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SAMENA TRENDS

EXCLUSIVELY FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES

Exclusive Interview
Eng. Salman Bin Abdul Aziz Al Badran
08

The Next Generation of Service Providers
34

Featured
H.E. Eng. Salim Al Ozainah
Chairman & CEO
CITRA

THIS MONTH
REGIONAL PERSPECTIVES ON THE IMPACT OF TAXATION BOTTLENECKS IN TELECOMS

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BRINGING INNOVATION TO YOUR WORLD

A Wonderful World

CONTENTS

CONTENTS

Regional Perspectives on the Impact of Taxation Bottlenecks in Telecoms

We haven't seen very many arguments to counter the impression (and the fact) that many regulatory and taxation frameworks in existence within the SAMENA region, and their application or imposition, do indeed differ for telecom operators and significantly so to the advantage of "non-telecom" operators, operating within the telecoms industry. There is an obvious imbalance within the telecoms industry when it comes to taxation, and this imbalance has created market distortions, an uneven playing-field for market players, and may have also become an undesired source of resistance for investment in innovation.

Arguably, taxation itself really is about managing balances in the interests of multiple stakeholders. With shifting digital users' behaviors, an increasing need to generate revenues to fund government programs and national initiatives, and evolving telecom business models as well as pressures from market disruptions, socio-economics across the region is witnessing a change. Recognizing that taxes, fees and charges can create undesirable imbalances in well-intentioned efforts to balance stakeholder interests, we all need to work objectively to make taxation as relevant and equitable across all market players and sectors of the economy as possible.

The underlying need of the telecom private-sector is to feel fairness in how it is taxed and what policy-makers do to achieve fairness and reduce taxation bottlenecks. This need for equitable treatment in terms of taxation has a multi-faceted bearing on how equitable access to socioeconomic opportunities materializes within a country. Naturally, this means that the policy-makers

not only need to work on aligning national telecom/ICT policies with national economic policies, but also to develop well-designed long-term fiscal policies and tax policies. In the current scheme of things, there exists a deep interconnect between these four types of policies.

While the region undergoes digital transformation, the fruits of such endeavors will only truly be reaped if regional tax systems too undergo transformation and adapt to new changes that "smarter" and hyper-connected societies of the region are experiencing.

In this regard, tax burden on telecom operators requires special attention. As the region mainly consists of oil-exporting and oil-importing nations -- and both types wish to digitally transform and benefit from the new digitally-driven economy -- it is necessary to address the important and sensitive topic of taxation in each nation's own socio-economic interest. With fair taxation, which can be realized by extending the taxation net to so-far-exempted players (i.e., OTTs), more predictability can be created and the private-sector may be able to play a more positive role in making budgetary recommendations that can be useful to national budget planning.

SAMENA Council anticipates investigating the taxation issue in regional telecoms with the involvement and support of regional policy-makers and regulators, and hopes that the private sector's perspectives on regional taxations, and objectively framed remedies to counter the taxation imbalance, will be shared via the Council's platforms.

Bocar A. BA
Chief Executive Officer
SAMENA Telecommunications
Council

H.E. Eng. Salim Al Ozainah
Chairman & CEO
CITRA

CITRA
الهيئة العامة للاتصالات و تقنية المعلومات
COMMUNICATION & INFORMATION TECHNOLOGY REGULATORY AUTHORITY

Rising in Digital Development and Telecom Regulatory Reforms

The State of Kuwait's evolving knowledge-based economy, spearheaded by CITRA

The world has entered a new period of rapid change that involves a new ecosystem in which digital, biological and physical technologies are working together in newer, unimaginable ways, increasing pressure on public and private sectors to innovate constantly. This new economic model requires urgent innovations in governance and regulation. In Kuwait, the fulfillment of these requirements is being spearheaded by the Communication and Information Technology Regulatory Authority (CITRA) under the leadership of its founding Chairman & CEO, HE Salim Al Ozainah.

ICTs sit at the heart of the State of Kuwait Government's development vision, New Kuwait 2035, launched earlier this year. Already, enabled by much private-sector investment and endeavors, facilitated by the willingness and proactive involvement of the Government of Kuwait, and in particular by CITRA's chairman and CEO, Kuwait has made great strides toward realizing the new digital economy. Kuwait's mobile accessibility has dramatically transformed the digital market, which includes advanced digital services, financial services, and e-commerce. Earlier this year, Kuwait

> **Among the risers in the world with respect of embracing digital development changes and stakeholders in global communication traffic, the State of Kuwait, driven by CITRA, also aims to become a the hub of global data traffic moving through the country.**

took a step toward ensuring cybersecurity and protecting government agencies from cyberhazards. This governmental step complements existing disaster recovery strategies, including the use of the Kuwait Information Network (KIN) to communicate internally and with neighbors within the GCC region.

> **ICTs sit at the heart of the State of Kuwait Government's development vision, New Kuwait 2035, launched earlier this year. Already, enabled by much private-sector investment and endeavors, facilitated by the willingness and proactive involvement of the Government of Kuwait, and in particular by CITRA's chairman and CEO, Kuwait has made great strides toward realizing the new digital economy.**

In Kuwait, telecom technology companies have helped speed up the evolution to a diversified knowledge-driven economy, and the State's funding has enabled the creation of a new ecosystem, with larger firms, such as Viva Kuwait, Zain Group, Huawei, and Cisco, working to boost national efficiency and productivity through a growing range of digital communication solutions. As a result of such efforts, and as a historical perspective, the ICT sector generated US$3.92 billion in GDP in 2015 alone, equaling to the State's 5.2% of non-oil gross domestic product. The 2017 figures are expected to be much higher. Interestingly, while the telecoms/ICT sector of Kuwait only accounts for 1% of the national workforce, with national developmental plans in sight, this number will increase. Global organizations such as the WEF have observed people of Kuwait to be tech-savvy and eager

to embrace change. This has further accelerated the Government of Kuwait's and of CITRA's work toward filling gaps between citizens' expectations and the Government's delivery of smart services, and to keeping the business sustainable for the market players.

Among the risers in the world with respect of embracing digital development changes and stakeholders in global communication traffic, the State of Kuwait, driven by CITRA, also aims to become a the hub of global data traffic moving through the country. Major transit hubs in the GCC currently include Fujairah in the UAE, Jeddah in Saudi Arabia and stations in Oman. Kuwait is pursuing a direct stake in international transit traffic, considering only 3% of total global bandwidth currently passes through the Middle East due to the limited routes available. CITRA aims receive at least 20% of the traffic moving from Iraq and Iran to Europe as these economies grow and become more globally connected.

Similar to national visions defined in other nations of the GCC region, the New Kuwait 2035 development vision is also built on nourishing and utilizing one of the countries most important resources: the growing number of its youth; and the opportunities and challenges that need to be addressed. As the new spearhead of the ICT sector developmental work, CITRA realizes that such youth-centric opportunities have to stretch beyond just the public sector, in which most of the citizens are currently employed. The rising number of youth will seek and need to be able to find plausible opportunities or growth prospects for personal and career development in ICT-driven and fast-evolving private-sector.

Kuwait possesses strong technology

as evidenced by the fact that its mobile penetration, thanks to large network investments and latest network upgrades by its telecom operators, is among the highest in the world and so is the quality of service. Kuwait is a real regional capital of transformation, with ongoing mega infrastructure transformation projects, unique government transformation, and important digital transformation initiatives. It is considered one of the most resilient economies in the region, despite market's disruptions. The country has already made much progress with regard to public-private partnership (PPP) enablement and has revised the national PPP frameworks to ensure improved participation by the private sector; an imperative that will have long term implications on the timely fulfillment of its national vision. The country has US$49 billion worth of government projects planned as PPPs, which is the highest in the GCC region.

Just one year after CITRA's creation, businesses in the sector are feeling optimistic about CITRA's willingness to aid digital transformation in the State, led by predictability, innovation, growth, and public-private collaboration.

SAMENA Council views CITRA's new existence as a strong sign of the Government of Kuwait's willingness and technology-savvy vision for building the national digital economy. The new processes that are being defined by CITRA and the extent to which the private-sector feels welcomed to approach and engage with the CITRA leadership reflects positively on Kuwait's new level of innovation readiness in regulation.

Kuwait is a real regional capital of transformation, with ongoing mega infrastructure transformation projects, unique government transformation, and important digital transformation initiatives. It is considered one of the most resilient economies in the region, despite market's disruptions.

...the New Kuwait 2035 development vision is also built on nourishing and utilizing one of the countries most important resources: the growing number of its youth; and the opportunities and challenges that need to be addressed...

As the Government of Kuwait seeks to maximize the adoption and benefit of emerging digital technologies, and showed prescience in visualizing the impact of digital technologies on national socio-economics, CITRA was formed to exercise a role previously played by the Ministry of Communications (MoC). Created by Amiri decree in 2014, CITRA began operations in February 2016 and is managed by an independent board of directors. CITRA's role now is that of a regulator as well as the new driver of Kuwait's digital aspirations. CITRA's priority focus is on implementing the "smart" government or e-government, ensuring a futuristic role as an innovative regulator, leading sector development and investment incentivization in Kuwait.

Eng. Salman Bin Abdul Aziz Al Badran
CEO
VIVA Telecom - Kuwait

VIVA

Q. What drives Viva Kuwait to Become the country's fastest growing and profit-making company, especially in view of the awards you have won?

A. At VIVA we are constantly striving to remain at the forefront of technology whilst we continuously optimize our operations and ensure that we remain relevant to our customers. This has allowed us to continue to evolve and grow whilst maintaining our value position to our customers. We are always conscious of ensuring we adopt the latest technologies for our customers and to allow them to enjoy the benefits such technologies bring to their lives and businesses. We believe the recent awards are testament to this hard work and commitment to always remain competitive, relevant and at the leading edge of technology.

Q. In view of digital transformation trends around the region, how do you view the correlation between Kuwait's overall national economic policy and the national ICT vision?

A. We certainly see a direct correlation between the two. It's hard to separate them as they both form a fundamental pillar of the economic growth and direction for Kuwait over the next few years. We see a time in the future where the ICT vision and economic policies will underpin one another leading to a much stronger and dynamic digital economy for Kuwait and we are certainly working hard to be part delivering such a vision and contributing to the overall economic and social growth of Kuwait.

The relationship between the Operator and Regulator is a fundamental one which we believe can offer very positive and numerous possibilities for the continued growth and competitiveness of the industry whilst ensuring customers receive the best value.

Q. What are the new possibilities that you would like to see created through improved operator-regulator co-operation?

A. The relationship between the Operator and Regulator is a fundamental one which we believe can offer very positive and numerous possibilities for the continued growth and competitiveness of the industry whilst ensuring customers receive the best value. We foresee possibilities across many areas such as national infrastructure and broadband capabilities, new licensing, local and regional wholesale capabilities, and ensuring a positive and profitable industry for all players in order to continue making the required investments and to contribute directly to the national vision and strategy.

Q. How does Viva view the focus on digital services and the availability of resources, such as spectrum, and incentives, such as reduced industry fees and taxation?

A. We believe digital services will be an integral part of the economy and our industry and we are very conscious of the challenges such as spectrum availability and incentives which may directly affect the development and progression. We certainly aim to work very closely with the authorities to ensure our views are taken into consideration and that a positive position is taken for the benefit of all.

Q. What role does Viva wish to play in leading collaboration within the Kuwaiti market to accelerate digitization?

A. We have been part of the Kuwait community and economy for the past 10 years and therefore we believe we have a critical role to play as a leading technology company in ensuring that vision of digitization in brought to the economy and customers. As a leader in mobility with global reach and leading technologies, we believe we can help to accelerate that vision by ensuring the right infrastructure is in place making it relevant for customers, be it individuals or businesses, to leverage such technologies to bring new ideas and services to the

market rapidly. The creation of such eco-system that can be leveraged is critical to the success of the digital economy.

We believe digital services will be an integral part of the economy and our industry and we are very conscious of the challenges such as spectrum availability and incentives which may directly affect the development and progression.

Q. What is Viva's strategy to maximally capture the value of digital and to enrich customer experience?

A. Our strategy is simple but certainly the details are in the execution of it. However, we aim to continue investing in leading edge infrastructure to ensure we are able to deliver what our customers need and want in their digital journeys. We will work closely with the authorities to ensure such an environment is enabled. We shall continue to ensure we bring value and experiences to our customers where we will remain relevant and competitive whilst leveraging our regional and global capabilities and partnerships.

Q. What trends in digital adoption is the Viva brand contributing to, regionally?

A. Regionally and as part of our group, VIVA is a young, vibrant and digitally relevant brand that is focused on bringing technological advancement to its customers leveraging many of the regional and global partnerships whereby we have been first to market with new network technology adoptions such as 5G, digitization of customer relationship management, automation and digitization of internal and external processes such as order management and leveraging of Big Data and Analytics to enhance customer engagement. These are all part of how VIVA is adopting the digital landscape.

SAMENA COUNCIL ACTIVITY

Airspan Networks becomes Member of SAMENA Telecommunications Council

SAMENA Telecommunications Council has announced that Airspan Networks, one of the world's leading LTE-A small cell wireless access and backhaul solutions provider to telecom operators as well as vertical markets, has joined its membership. Leading regional telecom operators, renowned global telecom technology providers, and specialist firms are members of SAMENA Council.

Airspan Networks is a leading telecoms technology provider to carriers and operates in over 100 countries around the world. Offering a diversified range of LTE and 4G base stations and complementary small cell backhaul solutions using both LTE Relay and proprietary technologies, Airspan is active in Telecommunications, Smart Grids, Public Safety, Transportation, as well as Oil & Gas sectors. The Company is actively developing solutions for the 5G era, combining small cells with gigabit backhaul and virtualization technologies.

SAMENA Council's CEO and member of the Board, Mr. Bocar BA stated, "With 4G already in use and 5G under the radar of every key decision-maker, whether in public or private domain, and as 5G harmonized developmental efforts catch pace in the region, more use cases for the fifth-generation of digital communication experience require to be defined. With Airspan's participation, such efforts have the potential to accelerate. SAMENA Council is already active on promoting common spectrum positions on behalf of telecom operators, including on frequency bands for coverage, capacity, and small-cell densification. We are excited that Airspan's expertise may add to SAMENA Council's advocacy work on behalf of the industry and could aid not only spectrum harmonization efforts, but also help emphasize technology development areas that require prompt attention of decision-makers in the SAMENA region. We warmly welcome Mr. Henrik Smith Petersen and his experienced team on board and hope that Airspan will use this association to its strategic advantage and to further 4G expansion and 5G developmental efforts across borders."

