation with Ericsson will help us be better prepared to offer 5G services,' FET chairman Douglas Hsu was cited as saying.

Huawei Opens Global Research Center in France

Huawei has opened a mathematics research center in France. Xu Wenwei, director of Huawei strategic marketing, said choosing Paris to host its second global research center was due to France's rich academic experience in mathematics. "We plan to continue our investment program over the long term and to develop other partnerships," he said. Directed by Merouane Debbah, a professor and mathematics researcher, the center aims to find an answer to global technological challenges, such as challenging the limit of Moore's law and extending the human imagination on what the Internet can bring, the company said. The Paris Huawei center is the second one to be set up after a center in Russia.

DOCOMO, Ericsson claim success in 5G network slicing trial

Swedish equipment vendor Ericsson and Japanese mobile operator NTT DOCOMO have announced success of a joint Proof of Concept (PoC) dynamic network slicing technology for 5G networks, marking a milestone in the development of the next generation of cellular technologies. According to Ericsson, the trial demonstrates how to virtually partition a physical

providing the most suitable resources and network topology to different types of services. In the PoC, 'a slice-management function and network slices based on service requirements were autonomously created, enabling widely varying services to be delivered simultaneously via multiple logical networks. The PoC shows how 5G services could be connected flexibly between networks according to set policies in order to meet specific service requirements for latency, security or capacity.' Commenting on the trial, Hiroshima Nakamura, GM of R&D strategy at DOCOMO, said: 'Network slicing has the potential to simultaneously deliver diverse cutting-edge 5G services, for enhanced entertainment as well as further effective and secure communication. We expect the results of our PoC with Ericsson will play an important role in the realisation of highly efficient and secure 5G networking technologies.'

Orange Business Services accelerates cloud services in Business VPN Galerie with Riverbed technology

Orange Business Services announced that it has integrated its acceleration service Enterprise Application Management (EAM) Riverbed into Business VPN Galerie to significantly improve the user experience for cloud users at remote sites. The service boosts the performance of all major cloud services in Business VPN Galerie over enterprise customers' VPNs. Enterprises moving from on-site applications to software as a service (SaaS) and Infrastructure as a Service (IaaS) models need their data to be secure and expect the same experience as if their data were stored locally. Cloud acceleration allows them to eliminate the frustration of a slow and unpredictable cloud application experience that can sometimes affect users in remote sites. Business VPN Galerie extends the Orange corporate VPN to the cloud via fully-secured gateways. It allows enterprises to access best-of-breed IaaS and SaaS cloud service providers, including Orange, while benefitting from the advantages of the Orange Business Services cloud-ready network – including end-to-end management and support, reliability, security and high performance. EAM

Riverbed is a fully-managed service from Orange Business Services that delivers application acceleration and WAN optimization. It can significantly improve application response times thereby improving the end user experience. EAM Riverbed also delivers traffic optimization using protocol optimization, caching and traffic compression, which can increase throughput by three times or more. As of today, with Business VPN Galerie and EAM Riverbed, enterprise users can benefit from better SaaS and IaaS response time through the hub, thereby supporting the roll-out of an effective organization-wide cloud strategy.

Key step in SDN/NFV network evolution

This service also benefits from software defined network (SDN) deployment and is a key step in the evolution of the Orange infrastructure. Riverbed's application performance optimization solution is deployed as network function virtualization (NFV), providing enterprises with more flexibility than a traditional device. It allows customers to rapidly deploy cloud optimization services and adapt them to their changing needs. This service is a result of the strong partnership between Orange and Riverbed, which has been in place since 2005. Through strategic and technical collaboration, the two partners are able to provide customers with new services in a very agile way. "Customers need to boost end-user application experience with faster response times to increase productivity at a global scale, enable business-critical migration projects and improve the corporate image. By integrating Riverbed's best-of-breed technology in our secure and fully-managed solution we can deliver this promise," said Pierre-Louis Biaggi, vice president connectivity business unit, Orange Business Services. "Application performance and agility are key in today's cloud computing world and we're pleased to further extend the Orange and Riverbed strategic partnership to offer customers a compelling solution," said Phil Harris, Chief Strategy Officer at Riverbed Technology. Currently 1,600 customers use Business VPN Galerie to access Orange and other leading cloud services, including Google, Microsoft and Salesforce.com.



network into multiple co-existing logical networks which are capable of

Ericsson and Ooredoo Oman Demonstrate Multi-gigabit Microwave Backhaul

Ericsson and Ooredoo Oman have joined forces to demonstrate the viability of microwave backhaul to provide multi gigabit capacity for fixed and mobile networks. Ooredoo Oman



and Ericsson trialed a range of solutions that can deliver gigabit backhaul capacity, supported by the availability of new radio access spectrum. E-band (70/80GHz) spectrum is the key to supporting microwave and meeting increased capacity requirements for both backhaul and fronthaul. The world's highest-capacity E-band radio, the new Ericsson MINI-LINK 6352, was successfully trialed, providing 5.7Gbps over one carrier. Four carriers in traditional frequency bands and narrower channels were bonded together to provide 1.6Gbps. The success of the trial proves the capability of microwave to address growing data traffic demands and support operators in offering superior mobile broadband experiences to their customers. Wolfgang Wemhoff, Chief Technology Officer, Ooredoo Oman, says: "Ooredoo is constantly working toward responding to changes in customer needs and providing them with the products, services and offers they want, through both mobile and fixed offerings. Our partnership with Ericsson allows us to inspire and innovate to meet the ever-changing needs of our customers and businesses in all sectors across the Sultanate of Oman."

NEC Develops Real-time Control of IoT Devices in Factories

NEC has announced the development of a network technology that enables production lines to be flexibly adapted through real time remote control of devices such as sensors, displays, and robots at manufacturing sites and other locations. The spread of the Internet of Things (IoT) in recent years has led to demand in manufacturing sites and other locations for vast numbers of sensors and manufacturing equipment to be connected in a wireless network and for these devices to be controlled in real-time. Factories can be challenging environments for communications owing to radio wave reflections and attenuation from the presence of robots and metal. NEC's new network technology creates a stable wireless connection between computers and manufacturing equipment in challenging environments such as these.

"This technology achieves stable connections in wireless network environments inside factories, where communications are frequently lost, through the application of 'non-retransmission model redundancy encoding,' which transmits information accurately, without the need for retransmission. NEC aims to commercialize the technology in FY 2017," said Yuichi Nakamura, General Manager, System Platform Research Laboratories, NEC Corporation.

LTE subscriber numbers double to 1.29 billion in Q1

LTE gained 182 million connections in Q1, that's almost 4 times faster than 3G/HSPA systems, according to a report by the Global mobile Suppliers Association (GSA). 3G/HSPA subscriptions grew by 48 million while GSM subscriptions fell by 120 million in the same quarter. The number of LTE and LTE-Advanced subscriptions is expected to pass the 3G/WCDMA-HSPA global total in 2020, and possibly sooner. Analysing mobile subscriptions data provided to GSA by Ovum for Q1, GSA said that the number of LTE and LTE-Advanced subscriptions reached 1.29 billion worldwide by 31 March.

Over 645 million LTE subscriptions worldwide were gained during the past year, representing 100 percent annual growth. The Asia region, with over 734 million LTE subscriptions, further grew its share of global LTE subscriptions quarter on quarter to reach 56.9 percent. Asia was second with 56.9, ahead of North America 19.6 percent, Europe 14 percent, Latin American and Caribbean 5.2 percent, and MEA 4.3 percent. A total of 503 operators have commercially launched LTE systems in 167 countries, according to GSA data announced at the end of May. GSA also said that more than 1 in 3 operators are investing in LTE-Advanced system deployments.

Globe fires up first 700-MHz site

Globe Telecom revealed that it has activated what it claims is the Philippines' first 700-MHz LTE site following last week's acquisition of 50% of San Miguel Corp's (SMC's) telco assets. The Filipino operator said the switch-on took place over the weekend in the Diliman area of Quezon City, the country's biggest city by population, and part of the National Capital Region. In a statement, Globe said the site has a coverage radius of 2.2 km and that almost 100 customers are already connected to it. It is the first of 200 700-MHz sites the company plans to roll out. "The first batch of the 200 sites we plan to roll out will be in areas where connectivity matters most to our customers as well as in locations with high convergence of users like here in the National Capital Region," said Joel Agustin, SVP of program governance at Globe's network technical group. "About 70% to 80% of our customers are transacting data indoors and we need the 700-MHz spectrum to provide better coverage and stable connectivity inside their homes. Indoor connectivity is one issue that the 700-MHz spectrum addresses," he added. Globe Telecom acquired the 700-MHz spectrum as part of a deal to purchase 50% of SMC's telecom business. The other 50% was bought by incumbent PLDT. Together the telcos agreed to pay 52.85 billion pesos (€1.02 billion). SMC had planned to launch mobile services in the Philippines, but it came to nothing after it tried unsuccessfully to form a mobile joint venture with Australia's Telstra. As well as 700-MHz spectrum, Globe also acquired a share of frequencies in the 850 MHz, 2.5

GHz and 3.5 GHz bands. According to a report by Reuters, the Philippines' telco regulator, the National Telecommunications Commission (NTC) has warned that Globe and PLDT could be forced to cede their newly-acquired spectrum if they fail to improve the performance of their mobile networks.

Tablets Set to Return to Growth in 2018 Driven by Emergence of Detachables

Worldwide tablet shipments are expected to decline for the second straight year in 2016, dropping 9.6% compared to 2015 volumes, according to a new International Data Corporation (IDC) Worldwide Quarterly Tablet Tracker forecast. The tablet market in totality has seen its peak and will face down years in 2016 and 2017, followed by a slight rebound in 2018 and beyond driven by detachable tablet growth. Right now the detachable category only accounts for 16% of the market and IDC expects it to reach 31% in 2020. Tablet life cycles have proven to be more like PCs a few years back, which is likely to be somewhere around four years. Tablet manufacturers, both large and small, are slowly shifting focus toward the detachable tablet market segment,

the PC market and perhaps assumed it would rightfully be theirs to capture. Now they find themselves in head-to-head competition with a slew of new manufacturers that have created their market off of Smartphone and slate tablet growth. This brings new channel dynamics and lower prices to a brand new category with an abundance of upside. "The detachable tablet segment is also considered by some manufacturers, like Apple, as a way to spur replacement cycles of the existing slate tablet installed base," said Jean Philippe Bouchard, research director, Tablets. "One reason why the slate tablet market is experiencing a decline is because end-users don't have a good enough reason to replace them, and that's why productivity-centric devices like detachable tablets are considered replacement devices for high-end larger slate tablets." Despite all of the negativity around slates, most of which is driven by the forecasted negative year-over-year growth, IDC still expects well over 100 million slates to ship annually through 2020. The main driver for this is the low cost associated with smaller screen slate devices. Slate tablets with screen sizes less than 9 inches had an average selling price of \$183 in 2015 and IDC expects this to decline to \$157 in 2020. Despite the small screen and typically lower configurations, for many this still provides a fairly decent computing experience.

Especially within emerging markets, "It wasn't long ago the industry talked about one PC per person and to some extent that theory has vanished," said Ryan Reith, Program Vice President with IDC's Worldwide Quarterly Mobile Device Trackers. "I'd rather look at it and say the PC we were referencing six to eight years ago has changed, drastically. In many emerging markets the only

computing device for many will be a mobile device, whether that is a small screen tablet, Smartphone, or both. This is the main reason why, despite all the hype that the detachable category receives, we believe cheaper slate tablets fill an important void."

Internet of Things to Overtake Mobile Phones by 2018

The Internet of Things (IoT) is set to overtake mobile phones as the largest category of connected device by 2018. Between 2015 and 2021, the number of IoT connected devices is expected to grow 23 percent annually, of which cellular IoT is forecast to have the highest growth rate. Of the 28 billion total devices that will be connected by 2021, close to 16 billion will be IoT devices. Western Europe will lead the way in adding IoT connections - the number of IoT devices in this market is projected to grow 400 percent by 2021. This will principally be driven by regulatory requirements, for example for intelligent utility meters, and a growing demand for connected cars including the EU e-call directive to be implemented in 2018. Rima Qureshi, Senior Vice President & Chief Strategy Officer, Ericsson, says: "IoT is now accelerating as device costs fall and innovative applications emerge. From 2020, commercial deployment of 5G networks will provide additional capabilities that are critical for IoT, such as network slicing and the capacity to connect exponentially more devices than is possible today." Smartphone subscriptions continue to increase and are forecast to surpass those for basic phones in Q3 this year. By 2021, Smartphone subscriptions will almost double from 3.4 billion to 6.3 billion. Also revealed in the report, there are now 5 billion mobile subscribers - unique users - in the world today, which is testament to the phenomenal growth of mobile technology in a relatively short period of time. Detailed in the report is a dramatic shift in teen viewing habits: use of cellular data for Smartphone video grew 127 percent in just 15 months (2014-15). Over a period of four years (2011-15) there has been a 50 percent drop in the time teens spend watching TV/video on a TV screen, and in contrast an 85 percent increase in those viewing TV/video on a Smartphone. This, and the fact that the upcoming generation of mobile users are the heaviest consumers of data for Smartphone video streaming (Wi-Fi and cellular combined), makes them the most important group for cellular operators to monitor. In 2016, a long anticipated milestone is being passed with commercial LTE networks supporting downlink peak



which has quickly resulted in increased product offerings, lower average selling prices (ASPs), and broadened consumer awareness for the category. Many traditional PC manufacturers have assumed the detachable category to be a natural extension of

data speeds of 1 Gbps. Devices that support 1 Gbps are expected in the second half of 2016, initially in markets such as Japan, US, South Korea and China, but rapidly spreading to other regions. Mobile users will enjoy extremely fast time to content thanks to this enhanced technology, which will enable up to two thirds faster download speeds compared with the fastest technology available today. Further highlights from the Ericsson Mobility Report include:

4G subs to reach 2 billion globally this year

The number of LTE subscriptions worldwide will approach 2 billion by the end of this year and will grow almost threefold by 2022, according to new analyst company statistics published this week. There will be 1.9 billion user-linked 4G subscriptions – that is handsets, modems, tablets and connected devices, but not machine-to-machine connections – by end-2016, up from 1.1 billion at the start of the year, Strategy Analytics predicts. By 2022, it forecasts that figure will have grown to 5.6 billion, equivalent to 62% of all user-linked mobile subscriptions. By that date, 5G connections will also have started to make an impact. There will be 116 million 5G subscriptions in 2022, up from around 2 million in 2020, the year in which the first 5G deployments are expected to commence. From a revenue point of view, 4G will start to dominate this year. 4G revenue will grow by 35% to US\$426 billion this year, accounting for 49% of global mobile revenues, despite the fact that 4G represents just 25% of connections, Strategy Analytics believes. That puts it ahead of 3G and 2G, which will see revenues decline by 19% and 21% respectively. While the revenue share coming from 4G will be as high as 90% in South Korea, 82% in Japan and 79% in North America, there are still many markets where the technology has yet to fully take off. 4G revenue share will be as low as 10% in the Middle East and Africa, for example. “The advanced markets of the USA, Japan, and South Korea will see the vast majority of their revenue come from 4G LTE services this year, though China will also make a significant contribution,” said Phil Kendall, executive director, wireless operator strategies, at Strategy Analytics. “Overtaking the USA to become the world’s largest 4G market

in Q3 2015, China is the envy of other developing markets with over half of its 2016 revenue projected to come from 4G LTE,” he added.

LTE networks exceed 500 worldwide

Number of 4G networks will reach 550-plus by the end of 2016, according to GSA predictions. The 500th LTE network in the world was commercially launched in May and the number is growing quickly. There are now 503 commercial LTE networks in 167 countries, according to the Global mobile Suppliers Association (GSA), which predicts the total, will rise to at least 550 by the end of the year. In addition, 25% of 4G operators have launched LTE-Advanced, the company said. And the technology evolution does not stop there. “Several LTE operators are now introducing LTE-Advanced Pro technologies, sometimes referred to as 4.5G, which is established as a major industry trend in 2016,” noted Alan Hadden, VP of research at the GSA. The number of LTE and LTE-Advanced subscriptions reached 1.07 billion worldwide by the end of last year, according to the GSA, a figure that tallies with new numbers published by Strategy Analytics this week; the analyst firm reported that user-linked 4G subscriptions – which includes Smartphones and other devices, but not machine-to-machine connections – totaled 1.1 billion at the start of 2016. LTE accounts for one in seven mobile subscriptions worldwide, the GSA said.

