SAMENA TRENDS

EXCLUSIVELY FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

A SAMENA Telecommunications Council Newsletter

Mr. Kaan Terzioglu
Chief Executive Officer
Turkcell

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Mr. Kaan Terzioglu
Chief Executive Officer
Turkcell

Telecom Operator and OTT Collaboration

Among the latest trends that our industry is witnessing, the potential for and the likelihood of, telecom operators working together in a viable manner with over-the-top providers (OTTPs), ranks above many.

For years, the discussion has revolved around OTTPs' use – some may argue, misuse – of operator network assets to make money, while operators figured out the best ways to deal with the fact that their networks and their customers had become a source of monetary value for those with no pressures to invest in infrastructure development or to fulfill burdensome regulatory and financial obligations.

Due to the investment of telecom operators, the availability of telecoms infrastructure and digital access technologies have become a reality over the recent decades, contributing directly to the human endeavor, and promoting market entry and access by players directly involved in digital communications and ICT development.

Now, however, for telecom operators, the focus has shifted from just investing in infrastructure and launching many of the same types of communication bundled offerings to focusing on and investing in customer experience management, deemed by many to be the ultimate differentiator. The modern operator aims to improve its financial performance while also revamping its customer-experience management strategies – improving which will indeed have a direct impact on the financial performance and on thwarting competition.

From the OTTP perspective, the OTT communication model has matured. This, combined with a set of realizations – for example, that, one, operators, today, are experiencing a change in mindset and are beginning to consider OTTPs as less a threat and more as potential partners, and, two, the rising acceptance and maturity of OTT based communication as a viable alternative mode of connecting, and to note the investment pressures on OTTPs themselves from the OTT investor community itself – presents a strong reason for OTTPs to seek closer relationships with telecom operators. Ultimately, it may just be about the customer and who, telecom operator or the OTTP – makes most use of such existing relationships.

The current situation with regard to communication services provided by telecom operators and OTTPs, and how the customers and the regulatory bodies benefit from it, has certain complexities. However, knowing that operators want to recover lost revenues and monetize their network assets, OTTPs require moving to the next phase of market capitalization toward greater monetization and leveraging customer relationships, and regulators want fair play as well as untapped revenue sources, the possibilities of closer communication across the aforementioned stakeholders have become much more real with time.

SAMENA Council, based on the perspectives of its own operator members, feels that telecom operators are highly likely to enter into OTTP partnerships over the near future. What they would require as incentives, include fair policies and regulatory approaches that promote such needed collaboration within the industry. Many of the developing ones are increasingly sharing in the prosperity brought forth by socio-economic integration, driven by digital communication and accelerated digitization. Such acceleration can be achieved with a greater success rate by fostering integration and collaboration within the communication industry.

Yours truly,

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Chief Executive Officer
SAMENA Telecommunications Council

Mr. Kaan Terzioglu
CEO
Turkcell

Kaan Terzioğlu was appointed Turkcell's Chief Executive Officer on April 1 2015. He began his professional life in 1990 as an Independent Auditor and CPA at Arthur Andersen Turkey. In 1992, Mr. Terzioğlu joined Arthur Andersen USA as the IT Strategies and Security Specialist, and in 1994, began working at Arthur Andersen Belgium as the Leader of Information Management and Digital Strategy Services. In 1998, he was appointed Vice President of Consultancy Services Turkey Operations. Between 1999 and 2012, he served as the Team Leader of E-Commerce Strategies for the EMEA region, Sales Director of Advanced Technologies for the EMEA region, Managing Director of Technology Marketing Organization for the EMEA region, and Vice President of Central and Eastern Europe at the Cisco Systems Brussels branch, respectively. Between April 3, 2012 and April 1 2015, Mr. Terzioğlu was a Member of the Board of Directors at Akbank, Aksigorta A.Ş., Teknosa İç ve Dış Ticaret A.Ş. and Carrefoursa A.Ş. Kaan Terzioğlu graduated from the Department of Business Administration at Boğaziçi University.

Q: After acquiring the largest part of LTE spectrum, you deployed your 4.5G network for LTE-Advanced services on April 1 this year. How is your network coverage and user penetration today?

A: When investing heavily during Turkey's spectrum auction, we knew that this was the ground work to influence the future of technology and communications in Turkey. As you know, the auction was technology-agnostic – an extremely visionary step on the side of the regulator. By revamping our network with the latest LTE technologies, we, at Turkcell, made sure that both our customers and our country make the most of this important opportunity for many years to come.

Since Day 1, we serve our customers in all 81 cities of the country with 4.5G We offer exceptional speeds with carrier aggregation. We are very glad to see that the demand from our customers has more than matched our own enthusiasm. We had 1 million people on our LTE network on the midnight of March 31st, within three minutes of our launch. As of the end of Q2 (the first quarter with 4.5G), the data consumption on our network has increased by 33%. Our population coverage is 82% and increasing day by day. Half of our mobile customer base has indicated their intention to use 4.5G and we already have more than 5 million active users.

Responding to the demand from our customers, we have accelerated our CAPEX investments – we'll concentrate our 4.5G CAPEX plans within this year as opposed to having a more spread out investment plan that covers 2017.

Q: What type of new LTE services are your providing in comparison with the previous technologies?

A: Turkey was a late-comer in the LTE game but we have turned the situation into an advantage. The spectrum that we acquired is technology-agnostic; we have launched 4.5G with the most advanced releases of equipment. The technology that we are using helps us attain speeds and capabilities which would not have been within reach with earlier technologies. It also puts us on track for future 5G development.

When launching 4.5G in April, we had set the bar high and said that we would transform the TV experience on small screen. We have already started to achieve that – the mobile app downloads of our TV platform TV+ have reached 1.8 million as video experience on mobile improves to an unprecedented level. The average mobile video viewing time on Turkcell TV+ has almost tripled since January.

4.5G also helped us redefine other digital products such as our music app Fizy. Fizy now has live broadcast capabilities. Earlier this year, we had simultaneous broadcast from 3 cities. Over the weekend of August 14th, 230 thousand people tuned in to watch a concert live – and we keep on trying this model on Fizy, with matching levels of success.

We are also experimenting with VR technologies. We have collaborated with Ericsson in the VR broadcast of a basketball game and also used VR in Turkcell Platinum Bosphorus Cup.

Q: You have changed your mobile business approach with aggressive OTT services such as BiP, FIZY, Turkcell TV+, etc. What is your major strategy in ICT sector to enriching your conventional telecom services portfolio?

A: Our growth strategy overall is three-pronged: We will become the market leader of the integrated market in home country Turkey; we will grow our footprint globally regionally through organic growth in our subsidiaries and selective M&A; and finally, we will become a top digital services provider both in Turkey and globally, starting with our region.

The focus on services has already started paying off with 46% of Turkcell Turkey's revenues in Q2 coming from data and services. The revenue growth in this line of business in Q2 is 39.3%. We observe that our OTT services not only drive up revenue but also reduce churn significantly. On the other hand, they also help us redefine the concept of a "Turkcell customer". All our digital products are all-access - open to the customers of other mobile operators. We have been successful in reaching out to new customer segments - 41% of our BiP customers are not subscribers of Turkcell as a mobile operator.

So in the near future, we plan to maintain our all-access approach; continue to focus on bringing together the best of the GSM world with the best of the OTT world; and explore every opportunity to use technology, including 4.5G, to expand the capabilities of our services. I think that as we move into 5G, a lot more could the done in the services space – joined by AI, AR and VR technologies, mobile services can truly change the experience of communication.

Q: What type of innovative services are being developed in-house? Are you exporting any such services?

A: Turkcell has the largest R&D center of the industry in Turkey with 750 employees. Every year, we rank among the very top companies across all sectors in patent applications. Turkcell Group in general also has a similar focus – for example, in Belarus, we have an R&D company called Lifetech which employs more than 120 people. These R&D centers are the backbone of our products and services portfolio.

Overall, we are a firm believer in partnerships and constantly explore opportunities to grow with a creative, digital ecosystem. We continue to develop "My Dream Companion" - a mobile app for the visually disabled – along with our partner Young Guru Academy. The app was awarded twice by the GSMA for use of mobile for accessibility and includes features which are global firsts such as the first movie audio-description on a mobile app.

Given our R&D focus, we were among the first companies in the region to launched partnerships for 5G R&D. We have bilateral cooperation agreements with Turkish defense industries company ASELSAN as well as global giants Ericsson and Huawei.

Q: You call Turkcell as Integrated Telecoms and Technology Provider. To this effect, what is your target for the next three years?

A: We have indeed defined Turkcell as an integrated operator and we are glad that our customers are keen to make use of all the different alternative services that we can provide. 20% of our mobile customers are now using Turkcell for voice, data and an additional mobile service such as BiP, Fizy, TV+, Smart Cloud and the like. On the fixed side, we are happy to note that 33% of our residential fiber customers have also signed up for IPTV services through TV+.

Overall, our customers are increasingly thinking of Turkcell as an end-to-end provider for a whole range of their communication and technology needs. We have also recently started offering single-billing, a unified customer care - where our call center operators can help with the entire range of mobile and fixed products – as well as a single experience in Turkcell stores. All of these consumer-facing aspects make us Turkey's first real integrated operator.

We will continue to deepen this integration and increase multi-play ratios in both mobile and fixed as we continue to grow in the coming years.

Q: You and other Turkish alternative ISPs have recently announced plans to launch a joint venture company for greater fiber penetration. What is the purpose of this initiative?

A: Turkcell has been investing in fixed communications for quite some time and today we are the market leader in fiber and the leading operator in FTTH. In fixed, we already serve 1.6 million customers and 59% of that are fiber customers. We'll continue to grow in this area, but we believe that our own growth is not enough. Turkey as a whole needs to achieve a much greater level of fiber penetration and we believe that the most efficient way of doing this is through joining forces.

Therefore, we took the initiative – along with other alternative ISPs – to launch talks for the creation of a joint venture company increase fiber penetration and bring viable FTTH solutions to millions of homes and businesses. The JVC will allow for the more efficient use of the existing infrastructure, create better conditions for future investments while bringing us closer to Turkey's 2023 growth targets. Overall, Turkish economy's resources will be used more efficiently and customers will be able to benefit from services-based competition.

Q: You opened an extremely large data center in Istanbul in June. How big is it and what is your data storage plan for Turkey and beyond?

A: Our new data center in Gebze 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. 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.

It is an investment that we are extremely proud of – it is a very important step not only for Turkey but for the entire region. Facilities like these ensure that the data generated in our part of the world stays here and can be stored, analyzed and accessed more efficiently. Our data center will be an important asset as our region gets fully integrated into an ICT-focused mode of industrial production.

With our new data center in Gebze, our total data center space tripled to reach 52 thousand m2 . We have also announced plans to open two new data centers in Ankara and Izmir, and upon completion of these two data centers, we will have 107,000 m2 of data center area.

Q: Nearly 3 million Syrian refugees have been living in Turkey for several years. Communication is defined as a human right. You met the UN Secretary General Ban Ki-moon representing the telecommunications community in the World Humanitarian Summit in May. What can telecom sector do for those shelterless people who live at refugee camps in a foreign country?

A: As you know, our home country Turkey is the top refugee-hosting nation in this heart-wrenching conflict. Turkey has welcomed Syrians at this difficult time with a full sense of humanitarian duty – and we are proud to have mobilized our resources to connect Syrians to life in the worst humanitarian crisis since World War 2.

As Turkcell, our role is many-fold. The first layer is connectivity. We have responded quickly to acute situations like refugee influx, but we also invested heavily in the regional network over time as southeastern Turkish cities. Today, we are the top operator for Syrian refugees in Turkey, serving more than 1.2 million Syrian customers in Turkey's overall Syrian population of about 3 million. We provide services in 26 camps.

However, our work doesn't stop with connectivity. Turkcell operates the only Arabic-language call center in Turkey. We are now mobilizing our services-focused model to facilitate the integration of our guests into their new homes. Turkcell Academy is working on a mobile application which is focused on teaching basic language skills, and on facilitating the lives of refugees with location-based services, frequently asked questions including guidance on registration, obtaining identification documents and the like. We also intend to expand the app to include video learning and instant audio translation (Turkish-Arabic) in the near feature.

We also work with innovative partners to bring online education opportunities to the camps on the back of strong connectivity. We'll have a number of announcements coming up in this area, I believe that there is a strong potential for our work to be an example to the region as we all struggle with a very difficult period in our collective history.

Q: Turkcell has operations not only in Turkey but also in other 8 countries. Do you have any strategy to increase your foot-print? Where?

A: Earlier this year, we have set the goal of serving 100 million customers globally – including through digital services. Turkcell Group already serves close to 70 million customers in the countries where we operate, and we believe that our experience in Turkey and other Turkcell Group countries create a very solid foundation for our future ambitions.

We are keen to evaluate potential M&A opportunities especially in the countries with which have geographical and cultural affinities. This definition automatically includes the Middle East, North Africa, Balkans, Caucasus and Central Asia. We obviously look for a number of financial and operational criteria – including a balanced mobile and fixed portfolio and/or the opportunity to create this kind of an environment – but I believe that, overall, we have a lot to offer in the countries of the region.

Our focus on services, which I have elaborated on previously, is not only domestic but also regional and global. Our flagship global app BiP has already been downloaded close to 800 thousand times outside of Turkey, including in countries where Turkcell subsidiaries do not operate, such as Iran and the United Arab Emirates. We look for opportunities to make these products more relevant in each local market, and would be happy to explore options to work with fellow operators or service providers on different models.

Last but not least, we will increase our footprint with organic growth as our subsidiaries become greater players in the countries where they operate. lifecell – our subsidiary in Ukraine – has rolled out 3G about a year ago. Life:) which is our subsidiary in Belarus has started 4G services in Minsk on August 8th. We believe that both cases have a lot of potential to grow with greater focus on data and services.

Q: What is the future of telecom operators in the SAMENA Region?

A: SAMENA unites operators from a very special region. The global telecommunications world can see a picture of lower levels of disposable income and ARPU, but we, as the operators of the region, fully understand the potential of our customers. We cater to populations that are overwhelmingly young and have high demands of being connected to the rest of the world and of benefiting from the same services and products. Telecoms in general and mobile communication in particular can achieve more in this part of the world in terms of enriching and facilitating their lives through access to banking, education, information and entertainment services. We can also help businesses thrive in the connected world and claim a space in the global commercial landscape through connectivity and best-in-class corporate services.

In order to achieve this, we need to increase penetration of networks – including fiber – and smartphones. We need to better communicate with health, education, transportation, energy and financial services sectors to create solutions that can help them leap and help us fully use the potential of communication technologies. All of these industries can serve our societies much better and in much more efficient ways as telecoms services become ubiquitous, reliable and affordable. We also need to create more content in our local languages.

Q: You are one of the Board Members of SAMENA Council. What should be the role of this association both regionally and globally?

A: SAMENA is the most influential telecommunications association of the region. As a platform that unites the operators of the region, it is a very significant actor in voicing the shared concerns of its members on local, regional and global stages. We are glad to see that the annual SAMENA Leaders' Summit becomes more relevant and engaging every year.

SAMENA also brings together companies that operate in very different regulatory settings – as such, it is an important platform for exchanges of experience and know-how between operators and countries. We need to intensify these exchanges, and also engage at a deeper level with institutions like the GSMA, ITU, World Bank and WEF. In many countries, it can also be a platform for fostering dialogue with stakeholders that are not primarily telecoms operators.

OVER-THE-TOP (OTT) SERVICE TRENDS

Shifting Over-the-Top (OTT) Service Trends around the Globe and the Potential for Telecom & OTTP Collaboration
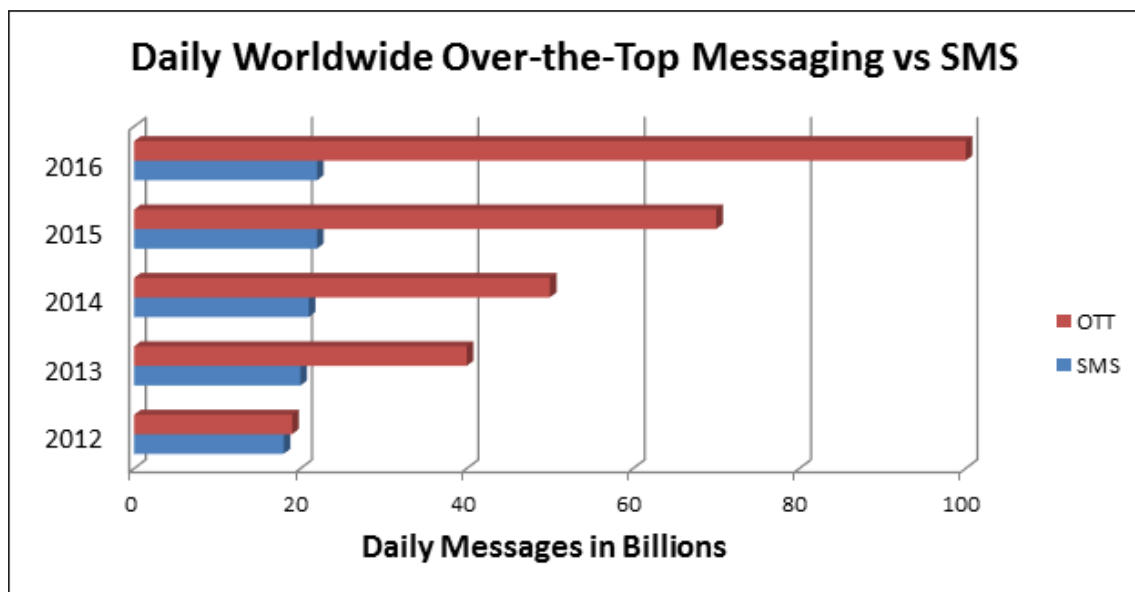
Source: Data approximated from analysis by Informa Telecoms & Media

Use of OTT Voice Apps among Mobile Users
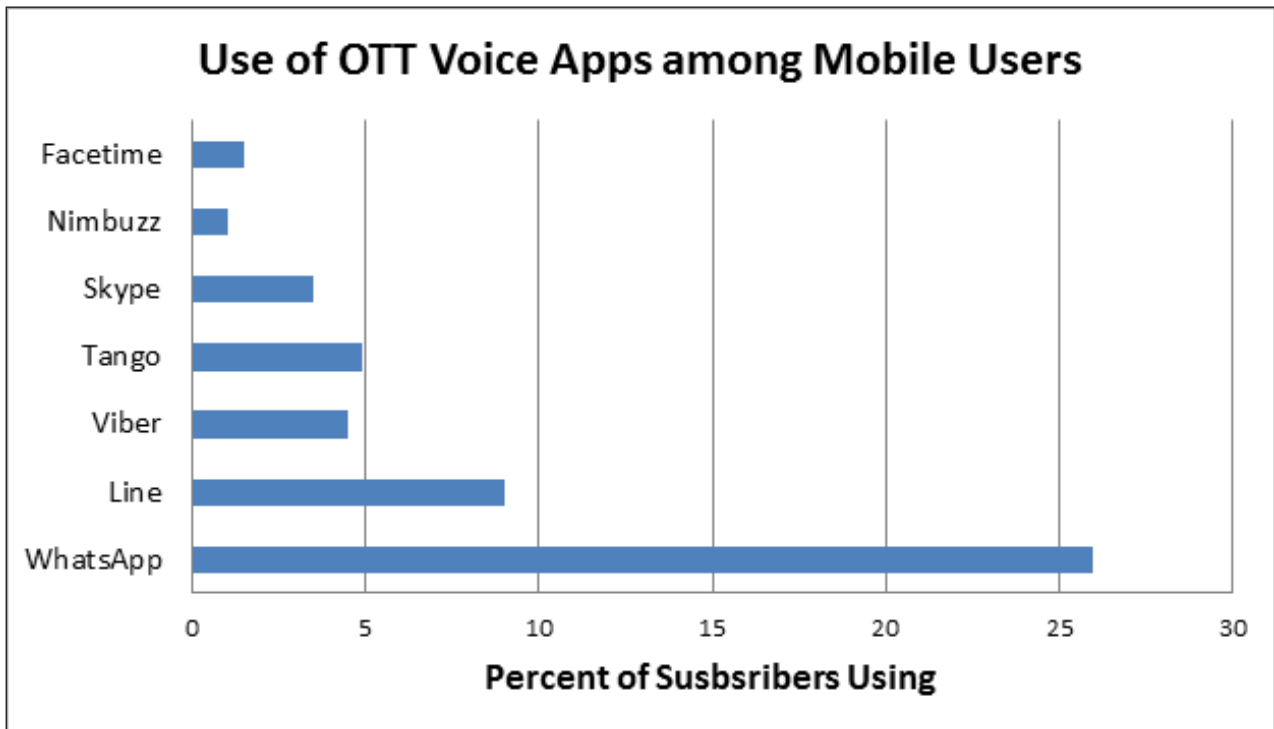
Source: Data approximated for illustration purposes based on analysis by Alcatel-Lucent and Nokia

MEMBERS NEWS

MEMBERS UPDATES

STC's revenue up 6.6% in 1H16

Saudi Telecom Company (STC) has posted a net profit of SAR4.241 billion (USD1.13 billion) for the six months ended 30 June 2016, a decrease of 16.2% from SAR5.062 billion in the year-ago period. STC attributed the decline in net profit to a rise in cost of services and a SAR616 million increase in operating expenses during H1 2016, which was mainly due to: a SAR138 million decrease in selling and marketing expenses compared to 1H15, a SAR357 million increase in general and administrative expenses, and a SAR397 million increase in depreciation and amortization. Gross profit for the six-month period totaled SAR14.582 billion, down marginally 0.9% from SAR14.708 billion in the corresponding period of 2015. Revenue from services rose 6.6% year-on-year in the first six months of 2016 to reach SAR26.335 billion, while EBITDA amounted to SAR9.608 billion, a decrease of 3.5% from SAR9.953 billion the previous year. STC Group CEO Khaled Bin Hussain Biyari stated: STC's revenues from services for the second quarter increased 11% and gross profit for the same period increased 3% compared to the comparable period last year. Therefore, we assure that STC will continue to expand its fixed and mobile networks and will continue to invest in its infrastructure to introduce new technologies for our individual, residential and business customers in order to reach the highest levels of customer satisfaction and enrich our customer's experience. These investments will support STC strategic role in achieving sustainable growth, enabling government institutions and private sector transformation to the digital economy in connection with the recently announced major national transformation programme and Saudi Vision 2030 which will bring about important developmental changes in all vital sectors of our country.'

Türk Telekom to continue infrastructure investments

CEO says Türk Telekom closed down network where coup plotters were active and provided extra data services to security forces. Türk Telekom played a major role in helping the elected government overcome July's coup attempt, the CEO has told a leading Turkish newspaper. Group CEO Rami Aslan told the newspaper, Hurriyet, that the operator worked with the government to deactivate the network in areas where plotters were active. The company also provided extra data services at the request of the security services,

Aslan said. "Türk Telekom played a significant role in making the coup attempt fail," he told Hurriyet"We worked in complete connection with the Information Technologies and Communications Board [BTK] and the Transportation, Maritime Affairs and Communications Ministry," Aslan said, according to Hurriyet. "We immediately deactivated the telecommunications services in a number of key points where the coup plotters were active, such as the presidency of general staff, the Akıncı air base and the Eskişehir air base, among others, in line with the information from the BTK and the ministry. The data speed was also accelerated in the places where security forces were needed." He said Türk Telekom, which is 30% state owned, will continue its planned investment programme.

Batelco inks cloud service partnership with Microsoft

Bahrain's Batelco has signed a partnership agreement with Microsoft to improve and elevate productivity for SMEs through the launch of key solutions. As part of the partnership, Batelco has added Microsoft Office 365 to its portfolio of cloud services. Microsoft Office 365 is a web-based version of Microsoft's Office suite of enterprise-grade productivity applications and comprises the most popular and in-demand office services. Two packages, Office 365 Consumer and Office 365 Business, have been designed to suit the needs of small businesses and individuals. Microsoft Office 365 package includes Word, Excel, PowerPoint, OneNote, Outlook, Publisher and Access. Also, optional add-ons include installation and training and one year support for back up services. Batelco cloud and ICT product marketing senior manager Hussain Mohammed and Microsoft Bahrain and Oman General Manager Sherif Tawfiq signed the agreement at Batelco's Headquarters on August 8 in the presence of officials from both organizations. The Microsoft Office 365 packages are available for existing and new customers.

Omantel reveals dedicated division for integrated ICT solutions

Omantel, the Sultanate's premier telecoms provider, today announced the formation of a dedicated division focused on delivering Information Communication Technology (ICT) services to public and private sector clients across the Sultanate. The division offers clients unprecedented opportunity for comprehensive technology solutions, made possible by Omantel's leading global partnerships and expansive network infrastructure. The formation of the new division aligns with Omantel's vision to bridge the digital divide, roll-out smart technology and launch innovative business and e-Government services, accelerating Oman's ascension towards better ICT preparedness and global standings. Commenting on the formation of the ICT division, Omantel CEO Talal Al Mamari noted, "We are pleased to unveil Omantel ICT, a newly formed division that enables Omantel to act as the single point of contact for integrated ICT solutions including connectivity and next generation smart technologies. The division will conduct work integral to achieving the ICT objectives set out by the wise government of His Majesty, including the development of digital society, and to use the latest technologies to drive innovation, enable economic diversification and to support the nation's development march. The new division offers unparalleled ICT solutions to clients across the Sultanate, strengthening our role as the leader of the digital awakening within Oman. The division is actively engaged in the roll-out of a number of strategic digital platforms across multiple vital segments of business and society." The rapid convergence of technologies as well as the customers' evermore entangled requirements blur the lines and invite more integrated solutions that relieve fragmentation challenges on the side of the customer while promising better commercial efficiencies brought about from the economies of scale of such offerings. The overall strategy for Omantel ICT underlines how the regional economy is undergoing a massive change driven by digital transformation. For companies, their ICT systems are shifting from being isolated support systems to becoming mission-critical production systems that support efficient production, operation, and decision-making. To succeed in this new era, organizations are embracing new ICT tools including Cloud, Big Data, the Internet of Things (IoT), and Software-Defined Networking. Companies are increasingly focusing on opportunities across a cloud-pipe-device architecture to accelerate their digital transformation plans. The new division encompasses all these technologies, creating a new ecosystem that completely integrates ICT infrastructure providers and industry partners to create greater value for organizations and companies in the Sultanate. Leading the new division is Eng. Fadi Nasser, a Silicon Valley veteran and formerly the Chief Alliances Officer at regional leading ICT provider. Speaking about the benefits the new division offers, Nasser mentioned, "With the establishment of the new division, ICT solutions are now consolidated onto locally owned and operated platforms and that clients no longer need to invest in their own ICT infrastructure and applications including the costly constant upkeep of underlying technologies and management of security threats. By partnering with Omantel ICT, our clients become free to focus on their core business without undue distraction." A recently published study from the American research and advisory firm Gartner points to Middle East IT spending reaching $212.9 billion in 2016, which represents a 3.7 percent increase from 2015. The report notes the continued growth in the Middle East IT sector is being driven by rapid uptake in the digital business arena, and an environment increasingly driven by an interconnected world. The substantial industrial refocusing to generate new economic development beyond the oil industry, with deepening smart cities initiatives and adoption of the Internet of Things (IoT), is identified as a high priority in the region. This demand is also prioritizing development for smart city solutions in education, transportation, safety and health. "At Omantel, we also have the ability to leverage existing networks and our cutting edge facilities right here in the Sultanate, resulting in improved access performance and guaranteed data jurisdiction, a critical advantage over ICT platforms which are based abroad. Additionally, given Omantel's size and market standing,

we partner with major international technology providers in order to offer our clients some of the world's latest Tier-1 integrated solutions. By choosing Omantel for their complete ICT solution, customers also have the opportunity to benefit from economy of scale principles, to receive better value and advantageous commercial models," concluded Fadi Nasser. Investing in the future of the nation, Omantel connects even the most remote communities of the Sultanate to each other and the rest of the world. Omantel is the Sultanate's first and leading integrated telecommunications services provider, enabling the digital society to flourish, allowing new ways of doing business and delivering a world of information, news and entertainment. Today, Omantel boldly innovates to deliver the highest levels of customer satisfaction, the broadest and most reliable nationwide network while investing for Oman's future development.