Mr. Henrik Smith Petersen, Airspan's Chief Sales and Marketing Officer, expressed that "Airspan Networks is delighted to form this association with SAMENA Council. Airspan is focused on developing highly efficient advanced capacity and backhaul solutions for telecom operators. With a proven track record of innovating towards small-cell densification, we are an ideal partner to operators with current 4G networks and with strategic interest and up-gradation plans for 5G. As SAMENA Council represents the needs of telecom operators and we help enhance telecom operators' ability to compete in tough business environs where returns continue to decline and where non-traditional competition is on the incline, this mutual relationship with SAMENA Council may help operators improve their network economics. We look forward to being active in SAMENA Council's activities."

Analysys Mason Joins SAMENA Council's Membership

SAMENA Council has announced the joining of Analysys Mason as a new member. Analysys Mason joins leading regional telecom operators, renowned global telecom technology providers, and specialist firms that are already a part of the Council's membership. Providing local and regional perspectives on global issues and trends within the industry, Analysys Mason is a global consultancy and research firm specializing in telecoms, media and technology and has been delivering specialist advice for more than 30 years. The company is constantly monitoring developments in digital services and digital transformation, which are key priority areas for SAMENA Council. Mr. Bocar BA, CEO of SAMENA Council, said, "Analysys Mason is a renowned name in the industry's knowledge space. We are excited to have this wonderful and resourceful participation from Analysys in SAMENA Council's capacity-building and advocacy work. We look forward to creating and delivering new insights to the industry with Analysys Mason's capable involvement, and anticipate welcoming the regional team to SAMENA Council's upcoming regional conferences and leadership events. All this should bring strategic benefits for Analysys Mason as well." "In the midst of the growing activity of the SAMENA council, Analysys Mason is thrilled to re-join SAMENA and thus demonstrate our long-term commitment to supporting the industry in the region to grow and transform. We look forward to meeting, discussing and working with all SAMENA council members to provide them with our insights on the challenges facing the industry." Stated - Mr. Johann Adjovi, Principal and Head of Middle East, Analysys Mason. Since its inception, SAMENA Telecommunications Council's membership platform has played an integral role in generating new approaches to deal with key industry challenges, bringing regulators, operators and vendors together, while working toward addressing digital development matters that will define the future of the industry. Voicing the need for public-private partnerships and representing the private sector's needs and issues have been key elements of such efforts by SAMENA Council. With research and facts-based knowledge exchange with Analysys Mason's participation within the membership, it may be possible to augment existing efforts in the industry's best interest.

MEMBERS NEWS

Minister of CIT Appreciates STC`s Role in Implementing Ministry's Plan to Deploy Broadband

Abdullah Alsawaha, Minister of CIT, appreciated STC role in implementing the ministry`s plan to deploy broadband all around the Kingdom, after the company delivered FTTH to 51K home around the kingdom. In a press statement, after a field visit to view FTTH in North Riyadh, accompanied by Dr. Khaled Biyari, STC Group CEO, Alsawaha said: "We thank STC, our partners in the Broadband Initiative, which will cover 2 million homes across the Kingdom, in accordance with our National Transformation program 2020, in line with the objectives of the Kingdom's Vision

2030, in accordance with the directions of Custodian of the Two Holy Mosques King Salman and His Highness the Crown Prince. At around the Kingdom". The minister listened to a thorough explanation from Abdullah A. Alzmame, Network VP about the progress of the project as planned and achieving a good percentage of it in less than two months through coordination and cooperation with the supporting bodies represented by the Ministry of Communications and Information Technology, Which will contribute in overcoming many of the regulatory actions required for FTTH deployment projects in all regions. Minister Alsawaha and Abdullah Alkanhal, Undersecretary of the Ministry of Communications and Information Technology also inspected the field works of the project, and reviewed some of the excavation and extension works on a number of houses in Al Yasmine neighborhood in Riyadh. From his side, Dr. Biyari, STC Group CEO, thanked the Minister for his effective role in supporting and following up the project as planned by NTP 2020, stressing that this field visit proves Support and attention to the speed of achievement and tackling challenges of the field work, in order to provide the service according to the expectations of our customers in all regions of the Kingdom". He added: "We at STC work with great attention of all our human and technical capabilities to complete this project, which is an unprecedented shift in broadband deployment in the Kingdom".

STC Focuses on Attracting the Saudi Talented People and Investing in the Digital Infrastructure: Dr. Biyari

STC Group CEO, Dr. Khaled Biyari confirmed that the region is full of young people who are creative and capable of contributing to the positive transformation of the region`s economies, when they have the right environment. Dr. Biyari and during his participation in the opening session of the Forum of Building Digital Economies in the Arab World titled "The Digital Arab World, the most important challenges and opportunities" organized by the World Economic Forum (WEF), on the margin of the annual meeting of future global councils that took place in UAE pointed to what is happening in the Kingdom, where the Government and private sector give a great focus to incubators, and the rapid development of the digital economy through young leaders, contrary to the prevailing view that the region is not attractive to the talents and creators.

Biyari, who is a member of Regional Business Council (RBC), stressed that The digital transformation carries with it many opportunities to speed up the region's economies to cope with global transformation and thus contribute to opening up significant opportunities to increase the efficiency governments and companies work in one hand, and to provide growth opportunities in the region and reduce the dependence on natural resources on the other hand. Pointing out that investment in digital infrastructure like: advanced networks, data centers and platforms is one of the most important steps to be taken, citing the large projects the Kingdom is witnessing in this regard. Arab leaders from the public and private sectors who participated in the forum called for accelerating the shift in economic strategies in Arab

countries, in line with the digital and technical transformations taking place in the world's economies. Pointing out that the leaders of public and private sectors are required to adopt new methodologies in education and economy to promote the construction of an economic system suitable for the current stage of a fourth industrial revolution, especially through investment in technology and digital infrastructure.

Dr. Biyari Speaks at the "Future Investment Initiative" Co-Sponsored by STC

STC is participating in the "Future Investment Initiative" as a co-sponsor which will be organized by the Public Investment Fund and considered the first of its kind in the world under the patronage of the Custodian of the Two Holy Mosques King Salman bin Abdulaziz. STC is looking forward to contribute and to have a remarkable role in the future of Saudi investment by presenting its experience in the field of investment in the ICT sector, both internally and externally through the STC group that are present in the Gulf countries and number of other Arab, Asian and African companies. As a major speaker, Dr. Khaled H. Biyari, STC Group CEO, will talk about the most important technologies that will lead the future of investment in light of the accelerated pace of digital transformation in the world and its connection to various investment affairs by all of its different economic and service sectors. The initiative will take place in Riyadh from October 24 – 26, 2017 and will be a qualitative leap

in global investment, especially as it will focus on exploring and discussing trends, opportunities, challenges and emerging sectors that will contribute to shaping the future of the world's economy and investment in the coming decades.

STC Net Profit for the 3rd Quarter Sees an Increase of 18% Compared to Comparable Quarter Last Year

Saudi Telecom Company (STC) announced the company's interim financial results for the period ending at September 30, 2017. STC group net income for the 3rd quarter of 2017 increased 18.2% compared to the comparable quarter last year, and for the 9 months period of 2017 net income reached SR 7.5 billion an increase of 10.4% compared to the comparable period last year. Operating profit for the 3rd quarter increased 23% compared to comparable quarter last year, Earnings Per share for the 9 months period of 2017 grew to reach SR 3.76 compared to SR 3.41 for the comparable period last year. In accordance with the approved dividend policy for three years starting from the 4th quarter 2015 which was announced on 11 November 2015, and have been ratified during the General Assembly Meeting on April 4th 2016, STC will distribute a total of SR 2,000 million in cash dividend for Q3 2017, representing SR 1 per share. Commenting on the results, STC Group CEO, Dr. Khaled H. Biyari, stated: "The financial results for Q3 2017 were good

due to the distinct growth in Enterprise and wholesales sectors revenue despite the decline in consumer revenue during the period. These good results for the period were achieved as a result to the strategy adopted by the company several years ago to focus on diversifying income sources and to start innovative programs in order to improve the efficiency of the operations through increased productivity and the operational excellence program, which is working and delivering in term of improvement in net income and margins. Therefore, net income for the 3rd quarter increased 18.2% compared to the comparable period last year, and for the 9 months period of 2017 net income increased 10.4% compared to the comparable period last year." Dr. Biyari, added "that STC through its various subsidiaries works hard and steadily side by side with public and private sector in the Kingdom to establish a contemporary environment for the digital transformation in Saudi Arabia and to establish a modern environment that contribute to

the spread of the digital environment. As the growth strategy adopted by the company recently sought by all means to achieve the kingdom Vision 2030 and the NTP 2020 which means entering into a big change and major transformation in the Telecom sector through new opportunities outside of traditional services. It will provide us with new opportunities outside our core business, and thus our market capitalization will rapidly increase. As an example of a new era for Sales and Distribution, (STC channels) was re-launched recently with an innovative digital vision and new spirit as an important selling and distribution arm of the group, which is an important part of the transition to digital channels in the service of our clients and providing innovative new services. This will be followed by successive steps in the near future that will bring us closer to our objectives in meeting the customers' needs and achieve attractive returns for the investors."

STC Reports 10.4% Growth in Profit to SAR7.5bn in 9M17

Saudi Telecom Company (STC) has published its financial results for the nine months ended 30 September 2017, reporting a 10.4% increase in net profit to SAR7.5 billion (USD2 billion) from SAR6.8 billion reported in the corresponding period of 2016. The company attributed the positive result mainly to a SAR2.1 billion

decrease in cost of revenues, coupled with the SAR303 million year-on-year increase in gross profit to SAR21.9 billion. In the period under review, STC reported revenues of SAR38.9 billion, a 4.4% decrease y-o-y from SAR40.7 billion, while EBITDA reached SAR12.8 billion, down 8.5% from SAR14.2 billion. STC Group's CEO Khaled

Biyari commented: 'The financial results for Q3 2017 were good due to the distinct growth in Enterprise and wholesale sectors revenue despite the decline in consumer revenue during the period. These good results were achieved despite the various economic and regulatory conditions in the domestic market.'

Batelco Group Announces Third Quarter 2017 Profits of bd25.2 Million (US$66.8 Million)

Batelco Group, the international telecommunications Group with operations across 14 countries, today announced its results for the nine-month period ended 30 September 2017 ("the Period"). The Group has maintained stable revenues with increases over the previous quarter and over Q3 2016.

Financial and Subscriber Highlights

- Gross revenues of BD277.6M (US$736.3M) for the period;
- EBITDA of BD91.2M (US$241.9M) representing a 33% margin;
- Consolidated net profit of BD25.2M (US$66.8M) for the period;
- Subscriber base has grown to over 9.6 million, an increase of 7% YoY;
- Substantial cash and bank balances of BD151.1M (US$400.8M); and
- Earnings per share of 15.2 fils.
- For the nine-month period, the Group's Gross Revenues are up by 2% year-on-year to BD277.6M (US$736.3M) supported by improved revenues in the Bahrain operation, Umniah in Jordan and Dhiraagu in the Maldives. Gross Revenues also showed an improvement of 6% over the previous quarter in 2017 and 7% over Q3 2016.

EBITDA for the period was BD91.2M (US$241.9M), a 13% decline year over year, 14% quarter-on-quarter decline over Q2 2017 and 20% quarter-on-quarter decline over Q3 2016. The drop in EBITDA is mainly attributed to restructuring costs incurred in Q3 2017. However, the Group continues to sustain a robust EBITDA margin of 33%. The Group ended the nine month period with Net Profit of BD25.2M (US$66.8M), a 22% decline compared to the corresponding period in 2016 and quarter-on-quarter decline of 43% compared to Q2 2017 and 37% compared to Q3 2016. The reduced net profits for the period are mainly impacted by the lower EBITDA due to restructuring and the share of loss from the Group's investment in Sabafon, Yemen due to the ongoing political unrest. The Group's balance sheet remains strong; as of 30 September 2017 net assets were valued at BD522.6M (US$1,386.2M) with cash balances of BD151.1M (US$400.8M). This includes the impact of the interim dividend (10 fils per share) announced and paid during the quarter. Earnings per share for the period stood at 15.2 fils. The Q3 financial results were announced following a meeting of the Board of Directors at Batelco Headquarters on Monday October 30th, 2017.

Commenting on the results for the first nine months of the year, Batelco Chairman Shaikh Mohamed bin Khalifa Al Khalifa said that Batelco's operations are evolving and transforming to meet the challenges of the communications industry and to cope with the competitive environments throughout the Group's locations. Shaikh Mohamed noted that the Group's efforts are focused on transforming operations to achieve a competitive edge and long-term operational excellence. The communications world is shifting due to a thirst for more content and digital transformation. Batelco continues with its efforts to be positioned as a leading digital solutions and services provider.