Facebook Might be Eavesdropping to Everything You Say on Your Phone

Professor Kelli Burns from the mass communication department in University of Florida, is of the view that Facebook app might be overhearing your conversations and utilizing Smartphones to garner information on what people are speaking about to exhibit pertinent ads. The social media tech-giant, Facebook has accepted that its app does eavesdrop to everything that is happening around it, but merely as a way of observing what people are heading to or watching and indicating that they post about it and not alternatively. Anyhow

Professor Burns halts that the tool seems to be using the audio it collects not simply to look after users, but might indeed be doing so to overhear discussions. She further added that in consideration of testing her theory, she deliberated some topics around the phone and then figured out that the site arose to show related advertisements. Rightfully declared on its help pages that it doesn’t save conversations, but that it does use the hearing to find what is occurring in the vicinity of the phone. While speaking to The Independent a spokesperson disclosed that: “Facebook does not use microphone audio to inform advertising or News Feed stories in any way. To turn off the microphone in a smart phone’s setting is rather quite easy, and as it can be executed at the level of the operating system, so by doing this it will signify that Facebook won’t be able to turn it on even if it desired to do so. Privacy is an important aspect in today’s digital world, so with Facebook willingly offering the users the choice to turn the feature on or off, stuff sound slightly less worrying.

IoT connections to overtake handsets in 2018

Ericsson predicted that the number of IoT connections worldwide will overtake mobile phone connections in 2018. According to the company’s latest Mobility Report, overall connections will number 27.5 billion by 2021, with the IoT accounting for 15.7 billion of that total. By comparison, the number of mobile phone connections is expected to reach 8.6 billion. Asia-Pacific is expected to be the largest market for IoT connections, followed by Western Europe and North America. Mobile operators would do well to note that Ericsson expects cellular IoT connections to make up less than 10% of total IoT connections in 2021, which suggests that technologies such as WiFi and LoRaWAN, which use unlicensed spectrum, will dominate the IoT for the next five years at least. “IoT is now accelerating as device costs fall and innovative applications emerge,” said Rima Qureshi, Ericsson’s chief strategy officer, in a statement. From 2020 onwards, Ericsson expects cellular networks to become increasingly important to the IoT as operators begin commercial 5G deployments. “5G networks will provide additional capabilities that

are critical for IoT, such as network slicing and the capacity to connect exponentially more devices than is possible today," Qureshi said. By the end of 2021, Ericsson expects total 5G connections to reach 150 million. By then, LTE connections are forecast to grow to 4.3 billion compared to 1.2 billion at the end of the first quarter. Meanwhile, 3G connections are expected to grow to 3.1 billion from 2.1 billion at the end of 2015, while 2G-only connections are expected to fall to 1.2 billion from 3.6 billion.

Singapore Increases Minimum Coverage Standards for 4G Networks

Singapore's telecoms regulator has issued new rules covering the minimum coverage allowed for 4G networks. The new regulations will require the mobile networks offering 4G services to cover 95% of outdoor areas from July 1, 2016, and will increase it to at least 99% from July 1, 2017. The regulator, the IDA added that it will also impose similar standards on a fourth mobile network -- if a license is granted -- who will be provided with more lead-time to roll out its network to meet the standards. The new standards are similar to the 3G coverage requirements that were enhanced in 2012.

Sirin Labs launches \$14k "military-grade super Smartphone"

Sirin Labs launched Solarin, a Smartphone that focuses on security with business travelers as its main target audience, retailing at a whopping \$13,800. Each phone will run two versions of Android: a regular one that will let users access social media and browsing, and a second which, with the flick of a security switch at the back, will add an extra layer of security with more limited functionality. The phone will enter a shielded mode, presenting an "exclusive suite" of tools for fully encrypted calls and messages. The regular version is protected by mobile security firm Zimperium, backed by Sirin's own cyber defense team, while the second version comes with Koolspan's encryption. Zuk Avraham, CEO of Zimperium, said his firm has provided solutions

that will detect attacks in real time, alerting users and disinfecting the phone without violating privacy. Sirin Labs also partnered with KoolSpan to integrate chip-to-chip 256-bit AES encryption, the same technology used by the military. The launch follows more than two years of research and development in Sweden and Tel Aviv. Moshe Hogeg, co-founder and president, explained the high price by saying that normally a firm decides on its target audience and bases the budget for its tech on how much it can charge, but Sirin decided to "play the game backwards". He noticed it was "frightening to see how exposed" user data was, and decided to focus on quality and security, while "pushing the boundaries of technology". He added that Sirin was inspired by Tesla to build something first and then determine its price. Tal Cohen, co-founder and CEO, said the target audience is business travelers, entrepreneurs and partners in financial firms who are not fooled by style over substance, are short on time, and don't want to compromise on certain features such as voice clarity, security, damage resistant screen and a high quality camera. According to him: "Just one attack can severely harm reputations and finances. Solarin is pioneering new, uncompromising privacy measures to provide customers with greater confidence and the reassurance necessary to handle business-critical information." "Exceptional audio and vision capabilities feature highly on our target audience's wish list. Sirin Labs' audio and vision engineers fixated on exceeding expectation, turning to experts to develop a new benchmark for Smartphone speaker systems and unparalleled striking screen intensity," he added. Meanwhile VP of product, Fredrik Oijer, said the firm focused on design and quality, visual experience including a 24MP camera, loud speakers, global optimization and privacy. "At every level, Solarin outperforms. Advanced carrier aggregation technology combines multiple LTE carriers for wider bandwidth, providing a faster, clearer connection." "Using 802.11ac 2x2 MU-MIMO technology provides up to three times the bandwidth of

a Smartphone, and WiGig (802.11ad) pushes data transfer limits, allowing next generation features," he said. Solarin is powered by a Qualcomm Snapdragon 810 processor, offers 450 Mb/s downlink and up to 150 Mb/s uplink speeds and 24 band LTE compatibility. It features titanium panels for structural strength, Corning Gorilla Glass 4 to protect the curved display screen and camera lens, and a technical leather back panel.

KPN security chief warns on IoT vulnerabilities

The absence of standards for the Internet of Things (IoT) is one of the many challenges facing the industry in securing today's networks, warned Jaya Baloo, chief information and security officer at operator KPN.



Speaking to Mobile World Live at the GSMA's Mobile 360 Privacy and Security event in The Hague recently, Baloo said it was getting to a stage where operators do not know "what normal looks like" when it comes to traffic on their network, which means blocking something unsecure or abnormal is becoming even more of a challenge. She argued that the industry is now "building new technologies with old vulnerabilities" and many of the challenges arising "are things we should already know about". "We are talking about the use of default passwords, we are talking about privilege escalation and inappropriate mechanisms for just regular coding," she said. "There's a lot of stuff for IoT that we should have solved before we built the product." In the interview, Baloo also said there was an increasing need to raise awareness among users over growing threats to their security, when it comes to connected devices.

Bundling Voice and Data reduces costs and complexity

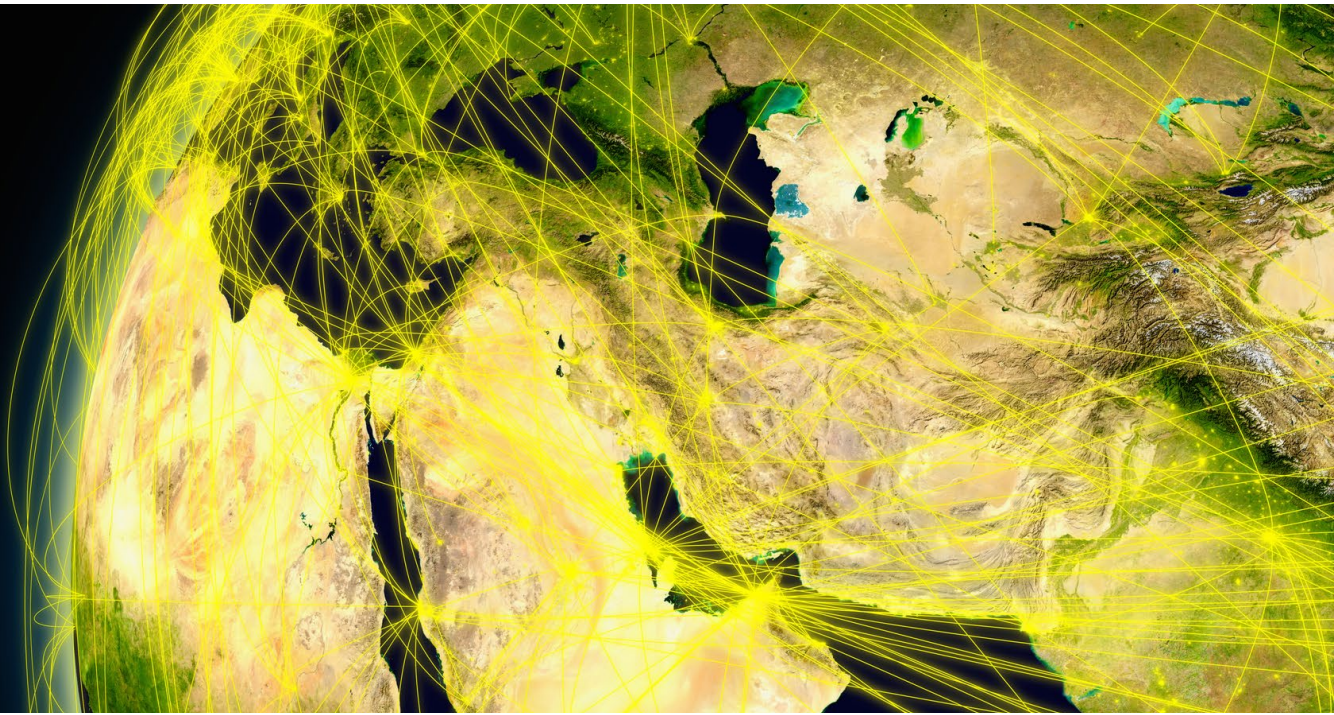
The Internet is no longer a 'nice-to-have', but rather, a necessary utility. Much like other utilities, we depend on it to better our daily lives, using it for both business and personal communication. It is the foundation for a multitude of Information Communication Technology (ICT) services and products, such as telephony, email and live video streaming, many of which have become necessary for optimal business functionality. But when a business is using multiple services that are all interdependent, managing and administrating them can become a laborious and costly operation. Businesses today need ICT. They need to be able to communicate internally and externally, and to be able to process, store and access vast amounts of data on a daily basis. In order to effectively manage all of their IT products and services, businesses need to employ a lot of resources and keep their training up to date. They also need to deal with the administrative headache of liaising with multiple service providers who all depend on each other's services to function – a veritable administrative nightmare. When a particular service fails, it can become all too easy for that service provider to lay the blame at the feet of the others, wasting a company's valuable time with unnecessary rounds of finger pointing. It can also become expensive as service providers who bill for their time are called out, one by one, to resolve the problem only to find that the fault is another service provider's issue. If more than one service provider is involved in the provisioning of a service, fault finding can become a tricky and costly process. For example, if a business cannot make or receive calls, they will call their PBX service provider who may investigate and discover that the PBX system is fine, then blame the telecommunications provider, who may in turn find out that the fault is not theirs but a networking problem. And so it goes, leaving the company with a lot of needless bills, wasted time and – through their own negatively impacted service delivery – loss of revenue. It makes sense, then, for businesses to consider service providers who offer all of these products and services as a single, bundled package. A business can save time and money by

taking advantage of a bundled voice and connectivity offering. Having a single service provider means that businesses have one point of contact for all interactions, streamlining fault finding and call logging. It also means that costs are easier to analyze and understand, and therefore to manage. A business sourcing all of their ICT needs from one service provider will not need dozens of in-house IT staff to manage multiple systems, so costs can be saved on resources. There's also less administration, no unnecessary call out fees, and consolidated reporting which is often available through an easy access portal. When considering the risks of having 'all one's eggs in one basket', any service provider worth their salt will ensure measures are put in place to mitigate risks and minimize downtime wherever possible. Businesses who are looking to consolidate their services should select a service provider who can offer redundancy, and who has a track record of reliability and stability. It is imperative that a company selects a service provider who understands their needs and addresses them accordingly, while not adding superfluous services to boost profits. A reputable service provider generally offers a simple but comprehensive menu, with transparency into what each service entails. Businesses need to do their due diligence and check up on potential service providers' references and experience. A bundled voice and connectivity solution will help businesses to save costs, mitigate risk and reduce overall responsibility, while still giving them all the ICT services they need to operate optimally. What's not to love?

Vodafone UK rolls out Ericsson's briefcase-sized base station

Compact, portable mobile networks appeared to be the talk of the town this week, with two of the industries biggest kit makers showing off their latest mini base stations. Vodafone UK announced on Tuesday that it is rolling out Ericsson's briefcase-sized radio units to improve mobile network performance in London. Half the size of a standard radio unit and more energy efficient, a field engineer can carry it to a rooftop, eliminating the disruption caused by having to use a crane. The first mini base station has been installed in Southwark, London,

and the rollout will continue across the capital and in other, undisclosed urban areas. "We continue to look at new and innovative ways of providing improved mobile coverage in order to meet our customers' soaring demand for mobile data and video while minimizing disruption to the general public and improving the aesthetics of the surrounding area," said Jorge Fernandes, CTO of Vodafone UK, in a statement. "We are delighted to be partnering with Ericsson, one of our key network suppliers, on this project and look forward to further engaging with local councils and government to look at ways of reducing red tape around site planning for mobile mast installations," he said. Vodafone and Ericsson are also working together on three-band carrier aggregation (CA), combining the operator's 800-MHz, 1800-MHz, and 2.6-GHz spectrum to improve download speeds. In a recent trial that took place at select sites in London, the companies achieved a maximum throughput of 240 Mbps. According to Vodafone, these same sites are now capable of delivering a peak connection speed of up to 700 Mbps. The briefcase-sized base stations that Vodafone is rolling out support three-band CA, Vodafone said. While Ericsson opted for the professional, business-like radio unit in a briefcase, rival Nokia took a rugged, outdoorsy approach with its mobile network in a backpack. Based on a small cell, the Ultra Compact Network is designed to provide 4G ad hoc coverage for high-traffic events like festivals, or in remote areas, or in situations where the macro network is compromised, such as a natural disaster. Weighing in at 5 kg and only requiring 100 watts, a single unit can support up to 400 connections and has a cell range of 75 km. It can connect to fixed, microwave, or satellite backhaul networks too. "We were very impressed with the capabilities of this lightweight, easily deployable small cell system," said Mansoor Hanif, director of RAN at EE, which trialed Nokia's Ultra Compact Network during May. "It is an ideal solution for disaster recovery and to deliver temporary coverage for both public and private sector customers," he said.



SIM Boxes and Internet of Things Pose Rising Fraud Threats in the Middle East and Africa

As long as there have been businesses and consumers, there has been fraud. And now fraud is infiltrating the quickest-growing channel for business – mobile – on a massive new scale. The Communications Fraud Control Association (CFCA), in fact, now estimates that nearly 1.7 percent of global telecommunication revenue is lost annually to fraudulent activity.

In the Middle East and Africa, this activity has recently been revealed through two types of fraud that are gaining momentum and presenting a rising threat to mobile service providers. One type is one of the oldest forms of mobile fraud, SIM box fraud, and the other type represents one of the newest mobile technologies, the internet of things (IoT).

Each presents a special threat to the future of mobile in the Middle East and Africa. Yet, as we continue to increase our effort to fight the more established SIM box fraud, we must at the same time

prepare for the fraud that the future is bringing through the IoT. For this reason, it's imperative that mobile operators develop a dedicated strategy for each.