Sudatel's youth network initiative (AYWA) sponsors one of the youngest participants in the Olympics

As part of its young people network program, "Sudani" decided to sponsor one of its youth network subscriber participating in Rio 2016 Olympics. Haneen Sami, 15 years old, is one of the successful stories sponsored by "Sudani" via its youth network initiative (AYWA) designed especially for the youth segment. The program offers special services, offers and ways of communication, adapted to the youth life style in order to create a positive energy inside youth communities and to support them making their dreams come true. Haneen is the youngest Sudanese swimmer to participate in Rio 2016 Olympics and she is also one of the youngest participants in the Olympics in general. She started her journey of success when she was 6 years old with a full support from her family. She joined the Sea Scout club in Khartoum when she was 10 years old and she participated in different local and international competitions. She won more than 23 Gold medals in national and international competitions. After her

participation in the international league of swimming in Kazan (Russia, 2014), she has been selected to participate in Rio 2016 Olympics. Commenting on this sponsorship, Wafa Izzelarab, Marketing Communication Senior Manager of "Sudani" said: "We are so proud to see a Sudanese young girl in an international competition. Haneen is our ambassador to Rio and we hope to see more Sudanese young people taking part in such competitions, internationally. Our company is encouraging the youth segment in all areas and this is why we created a dedicated network for them".

Ooredoo Oman to further invest millions on network expansion

Ooredoo Oman, leading Omani communications provider, which enjoys almost a 3-million client base, is investing RO 60 million this year in expanding its network and enhancing service quality to its customers, according to its CEO. Speaking to the Observer, Greg Young, CEO, Ooredoo Oman said, "A substantial amount will be invested in enhancing our 4G Internet quality and coverage, with the aim of providing additional value to our customers". The telecoms service provider also completed their fibre optic network across the length and breadth of the country, spanning 5,500 km and more than 100,000 households will be able to benefit from their superfast fiber home broadband to their doorstep by the year end. "Next year we will see a further increase to 180,000 households who can enjoy superfast speeds, as we continue to push our great value-added plans out to the market. Once customers have experienced fiber, they won't want to go back", Young added. Ooredoo has seen a growth rate of 3.2 per cent in terms of overall customer base, helping it to reach almost 3 million customers this year; mobile customers growing at about 2.5 per cent, fixed customers by almost 34 per cent, mobile broadband by 8 per cent and data revenues have grown to become more than 50 per cent of total revenues.

Ooredoo's group customer base up 14% to 130 million

Revenue at Qatar-based Ooredoo Group reached QAR15.914 billion (USD4.366 billion) in the first six months of 2016, as growth in Qatar, Oman, Indonesia, Myanmar, Algeria, Kuwait, Palestine and the Maldives drove a 2% rise in group sales in local currency terms, but foreign exchange effects caused a reported currency revenue decline of 1%. The group's total customer base increased by 14% year-on-year to 130 million at 30 June 2016, driven by strong mobile growth in Indonesia and Myanmar. Group EBITDA rose marginally from QAR6.456 billion in H1 2015 to QAR6.478 billion a year later, with an improved EBITDA margin of 41% in 1H16, up one percentage point. Group net profit attributable to Ooredoo shareholders increased by 46% to QAR1.462 billion, driven by strong contributions from Indonesia, Myanmar and Algeria, supported by positive forex movements. Underlying data revenue increased to 39% (QAR6.2 billion) of consolidated revenue in H1 2016 (H1 2015: 34%), whilst B2B revenue increased by 5% to QAR2.8 billion reflecting Ooredoo's ongoing investment in services for business customers. Recent developments highlighted by Ooredoo include its market-first launch of 4G LTE in Myanmar (May 2016) and pre-commercial LTE phase finalized in Algeria (July 2016), whilst 4G networks are now operated in eight of Ooredoo's ten main markets.

Microsoft launches UK, Italy carrier billing

Following the launch of carrier billing in the US, Germany and Switzerland, the companies have expanded their agreement to bring direct carrier billing to Windows Store customers in the UK and Italy, through respective partnerships with O2 and Wind. "Microsoft is a superb partner for Boku,

and our relationship has been made even stronger with the addition of UK and Italy," said Jon Prideaux, CEO of Boku, which has more than 260 carrier connections, reaching 4 billion mobile subscribers worldwide. Microsoft 10 customers on O2 or Wind subscriptions can use their mobile account as a payment option when making purchases in the Windows Store. Recent Kanter statistics indicate that O2 owns 33% of all cellular plan subscribers in the UK and Wind owns 33.5% of all cellular plan subscribers in Italy. Prideaux addd: "In a matter of months, our agreement with Microsoft has expanded from one major developed market to five, and covers all Windows 10 devices; from phones and tablets, to desktop computers. This rapid expansion, with much more to come, is proof positive that carrier billing is becoming the world's preferred alternative payment, regardless of consumer access to credit or bank cards." According to Ovum, OS app stores are predicted to be the largest revenue-generating segment for carrier billing by 2017. Windows 10 is seeing steady growth globally, having already been installed on more than 350 million devices. Carrier billing has experienced a surge over the past year with Microsoft's launch of carrier billing coming shortly after Apple's adoption of carrier billing for iTunes, which were recently launched in Germany and Russia. Further market rollouts with new carriers and Boku, which is widely reported to be powering carrier billing on iTunes, are expected over the coming months.

PCCW takes equity in STX to offer unique content across Asia

Hong Kong quad-play provider PCCW Media has acquired an equity interest in US-based STX Entertainment in order to bring more premium content to viewers in Hong Kong, South East Asia and India. STX specializes in the development, production, marketing and distribution of talent-driven films, television and digital media content, with a unique ability to maximize the impact of content across worldwide, multiplatform distribution channels.

As part of the deal, PCCW has signed an overseas content distribution agreement with STX to bring original and first-run Hollywood content, including recent US hit Bad Moms, as well further strengthening its content offerings of its over-the-top (OTT) and pay-TV businesses by co-producing regionally tailored programmes for PCCW to distribute across its pay-TV and OTT services in Hong Kong,

Southeast Asia and India. "The new alliance represents an important milestone in expanding PCCW's strategic investments into compelling content creation, not only for audience in Hong Kong but also for international audiences in markets which we operate," said PCCW Media Group MD Janice Lee. "STX's wide release of films and scripted television series can also be distributed across PCCW's pay-TV and OTT platforms, thus bringing the best content to viewers in Hong Kong and in the region."

PCCW Global and Alibaba Cloud expand strategic cooperation to collaboratively protect businesses against cyber attacks

Alibaba Cloud, the cloud computing arm of Alibaba Group, and PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications service provider, jointly announced today their expanded strategic collaboration to provide cloud based anti-DDoS (distributed denial-of-service) security products to enterprises. The two companies have cooperated to provide network and IDC (Internet Data Center) services in Hong Kong since June 2015. The new collaboration will deliver Alibaba Cloud's world-class anti-DDoS products to international business customers through PCCW Global. Ali-

baba Cloud's anti-DDoS products sold and distributed through PCCW Global will offer businesses comprehensive protection against all types of DDoS threats, including complex layer 7 application-level attacks. The automatic cloud-based service monitors compliance violations and security breaches to provide real-time threat visibility. Mr. Marc Halbfinger, Chief Executive Officer of PCCW Global, said, "We are pleased to be playing a role in extending Alibaba Cloud's capabilities to new markets. The relationship with Alibaba Cloud is a remarkable opportunity to provide our combined customers with the very best in data security, customer-service quality, and network coverage. Adding Alibaba Cloud's security products to our threat identification systems will offer enterprises a holistic perspective of complete security needs." Mr. Sicheng Yu, Vice President of Alibaba Group and General Manager of Alibaba Cloud Global, said, "We are excited to deepen our strategic cooperation with PCCW Global. It is a great collaboration to empower both of our customers in Hong Kong and Asia by leveraging Alibaba Cloud's robust cloud security capability and PCCW Global's expertise in international network." Alibaba Cloud's cloud platform has a proven track record in handling extremely high traffic levels which can easily be a target for DDoS attacks. Alibaba Cloud's success in processing a peak order volume of over 140,000 orders per second during Alibaba Group's 11.11 Global Shopping Festival last year is a powerful validation of Alibaba Cloud's security reliability. DDoS attacks occur when multiple systems are used to flood the access capacity of a targeted system. In recent years, sophisticated DDoS attacks have increased in frequency, size and complexity. Alibaba Cloud successfully thwarted one of the world's largest cyberattacks on December 20, 2014, protecting a gaming app company from a 14-hour long DDoS attack with peak attacking traffic of 453.8 gigabits per second. Not only has Alibaba Cloud nullified some of the largest cyberattacks in history but its security technologies are now scalable such that PCCW Global will be able to offer service guarantees for various forms of security applications. Since the acquisition of Crypteia

Networks in 2014, PCCW Global has been a leading provider of cybersecurity for global enterprises across multiple network layers. In China, Alibaba Cloud has developed its own world class anti-DDOS software and security services. This collaboration will further protect their customers and businesses from the ever increasing threat of cyberattack.

du announces UAE 5G Innovation Gate (U5GIG) for development of next generation 5G & IoT systems

UAE-based telecommunications service provider - du, announced the establishment of UAE 5G Innovation Gate (U5GIG). The U5GIG has been envisioned to be a consortium of technical and academic organizations in UAE as well as global telecom vendors to plan and use their expertise to define and develop a global 5G network that will radically change lives across the UAE. du is taking the lead

to build a UAE 5G Innovation Lab to prototype, test and validate early 5G and Internet of Things (IoT) equipment and services. U5GIG will also allow universities and technical organizations across UAE to work together and participate in the development of the 5G ecosystem, and for academia and industry to test applications and

technologies in a real-world setting. Ibrahim Nassir, Chief Human Capital & Administration Officer at du, said: "We are excited to announce this initiative that will allow the UAE to effectively compete with the advanced markets and bring UAE's voice to the technology development debate. The UAE will be a major industry development leader and we can only do this through collaboration between industry and academia. We plan to work closely with suppliers and SMEs and eventually train future UAE academic and industry leaders. The programme will be open for all UAE universities and industrial organization that need to be part of the state-of-the-art 5G ecosystem development." "The inauguration of U5GIG adds further impetus to the initiative of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of UAE and Ruler of Dubai, in establishing the UAE as a global leader in all aspects and as an innovator in technology in the Middle East region," he added. du, as well as other consortium members will jointly supervise a 5G research programs with the major UAE universities and based on carefully selected practical 5G research topics. Accordingly, UAE shall contribute and participate in the standardizations and development of 5G in forum such as 3GPP, ITU, and GSMA. Although 5G is a few years

away, the U5GIG will be pushing the boundaries of what is possible now and in the future and participate in the development. The true impact of 5G will come from the innovative applications and IoT-use cases, the new network will enable. The aim of this initiative is to bridge the gap between telecom industry and academia in

UAE by establishing and maintaining close, productive collaborations with academic institutions, industry and the community. du will deliver innovative communications solutions in order to generate social and economic value for the nation. Moreover, du will develop the skills of UAE students.

Huawei enables Lebara Mobile KSA to launch first Mobile Virtual Network Enabler in the region

Huawei and Lebara Mobile KSA have announced the commercial launch of Lebara Mobile's first Mobile Virtual Network Enabler in the region. Lebara Mobile leverages Mobily's advanced telecom network in the Kingdom to deliver cost-effective voice and data service to Saudi customers. The launch of Lebara Mobile KSA ushers in the next evolution of mobile connectivity in the region with the creation of the Kingdom's first Mobile Virtual Network Enabler (MVNE). MVNEs provide turn-key communications infrastructure and related services to other MVNOs and businesses who, in turn, can offer hosted mobile services to their customers while leveraging the MVNE's hosted network, services, billing and CRM systems. "Lebara Mobile KSA is the first MVNE host in KSA and the Middle East, and will serve as the enabler of many new businesses in the mobile industry while accelerating the digital transformation of the region," said Fadi Kawar, CEO Lebara Mobile KSA. "Advanced, cost-effective mobile services are critical to businesses today and through our advanced mobile virtual network which is based on Mobily's superior mobile infrastructure, we are able to serve regional telecom business by meeting their communications needs and delivering value-added services that accelerate their growth." Huawei was able to help design and then deploy the Lebara Mobile network in less than 30 weeks, putting in place the tools to migrate to the new network without any loss of critical data or functionality. Huawei provided support in planning and implementation of the core

network elements while deploying the full range of Business Support Services to provide end-to-end telecommunication services, as well as a range of value-added services to Lebara Mobile. "Huawei is particularly proud of its partnership with Lebara Mobile KSA, as this network represents a first-of-its-kind in the region and a new era in digital communications services for the Middle East as a whole," said Chen Jianhan, COO of Huawei KSA. "The telecom industry needs to move rapidly towards an open digital ecosystem, and Huawei is committed to collaborating with customers and industry partners to achieve this. Lebara Mobile KSA's network is proof of the effectiveness of embracing this ecosystem and delivers digital services seamlessly anytime, anywhere, and on any device." Huawei believes that telecom providers must be able to deliver the ROADS experience to stay competitive, encompassing five fundamental characteristics of the ultimate user experience in a fully connected world - Real-time, On-demand, All-online, DIY, and Social. Today, Lebara Mobile delivers on these five key characteristics based on Huawei's ROADS vision, and will foster an open industry ecosystem that will enable innovation and accelerate the region's digital transformation. Through Lebara telecom platform supported by Huawei, Lebara Mobile will begin to offer high-quality MVNO services to regional players in the coming months. Huawei will continue to collaborate with Lebara Mobile on building win-win scenarios as it continues to expand its services in the region.

Etisalat completes sale of Sudanese telco Canar

Emirates Telecommunications Corporation (Etisalat) has announced the completion of the sale of its 92.3% stake in Sudanese fixed line operator Canar Telecommunication Company (Canar) to the Bank of Khartoum. The transaction was finalised on 7 August, after securing all regulatory approvals from Sudanese regulator the National Telecommunications Corporation (NTC) and the country's competition authorities. UAE-based Etisalat added that the final consideration received for its shareholding amounted to AED349.6 million (USD95.2 million). Etisalat signed a share purchase agreement with Kuwait-based Zain Group for the sale of its 92.3% stake in Canar in May 2016, but one month later, the UAE telecoms group announced that the Bank of Khartoum, which holds a 3.7% stake in Canar, had exercised its right of first refusal regarding the sale to Zain Group.

goetzpartners joins SA-MENA Council as a member

SAMENA Council has announced that goetzpartners, an independent advisory firm for all key issues driving entrepreneurial activities – Strategy, M&A and Transformation – joins SAMENA Council as a member. Erik Almqvist, Managing Director Middle East at goetzpartners, says: "Digital transformation, innovation and agility are the very heart of our DNA. Having served some of the world's largest corporations in Strategy, M&A and Transformation, we are thrilled to serve the Middle East with SAMENA Council as a key strategic partner." He adds: "SAMENA Council has an excellent track record in bringing the leaders of the telecommunications sector together. We see a number of challenges and opportunities for the Middle East Operators to evolve in the fields of digitalization, cost and process efficiency, customer experience and sustainable value delivery." Bocar BA, CEO of SAMENA Council congratulated goetzpartners and remarked, "I am pleased to welcome goetzpartners to the SAMENA Council.

We congratulate the firm on building synergies across industries on a global and regional scale, and hope that with SAMENA Council membership, goetzpartners will also help to develop synergies that can positively impact ICT development in our region. SAMENA Council is always on the lookout for pushing the ICT agenda of sustainable growth among stakeholders who share the vision for empowered, digitally-led economic development." goetzpartners is well placed to benefit from SAMENA Council's pan-regional reach and stakeholder engagement, focused on enabling fruitful dialogs in the ICT industry, and to leverage the breadth of opportunities to network with decision-makers representing both operators and regulators.

Mobily reports net profit of SAR35.4m in 1H16

Saudi Arabia's mobile operator Etihad Etisalat (Mobily) has published its financial results for the six months ended 30 June 2016, reporting a 7% decrease in revenues year-on-year to SAR6.729 billion (USD975 million), down from SAR7.236 billion in H1 2015. The drop was mainly due to decreases in interconnection revenues, as a direct result of the new mobile termination rates (MTRs) introduced in April 2016, coupled with a drop in handset sales. Further, a SAR1.238 billion increase in EBITDA to SAR2.246 billion in 1H16 was attributed to growth in gross profit by SAR214 million (reflecting continuous cost optimization efforts) and an increase in general and administration expenses by SAR934 million in H1 2015 (due to booking a SAR800 million additional doubtful debt provision towards Zain Saudi Arabia), with EBITDA margin improving to 33.4% (13.9% in 1H15). Net income also grew, with the operator reporting profit of SAR35.4 million, up from net loss of SAR945.4 million in the corresponding period of 2015.

REGIONAL NEWS

REGIONAL UPDATES

Huawei aims to increase market share to 30% in Egypt with new products in 2017

Company's sales grew by 158% during the first half of this year compared to the same period last year. It came as a result of the company's broad base of different products in terms of specifications and prices that meet the needs of various social segments. He added that Huawei relies on the Y family of products to increase its sales and market share during the current year. He pointed out that Huawei Y5II and Y3II achieved sales of 42,000 mobile phones during the first 50 days following their release in the market last year. Huawei sold about 500,000 mobile phones from the Y family last year, which helped the company acquire the second highest market share of smartphones locally. The company now plans to raise its market share to 30% over the next year. Li noted that his company, like other international companies, has suffered from the US dollar crisis currently facing the Egyptian economy. However, Huawei managed to overcome this issue by releasing devices that suit the local market and the Egyptian consumer. Huawei launched its new mobile phone Y6II with a 5.5-inch screen in the Egyptian market on Tuesday. The International Data Corporation released a report, which showed that Samsung acquired 46% of mobile phone market sales in Egypt during the third quarter of 2015, compared to 58% in the same period of 2014. It referred to the decline in the company's market share in Egypt. According to the report, Nokia-Microsoft ranked second with a market share of 20%, while Huawei came third with a market share of 8.7% during the first three months in 2016. Sony ranked fourth with a market share of 4.6%, while Lenovo acquired 4.4% of market sales occupying the fifth place in the local market. HTC acquired 3.5% of the market sales during the same period in 2016, while the rest of market sales estimated at 19.8% were shared by Oppo Electronics, Tecno Mobile, G-TIDE Mobile, Honor, and Infinix.

Sri Lanka Telecom to provide global connectivity backhauling facility via Sri Lanka

Sri Lanka's National ICT solutions provider, Sri Lanka Telecom PLC (SLT) has gained full landing status of SMW5 Cable Station in Matara, aiming to be a key regional player by offering state-of-the-art global services provided through multiple international undersea cable systems that run through Sri Lanka. SLT's International Backhaul Network consists of three main cable stations at Colombo, Mt Lavinia and Matara connecting to SLT's international

backhaul hub at the Welikada SLT premises. All these stations are well connected by OTN NW on which the transport will be based dedicatedly reserved international connectivity to any cable system runs through Sri Lanka. Through this project, multiple undersea optical fiber cable systems: SEA-ME-WE 5, SEA-ME-WE 4, SEA-ME-WE 3, Bharat-Lanka and Dhiraagu-SLT will be interconnected through a highly reliable and redundant very high capacity Fiber Optic Ring. The company, with this dedicated international backhaul will be exploring for more global business opportunities and Business Impact of this would be the use of the cable system for traffic termination in the country, cross connecting with other cable systems and enhancing capacity. Exploring such opportunities, SLT identifies the challenge of backhauling traffic through Matara Cable Station and routing through Colombo Cable Station because all other submarine cables systems and domestic operators are based in Colombo. By considering the growing demand for international bandwidth in the country & exploring new opportunities, establishing scalable mesh protected, WDM international backhaul NW is vital. Backhauling Global Connectivity options have to maintain the highest level of Service Level Agreements (SLA) standards because it transports domestic as well as international traffic. Therefore, we are capable of providing scalable mesh protection to global operators.

Nation-state protection against cyber attacks required; UAE ranked second after the US

The country of UAE is now the second most targeted country after the US, according to statistics shown at the UAE's new Cyber Security Centre, which was opened on Monday. Dr. Mounes Kayyali, CEO of security solutions provider The Kernel, told Gulf News that Anonymous, an international group of hacktivists (hacker + activist), and other hacker groups have been conducting cyber espionage attacks against state-owned energy companies. It's inevitable that nation-state attacks will grow and become the new norm for hackers, he said. After signing a deal with Dubai-based information and communication technology (ICT) services provider

Smartworld to set up the UAE's first-of-its-kind 'Cyber Security Centre', he said that mobile threats will continue to flourish this year. The days where PC-like exploit kits for smart phones are easily available is not far away. Smartworld, a joint venture between etisalat and Dubai World Central, is behind the implementation of IT systems at Al Maktoum International Airport at Dubai World Central (DWC), Terminal One and Terminal 2 at Dubai International Airport. According to statistics shown at the Cyber Security Centre on Monday, the US, China and Ukraine are the top three origins of attack and the US, UAE and Spain are the top three targeted countries. "The threat landscape will be more complicated day by day. It needs more knowledge, experience and more complex solutions to handle the current type of attacks. Cyber security is not a solution and the measures developed a year ago will not be enough to protect organizations in today's threat landscape. Threats do change overnight and so do the security solutions," Kayyali said. He said the "cat and mouse game" between the hackers and security solutions providers will continue indefinitely and become more complicated as each day passes by. Dr. Saeed Al Daheri, Chairman of Smartworld, said that the centre will train UAE nationals in cyber security and provide round-the-clock advanced security monitoring along with cyber threat management to companies across the government and private sector in the UAE. Saif Al Ketbi, senior vice-president of technology at Abu Dhabi Airports Company and advisory to Smartworld, said that the UAE and Dubai are making tremendous progress in adopting the world's latest smart technologies. "These advancements bring with them the responsibility to ensure safety from external threats. Particularly as we witness the launch of several mega projects and hosting the Expo 2020, the progress in the area of smart technology is set to be massive," he said. According to a Kaspersky survey, costly attacks are now almost routine with 90 per cent of the 5,500 companies surveyed reporting at least one security incident and nearly half, 46 per cent of businesses, lost sensitive data due to an internal or external security threat. Al Ketbi said that most organizations pay greater attention to developing and implementing projects. However, they need to include security right at the planning stage of a project. A

security breach could jeopardize all their efforts.

3G/4G Users in Pakistan Reach 32 Million

3G and 4G users reached 32 million in Pakistan at the end of July 2016 as mobile phone companies added a total of 2.2 million new 3G and 4G users to their networks during the reported month. Mobile phone companies grew their 3G/4G users by almost eight percent, up from negative growth that operators showed just a month ahead in June 2016. According to Pakistan Telecommunication Authority, Mobilink alone added 1.2 million new 3G users on its network while Zong added another half million 3G users during the month. Total number of 3G users by the end of July 2016 stood at 30.62 million while 4G users reached 1.16 million by the time. Entire 3G/4G subscriber based reached 31.78 million. Mobile phone users in Pakistan, from all operators, touched 133.28 million marks by the end of July 2016, marginally up from 133.24 million a month ahead. Ufone and Warid lost over 700,000 customers combined during July 2016. Mobilink and Zong added almost 709,000 users during the reported month, while Telenor added 77K users during the month. Total additions in mobile phone subscriptions during the month netted under 100K.

Tunisie Telecom seals deal with GO; now owns 65.4% of GO share capital

Tunisie Telecom has announced the successful conclusion of the Voluntary Public Offer made by its fully owned subsidiary TT ML Limited for shares in GO p.l.c., thus acquiring 65.4% of GO's total issued share capital. "As per announcement dated 17 August 2016, all the conditions to the Offer, set out in the Offer Document dated June 14, 2016, have been satisfied, and completion of the necessary share transfers as well as settlement of the Cash Consideration have been duly effected. As a result of the completion of the offer, through TT ML Limited, Tunisie Telecom now holds 66,281,050 ordinary shares in GO. The remainder of the shares in GO are in free float on the official list of the Malta Stock Exchange, "thereby allowing GO to retain a strong local shareholder base. Commenting on the closing

of the transaction, Nizar Bouguila, Chairman and Chief Executive Officer of Tunisie Telecom, said: "With today's transaction close, GO will become a key player within the Tunisie Telecom group, enabling us to capture key growth opportunities in Malta and Cyprus, both high potential European markets, and to fulfil our strategic objectives. We are confident that Tunisie Telecom and GO can achieve more together than we can apart, unlocking numerous benefits and synergies for both companies that will enable us to deliver long-term value for all our stakeholders. I now look forward to working with GO's local management team to build on our combined strengths and start delivering on our vision to create a leading trans-Mediterranean telecoms platform spanning from North Africa to Malta, Cyprus and Greece." The transaction was first announced on May 23, 2016, when GO declared it had selected Tunisie Telecom as the final preferred bidder for the Company's shares.

Ooredoo invests USD155m in fixed, mobile networks

Ooredoo Oman has earmarked investment of OMR60 million (USD155 million) for this year, as it seeks to expand its fixed and mobile network infrastructure and enhance service quality for consumers. The Oman Daily Observer quotes the firm's CEO Greg Young as saying that a 'substantial amount' of the funds will be invested in increasing the coverage and quality of its 4G LTE services, adding that by the end of the year, more than 100,000 households will have access to Ooredoo's high speed fiber-to-the-home (FTTH) network. 'Next year we will see a further increase to 180,000 households who can enjoy super-fast speeds, as we continue to push our great value-added plans out to the market,' Young was quoted as saying. The company, which is majority-owned by Qatar's Ooredoo, reported a total fixed and mobile customer base of 2.841 million at the end of June 2016, an increase of 3.2% from 2.753 million twelve months earlier.