Group Operational Review

Batelco Group Chief Executive Ihab Hinnawi said that the Group is pleased to report that gross revenues are up year-on-year, the first year to show top line improvement in several years, as a result of the Company's investment in fiber and both fixed and mobile LTE. "We are also delighted that our focused strategy supported by Batelco Board of Directors has helped us to grow market share in Bahrain, the Maldives and Jordan," he added. The Group CEO continued by saying that Batelco recognizes the onset of a new digital era and the continuous enhanced demands of its customers. "We are at the forefront of defining and creating an environment that seeks to bring together the digital and telecommunications worlds and realizing that both have unique and complementary strengths that can be used to address the needs of nations and individual consumers. In doing so, we understand that issues to be solved are not one of corporate culture, technology or of capital alone, but really all of them together, and therefore we have put into place a multi-pronged strategy to address all of these simultaneously." "We are very pleased to announce that overall subscriber numbers are up 7% year-over-year and 1% since Q2 2017. At the end of the nine month period, 59% of Revenues and 56% of EBITDA were attributable to operations outside of Bahrain. This is compared with 59% of Revenues and 55% of EBITDA in the first nine months of 2016." "Across the Group a number of locations showed significant growth in their customer numbers with Dhiraagu Mobile subscribers up by 8% versus the same period of 2016 and Broadband subscribers up by an impressive 46% over the same timeframe. Sure Group has made pleasing gains, with their Fixed Line customer base up by 11% YoY and Broadband subscribers up by 4%. Umniah's Broadband subscriber base is up by 33% thanks to their advanced fixed Broadband network and state-of-the-art mobile network and also the introduction of superfast Fibre services." During the third quarter of 2017 Umniah continued to invest in its infrastructure, launching the first phase of its fibre optic services for individual and enterprise customers. The launch covered a number of key areas in Amman, with infrastructure extending over 70 km and reaching 16,000 households and offices. This was accompanied by the deployment of 700 additional sites nationwide, which will further reinforce Umniah's network. Similarly, Dhiraagu continued its growth on mobile and fixed broadband customers, focusing on FTTH (Fiber to the Home) expansion across the country and

enhancement of the recently launched Dhiraagu TV service. FTTH was rolled out in 10 new islands and 23 popular channels were added to Dhiraagu TV. In the Channel Islands and Isle of Man, SURE completed the roll out of its 4G+ network and further enhanced 4G coverage resulting in data usage continuing to drive revenue growth. Fixed broadband also continues to receive investment leading to significant enterprise customer wins. This quarter also witnessed the announcement that SURE has been selected as the preferred supplier for the Isle of Man Government's 6000 mobile services, the delivery of which will commence before year end. In the South Atlantic, access issues worsened during the quarter with visitor numbers to Ascension and Saint Helena well below expectations which impacted revenues. In the Falkland Islands, SURE has commenced a substantial investment in a fast 4G mobile broadband network following the issuing of a new twelve-year license. In Kuwait, the quarter saw Qualitynet delivering the first successful implementation of visual telebanking in the country. In traditional services, broadband customer numbers remain under pressure due to highly competitive MNO offerings though Qualitynet is successfully retaining high value customers through product offerings supported by excellent customer service. Sabafon, in which the Group holds a 26.94% shareholding, continues to be impacted by the difficult operating environment in Yemen. Although the company is still operational and has reported a 31% year on year increase in its subscriber numbers, the continued political instability has affected the company financially with a BD2.0M share of loss reported in the Group's financial results in Q1 2017.

Batelco Bahrain

Batelco Bahrain CEO Mohamed Bubshait stated that investment and strategic efforts have resulted in growing customer numbers across mobile, fixed and Broadband, which is very good news. "The Broadband customer base has grown by 34% year over year, while fixed line subscribers are up by 8% and the mobile customer base is up by 23%. We are delighted to see that the initiatives that our teams have worked hard to implement have delivered promising results. It gives us confidence that our products and value added services are meeting our customers' needs." Batelco became an Amazon Web Services (AWS) partner earlier in the year and building on that relationship Batelco was recently announced as an AWS Direct Connect partner. This placed Batelco as the first provider from Bahrain to enable customers around the region to connect directly to AWS infrastructure using the service. Batelco is also an AWS authorized channel and public sector reseller. In further collaborations with Amazon, Batelco sponsored the organization's first Middle East Summit which took place in Bahrain in September, with the event bringing together leaders in the cloud computing community from Bahrain and the region to connect, collaborate and learn. During the event, Batelco demonstrated its digital solutions including products and services from AWS such as Amazon WorkSpaces, Amazon WorkMail and AWS Direct Connect. Following on from its successful participation last year, Batelco took part at GITEX 2017 under the umbrella of the Kingdom of Bahrain pavilion. Batelco's involvement reflects the Company's commitment to the ICT industry and the tremendous efforts it makes in developing relevant solutions which help to maintain Bahrain's leading position on the international market. As part of an ongoing commitment to enhance support services for customers, Batelco unveiled a new look City Centre Mall shop following a major redesign. In line with Batelco's digitisation strategy all processes at the new look outlet have been revised and digitised to put the latest systems in place and ensure delivery of services more efficiently than ever before.

Looking Ahead

Before concluding, the Batelco Chairman noted that Batelco continues to give high priority to its Corporate Social Responsibility (CSR) program which aims to support initiatives across the fields of Health, Education, Sports and Culture and in line with this has committed over BD1M during the first nine months of 2017. "For the last quarter of the year, we will be focused on pushing forward with a new era of transformation, ensuring the right teams are in place to drive our multi-pronged strategy forward." "Industry trends change, technology changes and customers' needs change so we understand that to benefit from the opportunities delivered by ongoing change that Batelco needs to continuously transform." "On a continuous basis Batelco strives to support initiatives and programmes that are in line with the government's commitment to deliver crucial communications solutions for all sectors including health, education, banking and security. New services and solutions are needed to drive the Kingdom's economic growth and Batelco is fully committed to playing a key role in this delivery," Shaikh Mohamed concluded.

Etisalat Posts 29% Rise in Q3 Net Profit

Etisalat Group has reported consolidated revenue of AED12.9 billion (USD3.5 billion) for the third quarter of 2017, a decrease of 3% from AED13.2 billion in the year-ago period. The UAE-based company said revenue was impacted by unfavorable exchange rate movements, mainly in Egypt. EBITDA also declined by 3% year-on-year, to AED6.6 billion, while consolidated net profit after federal royalty grew from AED1.9 billion in 3Q16 to AED2.4 billion twelve months later. The 29% growth was attributed to lower depreciation charges, higher net finance income, lower losses from discontinued operations and incurring forex gains during the period, as compared to forex losses in Q3 2016. In operational terms, Etisalat had 12.5 million subscribers in its domestic market at the end of September 2017, including 10.6 million mobile users (up by 3% y-o-y) and 1.1 million fixed broadband users (+2%). Its Maroc Telecom division, which has operations in nine African countries, had 56.4 million customers at the same date, representing growth of 8% from September 30, 2016. The operation in Pakistan, however, saw its user base drop by 4% to 21.6 million, partly due to higher competition.

Etisalat to Unveil Cloudification Journey in Collaboration with Deloitte and Huawei

Etisalat Group - the leading telecommunication operator in emerging markets - with Deloitte - a leading global professional services organization with world-class business - and Huawei - a leading global ICT solutions provider – announced the launch of a joint White Paper entitled "From Pipelines to Clouds - Etisalat`s Playbook" that intends to share our lessons learned and our point of view on the road towards a cloud-native Telco, ultimately making a contribution to the telecommunication industry, as well as to indicate how
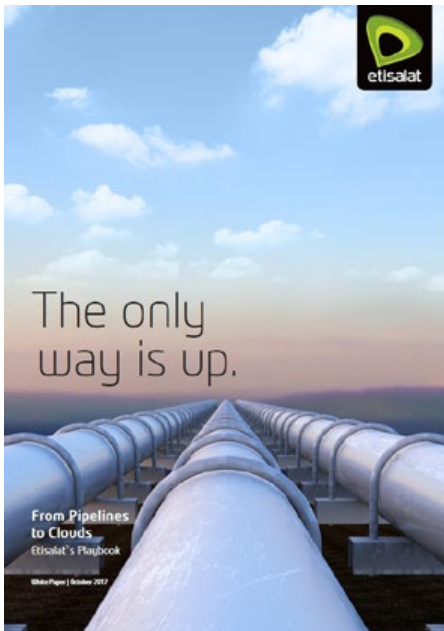
all these technologies combined can elevate a Telcos' capabilities to revamp their business. The launch of the White Paper is part of a collaboration made amongst the three companies for a joint innovation program focused around a playbook to how implement multiple exponential technologies that constitute a Digital Transformation journey through a technology perspective. The companies believe that a future Telco Cloud will require a different telecom networks` infrastructure and system architecture to address customers' digital needs in order to deliver intelligent, quicker, more reliable value added services. Hatem Bamatraf, Chief Technology Officer at Etisalat Group said: "Cloud computing presents unique opportunities for Etisalat to attain sustainable growth in the emerging digital ecosystem. Our aim is to deliver a differentiated service experience to empower a digital and happier society. This new, opportunity-rich landscape calls for collaboration with diverse industry players focusing on open and agile operating and organizational models. Those who have yet to start this journey, must start now and respond boldly with the right strategy!" "Network transformation should be considered as an opportunity to deploy an experience oriented agile network and operating model rather than an imperative

compulsion to address short-term business challenges" says Peng Xiongji, President Etisalat Key Account Huawei Technologies. "At Deloitte we believe that digital transformation is not only about technology, deep transformations might happen in Telcos at multiple dimensions in order to revamp their business. We also believe that a big bang approach has a lower probability of succeeding; instead, the journey might be travelled step by step and harvest benefits along the way" says Pedro Tavares, Partner, Deloitte Portugal, and Leader of the Engineering Centre of Excellence (CoE). The White Paper underlines the vision of Etisalat Group to harness its technological vision and key industry advances to provide innovative premium and differentiated service experiences for customers. The adaption of new architecture and processes outlined in White Paper will enable Etisalat Group to devise a practical road-map for the adaption of SDN and NFV technologies in addition to cutting edge techs such as MEC, AI, Machine Learning, 5G and so on. This will greatly assist Etisalat Group to reassure the path to the envisioned scenario achieving a cost effective infrastructure which enables Etisalat to launch innovative products coped with future time to market. The white paper is available for download at the below link https://goo.gl/VQNvmd

Etisalat UAE Conducts First VoLTE Call over Cat-M1 IoT Network in the Region

Etisalat UAE announced its first VoLTE call over Cat-M1 IoT network in the region setting the future roadmap to deploy advanced networks to meet demands for diversified mobile broadband and communication services for IoT. Etisalat maintains a strong leadership position in IoT technology and solutions with a history of firsts, including the first deployment of a nationwide LTE Cat-M1 network in July this year. This deployment was a revolutionary change and set a benchmark in the IoT ecosystem. A game-changer for the industry, Cat M1 (Category M1) is a new class of LTE chipset that is designed for sensors. They require less power, offer extended battery life, wide coverage, flexible

deployment, low latency and support an array of use cases ranging from water meters to asset trackers to consumer electronics. The demonstration was conducted in partnership with Qualcomm Technologies using Etisalat's IoT and VoLTE capable network infrastructure, IoT devices with Qualcomm MDM9206 global multimode LTE IoT modems. Saeed Al Zarouni, Senior Vice President, Mobile Network, Etisalat said: "We are proud to showcase our leadership and innovation in conducting this first trial which is an industry first and is important as we need to stay ahead of the technology evolution for our customers to provide them services on the best and most advanced wireless network. With Etisalat moving

into a digital future the investment and deployment of new technologies and services are critical to achieve this future goal for the company and the country." This technology will enable applications across different industries and areas, such as smart homes, industrial monitoring, asset tracking, healthcare, retail, smart cities, wearables, and much more. Cat M1 is important because it extends LTE's market reach. By allowing LTE to cost effectively support lower data-rate applications, Cat M1 is being touted as a good fit for low-power sensing and monitoring devices such as health and fitness wearables, utility meters, and vending machines, among many others.

Omantel Teams Up with Ericsson to Begin 5G Testing in Oman

Experimenting with download speeds of 25 gigabit/sec, the development is yet another milestone for Omantel and takes the company one step closer to implementing comprehensive Internet of Things technology in the Sultanate. According to a company statement, "Omantel has started experimenting the fifth generation technology (5G) experience for the first time in the Sultanate in partnership with Ericsson MEA." Omantel became the first provider in the Sultanate to introduce 4G LTE networks in 2012. In 2015, Omantel's total network investments reached over 120 million Rials, which led to introducing 4.5G technology in April 2015 that enabled speeds of up to 200mbps, as well as expanding the 4G LTE network to reach over 86 percent of the population in Oman. Following the successful trial of 4G LTE technology last year, Omantel's Chief Operating Officer Eng. Samy Ahmed Al Ghassany said at the time, "The trial gave impressive results where we were able to achieved

peak download speeds of (1Gbps) using the 4G LTE advanced pro technology, which is considered a significant milestone in our roadmap utilizing our spectrum assets to test the network and prepare for the technological evolution to 5G."

Orange Data Center, the Only Global Tier III Certified Center in Jordan

CEO of Orange Jordan Jérôme Hénique announced that Orange Jordan Data Center located in Marj Al Hamam has received the Tier III certification, for data center design worldwide. The Data Center was accredited by Uptime Institute in America, specialized in studying and evaluating global data centers, becoming the only data center in the Kingdom to obtain this global certificate. The certification was announced during a press conference held under the patronage of Her Excellency Majed Shweikeh, the Minister of Information and Communications Technology and Public Sector Development and in the attendance of Secretary General, Nader Thneibat at the Ministry of Information and Communication Technology, Chief Enterprise Officer of the Business Unit Sami Smeirat, Chief ITN & Wholesale Officer Waleed Al Doulat, Data Center Manager and Tier III Project Manager, Bahjat Al-Adwan and media representatives. During the press conference, Hénique affirmed that Orange Jordan is proud of its advanced Data Center for receiving the prestigious Tier III certification, adding that Marj Al Hamam Data Center was established in 2013 to meet the needs of the company's corporate and business customers and to offer them the latest state-

of-the-art technologies. This falls in line with the company's five-year corporate strategy "Essentials 2020", through which it commits to supporting the digital development of business customers by providing the essential infrastructure." Hénique added that last year, the company launched an international Point of Presence (IP PoP) at Orange Data Centers located in Marj Al Hamam and Hashem, with the aim of connecting more people to high-quality and reliable internet in the region, leveraging Orange Group's expertise which will enable local and regional operators to conveniently access global IP services from Jordan rather than points such as Europe or the USA. From his side, Orange Jordan's Chief Enterprise Officer of the Business Unit, Sami Smeirat affirmed that Orange Jordan is the only operator that provides a Tier III data center at the local level, he also pointed out that receiving this global accreditation among other centers in the region proves that it is a versatile center, offering customers the opportunity to design, implement and manage systems, networks and applications. The Data Center has contributed immensely to business advancement and has helped many strategic companies and banks in Jordan achieve stable growth. Chief ITN & Wholesale Officer at Orange Jordan, Waleed Al Doulat said that obtaining this certificate has resulted in placing Jordan on the global map of Tier III countries, ranking the Kingdom in the 5th place among Arab countries and in the 83rd place globally. Orange Jordan is one of 923 companies to receive all-level TIER certificate, due to the multiple features it offers customers and at the highest standard." Orange Jordan Data Center - Marj Al Hamam won the prestigious EMEA Panduit Award this year, and was ranked number one in the Middle East and Africa (EMEA) region for its unmatched, world-class features.