Here I would like to share some lessons from our recent work with customers in this region, through which we've developed several approaches that offer a practical foundation to countering and, ultimately, minimizing this fraud.

SIM Box Fraud

This fraud involves termination of international traffic using illegal routes. Fraudsters use a device that holds stacks of SIM cards on one side and a connection to the internet on the other side. Using this device, fraudsters can make an international call appear to be a local call and avoid an international calling charge. Specifically, when an out-of-country call comes in through an operator's international gateway, the call can be received through the internet and



Nour Al Atassi
Regional Vice President and Managing
Director, Middle East and Africa,
Syniverse

then “re-originated” through SIM cards to make the call appear as if it comes from a local location. As a result, operators can lose the difference in fees between a local call and a substantially more costly international call.

This difference can lead to severe financial repercussions, costing operators almost \$6 billion in 2015, according to the CFCA. This is especially true in Africa, a hotbed for SIM box fraud. Recently, in Kenya, it was estimated that operators and government agencies were losing approximately \$440,000 per month as a result of this fraud. Governments can lose even more, since many countries impose taxes on international mobile services. In Ghana, for example, the government reported that SIM box fraud recently cost \$5.8 million in lost taxes.

Operators, though, face several challenges with SIM box fraud. One of the biggest of these involves one of the most common methods of detection, test-call generation. This involves a process in which operators set up test numbers on their networks and make calls to those test numbers from many different countries, through many different interconnect voice routes around the world. In this way, they can find out where “grey routes” are originating and the paths they use to reach SIM boxes in a particular country. The test-call generation method, however, has been weakened by new technologies that fraudsters



can use to analyze voice call traffic coming to their SIM boxes. Based on usage patterns, these technologies can be used by fraudsters to determine which calls are real subscriber calls and which calls are originating from a test system, and fraudsters can then block or reroute test calls to legitimate routes to avoid detection.

In the last couple of years, however, new methods have been developed that offer more accurate and sophisticated detection of fraudsters. In particular, one major advancement is the development of analytics-based methods that use call detail records to create statistical usage-based profiles and detection algorithms that can identify SIM card use. These methods offer a number of advantages over test-call generation, including a more scientifically-based approach based on statistical data, a wider coverage area and more thorough search process, and near-real-time detection of SIM box activity.

Yet, despite the known advantages of these new methods, some operators have been slow to adopt them. With SIM box fraud reaching a new high, we have now reached a point where operators must begin treating these methods as essential to their business, and all operators across the Middle East and Africa must begin fully integrating them as a core component of their strategy. Only through this strengthened effort will we be able to begin to turn the tide in battling this fraud.

IoT Fraud

Although still a small part of the total connections in the Middle East and Africa, the IoT is growing quickly and bringing a dangerous new problem. As with many technology developments, where money goes, criminals usually follow, and now criminals are infiltrating IoT technologies and exploiting new vulnerabilities.

According to the GSMA, the IoT now represents over 23 billion global connections, including approximately 10 billion machine-to-machine connections, a type of connection that in developing economies, such as in the Middle East and Africa, rose by 33 percent from the year prior. And with this rise, a new generation of fraudsters has taken root. In South Africa, for instance, a notorious case of IoT fraud has involved traffic lights whose SIM cards have been targeted by thieves, who have swiped cards from hundreds of lights in Johannesburg.

But operators face numerous challenges with this fraud. Among them, the sheer number of IoT connections continues to multiply exponentially. Additionally, many IoT connections involve multiple partners and remain equally vulnerable at the weakest link in the system. Finally, new mobile technologies like 4G present new processes that are vulnerable to exploitation.

However, the development of basic approaches is beginning to offer more effective methods to counter this threat. These include, first, treating IoT fraud as a separate fraud type and having a dedicated strategy for it distinct from other technologies. Second is having an IoT strategy with a predictive analysis capability that provides a scientific basis for obtaining the best data to respond to fraud patterns. A third approach is using a cloud-based solution, which is vital in being able to offer quicker and more cost-efficient solutions to respond to fraud. It's imperative that operators integrate these approaches as a core part of their strategy to protect against IoT fraud.

Mobile fraud will continue to be an ongoing battle, but while we strengthen our effort to fight one of the oldest and most common types, SIM box fraud, we must also keep an eye to the future and prepare for the newest area for fraud, the IoT. The future of healthy mobile growth in the Middle East and Africa depends on our ability to develop dedicated strategies to combat these fraud types.



▼ WHOLESALE NEWS

WHOLESALE UPDATES

4G wholesaler ORN changes name ahead of planned African expansion

Olleh Rwanda Networks (ORN), the open-access 4G joint venture between South Korea's KT Corp (51%) and the Rwandan government (49%), has announced that it has changed its name to Korea Telecom Rwanda Networks (KTRN), in a move designed to unify its branding as it plots its entry into new markets. AllAfrica quotes Han-Sung Yoon, CEO of KTRN, as saying: 'We have just changed the name, from Olleh Rwanda Networks back to globally recognized name, Korea Telecom Rwanda Networks. Nothing else has been changed ... All our logos changed on 27 June. We intend to extend our operations to other parts of the region, and we thought it's better to expand as single network, with a similar name.' According to TeleGeography's GlobalComms Database, the JV was established in June 2013 and went on to launch in capital Kigali on 11 November 2014. The telco is obliged to deploy an open-access 4G network to 95% of the African state's population within three years of launch; the network is currently available in 25 of Rwanda's 30 districts. ORN offers 4G connectivity to local mobile operators and ISPs on a wholesale basis. All three incumbent cellcos (MTN, Tigo and Airtel) have

launched services over ORN's network, while other companies permitted to resell ORN's 4G service include: GMAX, Intercom Technologies, 4NetAfrica, Piramie, Twinning in Corporation, Simba Supermarket, TRUCONNECT, POPCONN and Suku NSA.

Mexico postpones wholesale telecoms network bidding again

Mexico has postponed the bidding process for a planned wholesale telecommunications network by more than a month, the government said, in the latest upset to the project which has been plagued by delays since its inception. In a statement on Friday evening, the Communications and Transport Ministry said proposals must now be submitted by October 20, pushed back from the September 8 deadline. The ministry said would-be bidders needed more time to secure financing for the project. The venture, initially meant to be launched by 2014, is part of a telecommunications reform aimed at curbing the dominance of tycoon Carlos Slim's America Movil and broaden Mexico's cell phone network and penetration. It offers the winner of the bid cheap use of high quality spectrum in the 700MHz band and a 20-year public-private partnership contract to build a



4G LTE mobile network that operators and virtual network operators can rent. Terms of the bid were released in late January, including key deadlines in the process that the government decided to postpone in March. The bid's winner will be announced on November 17 and the contract signed by January 27 at the latest, the ministry said.

LoRa operators start work on global roaming system

South Korean operator SK Telecom wants to establish a global roaming network for Internet of Things (IoT) services in partnership with overseas telecom operators. SK Telecom believes that the global IoT roaming network will enable services such as luggage tracking, The Korea Times reports, citing SK Telecom's R&D center SVP Park Jin-hyo. "We will actively share our knowhow obtained while establishing and commercializing the LoRa network nationwide with partners at home and abroad, contributing to a global IoT ecosystem," Jin-hyo said. SK Telecom said it has recently participated in a meeting in Nice, France, to discuss partnerships for establishing an international roaming system for the LoRa network connecting Korea and Europe. LoRa networks are designed to provide wide coverage, low energy consumption and long battery life for IoT modules for small devices. The technology was developed by the LoRa Alliance, a group of global mobile carriers and network equipment makers that includes Cisco and IBM. On 4 July, SK Telecom launched its LoRa network in Korea, with plans to connect 4 million IoT devices by 2017. SK Telecom reports it has suggested to its partners, including Telefonica and French system integration providers EGM and CEA, to jointly develop a LoRa-based roaming system. The French companies, which are currently testing their LoRa networks in Europe,

applauded the idea and agreed to discuss standardization of roaming systems, SK Telecom said.

Bell's wholesale fiber appeal quashed for a second time by CRTC

The Canadian Radio-television and Telecommunications Commission (CRTC) has quashed Bell Canada's second attempt to challenge the regulator's rules giving competitors access to its high speed networks,



the Financial Post reports. In the 'unsurprising' decision published yesterday, the CRTC denied Bell's application to restrict which companies can buy and resell access to large network operators' fiber internet connections. Bell proposed to restrict wholesale fiber access to ISPs owning their own transport facilities with annual turnover of less than CAD500 million (USD361 million), and also wanted to disallow reselling. With or without the restrictions it proposed, Bell claims that the CRTC's new rules set in July 2015 'will reduce the incentives of both incumbents and new entrants to invest in fiber-to-the-premises', but the federal government rejected the telco's petition in May, before the CRTC refused the changes after determining its original ruling had no factual or legal errors. With ISPs submitting pricing proposals to the regulator this week, it is expected to take approximately a year for pricing structures to be finalized and commercial wholesale offers to be launched under the new framework.

Mobile roaming, Brexit, and unintended consequences

The impacts of Brexit on mobile roaming are by no means large in overall economic terms, but they

provide an example of the breadth of ripple effects that can be expected after the UK referendum result, and also of the degree to which the end results are difficult to predict with certainty. The overall approach to regulation of telecommunications within the UK will not necessarily change much. The Regulatory Framework for Electronic Communications (RFEC) that the European Union enacted in 2002 was largely based on procompetitive UK ideas in the first place. Certain international aspects are, however, likely to change. The most obvious examples are (1) the relationship of the UK and its national regulatory authority (NRA) OFCOM to its European counterparts; (2) the wholesale payments that UK network operators make to their European counterparts for interconnection; and (3) wholesale and retail arrangements between the

UK and the European Union. Our focus here is on roaming. If the UK were to become a member of the European Economic Area (EEA) (comprised of all EU Member States plus Norway, Liechtenstein, and Iceland), the applicability of the European regulatory framework for electronic communications would be clear. Joining the EEA could be expected to oblige the UK to accept most of the burdens of EU membership (including freedom of movement), with fewer of the privileges than the UK currently enjoys. In the discussion that follows, we assume that a UK membership in the EEA will not happen, but it cannot be categorically ruled out. The UK might still selectively conclude bilateral agreements with the EU (and also with its member states). The implications for telecommunications regulation would depend on exactly which agreements were concluded. Since Switzerland is in precisely this position (having rejected membership in the EEA in a referendum in 1992), it is perhaps useful to draw a few comparisons. The Swiss choose to voluntarily participate in the EU's Board of European Regulators of Electronic Communications (BEREC). In this role, they also participate voluntarily in BEREC's collection of statistics on international mobile roaming; however, they are not subject to the various EU Roaming Regulations, and consequently do not benefit from

them. The prices that consumers pay for roaming reflect wholesale international payments between the mobile network operators, since the actual service has to be provided in the visited country. Among EU/EEA members, these payments at wholesale level are subject to price caps. Since Switzerland is neither an EU nor an EEA member, Swiss mobile operators are not entitled to the benefits of these price caps. If the EU were to offer these advantageous wholesale arrangements to a third country such as Switzerland or the UK in the absence of a comprehensive free trade agreement, it would likely raise WTO concerns. Since the higher prices that Swiss mobile operators pay are a real cost, their retail prices are also higher than for mobile network operators in EU/EEA countries, as is visible in the figure below. The high price of roaming in the EU has been a constant source of irritation for Swiss consumers, and has frequently been featured in the Swiss press. One can argue that their retail prices in Switzerland are elevated more than the wholesale charges would strictly require; be that as it may, it is clear that the prices of Swiss mobile network operators cannot be the same as those of mobile network operators in EU/EEA countries. As long as Swiss mobile network operators (MNOs) pay more at wholesale level for roaming in the EU/EEA than MNOs in EU/EEA Member States, retail prices in Switzerland for EU/EEA roaming can be expected to remain higher than those in EU/EEA Member States. It appears that the UK will shortly find itself in the same position.

ARCEP consults on geographical adjustment of unbundling tariffs

French telecoms watchdog the Authority of Regulation for Electronic Communications and Posts (Autorite de Regulation des Communications Electroniques governing the pricing of the copper network, which outlines a possible geographical adjustment et des Postes, Arcep) has launched a public consultation on new regulation to the recurring monthly price of the copper pair. The proposed framework is aimed at encouraging users to switch from the legacy copper network to new superfast networks. The regulator has already conducted studies on this transition to optical fiber and is now

seeking further market feedback on the economic model to encourage the transition. All interested parties are invited to submit their comments by 9 September.

Airtel Uganda chasing UTL interconnect fees

Mobile operator Airtel Uganda is



claiming more than UGX6.3 billion (USD1.7 million) in unpaid interconnect fees from state-backed Uganda Telecom Ltd (UTL). A report from The Monitor says that Airtel has petitioned the High Court Commercial Division to force UTL to pay the outstanding fees. The court has given UTL ten days to respond to the petition or it says Airtel will be entitled to the sum it is claiming. In the past UTL has also been accused of non-payment of interconnect fees by another mobile market rival, MTN.

EC proposes caps on wholesale roaming charges

The European Commission has adopted a proposal to set caps on regulated wholesale roaming charges in order to prepare the ground for the abolition of retail roaming charges from June 15, 2017. The commission is proposing maximum wholesale roaming charges at €0.04 (\$0.045) per minute, €0.01 per SMS and €0.0085 per MB in the European Union. Günther Oettinger, the commissioner for the digital economy and society, said the EC is now counting on the European Parliament and European Council "to keep the pace and adopt [the proposal] swiftly." The EC said national wholesale roaming markets must be competitive if the abolition of retail roaming charges is to be sustainable throughout the EU, enabling operators to offer retail roaming services without any charges in addition to the domestic price. "We want to make sure that the end of roaming charges works properly for consumers and market

players," added Oettinger. The EC is also addressing concerns from other industry players that it had focused too much on retail roaming charges and had not paid sufficient attention to the wholesale roaming market. In May MVNO Europe, a coalition of MVNOs and "progressive" MNOs, said regulated wholesale roaming caps also needed to be reduced to allow all operators to compete on the market.

"Without any further steep reduction of these caps, a large number of mobile operators may decide or be forced to impose restrictions to users when roaming abroad through complex and unfriendly contractual clauses," MVNO Europe said at the time. The coalition also warned that a great deal of work

still needs to be done by the European Commission, parliament and council to deliver on the political promise to achieve roam-like-at-home across Europe by mid-June next year. The EC has been gradually reducing the caps on roaming fees across the EU. The latest reduction took effect from the end of April 2016, with the prices that mobile operators can charge on top of their domestic offerings capped at €0.05 per minute on outgoing calls, €0.02 per SMS sent, and €0.05 per MB of data. In the meantime, operators across the EU have been introducing "worry-free" roaming or "roam-like-home" services ahead of the June 2017 deadline. One of the latest offers came from Three Austria, which introduced the "3FeelLikeHome" option that essentially enables domestic minutes, text and data packages to be used abroad.

Ghana amends Electronic Communications Interconnect Clearinghouse Regulations

Ghana's National Communication Authority (NCA) has amended the draft Electronic Communications (Interconnect Clearinghouse) Regulations of 2016, which will require telcos and international carriers to connect their gateways through a third party centralized clearinghouse. The bill, presented in parliament in February 2016, seeks to reduce the number of interconnection links in Accra from 32 to 15, address

insufficient interconnection capacity, resolve interoperability issues based on differences in telcos' equipment types, and settle issues within call data records reconciliation which have led to high interconnect debt rates. According to TeleGeography's GlobalComms Database, Ghanaian operators originally opposed the award of an Interconnect Clearing House (ICH) concession – mooted to be granted by 7 February 2015 for a term of ten years subject to renewal – describing it as an 'imposition and interference in their operations', while noting that it would increase the cost of doing business for value added service (VAS) providers. Despite the opposition, the NCA awarded the first ICH license to Afriwave Telecom Ghana after a competitive bidding process against four other applicants later that month. The company commenced operations in May 2016, and now claims to have successfully detected and blocked over 300,000 unauthorized attempts at illegal international call bypasses since launch.