Zong inks fiber deal with PTCL

China Mobile Pakistan (CMPak), which operates under the Zong brand name, has signed a fibre leasing agreement with fixed line incumbent Pakistan Telecommunication Company Ltd (PTCL). ProPakistani writes that the deal will enable Zong to access the incumbent's nationwide fiber-optic network whilst PTCL will also deploy, operate and maintain 789km of new fiber to connect Zong's base transceiver stations (BTS) for data backhaul.

Zain Saudi secures USD600m loan to repay previous borrowings

Saudi Arabian telecoms operator Zain has inked a long-term commercial borrowing facility worth SAR2.25 billion (USD600 million) with a two-year tenor that is extendable by one additional year (until 8 August 2019). The new facility agreement signed with the Industrial and Commercial Bank of China will replace an existing syndicated facility, and the proceeds will be used to repay a commercial loan signed in June 2016. The previous loan was provided by a syndicate led by Arab National Bank and also included Banque Saudi Fransi, Gulf International Bank and Samba Financial Group. The new borrowing facility has improved terms and will reduce financing cost by approximately SAR175 million over the three-year period, Zain Saudi said.

Telenor Pakistan launches 4G services

Telenor Pakistan has commenced a nationwide 4G rollout launching services in six cities. The company will offer 4G services to customers free of cost as a promotional exercise in the initial launch areas, which include select locations in Karachi,

Lahore, Islamabad, Multan, Peshawar and Swat. Customers in the cities will be able to obtain 4G SIMs at the operator's sales and service centers and franchises. Telenor Pakistan plans to rapidly roll out the service to other cities in the nation, the operator

said in a statement. "For Telenor Pakistan, this represents a huge leap forward towards realizing our ambition of bringing Internet for All and empowering Pakistan with digital technology," the statement reads. Telenor Pakistan was the only bidder for 4G spectrum during a recent auction of a 10 MHz block in the 850-MHz band. The operator secured the spectrum for $395 million. The operator will be competing against China Mobile subsidiary Zong, which this week announced it has expanded its 4G coverage to over 100 cities nationwide.

Qatar stimulates TMT sector growth

In line with Qatar National Vision 2030 and the hosting of the 2022 World Cup, Qatar has taken measures to stimulate many of its vital sectors by providing financial support and issuing related regulatory legislation and incentives mainly in the fields of infrastructure, hospitality, health, technology, media and telecommunications. In relation to technology, media and telecommunications, Qatar's commitment to support these sectors has seen the formation of the Ministry of Transport and Telecommunications and the Ministry of Culture and Sports. These two recently-established Ministries are intended to consolidate efforts and focus on the development of the technology, media, telecommunications and sports sectors, as well as securing various expertise required to meet market demands. To further assist in the growth and development of these areas, an array of legislation has been issued, which aims at regulating these sectors and setting out related investment rules. While the general rule for foreign investment in Qatar is that a local Qatari partner must hold at least 51% of the shares of any business to be established in Qatar, the Qatar Foreign Investment Law No. 13 of 2000 as amended (the "Foreign Investment Law") exempts governmental projects from the application of this rule. In particular, the Foreign Investment Law permits a foreign investor to establish a branch office (the "Branch") that can be utilised in circumstances where a foreign investor is performing a specific governmental-related contract in Qatar in various sectors, including technology, media and telecommunications. Such a Branch

shall be allowed to perform the specific contract for which it is registered and a Qatari partner is not necessary. The Foreign Investment Law also exempts some sectors from the application of the general rule, one such sector being information technology services. Furthermore, in response to substantial technological advancements, the Supreme Council of Information and Communications Technology drafted Qatar's first comprehensive e-Commerce law in 2010. The Electronic Commerce and Transactions Law No. 16 of 2010 (the "E-Commerce Law") was enacted with the aim of facilitating and providing a clear legal framework to address matters such as electronic transactions and electronic signatures. The E-Commerce Law also allowed for electronic or data messages to be used where a law requires that information or documents be in writing. This is provided that the information or document is accessible so as to be used for subsequent reference by every person that has a right to access the information or document. This was considered as a considerable development in evidentiary requirements for courts in Qatar. Although the application of some of these initiatives may face practical challenges, they reflect Qatar's vision to support the development of its economy and infrastructure and to develop the sectors including technology, media and telecommunications, by making it easier for foreign investors to do business in certain fields and modernising the ways in which commerce can be undertaken.

Cybercrime hit 6.5 million in KSA last year

Over 6.5 million people in the Kingdom were affected by cybercrime last year, according to American software security provider Symantec that conducted a survey in the Kingdom. Norton, by Symantec, released its findings from the Norton

Cyber Security Insights Report here on Wednesday, revealing that 6,538,262 people have been victims of cyber attacks and affected by online crime. The report further reveals that close to half (46 percent) of the millennials have experienced cybercrime compared to only 37 percent of the younger generation. Surprisingly nearly two in every five millennial admitted to sharing passwords with another person despite understanding its associated risks. Speaking on the occasion, Eyas Hawari, country manager for Symantec Saudi Arabia, said: Unfortunately, online crime has become commonplace in Saudi Arabia with 58 percent of the population having experienced it in the past year." He added: "This is 10 percent higher than the global average of 48 percent and strongly reinforces the need for a shift in the mindset of consumers in the country." He said consumers need to be more proactive in protecting their precious personal data and be aware that taking simple precautionary steps can easily help thwart potential attacks. With an increasing number of individuals connected and using mobile devices, cyber threats are becoming ever present among all age groups as one in four consumers have had their mobile device stolen, potentially exposing sensitive information in their e-mail, social media and banking apps to cyber thieves, he said. According to the report one in seven users has had the identity stolen, one in six has had someone breach their social media account, one in every four respondents indicate their e-mail account was breached by a hacker. Surveying 1,000 individuals in the Kingdom, the research by the software security provider also discusses the consequences of consumer cybercrime in its report. The consumers lost close to a day dealing with the repercussions of online crime, revealed the report, adding it also cost an average of SR3,230 per person with consumers losing over SR21 billion in total.

Telenor 4G Spectrum is Causing Interference for Other Telcos: Petition Filed

Islamabad High Court has accepted a petition filed by mobile phone operators in which they have contended that Telenor's recently acquired 850MHz — that it is using for 4G network — is causing interference

in neighboring networks. It may be recalled that Telenor was granted 2x10MHz block in 850MHz spectrum for $395 million earlier this month. According to details, Zong's spectrum is placed right next to Telenor's newly acquired spectrum with a gap of just 3.5MHz. Telenor's spectrum line ends at 879MHz while Zong's uplink band starts at 882.5 MHz, with just 3.5MHz as a total buffer between both the networks. This close proximity, at few locations where Telenor was testing its 4G network, caused interference in networks of other operators. Resultantly, mobile operators petitioned the Islamabad High Court that Pakistan Telecommunication Authority should ensure there is no interference between Telenor and other networks due to the new spectrum. Pakistan Telecommunication Authority has said that Telenor is already mandated (through IM and license terms) to deploy receive filters on its towers to confine its network usage within the allotted spectrum. For those who don't know, "receive filter" is a hardware installed on telecom towers to confine network communication from interfering other frequencies. According to network professionals, these receive filters cost around USD 1,000 per installation and will cost Telenor around 3 million dollars if such filters are installed at 50% of its entire tower base. In actuality, Telenor may have to deploy receive filters at around 2,000 cell sites. Parvez Iftikhar, a telecom consultant, told ProPakistani that such receive filters will only be required: On sites operating in 900MHz band owned by Telenor or other operators (Not all sites are in 900MHz, both for Telenor and other networks. Even in 900 band, only those sites where operators are using them for 3G as 2G does not need such filters. Additionally, it will also depend on several other factors, like location of the site/s and which part of 900MHz band they have PTA told ProPakistani that newer operators (Telenor in this case) are obligated by license terms to deploy receive filters, like Mobilink once did back when Instaphone was operational. PTA also explained that this is a usual practice around the world, in fact in India — in one instance — there's a spectrum gap of 1.5MHz between two operators. Telenor Pakistan, when asked for comments on the matter, said that it received the commencement certificate from Pakistan Telecommunication Authority

on Thursday, 4 August 2016 for the use of 3G and 4G services on the newly acquired 850MHz spectrum, whereas the court order inviting our comments on the use of the said spectrum, has just been received. Telenor said that the matter is currently sub judice therefore it cannot comment on the proceedings of the case. "We would like to highlight that Telenor Pakistan is working closely with the Regulator and Frequency Allocation Board in order to ensure strict adherence to legal requirements and international best practices for the use of spectrum to serve our customers and fulfill our ambition of providing Internet for All and Empowering Pakistani Societies with Digital Technology", Telenor further said in its response to ProPakistani. Islamabad High Court has set August 25 for the hearing of the case, where PTA is likely to clarify the situation in the court.

Oman Broadband sets target at 130,000 units by year-end

Oman Broadband keeps an ambitious target of reaching to 130,000 houses by the end of 2016 as it already has access to 60,000 houses in Muscat. The national broadband company of the Sultanate aspires initially to assist the government to achieve its larger goal of e-government and serve the national aspiration of serving the people with the smartest possible broadband facility. This was stated by Hamood al Rashdi, Manager Business Relationship, during the opening of the Oman Broadband Exhibition at the Salalah Tourism Festival (STF). He called the occasion as reaching out to people and raise awareness about the service. The exhibition opened under the auspices of Salim bin Aufit al Shanfari, Chairman of Dhofar Municipality, in presence of officials from the Ministry of Transport and Communication and telecom service providers. "Our target is to cover 80 per cent of Muscat by 2020 and 95 per cent of the Sultanate's urban area by 2030," he said in his comments to Observer. Commenting on current status of Oman Broadband, Al Rashdi said: "Currently we are doing optic fibre cabling in association with three telecom service providers -- Omantel, Ooredoo and Awasr." "We are also assisting government service providers like power and water bodies in offering them the best possible links in their effort to serve the people in a better way and save cost on infrastructure," he said.

In another four years, Oman Broadband aspires to cover major part of the Sultanate, as the cabling of optic fiber has been going on a fast scale and the telecom service providers are offering "excellent cooperation". After becoming fully operational, the Oman Broadband, according to Al Rashdi, would be able to cover the rural urban divide of fast and slow network, as the technology adopted herein is state-of-the-art with a capacity to serve across the Sultanate. The problems like limitations of spectrum and backhaul connectivity would be addressed with the installation of new towers. The broadband services, according to Al Rashdi, have great value addition in the areas of public safety healthcare and education which ultimately would have positive reflection on the national economy. "The broadband facility offers networking to vast online service facilities which helps people to connect for business and investment opportunities. It helps them negotiate and interact with clients and end service users in a better way," he said and added that the broadband facility also offers availability of quality content for all kinds of academic needs, diagnostic and therapeutic services and enhancing precautionary measures for public safety by supporting early warning systems and disaster readiness programmes.

Omantel ends WorldCall takeover talks

Oman Telecommunications Company (Omantel) has ended discussions with an investor interested in purchasing a majority stake in WorldCall, its Pakistani ISP division, after the two parties failed to reach a favorable agreement. Omantel did not name the investor, although Allied Supplies and Services and Dunya Technologies were previously linked to an offer.

Telcos Sent $176 million Profits Back To Headquarters during 2015-16

Multinational telecommunication companies, mainly the cellular operators, sent back $176.2 million profit to the countries of their headquarters during the closing financial year 2015-16, according to the data provided by State Bank of Pakistan (SBP).The telecom sector earnings — that were sent back to their respective countries — is the second highest after financial sec-

tor (mainly banks and insurance companies) that sent a handsome amount of $531 million in the same period. However, the profit repatriation of the telecom companies has dropped by 31.8 % as compared to previous financial year of 2014-15, during which telcos had remitted $258.6 million. The reduction of the profit was recorded mainly due to investments made by cellular operators in Pakistan from their earnings which is also called as reinvestment of revenues in the operating market. According to Economic Survey of 2015-16, the estimated revenues of telecom sector stood at Rs 332 billion in three quarters that ended March 31st, 2016 as compared to Rs. 449 billion during four quarters of 2014-15 The decline in revenues is in line with the international trend of profitability and revenues in telecom industry, the report had mentioned. Moreover a declining trend in revenues of telecom operators was also observed due to loss of millions of cellular subscribers after BVS Re- verification process and intense competition and low tariffs. After the launch of 3G and 4G services, cellular operators are challenged by Over-The-Top (OTT) services which provide alternate channels through apps for customers to make free chats, voice and video call services. It is pertinent to mention here that telecom sector's continued to invest in Pakistan as collectively injected $210.4 million during the outgoing financial year. Overall, the multinational companies and local companies with foreign shareholding repatriated $1.91 billion to the different countries in the financial year 2015-16 which is 16.7 % ($275 million) higher than previous year in which the amount stood at $1.637 billion.

Telecom Egypt board gives preliminary approval for 4G license acquisition

Telecom Egypt (TE) has announced that its board has tentatively approved plans to acquire a 4G mobile concession, Reuters reports, citing a statement made by the company on the Egyptian stock exchange website. TE's board of directors is said to have given its preliminary approval on 28 July, with a full study of the 4G license plan to now be presented to the investment committee. Commenting on the matter, an unnamed TE official was cited as saying: 'Telecom Egypt will provide the service within a year of obtaining the license due to its need for experts to run mobile ser-

vices, prepare networks and work on agreements.'

Dubai to invest $275 million in global innovation initiative

The Dubai government on Tuesday said it plans to invest 1 billion dirhams ($275 million) over the next five years in a new initiative that challenges global companies to brainstorm technological advances across several sectors, including healthcare and urban planning. The initiative, Dubai Future Accelerators (DFA), was launched by the Dubai government and Dubai Holding earlier this year to harness new technologies, such as robotics, artificial intelligence, 3D printing, biomimicry, and biotechnology, to address challenges expected to be faced by the United Arab Emirates (UAE) over the next decade. The main focus will be on healthcare, transportation, renewable energy, sustainability, education, security, and urban planning, the Dubai Future Foundation, which is behind the initiative, said in a press release. The DFA "will be an important and strategic contribution to the regional investment market, attracting the world's best start-ups and companies to compete for new opportunities that make a positive difference in the world," cabinet minister Mohammed Al Gergawi, who is vice chairman of Dubai Future Foundation, was quoted as saying in the statement.

The foundation's CEO, Said Al Aleeli, said that the competition would create a "global market worth billions of dollars" to help solve challenges common to governments around the world related to urban planning, in-

frastructure and social services. The challenges range from reducing water and energy consumption, to developing prototype automated transport systems that reduce congestion and carbon dioxide emissions, to enhancing policing through "integrated be-

havioral, genetic and biological systems" to track criminals. The Dubai Future Foundation is already housed in the world's first 3D printed building, and Dubai Municipality is aiming to build on this and use new technologies such as robotics and biomimicry to develop 'nature-inspired' buildings that will use three times less energy and carbon dioxide and are five times more efficient. Companies can now apply online at www.dubaifutureaccelerators.com to be part of the program.

Batelco launches country's fastest residential broadband package

Bahrain Telecommunications Company (Batelco) has launched what it claims is the country's fastest residential broadband package, with download speeds of up to 500Mbps. Costing BHD150 (USD395) per month, the tariff includes upload rates of up to 50Mbps, 1TB usage limit, and free weekend browsing, while it is available to new and existing customers. Additionally, the operator has increased the speeds of its existing fiber internet plans. 'The enhancement forms part of Batelco's ongoing improvements on its home broadband packages,' commented CEO Muna Al Hashemi, adding: 'and we are continuously expanding our state of the art fiber network to reach more customers and meet the consumers changing needs.'

Turkcell posts group revenue growth of 8.6% in Q2 2016

Turkcell Group has published its results for the three months ended 30 June 2016, reporting year-on-year revenue and EBITDA growth of 8.6% and 3.5%, respectively. Total group revenue reached TRY3.358 billion (USD1.1 billion) in the quarter, up from TRY3.093 billion in Q2 2015, while EBITDA rose from TRY994.8 million to TRY1.029 billion in the same period; the group's EBITDA margin, meanwhile, stood at 30.7%, against 32.2% twelve months earlier. Net income totaled TRY416.1 million, down 41.6% from TRY712.0 million one year earlier, mainly due to: a translation loss in Q2 2016, compared to a translation gain in Q2 2015; the negative contribution of its Fintur subsidiaries; lower interest income from time deposits due to a lower cash balance; increased interest ex-

pense on loans and '4.5G' payables; and a higher amortization expense due to the 4.5G license. Operationally, Turkcell Group reported that its combined subscriptions amounted to 66.5 million as at 30 June 2016, down from 69.5 million one year previously. Within its domestic unit, post-paid mobile subscriptions rose 5.7% y-o-y from 15.9 million to 16.8 million, while pre-paid mobile users fell 12.7% from 18.1 million to 15.8 million. In terms of Turkcell Turkey's broadband customers, fiber connections increased 18.1% from 817,600 to 965,400, with ADSL subscriber numbers also rising, from 528,000 to 675,2000 (up 27.9%). 'We trust that the markets will remain strong, despite short-term volatility', commented Turkcell CEO Kaan Terzioglu, adding: 'We have entered this period with previously taken precautionary measures. Having funds for investment and expansion that we believe are adequate for the next three years, having already taken various actions against currency risk and operating our business on the basis of disciplined financial policies at all times, we are able to perform soundly during this period.'

Turkish ISPs plan JV to further fixed broadband roll-out

Turkey's alternative ISPs announced plans to work on a joint venture company. Turkcell Superonline, Vodafone Turkey, TurkSat and members of Telkoder (Telecommunication Operators Association) launched negotiations for the JV, with the aim of investing more efficiently in Turkey's fixed broadband infrastructure. The eventual JV will allow the efficient use of existing infrastructure, and create better conditions for future investments by removing the need for duplicate infrastructure-building, Turkcell said. Also, the company believes the industry as a whole will benefit from fairer conditions in investment and in provision of services, while the Turkish economy's resources will be used more efficiently as ultrafast broadband penetration increases. Turkcell CEO Kaan Terzioglu called for a joint venture for fixed broadband connectivity as early as September 2015. Turkcell previously announced that Turkey could save up to USD 12.6 billion if three major operators were to invest jointly rather than separately.

Number of Unique Mobile Subscribers in Africa Surpasses Half a Billion

More than half a billion people across Africa are now subscribed to mobile services as the continent continues to migrate rapidly to mobile broadband networks, reveals a new GSMA study. "More than half a billion people across Africa are now subscribed to a mobile network, providing them not just with connectivity but a gateway to a range of other essential services in areas such as digital identity, healthcare and financial services," said Mats Granryd, Director General, GSMA. "The rapid

total subscriber base. The number of unique mobile subscribers is forecast to reach 725 million by 2020, accounting for 54 per cent of the expected population by this point. African mobile subscribers are rapidly migrating to mobile broadband networks and services, a result of ongoing network rollouts and the increasing availability of affordable mobile broadband devices and tariffs. Mobile broadband (3G/4G) accounted for just over a quarter of total connections2 at the end of 2015, but is expected to account for almost two-thirds by 2020. By mid-2016, there were 72 live 4G networks in 32 countries across Africa, half of which have launched in the last

by increased take-up of mobile services. Africa's mobile ecosystem also supported 3.8 million jobs in 2015 and made a $17 billion contribution to the public sector via general taxation. The number of jobs supported is forecast to rise to 4.5 million by 2020, while the tax contribution is expected to increase to $20.5 billion. The report also explains how mobile is powering innovation and entrepreneurship across Africa. It notes that there are now approximately 310 active tech hubs across the region, including 180 accelerators or incubators. Mobile operators are supporting this ecosystem by opening up APIs to third-party developers in areas such as messaging, billing, location and mobile money, which has allowed start-ups to scale quickly. Mobile technology is also playing a central role in addressing many of the social challenges in Africa, including the ability to provide citizens with official identities, tackling the 'digital divide' by enabling access to the mobile internet, and delivering financial inclusion via mobile money services. The number of mobile subscribers in Africa that access the mobile internet has tripled in the last five years, reaching

move to mobile broadband networks is also unlocking new opportunities for consumers, businesses and governments, growing an ecosystem that last year added more than $150 billion in value to Africa's economy."

Network Investments and Smartphones Driving Mobile Broadband Adoption
The report finds that there were 557 million unique mobile subscribers1 across Africa at the end of 2015, equivalent to 46 per cent of the continent's population, making Africa the second-largest - but least penetrated - mobile market in the world. Africa's three largest markets - Egypt, Nigeria and South Africa - together accounted for around a third of the

two years. Meanwhile, the number of smartphone connections3 in Africa is forecast to more than triple over the next five years, rising from 226 million in 2015 to 720 million by 2020.

Mobile's Contribution to African GDP, Jobs and Public Funding to Increase
The use of mobile technologies and services across Africa generated $153 billion in economic value last year, equivalent to 6.7 per cent of the region's GDP4. This contribution is expected to increase to $214 billion by 2020 (7.6 per cent of expected GDP) as countries in Africa continue to benefit from the improvements in productivity and efficiency brought about

300 million by 2015, equivalent to a quarter of the African population. An additional 250 million subscribers are expected to become mobile internet users by 2020, bringing the total to 550 million (41 per cent of expected population). "The positive transformational impact of mobile is being felt more profoundly in Africa than anywhere else in the world; Africa's mobile industry is at the forefront of helping to deliver the United Nations' Sustainable Development Goals5," added Granryd. "We are focused on creating a better future for citizens and businesses across Africa, providing access to essential information and services, improved employment and economic opportunities, and greater productivity and competitiveness."

REGULATORY NEWS

REGULATORY UPDATES

France and Germany urge reform to access encrypted messages

French Interior Minister Bernard Cazeneuve met with his German counterpart, Thomas de Maiziere, on 23 August to discuss anti-terrorism proposals. Following the meeting, Cazeneuve told the press in Paris that France and Germany will put forward a European initiative to tackle the problem of messaging encryption used by Islamist extremists, to be discussed at the EU summit taking place on 16 September. In particular, Cazeneuve said that messaging service operators such as Telegram, which has so far been reluctant to cooperate with the authorities, should be compelled to provide access to encrypted content to terrorism investigations. The French minister urged the European Commission to pass new legislation targeting encrypted messaging services provided by both EU and non-EU companies, creating the right legal framework to strengthen national security.

Government rules out intervention in DOCOMO/Tata dispute

The Indian government does not intend to relax rules to allow Japan's NTT DOCOMO to exit its joint venture with Tata Group at a pre-determined price,

the Economic Times writes. Under the 2009 agreement that saw DOCOMO take a 26.5% stake in Tata Teleservices (TTSL), the Japanese group was given the option of exiting the partnership if TTSL failed to meet certain financial targets, in which case DOCOMO would receive either a fair market value for its shares or 50% of the original purchase price. DOCOMO chose to enact this option in March 2014, but the matter quickly stalled. Tata was unable to find another buyer for the shares but, as existing laws stipulated that no foreign investor could exit its investment at a pre-determined price or with assured return, it was not permitted to pay the previously agreed price of INR58 (USD0.86) per share – INR72.5 billion for the entire stake – instead of the INR23.34 per share valuation determined by independent assessors.

Responding to calls to intervene in the matter, the government has made it clear that it does not want to become embroiled in the issue, as it would require the retrospective amendment of rules dating back to 2007 – an extreme measure with potentially far-reaching consequences which the government is reluctant to implement. As noted by TeleGeography's GlobalComms Database, Tata was ordered by a London arbitration court in June 2016 to pay damages of USD1.62 billion to its Japanese partner, whilst DOCOMO would release its shares in the cellco to Tata.

India among nations with most stringent EMF norms

The department of telecommunications has taken it upon itself to address concerns raised by many activists and groups on the health hazards emanating from electromagnetic field (EMF) emissions from mobile towers. Telecom Secretary J S Deepak has been organizing awareness programmes across the country to educate municipal corporations, doctors and residents' welfare associations that India has among the most stringent EMF norms in the world. Addressing members of government and medical fraternity at an event in Mumbai, J S Deepak categorically said consumers cannot access mobile telephony services without mobile towers. He said: "Telecom towers are critical installations on which the backbone of wireless communication rests and unfounded apprehensions around EMF emissions have the potential to derail our growth story." Broadband penetration is directly connected with the rate of growth of any economy. Citing statistics, Deepak said that a 10 percentage points increase in broadband access leads to an increase in per capita GDP by 1.38 per cent. India is still a digital have-not compared to many other countries but in the next few years, India will add over 300-400 million broadband subscribers. Most of these will be mobile broadband users. And if people have to be part of a 24/7 network then mobile towers will have to be allowed in streets, residential buildings and public places.

US to cede control of DNS system to ICANN from October

The US government has approved the transition of internet domain management to an independent organization under ICANN. The National Telecommunications and Information Administration, part of the US Department of Commerce, said it received on 12 August a letter from ICANN saying the transition of all tasks would be completed by the deadline of 30 September. As a result, NTIA said it intends to allow ICANN to take over the contract to run the Internet Assigned Numbers Authority from 01 October as planned. The US first agreed in early 2014 to cede control of the internet domain management organization under pressure from

other countries that claimed the US exerted too much control over the global internet. In addition to privatizing the DNS system, the new structure aims to enhance ICANN's accountability as a fully independent organization answering to a wide range of stakeholders around the world. ICANN will hold its quarterly conference call with stakeholders on 18 August to provide an update on its work and the transition plans.