VIVA Wins "2017 Speedtest Award"

VIVA has been recognized as "Speedtest Award Winner 2017 based on Ookla's analysis of Speedtest Intelligence data in 2017, in Kuwait. Eng. Salman bin Abdulaziz Al-Badran, VIVA's CEO received the award from Mr. Alan Kerrigan, Ookla Director, at VIVA's Headquarters in presence of both organizations' executives. Al-Badran commented: "Reaping such privilege proves our exceptional performance and the high quality standards our professionals are providing to our customers. We endeavor at VIVA to foster our leadership in the telecom market with our innovative products, services and network that meet our customers' aspirations." The Speedtest Award for top providers in speed is determined using a Speed Score that incorporates a measure of each provider's download and upload speed to rank network speed performance. Speedtest® by Ookla® is the definitive way to measure your internet performance. With billions of active uses to date, Speedtest is the dominant global leader in internet performance testing and metrics. Ookla's mission is to help build a better and faster internet. The proven technology behind Speedtest is purpose-built for accurate and unbiased internet performance testing, which empowers people all over the world to gauge and troubleshoot the speed of their internet connections.

VIVA Announces Expansion Plan for New Branches

VIVA, Kuwait's fastest-growing and most developed telecom operator, announced expansion plan to open new branches in different areas in Kuwait. This new plan aims to serve more customers and offer them ease and convenience. VIVA has inaugurated recently three new branches in the areas Mahboula, Jilib Al-Shuyukh and Jaber AL-Ahmad. These new branches joined VIVA's new branch network in Kuwait to cover all residential areas. Commenting in this occasion, Mr. Saud Al-Motairan, Sales Director at VIVA said: "VIVA aims through these new branches in the areas of Mahboula, Jilib Al Shuyukh and Jaber Al Ahmad which will serve a large segment of customers, to provide convenience to its customers and to satisfy their needs and requirements. This move will bring VIVA and its customers closer and keep them posted regularly with the latest products and plans." He added: "The increase in customer base requires the strengthening of our branch network, to provide the best services and products according to the latest and best standards in the world of communications to our customers. In addition to our branch services, VIVA's customer care line at 102 is ready round the clock and up to public holidays, to provide outstanding service to our valued customers through team of specialties."

VIVA Reports a Net Profit of KD 28.3 Million and the Revenues Reached KD 204.2 Million

VIVA, Kuwait's fastest-growing and most developed telecom operator, announced the financial results for the nine-month period ended 30 September 2017. VIVA's revenue in Q3 grew to reach

Dr. Mahmoud Ahmed Abdulrahman, VIVA's Chairman

KD 71.2 million recording a growth of 0.7%; whereas the revenues during the first nine-month period in 2017 reached KD 204.2 million. These results reflect VIVA's marketing, media and advertising vision, in line with the global technology and digital revolution through plans and programs that include modern products and services that meet "more" the needs of customers and reach them anywhere. Commenting on the nine-month's financial results ended in 30 September 2017, Dr. Mahmoud Ahmed Abdulrahman, VIVA's Chairman said: "Despite the high competition witnessed in the Kuwaiti Telecom Market, VIVA was able to achieve a growth in the profitability and sustain the operational efficiency to ensure generating positive return to our shareholders. VIVA achieved these results due to an integrated management approach by a highly professional team that reinforces VIVA's substantial and positive role as a leading telecommunications company that always provides intelligent communications solutions to satisfy the needs of its customers and meet their needs. " He added: "VIVA was able to achieve net profit of KD 28.3 million (earnings per share of 57 fils) during the nine month period ended 30 September 2017 compared to net profit of KD 29.0 million (earnings per share of 58 fils) during the same period in 2016. These results achieved by VIVA during the nine-

month period in 2017 reflect the efficient business strategy adopted by the company to achieve outstanding results despite of the increasing competition. In addition, VIVA managed to achieve positive earnings for its shareholders as a result of the commitment to elevate the quality of customer service and improving the operational efficiency". On his part, Eng. Salman bin Abdulaziz Al Badran, VIVA's CEO said: "Results of the nine-month period ended 30 September 2017 came in line with VIVA's goals and boundless ambitions to achieve an increase in its operational revenues and strengthen its leadership in the telecom market. It is noteworthy to mention that VIVA won this year "Speedtest Award Winner 2017 – Kuwait's Fastest Mobile Network" by Ookla, and it is pioneer in the middle east in providing the latest products and services to its customers among telecom operators in the middle east region, and achieved successfully the establishment of the first Voice Over LTE (VoLTE) interconnection in the Middle East and North Africa region in partnership with local networks, and was the first telecom company in Kuwait that has successfully tested the fifth-

generation "5G" in its lab, which fosters its leadership in providing the latest technology that will enable customers to exchange information and communicate at higher speeds." Al-Badran added: "VIVA has achieved good levels of profitability which improved the company's financial and operational efficiency. As a result, VIVA recorded revenues of KD 204.2 million during the first nine-month period in 2017 and achieved net profit of KD 28.3 million (earnings per share of 57 fils), whereas the operating profit has reached KD 30.1 million during the same period. In addition, VIVA's customer base has reached 2.2 million at the end of September, 2017. Mr. Mohammed Bin AbdulMohsen Al-Assaf, Chief Financial Officer at VIVA said: "VIVA's financial results for the period ended 30 September 2017 reflect its ability to compete, sustain revenues and maintain its position as the second largest telecom operator in the Kuwaiti market in term of revenues in the telecom sector. In addition, it fostered the VIVA's shareholders equity base, which reached about KD 156 million, which reflected the strength and growth of VIVA's financial position. The company managed to decrease the debt level from

KD 56.9 million as at 30 September 2016 to KD 29.4 million as at 30 September 2017, due to its prudent financial policy and its leverage ratio reached 0.19x at the end of September 2017 as compared to 0.47x recorded at end of September 2016". He added: "We will continue our hard work in implementing our strategy

Eng. Salman bin Abdulaziz Al Badran, VIVA's CEO

to maintain our competitive edge and achieve further growth and success in the Kuwaiti telecom market through offering innovative products and services in line with the latest technology to meet our customers' needs."

Zain Selling Kuwait Towers for USD165m to IHS

Zain Kuwait, the country's leading cellco by subscribers, has entered into definite agreements to sell and lease back the passive physical infrastructure of its mobile tower portfolio for USD165 million to IHS Holding in partnership with Towershare Management. The transaction will result in the formation of a new entity that will manage the passive tower assets – currently spanning 1,600 Kuwaiti sites – in which Zain will take a minority shareholding. The deal has been approved by Kuwait's Communication

and Information Technology Regulatory Authority (CITRA), and is expected to close in the first quarter of 2018, subject to other regulatory and statutory approvals. Bader Al-Kharafi, Zain Group CEO, declared that the deal would 'unlock value that can be more efficiently deployed in new technologies and higher yielding investments for Zain, and at the same time pave the way for further network expansion and tower infrastructure sharing in Kuwait.' The transaction represents the first sale and leaseback of

telecom towers in the Middle East region by a mobile operator, and creates 'the first independent tower operator of scale' in the region, a press release added. The newly formed entity will be responsible for maintaining and expanding Zain's tower footprint across Kuwait. IHS says it is the largest independent tower operator in Europe, Middle East and Africa by tower count, and the third largest independent multinational tower company globally.

Zain Achieves 70Gbps Downlink in '5G' Trials

Zain Group claims to have successfully tested '5G' technology achieving maximum throughput speeds of over 70Gbps using 2GHz spectrum. The trial took place at the Zain Innovation Center in Kuwait. Bader Al-Kharafi, Zain Vice-

Chairman and Group CEO, commented: 'Today's demonstration marks a leap forward in the implementation of 5G network capability and reflects our commitment to be an innovator across our operations. This ongoing testing program

will enable Zain to accelerate its mobile broadband network transformation to 5G, which will release the full potential of digitalization in society and enhance ICT industry collaboration on multiple fronts.'

Zain Bahrain 3rd Quarter Profits Jump 8.3 Percent

Zain Group, a leading mobile telecom innovator in eight markets across the Middle East and Africa, announces its consolidated financial results for the nine-month and third-quarter periods ended 30 September 2017. The company ended the period serving 45.3 million customers. Group Key Performance Indicators (Kuwaiti Dinars (KD) and USD) for the first nine months 2017:

Consolidated Revenues	KD 767 million - USD 2.5 billion
EBITDA	KD 316 million - USD 1.0 billion
EBITDA Margin	41%
Net Income	KD 122 million - USD 404 million
EPS	31 fils - USD 0.10

For the first nine months of 2017, Zain Group generated consolidated revenues of KD 767 million (USD 2.5 billion), down 7% year-on-year (Y-o-Y) in KD terms, while consolidated EBITDA for the period reached KD 316 million (USD 1.04 billion), down 19% Y-o-Y, reflecting a healthy EBITDA margin of 41%. Consolidated net income reached KD 122 million (USD 404 million), reflecting a 2% Y-o-Y decrease. Earnings Per Share amounted to KD 0.031 (USD 0.10) for the nine-month period. For the first nine months of 2017, foreign currency translation impact, predominantly due to the 61% currency devaluation in Sudan from average rate of 6.4 (SDG / USD) in the year to date to September 2016 to 16.5, cost the company USD 441 million in revenue and USD 76 million in net income. Excluding this currency translation impact, Y-o-Y revenues and net income would have grown by 8% and 16% respectively for the first nine-months of 2017.

Group Key Performance Indicators (KD and USD) for the third quarter of 2017:

Consolidated Revenues	KD 259 million - USD 860 million
EBITDA	KD 104 million - USD 346 million
EBITDA Margin	40%
Net Income	KD 40 million - USD 133 million
EPS	10 fils - USD 0.03

For the third quarter of 2017, Zain Group generated consolidated revenues of KD 259 million (USD 860 million), down 6% Y-o-Y. EBITDA for the quarter reached KD 104 million (USD 346 million), a decrease of 23% Y-o-Y, reflecting a 40% EBITDA margin. Net income for the period amounted to KD 40 million (USD 133 million), reflecting 6% Y-o-Y decrease. Earnings Per Share for the quarter reached KD 0.010 (USD 0.03). For the 3rd quarter of 2017, foreign currency translation impact, predominantly due to the 63% currency devaluation in Sudan cost the company USD 148 million in revenue and USD 20 million in net income. Excluding the above-mentioned currency translation impact, Y-o-Y revenues and net income would have grown by 11% and 9% respectively for Q3, 2017.

Key Operational Notes for Q3, 2017

1. Group data revenues (excluding SMS and VAS) witnessed a 3% growth for the first nine months of 2017, representing 25% of the Group's total revenues.
2. Zain sold 425.7 million treasury shares to Omantel for KWD 255.4 million (USD 846.1 million) representing 9.84% of Zain's fully paid up and issued share capital at KWD 0.600 per share
3. On October 10, 2017, Zain announced an agreement to sell and lease back its telecom towers in Kuwait for KWD 50 million (USD165 million) to IHS Holding Limited, in partnership with Towershare Management Limited in a regional first
4. Quarter highlighted by notable 10% net income growth in Kuwait, robust customer growth of 16% in Iraq, healthy revenue and data growth in Saudi Arabia and Jordan, plus Sudan continuing to perform exceptionally well in local currency terms
5. Zain Group's smart city arm NXN (formerly neXgen) signed a Memorandum of Understanding with the National Digitization Unit (NDU) of the Kingdom of Saudi Arabia marking NDUs first step towards harnessing open data to help accelerate the digital transformation of the Kingdom. The MOU underpins an existing partnership between the two entities to support and develop NDU's digital transformation agenda in the domains of digital services development and activation, platform innovation and most importantly data governance.

Commenting on the results, the Chairman of the Board of Directors of Zain Group, Mr. Mohannad Al-Kharafi said, "The concerted focus on expanding and exploiting our high-quality networks is proving instrumental as we recorded growth in several key financial metrics across many of our markets for the third-quarter and nine-month periods of 2017. Especially pleasing was the healthy revenue and net income growth in our home market of Kuwait and in Saudi Arabia where the turnaround continues to progress. The Board is working closely with management to maintain our market leadership and overcome the many socio-economic challenges across our footprint." Mr. Bader Nasser Al-Kharafi, Zain Vice-Chairman and Group CEO commented, "The third quarter and the immediate period beyond witnessed two major transactions that are value enhancing to our stakeholders and will have a profound positive effect on the future of our digital lifestyle strategy. The acquisition of treasury shares by Omantel brought immediate tangible benefit and so will the imminent sale of our telecom towers in Kuwait." Al-Kharafi continued, "Both transactions will enhance our financial flexibility as we continue to seek opportunities in the digital space and invest in upgrading our modern networks to enhance our customers' mobile experience. One transaction set the course for future co-operation with Omantel, in which the two companies will explore mutually beneficial synergies and business enhancing opportunities across the region. The other marked the beginning of a strategy to unlock value from our fixed infrastructure, which can be more efficiently deployed in new technologies and higher yielding investments. The selling of our telecom towers will be replicated in other markets further enabling us to focus on our core business and driving customer satisfaction." The Group CEO added, "We continue to undertake transformational programs across all markets and have seen operational progress on several fronts. These include multiple data monetization, smart city and Enterprise (B2B) initiatives across our operations, all which are fast-growing and profitable business areas. While these areas continue to grow, it is unfortunate that one main factor outside of our control, the Sudan currency devaluation issue, has impacted overall

results for the quarter and year-to-date. Nevertheless, we draw confidence from the future prosperity of Sudan given the recent lifting of the US sanctions and expected appreciation of the country's currency." Mr. Bader Al-Kharafi concluded, "The Board and executive management strongly believe in our strategic and transformational direction and look forward to the final quarter of the year with optimism as we explore more new business and value creating opportunities."