Syniverse optimizes roaming for Djibouti Telecom

Syniverse has expanded its relationship with Djibouti Telecom through an agreement to deliver a suite of solutions for performance analysis, forecasting and budget management, and fraud protection. The services offered through the agreement enable Djibouti Telecom to gain visibility into and manage its end-users' experiences during roaming while protecting the network from fraud and controlling costs. According to Syniverse, its Roaming Data Analysis-Visibility Services provide real-time access to roaming performance data through an easy-to-use window that aggregates all subscriber data in a single view. The vendor's Forecasting and Budget Management-Optimizer automates the planning, forecasting and budget process to help make the operator's roaming interoperator tariff (IOT) discount negotiations more profitable. At the same time, Syniverse's Roaming Fraud Protection offers Djibouti Telecom a managed service that includes an analyst team and a cloud-based application that monitors roaming data globally for suspicious behaviors 24 hours a day, seven days a week.

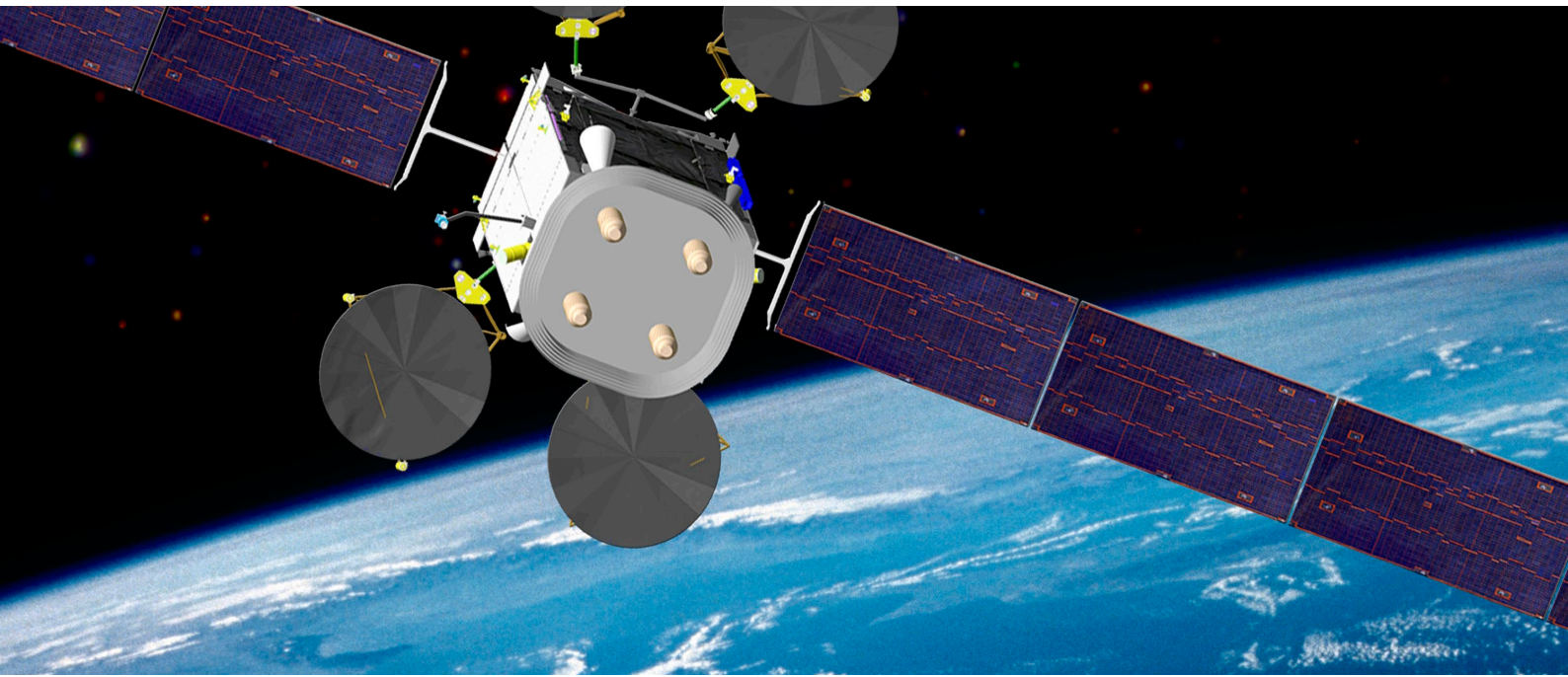
TRAI changes norms in accounting separate regulations

The Telecom Regulatory Authority of India (TRAI) has issued changed norms for submission of accounts by service providers, clubbing reports of various segments into seven heads from the eleven earlier. According to the new changes made in accounting separate regulations 2016 yesterday, the operators will be liable to merge the access service (full mobility) and access service (WLL) as access service (wireless). As per the statement released by the telecom regulator, separate reports for services like tower business, dark fiber and cable landing station has been done away and are now captured under other specified telecom services. The report added that separate reports for postpaid and prepaid segments under access services have also been discontinued. The "Reporting System on Accounting Separation Regulations, 2016" has been issued by repealing the 2012 regulations. It said that in order to capture the current developments in the Indian telecom service sector and to eliminate the difficulties/concerns with regard to the requirements/reporting under Accounting Separation Regulations (ASR) 2012, the authority has notified the 2016 regulations. It further said the authority is of the view that the present turnover criteria of Rs. 100 crore should facilitate in collection of representative data from a range of medium to large TSPs. Therefore, the authority now decides to continue the ASR 2016 with the existing limit of aggregate turnover of Rs 100 crore or more.

AT&T says Ethernet interconnection success depends on understanding partners

AT&T has been working with the MEF to drive consensus on how service providers should interconnect their Ethernet networks, but the initial challenge is understanding what element of Ethernet each carrier partner has. In 2015, the MEF addressed that issue with the "Ethernet Interconnect Point E-NNI Implementation Agreement – MEF 54." With this new IA in place, service providers will have guidelines to create these new interconnections either all

at once or in a series of steps. Dan Blemings, director of Ethernet product management for AT&T mobile and business solutions, told FierceTelecom in an interview at the telco's Dallas headquarters that in developing the MEF 54 standard, the organization and other providers realized they have to work with a diversity of approaches. "One of the lessons learned in MEF 54 is this concept of the bilingual operator," Blemings said. "If you wanted to connect with an Ethernet service provider on your boundary, you needed to know their flavor of Ethernet: was it an old style NNI or an MEF-compliant E-NNI." AT&T itself borders hundreds of Ethernet providers, including a mix of cable operators, CLECs and other ILECs. The service provider said it is seeing other providers adopt the MEF 54 standard and are preparing their networks to better address the interconnection issue. "We're seeing the industry really start to grow on its learning curve of taking the right steps they need to take, asking the right questions of who's on their border, and start to have discussions with their vendors on is their equipment ready," Blemings said. "We're starting to see that unfold, which is very rewarding as an AT&T employee and from a MEF perspective the project accomplished what it set out to do." Even as the MEF helps service providers in the broader Ethernet services community migrate to a more organized Ethernet interconnection regime, there are still a number of challenges. "You can look at it through several angles," Blemings said. "One angle is, MEF has standards in place that help carriers make the transition and the other angle is 'how do I understand how to implement those standards and MEF 54 helps kick start that process.'" Blemings said that the next step for Ethernet is to mirror how service providers created interconnection mechanisms for TDM-based networks. "Just like the world grew up in this TDM environment and that commonality enabled this internet growth that we have seen over the years," Blemings said. "Now we have to replicate that same sort of rapid expansion with Ethernet where we need to have everyone talk about Ethernet in the same manner and enable the next massive growth curve of bandwidth."



▼ SATELLITE NEWS

SATELLITE UPDATES

Kacific launches rural satellite service in Vanuatu

Kacific Broadband Satellites has announced the launch of a high speed broadband internet connection in the rural Lambubu area on Malekula Island in Vanuatu. The service, which is based at Lambubu Primary School, provides maximum speeds of 17Mbps delivered by satellite. A small VSAT terminal has been installed to receive the signal, allowing all villagers to benefit from high speed internet connectivity. Other schools and healthcare centers will be connected over the next few weeks. The installation, which is Kacific's first operational service, is a joint project with the Vanuatu government and local ISP Telsat. 'The broadband connectivity from Kacific is a major step in our work to provide universal internet access to the people of Vanuatu,' commented Dalsie Baniala, head of the Telecommunications and Radiocommunications Regulator (TRR), adding: 'The computer lab at Lambubu School will in future develop into a government service centre, providing internet and educational and health services to the wider community. This connectivity will provide previously unheard of educational opportunities for the children, as well as improving health outcomes for all villagers.'

Myanmar in Talks with Aireon for Space-Based ADS-B

Aireon has signed a Memorandum of Agreement (MOA) with Myanmar's Department of Civil Aviation (DCA) to collaboratively develop a concept of operations and benefits analysis for the deployment of its forthcoming space-based Automatic Dependent Surveillance-Broadcast (ADS-B) service. DCA provides air traffic control, air navigation, aeronautical information and aeronautical telecommunication for international and domestic aircraft inside the Yangon Flight Information Region (FIR). The organization controls an increasingly busy air traffic thoroughfare between Asia, Europe and the Middle East, with some of its territory being oceanic where terrestrial-based systems are limited. According to Boeing's Long Term Market Outlook, Asia could become the largest travel market in the world, growing at 6.1 percent annually and adding more than 100 million new passengers each year. "We have many challenges installing ground-based surveillance solutions due to the remote and diverse terrain in our region," said Soe Paing, director of air navigation safety, DCA Myanmar. "We are growing at almost 10 percent annually and need to ensure that airspace safety is one of

our top priorities. The Aireon service will offer us increased safety and visibility that exceeds the capabilities of ground-based infrastructure." Aireon's space-based ADS-B service begins launching in September aboard the Iridium Next constellation. In the Asia-Pacific, Aireon also has a signed data service agreement with the Civil Aviation Authority of Singapore (CAAS), and has a long-standing MOA with the Airports Authority of India (AAI).

Bike Channel UK Launches on Freesat

Freesat, the ITV and BBC subscription-free satellite TV joint venture, has signed a distribution agreement with the Bike Channel to reach viewers across the U.K. Through the agreement, the Bike Channel is now available to more than 17 million households in the country. The Bike Channel provides live and exclusive coverage of many top professional races, including the Gent-Wevelgem, Tour de Romandie and Giro del Trentino, as well as documentaries, entertainment and



original programming. The channel is aimed at cyclists and cycling fans, and appeals to leisure riders, racers, mountain bikers, commuters and triathletes. Sky and Virgin Media also distribute the channel across the U.K.

Advantech Wireless Releases WideSAT Product for GEO, MEO and LEO HTS

Advantech Wireless is now offering WideSAT, a new High Throughput Satellite (HTS) widebeam technology for Geostationary, Medium and Low Earth Orbits (GEO, MEO and LEO) to increase density, versatility, and efficiency when using wide transponders from 250MHz to 2GHz

for data links. WideSAT technology will be incorporated in Advantech Wireless' A-SAT-2 multi-waveform satellite networking platform as well as future products. "Our new WideSAT technology has been designed specifically for better handling of the new HTS GEO/MEO/LEO widebeam transponders that can typically be seven to 15 times larger than the traditional 36MHz GEO transponders. WideSAT is planned to enhance our leading A-SAT-2 multi-waveform satellite networking platform to dramatically improve point-to-multipoint broadband applications," said Oscar Glottman, Advantech Wireless' CMO for satellite networks.

European Defense Agency Formalizes Cooperation with EU Satellite Center

The European Defense Agency (EDA) and the European Union Satellite Center (SATCEN) have exchanged letters to formalize their existing cooperation, in place since 2004. The letters establish a more structured cooperation, increasing the number of mutually pursued activities such as studies, workshops, projects and programs. The new enhanced relationship will also see the nomination of points of contact on both sides to facilitate communication and cooperation. Since 2004, EDA and SATCEN have collaborated on projects such as Geospatial Information to Support Decision Making in Operations (GISMO) and GISMO 2 Persistent Surveillance Long Term Analysis (SULTAN). Both organizations perform complementary roles and activities in the space-based Earth Observation domain and more generally in the space and security sector. Whereas the EDA's work is focused on the harmonization of requirements and plans for future capability development, SATCEN's activity supports the EU by providing products and services resulting from the exploitation of space assets, particularly in the Common Security and Defense Policy (CSDP) field. EDA and SATCEN have also identified specific cooperation areas such as imagery exploitation, geospatial analysis and applications, future space-based Earth observation systems, cybersecurity, big data exploitation in the space and security domain,

Space Situational Awareness (SSA) and maritime surveillance. The two agencies also intend to develop a joint roadmap for cooperation detailing activities of common interest.

China Clears Inmarsat's IsatPhone 2 for Sales in Country

Inmarsat has received type approval from the government of China for its IsatPhone 2 technology. Working alongside local channel partners MCN Beijing and China Telecom Satellite (CTS), Inmarsat is now positioned to service the Chinese market. According to the company, it is the only international operator legally eligible to sell handheld satellite phones in China. A key criteria for the approval was to have local infrastructure in the country. MCN, in partnership with Inmarsat, successfully completed its Global Satellite Phone Service (GSPS) gateway station in China at the end of 2014, receiving its official license earlier this year. "As the need for reliable and remote communications in China continues to grow, driven by strategic initiatives such as 'One Belt, One Road', Inmarsat will be well positioned to capture that growth," said Tim Johnson, VP of Inmarsat's Enterprise Unit. "There are several sectors such as mining and oil and gas, which regularly operate in remote areas of China and where currently traditional connectivity cannot provide the required level of reliable service cost-effectively. This announcement paves the way to meeting that demand."

What the FCC's 5G spectrum plan means for Ka-band satellite

The FCC voted unanimously to open up nearly 11 GHz of high-frequency spectrum – 3.85 GHz of licensed spectrum and 7 GHz of unlicensed spectrum – for "flexible, mobile, and fixed use wireless broadband", which basically means 5G. That's potentially good news for US operators planning to leverage millimeter-wave bands for 5G applications – but not-so-good news for satellite operators, although most satellite players outside the US probably won't have to worry about it for a long time yet. The bands in the FCC plan include 28 GHz, 37 GHz, 39 GHz, and the 64-71GHz bands. However,

part of the 28-GHz band is already being used by satellite operators for Ka-band services. And satellite players have expressed severe annoyance at the FCC for even considering the 28-GHz band as a terrestrial 5G frequency, not least because one of the outcomes of WRC-15 in November was a tacit agreement to exclude the band from consideration for 5G usage. FCC Chairman Tom Wheeler – who hasn't been particularly sympathetic to the satellite industry's argument that no one else should be able to use the 28-GHz band – says the approved plan strikes the best possible balance to allow terrestrial and satellite players to share the band, reports FierceWireless: When asked about the satellite players' objections in a press conference after the commission's meeting, Wheeler said there were dueling studies back and forth on the issues, which were insufficient to go one way or another. "We are going to continue the efforts to study the issue, and if it's necessary to re-examine it, we will." While the satellite industry didn't get everything it wanted, neither did the terrestrial mobile industry. In announcing the final rules, FCC staff noted that the commission struck a balance between new wireless services, current and future fixed satellite service operations and federal uses. The FCC said the order includes effective sharing schemes to ensure that diverse users, including satellite and terrestrial, as well as fixed and mobile, can coexist and expand. Tom Stroup, president of the Satellite Industry Association issued a diplomatic response to the ruling: "SIA is also encouraged by the provisions pertaining to earth stations operating in the 28 GHz band but still has concerns regarding potential aggregate interference. We look forward to working with the FCC further and appreciate the Commission's willingness to revisit this issue as needed. There are many sophisticated technical issues posed by this rulemaking, and we are eager to fully evaluate the rules that have been adopted." What this will mean for 28 GHz at WRC-19 is anyone's guess. One possible outcome: if US players actually hammer out a feasible plan for terrestrial/satellite co-existence, WRC-19 could conceivably decide to make 28 GHz a global band for 5G apps. Even if that happens, though, it's important to remember that all of this is way off in the future. Millimeter-wave will certainly be a cornerstone

technology for 5G access one day, but as Rethink Research has pointed out, most initial 5G activities in the world won't be focused on millimeter-wave anyway – they're more likely to be using sub 6-GHz frequencies. So the interference issue isn't an imminent one outside of the US. Meanwhile, here's one interesting observation from Rethink's Caroline Gabriel: when millimeter-wave 5G does start to happen, it will herald the beginning of the end for the established MNO business model: Some of that is happening already. Facebook's OpenCellular and Terragraph, and Google's Loon, show how open technologies can be applied to access networks, breaking the stranglehold of the traditional vendors with their closely guarded magic, but also lowering the barriers to new entrant operators. MNOs from Bouygues to Saudi Telecom to Deutsche Telekom discussed the divestment of their towers this week – this is just one small step to a deconstructed market where infrastructure is shared, capacity flexibly allocated, and core technology placed into open source. That said, she adds, the key technology enabling this shift isn't 5G radio but dynamic bandwidth-slicing enabled by network virtualization.