Spectrum auctions: DoT estimates just half of airwaves will be sold

With the telecom service providers anticipating a muted spectrum auction, which are proposed to begin from September 29, the Department of Telecommunications (DoT) itself has gone through the numbers to arrive at a fair estimate of what the exchequer could be making from this year's sale of airwaves. Notwithstanding the operators' sense of apprehension about the demand of spectrum from the upcoming auctions due to a

number of reasons, the DoT's estimate also fails to inject any optimism to the exercise. According to internal estimates of the DoT, spectrum worth just 50 per cent of the base price is expected to be picked up by the operators in this year's auctions. A senior DoT official, on condition of anonymity, said that airwaves worth Rs 2,74,800 crore is likely to be bought by telecom companies this year against a reserve price of Rs 5,56,000 crore as approved by the ministry based on the recommendations of the sector regulator. Of this, spectrum only in the premium 700 MHz band has a base price of over Rs 4,00,000 crore, of which, the DoT official cited above said, it was estimated that companies could pick up close to Rs

1,50,000 crore worth of spectrum. Operators and analysts alike have criticized the high reserve price of the 700 MHz band, which is deemed best for deploying 4G services, particularly due to the relatively immature handset and equipment eco-system for the frequency. While all the airwaves being put for auction can be used to deploy 4G services, due to the high propagation characteristics, the spectrum in the 700 MHz band is considered premium. The cost of providing service in it is one-third of 3G service in 2100 MHz band. The government will put under the hammer 2,354.55 MHz of airwaves for sale in seven bands – 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz — with a reserve price of Rs 5.56 lakh crore, compared with 470.75 MHz in the previous round that saw bids worth Rs 1.10 lakh crore. Moreover, analysts expect that in other bands as well, operators are expected to pick up spectrum only based on their needs, which this time around would be to fill gaps in their 3G and 4G mobile internet services. "The September 2016 auction will be the first in the past three years without material 'renewal' spectrum on offer — not a 'gun on the head' auction for most operators, in our view," brokerage firm Kotak Institutional Equities said. "To this end, this auction is a critical test of the operators' rationality; an auction where operators need to guard against getting swayed by competitive spirits and bid with long-term interests in mind; no self-goal, in other words," it added. Director General of industry body Cellular Operators Association of India (COAI) Rajan S Mathews said that while the quantum put up for auction was favorable the demand was expected to be different band-wise. "We see relatively good demand for 1800

MHz band, some demand for 2100 MHz and 2300 MHz band. Limited demand for 700 MHz, 800 MHz and 900 MHz bands. I will be surprised if there are any takers for 2500 MHz band," Mathews said. Mathews also said that the Telecom Regulatory Authority of India's move to bring out a consultation on interconnect usage charges shortly before the spectrum auction dates being announced raised some "red flags" and the exercise could potentially throw in uncertainty to the auction process.

EU: OTT players face telco-like regulation

The European Union is planning to extend telecom rules covering security and confidentiality of communications to web services such as Microsoft's Skype and Facebook's WhatsApp, which could restrict how they use encryption. The rules currently only apply to telecoms providers such as Vodafone and Orange. According to an internal European Commission document seen by Reuters, the EU executive wants to extend some of the rules to web companies offering calls and messages over the Internet. Telecoms companies have long complained that web groups such as Google, Microsoft and Facebook are more lightly regulated despite offering similar services and have called for the EU's telecoms-specific rules to be repealed. They have also said that companies such as Google and Facebook can make money from the use of customer data. "Unlike telcos, OTT (web-based) are global players that are allowed to commercially exploit the traffic data and the location data they collect," telecoms group Orange said in a response to the EU's public consultation on the reform proposals. Under the existing "ePrivacy Directive", telecoms operators have to protect users' communications and ensure the security of their networks and may not keep customers' location and traffic data. The EU rules also allow national governments to restrict the right to confidentiality for national security and law enforcement purposes. Many tech companies such as Facebook and Google already offer end-to-end encryption on their messaging and email services. They argue there is no need to extend the telecoms rules to web services and that the EU should not dictate how they protect their users' communications. Facebook,

which uses full-scale encryption on WhatsApp, said in its response to the Commission's public consultation that extending the rules to online messaging services would mean they could in effect "no longer be able to guarantee the security and confidentiality of the communication through encryption" because governments would have the option of restricting the confidentiality right for national security purposes. "Therefore, any expansion of the current ePD (ePrivacy Directive) should not have the undesired consequence of undermining the very privacy it is seeking to protect," the company said. Tech companies have been at loggerheads with national governments and police agencies over the use of encryption. Advocates of strong encryption argue the technology is vital for protecting the privacy of consumers and businesses. EU Commission Vice-President Andrus Ansip has spoken out in the past in favour of encryption. The EU document said that the exact confidentiality obligations for web firms would still have to be defined. The Commission could also force the companies to allow their users to take a copy of their content, for example emails, with them when they switch providers, according to the document. The EU executive will propose a reform of the ePrivacy rules later this year, while a broader overhaul of the EU's telecoms rules will come in September. The Commission said it was considering whether the scope of the current rules needed to be adapted needs "to ensure adequate levels of consumer protection and ensure that regulation does not distort competition." "This does not necessarily mean treating all communications services the same for all purposes," Commission spokeswoman Nathalie Vandystadt said.

India's trade body COAI accuses 4G newcomer Reliance Jio of breaking rules

The Cellular Operators Association of India (COAI) said newcomer Reliance Jio Infocomm is offering a full-blown mobile service disguised as a trial. According to Electronic Times, the industry group wrote a letter to the country's telecom department (DoT) highlighting the issue. Reliance

Jio, which is expected to launch commercially later this month, has attracted 1.5 million users to free voice and data services in a test phase. "This is no test. This is the provisioning of full-blown and full-fledged services masquerading as tests, which bypass regulations and can potentially game policy features like the IUC (interconnection usage charge) regime, non-predatory pricing, fair competition etc," wrote Rajan Mathews, director general of COAI, which represents incumbent operators such as Bharti Airtel, Vodafone India and Idea Cellular. However, Reliance Jio is also a member of COAI. Its commercial launch promises to disrupt the status quo in the Indian market. The letter argued existing license conditions do not provide for testing of free voice and data services. "In order to ensure compliance to license conditions and the Trai regulations and guidelines, we request your urgent intervention in this matter and instruct the said licensee to stop such practices," the letter requested to DoT. "Further, they should be instructed to immediately disconnect all such connections provided to [the] general public under the guise of test connections," added COAI. Such a suggestion, if followed, would cause a headache for Reliance Jio's launch plans and annoyance for Mukesh Ambani, the chairman of Reliance Industries.

India demands unpaid license, spectrum fees

The Indian government has issued demands to six cellcos relating to underpaid spectrum and license fees during the four financial years 2006/07-2009/10, following a report from the Comptroller and Auditor General (CAG) earlier this year. The Economic Times cites finance minister Santosh Kumar Gangwar as saying in a note to the upper house, the Rayja Sabha, that the operators had under-reported revenues during the four-year period to the tune of INR460.45 billion (USD6.88 billion), leading to a shortfall in license fees, spectrum usage charges (SUC) and interest (up to March 2015) totaling INR72.76 billion. The six cellcos in question were Reliance Communications (RCOM), Tata Teleservices (TTSL), Vodafone India, Bharti Airtel, Idea Cellular and Aircel. 'The government has issued regular demands for all the four financial years and special

audit demands for two financial years 2006/07 and 2007/08. These demands overlap the short falls pointed out in the CAG report,' the official said, adding: 'On the basis of special audit demands of INR18.47 billion and INR11.19 billion as license fees and spectrum usage charges were raised. These demands are subjudice.'

Cabinet green lights new spectrum usage price floor

The cabinet has approved the Telecom Commission's decision on the spectrum usage charge (SUC), the Economic Times reports. The decision set a floor of 3.00% of annual gross revenues for the SUC, which will otherwise still be based on a weighted average. Further, the decision set a flat SUC of 3.00% for all spectrum bands in the upcoming tender, down from the 5.00% levy on frequencies purchased in the 2015 sale. As previously reported by CommsUpdate, many operators – notably incumbents such as Bharti Airtel, Vodafone India and Idea Cellular – had requested the introduction of a flat SUC for all operators and across all bands, but the Telecom Commission was forced to reject the request on the basis that it could not increase the charge for broadband wireless access (BWA) spectrum in the 2300MHz band above its current 1%. With the introduction of the new SUC, Reliance Jio Infocomm and Aircel will both have to pay a slightly higher SUC. Aircel's charge will increase from 2.83% to the minimum of 3.00% whilst RJIL's fee will increase to 3.05% from 2.88% under the previous regime. The 0.05% over the minimum is due to RJIL's spectrum sharing agreement with Reliance Communications (RCOM). By contrast, Airtel, Vodafone and Idea will pay 3.80%, 4.80% and 4.50% respectively.

FCC chief bites at "big dogs" on net neutrality

Federal Communications Commission (FCC) chairman Tom Wheeler hit back at questioning of the US regulator's authority to enact the Open Internet rules. A clutch of leading US trade groups are pressing for what is called an en banc review of a June decision by a US appeals court that the FCC has authority to impose utility-style regulation on broadband providers to ensure an open internet. The petitions

by the CTIA, the American Cable Association, the National Cable and Telecommunications Association and USTelecom request a hearing in front of the full DC Circuit Court of Appeals, an en banc hearing, rather than the three-judge panel that ruled against them in June. "It comes as no surprise that the big dogs have challenged the three-judge panel's decision," said Wheeler. "We are confident that the full court will agree with the panel's affirmation of the FCC's clear authority to enact its strong Open Internet rules, the reasoned decision-making upon which they are based, and the adequacy of the record from which they were developed." Expert opinion would appear to be against the trade groups, and in favour of the FCC's position. For instance, Andrew Schwartzman, Benton senior counselor at the Public Interest Communications Law Project at Georgetown University Law Center's Institute for Public Representation, wrote in a recent article, quoted by Motherboard: "The likelihood that the full DC Circuit would agree to rehear the case, much less reverse the panel's decision, is extremely remote." "The DC Circuit typically agrees to rehear a case only a few times each year, at most, usually where there is a sharp split on an important issue on which other circuits have taken a different stance. This case doesn't meet those criteria and thus starts out as a particularly poor candidate for rehearing," he added.

US start certification for new privacy shield terms

The new 'privacy shield' agreement on the transfer of personal data between the US and the European Union has become operational. The bilateral agreement replaces the previous 'safe harbor' designation for the US, which was struck down by the European Court of Justice for not meeting EU privacy standards. As of 01 August, businesses can 'self-certify' through a special website set up by the US Department of Commerce to ensure they meet the criteria for protecting personal data transferred across the Atlantic. The certification must be renewed annually. Each business wanting to make trans-Atlantic data transfers must develop its own privacy policy incorporating the 23 principles of data protection enshrined in the privacy shield and also set up an independent recourse mechanism, such as joining an alternative dispute

resolution system, so data subjects may file and resolve complaints about how their data is handled. The European Commission has also published a guide for citizens on the principles of the agreement, how they can expect their data to be handled by businesses and organizations and what to do if they suspect misuse. A new independent ombudsperson will also be available for complaints about alleged violations of privacy and misuse of personal data by national intelligence services.

Telecoms Minister challenges ICASA's plans to allocate mobile spectrum

South Africa's Minister of Telecom-munications and Postal Services, Si-yabonga Cwele, is seeking to halt the Independent Communications Authority of South Africa (ICASA) from proceeding with plans to allocate spectrum in 700MHz, 800MHz and 2600MHz bands for wireless broadband services. According to a statement posted on the website of the Department of Telecommunications and Postal Services, Cwele intends to launch legal action to review the actions of the ICASA, as the government has yet to finalize the policy on how the spectrum should be allocated. 'The position of the government is that it is the custodian of spectrum, which is a national and public resource and whose utilization must benefit all the people of South Africa. There is presently no policy direction on spectrum that has been issued. The policy process is ongoing but as yet is still incomplete,' the statement said. It added that the minister is concerned that the ICASA's Invitation to Apply (ITA) for the spectrum was 'issued without consultation and prior notification to the government as the policy maker'. As previously reported by TeleGeography's CommsUpdate, earlier this month the ICASA issued an ITA for spectrum in the 700MHz, 800MHz and 2600MHz bands to all interested parties wishing to provide wireless broadband services. The regulator said that awarding frequencies in the aforementioned bands would ensure nationwide broadband access for all citizens by 2020, in line with the National Development Plan (NDP) and the South Africa Connect Policy.

A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION

REGULATORY UPDATES

Afghanistan

President: Dr. Mohammad Najib Azizi
[Afghanistan Telecommunication Regulatory Authority (ATRA)]

Sector watchdog the Afghanistan Telecom Regulatory Authority (ATRA) has urged the nation's mobile providers to introduce biometric verification for SIM registration as soon as possible. Whilst the officials committed to put such a policy into place soon, the cellcos are unlikely to be in a position to act on the proposals for some time, as the government's efforts to introduce national electronic ID cards – complete with biometric data – have recently foundered. Neighboring Pakistan completed a re-verification project last year, which required all mobile customers to confirm their identity with their mobile provider via biometric verification – in this case a thumbprint scan. Pakistan chose to reinforce its SIM registration procedures after an attack on a school in Peshawar in December 2014 revealed that phones used in the attack had used fraudulently verified SIMs. (August 18, 2016) telegeography.com

Algeria

President: Mr. Mohamed Ahmed Nacer
[Regulatory Authority for Post & Telecommunication (ARPT)]

Djezzy, a subsidiary of Global Telecom, aims to launch fourth generation wireless services (4G) in Algeria this autumn, during the last quarter of 2016, according to an investment report by Global Telecom. The company explained that the 4G network is considered a major step towards supporting Djezzy's situation after revenues declined during the second quarter (Q2) of 2016 at an annual rate of 15%, dropping to $27.4m compared to $32.2m in Q2 of 2015. This plan comes after Global Telecom merged its Pakistani subsidiary Mobilink with Warid Telecom in July, which will result in the number of subscribers to this new venture reaching 50 million users. The report showed that the base of subscribers of the subsidiaries' services expanded during Q2 of 2016 at an annual rate of 5% to reach 86.6 million subscribers, compared to 82.5 million subscribers in Q2 of 2015. Global Telecom is paying special attention to growing mobile data revenues. This was clear in

the results of Q2 this year, which showed a growth in mobile data revenues at an annual rate of 56%. This reflects the company's shift from depending on traditional voice and message services to digital services. Global Telecom's total profits in Q2 of 2016 reached $26.5m, compared to $42m in the same period last year. Revenues suffered a decline, dropping to $693m compared to $736m during the same period last year. (August 6, 2016) dailynewsegypt.com

Bahrain

Chairman: Dr. Mohammed Alamer
[Telecommunication Regulatory Authority (TRA)]

Telecommunications Regulatory Authority (TRA) Bahrain launched its first interactive quality of service portal (https://qos.tra.org.bh/), enabling users to benefit from access to the latest information on broadband quality of service through various reporting tools including but not limited to; Social Media performance per mobile network, Internet performance of ISP's, Streaming experience over broadband networks and more. Users seeking to make specific performance queries will now be able to choose their own search parameters and decide for them which particular service provider can best suit their unique needs. TRA has implemented this monitoring solution utilizing several probes across the Kingdom's governorates that are deployed to simulate and collect samples that shed light on customer experience. These probes conduct continuous tests of various services in order to enable the measurement of service quality around the clock, thus reflecting user experience for each Internet Service Provider (ISP) and Mobile Network Operator (MNO). The portal also comes in tandem with the release of TRA's Second Quarter Broadband Quality of service report, which now hosts the quarterly report directly on the portal's home page. Some of the major highlights this quarter show that LTE Network Performance has made a substantial leap forward compared to the results of the previous report released in June. TRA Acting Director of Consumer Affairs and Media Ms. Taiba Albinlai expressed that "We expect data conscience consumers would be happy to find the noticeable difference in performance." He continued, "It's worth noting the importance of finding solutions to provide Bahrain's consumers with services that are fast, convenient and reliable and it pleases us to see operators taking the initiative to continually improve services to consumers." Network performance averaged out at 9.5 Mbps last quarter and changed to 17.8 Mbps in the second quarter. (August 21, 2016) zawya.com

Bangladesh

Chairman: Sahjahan Mahmud
[Bangladesh Telecommunication Regulatory Commission (BTRC)]

The Bangladesh Telecommunication Regulatory Commission (BTRC) has pushed back the deadline for receiving applications to implement and operate the country's mobile number portability (MNP) system, from August 8 to August 22, 2016 although the date for the auction to decide the winning MNP bidder remains September 21. The regulator decided to give applicants more time, after responding to a considerable volume of queries on various details of the MNP contract. (August 15, 2016) telegeography.com

Prime Minister gave approval to the proposed merger of cellcos Robi Axiata and Bharti Airtel. An official from the Telecoms Division of the Ministry of Posts, Telecommunications & Information Technology (MoPTI) was quoted as saying that the PM endorsed all the clauses and conditions set by the division for the amalgamation of the two operators. Telecom Secretary, said that the approval file will now be sent to the Bangladesh Telecommunication Regulatory Commission (BTRC), with 'only some formalities left to complete the merger,' according to Secretary. The newspaper adds that the BTRC's legal team said a court hearing on the issue has been scheduled for August 4; if the PM's approved copy is received before that date, it will be placed before court. As one condition of the deal, Robi must submit a specific plan on human resource management to the regulator to ensure job security following the merger. On January 29, 2016 Malaysian-backed Robi and Indian-owned Airtel signed an agreement to merge in Bangladesh under the name of Robi, which would create the second largest cellco in the country. Parent groups Bharti Airtel and Axiata subsequently deferred the deadline for the merger to September 26, 2016. Under the agreement, 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. (August 2, 2016) telegeography.com

Country's oldest mobile operator, CDMA-based Pacific Bangladesh Telecom Limited, trading as CityCell, reportedly faces potential shutdown after the latest demand from the Bangladesh Telecommunication Regulatory Commission (BTRC) to pay all its dues worth BDT4.77 billion (US$60.7 million) by August 16. The regulator also ordered CityCell – part-owned by SingTel of Singapore – to create an option for its subscribers to switch to an alternative operator. 'CityCell's service quality has deteriorated, which leads to loss of its market share. If the trend continues, the operator will face a drastic fall in the number of subscribers,' said a BTRC official. Another report, from the Daily Star, claims that the BTRC is also preparing to cancel CityCell's rights to its wireless spectrum, noting that the number of CityCell subscribers fell sharply after a biometric SIM registration process was introduced, standing at around 760,000 including modem users at end-June 2016, by far the smallest user base of the country's six cellcos. (August 1, 2016) The Dhaka Tribune

Egypt

Acting Executive President: Eng. Mustafa Abdul Wahid
[National Telecommunication Regulatory Authority (NTRA)]

Egypt's National Telecom Regulatory Authority (NTRA) is making moves to bring to an end a long-running saga involving the issue of 4G licenses. The authority has now approved amended 4G license terms and is preparing to send final 4G license forms to Egypt's fixed and mobile operators on August 21, Reuters reported, citing a source in the country's Telecommunications Ministry. The news agency added that only Telecom Egypt had accepted the original terms after the government offered 4G licenses to the fixed-line incumbent and Orange Egypt, Vodafone Egypt and Etisalat in June. A related report by AhramOnline stated that operators must accept the revised terms by midday on September 22, indicating that the country is keen to put past delays in issuing 4G licenses behind it and quickly move towards

deploying infrastructure. The telecoms ministry source told Reuters that the NTRA has decided that the winning applicants will gain additional frequencies with their 4G license. That move could help ease GSMA concerns that the country was not lining up sufficient spectrum for operators to offer effective 4G services. The association in July said that previous experience shows that the total amount of spectrum assigned to individual operators must fall within the range of 2x30MHz to 2x60MHz over a range of coverage and capacity bands. While the authority has proven flexible in terms of frequencies, it is standing firm on the cost of the licenses, the telecoms ministry source told Reuters. Payment terms were sent to operators in June. According to a previous Reuters report, incumbent operator Telecom Egypt faces the highest charge of EGP7.08 billion (€707 million/$797 million) to cover the cost of its 4G license and also licenses for 2G and 3G technology, which the operator must pay as it moves into the mobile market for the first time having previously been a fixed-line only operator. Orange Egypt said in June that it has been asked to pay EGP3.54 billion for its 4G license in the country. The operator faces additional fees of EGP100 million for a fixed-line license, and of EGP1.8 billion to enable it to offer international calling services. Egypt's government originally approved plans to issue 4G licenses in 2014, but the process has been delayed by disagreements between operators: in particular regarding the interconnection fees levied by Telecom Egypt. (August 17, 2016) totaltele.com

Iran

Chairman: Dr. Ali Asghar Amidian
[Communication Regulatory Authority (CRA)]

Mobile number portability (MNP) has been given a commercial launch in Iran after a month of Beta testing. Iran's 114 million cellular subscribers are now able to switch provider while retaining their original number. So far 11,000 users applied to change their network during the trial phase. Iran is home to three national cellular license holders – state-owned Mobile Communication Company of Iran (MCI), South African-backed MTN Irancell and newest entrant Tamin Telecom, which trades under the 'Rightel' name – as well as several regional operators, the largest of which is Taliya Mobile. (August 23, 2016) TechRasa

Oman

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

The industry regulator Telecommunications Regulatory Authority (TRA) has invited interested parties, including potential investors, to give their comments and observations on the draft Reference Access and Interconnection Offers (RAIOs) published by Omantel and Ooredoo. According to the Muscat Daily, Omantel and Ooredoo have published their Draft RAIOs on their respective websites for consultation. TRA said it has not yet approved the published Draft RAIOs and is inviting interested parties to provide comments and observations. The regulator said it will give due consideration to all comments and contributions received within the set time frame but that it is under no obligation to adopt the comments of any respondent.
(August 10, 2016) world.einnews.com

Pakistan

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

Pakistan Telecommunication Authority is considering regulating the mobile apps and Over the Top (OTT) services such as WhatsApp, Viber and Skype, etc, official sources told Business Recorder. Sources said the model for delivery of Internet-based VoIP and other OTT services is fundamentally different from the earlier model in which services were embedded in the network. Therefore, most regulatory regimes designed in accordance with the earlier model are not satisfactory when applied in this context. The proposed revision to the licensing framework will address this issue in the long term. PTA is working on a framework through which it hopes to be able to regulate mobile apps and OTT services. PTA has constituted a committee which is working on the said framework to be shared with stakeholders including telecom operators as soon as it is ready. The committee was tasked to formulate recommendations through which OTT services, mainly the mobile apps, will be brought under regulation in Pakistan. PTA said that all efforts for getting a framework for regulating OTT are driven by the Telecom Policy 2015 that the Ministry of Information Technology approved and issued. Telecom Policy 2015 said the framework will enable the government to make sure that such mobile apps are in line with national interests and do not hurt telecom sector's (operators) interests. Officials said there is an immediate requirement to regulate services such as VoIP and other voice services that are partial or full substitutes for the traditional Public Switched Telephone Network, particularly when the services are provided by unlicensed service providers either in Pakistan or in other countries. PTA, in consultation with federal government and stakeholders, will develop appropriate regulatory framework to treat VoIP and other OTT services. The framework will take account of the possibility that service providers offering such services may preferably install equipment in Pakistan where possible, the rapidity of development of such services, the extensive range of such services, the potential requirements for scarce resources (eg numbers), requirements for access to emergency services, requirements for lawful interception, cooperation with Law Enforcement Agencies, data retention obligations on operators, impact on operator networks, and where appropriate, the requirement for interconnection with the equivalent embedded or OTT. Taking into account the globally emerging revenue sharing arrangements between local licensees and OTT players, for offering better than normal best-effort or differentiated version of the services, licensed access providers will be free to enter into mutual agreements with the service providers enabling them to monetize OTT service delivery on mutually agreed terms. New regulatory framework may also incorporate revenue sharing arrangements between local licensees (telcos for instance) and OTT players (WhatsApp, Skype, Viber, etc), for offering differentiated version of the services (free and paid) so that licensed businesses could enter into mutual agreements with OTT service providers to monetize OTT service delivery on mutually agreed terms. According to the sources, US and India also framed such regulations and are in implementation phases.
(August 23, 2016) brecorder.com

Technology neutral license for the 10 MHz-850 MHz frequency spectrum has been handed over to the successful bidder – Telenor Pakistan –making way for the company to become the third 4G operator in the country. Minister for

IT and Telecommunication Anusha Rahman formally handed over 850 MHz license to Telenor Pakistan CEO Michal Foley at a ceremony held at the IT Ministry, said a press release. Telenor Pakistan granted 4G license for $395 million. Rahman stated that Telenor had played a significant role in the sector during the last few years and successfully participated in all three spectrum auctions held in the last twelve years. Rahman further said that when she became minister broadband penetration was less than 3 per cent but within a short span, mobile broadband had grown to more than 19% and is targeted to cross 38% by 2020. The new license to Telenor will further bring high speed connectivity and the associated socio economic benefits and opportunities to the Pakistani citizens. Telenor wins 850MHZ spectrum license Michael Foley said, "Telenor is committed to supporting Pakistan's efforts to become a digitally developed nation. Driven by our vision of empowering societies, our success to date has been built on a simple realization: mobile communication, financial services and internet are not luxury goods for the few – they are for everyone." He hailed the Minister for her initiatives towards expanding the overall digital ecosystem in the country. (July 27, 2016) tribune.com.pk

Saudi Arabia

Governor, Deputy Chairman of the BoD: Dr. Abdulaziz Bin Salem Al Ruwais
[Communication & Information Technology Commission (CITC)]

Complete Saudization of the local telecommunications sector will come into effect after ten days in accordance with an order issued by the Minister Labor and Social Development Mufrej Al-Haqabani. The ministry is training about 40,000 male and female Saudis to work in the telecommunications sector and allied fields. Related agencies that are helping in the training include the Human Resources Development Fund (HADAF), Technical and Vocational Training Corporation, General Organization for Social Insurance and the Saudi Credit and Savings Bank. Participating ministries in the resettlement in the telecommunications sector include the Ministries of Labor and Social Development, Interior, Commerce and Investment, Municipal and Rural Affairs, and Communications and Information Technology. Earlier, the mobile phone industry was given six months to implement the decision on the Saudization of the sector across the Kingdom. The first step was Saudizing 50 percent of the sector for the first three months from Jamad Al-Thani 1 (March 10). It should be completely localized by Dhul Hijjah (Sept. 2). Al-Haqabani ordered that only Saudis will be employed in the entire mobile industry, covering sales, maintenance and accessories. The order is being implemented according to the jurisdiction, tasks, and responsibilities of each individual ministry. During the campaign, the Labor and Social Development Ministry took steps to ensure that business owners follow instructions by replacing foreign workers with Saudi nationals. The decision to localize the telecommunications industry aims to create employment opportunities for male and female Saudis who are interested in working in the sector. According to a Labor and Social Development Ministry decision, all the regions and provinces in the Kingdom and large and medium and small establishments are covered under the rule. According to Abdul Kareem An-Nujaidi, HADAF director general, the fund is supporting the recruitment and rehabilitation of Saudis willing to work in the sector. (August 26, 2016) arabnews.com

The Communications and Information Technology Commission (CITC) of Saudi Arabia has started disconnecting unregistered mobile subscribers, which failed to submit their fingerprints in line with the new security measures introduced by the regulator in September last year. The CITC said the fingerprint registration is meant to protect personal information of SIM cardholders and prevent buyers from obtaining mobile phones using fake or stolen identification cards. All unregistered users will have a grace period of two weeks to submit their details, before the service is cut. The regulator said in its most recent report for the first quarter of 2016 that it expects a continued decline in the number of mobile subscriptions (standing at 50.9 million at the time) in the coming periods, as a direct result of the new registration programme. (July 26, 2016) telegeography.com

Sri Lanka

Director General: Mr. Sunil S. Sirisena
[National Telecommunication Corporation (TRC)]