Operational review of key markets for the nine months ended 30 September 2017

Kuwait: Maintaining its market leadership, Zain Group's flagship operation saw its customer base serve 2.5 million in a very challenging nine-month period that witnessed intense price competition. Nevertheless, revenues reached KD 249 million (USD 820 million), EBITDA amounted to KD 100 million (USD 329 million) and net income came in at KD 62 million (USD 206 million). Specifically, for the 3rd quarter of 2017, Zain Kuwait's revenues and net income grew 6% and 10% year-on-year respectively. Data revenues (excluding SMS & VAS) formed 32% of the operation's total revenues. Zain Kuwait remains one of the most efficient operations within the Group with a 40% EBITDA margin.

Iraq: Despite the exceptional socio-economic circumstances coupled with the continuation of intense price competition, Zain Iraq achieved USD 811 million revenues due to the impressive growth in data usage and numerous customer acquisition initiatives in the northern regions of the country. The operation's efficiency drive saw EBITDA reach USD 281 million, reflecting a 35% EBITDA margin. Net income amounted to USD 24 million for the period. Zain Iraq leads the market serving 13.7 million customers, which represented an impressive 16% Y-o-Y increase.

Sudan: A significant 61% currency deval-uation in Sudan affected the operation's financial results in USD terms for the first nine months of 2017. Nevertheless, in local currency (SDG) terms, the operator continues to perform remarkably well as revenues grew by 40% Y-o-Y to reach SDG 5.2 billion (USD 315 million, down 45% in USD terms) for the first nine months of 2017. EBITDA increased by 30% to reach SDG 2 billion (USD 124 million, down 49% in USD terms) and net income increased by 29% to SDG 836 million (USD 51 million, down 49% in USD terms). Data revenues (excluding SMS and VAS) accounted for 15% of total revenues, with an impressive annual growth rate of 63%. The operation saw its customer base expand by 4% to reach 12.9 million.

Saudi Arabia: The turnaround and cost optimization program in place at the operation, combined with investment in network upgrades and the introduction of appealing data monetization initiatives bolstered all key financial indicators for the first nine-months of 2017. The operator recorded its third consecutive quarterly net profit, which reflected in the operation reporting USD 15 million net profit for the first nine-month period, compared to net losses of USD 225 million for the same period in 2016. Revenues for the nine-month period were up by 9%, reaching USD 1.5 billion, with Zain KSA also recording a significant 48% increase in EBITDA to reach USD 514 million. The company's EBITDA margin rose to 34%, up from 25% in 2016. The introduction of the biometric identification requirement over the past year, capping number of prepaid Sims to two for each unique identity and the impact of seasonality saw the operator's total customer base shrink by 21%, to stand at 8.3 million customers at the end of September 2017. Impressively, the operator witnessed a 42% rise in data revenues (excluding SMS and VAS) Y-o-Y, representing 50% of total revenues.

Jordan: Zain Jordan grew its customer base by 1% Y-o-Y, serving 4.2 million customers at the end of September 2017 and maintaining its market leading position despite intense price competition. Y-o-Y revenues increased 2% to reach USD 371 million, with EBITDA down 2% to reach USD 174 million, reflecting an impressive 47% EBITDA margin. Net income decreased 9% to USD 72 million for the nine-month period. With the continual expansion of 4G services across the country, data revenues (excluding SMS & VAS) represented 37% of total revenues, up by 14% Y-o-Y.

Bahrain: Zain Bahrain generated revenues of USD 148 million for the nine-month period of 2017, up 12% Y-o-Y. EBITDA for the period amounted to USD 44 million, down 10%, reflecting an EBITDA margin of 30%. Net income amounted to USD 7 million, reflecting an 8% decrease. Data revenues (excluding SMS & VAS) increased 29% Y-o-Y, representing 44% of overall revenues.

Accenture Selects Dubai Winner of Connected Digital Hackathon

Accenture with the support of Expo 2020 Dubai, has selected the top team from Dubai that competed in its first connected digital hackathon. The event challenged participants to develop innovative digital solutions that improve urban living conditions, support more inclusive populations, and promote sustainable urban practices. It took place simultaneously in Dubai and ten other cities across four continents on November 11 and 12. Team "OASIS" won the Dubai challenge with a prototype of an Internet of Things (IoT) platform that can help conserve water. Close to 500 recent graduates, undergraduates, entrepreneurs and individuals from start-ups in 100 teams participated in the hackathon across 11 cities (Bangalore, Chicago, Dubai, Istanbul, London, Manila, Mexico City, Monterrey, Rome, Shanghai, Singapore). In Dubai, the event had 42 participants in nine teams.

Other Top Local Teams and Ideas

An additional two teams were awarded in the Dubai challenge of the hackathon:

- Ranked second, team Algorythm developed Health ME, which aims to provide peer-to-peer, community-driven medical insurance
- Ranked third, team Impact 7 presented Feed Us, a platform that connects large food producers with organizations that can put otherwise discarded food to use.

Top Global Teams and Ideas

- The global winner of the hackathon is team "Wombat" from Singapore. It designed Dragonfly, an early warning system to detect and prevent outbreaks of Dengue Fever and other vector-borne diseases.
- Ranked second across all participating cities, team "Apostle" from Chicago created a brain-to-speech Artificial Intelligence companion.
- Ranked third, team Oasis from Dubai, presented Hardware to Optimize (H2O), a system that analyzes your water consumption on a daily basis and helps you conserve more water.

Expo 2020 Dubai's Expo Live judges also shortlisted the solution from Singapore for the opportunity to be presented to the next round of the Expo Live Innovation Impact Grant Program for a chance to receive a grant worth up to USD 100,000, as well as business development support and exposure A panel of jurors ranked the solutions based on their innovative potential, quality and completeness of the prototype, usability and functional scope as well as how the teams presented them to the jury. Jurors included experiences digital professionals from Accenture, Expo 2020 Dubai, local sponsors and academia. Xavi Anglada, Managing Director and Accenture Digital lead in the Middle East and Turkey, said: "We are proud to drive innovative potential and ideas with initiatives like the Accenture Digital Hackathon. I'd like to thank

the participants for all the creativity and ingenuity they've demonstrated in what have been a really exciting 24 hours." Yousuf Caires, Vice President of Expo Live, Expo 2020 Dubai, said: "The innovative ideas and solutions that came out of this Hackathon were exceptional and we are proud to work with Accenture to provide platforms like this to enable and encourage creative local minds. More importantly, we are eager to welcome the winning team to pitch its solution at the next round of the Innovation Impact Grant Program, for a chance to win our support and potentially showcase the solution to millions of visitors at Expo 2020 Dubai. He added: "Expo Live views innovation as the relentless commitment to solving problems that impact communities and the progress of humanity. Dubai, as an innovation hub, welcomes innovators from all around the globe to develop solutions that will improve our lives for the long-term." Abeer Nijmeh, Senior Director, Business Strategy & Open Innovation, Etisalat, said: "This hackathon is an excellent example of how valued start-ups are in the UAE. In line with the vision of our nation's leadership, we look to give them every chance to succeed because we know that they are behind most of today's innovative and impactful ideas. In coming years, our economies and our lives will be shaped by these ideas and we are proud to support the Accenture Digital Hackathon, which provides an exceptional collaborative and empowering platform."

Cisco and Google Partner on New Hybrid Cloud Solution

Cisco and Google Cloud today announced a partnership to deliver a hybrid cloud solution that helps customers maximize their investments across cloud and on-premises environments. The companies will provide a unique and open hybrid cloud offering that enables applications and services to be deployed, managed and secured across on-premises environments and Google Cloud Platform. The solution delivers cloud speed and scale, with enterprise-class security. The offering provides enterprises with a way to run, secure and monitor workloads, thus enabling them to optimize their existing investments, plan their cloud migration at their own pace and avoid vendor lock in. Companies can now develop new applications in the cloud or on premises, consistently using the same developer tools, run time, and production environment. "Our partnership with Google gives our customers the very best cloud has to offer—agility and scale, coupled with enterprise-class security and support," said Chuck Robbins, chief executive officer, Cisco. "We share a common vision of a hybrid cloud world that delivers the speed of innovation in an open and secure environment to bring the right solutions to our customers." "This joint solution from Google and Cisco facilitates an easy and incremental approach to tapping the benefits of the Cloud. This is what we hear customers asking for," said Diane Greene, CEO, Google Cloud. The joint Cisco and Google Cloud hybrid solution helps developers leverage managed Kubernetes, GCP Service Catalog, Cisco networking and security, and Istio authentication and service mesh monitoring. Enterprise app developers can securely access cloud APIs, and cloud developers can securely access enterprise APIs and on-premises resources.

Cisco and Google Cloud hybrid solution highlights:

- Orchestration and Management – Policy-based Kubernetes orchestration and lifecycle management of resources, applications and services across hybrid environments
- Networking – Extend network policy and configurations to multiple on-premises and cloud environments
- Security – Extend Security policy and monitor applications behavior
- Visibility and Control – Real-time network and application performance monitoring and automation
- Cloud-ready Infrastructure – Hyperconverged platform supporting existing application and cloud-native Kubernetes environments
- Service Management with Istio – Open-source solution provides a uniform way to connect, secure, manage and monitor microservices

- API Management – Google's Apigee enterprise-class API management enables legacy workloads running on premises to connect to the cloud through APIs
- Developer Ready – Cisco's DevNetDeveloper Center provides tools and resources for cloud and enterprise developers to code in hybrid environments
- Support – Joint coordinated technical support for the solution
- The solution will be available to a limited number of customers during the first part of 2018, with planned general availability later in the year.

In support of this partnership, DevNet – Cisco's Developer Network – offers a set of tools for enterprise and IoT developers to explore open source technologies, build hybrid cloud solutions, and further develop IoT opportunities. The Cisco DevNet Sandbox provides instant access to hardware and software developer environments at no cost to help developers quickly explore and create solutions. Developers can get started with Kubernetes and container networking using Contrive in the Sandbox, or take a DevNet learning track on cloud-native development or edge computing to get started today. In addition, developers using Google Cloud have access to a wealth of information, tools, and documentation from the innovator in container management and Kubernetes.

Cisco Acquires BroadSoft for USD1.9bn, Boosts Cloud Communications Presence

US tech giant Cisco has agreed to acquire publicly-held BroadSoft for approximately USD1.9 billion net of cash, assuming fully diluted shares including conversion of debt. The acquisition has been approved by the board of directors of each company.

Gaithersburg-headquartered BroadSoft calls itself 'a market leader for cloud unified communications with an open, mobile and secure platform trusted by 25 of the world's top 30 service providers by revenue'. BroadSoft provides platforms

for cloud PBX, unified communications, team collaboration, and contact center solutions for businesses and service providers across 80 countries.

Cisco Forecasts Return to Revenue Growth

Cisco reported revenues of USD 12.1 billion for its fiscal first quarter to October, down 2 percent from a year earlier in line with its outlook. Net income rose 3 percent to USD 2.4 billion, and EPS was up 4 percent to USD 0.48, at the low end of its forecast range. For fiscal Q2, Cisco forecast a return to revenue growth, a first in two years.

DE-CIX and Epsilon Announce First Cloud Integrator Partnership

DE-CIX, the world's leading Internet Exchange operator jointly announced its partnership with Epsilon, a privately owned global communications service provider, to enable DE-CIX customers to access global IP Transit services from their German, New York, and Istanbul locations. Epsilon Internet services offer IP Transit globally, whilst providing an extensive peering ecosystem incorporating major content network providers, other public Internet exchanges, and the leading network service partners. Through Epsilon's Infiny platform, DE-CIX will also be able to directly connect its customers to leading cloud service providers including Alibaba Cloud, Amazon Web Services (AWS), Microsoft Azure, and Google Cloud. Infiny delivers a comprehensive set of enterprise, voice, local access, Cloud, and global connectivity services from a single, self-service platform. Utilizing this new and innovative technology, users have the ability to procure and manage Epsilon's services via the Infiny web-based portal, APIs, and Android and iOS apps. "The need for scalable connectivity and interconnections in an efficient and cost-effective manner was a key driver in choosing to partner with Epsilon," says Melanie Kempf, Director Global Partner Relations at DE-CIX. "Our partnership allows us to globally extend the reach of the IP footprint our customers can use. Our customers need to globally connect and peer with companies more frequently than ever before, and partnering with innovative networking partners like Epsilon helps DE-CIX to facilitate this." DE-CIX currently provides peering and interconnection services to over 1300 network operators, Internet service providers (ISPs), and content providers from over 100 countries. "This partnership demonstrates Epsilon's capability to assist with and meet the demands of the growing need for IP bandwidth and peering, by enabling fast-growing connectivity services with global network reach," explains Jerzy Szlosarek, CEO, Epsilon. "We look forward to a long-lasting relationship with DE-CIX, serving their customers with connectivity needs as they continue to grow their own internal and external service capabilities." The service complements the DE-CIX DirectCLOUD service, where Internet Service Providers can directly connect their end customers to several cloud service providers, bypassing the Internet. In addition, the connection can also be used to connect to other ISPs in order to use their services. Phase Two will see DE-CIX building upon this partnership and making Epsilon's IP services accessible in all global locations in 2018.

du Educates Students on the Importance of Cyber Safety in the UAE

In line with its mission to create a culture that addresses cyber bullying and safe internet usage, after an initial first successful session, du held its second educational session on cyber safety awareness to 120 students at AMLED School in Al Quoz. The du Technology, Risk and Security Management Team (TSRM) spoke to primary school students in grades four and five, showed videos and conducted engaging activities, with the aim to build children's critical-thinking skills related to internet usage, and help them identify dangers online. "At du, as a telecom operator, we believe that education on cyber-safety is of great importance in the UAE. The internet can be immensely entertaining and educational but it can also pose many hazards. Therefore, children need to be more aware of how to stay safe online, which we highlighted last year in our #PostWisely campaign. At du, we believe children should also know that parents, teachers, and government authorities can all play a big role to ensure cyber safety," said Walid Kamal, Senior Vice President – Technology Security & Risk Management, du. The du Cyber Security Conference and Hackathon are some of our key initiatives in this area where we educate and discuss the threats posed by cybersecurity, and the opportunities it provides for technological development." During the cyber safety awareness sessions du's Technology, Risk and Security Management Team discussed important topics to students aged eight to twelve years old; these included internet safety, cyberbullying, social media, the importance of reporting bad behavior, and self-image and identity. du aims to conduct further cyber safety awareness sessions at other schools across the UAE. In line with du's mission to create a culture of responsibility, the telecom successfully launched its #PostWisely campaign in November 2016. The campaign showed real-life examples and creative story-telling to shock the audience about the perils of oversharing on the internet, and how individuals can be more responsible about the information they post. The campaign videos have been viewed close to 5 million times on the du YouTube channel alone, and received numerous mentions in the media and from the general public.