Atlas Space Operations Commercial Deep Space Network Pathfinder to Launch on NASA's First SLS Mission

Atlas Space Operations has commissioned a pathfinder space mission to demonstrate



its Interplanetary Satellite Communications Network (ISCN). The 6U Atlas ISCN pathfinder CubeSat is scheduled to launch in 2018 aboard NASA's Space Launch System (SLS) Exploration Mission 1 (EM1), as a

participant in the Cube Quest Challenge with Miles Space. After completing the challenge objectives, the satellite will move to a storage orbit that coincides with the 2016HO3 asteroid — Earth's newly discovered quasi-moon. The spacecraft will communicate via the Atlas ISCN at distances reaching 30 million kilometers to prove deep space capabilities are commercially available using Atlas. Atlas touts the ISCN as the world's first commercially available deep space communications network, capable of providing an affordable, commercially available alternative to the established deep space communications capabilities of the world. The company chose Phoenix Arizona for the first ISCN antenna site, with more to follow. Using advances in phased-array technology, Atlas is installing a large array of electronically steered apertures to achieve the performance required to detect and track the faint radio frequency signals typical of deep space missions. The ISCN will have the similar performance attributes as NASA's Deep Space Network (DSN), according to the company. Plans are in motion to establish operational deep space capability from Phoenix by July of 2017.

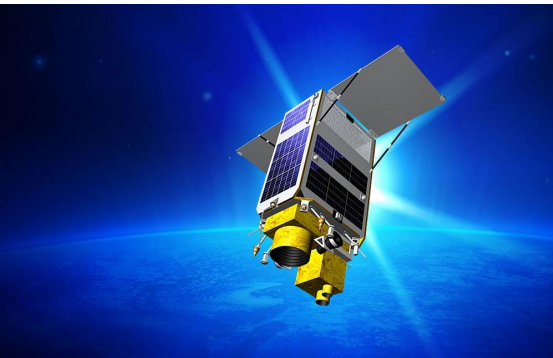
Inmarsat, VT iDirect Form Joint R&D Team

Inmarsat and VT iDirect are forming a joint Research and Development (R&D) team, dubbed i2, to support the development of next generation satellite communications technologies. The new venture builds on collaboration between the two companies during the past four years, which includes the Global Xpress (GX) program. The R&D project team, to be based at Inmarsat's headquarters in London, will focus on the proof-of-concept and prototype phases for new satcom technologies. Inmarsat and VT iDirect will jointly assess the commercial potential of each new technology before the decision is taken to deploy it in the form of a new product or service. Both companies' partners and end-users will have privileged access to the new technologies. Among the first projects the team will address are the creation of new solutions to support

the growing integration of satcom and terrestrial networks, the requirement for smaller, more powerful satcom terminals, and the boosting of waveform performance.

Forecast International Expecting 1,935 New Remote Sensing Satellites by 2025

Surging demand for Earth imagery should lead satellite manufacturers to produce some 1,935 remote sensing satellites over the next 10 years, according to a recent study by Forecast International. Based on the research firm's "The Market for Civil & Commercial Remote Sensing Satellites" report, an estimated \$29 billion (in FY16 U.S. dollars) in remote sensing satellite manufacturing will occur during the 2016 to 2025 forecast period. The study covers 58 satellite production programs.



Forecast International notes that the average launch mass of remote sensing satellites increased from 851 kilograms in 2011 to 1,775 kilograms in 2013, followed by a substantial decline in average launch mass in 2014 down to 301.8 kilograms. This decline continued in 2015, dropping to 226.1 kilograms. William Ostrove, author of the study, said in a press release that the cause for declining mass does not mean that there has been a lack of opportunities for large satellites. Russia's Resurs-P3, launched in March 2016, weighed 5,920 kilograms at launch. The decline in average launch mass is due to an increased number of small satellites, not a decreased number of large satellites. The report also notes growing commercialization as a major trend in the remote sensing satellite market, with commercial companies readily adopting the small satellite form.

Two Iranian Satellites in Orbit by March

Head of the Iranian Space Agency (ISA) announced at a presser in Tehran that Iran would launch 3 satellites in the next 8 months. "At-Sat, Nahid 1, and Dousti are the satellites their design and manufacturing have been completed and by March 2017, we will have launched either of Nahid or At-Sat as a communication satellite, and Dousti as a monitoring satellite," said Mohsen Bahrami. Saying that At-Sat is a product of Amir Kabir University, Nahid of Elm-o-San'at University, and Dousti of Sharif University, Bahrami added that Pars, which is a measurement satellite is the next project of Iran currently undergoing. "The launch of these domestic satellites is in line with the 'resistance economy' policies and even a contract will be signed next week to use an Iranian launcher for deploying Nahid 1 satellites into orbit," highlighted Mr. Bahrami. He also recounted that an Iranian delegation has been invited by Italians to visit Mesbah satellite and discuss returning the device to Iran. Italy refused to hand it over to Iran under the pretext of international sanctions on Iran. "Iranian researchers need to evaluate considerations to decide over the launch of Mesbah satellite into the orbit," he added saying that it may no longer be cost-efficient. Iran's Mesbah satellite was built in collaboration with Italy's Carlo Gavazzi Space S.p.A in 1998 and was unveiled in 2005. Mesbah, a low earth orbit telecommunication satellite, was never launched as both Russia and Italy refused to continue cooperation with Iran on space projects due to the sanctions against Iran.

Airbus, Boeing Outlooks See Strong Market for Satellite-Connected Aircraft

Airbus and Boeing both released their 20-year global market forecasts on the first day of the 2016 Farnborough International Airshow. Airbus was less optimistic in its long term view of global demand for passenger jets, predicting airlines will require 33,000 new aircraft worth \$5.2 trillion in the next two decades, while Boeing increased its 2016 outlook by 4.1 percent compared to 2015 predictions, projecting a global demand for 39,620

aircraft worth \$5.9 trillion. While the two airframers' expectations over the next 20 years differ, both forecasts — combined with recent moves by Airbus and Boeing as well as activity on the first day of Farnborough — shows that a significant number of the aircraft delivered between now and 2035 will feature advanced forms of cockpit and cabin-based satellite-powered broadband connectivity. The average between the figures released by the two Original Equipment Manufacturers (OEMs) is equal to a 20-year demand for 36,310 aircraft worth \$5.5 trillion. Both companies also expect the global in-service fleet to double from today's nearly 20,000 to 40,000 new aircraft or more by 2035. Among the most important details in both reports regarding satellite-based broadband is a shared view that the largest demand for new jets will continue to be single-aisle airliners such as the re-engined A320neo and 737 MAX. Boeing specifically expects low-cost carriers within emerging markets to drive growth for single-aisle aircraft, which it estimates will lead to demand for 28,140 new airplanes. Aircraft of this size already account for 76 percent of Boeing's current global order backlog. Similarly, Airbus forecasts demand for 23,500 new single-aisle aircraft or 71 percent of expected deliveries over the next 20 years. The A320 will account for the largest number of deliveries over the next two decades within this segment. The company appears to be gearing up for the increased use of satellite powered Internet Protocol (IP) for both cabin and cockpit through a recent agreement with Cobham Satcom. At the end of June, Airbus selected Inmarsat's SwiftBroadband-Safety (SB-S) service available from Cobham Satcom's Aviator S series terminals, as future equipment for its A320 and A330 families. Under Cobham's contract with Airbus, the company will begin to install hardware on the two aircraft families starting in 2018, well within the 20-year outlook. However, Inmarsat and Cobham aren't the only viable players in satellite-powered IP for this demand period. Flyht Aerospace continues to evolve and prove the capabilities and values provided by its' Iridium-powered Automated Flight Information Reporting System (AFIRS). On the passenger side, Gogo's 2Ku service will prove its capabilities within the first few years of the Airbus and Boeing 20-year forecast periods, based on recent

contracts to add the technology to 137 International Airlines Group (IAG) aircraft, and it will also start flying on 35 Delta Airlines jets this year. That number will be increasing to a total of 600 Delta jets based on an agreement announced between the two companies in May.

Panasonic, China Telecom Satellite Extend IFC Trial to Chinese Airlines

Panasonic Avionics and China Telecom Satellite (CTS) announced a one-year extension of their Ku-band In-Flight Connectivity (IFC) trial that will expand connectivity to several Chinese airlines. With the trial's extension, all approved Chinese and international airlines can now select Panasonic's global communications services. Per terms of the license, more than 20 foreign airlines with more than 1,000 aircraft are expected to begin operating connected flights over Chinese airspace, with more in process. Initially, 12 foreign airlines with slightly more than 200 aircraft were offering IFC over this region. There were also three Chinese-registered airlines and 30 aircraft offering connected flights in and out of China. In addition, Panasonic's Chinese airline customers, including China Eastern Airlines, Xiamen Air, Hainan Airlines and China Southern Airlines have begun preparations to offer connectivity services across their global route structure. The announcement follows recent news that the leading Chinese carrier, China Eastern Airlines, in partnership with CTS, was the first to offer Wi-Fi on domestic flights. China Eastern Airlines installed Panasonic's eXConnect IFC system on its newest Boeing 777-300ER aircraft.

Eutelsat looking to sell stake in Spain's Hispasat

Eutelsat announced that it has initiated the process of divesting its 33.69 percent stake in Spanish satellite operator Hispasat by exercising the put option granted in 2008 by Hispasat's majority shareholder, the Abertis Group. Under the terms of the put option agreement, the value of the Hispasat stake will be determined by an independent expert, said Eutelsat in a statement. However, Abertis subsequently replied that the process initiated by Eutelsat is not valid and that the company doesn't

recognize the put option under which Abertis would have to buy the stake. "The compromise to remain in the company, at least until the end of July 2017, assumed by the shareholders via the Shareholders Agreement, conditions the efficacy of the put," said Abertis in a statement to Spain's markets regulator CNMV. Construction company Abertis, which controls 57 percent of Hispasat, added that, in any event, the execution of the transaction requires the approval of Spain's Council of Ministers.

Optus Satellite, URSYS partner to deliver telecoms solutions in rural and remote areas

Optus Satellite has announced a new wholesale relationship with URSYS, a designer and provisioner of satellite-based voice and data communications, specifically for complex networks in remote and rural areas. In a press release it has been confirmed that under the agreement URSYS will utilize dedicated satellite capacity on Optus' D2 satellite, while it will also gain access to third party international satellite providers. Further, URSYS will utilize Optus' teleport facilities at Belrose, north of Sydney in NSW, and the wider Optus infrastructure. Optus Satellite vice-president Paul Sheridan claims the partnership is significant because it 'focuses on joint go-to-market opportunities within the targeted LTE, SCADA and unique network industries', while Grahame Cover, chief executive at URSYS, said of the new relationship: '[It] builds on the deep experience of both URSYS and Optus Satellite to meet demands coming from the market for a complete solution, particularly where more than just a simple broadband connection is required ... URSYS and Optus Satellite have proven long term commitments to remote and rural Australia, and this partnership combines our expertise to re-define services and offer bespoke solutions to remote business customers with specific network requirements.'

MUOS 5 Glitch Interrupts Journey to GEO

The U.S. Navy reports that the fifth satellite in the Mobile User Objective System (MUOS), successfully launched June 24 aboard an Atlas 5 rocket, has

experienced an anomaly that required its transfer maneuver to be temporarily halted. MUOS 5 was projected to reach geosynchronous orbit and enter its test location 22,000 miles above Hawaii by July 3. Following the anomaly, the Navy's Program Executive Office for Space Systems reconfigured the satellite from orbital transfer into a stabilized, safe intermediate orbit to allow the MUOS team to evaluate the situation and determine options for proceeding. MUOS 5 is an on-orbit spare for immediate redundancy in the MUOS constellation. The Navy reports that the other four satellites in the constellation are performing nominally. The delay in MUOS 5 reaching its test location will have no impact upon current legacy or Wideband Code Division Multiple Access (WCDMA) satellite communications operations. The MUOS network provides "smartphone-like" telecommunications services with near-global coverage, and enables 16 times more communications capacity than the legacy system it will eventually replace. Lockheed Martin is the prime contractor for MUOS. "Nothing is more important to Lockheed Martin than mission success," the company commented in a statement provided to Via Satellite. "We are working closely with our Navy customer to determine the cause of the anomaly."

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IoT Set to Overtake Mobile Phones as Largest Connectivity Market

The Internet of Things (IoT) will overtake mobile phones as the largest category of connected devices by 2018, a new report by Ericsson finds, creating a burgeoning opportunity

marketing, business unit radio at Ericsson, today there are more than 15 billion connected devices, including smartphones, the connected car and wearable devices, which ultimately bring humans into the IoT web, among others. While mobile phones currently make up the largest segment of connected devices, with 7.2 billion mobile phones currently connected, by 2018 the company predicts that IoT-connected devices, currently at 4.6 billion devices, will dwarf mobile phones as the largest segment. "Looking forward, we expect mobile phones to grow at an average of 3 percent annually over the next six years, which is vastly overshadowed by the growth we expect in IoT," said Cerwall. According to the report, between 2015 and 2021, the number of IoT-connected devices is expected to grow 23 percent annually. Of the 28 billion total devices that will be connected by 2021, close to 16 billion will be IoT enabled. While IoT will overtake cellular devices as the most heavily connected, among the different categories of IoT-connected devices — including tele-health devices, remote utility monitoring and others — cellular IoT is expected to have the highest growth rate between 2015 and 2021. "This growth is due to increased industry focus and [Third Generation Partnership Project] 3GPP standardization of cellular IoT technologies," said Cerwall. The growing maturity of IoT-enabling technologies and the emerging applications and business models are driving the uptick in IoT-connected devices, according to Cerwall. The

increased interest and capability is supported by falling costs for chipsets and devices, making it more affordable to enable IoT. Consumer readiness also plays a big part in the rapid IoT adoption as the public is displaying an inclination to begin adopting smart homes, connected cars and wearables, while companies are keeping their eyes on IoT to increase efficiency

across businesses. Additionally, regulatory requirements are having

a significant impact on the IoT market. "EU regulations and policy recommendation are driving adoption of [Original Equipment Manufacturer] OEM telematics and smart meters," said Cerwall, providing one example of regulatory-driven IoT. He noted that automotive and utilities are the two most dynamic vertical market segments in Western Europe, for which IoT connected devices are expected to spike 400 percent through 2021, accounting for the lions-share of the volume growth in the coming years. Cerwall believes that a mandatory directive requiring e-call features on all cars sold, beginning in 2018, will drive the enormous growth. National programs for connected utility meters will also play a part in the massive increase in devices. As consumers and companies alike begin to turn to IoT-connected devices to optimize use of various technologies, and IoT enabling technologies become more reliable and affordable, satellite companies will have a large role to play in the exploding market. "The same drivers for IoT will exist where there is no terrestrial coverage," said Cerwall, pointing to satellite as the obvious solution to drive connectivity in these areas. He notes that satellite-connected devices will differ from terrestrially connected devices, however, in both use case and pricing. "There are likely to be differences in some use cases due to, for instance, latency impacts on process control. There will be a larger number of satellite-enabled devices, although many devices will have lower average bit rates compared to many current applications such as broadcast media. Satellite-enabled devices are likely to remain somewhat more expensive than the same devices connected terrestrially due to the relative size of the ecosystems," Cerwall said. Due to these differences, IoT may prove to be an additional driver in pushing terrestrial networks geographical boundaries further, as IoT-connected devices become more critical to business operations. Cerwall also warns that the traffic generated by IoT will differ from the current leader in connectivity demand, and that providers should be careful to cater to the changing environment. "While the number of connected IoT devices is growing dramatically, the traffic generated from those devices is much less than that from mobile broadband. Evolving architectures



for satellite companies. According to Patrik Cerwall, head of strategic

for mobile infrastructure should cater for all the connectivity needs," said Cerwall, noting that there is ongoing work in many of the areas that currently present challenges, including enhancements in provisioning, device management, service enablement and security.