Telecommunications and Digital Infrastructure Ministry Secretary Wasantha Deshapriya said that together with Telecommunication Regulatory Commission of Sri Lanka (TRC-SL), they are hoping to formulate a national IT brand policy and plan before the end of this year, as the country lacks a benchmark for digital transformation. He said that though in supplying side there were so many ways to transform the industry by adopting various technologies, in Sri Lanka the demand side was still very low. "So that one problem is content such as gaming as well as video, video is going to be one of the key content areas, but we do not have it, "he said "Second point is E- government policy, National ICT policy. I'm hopeful that we would see that before end of this year. Previous version had that every government; organization should be connected to Lanka government network. It is going to be providing broadband connections in 3 years to 7500 government organizations connected with minimum of 20 MBs, this should cater to a huge demand," he added. ICTA Chairperson, Chitranganie Mubarak said that based on the statement made by the Prime Minster at the parliament of digitizing the economy and for taking the digital world to schoolchildren right across the country, their goal was to create a digitally inclusive Sri Lanka. "We all are working very hard to make sure this goal is met, and that we leverage on ICT, to take Sri Lanka to the next stage of development. So in this context what we should we be doing is empowering our citizens digitally," she said. She said that they have planned programmes for building capacity for women entrepreneurs using ICT and as well as social circles, which will be based on the Grama Niladari. Telecommunications and Digital Infrastructure Minister Harin Fernando said that in order to face increased challenges with behavioral and ethical issues of digital transformation, such as cyber bullying, inappropriate sharing, ICTA was taking a great effort together with their ministry in protecting the citizens in this cyber space. Promising that 2017 will be an impressive year in the digital space for Sri Lanka, he said that next year, on the digital space, Sri Lanka was going to go right on top, as the connectivity in Sri Lanka was going to have some new innovations. "We need to brace the new technology, need to grab the opportunity. When the loon was looming, people were not happy with loon, but when the loon works, the whole country will be connected with 4G technology right across the country," he said. He said that they initiating were several projects such

as providing 100 digital classrooms this year, and providing tablets for 100 schools for students starting from grade 9. (August 9, 2016) dailymirror.lk

Turkey

Acting Chairman: Dr. Omer Fatih Sayan
[Information & Communication Technologies Authority (BTK)]

Turkey's telecoms regulator, the Information Technology and Communications Authority (Bilgi Teknolojileri ve Iletisim Kurumu, BTK) has abolished the minimum price regulation for retail mobile voice and SMS messaging services which had been imposed solely on market leader Turkcell since 2009. In a statement issued yesterday, Turkcell said that the regulation, which was scrapped with effect from 16 August 2016, has had a negative impact on its competitive strength, and added: 'With the removal of the respective restrictions applied to our tariffs and campaigns, our company will be in a position to enrich the offer portfolio that meets our customers' needs. The underlying reasons behind the lifting of this obligation are stated [by BTK] as developments in the mobile electronic communication market, the increasing significance of mobile internet service, the proliferation of over-the-top (OTT) services enabling communication over the internet, and the declining significance of voice and SMS services as compared to the period when the regulations were put into practice, as well as the decline in the proportion of on-net traffic and in the price difference between on-net and off-net calls.' The minimum price rules required the average on-net prices of all Turkcell's standard and promotional retail mobile voice/SMS tariffs to be set at over 1.7 times the wholesale mobile termination rates applied by Turkcell to rival operators per minute/number of SMS. (August 24, 2016) telegeography.com

Turkey has confirmed reports that it has shut down its internet surveillance agency, the Department of Telecommunications and Communication (TİB), and merged it into the general telecoms regulator, the Information and Communication Technologies Authority (BTK). The decision was among a set of emergency decrees – published yesterday by the Turkish government in its Official Gazette – that follow the attempted coup of 15 July. The government is blaming an organization that it calls the FETÖ and has set about removing anyone that it believes was sympathetic to the rebels. The move follows a speech earlier this month by Turkey's president, Recep Tayyip Erdoğan, who said: "We want to form a strong intelligence mechanism against the activities of this organization [FETÖ]. For instance, we will shut down the TİB, because it is among the places that has all the dirt." A year ago a government minister Lütfi Elvan – now in charge of transport, maritime affairs and communications – said that the building then occupied by TİB was used by FETÖ members as "headquarters for illegal wiretapping". He said, according to Turkish newspaper Hurriyet: "We don't know where the cables from that building reach. We know that nearly 1,000 people in the TİB were illegally wired." The TİB was responsible for checking communications made by any network, the evaluation of signal information and recordings. It also oversaw the implementation of the country's website blocking laws. "The TİB's powers, responsibilities, staff and its entire technical possibilities will be transferred to the BTK," said Deputy Prime Minister Numan Kurtulmuş. (August 17, 2016) globaltelecomsbusiness.com

United Arab Emirates

Director General: Hamad Obaid Al Mansoori
[Telecommunication Regulatory Authority (TRA)]

The Telecommunications Regulatory Authority (TRA) of the UAE has announced that there are no legislations in the country that obstruct the economic movement or the work of local or international companies based in the UAE. This comes in response to several inquiries the TRA has received from companies or institutions about what has been published in the media recently regarding the use of Virtual Private Networks (VPN) in the UAE. The TRA has assured businesses and the public that it is fully committed to the safety and the smooth flow of economic activities for UAE-based companies and institutions, highlighting that there are no regulations which prevent the use of VPN technology by companies, institutions and banks to access their internal networks through internet. However, business users can be held accountable, like the use of any other technology, if it has been misused. Referring to a recently issued amendment on the Federal Law No (5) of 2012, the TRA noted that the law is not new in its essence and that the only changes were related to tightening the penalty or punishment for any violation. The TRA further urged to read the actual violation mentioned in the law; which says: "using a false IP address or a third-party address by any other means for the purpose of committing a crime or preventing its discovery", in order to understand the law correctly and where the punishment is exclusively linked to the mentioned fraudulent act and the intent to commit a crime or prevent its discovery. "The UAE is proud of being one of the countries that encourage investment and openness to ICT-based economic activities. This trend is embodied the UAE's history since the founding of the union in 1971," said Hamad Obaid Al Mansouri, Director General of TRA. "It is also included in the strategic directions of the UAE, particularly in our national Vision 2021, which aims to make the UAE one of the best countries in the world – and clearly outlined as well in our national agenda and major programs and projects that confirms the UAE's leadership in this field worldwide." The TRA further emphasized that any misuse of the licensed and organized services in the UAE will lead to legal accountability. It is worth mentioning that the laws are targeting those who misuse the services and not those activities that are consistent with UAE's laws. "The leadership of the UAE in the field of internet applications and IT in general, is on the contrary to what has been circulated by some media regarding the use of VPNs. It is known that the UAE is keen to embody the directions of the UAE Government's wise leadership regarding smart transformation, including the smart government, smart cities, Big Data, and Internet of Things, in addition to promoting investment, competitiveness and focus on building a knowledge-based economy and society," Al Mansouri added. (August 1, 2016) gulfnews.com

◆ REGULATORY ACTIVITIES BEYOND THE SAMENA REGION

REGULATORY UPDATES

Australia

The Australian Government is encouraging local councils to find technology solutions to improve suburbs and cities. Speaking at a Future Cities Summit in Brisbane Angus Taylor, Assistant Minister for Cities, announced a series of stakeholder roundtables to be held in September to kick-start the AU$50 million (US$38 million) Smart Cities and Suburbs Programme. A key election commitment of the new government, the programme will support councils across Australia to fast-track open data and innovative technology solutions to fix local problems. Taylor said the goal was to encourage local governments to partner with tech experts to make cities and suburbs more live able, sustainable and productive. "The Smart Cities and Suburbs Programme is to support clever technology ideas to fix difficult or long standing community issues," he said. "The most valuable projects will be transformative collaborations between multiple councils and technology industry partners that link closely with future plans for the area." "The Commonwealth [Government] expects local governments to bring forward a variety of cutting-edge projects such as collaborative design solutions or pilots of emerging technologies." A wide range of projects are expected to be eligible, such

as app-based detection of infrastructure wear and tear and automatic dispatch of maintenance crews, to computer generated programs that support or enhance city services. Taylor said the most valuable projects will be transformative collaborations between multiple councils and technology industry partners that link closely with future plans for the area. Stakeholder roundtables will be held in a number of major Australian cities during September.
(August 26, 2016) itu4u.wordpress.com

A market study examining a wide range of issues concerning competition and efficiency in communications markets is to be undertaken by the Australian Competition and Consumer Commission (ACCC). With the consultation set to involve industry participants and consumers, the ACCC noted it has already held preliminary discussions with a number of stakeholders. Topics to be discussed as part of the market examination include the changing structure of the nation's communications markets, particularly the transition to a fixed line market in which nbn, the company overseeing the National Broadband Network (NBN) rollout, is the wholesale provider to retail service providers. Other matters which the ACCC will look to address are: the issue of consolidation and market concentration in the retail sector; the growth in availability of over-the-top

(OTT) services; the exponential growth in the demand for bandwidth and data; and the increased use of mobile data by consumers and the increasing preference for mobile as a way to access the internet. The market study will consider how these and other changes affect competition, the efficient operation of markets, and investment incentives, and will examine options to address any issues identified, while considering the potential to improve economic regulation where warranted. The ACCC will commence consultation with an issues paper and will release a draft of its findings for comment prior to completing the market study in 2017. Commenting on the matter, ACCC chairman Rod Sims said: 'We recognize the communications sector is one that all Australians have an interest in, and one that facilitates economic growth. Importantly, the study will also allow the ACCC to consider a wide range of interrelated issues that have been raised by the sector and that go to the proper functioning of the market ... The study will examine the changing landscape and identify any issues preventing the use of innovation and investment to deliver the benefits of competition to consumers.' (August 5, 2016) telegeography.com

China

China ended June with 709.58 million internet users, which represents an increase of 6.27 percent year-on-year, according to a report from China Internet Network Information Center (CNNIC). Internet penetration reached 51.7 percent at June 30. Around 656.37 million or 92.50 percent of China internet services customer base go online directly from their mobile phones. The report further shows that, in the first half of this year, the average time of using internet services was 26.5 hours per user per week. There were 337.608 million IPv4 addresses and 20,781 blocks/32 of IPv6 addresses, 36.984 million domain names, and 4.542 million websites registered in China at 30 June. China had total bandwidth of 6,220.764 Gbps for international internet connections. China Telecom led the ISP market with bandwidth of 3,817.006Gbps, followed by China United Network Communications (1,501.805Gbps), China Mobile (787.763Gbps), Cernet (61.440Gbps) and CSTNet (53.248Gbps).
(August 25, 2016) telecompaper.com

European Union

The European Commission (EC) is working on a proposal which will see all European mobile licenses issued for a minimum of 25 years, a move it says will increase investment certainty for operators. According to Reuters, citing a private EU document, the proposal will be published next month and potentially endorsed as early as 2018. Under the provisional plan, the EC would have the power to adopt binding guidance on some conditions of the assignment process, such as the deadlines for spectrum allocation and spectrum sharing. Member states would also be able to jointly organize spectrum auctions to assist with the award of multi-country or pan-EU licenses, although this aspect would be voluntary. The EC has made no secret of its desire to forge a single European telecoms market in recent years and telcos have also called for greater EU coordination of spectrum policy. The plan, however, will still need to be approved by member states and the European Parliament before becoming law, and a certain level of resistance is anticipated. National authorities are likely to be reluctant to relinquish control over how they auction wireless spectrum, which is generally considered to be a national resource. (August 17, 2016) telegeography.com

The European Commission (EC) is tipped to be targeting a stricter regulation of over-the-top (OTT) messaging services from companies including Facebook and Microsoft as part of a broader overhaul of European Union (EU) privacy laws. Internal EC documents revealed that the commission is preparing to issue proposals for the regulation of services including Facebook's WhatsApp and Microsoft's Skype next month, as part of broader efforts to update existing electronic privacy rules and remove differences in regulation faced by telecoms groups and their online rivals. The latest e-privacy laws will replace existing rules that were conceived in 2002, and are likely to remove restrictions on telecoms service providers relating to subscriber location data, Fortune reported in a related article. European telecoms operators including Orange and Telefonica have long complained that OTT services from companies based outside the EU – in this case the U.S. – have benefitted from looser regulations than mainstream telecoms service providers. However, the EC's goal to include OTT companies in broader telecoms laws is more focused on the user data that such companies gather, the FT noted. In particular, the EC is aiming to ensure that security agencies can readily access OTT services' user data, the newspaper stated, adding that the commission is also seeking to regulate the way in which OTT companies utilize that data. The EC's proposals will also include regulation of online services that allow users to dial fixed and mobile phone numbers, the FT added. However, the commission does not intend to cover online-to-online calling in its proposals, the newspaper said. While the EC is making progress in its bid to overhaul its ageing e-privacy laws, it is still far from certain that the latest proposals will be passed into law. The FT noted that EU member states will spend several months debating the proposals, and that lobby groups are also likely to weigh into the matter.
(August 15, 2016) totaltele.com

The European Commission (EC) has opened an 'in-depth investigation' into plans by Portugal's National Communications Authority (ANACOM) to refrain from granting regulated local or central access to the PT Portugal (MEO) fiber-optic network in parts of the country where there is little prospect of alternative infrastructure deployment. In its draft decision, ANACOM conducted an analysis of the retail and wholesale markets for broadband services. It found that MEO has significant market power (SMP) on both the local and the central wholesale access markets for broadband (covering copper, fiber and cable platforms). ANACOM has divided the Portuguese territory into two distinct geographic retail markets: 'competitive' parishes (mostly urban areas where alternative operators are present with significant coverage of next generation networks (NGNs) and/or a limited market share by MEO) and 'non-competitive' parishes (mostly rural, where MEO is by far the strongest provider of broadband services). In justifying its investigation, the EC argues: 'Despite the very limited economic prospects that alternative operators could independently deploy their own fiber in less densely populated areas in the short or medium term, ANACOM has not provided a sufficiently substantiated justification as to why not regulating fiber access would foster a sustainable competitive market at retail level and represent an acceptable balance between the objectives of competition and efficient investment in end-users' interest.' As such, the Commission believes that ANACOM's intention not to regulate access to MEO's fiber network in the 'non-competitive' areas is contrary to the provision of EU telecoms rules. Under the EU Framework and Access Directives, telecoms regulators can decide to impose specific remedies on operators with SMP to allow alternative opera-

tors to more easily deploy their own infrastructure and to compete more effectively with them for consumers. These remedies typically include the obligation to provide proportionate access for alternative operators to specific elements of the network. (August 4, 2016) telegeography.com

GSMA

The GSMA calls for the Egyptian authorities and the country's mobile industry to work closely together to set a roadmap for the successful introduction of 4G services. Egypt is planning to move forward on licensing spectrum to support 4G in the coming weeks, although it is not yet clear if sufficient spectrum will be made available on terms that will encourage rapid and large scale investments in 4G networks and services. "There are some critical success factors that should to be clarified before moving forward with 4G licensing in Egypt," said John Giusti, GSMA Chief Regulatory Officer. "The GSMA is concerned about sufficient spectrum being made available at fair, market-reflective prices to support full-fledged 4G rollout. A clear spectrum roadmap is necessary to allow operators to understand how and when sufficient spectrum will be made available. We believe that further dialogue between government and industry ahead of the proposed licensing process could provide clarity on a plan to bring world-class 4G mobile broadband to consumers and businesses across Egypt." Based on the GSMA's international experience, the total amount of spectrum assigned to each operator for 4G needs to be in the range of 2x30MHz to 2x60MHz, across a range of coverage and capacity bands, with a minimum contiguous bandwidth of 2x10MHz in each band (to enable efficient network economics). It is also essential that cost of spectrum access enables the delivery of the long-term social and economic benefits of mobile broadband and takes into account the investment necessary to provide robust networks. "To ensure the lowest possible cost and best possible experience for consumers, national 4G services must be able to scale rapidly," added Giusti. "This requires that sufficient spectrum be made available now, and that plans for future spectrum releases are clarified. Having a spectrum roadmap is critical for business and investment planning." A recent Memorandum of Understanding between the GSMA, the Government of Egypt and the National Telecommunications Regulatory Authority (NTRA)1 was agreed to promote a regulatory environment in Egypt that stimulates long-term investment in mobile services. (July 26, 2016) cellular-news.com

Guyana

Guyanese incumbent Guyana Telephone and Telegraph Company (GTT) is set to begin negotiations with the government regarding the end of its monopoly on international voice and data services next month, with talks expected to be completed by the end of the year media reports, citing Lance Hinds, an adviser to the Minister of Public Telecommunications. The official made the announcement at a public forum earlier this week, and ruled out the possibility of compensating the operator for the remaining nine years of exclusivity, stating: 'That is not a discussion that is really going to happen, because it is difficult to put a value on an exclusive license for nine years down the road, because you [are then] doing future projections on earnings and that gets into a science that will only get us into a dispute.' Instead, Mr. Hinds said that the talks will focus on whether GTT has any liabilities and the specifics of a new license. The gov-

ernment approved the long-awaited Telecommunications (Amendment) Bill (2016) in July this year. The legislation has been designed to pave the way for liberalization in the market, but there are still several hurdles in the way, including negotiating the end of GTT's monopoly without risking a lawsuit from the telco, or its parent company, ATN International (formerly Atlantic Tele-Network). The reshuffling of Guyana's regulatory structure is also required, including the creation of the new Telecommunications Agency – which will incorporate the National Frequency Management Unit (NFMU) and oversee the sector alongside existing regulator the Public Utilities Commission (PUC) – and the establishment of a host of new regulations covering license and frequency allocations, interconnection, competition, consumer protection and universal service. Commenting on the plans, Mr. Hinds noted that infrastructure sharing and net neutrality are expected to see fierce opposition from operators: 'How we manage those kinds of things...is going to be tricky in terms of who is going to hold the infrastructure, who is going to rent from who...because we simply can't have a situation where every man jack is running fiber all over the town.' On net neutrality, the official said that operators are hoping to only carry traffic for over-the-top (OTT) VoIP and messaging applications like WhatsApp and Viber for an extra cost, as the use of such services is eating into their traditional voice and SMS revenues. 'That is concretely opposite to what net neutrality is,' the official explained, adding: 'Guyana is probably the first Caricom territory to pass the dilemma of net neutrality legislation ... in terms of ensuring that there is no discrimination in terms of the provision of data via telecommunication providers.' (August 22, 2016) Demerara Waves

India

The telecom departments (DoT) will kick-start the largest sale of 2G, 3G and 4G airwaves from September 29. While the government hopes to garner a minimum around Rs 5,56,000 crore from the sale of all airwaves on offer at base price, industry experts say the lack of a compelling reason like expiry of bandwidth and exorbitantly priced spectrum in the 700 MHz band may dampen demand. The DoT Monday released the Notice Inviting Application (NIA), the legally-binding document for the auctions, outlining all details of how the government plans to sell airwaves to private telecom operators, including the eligibility requirements and the minimum earnest money which operators will have to deposit if they wish to participate in the auctions. According to the details released on Monday, the government will sell 2354.55 megahertz of spectrum in the 3G band of 900 MHz and 2100 MHz and 4G bands of bands of 700 MHz, 800 MHz, 1800 MHz, 2300 MHz and 2500 MHz. This includes additional spectrum released in the 1800 MHz and 800 MHz bands valued at Rs27,000 crore at base price, Telecom Secretary J S Deepak told reporters. According to the NIA, any sort of consolidation in the market -spectrum trading/sharing/merger and acquisition- will be suspended until the sale is complete. The move is designed to help raise a higher demand for the government's sale of bandwidth. Meanwhile, the spectrum sold in the upcoming auctions will attract a spectrum usage charge of 3%. However, the overall SUC which a telco will pay will differ from one operator to another and will be a blended SUC of multiple levies imposed on sale of bandwidth from time to time. Computed as a weighted average, the overall SUC of each operator will now onwards, also include the airwaves in the 2300 MHz which were earlier attracting a flat SUC of just 1%. Winners

in the 700 MHz, 900 MHz and the 800 MHz bands will need to pay 25% of the winning amounts within 10 days of the auction close, while 50% of the winning bid price will be the upfront payment for spectrum in the 1800 MHz, 2300 MHz and the 2500 MHz bands. The rest would need to be paid in 10 equal installments after a two-year moratorium. The government will allot spectrum within 30 days of the up-front payment. (August 8, 2016) telecom.economictimes.indiatimes.com

India's Telecom Commission set the spectrum usage charge for the next batch of spectrum to be sold at a minimum of 3 per cent of revenue, increasing the fees for Reliance Jio Infocomm and Aircel, Economic Times reported. The commission's proposal will be reviewed by the cabinet next week. The next auctions, which have been delayed by the spectrum usage fee issue, can go ahead 45 days after the cabinet gives the green light. In June, the cabinet approved a huge spectrum auction plan proposed by the regulator. Initial reports said the auction was expected to raise a re-cord INR5.6 trillion ($83 billion), exceeding the country's last auction, which raised INR1.1 trillion. According to the Times, Jio, based to the earlier formula proposed by the commis-sion, would have a spectrum usage fee of 2.88 per cent of revenue, but will now have to pay 3.05 per cent. It will have to pay an additional 0.5 per cent as it shares spectrum from Reliance Communications. The 4G newcomer will continue to pay a 1 per cent fee on the spectrum it won in 2010. Aircel's fee will rise from 2.83 per cent under the previous recommendation to 3 per cent. India's top mobile opera-tors, which pay a higher usage fee, have pushed the gov-ernment to impose a flat 3 per cent usage charge across all spectrum bands, regardless of how they were acquired, and want to see the fee gradually cut to 1 per cent to encour-age investment. But the Telecom Department has not ac-cepted this option. The newspaper quoted Rajan Mathews, Director General of Cellular Operators Association of India, as saying: "The telecoms industry is disappointed with the commission's decision to continue with a weighted average methodology for calculating the spectrum usage charge. We believe that the dangers highlighted by the Telecom Regulatory Authority of India of revenue arbitrage are still prevalent and we hoped the government would switch over to a flat rate instead of a weighted charge, which is different for each operator." (July 26, 2016) mobileworldlive.com

Indonesia

The government of Indonesia says it will not allow mobile network operator (MNO) Telekom PT SmartFren (Smartfren) to in any way slide in its 1900MHz frequency migra-tion timetable. Under the Ministry of Communication and Information Technology's (MCIT's) network migration pro-gramme, CDMA operator-turned-LTE provider Smartfren will not be able to use the 1900MHz band for its service from the start of 2017 and, as such, is looking to move to the 2300MHz band where it is hopeful of securing 30MHz of spectrum. Speaking yesterday, however, MCIT minister Ru-diantara reaffirmed that he will not tolerate any delays in the migration programme, adding that by January 1, 2017 the 1900MHz band 'should be clean of code division multiple access services belonging to Smartfren'. The company cur-rently holds 13.75MHz of bandwidth in the 1900MHz band for CDMA, but – according to the rules – it will not be able to use this beyond December 2016. Rudiantara is keen to ensure that Smartfren vacates the 1900MHz band in good time to allow MCIT's proposed tender of 3G frequencies at 2.1GHz to run as scheduled. A number of MNOs are seeking to acquire the additional 2.1GHz (3G) frequencies, including Hutchison 3 Indonesia (Tri), XL Axiata, Indosat Ooredoo and Telkomsel. (July 27, 2016) telegeography.com

Montenegro

The telecoms regulator announced the con-clusion of a multi-band spectrum auction that saw the country's three existing mobile operators pick up airwaves, but failed to at-tract interest from any new players. The Agency for Elec-tronic Communications and Postal Services (EKIP) sold off spectrum in the 800 MHz, 900 MHz, 1800 MHz, 2 GHz and 2.6 GHz bands via an auction process that ran for almost a month before drawing to a close on August 2. In the pre-auction stage it ensured that certain frequencies were re-served at a particular price point for a potential new market entrant, but given that there was no interest in the pack-age, those airwaves were wrapped into the main auction. It raised €50.65 million from the process overall, including €35.73 million via the main auction. The country's three existing mobile operators – Crnogorski Telekom, which is indirectly owned by Deutsche Telekom and operates as T-Mobile, Telenor, and Telekom Srbija's Mtel – all walked away with spectrum, EKIP said. However, not all the available spectrum was assigned. EKIP calculated the value of unsold frequencies at €8.31 million, based on reserve prices. (August 5, 2016) totaltele.com

Myanmar

The Ministry of Transport and Communica-tions of the Republic of the Union of Myan-mar, acting through the Posts and Telecom-munications Department, will launch a 2600 MHz spectrum auction on October 17. The government will offer 40 MHz of spectrum in the 2600 MHz frequency band. This spectrum can only be used for provision of broadband data services. A total 40MHz of spectrum in the 2600MHz band (2575-2615 MHz) will be made available for this auc-tion, comprised of 2x20MHz (2575-2595 MHz, 2595-2615 MHz) divided into three regions. Each bidder will be able to win up to two regional licenses thus allowing for three to six regional licensees in total. The spectrum lot will be in TDD mode. The Ministry of Transport and Communications has recently published a list of companies that had submitted expressions of interest (EOI) for the October auction, and a list of those selected as potential bidders. Telenor and MPT both made EOIs and were selected as potential bidders. Ooredoo did not apply. Qualified bidders will be announced on September 28. The auction winners will be announced on October 20. (August 22, 2016) telecompaper.com

Nigeria

Nigeria, Africa's largest mobile market by subscribers, ended June 2016 with a total of 149.18 million active GSM lines, an increase of 1.8% from 146.49 million twelve months earlier. According to the latest figures from the Nigerian Communications Commission (NCC), South Africa-based MTN remained the mobile market leader with a total sub-scriber base of 58.41 million at mid-2016 (a 39% of total GSM users), followed by locally-owned wireless operator Globacom with 36.32 million users (24%), Airtel Nigeria – a subsidiary of Indian telecoms group Bharti Airtel – with 31.98 million subscribers (21%) and finally Etisalat Nigeria with 22.47 million users, giving it a GSM market share of

15%. In comparison, the number of active mobile CDMA lines declined from 2.11 million at the end of June 2015 to just 454,092 twelve months later, mainly attributable to the migration of Visafone's customers to the GSM network of MTN, which acquired the CDMA operator at the end of last year. The NCC reported that the West African nation ended the first half of 2016 with just 170,539 fixed and fixed-wireless lines in service, down slightly from 182,643 the previous year. (August 12, 2016) telegeography.com

Paraguay

Paraguay is preparing a new law to regulate the country's growing Internet-based TV services, specifically targeting the taxation of over-the-top (OTT) operators. The announcement was made by congressman Dany Durand during the Centreo de Estudios para el Desarrollo de las Telecomunicaciones de América Latina (CERTAL) summit. According to Durand, the law won't be a traditional media regulation, as this is banned by the constitution, but rather a law intended to fill the gap between regulated pay-TV operators and online service providers. He cited Netflix as a case in point, as the American subscription video-on-demand (SVOD) service doesn't pay the same taxes as local cable companies. During CERTAL, held in the Paraguayan capital Asunción, many official voices pointed out the need for an OTT regulation in Latin America which guarantees competition. In fact, Paraguay is not the first country to consider regulating a booming OTT industry. Argentina tried to do so locally in Buenos Aires in 2014, and Brazil is currently debating the necessity of a specific law for VOD platforms. (August 22, 2016) rapidtvnews.com