EUTELSAT 115 West B Satellite Chosen to Enhance Alaska's Connectivity Landscape

Alaska Communications, Alaska's leading broadband and managed IT service provider, has signed a long-term multi-transponder agreement with Eutelsat Americas, a subsidiary of Eutelsat Communications (Euronext Paris: ETL), to extend access to telecom services for businesses, schools, health care providers, state and local governments across Alaska. Through EUTELSAT 115 West B's exceptional C-band coverage, Alaska Communications is equipped to provide connectivity across the state, allowing residents in remote areas to benefit from faster broadband for online job training, e-commerce, state government services, tourism promotion and videoconferencing. Bill Bishop, Alaska Communications Senior Vice President, Business Market, said. "Entering the market as a satellite provider instead of a reseller gives us more flexibility and control over our product, which we will use to provide more value for customers. We can offer our customers competitive pricing and a service we'll manage end to end. As a statewide provider, it's important for us to serve customers in remote areas, including the North Slope and Arctic regions, and that's what EUTELSAT 115 West B delivers." Mike Antonovich, CEO of Eutelsat Americas, added: "EUTELSAT 115 West B's exceptional coverage across Alaska and its reliable and efficient performance were central to Alaska Communications' selection. This agreement showcases the vital role satellite services play in providing enhanced back-up to fiber networks and will allow our customer to serve rural Alaska with satellite technology for years to come, playing an important part in bridging the digital divide in remote areas across the state and bringing significant benefits to local communities."

Eutelsat Communications First Quarter 2017-18 Revenues

Eutelsat publishes revenues on the basis of five applications: Video, Fixed Data and Government Services (Core Businesses), Fixed Broadband and Mobile Connectivity (Connectivity). Rodolphe Belmer, Chief Executive Officer, commented: "First Quarter revenues were in line with our expectations. Our key operational metrics were well oriented with a further rise in HD penetration, a stabilisation of the Backlog and an improved Fill Rate on a quarter-on-quarter basis. The fall renewal campaign with the US Government yielded a favorable outturn, at some 95% in value while the outcomes of Video renewals during the quarter were positive, notably with Polsat on HOTBIRD. Elsewhere we took further measures to optimize Video distribution with the absorption of Noorsat in the MENA region. For the remainder of the year, revenues in our Core Businesses are on track, and Mobility will further benefit from the entry into service of EUTELSAT 172B in November. However, the late availability of the payload leased on the Al Yah 3 satellite, representing the majority of the capacity dedicated to Konnect Africa, will push out revenues in Fixed Broadband. In recognition of this delay, revenue expectations for FY 2017-18 are mechanically adjusted from 'broadly stable' to between -1 and -2%. This adjustment will not affect our ability to attain our other objectives, in particular EBITDA margin and discretionary free cashflow, which are all re-affirmed for the current and future years."

KEY EVENTS
The key events of the First Quarter were as follows:

- Q1 revenues down 1.0% at constant currency and perimeter and excluding 'Other' revenues;
- Well-oriented operational metrics, with a further rise in HD penetration as well as a stabilization of the Backlog and an improved Fill Rate on a quarter-on-quarter basis;
- Favorable outcome of the US Government Fall renewals with a rate of almost 95% in value;
- Positive outcome of Video contract renewals, notably with Cyfrowy Polsat on HOTBIRD;
- Absorption of Noorsat to optimize Video distribution in the MENA region;
- Delayed availability of Al Yah 3 capacity impacting Konnect Africa ramp-up. All other verticals on track.

Intigral Receives the Award for 'Most Innovative Digital Delivery Solutions Mena 2017'

Intigral, an affiliate of STC Group, received the (Most innovative Digital Delivery Solutions Mena 2017) award from by Capital Financial International (CFI), which provides news, analysis and commentary on the markets worldwide. Integral was founded in 2009 to provide digital entertainment and sport solutions, in addition to expanding Broadband infrastructure in the region.

Huawei Takes Lead on Region's Public Safety Innovation through OpenLab

Top public safety solution providers have endorsed Huawei's Dubai-based OpenLab facility during GITEX 2017, as the company continues to drive the region's safety innovation through key technologies and partnerships. Huawei has sparked important collaborations with both Zenith and iOmniscient to create and rollout multiple Public Safety and Smart City initiatives, built on IoT, Cloud and Big Data. iOmniscient, a leader in video analytics for Smart Cities, penned a deal with Huawei that will see them serve the entire Middle East, while Zenith partnered to make use of OpenLab, driving the region's digital and cyber security innovations. "Both partnerships seek to turn Dubai into one of the safest cities in the world. Since the inception of OpenLab, we have sought to collaborate with the region's best innovators in the space of public safety, to ensure we remain at the cutting edge of technology for our markets' citizens, and provide platforms for others to build upon," said Lin Xijiang, Huawei Solutions Middle East Development Center Director. "What OpenLab does is create ecosystems that

help local solutions develop and thrive, test and verify hardware and software in a secure and professional environment, and bring international innovations to local markets. These partnerships will help OpenLab aggregate the world's best resources to meet local digital transformation needs," Lin Xijiang added. OpenLab Dubai is focused on building capabilities to easily apply technical solutions in the modern network environment. This means developing competitive, commercially viable and industry-oriented solutions, empowering innovation capabilities, rapid response-to-market demand, and achieving industrial chain value aggregation. This will have a positive effect on the development of public safety solutions from both Zenith and iOmniscient, who require both speed of implementation, and wider network support to achieve their goals. Zenith has been collaborating with Huawei in a similar area, developing its ANPR – Automatic Number Plate Recognition technology, and Lightbar solution. These solutions can be used to enhance the safety and security,

business operations and marketing capabilities of an organization. A critical element in the next step towards creating safer cities, the technology can easily identify and track vehicles automatically, with instant correlation and cross-referencing of license plates. iOmniscient understood the challenges faced by the customer when it came to building video surveillance technologies that can live in the cloud. iOmnsicient's patented Smart Compression technology reduces bandwidth requirements by 90 percent, without sacrificing critical aspects. This means Huawei can provide next-generation solutions for customers with weak network bandwidth. These next-generation solutions based on the most advanced Artificial Intelligence systems have been put together to meet the specific needs of customers in 30 different industries. Zenith and iOmniscient took to GITEX to discuss their cooperation with Huawei, and further boost its commitment to helping Dubai become one of the safest cities in the world.

Huawei Defines Role of 5G in Region's Digital Transformation

The incredible demand for broadband capacity has been growing exponentially since the inception of the smartphone. Sturdy 3G connectivity was quickly superseded by 4G as digitalization revolutionized the world. But 4G is now quivering at the inevitable arrival of the Internet of Things. Speaking at the GSMA Mobile 360 Middle East Conference held during GITEX 2017, Huawei, the leading global ICT solutions provider shared its vision of 5G as the enabler of adequate mobile broadband services and the fabric for the Internet of Things.

"On the road to 5G, we believe the key to success lies in three areas: a unified standard, technological development, and global collaboration across industry. Huawei is leading the way in this area, with more than 180 partners worldwide, including operators and vertical players," said Daisy Chu, the 5G CMO, Huawei. Although one of today's hottest topics, 5G finds itself currently on tabletops of research centers in its standardization phase. But this technology will be the key driver for the digital transformation, and will be able to transmit information more than 100 times faster than currently possible with 4G. Huawei is pioneering in this space, putting its 60,000 strong workforce to researching and developing this technology, and taking it all the way to the deployment phase. Joint collaboration with operators and vertical partners will be crucial in actively leading tech trials and new business models. Huawei is a keen promoter in unifying global standards and formation of the 5G ecosystem through technological innovation. The development of cross-industry collaboration platforms will enable all communities to embrace A Better Connected World. The MENA region will be fast to feel the positive affect of 5G, given its visionary approach to digital transformation. Popular research areas include autonomous cars – an investment area high on the agenda for the city of Dubai, for example. Both Google and Tesla have released autonomous cars, which employ sensors and radars

to operate. But the key question still lies in the area of safety. The low latency and ultra-reliability of 5G networks can help in this area. A prime example of key collaborations in this space is Huawei's partnerships with car manufacturers like Audi and BMW, and chipset providers like Qualcomm and Intel, which are enabling research and development for the future of autonomous driving. Furthermore, the taste for Augmented and Virtual Reality (AR/VR) will get stronger as time moves on, as the conversation around user experience and mobility gains traction. The market is set to grow to $110 billion, and 5G is well equipped to deal with these demands. "As things like video traffic increase, immersive consumer experiences become more popular, and applications migrate to the cloud, network air interface performance must be improved, and network architecture itself

must be cloud native to ensure high speed and reliability of data transmission," Daisy added. Although the technology remains in the standardization phase, major mobile providers are already testing 5G in certain locations. The Middle East is a prime location for its development, as it is void of legacy systems dragging down the speed of implementations. This also allows for better utilization of big data – a crucial element in the digital transformation. Huawei has been making strides in this area due to its contribution to revenue generation. As companies such as Google and Facebook remain ahead of traditional telcos when it comes to monetizing data utilization, Huawei has found innovative ways to serve the region's integrated telco companies. "As the digital transformation gains traction, the discussion around better utilization of data sets will grow louder. Data generated

by businesses accounts for just 20 percent of total data generation, whereas network data accounts for the remaining 80 precent. If telcos focus on harnessing and utilizing this volume of data, operators will be able to provide much better service offerings than any application platform," said Su Wang, Vice President of Marketing, Huawei Middle East. This is because the digital transformation isn't just about the customer experience, but also product manufacturing and offering. 5G is a great example, in that standards will open up new markets for business. The demanding applications that 5G will be able to serve, will be crucial in revolutionizing the way economies function. The future looks bright for the region, for 5G, and for Huawei as the leading partner of choice in the digital transformation.

Mobily Successfully Implements LTTH Technology in Collaboration with Nokia

Etihad Etisalat (Mobily) in collaboration with Nokia has successfully conducted a trial of LTE to the Home (LTTH) and implemented on the ground using FastMile technology to enable LTE technology on 4G network and become available on 2G networks. This comes out of Mobily interest to provide the best speeds for its customers with high quality. "We have a long and fruitful relationship with Nokia, and this successful trial starts a new chapter in our association, through ap-

plying FastMile Nokia technology that will enable Mobily to extend the reach of our network in new areas. At the same time it will allow us to use the existing infrastructure thus helping us to control our expenditure," said Alaa Malki – CNO "We are pleased to work with Mobily on this trial and support their plans to provide best-in-class broadband services to their subscribers. With this deployment, Mobily will be able to attract new customers who are currently unable to enjoy

broadband services. Nokia FastMile will also allow them to minimize the deployment cost by utilizing the existing mobile infrastructure," said Tony Awad, Head of Mobily Customer Team, Nokia. Such contributions from Mobily is due to it is a leading company in the field of Telecom and IT, and out of its pursuit to implement every latest technologies for the benefit of its customers to enjoy high quality services in line with current and future technological developments.

Nokia and Zain Deploy FastMile Solution to Provide Better Broadband Experience to End Users

Nokia and Zain Saudi Arabia are deploying Nokia's FastMile technology to provide a superior customer experience to Zain's customers. The deployment, the first for Nokia FastMile in the Middle East and Africa region, follows a successful trial of the technology which recorded speeds of 20 Mbps - significant considering the current demands on 4G networks - and provided seamless 4G macro network coverage to reach users located in a challenging environment. Zain is deploying the technology in the western and southern region of the country and also in the cities of Jeddah and Makkah. Interestingly, the FastMile solution will not only be deployed in the typical rural environments, but more in suburban areas, where no fiber or copper network is

available, using the 1800 MHz band. Service providers usually struggle with in-house coverage in a 4G network. Nokia FastMile allows them to improve in-house coverage and provide ultra-fast mobile broadband speeds to end-users by cost effectively re-using an existing macro network infrastructure. In this case, the increase in throughput will enable Zain to build additional revenue streams by launching new and innovative services, as well as help attract new subscribers. Eng. Sultan Abdulaziz AlDeghaither, Chief Technology Officer, Zain Saudi Arabia, said: "We are enthusiastic about the success of the Nokia FastMile trial and the subsequent deployment of the technology, which will help us address the problem of poor in-house coverage

and provide a much-improved user experience. We are committed to providing the best-in-class quality of experience to our customers, and this project is a key step in that direction." Ali Al Jitawi, head of the Zain Saudi Arabia customer team at Nokia, said: "This deployment starts a new chapter in our longstanding relationship with Zain. We look forward to working with them to deliver a better broadband experience. FastMile provides operators with an innovative way to re-use existing networks to meet growing broadband requirements. This deployment reinforces Zain's technology leadership, allowing it to use the latest technology solutions to meet the requirements of their customers."

Overview of the solutions:
- Nokia FastMile lets service providers use 4G LTE radio access network connectivity in difficult to reach areas. It comprises of four components:

an outdoor modem, indoor router, LTE radio access, and controller. The modem connects to the nearest LTE base station to provide high-speed broadband connectivity.

- The trial was conducted on an FDD-LTE network with Flexi Multiradio 10 Base Station.
- Nokia Professional Services for network design, configuration and implementation will ensure smooth and fast deployment of the technology.