ITU Releases new High Dynamic Range TV Standard

The International Telecommunications Union's Radiocommunications Sector (ITU-R) has announced a new standard for High Dynamic Range (HDR). The recommendation, created in collaboration with experts from the television industry, broadcasting organizations and regulatory institutions in its Study Group 6, complements the ITU's Ultra-HD TV Recommendation BT.2020. The HDR-TV Recommendation allows TV programs to take full advantage of new, more luminous display technologies. HDR-TV can bring out more detail in bright or dim scenes, giving TV producers the ability to reveal texture and subtle colors that are usually lost with existing Standard Dynamic Range TV. The HDR-TV Recommendation details two options for producing High Dynamic Range TV images: Perceptual Quantization (PQ) specification, which achieves a wide range of brightness levels using a transfer function that is finely tuned to match the human visual system, and the Hybrid Log-Gamma (HLG) specification, which offers a degree of compatibility with legacy displays by more closely matching the previously established television transfer curves. The recommendation also outlines a simple conversion process between the two HDR-TV options. The ITU-R Recommendation BT.2100 also allows TV producers to choose from three levels of detail or resolution: HDTV (1920 by 1080), 4K (3840 by 2160) and 8K (7680 by 4320) — all of which use the progressive imaging system with extended color gamut and range of frame-rates in ITU's UHD TV Recommendation BT.2020.

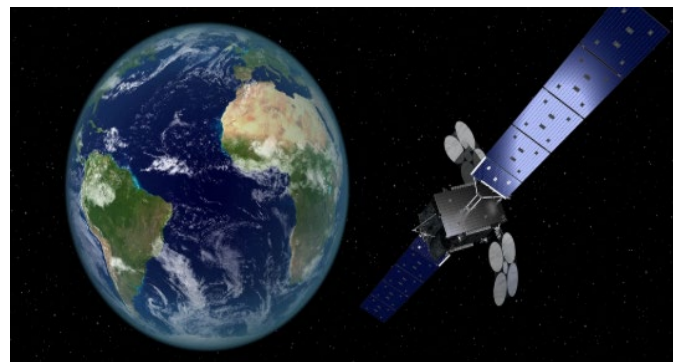
HD satellite channels on the rise in MENA

High definition (HD) television channels serving the Middle East and North Africa (MENA) via satellite now number 212, up from 195 a year

earlier. Analyzing the channels carried on seven satellites targeting the Arab world — namely Arabsat, Es'hailsat, Eutelsat, Gulfsat, Nilesat, Noorsat and Yahlive — Arab Advisors Group found the number of HD channels by May 2016 represented around 18% of the total number of satellite channels carried. "Arab Advisors research and analysis shows that the number of HD TV channels has grown by around 9% between March 2015 and May 2016," said the report's author, Noor Asmar, Arab Advisors' Senior Research Analyst. "By May 2016, Arabsat had the largest number of HD channels with 83 channels available on the platform. Nilesat followed," she added.

European Space Agency Reaches out to IoT Sector

The European Space Agency (ESA) recently launched an Invitation to Tender (ITT) through its Advanced Research in Telecommunications Systems (ARTES) program to encourage prototyping of low data rate satellite communications concepts that would be suitable for diverse Machine-to-Machine (M2M) and Internet of Things (IoT) applications. With this new



funding opportunity, ESA is targeting a sector that does not normally work on satellite communications, namely maker communities throughout Europe that focus on, among other things, consumer-oriented terrestrial communications projects. These groups have generated numerous hardware products and concepts based on small embedded systems (such as Raspberry PI, Arduino), software defined radio (like HackRF, GNU Radio, URSP, LimeSDR), and open source Field-Programmable Gate Array (FPGA) programming boards. A number of such products or concepts are already used within various ARTES projects and some have

even been placed into orbit. ESA is seeking ways to cultivate ideas that use the multicast capability of satellite to reach devices outside the range of terrestrial telecommunications. "This is a very innovative community, but one not yet active in the satcoms market," said ESA's Frank Zeppenfeldt, who was instrumental in launching the new ITT. "We would like to engage with it and help it develop innovative satcoms solutions. Through this tender, we'd like to see a kind of makerspace for satcoms community emerges." The ITT closes on 5 September 2016.

Thuraya Supports First Telemedicine Expedition to K2

The first telemedicine expedition to the mountain K2 is underway, after successful trials in the Himalayas in March. The WiCis-Sports app, running on Thuraya's SatSleeve+, will monitor the #K2Adventure16 Madison Mountaineering trip. The #K2Adventure16 project began June 12, and is set to reach the summit in mid-August. Garrett Madison is leading the team of 10, accompanied by porters from Pakistan and Sherpas from Nepal. One of the most remote

places on Earth, with only 46 permits issued in 2016, K2 is the second highest and arguably the world's most intimidating mountain. Select adventurers will wear

lightweight, breathable, Bluetooth-enabled garments featuring embedded or integrated sensors, under normal climbing gear. The sensors continuously monitor heart rate, oxygen saturation, skin temperature, geo-location, altitude, speed and bearing. Data will be streamed to the WiCis-Sports internet platform using Thuraya SatSleeve+, and will be available within one to two seconds on any internet-enabled device on the planet. Leo Montejo, CEO of WiCis, will keep track of the party's progress from California. WiCis-Sports is also combining and analyzing vital sign data to provide a snapshot of the climbers overall health status. Should a medical

or other emergency arise, rescue teams will have immediate access to the data needed to assess the climbers' condition and the exact location. Mountain climbers underwent two successful trial expeditions earlier this year in the Himalayas. Montejo, a team leader in the first of the two, tested the Thuraya SatSleeve+ and WiCis-Sports App. Three expedition members were forced to withdraw through illness; one acute mountain sickness case was so serious that a rescue helicopter was called for, using Thuraya SatSleeve+.

ViaSat Supports FCC Chairman Remarks on Spectrum Sharing for 5G and Satellite Broadband

ViaSat is supporting comments made earlier this week by Federal Communications Commission (FCC) Chairman Tom Wheeler in an address titled, "The Future of U.S. Leadership in a 5G World." "We are encouraged by the chairman's emphasis on finding a balanced solution providing terrestrial wireless providers with access for new 5G services while protecting the continued access to this spectrum for next-generation high-speed satellite broadband services. This type of sharing would enable both to coexist and play an important role in providing faster speed, higher quality internet and video streaming to consumers across the country," said Mark Dankberg, ViaSat chairman and CEO. "In addition to sharing spectrum, we are pleased the commission will look at adding 5G spectrum access in additional bands — recognizing the future of 5G wireless will not be a 'one-size-fits-all' environment." Wheeler's speech comes on the heels of the FCC's recent decision to allow all internet services, including ViaSat's satellite broadband service Exede, to compete for universal service funds under the Connect America Fund (CAF) program.

US Navy, Lockheed Martin Ready to Launch MUOS 5 Satellite

The U.S. Navy and Lockheed Martin are ready to launch the fifth Mobile User Objective System (MUOS) secure communications satellite, MUOS 5, at Cape Canaveral, Florida on Friday, June 24, aboard a United Launch Alliance Atlas 5 rocket. The launch window is

between 10:30 a.m. and 11:14 a.m. EDT. For the Navy, MUOS 5 completes a network of orbiting satellites and relay ground stations aimed at improving secure communications for mobile military forces. Users with MUOS terminals will be able to seamlessly connect beyond line-of-sight around the world and into the Global Information Grid, as well as into the Defense Switching Network. "Users of the legacy satellite communications system can talk, but they are limited to conversations between users under the footprint of the same satellite," explains Mark Woempner, director of Lockheed Martin's Narrowband Communications Systems. "MUOS is a game-changer for our forces, establishing a global military cellular network through which they can reach out to each other — and exchange mission data — almost anywhere around the world." MUOS 5 joins a network of four already-on-orbit MUOS satellites and four operational relay ground stations, providing near-global coverage, including communications reach deep into Polar Regions. Like its predecessors, the MUOS 5 satellite has two payloads to support both these new Wideband Code Division Multiple Access (WCDMA) waveform capabilities, as well as the legacy Ultra High Frequency (UHF) satellite system. MUOS 5 will augment the constellation as a WCDMA spare, while actively supporting the legacy UHF system, currently used by many mobile forces today. Once fully operational, the MUOS network will provide users with 16 times more communications capacity than the legacy system it will eventually replace. More than 55,000 currently fielded radio terminals can be upgraded to be MUOS-compatible, with many of them requiring just a software upgrade.

Qualcomm Enhances Support for Galileo across Product Portfolios

Qualcomm Technologies is supporting the European Galileo Global Navigation Satellite System (GNSS) broadly in its product portfolios. With these optimized software enhancements, the Qualcomm IZat location services platform now uses up to six satellite constellations concurrently without incremental device hardware or cost. Users now benefit from more than 80 different satellites when calculating

global position for navigation or location-based applications. The addition of another GNSS is intended to provide more accurate location performance faster time-to-first-fix, and improved robustness all over the world, particularly in challenging urban environments where the combination of narrow streets and tall buildings can reduce accuracy. This feature is integrated in the latest Qualcomm Snapdragon 800, 600, and 400 processors and modems. Galileo will be supported on Smartphones and compute devices with the appropriate software release on Snapdragon 820, 652, 650, 625, 617, and 435 processors, automotive infotainment solutions using Snapdragon 820A, and telematics and IoT solutions with Snapdragon X16, X12, X7, and X5 LTE Modems, and Qualcomm 9x15 and MDM6x00 modems. These enhanced processors and modems are designed to enable infotainment and telematics solution providers to satisfy an important component of the European eCall mandate ahead of the March 2018 deadline.

Embratel Star One Sees Ka-Band as Boon in Brazil

Gustavo Silbert, president of Brazilian satellite operator Embratel Star One, says the company is looking to the launch of its Star One D1 satellite to expand capacity for Direct-to-Home (DTH) and cellular backhaul in the region, as well as expand into the North American market. The company plans to launch the Ka-band satellite — its largest satellite to date — by the end of 2016, offering some much-needed relief to its satellite network. Silbert told Via Satellite the company sees Ka-band as the "new band in the region," which will greatly expand both traditional and new operations, including Ka-band consumer broadband access to the internet, which will likely grow satellite demand for Brazil in the next two years, in addition to DTH and cellular backhaul. "The current use of Ka-band has been very limited in quantity, but will increase very fast with the new capacities that are planned to be deployed between now and by the end of 2017. This includes our Star One D1 satellite that will provide Ka-band services over Brazil. Our current model is to use Ka-band mainly for

cellular backhaul and some video. The use for consumer broadband is still under evaluation." According to Silbert, video and cellular backhaul are the current drivers of satellite communications in Brazil, with the majority of Star One's current revenue coming from video. To support the current level of cellular backhaul demand, the company is presently relying on some of its transponders from Star One C4 satellite, launched in 2015, as well as the collocated Star One C2 satellite. After 2019, however, much of the cellular backhaul will migrate to Star One D1, freeing up more transponders on these satellites to grow DTH operations in both Brazil and Central America. Claro Mobile Network started to use Star One's Ku-band capacity for cellular backhaul this year and it has already announced plans to use the company's Ka-band capacity to expand the service the Star One D1 satellite launches. Once Star One D1 is launched, the company hopes to free up some capacity to move into the North American market as well. "We have switchable capacity over North America in both Star One C4 and D1. As the needs of our current Brazilian, Central and South American customers have been very demanding, making us operate with high fill rates within our fleet, so far there has not been available capacity to switch to North America as we had done in the past. With the arrival of the new D1, however, we hope to initiate some operation there," Silbert said. For now, the company is gearing up to broadcast and hosts the 2016 Olympic Games in Rio de Janeiro, which are set to begin in early August. Embratel is one of four official telecom supporters for the 2016 Olympic Games, along with Claro, Net, and America Movil Group. While Silbert told Via Satellite the telecom supporters had a "good rehearsal" with the World Cup in 2014, the telecom infrastructure has become much more complex than it was at the time of the world cup. Alongside its telecom cohorts, the company has been busy readying the infrastructure required for the mega event, which includes deploying and operating datacenters as well as equipping several venues with a "high quality and secure telecom network." The telecommunication base of Rio 2016 will be the Backbone Olímpico Embratel, a modern network with 370 kilometers of optical fiber, triply redundant, to guarantee the high transmission availability of games

data. The Olympic network will have the capacity of 40 gigabytes per second, connecting more than 60,000 access points spread in more than 100 venues, including places of competition and non-competition related to the event. Aside from the preparation necessary to host and broadcast the event, Embratel's data centers are also responsible for hosting the ticket sales website, which the country estimates will see 8 million tickets sold through the online platform. Silbert originally told Via Satellite that the Olympic Games would usher in a new era of 4K into Latin America, and while Star One is ready to transmit 4K and 8K within Central and South America, it is thus far on a limited basis. "For sure the Olympics will confirm the use of 4K, but it will be on a limited basis. There will be some 4K transmissions," said Silbert. "There will also be 8K transmissions, but in this case they will be sent to Japan as part of an experiment with them." After the Olympic games, however, the executive notes that oversupply and Brazil's current economic downturn could pose an issue for the operator, should the recession persist. "We have been noting a certain oversupply taking place in Latin America. Together with some devaluation of local currency in relation to the dollar, this may bring a combination that may cause a mismatch in the business for some players," Silbert said. While Silbert says the company could see an impact providing the economic situation doesn't buoy back shortly, he hasn't expressed any reservations about the viability of the satellite market in the region, even if the issue persists. "Even if a slowdown occurs in the demand, there is a market [in Brazil] to be served. There are still thousands of unattended areas that need telecom infrastructure," he noted.

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Spaceflight Successfully Launches 12 Planet Dove Satellites on ISRO’s PSLV

Spaceflight, the leading provider of integrated launch services for small satellites, has successfully launched a flock of 12 Planet Dove satellites from the Indian Space Research Organization’s (ISRO) Polar Satellite Launch Vehicle (PSLV). The 12 spacecraft are shoebox-sized satellites that will be delivered into Low-Earth Orbit (LEO) to provide imaging data. Spaceflight previously arranged for the launch of Planet’s Dove 1 and Dove 2 satellites in April 2013, as well as its first flock of satellites from the International Space Station (ISS) in January 2014 with partner NanoRacks. Spaceflight then arranged for the launch of 11 more Dove satellites, known as Flock 1c, from the Dnepr launch vehicle through partner Innovative Solutions in Space. Spaceflight has negotiated the launch of 81 satellites on behalf of its customers and has contracts to deploy more than 150 satellites through 2018. The company plans to coordinate its largest launch to date — 89 spacecraft — to be deployed by Spaceflight’s Sherpa tug from a SpaceX Falcon 9 later this year.