Philippines

An appeals court in the Philippines ordered the competitive watchdog to explain why PLDT and Globe Telecom should not be granted temporary restraining orders to halt a review of the operators' joint acquisition of San Miguel Corp's telecoms assets. The court gave the Philippine Competition Commission (PCC) 10 days to comment on the operators' petitions, filed in early July, to halt the review of the PHP69 billion ($1.47 billion) acquisition. PLDT and Globe will have five days to respond after PCC releases its comments. PCC has called for a public consultation on the deal, which includes the 700MHz spectrum band, which is well suited for boosting coverage. The deadline for public comment is 6 August. The two dominant operators, with a 99 per cent market share of mobile connections, have turned up pressure on the regulator over the past month. Globe called the request for a public consultation "mob rule". Last week Globe complained the watchdog is treating the proposed acquisition differently from other deals and accused the PCC of "changing the rules suddenly in the middle of a game and acting on it whimsically". Both have said they followed PCC rules and so the acquisition should be "deemed approved", but the regulator has reserved the right to review the deal under the country's fair competition law. It is worth noting that shortly after the deal was struck, PCC released new regulations for the competition act, which were put into effect in early June. (July 26, 2016) mobileworldlive.com

Romania

Romanian telecoms watchdog ANCOM has imposed fines totaling RON900,000 (US$221,600) on cellcos Orange, Vodafone and Telekom Romania Mobile Communications for failure to meet the two-year wireless broadband coverage targets stipulated by the terms of their 800MHz digital dividend spectrum licenses, which were auctioned in September 2012 and became valid in April 2014. ANCOM confirms that the three operators fell short of covering their full quotas of specified unserved villages/rural municipalities by the deadline of April 5, 2016. Vodafone failed to cover 72 out of its 225 stipulated settlements and was fined RON720,000; Orange was fined RON120,000 for failing to cover twelve of its 225 settlement quota; and Telekom (formerly Cosmote Romania) failed to cover six of its stipulated 169 settlements, costing it RON60,000 in fines. A fourth operator RCS&RDS (Digi) was awarded 900MHz spectrum in the 2012 multiband auction, and is assumed to have met its licensing conditions of covering the remaining 57 rural/unserved settlements on ANCOM's list of 676 specific locations. (July 27, 2016) telegeography.com

Singapore
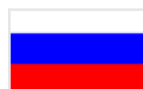
Singapore's legislative assembly passed the Info-communications Media Development Authority Bill, paving the way for the merger of the Info-communications Development Authority (IDA) and Media Development Authority (MDA), as the government seeks to adapt its regulatory structure to better address the rapidly-changing and increasingly converged telecoms and media sectors. With traditional telcos stepping up their challenge in the pay-TV/IPTV content sphere, and TV broadcasters fighting for space against over-the-top (OTT) providers such as Amazon and Netflix, the government believes that the creation of a super regulator – the Info-communications Media Development Authority (IMDA) – will be better suited to coordinate future convergence in the industry. In a statement, Minister for Communications and Information Yaacob Ibrahim said: 'IMDA will build on the success of IDA and MDA, and help develop Singapore as a future-ready infocomm media hub. Consumers will also be a key focus for IMDA, ensuring that they continue enjoying a variety of infocomm media services at good service standards and competitive prices.' The minister went on to point out that as a unified body: 'IMDA will be better poised to address the talent needs and develop professional skills for the infocomm media sector. It will do this by building interests and cultivating talents from young and introducing our students and young adults to the exciting world of infocomm media.' (August 17, 2016) telegeography.com

South Africa

South Africa's Department of Telecommunications and Postal Services (DTPS) has filed an application with the High Court in Pretoria to block the proposed auction of LTE-suitable spectrum in the 700MHZ, 800MHz and 2600MHz bands, which was launched by telecoms regulator the Independent Communications Authority of South Africa (ICASA) last month. The ministry said that the decision to halt the proceedings 'has become necessary in order to prevent irreparable harm which unsuspecting interested parties may suffer in the licensing process which this court could ultimately find unlawful', as the proposed auction would prevent the entry of new players in the wireless broadband sector. The authority also said that ICASA should wait for the publication of the government's spectrum policy – which is expected to be approved by the end of the year – before launching the Invitation to Apply (ITA) process. In July 2016 the ICASA

issued an ITA for spectrum in the 700MHz, 800MHz and 2600MHz bands to all interested parties wishing to provide wireless broadband services. The regulator said that awarding frequencies in the aforementioned bands would ensure nationwide broadband access for all citizens by 2020, in line with the National Development Plan (NDP) and the South Africa Connect Policy. The auction for the spectrum lots – which will come with a reserve price of ZAR3 billion (US$210 million) each – is expected to start on January 17, 2017 and end on 30 January 2017. (August 9, 2016) TechCentral

Slovenia

Slovenia's Agency for Communications Networks & Services (Agencija za komunikacijska omrezja in storitve, AKOS) has set a date of September 5 for the rescheduled auction of spectrum in the 1800MHz and 2100MHz bands, left over from the April 2014 4G frequency tender. The regulator is offering 2×10MHz in the 1800MHz band (1775MHz-1785MHz paired with 1870MHz-1880MHz) valid until 4 January 2031, plus 2×5MHz at 2100MHz (1955MHz-1960MHz paired with 2145MHz-2150MHz) valid until September 21, 2021. The 1800MHz spectrum has a reserve price of EUR2.6 million (US$2.9 million) per 2×5MHz block, while the reserve price of the 2100MHz block is EUR1.3 million.

(August 19, 2016) telegeography.com

Spain

Having approved final regulations governing the wholesale broadband market in February 2016, Spanish telecoms regulator the Comision Nacional de los Mercados y la Competencia (CNMC) has now launched a public consultation related to wholesale services offered over Telefonica Espana's fiber-optic infrastructure. In a press release the regulator confirmed that it is looking to have Telefonica Espana, which offers its services under the Movistar banner, provide a 'NEBA local' service (analogous to a virtual unbundled local access [VULA] connection) in areas deemed not to have sufficient competition in the fiber arena; in its February 2016 ruling the CNMC noted that Telefonica Espana would be exempted from opening up its fiber network in a total of 66 municipalities, equivalent to 35% of the population. The watchdog has also noted that speeds of up to 300Mbps should be provided as part of this wholesale offering, with alternative operators able to strike deals with Telefonica Espana for any downlink rate up to that top level to allow them to offer a broad range of services. Upon conclusion of the consultation, which is set to run for two months, the CNMC will notify the European Commission (EC) of the final proposals, following which it will look to give the final nod to the plans. Once approved, the Spanish regulator expects Telefonica Espana to introduce the NEBA local service within twelve months. (August 8, 2016) telegeography.com

Togo

The Council of Ministers has instructed the Minister of Posts & Digital Economy to issue a tender to award three new licenses to ISPs in the West African country. In its report the Council explains: 'The coming of new operators will help develop competition, enhance the quality of internet services and reduce costs significantly,' adding that the government has taken this decision 'to support major projects currently executed so as to enhance the access and the quality of internet connection in our country'. Further, the Council of Ministers says it will develop plans to build a new data centre in the country, set up an internet exchange point (IXP) and construct a 140km fiber-optic network, all of which it says will 'help pool' the efforts of national operators Togo Telecom and Togo Cellulaire (Togocel). Meanwhile, in another bold statement of intent, Minister is expected to be given recommendations to license 4G LTE mobile services, by awarding concessions to Togocel and Moov Togo, majority owned by Maroc Telecom. No timeframe has been given on the raft of initiatives currently under discussion.

(August 26, 2016) Xinhua/News Ghana

United Kingdom

Telecoms regulator OFCOM has unveiled 'detailed plans to make digital communications work for everyone', including proposals for a major reform of Openreach, the network division of fixed line incumbent BT. Having said back in February that it believed Openreach should become more independent from BT, OFCOM has now detailed proposals on exactly how it envisages this happening. As per the proposed model, Ofcom has said that Openreach should become a 'distinct company', legally separate within the BT Group, with its own Articles of Association. In addition, it has called for Openreach to have its own board, with a chief executive appointed by, and accountable to, the Openreach Board, not to BT Group. Further, Ofcom has called for Openreach to be obliged to consult formally with customers such as Sky and TalkTalk on large-scale investments, while it has also said that the infrastructure company should own its physical network. Finally, independent branding for Openreach is also on the cards, with Ofcom saying that this will help 'embed the organizational culture of a distinct company'. However, should this setup fail to ensure that Openreach acts more independently from BT Group, Ofcom has said it could yet reconsider whether the two should be split into 'entirely separate companies, under different ownership'. Views on the Openreach proposals are being sought, with a deadline for submissions of 4 October. Alongside matters relating to Openreach's governance, Ofcom has detailed its plans designed to boost investment in fiber networks and improve quality of service. Back in February the regulator committed to making it easier for alternative operators to invest in advanced, competing infrastructure by improving access to Openreach's network of telegraph poles and ducts. In its latest announcement, Ofcom noted that new rules come into force from 31 July that will give telecoms providers further rights to access physical infrastructure, with these designed to reduce the cost of deploying broadband networks by sharing access to infrastructure across different sectors. In regards to quality of service, Ofcom said it has taken 'significant steps' in this area, which included: discussing proposals which will require operators to provide automatic compensation to customers when services fall short; publishing proposals to make switching between mobile providers swifter and easier, while it expects to publish plans to make it easier to switch landline, broadband and pay-TV services 'shortly'. Commenting on the raft of measures being proposed, Ofcom's chief executive Sharon White said: 'We're pressing ahead with the biggest shake-up of telecoms in a decade, to make sure the market is delivering the best possible services for people and business across the UK.'

(July 26, 2016) telegeography.com

United States

According to the Federal Communications Commission (FCC), the 600MHz Broadcast Television Spectrum Incentive Auction ('Auction 1002'), which commenced on August 16, has generated total bids worth USD18.579 billion after 18 rounds of bidding. Round 19 is scheduled to commence today. As expected, spectrum allocations covering New York and Los Angeles have attracted the highest bids thus far, followed by the likes of Chicago, San Francisco, Baltimore-Washington, DC, Philadelphia, Boston, Dallas and Miami. Going forward, as of August 29 the FCC will use a 10% increment to set new 'clock prices' for all spectrum lots in each round of bidding. The move comes at a time when industry insiders have cast doubts over the likelihood of the auction reaching its target. Currently, the 'clock price' for each round is set by adding a fixed 5% increment to the previous round's 'posted price'. The current Auction 1002 'Forward Auction' was preceded by a 'Reverse Auction' between the FCC and the TV broadcasters that held the 600MHz spectrum. This process saw the 'clearing cost' for 126MHz of spectrum established at US$86.423 billion, significantly exceeding analyst expectations. If that figure is not met in the Forward Auction the FCC will reduce the amount of spectrum it will free up and resume bidding with TV broadcasters in a second stage of the Reverse Auction. (August 26, 2016) telegeography.com

The US Federal Communications Commission (FCC) has paused the 'shot-clock' on the proposed US$1.8 billion takeover of XO Communications, by Verizon Communications. In correspondence dated July 20, the FCC's Wireline Competition Bureau informed the relevant parties that its investigation into the deal was suspended on July 7– Day 86 of the regulatory process – due to issues regarding unfulfilled information requests. The sticking points are said to relate to on-net fiber buildings, interconnection agreements, internet backbone networks and Verizon's plans for XO's existing Ethernet over Copper (EoC) services. Verizon agreed to buy XO Communications' fiber-optic network business in February 2016. XO operates metropolitan networks in each of the 30 major US markets, with over 4,000 on-net buildings, while its intercity network spans 19,000 route miles, connecting 85 cities. Announcing the deal, Verizon said that the takeover of XO's fiber-based IP and Ethernet networks will help better serve its enterprise and wholesale customers. At the time of the deal, the companies said that the transaction was expected to close in the first half of 2017. Separately, Verizon will lease available XO wireless spectrum, with an option to buy XO's entity (that holds its spectrum) by end-2018. (July 25, 2016) telegeography.com

Uruguay

Uruguay's communications regulator URSEC is about to publish the bidding rules for the forthcoming auction of spectrum in the 700MHz band, due to take place in the second half of the year. "The bidding conditions are ready and the procedure now requires the executive order approving the conditions and setting a date to begin the auction, which should occur within a month of the approval," said Diaz. Uruguay already has highest LTE penetration in Latin America, reaching 55.88 percent of the population compared to 11.35 percent of the region as a whole, according to 5G Americas. However, Cosse said the 700MHz band would allow operators to expand mobile broadband coverage to rural areas that aren't currently reached by 3G services. (July 28, 2016) telecompaper.com

Uzbekistan

VimpelCom has announced that its Uzbekistan subsidiary, which offers services under the Beeline banner, has been granted a 15-year extension to its operating license, taking its validity period up to 2031. Regulatory approval for the move was given following an application submitted in May 2016 and reportedly takes into consideration VimpelCom's further network development plans. 'We are extremely pleased to have our license extended in Uzbekistan and will continue to serve our customers in this important market,' commented Dmitriy Shukov, CEO of Beeline, adding: 'We cover 88% of the Uzbekistan population with our 2G network, 52% with 3G, and are now preparing to significantly expand our 4G/LTE services.' (July 25, 2016) telegeography.com

Zimbabwe

The Zimbabwe government's social security and pensions fund, the National Social Security Authority (NSSA), is looking to gain control of the country's third mobile operator, Telecel. In November 2015 the state agreed to acquire a 60% interest in Telecel from multinational telecoms group VimpelCom, with the transaction to be conducted by government-backed ISP Zarnet. The NSSA initially agreed to provide Zarnet with a ten-year loan to cover the US$40 million cost of the transaction, but a report says that the fund is now worried that the ISP will be unable to make the repayments and it is therefore looking to take over the 60% stake in the cellco itself. While the government announced that the deal had been completed earlier this year, VimpelCom subsequently contradicted this, saying that it was still waiting for the payment to be made. It is thought that only US$6 million of the US$40 million purchase price has so far been handed over. VimpelCom had been under pressure for some time to reduce its stake in Telecel to comply with Zimbabwe's 49% foreign ownership limit, and the group eventually put its shares in the telco up for sale in December 2014. The remaining 40% of Telecel is held by a consortium of local businesses under the name Empowerment Corporation (E Corp). (August 22, 2016) The Zimbabwe Independent

The government of Zimbabwe is now unlikely to implement mobile number portability (MNP) before 2017. A report cites Hilda Mutseyikwa, an executive at telecoms regulator POTRAZ, as saying at a conference this week: 'Sometime in 2013, we did consultations with operators on the feasibility of introducing number portability and our conclusion then was that it was not feasible ... We were also looking at the cost implications and who was going to manage that platform and then we concluded that maybe it may not be viable. But we haven't really cancelled that project. We are considering reviving it again, most probably this year or in 2017.' Given that the watchdog has still to even begin the search for a consultant to help manage the implementation of MNP, and operators will need time to introduce the necessary systems to allow for portability, then next year would seem the earliest possible launch date for MNP. (August 3, 2016) TechZim

Javaid Akhtar Malik
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Italian cellcos investigated over EU roaming charges

Italy's telecoms regulator, the Authority for Communications (Autorita per le Garanzie nelle Comunicazioni, Agcom), has initiated proceedings against 3 Italia (H3G Italia) for its failure to adopt new European Commission (EC) roaming rates that entered into force on 30 April. The move follows the launch of proceedings against larger rivals Telecom Italia (TIM) and Wind Telecomunicazioni (Wind Italy) on 31 May for also failing to ensure full compliance with the new measures, which cap EU roaming charges for consumers ahead of a full ban entering force on 15 June next year. Agcom says the mobile operators must prove that they have ceased the alleged conduct and must launch procedures to reimburse affected users.

PTA consults on new termination rates for 2017

Icelandic telecoms regulator the Post and Telecommunication Administration (PTA) has opened a public consultation on a draft decision, which will dictate the wholesale mobile termination rates (MTRs) for all of the country's wireless operators – Siminn, Vodafone Iceland (Fjarskipti), Nova, Alterna and re-seller 365 (previously Tal) – effective 1 January 2017. The document proposes that the wholesale rates for termination in individual mobile networks in Iceland decrease to ISK1.23 (USD0.01) excluding VAT in calendar year 2017; the current termination rate of ISK1.40 per minute will remain in effect until 31 December 2016. In addition, the regulator is also consulting the public on maximum wholesale prices for call origination and termination in fixed telephone networks, following analyses of

Market 2 and Market 3. The regulator determined that the wholesale price for call origination in fixed networks should not exceed ISK0.50 per minute, while the wholesale price for fixed call termination should be capped at ISK0.14 per minute; the current maximum rates – in effect until 31 December 2016 – are ISK0.56 (fixed call origination) and ISK0.16 (fixed call termination). All interested parties have been given until 1 September to submit their comments on the draft decisions.

Mobily completes the regional interconnection with Iraq

TEtihad Etisalat "Mobily" has successfully completed the implementation of regional interconnection project with Iraq by the high-speed fiberoptic network to be part of a broadband network. The implementation of the project included the provision of special infrastructure of fiber optic cables stretching for a distance of more than 80 km from the city of Arar, in Northern borders of Saudi Arabia to the Iraqi border, which allows greater speed and addition of new telecom markets in the Middle East. This comes as an extension to Mobily's strategic projects that included interconnecting Kuwait, UAE, Qatar, Bahrain and Jordan, in addition to the three international marine cables connecting Jeddah and Khobar, which allows Mobily to provide high-quality services in collaboration with global partners in telecom sector and through its highly reliable infrastructure. It is worth mentioning that Mobily has local FTTH network extending more than 22000 kilometers between the cities in addition to the most advanced FTTH metro network within cities extending more than 5,000 which provides unprecedented speeds that reach up to 200 Mbps with stability in the connectivity performance and minimum pos-

sible delay and high transfer capacity ensuring high level of quality service.

Mobile service providers move to cut roaming charges in China

The major domestic mobile telecom service operators, including China Mobile and China Telecom, have announced plans to phase out roaming charges amid Chinese government calls and improved consumer use of fourth-generation (4G) systems. State-owned China Mobile plans to phase out its long-distance roaming charges by the end of 2016, an employee of the company, who prefers to be unnamed, told the Global Times on Sunday. The cancellation was already under way, and roaming charges for the Beijing-Tianjin-Hebei area ended in August 2015, said the employee. China Telecom rolled out a similar plan on July 15. Yang Jie, CEO of China Telecom, said at the 8th Intelligent Terminal Industry Forum that in addition to abolishing roaming charges, all the company's services will gradually be charged by traffic, including voice calls, domestic news portal 163. com reported in July. The carriers' moves followed an announcement by the Ministry of Industry and Information Technology (MIIT) in April, which urged the three major telecom service providers to pursue the marketization of telecom fees and accelerate the pace of abolishing roaming charges. The MIIT's involvement largely pushed forward the process, experts

said. In line with the government's agenda, it is estimated that another telecom industry player, China Unicom, will follow the steps taken by its competitors and announce plans to terminate roaming fees in the near future, according to experts. "Roaming charges are out of date, and currently, there is virtually no country in the world that still charges for that," said Liu Dingding, an independent industry analyst, noting that the trend of abandoning these fees and charging by traffic is gaining momentum in the telecom industry. Li Yue, China Mobile's CEO, said at a press conference Thursday that the move to phase out roaming fees will pose huge risks for the company, given that voice services generated 37 percent of the company's revenues in the first half of 2016, the newspaper Guangzhou Daily reported. Yet for telecom service providers like China Mobile, revenues generated by traffic are on the rise. In the first half of 2016, China Mobile's revenue increased 7.1 percent to 370 billion yuan ($56 billion), according to the company's financial statement. Traffic revenue surged 26.7 percent to 195 billion yuan, accounting for 43.3 percent of the total and for the first time surpassing the income from traditional businesses and becoming the biggest revenue source. As of the end of June, the company's 4G users totaled 429 million, said the statement. The figure represented 51 percent of the customer base, an increase of 28 percentage points from the same period in 2015. "The popularity of 4G services, as well as the growing traf-

fic revenue, heralds the time to initiate a reform to transform the revenue structure," Liu told the Global Times on Sunday, noting that industry players should shift their focus on Internet value-added service, like games and e-commerce.

Ghanaian parliament approves Interconnect Clearinghouse regulations

The parliament of Ghana has approved the regulations covering the operations of an Interconnect Clearinghouse (ICH), confirms a press release from the National Communications Authority (NCA). The Electronic Communications (ICH Services) Regulations 2016 – also referred to as the LI 2234 – aims to regulate the activities of service providers who connect and route national and international traffic through an ICH, while also overseeing the operations of the ICH itself. Interconnect rates will remain unchanged until January 2018, however, in a move to protect consumers from price hikes, with the NCA noting that the costs of licensing and operating the ICH could have resulted in an additional cost to operators who may have passed this onto consumers. Di-

ency to ensure quality provision of ICT regulatory interventions for the benefit of Ghanaians. Through the ICH, we are able to increase focus on transparency at all levels of operations to ensure ethical functioning within the telecommunication industry.'

EC asks Austria to amend fixed, mobile termination rate proposal

The European Commission (EC) has issued a recommendation asking Austria's Regulatory Authority for Broadcasting & Telecoms (RTR) to amend or withdraw its proposal to allow Austrian operators to differentiate fixed and mobile termination rates based on the member state from which the call originates. In its draft measure, the RTR proposed higher price caps for calls originating in member states which have not brought down mobile and fixed termination rates in line with the EU Recommendation on Termination Rates. Following a three-month investigation, the EC has concluded that a measure adopting the origin of the call within the EU as the sole criterion for setting a higher rate, is not in line with the non-discrimination principle and would deepen existing barriers in the internal market. Brussels

with EU telecom rules; if the Austrian watchdog decides against amending its draft proposal, then it has to provide a valid justification.

URCA issues ruling on BTC/NewCo national roaming pact

Bahamian regulator the Utilities Regulation and Competition Authority (URCA) has issued its final determination on whether cellular incumbent the Bahamas Telecommunications Company (BTC) should provide national roaming to new licensee New-Co during the latter's rollout period. URCA's order imposed on BTC the obligation to provide NewCo with national roaming services for a period 24 months, by the end of which the newcomer is required, under the conditions of its license, to have rolled out its own network with nationwide coverage. URCA ruled that the 36-month period requested by NewCo backer Cable Bahamas Ltd (CBL) was 'unnecessary and excessive', whilst the 18-months suggested by BTC would not be in the national interest, as NewCo would not have completed its rollout within that period. In its decision, URCA determined that the national roaming agreement should include the following services: all incoming and outgoing calls to and from NewCo's mobile customers, regardless of origin or destination; all inbound and outbound messaging services to or from NewCo's mobile subscribers; access to calling features for NewCo's mobile customers; and access to mobile internet services for NewCo's mobile customers. The order also specifies that BTC is not required to support international roaming agreements between NewCo and its foreign counterparts.

rector General of the NCA, Mr. William Tevie, commented: 'The authority will continue to undertake its regulatory functions' with integrity and transpar-

has requested the RTR to withdraw its proposal or to amend it so that the termination rates are set in line

Aviation Industry Prepares for Digital Transformation take-off as ICT Unifies Airlines and Airports to Create Seamless Passenger Travel Experience

Mr. Mohammed Retmi
Head of EMI Orange
Applications for Business,
Orange Business Services

No industry is immune to digital transformation, including the commercial aviation sector, which is looking to ICT solutions to boost margins, reduce operating costs and meet the demands of travelers who expect a seamless, sophisticated passenger experience.

ICT spend within the aviation sector is growing as the industry attempts to catch up with its digitalized passengers and keep the ground and the air connected. This is being done by unifying communications and combining them through multiple channels – online, social, voice, face to face – across airlines, airports and even government agencies. Through the Internet of Things, passengers are being connected via the increasingly ubiquitous smartphone to a range of dedicated travel services and information.

One example of this "holistic connectedness" is European low-cost carrier, easyJet, which has partnered with London's Gatwick Airport to launch Mobile Host, an app that combines live data from the airport's systems with Google indoor maps, passenger booking details, location and flight time to provide personalized instructions and updates for passengers. These include check-in reminders, directions to bag-drop, departures and gate location, plus real-time gate and baggage notifications delivered directly to their mobile phones.

Passengers are increasingly adopting the self-service option when offered – be it for booking and check in, bag drop or boarding – and increasingly through a mobile device, as they move between airline and airport.

Don't discount the power of the voice channel

Implementation of flexible, cloud-based contact centers play a pivotal role in supplementing the delivery of personalized information. The power of voice cannot be discounted in providing a precise and timely answer to your passengers' most pressing questions.

When ICMI (International Customer Management Institute) asked consumers why they preferred phone service to other channels, it was not because it was the most convenient option or the one that best fitted their lifestyle – but because voice remains the most effective way to get to the best answer.

A total of 92% of organizations say that customer engagement is a priority for them and 81% of them recognize the linkages between customer experience and customer brand loyalty. And it is the phone channel that is still seeing the greatest volume growth. In the next 12-24 months, 55% of contact centers plan to expand or add inbound voice queues to accommodate the expected increase.

Deploying the right ICT solutions improves margins and boosts brand power.

Collaboration between specialists in the fields of ICT and aviation can deliver call center solutions that improve margins and elevate the passenger experience across their journey.

For example, by using their unique collective experience in the air transport industry, Orange Business Services and SITA, together with Genesys through their CRM solutions, offer a seamless integration between Genesys Contact Center solutions and a range of unified communications solutions, providing contact center infrastructure that supports a personalized customer service.

Offering an omni-channel 360 degree customer experience is not easy, but the partnership between Genesys, a leader in contact center software based solutions, SITA, a global IT provider to the aviation industry, and Orange Business Services, the leading contact center cloud-based solution provider, can deliver such experiences seamlessly, securely, and cost effectively.

Contact Center Advanced Services uses the latest technology to improve a contact or call center's efficiency and ultimately, customer satisfaction. Whether you have a large centralized office or multiple sites around the globe, Contact Center Advanced Services can be custom built for your business and meet the demands of your passengers.

This will have a powerful impact on the passenger experience. By delivering information when and where it is needed means empowering your passengers to take control of their own journeys.