Next-Generation Nokia Security Software Taps Automation and Analytics to Help Service Providers Combat Growing Ransomware Threat

Nokia announced its next-generation NetGuard Security Management Center software, designed to bolster service providers' ability to proactively detect, predict and combat the growing threat from ransomware and other types of malware. The volume, velocity and variety of security data today is overwhelming security teams. Companies typically receive hundreds of thousands of security alerts per year, up to 70 percent of which are never investigated1. In addition, the proliferation of point security solutions in customers' networks is extremely complex and difficult to manage - a challenge expected to get considerably worse with the broad deployment of new Internet of Things (IoT) devices. The Nokia NetGuard Security Management Center is a single cohesive, end-to-end management solution for security orchestration, analytics and response. It enables service providers to monitor, configure and control all the multi-vendor security systems deployed across their networks. The latest version integrates the power of analytics and automation to transform security management and operations from a manual and reactive process to a dynamic, predictive and automated one, and lays the foundation for the addition of advanced machine learning and artificial intelligence capabilities in future releases. Featuring a new dashboard and an automated security workflow engine, the latest Nokia NetGuard Security Management Center allows service providers to investigate 100 percent of alerts at 50 percent lower costs, eliminate up to 70 percent of false-alerts, reduce alert investigation times by more than 50 percent, and mitigate threats before breaches occur and cause widespread damage2. Ron Haberman, head of Emerging Products in Nokia's Applications & Analytics business group, said: "More sophisticated attacks, growing network complexity and the proliferation of IoT and other devices make it nearly impossible for security teams to monitor, react to and resolve today's threats quickly and effectively. Nokia's extensive heritage and expertise in network communications technologies and network-based security uniquely positions us to address these unprecedented security challenges. Our Security Management Center helps service providers streamline business processes, reduce costs and proactively address security threats before they impact end users or businesses." Findings of the new Nokia Threat Intelligence Report released today revealed the need for the industry to deploy more effective security management measures, such as the Nokia NetGuard Security Management
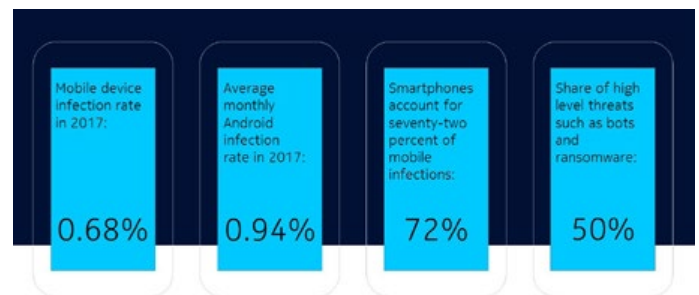
Nokia Threat Intelligence Report 2017

Center, to combat increasingly sophisticated ransomware and other forms of malware. According to the report developed by the Nokia Threat Intelligence Lab, Wannacry was responsible for one of the largest ransomware attacks of all time earlier this year, infecting over 230,000 computers in 150 countries. While security patches were available prior to the attack, they were not deployed in many cases, underscoring the need for a new class of management solutions to ensure all vulnerable network devices are securely configured and patched proactively. Other key findings of the 2017 Nokia Threat Intelligence Report include:
- Smartphone infections at 72 percent - Smartphone infections accounted for 72 percent of all mobile network infections. The rest were due to Internet of Things (IoT) devices and Windows-based PCs.
- Android OS the prime target - Android malware samples grew 53 percent in 2017, and Android devices accounted for 69 percent of all infections (vs. 74 percent in 2016), primarily due to the proliferation of insecure third-party application stores (96 percent of app. market).
- Increase in Windows/PC infections - Infections of Window/PC systems increased in 2017: 28 percent compared to 22 percent in 2016. Infections on other platforms, including iOS devices remained steady at approximately 4 percent.
- Misbehaving applications - Misbehaving applications (due to software updates and other ecosystem changes) caused significant performance issues - in some cases resembling a DDoS attack.
- More aggressive adware - Increasingly aggressive adware samples from third-party applications became more difficult to uninstall, displayed ads when the host application was not in use, and compromised personal information such as phone numbers, e-mail addresses and contact lists.

OneWeb Plans May 2018 Launch

OneWeb is a proposed mega-constellation of an initial 648 low-orbiting satellites designed to bring affordable broadband access to the whole planet. Eventually, OneWeb is planning a total of 4425 satellites in its fleet. Founder Greg Wyler, speaking last week before the USA's Senate Committee on Commerce, Science & Technology, said the first two test satellites will be orbited in May next year, and following in-orbit testing a debut service will start over Alaska in 2019. By 2020 OneWeb should be delivering 2.5 Gb/s of service 'direct to homes' across America. Wyler updated the Senate Committee on progress at OneWeb's satellite-building factory in Exploration Park, Florida (very near the Kennedy Space Centre) would open next year and

would be capable of building 15 satellites a week, itself a record for the industry. The constellation will launch in three kay batches, and in the process take capacity from an overall – and already impressive – 7 Terabites to a massive 1000 Tb/s. The 'first generation' of OneWeb's fleet would offer 500 Mb/s, and be followed in 2021 with super-fast broadband of some 2.5 Gb/s. Wyler told senators that by the time his third generation of satellites would launch (2023) would support 1 billion consumers. "OneWeb is moving full speed ahead to bridge the digital divide and bring high-speed Internet to some of the most remote corners of the globe," said Wyler. "I welcome the Senate's interest in the future of satellite technology, and how lawmakers,

regulators, and private industry can work together to ensure sustainable space development. OneWeb looks forward to deploying high-performance satellite technology to boost connectivity, create jobs, and ensure economic prosperity reaches rural America and the world's rural populations." However, the so-called 'Digital Divide' will take a few years to fully materialize. While OneWeb has secured launch capacity on the Jeff Bezos-backed Blue Origin rocket system, as well as with Arianespace and Virgin Galactic, the company's strategy talks about the planet not being fully covered – with ground stations as well as orbital satellites – until 2027.

PCCW Global in Consortium to Build JUPITER Trans-Pacific Network

PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications service provider, has come together with consortium members Amazon, Facebook, NTT Communications, PLDT and SoftBank to construct JUPITER, a high-capacity cable system that will connect Maruyama and Shima in Japan with Los Angeles in the USA and Daet in the Philippines, with a target ready-for-service date of early 2020. The JUPITER network will deliver a capacity of more than 60 Tbps over a route of approximately 14,000km utilizing the latest submersible Reconfigurable Optical Add/Drop Multiplexer (ROADM) which employs Wavelength Selective Switch (WSS) technology, providing a greater diversity of connections and enhanced reliability for customers as well as optimized connectivity to data centers on the West Coast of the USA. Bandwidth demand over the trans-Pacific route has more than tripled in just four years, making the timing of the decision to construct JUPITER crucial to the continued provision of cost-effective

trans-Pacific solutions. Moreover, this demand trend is expected to continue with new, bandwidth-intensive technologies including Virtual Reality (VR), social media applications, video streaming, and gaming content growing rapidly in popularity. Mr. Marc Halbfinger, Chief Executive Officer of PCCW Global, said, "Consumers and enterprises continue to

require significantly increasing amounts of bandwidth whether for their own applications, or for their interface with content providers, hosting companies and cloud services. The JUPITER network will play a crucial role in serving this increased demand across the key trans-Pacific artery."
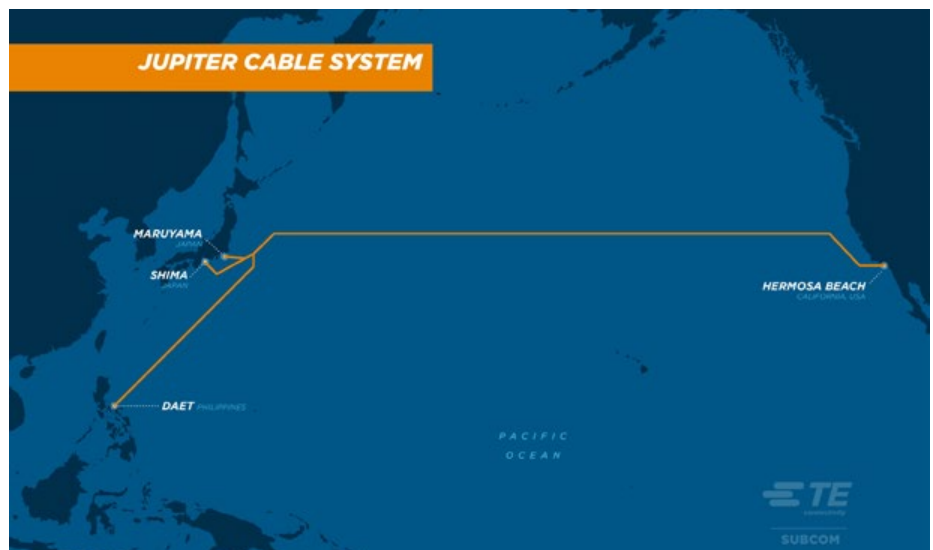
strategy&

The Sharing Economy Boom Benefiting GCC Businesses and Consumers

The GCC can truly benefit from sharing economy platforms by tapping into underexploited human resources and assets, says a study by management consulting firm Strategy& (formerly Booz & Company), part of the PwC network. Based on a survey conducted by Strategy&, GCC consumers spent $10.7 billion on sharing economy platforms in 2016, generating an estimated $1.7 billion in revenues for these platforms.

What is the sharing economy?
The sharing economy is defined as the exchange of goods and services directly between individuals through online platforms. Strategy& study identified five high-potential sectors, also estimated to have the largest socio-economic implications: transportation, financial services, business services, household services, and accommodation. GCC start-ups such as Careem, the region's first 'unicorn' (a start-up valued at more than $1 billion), Washmen, and Beehive provide examples of the sharing economy model, and are increasingly popular throughout the region. Sevag Papazian, Principal with Strategy& in the Middle East, commented: "The disruption that the sharing economy has had on economic sectors has been felt in the GCC in varying ways. First, sharing economy platforms have increased the use of underutilized assets through mobile-based applications, at a reduced cost. Second, the flexible work arrangements under the sharing economy are creating job opportunities, particularly for the region's youth and untapped segments of the population – including women and people living in rural areas."

Sharing economy growth
Several factors contribute to the growth of the sharing economy. GCC countries have a large pool of workers available, especially with a growing young population.. Their high levels technology adoption and urbanization generate large volumes of data to drive the sharing economy — and this is expected to grow as national transformation plans are implemented and the entrepreneurial ecosystem develops.

Although ripe for growth in the region, sharing economy platforms also face some challenges:
- Inadequate or unclear regulatory frameworks: sharing economy models often do not have a clearly defined regulating authority and operate in legal gray areas.
- Regional consumers have limited trust in some of these platforms and are wary of data protection and quality assurance issues.
- Incumbents oppose the intrusion of the sharing economy, as they have heavily invested in acquiring their operating licenses.
- Strict labor policies sometimes do not cover part-time employment or prevent expatriates from working for different employers, thus limiting the potential of the sharing economy.
- GCC nationals have a limited need for sharing economy services because they have easy access to low-cost labor when required and generally interact mostly with their close family circles.

"To exploit the sharing economy's full potential while avoiding its potentially negative effects, GCC governments should adopt a differentiated approach that serves their specific socioeconomic needs and development goals. This will depend on the potential for job creation or risk of job loss, the need to grow the digital economy, cultural acceptance of the concept, quality standards, etc." said Samer Bohsali, partner with Strategy& and the leader of the firm's Digital Business and Technology practice and the digitization platform in the Middle East. How GCC governments can maximize the benefits of the sharing economy?
Once they defined their priorities, GCC governments need to put in place five key pillars:

Clear governance model
Each ministry should oversee the sharing economy activities in its sector and manage the disruptive effects of these platforms. Also, a cross-sectoral body will help align the different ministries, municipalities, and authorities across

sectors, as well as Internet regulators on the wider implications of the sharing economy.

Fit-for-purpose laws and regulations
A clear legal and regulatory framework is required to protect consumers and providers and to ensure fair competition in the market. They should cover 3 key themes: market access requirements, legal liability, and consumer/provider protection.

Labor policy reforms
New structures of employment (part-time and freelance work arrangements) should be defined and promoted. Also, some GCC governments may need to reform their Kafala system to allow expatriates to become sharing economy providers.

Taxation
GCC governments should integrate sharing economy players — including those based overseas — and providers into the new tax systems they plan to introduce.

Localization
Making sharing economy platforms more localized, i.e. finding local solutions to local problems using a grassroots approach, is key to the growth of the phenomenon in the region. For instance, accommodation platforms in Saudi Arabia can be tailored to cater for Hajj and Umrah pilgrims.

Melissa Rizk, fellow at the Ideation Center, the leading think tank for Strategy& in the Middle East, concluded: "A large portion of respondents to our survey said they expected to increase their spending on sharing economy services in the future, particularly on accommodation and transportation. It is exciting to see what impactful socio-economic changes they can have."

Sudatel Wins Prestigious Global Carrier Award for Fiber Network

Over the past 13 years, the Global Carrier Awards has become the biggest and most prestigious awards event in the carrier community and celebrate excellence and innovation recognizing the most exciting companies, projects and partnerships in today's dynamic wholesale carrier industry. With a record number of over 225 entries submitted for this year's awards, all categories were judged by an independent panel of telecoms analysts, industry experts and the senior editorial team of Capacity Media. Sudatel won for its involvement in the planning, construction and financing of a new 1500km East-West fiber route in Central Africa, between Port Sudan and Ndjamena, the capital city of Chad. This link was long overdue and provides a new – and direct – route for traffic between East and West Africa. Sudatel beat off strong competition from Angola Cables and Ooredoo Global Services to win the award. The other big African winner was Liquid Telecom which picked up the award for Best African Wholesale Carrier. This is the second triumph for Sudatel at the Global Carrier Awards: its data center in Khartoum was named as the Best African Project in 2015. Tarig Hamza Zainelabdin, CEO of The Sudatel Telecom Group, said "It's fantastic that our work has been recognized on the international stage. We will continue to invest and expand our networks as we are committed to improving people's lives through the provision of quality and reliable telecom services." Given Sudan's geographic location and the recent lifting of US sanctions, Sudatel will continue to play a major strategic role in connecting Africa and the Middle East to the rest of the world. The company will continue to invest heavily in its domestic and pan-African operations during 2018 as demand for high-quality telecom services across the region continues to grow.