SES Releases Satellite Monitor Study Focused on Nigeria

SES announced the results of its first Satellite Monitor study on the Nigerian market, which provides insight on the country’s satellite television penetration. The study highlights that SES reaches 2.81 million TV homes across the country, of which 1.69 million are reached directly by SES satellites, and 1.12 million cable TV homes are fed indirectly by the SES fleet. In total, there are 33.9 million TV homes in Nigeria, with 8.98 million of them being served by satellites directly and the rest by terrestrial and cable networks. The Satellite Monitor study is an annual market research study commissioned by SES and carried out by various independent institutes. The study has been conducted for more

than 20 years in Europe and has now been replicated in Nigeria. “SES is committed to helping economic and sustainable growth in Nigeria and accelerating the digital switchover process in the region. We aim to connect the entire Nigerian population with our satellites, by developing the broadcasting landscape in partnership with our local partners and in close coordination with broadcasters,” said Eric Lecocq, general manager of North, West and Central Africa at SES. “Nigeria is currently in the process of migrating from analogue to digital and, through the study, SES has established a market benchmark for the Nigerian TV viewing choices that will directly support the digital switchover and independently track the progress of the project. Going forward, this annual research will also enable us to start monitoring trends in the market,” Lecocq concluded.

InfraMed Backs Eutelsat’s Broadband for Africa Satellite Venture

Eutelsat Communications and InfraMed have entered into an agreement whereby InfraMed becomes a c.21 percent shareholder in Broadband for Africa, the venture set up by Eutelsat to provide satellite broadband services on the African continent. By investing in Broadband for Africa, InfraMed is pursuing its strategy to focus on opportunities in regions characterized by dynamic demographics and infrastructure insufficiency. “Broadband for Africa will offer telcos, Internet Service Providers and government agencies a quality solution that enables more Africans to get online,” said Laurent Grimaldi, CEO of Broadband for Africa. Set up by Eutelsat in 2015, Broadband for Africa aims to deploy affordable, high-quality broadband connectivity in Africa using, in the first phase, leased Ka-band capacity on Spacecom’s Amos 6 satellite, and in the second phase, resources on its own dedicated High Throughput Satellite (HTS) that will be launched in 2019. Broadband for Africa will develop direct-to-user consumer and enterprise broadband services and address the market for community networks connected to Wi-Fi hotspots, mobile phone backhauling and rural connectivity. InfraMed is a 385 million euro long-term investment vehicle dedicated to infrastructure in the

Southern and Eastern Mediterranean. InfraMed was jointly created in 2010 by five major investors: Cassa Depositi e Prestiti, Caisse des Dépôts et de Consignations, the European Investment Bank, Caisse de Dépôts et de Gestion, and EFG Hermes.

Shell Selects Globalstar Satellite Asset Tracking Solution

Globalstar Europe Satellite Services announced that global oil giant Shell has deployed a satellite-based asset management solution in the Netherlands to securely manage its movable assets on land and at sea. By more closely and efficiently managing its high value assets and their associated test certification, Shell has achieved a positive Return on Investment (ROI) on the solution in just three months. The Alltrack track and trace solution, provided by Globalstar's Dutch-based Value Added Reseller Improvement-IT, incorporates QR codes, Globalstar's SmartOne satellite asset managers and a cloud-based content management system. Alltrack has been integrated with Shell's internal mapping software utility to make it easy to precisely locate assets, while geo-fencing confirms that items are in the right place. The solution ensures that equipment test certificates are valid, eliminating paperwork while cutting time and costs as well as speeding up supply chain operations. To date, Shell has deployed 250 SmartOne devices attached to a variety of high value assets including pumps, tools, power supplies and generators, which may be on land, in containers, in transit or offshore. With terrestrial mobile communications networks being incomplete, unreliable or non-existent in these locations, satellite was the only reliable communications option. "This new satellite-based solution ensures we get the full picture of where our assets are even if they are on a rig in the North Sea. We have gone from a paperwork-intensive environment to a hosted asset management system that makes decision-making quick and easy," said Albert Bos, team leader for Well Services Workshop at Shell. "When a container arrives at the warehouse, security officers now already know what's inside and the test certificates are automatically validated, saving significant time. We can also easily see which of our rented

assets are being underutilized and so we can return them and cut costs."

beIN, Technicolor Ship Ultra-HD Satellite Receivers to MENA

beIN Media Group has integrated Technicolor's 4K Ultra-HD technology into its broadcast platform for the Middle East and North Africa (MENA). The 4K rollout — touted as the first ever in the MENA region — comes just in time for the UEFA Euro 2016 football tournament. Video in 4K Ultra-HD displays images using more than 8 million pixels (3,840 x 2,160), providing pictures with an ultra-high resolution. beIN is broadcasting UEFA Euro's four quarter-final matches, the semi-final matches, and the final championship match in 4K by integrating Technicolor's 4K media server Set-Top-Box (STB) technology into its 4K Ultra-HD receiver. The company will broadcast 4K matches on a dedicated channel called beIN 4K. Plans are already in motion for beIN to deliver a steady supply of 4K content through partnerships with other entertainment and sports entities. Technicolor's 4K technology also includes a single layer transmission technology that uses 10-bit High Efficiency Video Codec (HEVC) encode/decode so content can be rendered on any television, whether it is 4K capable or not. In addition, there is built-in Wi-Fi and satellite support as well as an integrated hard disk that optimizes beIN's 4K Ultra-HD receivers.

Telenor Satellite Approves Skytech's BB75 Ka-band Antenna for Thor 7

Telenor Satellite has approved the BB75 Ka-band antenna from telecommunications company Skytech for use with the operator's new Thor 7 Ka-band payload. Skytech, a specialist in satcom-on-the-move is the latest antenna supplier to receive approval from Telenor Satellite to supply antennas for the operator's first Ka-band High throughput Satellite (HTS) services. With up to 20Mbps of bandwidth, the BB75 Ka-band model is a mid-sized antenna designed for maritime Ka-band users that require high-speed connections and large quantities of bandwidth on board yachts, passenger ferries, and

commercial and support vessels. The antenna measures approximately 75cm in diameter, and weighs 35Kg. Skytech developed the product specifically for use with Telenor Satellite's Ka-band maritime spot beams.

NASA, UAE Space Agency Agree to Collaborate on Air and Space Projects

NASA Administrator Charles Bolden and UAE Space Agency Chairman Khalifa Al Romaithi formalized and signed an agreement Sunday June 12 in Abu Dhabi for cooperation in areas of aeronautics research, and the exploration and use of airspace and outer space for peaceful purposes. The agreement covers cooperation and collaboration in space science, operational Earth observation and Earth science, aeronautics, space operations and exploration, education, technology, safety and mission assurance, and other areas



with potential benefits to all nations. According to NASA, the two countries will seek to identify additional areas of mutual interest for possible future cooperative programs or joint activities on Earth, in airspace, or in outer space. These activities may include the joint use of aircraft, scientific instruments aboard spacecraft, ground-based research facilities, spacecraft and space research platforms, as well as ground-based antennas for tracking, telemetry, and data acquisition. NASA and the UAE Space Agency formalized cooperation in the exploration of Mars as the first field of collaboration between the agencies by signing an Implementing Arrangement under the framework. The Implementing Arrangement establishes a joint steering group to guide discussions about potential future projects that contribute to exploring the Red Planet. Additionally, the two countries will aim to collaborate on education and public outreach programs and joint

workshops, with the goal of facilitating the exchange of scientific data, scientists, engineers, and views and experiences on relevant regulatory frameworks and standards.

Optus Satellite signs NZ broadband deal

Australia's Optus Satellite has signed a deal to deliver satellite-based internet services to rural parts of New Zealand's South Island. ZDNet reports that the New Zealand firm FarmSide, which is a subsidiary of local company TeamTalk, aims to serve farms and rural businesses on the island's east coast where conventional broadband networks have little coverage.

Thuraya-WiCis Partnership Could Jumpstart Satellite-Enabled Wearables

Thuraya and WiCis Sports are pioneering the use of satellite communications for wearable devices by supporting a team on a climbing expedition in the Himalayas. Adventurists with Madison Mountaineering are currently in the middle of the six-month trip, using Thuraya's IP+ terminal, SatSleeve+ and SatSleeve Hotspot to stay connected. Wearables are anticipated to be a major market in the next few years, as devices like smart watches and fitness monitors achieve greater market adoption. These devices' need for connectivity is also creating a new market for satellite. The Thuraya-supported mountaineers are using WiCis' Adventure Sports Solution to track the heart rate, body temperature, oxygen saturation, location, altitude and speed of each climber. This data, along with the general ability to communicate, is changing the way mountaineering is done, and could lead to the use of satellite for wearables on a regular basis. Goutham S.K, senior manager for products and solution development at Thuraya, told Via Satellite that the idea to support wearable devices by satellite surfaced through the introduction of a supporting Application Program Interface (API) for the SatSleeve. The API lets developers build applications for unconventional environments where only satellite communications would otherwise be available. "The

opportunity to partner with WiCis came in while we were searching for portable solutions that make it possible to create dynamic data feeds from remote locations. WiCis was looking to use small form factor products that would help stream data from remote locations; Thuraya was able to offer them exactly what they were looking for," he said. "The synergies matched perfectly." For WiCis, satellite-enabled wearables are a new technology. President of WiCis Carlota Fenes said the company tested the devices with Thuraya connectivity for almost seven weeks, with extensive trialing in Upper Mustang and then Upper Dolpo. She said the company was very happy with the results and that the Madison Mountaineering team has made regular use of the devices. "The adventurers were able to stream their location and vitals daily, so in America we always knew where they were and if they were safe. The Spotcast weather forecasting feature was used also daily and proved very useful in predicting bad weather twice. Chat is also possible from anywhere," she told Via Satellite. Climbers used the Thuraya IP+ terminal to send and receive emails and photos, and the Thuraya SatSleeve organized a helicopter rescue quickly through Global Rescue, Fenes said. "Vital sign measurement is more useful than we ever imagined, so this means that the blind approach that the market has now needs education," she added. Thuraya's primary market is connecting people and devices in remote locations, which gave the company the experience to pursue this project. Raouf Khalife, director of marketing, communications and branding, told Via Satellite that Thuraya has worked on numerous other "extreme" adventure projects ranging from mountain climbing and Alpine racing to solar car racing in the Australian outback and desert expeditions. "If we stay with the mountain theme to begin with, professional traveler Aleksey Yakovlev has used Thuraya equipment for more than a year now. His many trips include a ski mountain expedition in eastern Siberia. Then there's Daniele Nardi, a human rights ambassador who supports solidarity projects in Nepal and Pakistan. When he set out on his winter expedition at Nanga Parbat in the Himalayas in December, he did so with a Thuraya IP and antenna and the support of Intermatica," he said. Fenes said WiCis is eager to find new uses of

satellite-enabled wearable technology. "We are in discussions with ultra runners and other ultra athletes. We will be beginning to make the solution available to the marketplace in about a month. We are also in contact with coaches and companies such as Hypoxico which prepare the athlete for their endeavor in an optimal way," she said. "Using wearables will definitely allow for users to have a safer climb since we can measure parameters that can predict AMS (Acute Mountain Sickness)," added WiCis CEO Leo Montejo "We are measuring heart rate, oxygen saturation and body temperature. The wearables are easy to use and do not interfere with the trekker or climber ... I think that within five years these will be standard." Fenes said WiCis' system is designed to connect with any wearable/Internet of Things (IoT) device. As more wearables and IoT devices come along, the more data will need integration. This is, she said, will provide an opportunity for WiCis to gather all this information and make it available in real time, anywhere. Thuraya also sees this as a major opportunity. "What we are seeing today are early adopters using these solutions, because the global wearables market is still in its early stages. Having said that, the wearables market today is already worth more than \$1.15 billion. The potential opportunity is considerable, though, since that figure is expected to surge to more than \$25 to 30 billion, according to various estimates. This will certainly have a positive impact on the demand for satellite wearables," said Marwan Joudeh, product manager for Machine-to-Machine (M2M) and Product Lifecycle Management (PLM) at Thuraya. S.K. added that Thuraya has four other projects for third party app development underway that could lead to more unique use cases for Thuraya products. Joudeh expects not only adventurers will make use of satellite wearables, but also enterprises seeking to enhance the safety and improve the efficiency of their remote workers. He said Thuraya is confident that growing numbers of businesses in the oil and gas, mining, utilities and government sectors will deploy wearable technology for their remote workers. "Wherever it is important to raise safety standards and enhance efficiency, our technology can add real value," he said.

Proton SSTO Launch Lofts Intelsat 31 Satellite for Latin America

International Launch Services (ILS) successfully orbited the Intelsat 31 satellite for Intelsat June 9 aboard a Proton Breeze M rocket. The mission design consisted of a 5-burn Breeze M Supersynchronous Transfer Orbit



(SSTO)—a method of increasing heavy-lift performance over Geostationary Transfer Orbit (GTO) mission designs. The first three stages of the Proton used a standard ascent profile to place the orbital unit (the Breeze M upper stage and the Intelsat 31 satellite) into a sub-orbital trajectory. From this point in the mission, the Breeze M performed planned mission maneuvers to insert the orbital unit first to a circular parking orbit, then to intermediate and transfer orbits, and finally to a Supersynchronous Transfer Orbit where Intelsat 31 separated after a 15-hour, 31-minute mission. SSTO missions allow operators to maximize spacecraft operational lifetime. The Space Systems Loral (SSL)-built satellite is a 20-kilowatt class spacecraft with both Ku- and C-band capabilities. The satellite will be collocated with Intelsat 30 at 95 degrees west longitude for services over Latin America. The Ku-band payload, known as DLA-2, is designed to provide redundancy for DirecTV Latin America's distribution services in South America and the Caribbean. The C-band portion enhances Intelsat's existing C-band service infrastructure serving Latin America.

NASA Funds Aerospace Corporation for Super-light Debris Removing MiniSats

NASA has awarded The Aerospace Corporation a grant to investigate the possibility of developing an extremely thin spacecraft that would wrap around debris and remove it from Earth's orbit. The concept, called Brane Craft, is a 1-square meter spacecraft that is less than half the thickness of a human hair. The Brane Craft would only weigh about 50 grams, significantly less than even a standard CubeSat weight of about 1 kg. The 30-micron-thick spacecraft would have a very high thrust-to-weight ratio, and would be capable of travelling long distances, which opens up other possibilities beyond just the removal of space debris. "The Brane Craft concept is based on the one-dimensional compression of a complete spacecraft and upper stage into an essentially two-dimensional object in order to maximize power-to-weight and aperture-to-weight ratios," said Siegfried Janson, Aerospace Corporation's senior scientist of the microsatellite systems department and the lead investigator on the project.

Panasonic Increases Eutelsat Capacity Commitment

Panasonic Avionics has booked additional capacity on the Eutelsat 172A satellite to deliver broadband connectivity and TV services to commercial airlines over the Pacific Ocean region. Located at 172 degrees east, the satellite enables Panasonic to bridge the West Coast of North America to Asia, and down to Australia and Pacific islands, supporting rapid air traffic growth in the region. "We have experienced unprecedented growth across our aero, energy and maritime markets in Asia. Even though Panasonic has already contracted a large amount

of capacity on Eutelsat 172A and 172B, we've simply outgrown it," said David Bruner, vice president of global communications services at Panasonic Avionics. Panasonic leases capacity on four other Eutelsat satellites — Eutelsat 10A, Eutelsat 70B, Eutelsat 115 West B, and Eutelsat 117 West A — and has already secured capacity for future growth at this orbital location as the anchor customer on the high throughput payload on Eutelsat 172B, which is scheduled to launch next year.

Es'hailSat Signs Satellite Pact with Qatar Civil Aviation Authority

Qatari satellite company Es'hailSat, has signed a Memorandum of Understanding (MOU) with the Qatar Civil Aviation Authority (QCAA) to jointly develop satellite services. The cooperation agreement will see Es'hailSat providing satellite services to the meteorological department under QCAA. Es'hailSat and QCAA also agreed to cooperate in joint investments in Earth observation satellites and the dissemination of data and information to stakeholders and other relevant local and international organizations. The agreement enables both parties to provide satellite communications in disaster warning and disaster management during emergencies. "We are delighted to be working with QCAA to jointly develop Earth observation capabilities within Qatar and across the region. As a new satellite operator in the region we are always looking to build scale and increase the portfolio of services to support our stakeholders, partners and customers. This agreement with QCAA also enhances our efforts in supporting Qatar National Vision 2030," said Ali Ahmed Al Kuwari, president and CEO of Es'hailSat.