⊽ TECHNOLOGY NEWS

TECHNOLOGY UPDATES

Sprint tri-carrier aggregation reaches 275 Mbps

Sprint reached peak speeds of 275 Mbps in three-channel carrier aggregation lab tests using the LG G5, one of the first devices on the market to support the functionality. During an earlier test, Sprint carrier aggregation reached 295 Mbps with HTC 10. Sprint is independently testing three-channel carrier aggregation in its labs to evaluate overall performance, speed, and reliability as it prepares for LTE Plus network deployment. Carrier aggregation is an LTE-Advanced feature that bonds together bands of spectrum to create wider channels and produce more capacity and faster speeds on capable devices. Essentially it creates a wider lane that allows more data traffic to travel at higher rates. At present, Sprint offers 22 devices that actively support two-channel carrier aggregation on its LTE Plus network. Two-channel carrier aggregation delivers peak speeds of more than 100 Mbps in 237 LTE Plus markets across the country using 40 MHz of spectrum on the company's 2.5GHz cell sites. Six devices currently offered by Sprint are three-channel carrier aggregation capable, namely the HTC 9, HTC 10, LG G5, Samsung Galaxy S7, Samsung Galaxy S7 Edge, and Samsung Note 7. With three-channel carrier aggregation, Sprint will use 60 MHz of spectrum to provide peak speeds of more than 200 Mbps

on capable devices. Three-channel carrier aggregation is slated for enablement on capable devices via an automatic software update following network deployment.

Public cloud spending to double by 2020, report

Revenue from public cloud services will reach over $195 billion in 2020, more than doubling the current market size, according to new research. Western Europe will continue to represent around a fifth of this global market, with revenues growing from $15 billion in 2015 to $38.6 billion in 2020, research house IDC predicted. This represents a five-year compound annual growth rate of 20.8 percent. Software as a service accounted for over two-thirds of all public cloud revenue in 2015, and will continue to represent the largest portion in 2020. However, platform as a service and infrastructure as a service will grow at a quicker rate, IDC said. The forecast differs hugely to a report from Gartner in January this year, which predicted that the worldwide public cloud services market would break through the $200 billion barrier by the end of 2016. Bo Lykkegaard, IDC's Associate Vice President, Software & Cloud Services Trackers, said: "Public cloud services have changed how European organizations evaluate and select software. "Aspects such as very fast rollouts, continuous upgrades, and ease of post-

implementation reconfiguration are now top criteria for new application purchases. "Some European countries have started the adoption of public cloud services later than others, due to concerns related to information security, data location, solution availability, and other issues." Telcos, notably Deutsche Telekom, are looking to get a share of the market, which is led by the likes of Amazon and Google. The Germany-based operator launched its Open Telekom Cloud in March, with the European Organization for Nuclear Research trialing the service.

World's Leading Standards Bodies Join Forces on Smart Cities

Inspired by dialogue at the World Smart City Forum in Singapore, July 13, 2016, representatives of IEC, ISO, ITU, IEEE, CEN-CENELEC and ETSI convened at a follow-up meeting initiated by IEC to discuss means of accelerating and better aligning their standardization work in support of Smart Cities. The shared commitment to cooperation resulting from the meeting is expected to assist the standardization community in developing a well-coordinated contribution to the upcoming Habitat III. Sustained investment in information communications technology (ICT) infrastructure and innovation are crucial drivers of economic growth and development and achieving the United Nations' Sustainable Development Goals (SDGs). With over half the world population now living in cities, ICTs, mass transport and renewable energy are becoming ever more important.

Interconnected systems will need standardized interfaces
In today's cities much of the infra-

structure is installed by a diverse set of suppliers and maintained by different agencies that sometimes work in isolation. The interconnection of city systems will demand standardized interfaces, and this is where standards bodies such as IEC, ISO, ITU, IEEE, CEN-CENELEC, ETSI and others will have an important role to play. For city planners, utilities and service and technology providers, standards are essential enablers in achieving consistent levels of performance and quality, as well as compatibility between technologies. Representatives of the standards bodies will meet regularly to ensure that their cooperation upholds principles of mutual respect, transparency, openness and sharing of new findings. Over the coming months the organizations will work together to develop a viable framework for cooperation. A follow-up meeting organized by ISO is planned for 2017.

ITU's key role
"ITU has a leading role to play as the United Nations specialized agency for ICTs," said Houlin Zhao, ITU Secretary-General. "The Key Performance Indicators that we have developed for Smart Sustainable Cities as well as our various international standards for the Internet of Things will provide valuable tools to drive the New Urban Agenda and achieve the Sustainable Development Goals." "Cities develop and mature in a diverse range of ways, reflecting differences in history, culture, geographic and economic environments", according to Chaesub Lee, Director of ITU's Telecommunication Standardization Bureau. "It is a great challenge to identify the common characteristics of Smart Cities in a global sense. However it is clear that essential element of a city's 'smartness' will depend on information and communication technologies (ICTs)." IEC General Secretary and CEO Frans Vreeswijk agrees. He said, as a global, not-for-profit organization, the IEC saw the opportunity for greater Smart City cooperation and provided the basis for such a meeting. We are excited about the prospect of more efficient, inclusive standards development for cities. Cities are complex, multi-dimensional systems of systems. No single standards organization will be able to provide everything cities need. Here, as elsewhere, broad collaboration is required. In this context, sometimes one organization will lead an effort and at other times it will share its expertise while another one leads."

5G connections to reach 690m by 2025: Strategy Analytics

5G connections are set to reach 690 million by 2025, with 5G handset shipments also expected to rise to 300 million by this point according to latest predictions from Strategy Analytics. The research company explained that the 690-million figure relates to what it calls "user-linked subscriptions" and does not include industrial machine-to-machine connections. "So we are including connections for which there is an individual user endpoint (either B2C or B2B), such as for consumer electronics products, but does not include vertical/industrial applications," explained Phil Kendall, executive director at Strategy Analytics. This definition includes handsets; modem and embedded connections in PCs/notebooks/laptops; tablets; and connections in the consumer electronics category including consumer wearables, connected cars and more. In June, Ovum forecast that global 5G subscriptions would reach 24 million by the end of 2021 but was referring only to broadband connections. Strategy Analytics also warned that fragmentation is highly likely as operators in different regions pursue different 5G paths. "Significant work is needed to marry the appeal of a unified early 5G standard with the longer term need to support diverse market requirements," the company said. Senior analyst Guang Yang noted that 5G network plans have developed well in 2016, "driving an ecosystem which will put 7% of mobile connections on 5G networks by 2025." "China's 2020 5G launch plans brings it closer to early adopters in the U.S., South Korea and Japan, [which] are speeding up progress to meet the broadband access demands from the Olympic Games and competition of non-traditional players. In contrast, European operators are currently paying more attention to opportunities in IoT," Yang said. In terms of handset sales, Strategy Analytics director Ken Hyers said the first commercial 5G handsets would appear in small numbers in 2020 in South Korea and Japan. In 2021, more launches are then expected in the U.S., the UK, Sweden and the UAE with commercial sales set to exceed 300 million by 2025. "By 2022 tens of millions of 5G handsets will be sold, and as a proportion of total handset sales will reach low single digit percentages," Hyers said. Senior

analyst Ville-Petteri Ukonaho also pointed out that the first commercial 5G handsets "will likely come with very high price tags." "While the first trial 5G handsets in 2018 are expected to have teething problems, including short battery life, no 4G handover or unstable connectivity, by 2020 these issues will be largely resolved," Ukonaho added.

BT and Nokia ink 5G research collaboration agreement

British fixed line incumbent BT has announced that it has signed a research collaboration agreement on 5G technologies with Finland's Nokia. In a press release confirming the development it was revealed that the two companies have agreed to work together

on potential customer use cases for 5G technologies, the creation of 5G Proof of Concept (PoC) trials and the development of the emerging technology standards and equipment. It is understood that these trials will focus on the technology enablers for 5G including mmWave radio and convergence, as well as potential commercial services including ultrafast mobile broadband, mission-critical services and the Internet of Things (IoT). This agreement builds on an existing relationship between the duo in which Nokia supplies BT's 21C Core Routing Platform and both the BT/EE subscriber register infrastructure and part of the EE Radio Access Network (RAN). Collaboration between BT and Nokia is already underway, meanwhile, with the latter confirmed to be conducting trials of its latest 5G-ready radio equipment at the BT Labs at Adastral Park, Suffolk. This radio system, it was noted, demonstrates key 5G technology ingredients that are currently in standardization running on Nokia's AirScale radio access, including an entirely new 5G frame structure and 4×100MHz carrier aggregation. Howard Watson, CEO of BT Technology,

Service & Operations, said of the matter: 'Our EE mobile business already boasts the biggest 4G network in the UK, which is set to cover 95% of the country by 2020. We will build on that foundation to develop the next generation of LTE-Advanced Pro and 5G services over the next few years. It's still early days for 5G technology, but experience tells us that a collaborative approach is key to success. We're delighted to be working with Nokia to drive a common approach to 5G, and to develop exciting use cases which bring together our combined experience in fixed and mobile technologies.'

South Korea tops mobile data speed, Afghanistan last - study

Average download speeds over 3G and 4G networks range from 41.3 Mbps in South Korea down to just 2.2 Mbps in Afghanistan, according to the latest data harvested from its users by coverage mapper OpenSignal. Among the 95 countries sampled for its research during the second quarter of 2016, it said 93 had mobile data signals over 3G or 4G available at least half of the time. WiFi continued to be the dominant form of connection via smartphone in a range of countries with both high and low availability of mobile broadband and the Netherlands topped the list, with 70 percent of all connections measured over wifi, according to the company's inaugural Global State of Mobile Networks report. The top 10 countries for availability of either 3G or 4G connections were, in descending order: South Korea, Japan, Israel, Australia, Singapore, New Zealand, Finland, Taiwan, Sweden and Canada. The bottom 10 were, Algeria, Pakistan, Iran, Togo, Nepal, Trinidad and Tobago, Iraq, India, Ukraine and Guyana, the last two of which had less than 50 percent availability of a mobile broadband connection. By overall speed of mobile broadband, the top 10 were, in descending order: South Korea, Singapore, Hungary, Australia, Denmark, Norway, Netherlands, Lithuania, Japan and Sweden. The bottom 10 in the survey all came in at lower than 5 Mbps and were: Togo, Pakistan, Senegal, Philippines, Trinidad and Tobago, Algeria, Iraq, Ethiopia, Costa Rica and Afghanistan. For wifi use, the top 5 in the survey all used the connection more than 60 percent of the time and

were: the Netherlands, China, New Zealand, Trinidad and Tobago and Bosnia and Herzegovina. The bottom 5 in wifi all had connections less than 20 percent of the time and were: Democratic Republic of the Congo, Sri Lanka, Afghanistan, Myanmar and Ethiopia. Turning to individual countries, OpenSignal said that while South Korea did not have the absolute highest 4G speeds, it led the speed table because the inherently fast technology was the most ubiquitous and it is easier to find an LTE connection than it is to find a 3G HSPA connection. Japan meanwhile was placed second in 3G/4G availability, but 9th in overall speed, due to its more moderate LTE speeds. The US ranked 19th in availability, but just 39th in overall speed with slow networks on both 4G and 3G. Globally, only two countries averaged data speeds faster than 30 Mbps, and only nine had averages greater than 20 Mbps. Meanwhile, 21 countries averaged less than 5 Mbps and the median speed in the list was about 8.5 Mbps.

Du claims '20G' FTTH broadband

Dubai-based telco Du has announced the deployment of a '20G'-capable fiber-to-the-home (FTTH) broadband service in partnership with China's Huawei, potentially trumping fellow UAE operator Etisalat, which, as CommsUpdate reported in May, has been working with Huawei on testing 10Gbps passive optical network (XG-PON) technology. TradeArabia reports that Du has claimed a regional first by launching its latest ultra-high speed network upgrade for residential subscribers, expanding its capabilities for cloud and video services whilst giving customers huge upload/download speeds and reducing latency on home broadband connections. The article quotes Jasim Al Awadi, Du's vice president of Network Infrastructure & Services, as saying that the '20G' project with Huawei 'will effectively enable us to provide a better customer experience with new services and solutions.'

Tele2 Eesti demonstrates 5G in Tallinn; regulators seek 700MHz, 2500MHz feedback

Tele2 Eesti has announced that it has successfully demonstrated 5G mobile

broadband technology in capital city Tallinn. The trial, which was carried out in conjunction with Finnish vendor Nokia, achieved downlink transmission speeds of 4.5Gbps, although the precise technical specifications used during the tests have not been made available. Speaking at a media event, Tele2 Eesti CEO Argo Virkebau noted that the download speeds comfortably surpassed the 1Gbps transmission claimed by local rival Telia Eesti in June this year, albeit over its existing 4G network. In related news, Estonia's Technical Regulatory Authority (TSA) and the country's Ministry of Economic Affairs and Communications (MKM) have announced that they have started preparatory work ahead of the introduction of mobile broadband frequencies in the 694MHz-790MHz (700MHz) and 2500MHz-2690MHz (2500MHz) spectrum bands. A public consultation into the process is now open, and will run until 5 September 2016.

Ericsson and Bombardier test LTE networks at speeds up to 200 km/h

Ericsson and railway carriage builder, Bombardier have completed trials of LTE networks for railway solutions at simulated speeds of up to 200 kilometers per hour. A total of 11 tests were conducted in a laboratory to determine the ability of the LTE networks to support communications-based train control (CBTC) and multiservice solutions. Examples of multiservice solutions are closed-circuit television (CCTV), voice, platform information, advertising and Wi-Fi for passengers. CBTC uses high-resolution location determination and high-capacity data communications - such as those enabled by LTE networks - to support automatic train protection, operation and supervision functions. With more accurate information about the exact positions of trains, operators can manage traffic in a more efficient and safe manner. CBTC systems are more reliable than older train control systems, require less wayside equipment, have built-in redundancy features, and enable operators to make optimal use of tracks and trains by responding to demand more swiftly and efficiently. In the CBTC tests, the LTE networks achieved uplink and downlink latencies far below the threshold of 100 milliseconds and packet losses approaching zero (anything less than

0.5% was considered a pass mark). Quality of Service capabilities built into Ericsson's equipment also allowed for the preemption and prioritization of mission-critical railway services. Charlotta Sund, Head of Customer Group Industry & Society at Ericsson, says: "The results of the tests performed to date are very promising and we will continue to test a variety of modems to ensure we can provide robust LTE networks for rail applications. We aim to develop solutions that ensure enhanced rail safety through communications-based train control and CCTV, as well as enhanced entertainment for passengers through services such as voice, platform information, advertising and Wi-Fi."

Telstra to carry out 5G demo with Ericsson this September

Australia's Telstra has confirmed it will undertake a demonstration in September 2016 with vendor Ericsson, aiming to 'look at 5G capabilities in a real world environment'. In a blog post, Telstra's group MD for network, Mike Wright, said that his company will be the first in the country to trial Ericsson's 5G radio test bed, with a view to testing the expected high speeds and ultra-low latency, as well as Multi-User Multiple-Input-Multiple-Output (MU-MIMO). The demonstration will also reportedly test beam steering technology, which is designed to optimize mobile signals with less interference resulting in better network performance and more capacity.Telstra confirmed details of other collaborations with Ericsson, meanwhile, revealing that it has been embedding some of its employees into the vendor's 5G Research teams in Sweden to develop the 5G radio channel models and to train its engineers in the fundamentals of fifth generation radio operations. Further, Telstra also highlighted a recent radio test at Ericsson's 5G experience centre which it said had delivered download speeds of greater than 20Gbps in the lab. In terms of prepping its infrastructure, Telstra said it has started modernizing its wireless core network in preparation for 5G with network function virtualization (NFV) and software defined networking (SDN) technologies. It claimed by doing so this would allow it to support increased network configuration and deployment flexibility to different market

segments, and to tailor their wireless connectivity through Network Slicing. Looking ahead, the operator is continuing plans to deploy its first 5G trial on the Gold Coast in 2018. With regards to Telstra's other 5G-related activities, the telco has been contributing to the international 5G industry standards 'to ensure that the upcoming technologies are suited to [its] expansive rural environments, and take into account Australia's unique flora in the 5G channel modeling to provide the best possible experience for our customers'.

Mobile broadband penetration hits 90% in OECD area

There are now over nine high-speed wireless internet subscriptions for every 10 inhabitants in the 35-country OECD area, with mobile broadband penetration soaring to 90.3 percent at the end of 2015, compared to 81.6 percent in December 2014. Data released by the OECD revealed the total number of subscriptions rose to 1.153 billion in a population of 1.27 billion people, some 117 million more than a year earlier. Japan has now overtaken Finland as broadband leader, with a penetration rate of 138.8 percent versus 135.4 percent in Finland, and there are now nine countries – Japan, Finland, Sweden, United States, Denmark, Australia, Estonia, New Zealand and Korea – with penetration rates above 100 percent, compared to eight countries a year ago. The US moved up to fourth from eighth place in the ranking thanks to a growing demand for video and data in general and increasingly competitive offers. Fixed-line broadband subscriptions in the OECD area reached 371 million in December 2015, up from 356 million a year earlier, equivalent to an average penetration of 29.0 percent. Switzerland, Denmark, the Netherlands and France topped the list with 51.9, 42.4, 41.3 and 40.4 percent respectively. In terms of technology, DSL fell to 45.7 percent of fixed broadband subscriptions, with fiber now accounting for 19.4 percent of subscriptions, up from 16.2 percent in December 2014, and cable (32%) making up most of the remaining share. Japan, Korea and Latvia had the highest shares of fiber in fixed-line broadband at the end of last, with 73 percent, 71 percent and 61 percent respectively. The OECD added that there were 127 million

M2M SIM cards in use by the end of 2015 versus 107 million at the end of 2014. Sweden topped the machine-to-machine communications ranking, with 69 M2M SIM cards per 100 inhabitants, followed by New Zealand, Norway, Finland and Italy, although the OECD cautioned that data is not yet fully comparable for all countries.

Singtel, Ericsson 5G test achieves 27.5Gbps speed

Singapore's leading mobile operator by subscribers Singapore Telecommunications (Singtel), working in partnership with Sweden's Ericsson, has successfully tested fifth-generation mobile technology, part of the city-state's push to become a 'connected society'. In the tests, which used Ericsson's 5G radio prototypes, the pair achieved a peak throughput of 27.5Gbps, with latency of just two milliseconds (2ms). The demo also introduced what Singtel and Ericsson claim to be the world's first 'end-to-end low latency live video streaming' over 5G. The cellco has also called on other industry players to join it in developing new services and applications within a '5G ecosystem', as it readies itself for the anticipated standardization of 5G in 2020 by deploying key pre-5G technologies including carrier aggregation (CA), 256QAM (quadrature amplitude modulation) and Narrow-Band Internet of Things (NB-IoT).

## Huawei and Vodafone achieve 20GBPS for single user outdoor at e_band

Huawei and Vodafone have completed a 5G mmWave field test at Vodafone's offices in Newbury, UK. The test covers SU-MIMO (Single User Multiple Input Multiple Output) with a strong reflection path to reach 20Gbps UE peak rate, and MU-MIMO (Multi User Multiple Input Multiple Output) for long-range UE to reach 10Gbps peak rate. It is the world's first 5G outdoor field test at E-Band reaching 20Gbps peak rate for a single user device with high spectrum efficiency. This peak user rate is targeted by ITU-R as a 5G requirement. This is a key milestone after the two companies signed a strategic MoU on 5G technologies last year and a 5G Accelera-

tion MoU this July. The demand for spectrum to provide higher-capacity mobile access and self-backhaul has been rising drastically due to soaring mobile broadband communications traffic. The situation is even more critical when operators are faced with the challenge to deliver ultra-high throughout in emerging 5G network. As traditional lower bands used in current cellular access becomes ever more crowded, there is an increasing effort in the industry to explore the centimeter wave (cmWave) and millimeter wave (mmWave) bands to meet broadband speed requirements. E-Band is millimeter wave (mmWave) band and can be used as a complementary spectrum band to the lower-band to deliver ultra-high mobile broadband user experience. Especially it can enable new applications such as VR/AR and act as self-backhaul for the 5G mobile service traffic. Eric Xu, Rotating CEO of Huawei, said: "5G will introduce full spectrum access to support AR, VR, Smart Automobile and other unknown new services. The joint trial of 5G mmWave connectivity in a real world radio propagation environment and co-existence of different radio links is encouraging. I highly value the cooperation with Vodafone, and believe we will achieve more progress in 5G, together with Vodafone and other industry partners."

New LoRaWAN Network in Japan Now Open for Field Testing IoT Applications

Semtech Corporation a leading supplier of analog and mixed-signal semiconductors, today announced that its LoRa® wireless RF technology will be featured in a new low power, wide area network (LPWAN) deployed by regional telecom carrier Nippon Telegraph and Telephone West (NTT West) in the Kansai area of Japan to field test a wide range of Internet of Things (IoT) applications such as smart metering and agriculture, system monitoring of networks and equipment, asset and people tracking, and environmental warning systems. The purpose of the field trial is to test the commercial feasibility of various IoT use cases on NTT West's LoRaWAN™-based LPWAN. Participants selected for inclusion in the field trial will be able to deploy and test their applications on the NTT West network. Semtech LoRa technol-

ogy is a key component in the field trial as participants will use sensors and data aggregation services from members of the LoRa Alliance™ to ensure they are LoRaWAN-compliant. Another goal of the trial program is to solicit feedback from participating companies through information sharing sessions, meetings and surveys. "We are excited to launch our new LPWAN for field testing so that we can validate various use cases for our network and collect valuable information we can use to enhance our IoT offerings," said Shigenori HORI, Senior Manager of NTT West's Business Design Department. "After careful research, we chose a LoRaWAN-based network platform because it offered a large ecosystem of open standards-based solutions through the LoRa Alliance, while also providing the long range and low power requirements our customers need at a low cost. Now that we have launched the field trials, we are looking forward to seeing and sharing the results." "It's great to see a carrier like NTT West play a leadership role in deploying and testing a LPWAN for IoT applications in Japan," said Marc Pegulu, Vice President and General Manager of Semtech's Wireless and Sensing Product Group. "We are looking forward to seeing the various IoT use cases that will be enabled by this network. We are also pleased that after reviewing several solutions, they chose a network based on the LoRaWAN specification, which, through the LoRa Alliance, is quickly becoming a global standard for IoT applications requiring long range, low power and low cost." The LoRa Alliance, which was launched in March 2015, is a group of over 300 companies committed to driving and enhancing the LoRaWAN specification to ensure interoperability and scalability of LPWANs and IoT applications. Through its work with member companies and IoT industry groups, it is making LoRaWAN the standard for LPWANs focused on low power, long range IoT applications. To date, there are LoRaWAN public and private networks in more than 50 countries worldwide. The NTT field trial period began at the end of June 2016 and will continue through February 2017. It covers the Kansai area of western Japan.
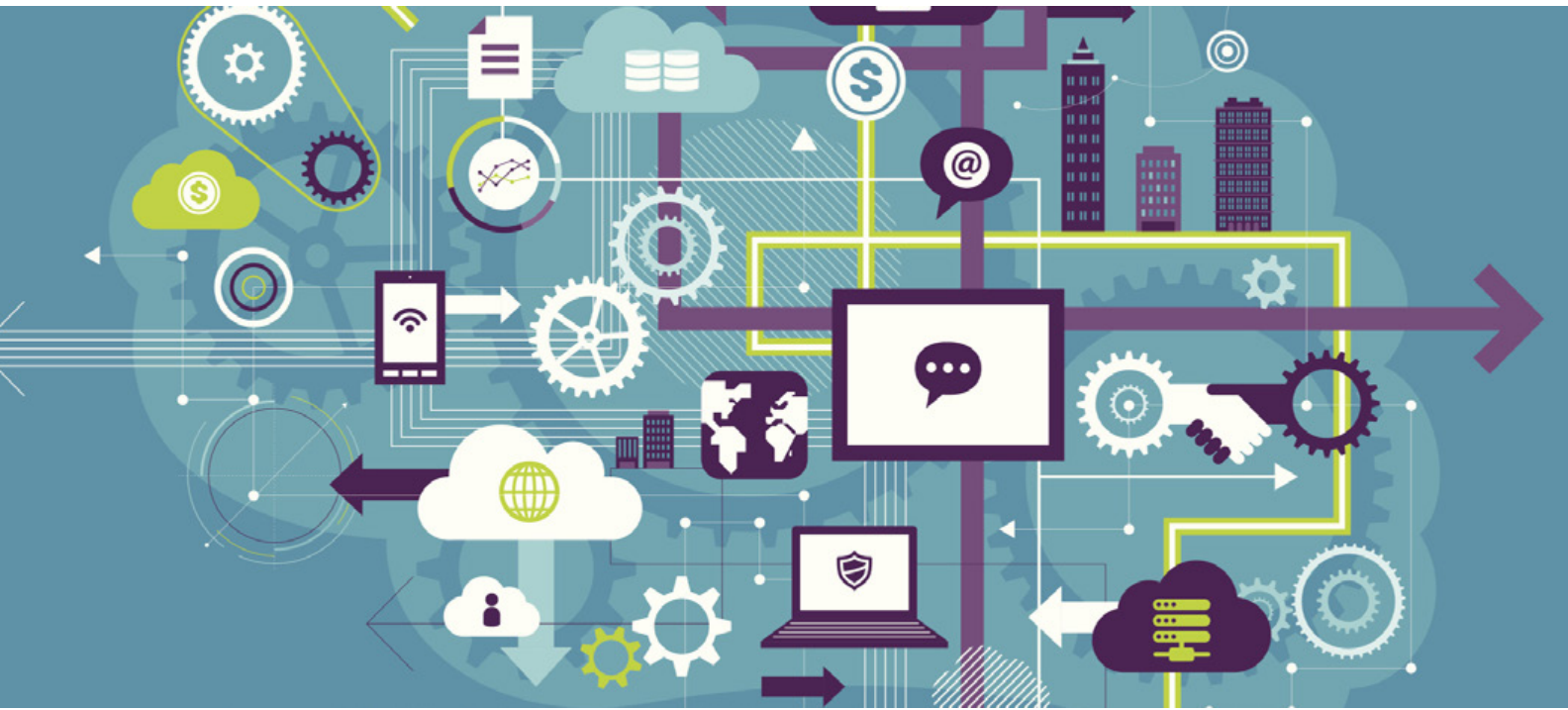
Policy Implications of the Internet of Things

Mr. Aziz Mohamed
Director, Government Affairs
Middle East.
Cisco Systems

The world is going digital. The Internet of Things (IoT) has become a reality. Homes, workplaces, vehicles, hospitals and cities are being transformed. The IoT presents a huge economic and social opportunity for our communities and its going to take companies, citizens and governments working in tandem to seize it.

Make no mistake the IoT is already here. In the Middle East and Africa over 200 million machine to machine (M2M) connections exist today and with a combined annual growth rate of 22% will be 2.5 times larger by 2020 with over 536 million connected devices . This is a faster rate than any other region, including the US and Europe. IP traffic will grow at an even faster rate as each device generates increasing amounts of data. Every year up to 2020, half the amount of traffic again will be added to the total.

This converts to huge economic potential – we estimate the 10-year economic value at stake for the private sector alone in the Middle East stands at $363 billion. But we are still at the beginning. Little more than 1% of objects that may one day be connected currently are.

That's why it's crucial for policy makers in the Middle East region to get the policy environment right, in order to maximize the benefits that will stem from the digital era.

Policy issues impacting the evolution of the Internet Of Things
There are a number of specific policy initiatives that will impact the IoT, including network infrastructure and spectrum policy, security, data protection and privacy, open standards and required skill sets.

Policy makers in our region see the Internet of Things for the opportunity it presents and look to foster and support this growing area. UAE and Saudi are leading the pack. His Highness Sheikh Mohammed bin Rashid Al Maktoum's vision for Dubai to be the 'Smartest City in the World by 2017' is well under way. Sensors embedded throughout the city will connect everything from utilities to urban transportation, from entertainment to energy, and from policing to politics. On April 2016, His Royal Highness Mohammed Bin Salman Bin Abdulaziz Al-Saud, Deputy Crown Prince and Chairman of the Council of Economic and Development Affairs announced Saudi Arabia's Vision 2030 in order to diversify

Image: 2016 Cisco VNI Complete Forecast – Middle East & Africa

its economy and create new knowledge skills in its young and dynamic population. Local regulators in both UAE and Saudi regularly meet with industry players including technology vendors and service providers to review those policy issues and how to build the right ecosystem for growth, healthy competition and fostering innovation.

We at Cisco actively participate in many discussions with regulators across the region and can say that there is so much energy and trust, which are essential for the IoT to blossom. Both policy makers and private sector actors have the same ambition to ensure systems are secure, data is protected and the right network deployment conditions are in place. Open standards and interoperability are encouraged to mature through a range of existing global industry-led standards bodies (SDOs).

Cisco's role
Cisco plays a key role in building out the Internet of Thing's network of networks – intelligent, manageable, secure infrastructure that can scale to support billions of context aware devices. Technology trends such as cloud, mobile and data analytics all fit with the broader ecosystem and we are developing both the vision and business opportunity.

We are engaging in long-term partnerships with national leaders, industry and academia to develop a knowledgeable workforce, drive innovation through Innovation Centers and start-up incubators, extend the reach and impact of public services and create a secure and capable infrastructure. One example of our efforts to adapt to the digital age is

to address the new competences that will be required on the labour market. Cisco's Networking Academy, which has helped more than 6 million people prepare for the IT workforce, has developed new curricula on the IoT and smart grids to prepare and build the workforce of tomorrow.

Now is the time to innovate and we must be bold. The digitization opportunity is massive and the potential that digitization will bring to the Middle East will depend in part on the ability to develop a policy environment that enhances access to the Internet, builds the foundation for a digital economy and removes barriers to the global digital market. Cisco is ready to partner with government leaders and policy makers on this journey.

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[1] See Cisco VNI at http://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html
[2] See Cisco study: Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2015–2020 White Paper

Measuring the Capability of Business Continuity Management & Disaster Recovery for KSA ICT Companies

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The ICT companies in the Kingdom of Saudi Arabia are expanding through new services like cloud computing and IOT or M2M. This article aims to consider assessing the business continuity and disaster management mechanism and how to measure the level of readiness. It also examines whether such mechanisms actually reflect reality or demonstrate effectiveness within ICT companies committed to provide a robust business environment and meet the needs of their customers' legal and regulatory requirements. Particular importance is given to the protection of staff, information, infrastructure, and business processes, continuity of services, and revenue. Business Continuity Management (BCM) is concerned with the management of risks to ensure the continued availability of mission critical processes, services, resources and operations. ICT recognises that effective BCM consequently enhances organisational resilience that ultimately safeguards the interests and reputation of stakeholders, brand and value creating activities.

ICT regards Disaster Recovery (DR) as a subset of BCM. It also considers DR to possess the organizational ability to provide critical Network & IT telecommunication capabilities and services (after it is disrupted by an incident, emergency or disaster).

Telecommunications services within the Kingdom of Saudi Arabia are regulated by the Commission for Information Technology and Communications (CITC). Recently, CITC has published a Disaster Recovery Regulatory Framework. STC is required to take all reasonable steps to comply with CITC's DR regulatory requirements acknowledge and accepted internationally and industry's best practices such as ISO 22301 and BCI Good Practice Guidelines.

In 2010, in Saudi Arabia's city of Jeddah, environmental disasters struck, causing interruption in communication services. The impact reached beyond basic telecoms to e-services. A similar situation may re-appear in the future. Thus preparedness is crucial.

Global competition is incessantly demanding organizations to take measures that ensure the continuity of their business operations. Business continuity has turned out to be a major concern for organizations to overcome negative factors. To continue their operations, there is a desperate need to introduce and implement a critical and well-thought management process for handling both people and processes. This approach of ensuring the continuity of critical processes is known as Business Continuity Management (BCM). Organizations have become well-aware of the significance of BCM to avoid distribution in the event of a threat in their systems or infrastructure.

BCM has eventually evolved as an effective tool for ensuring the delivery of organizations' key products/services. It is, in fact, a business driven methodology unifying a broad spectrum of business management processes including quality management, risk management, facilities, supply chain, disaster recovery, security, crisis communication, and safety. Specifically, BCM is responsible for the development of strategic and operational models to design and review the way an organization provides its services and products. At the same time, it ensures the increase of resistance of distribution and interruption or even loss. BCM is all about guaranteeing the organization's continuous operations and risk management.

The BCM Maturity Model
A maturity model allows an organization to have its methods and processes assessed according to management's best practice, against a clear set of external benchmarks. Maturity is indicated by the award of a particular "Maturity Level". There are a number of different maturity models with different focus levels. The scope of a maturity model can vary from a constituent process or a process within a certain function. The CMMI was developed at the Software Engineering Institute at Carnegie Mellon University with representation from defence industry, government, and

Maturity Model (BCMM) and the Gartner BCP Maturity Model (Mingay, 2002). The former measures the extent to which an organisation is prepared for a serious negative eventuality, such as a disaster. It classifies according to six maturity levels, where levels one to three represent organisations that are immature, to the extent that preliminary phases have yet to be completed in order to instigate an enterprise-wide business continuity system, whereas levels 4-6 represent organisations in the process of achieving maturity towards this goal. Smit (2005) cites Mingay (2002) who purports that the Gartner BCP Maturity Model is designed and functions to allow corporations to realise four objectives, namely, the evaluation of BCP processes; allow high-ranking personnel to understand the requirements needed to achieve enterprise-wide BCP application; "complete a gap analysis so realistic targets can be set; and provide a basis for peer-group comparison and establishment of industry standards." The distinctive levels of maturity the model classifies are based on the COBIT maturity model, which are partially based on the CMM maturity levels. Gartner identifies 19 performance measures required for of an organisation's BCP maturity. However, the criticism levelled against BCMM also applies to the Gartner BCP Maturity Model.

The research applies to the provider of telecommunication services in Saudi Arabia in terms of services, geographical coverage, and number of customers. It offers an expanding range of wired, wireless, voice and data services, and facilities to customers in all major geographical regions in the Kingdom. The providers have an obligation to assure continuous and reliable telecommunication services by implementing the right level of protection for its IT systems in part of (data & broad band, e-business, e-governments). The detailed assessment of the business continuity and resilience of its network and IT services with particular attention to the infrastructure, network design/architecture, and the related organizational capabilities .Technology streams were traversed using a variety of means, including review of documentation, access and interviews of key personnel, and visits to key sites in different locales within the Kingdom. There is a huge demand of the services providers like STC and Mobily from E-government program, ministries (Health, Finance, Interior, Education, etc). Therefore, I principally focus on the critical system that has a higher impact on part of technology, people, cost and how each of them can be placed on one dashboard for appropriate monitoring and consequent mitigation of risks ,Some critical questions are as follows:

1. Which kind of technology services has a direct impact?
2. What are the critical components of the service?
3. How is the BC capability or maturity level measured?
4. How it is discovered if it is compliant with CITC regulation and the international Standard of BC?

Figure 1 – Umbrella of Business Continuity Management

academia. Currently, it is operated and maintained by the CMMI Institute .The BCM maturity model starting from 2002 the Gartner set the new maturity model (mingay,2002) a maturity model is can be defines as staged structure of maturity level ,Smit (2005) is defended another Maturity model that demonstrate the metrics , Business Continuity Maturity Model (BCMM), Smit (2005) identified two BCM maturity models that demonstrate the required merits, namely the Complete Public Domain Business Continuity
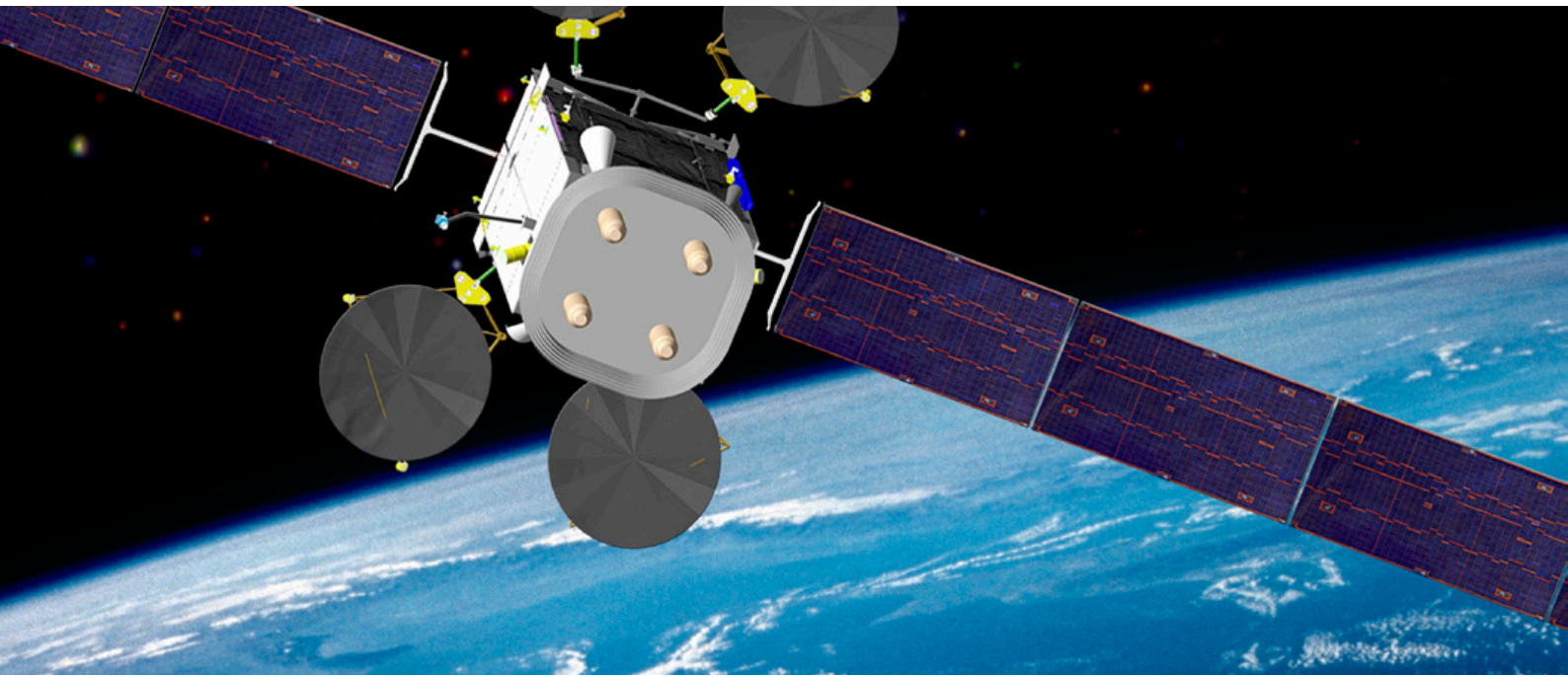
▼ SATELLITE NEWS

SATELLITE UPDATES

NASA Awards Launch Contract to ULA for Mars 2020 Rover Mission

NASA has selected United Launch Alliance (ULA) to provide launch services for Mars 2020, a rover mission to conduct geological assessments of its landing site on Mars, determine the habitability of the environment, search for signs of ancient Martian life, and assess natural resources and hazards for future human explorers. The mission is targeted for launch in July 2020 aboard an Atlas 5 rocket from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida. ULA received the contract through a competitive procurement under the NASA launch services contract. The company has launched all Mars-bound U.S. spacecraft, including the Spirit, Opportunity and Curiosity rovers,
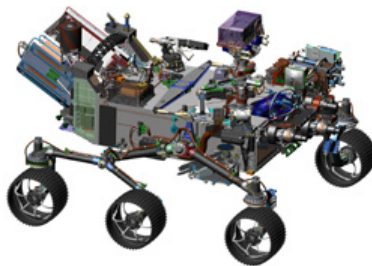
and is also the launch provider for NASA's Interior Exploration using Seismic Inves-

tigations, Geodesy and Heat Transport (InSight) mission to Mars in May 2018. The Mars 2020 mission is to build on the achievements of Curiosity and other Mars missions, including taking and sealing samples of rock and soil for potential return to Earth by a future mission to the Red Planet. The total cost for NASA to launch Mars 2020 is approximately $243 million, which includes the launch service; spacecraft and spacecraft power source processing; planetary protection processing; launch vehicle integration; and tracking, data and telemetry support.

VNPT-Vinaphone teams up with Thuraya for mobile satellite service

Thuraya Telecommunications has announced the signing of an agreement with VNPT-Vinaphone for the establishment of mobile satellite and maritime communication services in Vietnam. The deal will give the Vietnamese telecoms operator 100% coverage of the country's territory, including its islands and mountainous areas, as well as coverage of 'two-thirds of the world' by utilizing Thuraya's network. With the satellite mobile and post-paid Vinaphone SIM, customers will be able to make voice calls, send SMS and use GPS from any location in Vietnam. In its initial launch phase, VNPT-Vinaphone will

introduce Thuraya's XT-Lite handsets and maritime communication solution SF2500 for Vietnamese consumers, government agencies and enterprise customers. VNPT-Vinaphone is a wholly owned subsidiary of national PTO Vietnam Posts and Telecommunications Group (VNPT), itself owned by the Vietnamese government.

Eutelsat concludes agreement with SpeedCast to sell stake in WINS

Eutelsat Communications (NYSE Euronext Paris: ETL) and SpeedCast International Limited (ASX: SDA) have signed an agreement whereby Speed-Cast will acquire Eutelsat's 70% stake in WINS Limited for a consideration based on a total enterprise value of approximately €60 million. Held through Skylogic, Eutelsat's wholly-owned subsidiary, Wins is a provider of maritime connectivity services to passenger vessels in the Mediterranean region as well as, through its German subsidiary DH-Intercom, a provider of principally L-band connectivity and VSAT solutions to merchant vessels. In a consolidating market, the transaction will enable WINS to benefit from the scale of a leading global network and satellite communications service provider. The sale of Eutelsat's stake in Wins is consistent with its strategy of streamlining its asset portfolio in order to maximize free-cash-flow generation.

Thuraya, VNPT Provide Mobile Satellite Services in Vietnam

Thuraya Telecommunications has signed its first service agreement in Vietnam with VNPT VinaPhone mak-

ing its land and maritime handsets available to the Vietnam Posts and Telecommunications Group (VNPT). This agreement will extend VNPT VinaPhone's coverage to two thirds of the world by using Thuraya's network, including full coverage over Vietnam's territory counting its islands, according to Thuraya. With the satellite mobile and postpaid VinaPhone SIM, customers can make voice calls, send SMS, use GPS and stay in touch from any place in Vietnam. This overcomes terrestrial limitations caused by distance, infrastructure, weather or geography. In its initial launch phase, VNPT will introduce Thuraya's XT-Lite handsets and maritime communication solution SF2500 for Vietnamese consumers, government agencies and enterprise customers. For government agencies, mobile satellite services are an effective solution to manage and monitor forest rangers and coast guards, allowing them to assist people on the borders and the islands. This is vitally important during natural disasters, when terrestrial networks cease to operate. For businesses, VNPT will provide uninterrupted communications for enterprises and their crews in the mining, fishery, transport, construction and tourism industries. Individual customers will also benefit from satellite services, especially those who are constantly on the move or working in areas without cellular networks.

Satellite sector mulls how to live with FCC's latest decision on telecom technology

The U.S. regulatory decision that denied protected status to satellite systems that have been investing in Ka-band spectrum, and cast doubt about the viability for satellite systems of other slices radio spectrum, has been met with a curiously muted response by the satellite sector. The same companies that before the July 14 decision had invested heavily in high-powered legal talent to urge the U.S. Federal Communications Commission (FCC) to reverse its course had surprisingly little to say once the ruling was announced. Several industry officials said they would need time to study the implications of the complex ruling, designed to open spectrum above 24 gigahertz to next-generation, or 5G, wireless broadband services.

One industry official said the tepid response by satellite operators followed FCC Chairman Tom Wheeler's warning that he would not take kindly to any negative statements issued after the ruling. "We were told the chairman wanted us to say nothing, and that if we felt compelled to say something, that it should be neutral in tone," this industry official said. "We were told the chairman was still angry with the satellite industry after WRC-15." WRC-15, or the World Radiocommunication Conference, was the most recent meeting of global wireless spectrum regulators. Wheeler and the U.S. delegation had urged that studies begin on the shared use of Ka-band spectrum between 5G and satellite systems, a proposal the satellite sector successfully defeated. Wheeler made clear his unhappiness about this in a March speech to satellite companies and referenced WRC-15 in the July 14 hearing before the decision. "Every effort was made to stop us" in Geneva, he said. FCC spokesman Charles Meisch said the agency would decline comment on whether Wheeler had sent out word that satellite companies should refrain from criticizing the 5G ruling. The U.S. Satellite Industry Association, which represents most of the companies that had a stake in the 5G ruling, on July 15 issued a statement that three SIA members agreed was a strained attempt to not say what it wanted to say: "SIA recognizes the FCC's effort to address some of the significant concerns of the satellite industry about the potential for interference to existing and planned systems," the association said. "SIA is also encouraged b the provisions pertaining to Earth stations operating in the 28 GHz band.... We... appreciate the commission's willingness to revisit the 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." Asked if SIA had been advised by the FCC not to make critical public statements, the association said July 15 that its president, Tom Stroup, "was never contacted by the FCC or Chairman Wheeler since the sunshine period went into effect and therefore we were never advised by the FCC about making negative comments concerning the ruling." The number and variety of current and prospective satellite operators submitting opinions to the FCC suggest its importance to the satellite sector. They include Boeing, EchoStar, Hughes Network Sys-

tems, Inmarsat, Intelsat, Iridium, O3b Networks, OneWeb, SES, SpaceX and ViaSat. The Europe, Middle East and Africa Operators Association and SIA also submitted separate opinions. Not all focused on 28 GHz. Boeing, for example, has filed to U.S. and international regulators a proposal for a V-band satellite Internet constellation and wanted an FCC commitment that V-band frequency allocations to 5G networks would not interfere with a planned satellite system. The FCC mainly rejected that argument, saying that to date there are not V-band satellite networks under construction or about to enter construction. Boeing issued a statement saying it would reserve comment "until we have completed a thorough review. In the meantime, our position is that we support a spectrum-sharing scheme and regulatory approach that would enable future satellite-based broadband services, maximizing consumer choices, including in rural and remote areas." Broadband satellite systems in the United States have already begun to deploy Earth stations in the 28 GHz band under the assumption that they would face no mobile interference in that frequency. The legislative history of the 28 GHz band is a subject of dispute. Satellite companies say they have relied on priority access to it for years and made substantial investments accordingly. The 5G community, led by The Wireless Association CTIA, said satellite operators have, in effect, squatted the bandwidth on the assumption that no potentially interfering user would lay claim to the same spectrum. The FCC acknowledged in its decision the potential for interference between 5G and satellite services, but nonetheless said it would authorize 5G mobile, granting satellite uses "secondary" status. "The investments satellite operators have made in Ka-band operations were made with the knowledge of their secondary status," the FCC said. Carlsbad, California-based Viasat Inc disputed this. SES and O3b endorsed ViaSat's argument in a letter to the FCC. ViaSat, which operates Ka-band satellites for fixed consumer broadband and aeronautical mobile services for commercial and government customers, has perhaps more to lose with the commission's ruling than any other established satellite operator. ViaSat said the FCC has already approved seven satellite networks, with 40 gateway Earth stations, using the 28-GHz spectrum. These include three ViaSat satellites, one of which is in service;

and satellites owned by Hispamar of Spain; O3b Networks, recently purchased by satellite fleet operator SES of Luxembourg; Inmarsat of London; and consumer broadband provider Hughes Network Systems of Germantown, Maryland. These authorizations gave these companies "settled expectations and legal rights" to 28 GHz, ViaSat said. "Billions of dollars have been spent and even more has been committed to deploy these networks. Changing the ground rules would affect both operating networks and those currently under development." SES, which in addition to owning the O3b Ka-band broadband satellite constellation is weighing an investment in a global Ka-band system for aeronautical connectivity and other uses, chose to look on the bright side of the decision. "SES welcomes the protections the FCC has introduced, and its willingness to continue reviewing the risk of aggregate interference into 28 GHz satellites," the company said in a statement. "SES recognizes that the introduction of mobile operations into this spectrum presents a unique situation given the existing regulatory framework and uses of these frequencies in the United States, and requires

a tailored approach and on-going co-operation among the stakeholders." ViaSat had gone out of its way in the months since WRC-15 to avoid a confrontation with the FCC. The company was criticized by other satellite operators for its "one-the-one-hand, on-the-other-hand" public statements about the effects of sharing the spectrum with 5G mobile. But a large part of the "billions of dollars" that ViaSat said had already been spent at 28 GHz

was ViaSat's own money. Asked to comment on the FCC decision, ViaSat said: "Upon initial review, we believe... the order provides an approach that gives satellite operators the ability to operate and expand alongside terrestrial wireless networks. The order recognizes the need for additional study of technical sharing issues and we will continue working with the commission and other stakeholders to address those concerns. "[C]larity is still needed about the specifications of the 5G technology, time frame and opportunity, and we will have to see how that plays out over the coming years."

DigitalGlobe and Partners Launch SpaceNet Open Data Initiative on Amazon

DigitalGlobe, in collaboration with partners CosmiQ Works, and Nvidia, has launched SpaceNet, an online repository of satellite imagery and labeled training data, available as a public data set on Amazon Web Services (AWS). The companies anticipate SpaceNet will advance the development of machine learning and deep learning algorithms that leverage remote sensing data. SpaceNet opens access to a large corpus of curated, high-resolution satellite imagery to incubate algorithm development. The product will launch with an initial contribution of DigitalGlobe multi-spectral satellite imagery and 200,000 curated building footprints across the city of Rio de Janeiro, Brazil. According to the company, this initial contri-

bution will provide the necessary data to create new algorithms to automate the extraction of features like buildings in dense urban environments. Over time DigitalGlobe, CosmiQ Works, Nvidia, and Amazon anticipate making more than 60 million labeled satellite images accessible to the public via SpaceNet. "SpaceNet is key to unlocking a huge explosion of new AI-driven applications that ultimately will help us better respond to natural disasters, counter global security threats, improve population health outcomes, and much more. The industry is coming together to power smarter algorithms so we can see and learn things from imagery about our planet that we simply cannot know today through manual techniques," said Tony Frazier, SVP at DigitalGlobe.

Satellite Internet Hails BDUK Better Broadband Access Scheme as a "Game Changer"

Satellite Internet, a specialist satellite Internet Service Provider (ISP), has welcomed the decision by Broadband

Devon & Somerset, which are covered by their own regional schemes. Qualifying residential properties can now receive full connection to Satellite Internet's services for a vastly reduced cost of £70, including all necessary equipment, professional installation and account activation. The ISP is also including a wireless router free with every order. Business properties will also be eligible for the substantially reduced set-up costs, after having an additional chargeable site survey. Satellite Internet's Business Development Director David Hennell said: "The decision by BDUK really is a game changer and offers a superb opportunity to broadband-starved residents and businesses to get connected to services that will improve their day-to-day lives. In covering the whole of the UK, the scheme really does provide the best assistance to disadvantaged premises. "We are delighted that within the revised Better Broadband scheme, subsidies are now being passed directly to those who actually deliver the service and can only applaud BDUK for its proactive thinking and common sense approach, which delivers the best value for money for the taxpayer's pound

meaning as many people as possible can benefit from greatly improved internet speeds over the coming months and years."
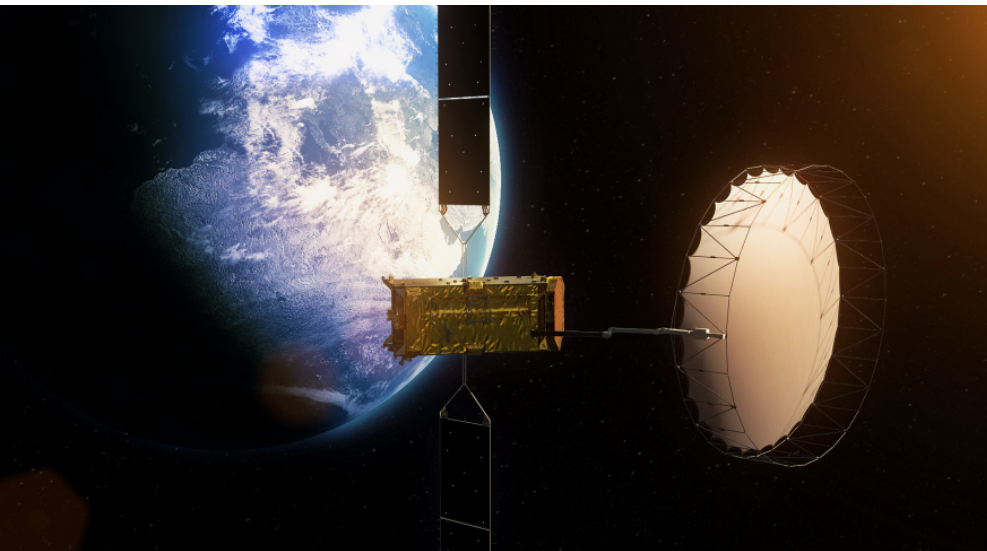
Delivery UK (BDUK) to revise its connectivity program - now retitled the Better Broadband scheme - meaning that all properties with inadequate internet speeds can be set up for connection to its services at a heavily subsidized rate. The BDUK Better Broadband subsidy scheme is now available to any residential or commercial property with current broadband speeds of less than 2Mbps across the entire UK, with the exception of Wales and

alongside hugely increased benefits for eligible premises," continued Hennell. "We at Satellite Internet can now deliver qualifying applicants a radically improved offering for a very small fixed set-up cost, no matter how complicated the required installation may be. As a result, we're already seeing a fast-growing level of both enquiries and orders under the BDUK revised scheme. This simplicity and clarity can only be a good thing going forward,