Bangladesh's First DTH Operator Shares Plans for Market

Two months ago Bangladesh got its first Direct-to-Home (DTH) satellite television service through Beximco Communications, a joint venture between Beximco Holdings and GS Group. Beximco Communications' RealVU DTH service is active in three divisions of Bangladesh today and has plans to expand throughout the rest of the country. Dmitry Lapitskiy, CEO

of Beximco Communications, told Via Satellite that the company plans to take RealVU nationwide by the end of the year, and sees now as the opportune time to launch satellite television. "Bangladesh is a growing market where potential is endless, and as we have entered the era of digitalization — keeping government's vision 2020 in mind — this is the right time," he said. Cable TV is not fully digitized in Bangladesh today. Lapitskiy said he would not refer to cable as competition to RealVU, but does see the satellite service as having an advantage. As the first mover for DTH in the country, he cited the combination of strengths from Beximco Communication's parent companies as a key enabler. "Beximco Holdings limited is one of the largest conglomerates in Bangladesh and has been running successfully for years. Having a strong local backbone gives us enough exposure to experiment being a start up in Bangladesh. On the other hand, GS Group is an international investment and industry holding company operating in TV broadcasting projects implementation and management across the globe. GS Group acts as a provider and technological integrator for RealVU. By possessing significant expertise in the field of implementing and managing national digital TV projects, GS Group helps us have the best service," he said. RealVU started in April with 105 channels, of which Lapitskiy said 26 are Bangladeshi, constituting almost 99 percent of the local channels. The rest are neighboring and international channels. Beximco Communications is broadcasting RealVU on ABS' satellite ABS 2 at 75 degrees east. Lapitskiy described having high power C- and Ku-band beams as optimal for South East Asia's connectivity requirements. For ABS, Bangladesh is a market with significant potential. Raymond Chow, ABS managing director for Asia and deputy COO, told Via Satellite that the operator would look to capture business there with ABS 2, along with the upcoming ABS 2A, which is currently scheduled to launch June 14 aboard a SpaceX Falcon 9 rocket. "Bangladesh has a population of over 150 million and a TV household of about 35 million. Cable TV penetration is around 20 percent of the market and is mainly concentrated in major cities. The majority is still in analog. Therefore, there is a huge growth potential for digital TV distribution. DTH platforms will speed up the digitization of the

TV market and will reach rural areas where cable was not able to penetrate easily, and enable viewers to enjoy more TV channels with digital quality," he said. Chow added that digitization of cable headends across the country will increase the supply of bandwidth and allow channel numbers to increase. He estimated the number of channels analog cable headend operators can provide to be about 90. ABS anticipates digitization will spark consumer demand for more content and more choices, prompting the market to adapt and compete. Chow also noted a trend in other emerging pay-TV markets of hybrid solutions such as DTH combined with cable, or DTH combined with Digital Terrestrial Television (DTT) gaining popularity as ways to attract more subscribers and extend coverage. Of RealVU's 105 channels, five are currently offered in High Definition (HD). Lapitskiy said Beximco Communications plans to bring HD sound and picture quality to all of Bangladesh by the end of next year, following this year's completion of nationwide service.

FTTH Council Africa Talks Fiber and Satellite

There is a major push to extend internet access and general connectivity across Africa which, being the second largest continent in size and population, is a big task. While satellite companies have many current and existing efforts to provide connectivity, fiber growth is advancing as well. Fiber-to-the-Home (FTTH) constitutes a small but growing percentage of fixed broadband connections. According to the FTTH Council Africa, Roland Montagne, principal analyst and director of market development at Idate, pegs the global number of Fiber-to-the-Home/Business (FTTH/B) at 232.8 million subscribers at the end of 2015. Juanita Clark, chief executive of FTTH Council Africa, told Via Satellite that the developing world lags behind in FTTH deployments today, but there is a groundswell of efforts to connect more people, which may soon boost these numbers. "As more countries appreciate the impact that effective broadband can have on their economies, they are making great attempts to ensure that their countries are not left behind. Today, almost every country in the world has a broadband strategy, and these are all very ambitious strategies that will

rely on high bandwidth technologies, of which fiber is a key infrastructure," she said. Clark said she expects some continents may see ubiquitous deployment of FTTH, whereas others will require hybrid solutions to ensure that underserved areas are connected. She also anticipates that the perception of FTTH as "connectivity for the elite" will fade as it is deployed in smaller towns and the countryside. Satellite will have a big role to play in connecting rural Africa, however, as already demonstrated by the numerous satellites from more than a dozen operators. Clark said both satellite and fiber will be needed to improve connectivity for a continent with such scale as Africa. "As an African, it is important that we distinguish between rural Europe and rural Africa. The sheer vastness of the continent means that many people in extreme rural areas will not have access to FTTH and will always rely on alternative technologies to ensure that they are connected," she said. "I believe that satellite has a big role to play and will be an important enabler for many communities." Historically she said satellite and FTTH tend to take siloed approaches to the market, but she believes that as the demand for bandwidth increases, there will be more collaboration. The number one obstacle to FTTH remains the challenge of physically deploying the infrastructure. Clark said that, in some countries, getting access to legal right of way to build fiber is a slow and cumbersome process that though improving, still slows down infrastructure deployments. "Education remains critical," she explained. "We need strong engagement with governments and regulators to ensure that they understand the importance of fiber optic infrastructure and remove barriers to entry. We would also like to engage more investors to stimulate the market. Africa has so many opportunities and possibilities and we want to take these to people that are looking to invest elsewhere." Clark listed Kenya and South Africa as the frontrunners for FTTH, with South Africa getting speeds of 100Mbps. Namibia and Mauritius have also announced FTTH plans. "To our knowledge there are small deployments in parts of the largest cities in Algeria, Egypt, Kenya, Mauritius, Morocco, Nigeria, and South Africa, and not very much at all elsewhere," Philip Bates, principal at Analysys Mason, told Via Satellite.

"The fundamental issue is lack of affordability, which means that the take-up in covered area tends to be low and turn-over of customers (churn) is high. Other major cities have metro networks, which aim to connect up mobile base stations, large enterprises and gated communities of high-end homes, but there's no mass market deployment. The fundamental issue is that mobile broadband is much cheaper to deploy, particularly when take-up is low and churn is high." According to Bates, FTTH represents only 4 to 5 percent of these connections in Sub-Saharan Africa, along with Latin America, compared to nearly 60 percent of those in the emerging Asia Pacific, 8 percent in Western Europe and 12 percent in North America. Bates said that the business case for FTTH improves if you can use aerial deployment, but that in Africa the duct networks are poor or non-existent. Therefore, it is only economic to build in areas where there is a high concentration of enterprise networks. When FTTH is present, Bates does not expect satellite will be used in the same area because once the high fixed cost is overcome, there is typically a low variable cost. However, he said the introduction of fiber could create new opportunities for satellite. "There is potential for fiber with satellite for last mile and satellite broadband in rural areas. I could see more of that happening in the future. Clearly a lot has happened on the international connectivity side in the last five years," he said. "Even inland countries are getting fiber from the coast. But typically those networks are targeting enterprises — hotels, a few high-end data communities — but not the majority of homes. [Those] still will be wireless last mile because copper networks are poor or nonexistent." Bates added that satellite can be used to extend the coverage of broadband networks in areas where the customer density is too low to support a fixed roll-out, or potentially to test the market for future fixed deployments. Satellite also has a role in backhaul, though he said this is more likely to be mobile backhaul than fixed backhaul. Clark said there is huge demand for high speed internet, but connectivity and affordability are critically linked. In Africa the cost to communicate is still very high, she said. Clark notes that fiber costs have come down dramatically in the past few years, and she expects they will continue to drop, but ultimately believes it will be a mix

of connectivity solutions that prove to reach the most people. Furthermore the debate between one technology over the other is more of an internal industry discussion, she said, rather than among consumers. End users are more inclined to view the different technologies as complementary based on purpose and place. "As a society we will need to ensure that we provide all people with connectivity. In Africa one is struck by such great need in so many areas, and if I insisted that each person in Africa must have FTTH connectivity that makes me 'umphuphe' (Zulu word meaning fool). Consider the hundreds of thousands of Maasai people that are nomadic. See, each area is different and has different needs; these needs require unique solutions tailor-made to the region it is supposed to serve. There is no one size fits all. However, we need clear and open dialogue about what is best in a particular area. This dialogue needs to include governments and regulators as we come together find solutions for all our people," Clark said.

Algerian DTV Channel Launches on Arabsat's Badr 5 Satellite

Arabsat and Algerian channel DTV have signed a contract today to broadcast the DTV channel over the Maghreb geographic region and Northwest Africa on the Badr 5 satellite. DTV is a general entertainment channel that includes many prominent West Algerian editors. Programming will also include entertainment, music, soap operas, and Arab and Western films for all age groups. The channel will be viewable to viewers in the Maghreb and Northwest African countries around the clock

Myanmar boosts satellite connectivity with Hughes, AsiaSat, Intelsat deals

Myanmar's Ministry of Transport and Communications (MoTC) has signed an agreement with Intelsat to use two of its satellites to aid the expansion of wireless networks. Under the terms of the deal, the MoTC will use C-band satellite services on Intelsat 902 and Ku-band services on Intelsat 906 for VSAT and cellular backhaul services. Commenting on the pact, permanent secretary at the MoTC Khin Maung

Thet said: 'Over the past few years, Myanmar has made significant strides in expanding access to faster and more reliable broadband connectivity throughout the country. With the help of Intelsat's Globalised Network, we will leverage their satellite solutions to extend 2G and 3G communications services beyond urban centers and ensure that all of our citizens have access to higher bandwidth, superior quality and more affordable mobile broadband connectivity.' In a related development, KBZ Gateway, a subsidiary of Myanmar-based KBZ Group, has partnered with Asia Satellite Telecommunications (AsiaSat) and Hughes Network Systems to provide high speed broadband services for government, business and consumer customers, the Myanmar Times reports. Under the deal, Hughes will build KBZ's new earth station in Bago and install antennas and other elements of its terrestrial network, whilst AsiaSat will provide satellite connectivity. KBZ claims that the new system will be capable of providing download speeds of up to 100Mbps, with the rate set to increase in 2017, when a third AsiaSat orbiter enters service. Finally, Southeastasianet Technologies Myanmar (Seanet) has also signed a pact with Hughes, enlisting the company to provide its Jupiter System satellite solution. Seanet plans to use the solution to provide VSAT broadband services to businesses nationwide, particularly in underserved areas. 'There here is a large pool of pent-up demand for internet service in Myanmar's business community,' Chairman Pyone Maung Maung explained, adding: 'The Hughes Jupiter System gives us a powerful tool for tapping into it with cost-effective plans that deliver high speeds and bandwidth allowances. Partnering with Hughes also gives us access to a broad and deep source of satellite networking experience that will prove invaluable in our expansion throughout Myanmar.'

DISA Awards \$73 Million In-Flight Connectivity Contract to ViaSat

The United States Defense Information Systems Agency (DISA) has awarded ViaSat a non-competitive, firm-fixed-price contract to provide senior leaders and their support staff with Ku-band and Ka-band communications using the company's subscription service

while travelling via aircraft. Fiscal 2016 operations and maintenance funding is approximately \$33 million, and the total cumulative face value of the contract is roughly \$73.2 million. According to DISA, performance will be primarily at the ViaSat Carlsbad location, Denver Networks Operation Center (NOC), and government care centers. The period of performance is June 1, 2016, through May 31, 2017, with two six-month option periods. The Defense Information Technology Contracting Organization, Scott Air Force Base, Ill., is the contracting activity. DISA said the U.S. government posted the synopsis/notice of intent on the federal business opportunities website, and while proposals were solicited, only one proposal was received.

Lockheed Martin Completes Critical Design Review of Arabsat 6A and Hellas-Sat 4/SaudiGeoSat 1

Lockheed Martin, Arabsat and King Abdulaziz City for Science and Technology (KACST) have successfully completed a comprehensive technical review of the commercial communications satellites Arabsat 6A and Hellas-Sat 4/SaudiGeoSat 1. To achieve this milestone, Lockheed Martin completed the Critical Design Review (CDR) of the satellites and each subsystem, demonstrating the satellites meet technical specifications and are ready for the next phase of production. With CDR complete and manufacturing underway, the Lockheed Martin team will now move further into the production process. The two satellites will provide television, Internet, telephone and secure communications to customers in the Middle East, Africa and Europe. Arabsat 6A will be located at 30.5 degrees east and Hellas-Sat 4/SaudiGeoSat 1 will be located at 39 degrees east. Both spacecraft will be designed for a 15-year service life, and will be manufactured in Denver, Colorado. Lockheed Martin is building the satellites based on the company's modernized A2100 platform. The company has five modernized A2100 satellites currently under contract, which are designed for a host of missions and customers around the globe.

iDirect, SpeedCast LTE Cellular Backhaul Test Tops 400 Mbps

VT iDirect and SpeedCast International have demonstrated GTP/LTE traffic being transmitted at speeds above 350Mbps on the downstream and



90Mbps on the upstream in lab tests with a single iDirect SatHaul terminal. This proof-of-concept demonstrates how satellite can help Mobile Network Operators (MNOs) extend the reach of their services. Cellular backhaul enables MNOs to scale their networks to cover larger geographic regions. With test results hitting 350Mbps on the downstream, iDirect's Digital Video Broadcast-Satellite Second Generation X (DVB-S2X) technology provides a proof-of-concept that essentially doubles previous levels of speed achieved in the market, according to the company. "After witnessing a new throughput record for GTP/LTE traffic being transmitted over a single iDirect terminal, we are excited about the benefits it can provide to our customers in terms of speed and efficiency. We continue to see growing demand from mobile operators and such technological advancements will be key to ensure our continuous success in meeting operators' needs," said Pierre-Jean Beylier, CEO of SpeedCast.

SES-9 ready to enter commercial service

SES's largest satellite over Asia-Pacific, adding a total payload of 81 36MHz transponder equivalents of which 53 in Ku-band are incremental, expanding SES's scale in global video and mobility verticals with important anchor customers already secured. SES S.A. announced today that its new SES-9 spacecraft is entering commercial service. SES-9 has successfully completed its testing and reached its orbital position at around

108.2 degrees East where it has joined SES-7 and will replace NSS-11. SES-9, built by Boeing Satellite Systems International, is the largest SES satellite to serve the Asia-Pacific region, with 57 high-power Ku-band transponders – equivalent to 81x36MHz transponders, out of which 53 are incremental. The new spacecraft will provide significant expansion capacity to serve the fast-growing video and mobility sectors across Northeast Asia, South Asia, India, Indonesia and the Philippines. The satellite will also be capable of supporting a range of Enterprise and Government applications. SES-9 has already secured business in advance of the satellite's entry in commercial service. SES will co-market SES-9 capacity with Indonesia's largest satellite telecommunications services company, PT Telekomunikasi Indonesia, to the Indonesian market. In addition, Sky Cable, the largest cable television provider in the Philippines, signed a multi-year, multi-transponder agreement for broadcasting direct-to-home (DTH) satellite TV channels. This week SES also partnered with Gilat Satellite Networks Ltd., a worldwide leader in satellite networking technology, to launch the SES Enterprise+ Hybrid Broadband in Asia. This innovative, hybrid broadband solution will use capacity from SES-9. The spacecraft was successfully launched by a SpaceX Falcon 9 rocket from the Cape Canaveral Air Force Station, Florida on 4 March 2016. Since then, the satellite has used both its chemical and electric propulsion systems to reach its assigned geostationary orbit. The satellite's platform and payload have since undergone extensive in-orbit tests. "SES-9 is key to expanding our capabilities for DTH video broadcasting and services in Northeast Asia, South Asia and Indonesia," said Martin Halliwell, Chief Technology Officer, SES. "Equipped with dedicated mobility beams, SES-9 is also well positioned to serve the fast-growing maritime and aeronautical sectors. The improved performance of the Falcon 9 launcher shortened the orbit raising phase and, in combination with the use of the highly efficient SES-9 electric propulsion system, resulted in remaining fuel on board to support services well beyond its 15 years design life. I congratulate the Boeing, SpaceX and SES teams, who together have done an excellent job."



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