Syniverse Reveals E.U. Mobile Voice and Data Roaming Traffic following Introduction of E.U.'s 'Roam Like Home' Regulations

What: Syniverse reveals data that shows a significant increase in intra-E.U. roaming traffic following the introduction of 'roam like home' regulation, which came into effect on June 15, 2017 in the EU's 28 nation states. Syniverse data shows the following increases during the months of July, August and September 2017 compared to the same period in 2016:

- 308 percent increase in mobile data volumes
- 95 percent increase in mobile voice calls
- 34 percent increase in SMS messages sent

Syniverse sees this aggregated data thanks to its working relationships with more than 1,000 mobile network operators worldwide.

Why: The current earnings season is the first in which European telecom operators will report revenues that do not include revenue from EU subscriber roaming fees, which under the regulations have been abolished. Industry watchers expect that operators will report noticeably lower revenue in this quarter's earnings, as they are now unable to charge roaming fees to EU subscribers when they roam within the EU.

Who: Mary Clark is Chief Corporate Relations Officer and Chief of Staff at Syniverse, and an industry expert on mobile roaming. Mary can provide informed insight and opinion on the following key roaming issues:
- Why the introduction of "roam like home" regulations in the EU means operators must work harder than ever to make clear to their subscribers the value of the connectivity and service they provide
- The renewed importance to operators of real-time contextual subscriber data to ensure roaming subscribers receiving a reliable, consistently high-quality service, regardless of their global location
- How operators can generate net new roaming revenue by incentivizing subscribers to use roaming services instead of alternative "silent roaming" options when they travel - such as buying a new SIM card, or relying on Wi-fi connectivity.

Ministry of Education, the Special Communications Commission and Umniah Complete Electronic Networking Project

The Ministry of Education, in cooperation with the Special Communications Commission (SCC) of the Jordanian Armed Forces and Umniah, has completed a project to electronically connect the ministry with various schools and educational directorates nationwide. Through the project, Umniah is providing free and secure internet services to 2764 schools and directorates around the kingdom. A ceremony was held at the Ministry of Education on October 30, 2017 announcing the completion of this project, that is classified as the largest data networking initiative in the Kingdom, which was attended by the Minster of Education Dr. Omar Razzaz, Brigadier General Ali Assaf, the Director General of SCC and the CEO of Umniah, Ziad Shatara, in addition to a number of officials from both private and public sectors. The Minister of Education, Dr. Omar Razzaz, highlighted the importance of the project, which offers comprehensive solutions to several technical issues impacting the education sector with regards to connectivity and data sharing. Razzaz further explained that the project provides the necessary infrastructure to deliver internet connectivity and integrated telecom solutions to 2652 schools, 43 districts and 69 administration buildings, which will help boost productivity and allow for the dissemination of digitized educational curricula to all schools covered by the project. Razzaz noted that the project will allow the ministry to implement electronic education programs that will further enrich the learning process, in addition to activating digitization projects implemented by specialized institutions such as The Queen Rania Foundation for Education and Development, as the ministry has been developing four electronic curricula for secondary school students, covering mathematics, physics, chemistry and English. The project will also allow for the activation of educational disciplines developed by the ministry in cooperation with global transmedia company Rubicon. The project, noted Razzaz, delivers video conferencing and voice-over-IP tools that connect the ministry to educational districts and schools nationwide at no

additional costs, in addition to providing electronic surveillance capabilities and advanced human resource management tools for the ministry, directorates and schools. The project will also provide the infrastructure necessary for implementing electronic examinations and the publication of information systems with increased speed and accuracy. Razzaz explained that the implementation of this project by Umniah is a clear

example of a successful partnership between public and private sectors, as Umniah is also providing the internet services needed for the project free of charge. He also expressed his gratitude to the Jordanian Armed and its Special Telecommunications Commission, which has provided regulatory oversight during the project's implementation. Brigadier General Ali Assaf, the Director General of SCC noted that this project falls in line with the vision of His Majesty King Abdullah II, who called for uniting the efforts of various national agencies and departments to facilitate the implementation of various digital communications and security projects. He further explained that the SCC collaborated with the Ministry of Education on establishing the technical specifications for the project with the objective of elevating the standards of education in the kingdom on numerous levels and staying current on the latest developments in the world of digital technology. The CEO of Umniah Ziad

Shatara explained that Umniah was able to implement the project within the timeframe specific by the Ministry of Education and under the established technical specifications, which is a testament to the operator's ability to provide integrated and cutting-edge telecom solutions for all sectors. Umniah successfully established networks connecting the ministry with various districts operating nationwide, in addition to providing landline telephone services, electronic access control, and external cameras to safeguard the security of the schools. Shatara also noted that Umniah today has become one of the key pioneers of telecom services in the Kingdom and the company with the best value propositions. Shatara also explained that the delivery of free, high-speed and high-capacity internet services to 2764 schools and directorates reflects the operator's social responsibility and its commitment to serving economic and developmental sectors in the kingdom. He noted that the number of students benefitting from this project will exceed 1.3 million, in addition to around 100,000 employees and teachers throughout local schools and directorates. Brigadier General Assaf explained that the tender for the project was issued on December 3rd, 2015, which was later awarded to Umniah for a budget of JOD 9.5 million. Implementation began on June 27th, 2016, taking place over a number of phases in order to address all

feedback and challenges that emerged during each phase and maintain the desired level of quality. The departments of the Ministry of Education and the Special Communications Commission cooperated fully with Umniah throughout the implementation in order to ensure that all issues are addressed promptly. The SCC, noted Assaf, will continue to supervise the project and ensuring a consistent momentum over the course of five years from the conclusion of the implementation phase. Assaf also expressed his gratitude to all parties who contributed to the success of the project, particularly the Ministry of Education for its ongoing monitoring of the project. He also thanked Umniah for its commitment to the successful implementation of the project, highlighting the collaborative approach that made this achievement possible. Umniah's CEO Ziad Shatara reiterated his great faith in the project,

which he believes will create a qualitative leap in the education sector and deliver a plethora of cutting-edge tools that leverage on the power of the internet, thus contributing to the establishment of a knowledge-based economy. Shatara also noted that the initiatives launched by Umniah for the benefit of the education sector fall in line with the vision of His Majesty King Abdullah II, who has repeatedly called for an integrated approach and overarching strategy geared toward the development of local human resources and empowering future generations. These initiatives have been conceived with the primary objective of fostering innovation and creativity, particularly among Jordanian youth, thus providing them with the tools necessary to compete in the job market on both local and international levels. Shatara also noted that Umniah's mission is to reinforce the education sector by leveraging on

cutting-edge technologies to help the development of advanced learning disciplines, as the operator is connecting schools and districts via high-speed data networks that facilitate the distribution of electronic curricula and video materials that will maximize the learning potential for students and allow teachers to share knowledge and experience via audiovisual communications. Shatara also noted that this project will boost research and self-development capacities among students, in addition to contributing to the development of their social and cognitive skills by encouraging information gathering and sharing. This project, added Shatara, will also allow teachers and academics to develop their own skills by providing access to modern teaching practices implemented around the globe.

UAE Successfully Trials 50mpbs Connectivity for IFC

Yahsat, the United Arab Emirates (UAE)-based satellite operator, announced the successful trial of a 50Mbps in-flight connection. The result of a partnership between Yahsat, du, Etihad Airways Engineering, Hughes Network Systems and Carlisle Interconnect, the high-speed broadband offering will be available for airlines to offer its passengers within the next year. Using Yahsat's Al Yah 2

satellite and the latest generation Ka-band technology, the test took place in Abu Dhabi, simulating the environment found on an Airbus A320 aircraft. According to Yahsat, this new level of performance for In-Flight Connectivity (IFC) will mean passengers can have an in-flight browsing experience similar to the service available in their home or office, including access to High

Definition (HD) streaming content, social media, online shopping and the ability to use messaging apps. Following this successful test, Etihad Airways will invite guests to experience the connectivity for themselves onboard a Flying Testbed Airbus A320 aircraft at the Dubai Airshow in mid-November. Subsequently, Yahsat and its partners plan to execute the key next steps over the coming year to rollout the solution to commercial airliners across the Middle East and beyond. "This partnership will allow us to establish the necessary infrastructure needed to keep passengers comfortably connected in the air through the latest and most advanced IFC. We believe that together we will set the benchmark for high speed Wi-Fi in the air and we look forward to enhancing our customer experiences like never before," said Saleem Al Blooshi, Chief Infrastructure Officer of du. "Furthermore, we are introducing our state-of-the-art data analytics as well as our backend systems to this innovative in-flight Wi-Fi which enables the airline industry to use such analytics of the user behavior to enhance even further the customer experiences on board airplanes."

The Next Generation of Service Providers

Service providers are faced with the opportunity of transformation to meet the growing requirements of the digital market place or face inevitable obsolescence with their present-day business models.

The challenge that service providers are facing at present is beyond the likes of what they have faced before. Service providers by default leverage the latest communication and networking technologies to generate growing services for their consumption target markets. However, the challenges of today require large scale business and organizational changes in addition to adopting the latest digital technologies.

Service providers are competing in a landscape that is now increasingly driven by a modern digital consumer, requiring

...the challenges of today require large scale business and organizational changes in addition to adopting the latest digital technologies...

highly personalized and rich user experience delivery, increasing competition from peers for the same markets, increasing competition from global digital businesses, a never-ending requirement to grow new and incremental business, and finally the legacy of a mature business and sales model. The choice for service providers to change is therefore not optional but essential.

Software driven technologies facilitate new ways of working across an organization, enable new business models, and support enhanced and innovative user experiences. However, such new technologies including network function virtualization, artificial intelligence, cloud based frameworks, also require suitable skilled resources. This talent must also be well adapted to the new digital business models to fit into new service provider organizational structures and to be able to drive the new business.

Competitors with more agile and transformed networks are increasingly being seen to make headway against these disruptive forces. Service providers now need to rethink their networks and technologies, their organizations, and

Ali Amer
Managing Director, Global Service Provider Sales
Cisco Middle East and Africa

their business models. Existing structures inside service providers are increasingly unable to interoperate with new digital technologies, unable to support newly aligned revenue and business streams, and unable to compete with competitors built from the ground up on digital technologies.

The required transformation of service providers is far reaching, deep, complex, and attached to a high probability of failure. It is not a technology upgrade but a fundamental shift away from how service providers have operated traditionally.

Service providers are finding themselves pitted against global digital natives such as Facebook, Amazon, Google, Alibaba, Netflix, Tencent, amongst others with overlapping consumer segments, common delivery channels, but lack of access to content ownership and digital communities, being a significant weakness. In developed markets, mobile network operators face hyper-competitive prevailing conditions leading to rapid erosion of price points, consolidation and selective exit from these markets.

New tools
Automation is one of the ways for service providers to keep up with endless technology changes and disruptions. Large networks are increasingly being challenged to incorporate network function virtualization, software defined networking, artificial intelligence, to drive down costs and enhance productivity, and enable possibilities and use cases for richer user experience. Digitization is driving the current wave of business and process disruption and availability of broadband growing at 50%+, made available by service providers, is the principal enabler.

However, on the flip side, the revenues associated by the consumption of broadband by consumers and businesses are not necessarily being reflected in the top line of service providers. This draws attention to their now far overdue need to innovate and align better with their transforming target markets. All the technology tools exist for service providers to make the switch over including extended clouds,

The required transformation of service providers is far reaching, deep, complex, and attached to a high probability of failure. It is not a technology upgrade but a fundamental shift away from how service providers have operated traditionally.

software defined networks, virtualization, programmability, certification, open source, standards and so on.

These tools need to be used to simplify networks and help service providers have an increasingly holistic view of their sprawling networks and the target markets they are servicing. The move is away from isolated boxes and towards the edge of the network, with end to end management of the network sprawl, and with distributed technologies working in cohesion and collaboration. Simplification and unification of networks can help drive innovation for service providers.

This contrast is all the more-stark when you compare hyper-scalar web companies with service providers. Hyper-scalar web companies have built their services horizontally across their globally distributed networks. While service providers have built their core strengths of redundancies and fault tolerance vertically around isolated network boxes that are stretched to deliver the same horizontal capabilities of hyper-scalar web companies. Hyper-scalar web companies rely on automation for cost and operational efficiency across their horizontal network layers, while service providers rely on box-heavy networks as a core strength.

In order to drive automation, service providers need to increasingly embrace orchestration and relook at their distribution of computing resources. With the exponential growth of end points from Internet of Things and rapid growth of broadband enabled connected mobile users, many of the future compute

requirements will need to be managed at the edge of the network. This implies an immediate and overdue overhaul of how service providers will need to deploy their compute resources to manage these user requirements. Service providers will need to relook at how to optimize and balance mobile-edge resources with deep-edge computing resources in order to meet future requirements, drive down costs and increase productivity.

In another area of transformation, most service providers by now recognize the need for network function virtualization. But the reality is also that most service providers are still at a very early stage of its adoption. Service providers expect network function virtualization to deliver cost savings and bring agility into their business. Amongst the early inhibitors are the inability to build an internal business case for adoption of virtualization, lack of ownership on who will drive the project, lack of software skills to provide sustainability, inability to build an agile organizational structure to justify the migration to an SDN, NFV, DevOps environment, amongst others.

By focusing on rolling out orchestration across their networks, service providers are taking early steps towards building automation. Additionally, orchestration is the primary foundation for launching new digital services, administering them and generating significant returns across an

In order to drive automation, service providers need to increasingly embrace orchestration and relook at their distribution of computing resources. With the exponential growth of end points from Internet of Things and rapid growth of broadband enabled connected mobile users, many of the future compute requirements will need to be managed at the edge of the network.

automated, software enabled, optimally distributed compute, open standards based layered network.

Opportunities
Significant new business opportunities exist for those services providers that begin their transformation journey. This includes Internet of Things, video on demand, mobile based video consumption, and mobile based virtual and augmented reality, amongst others.

Service providers because of their geographical and operational scale are well placed to begin to start offering IoT based services. This would be a new revenue source with expected double-digit growth. However, while this opportunity is well established and can be forecasted it does come with its share of significant challenges.

> **By offering IoT related services, service providers would inherit vast volumes of continuous data flows. These would need to be aggregated, managed, secured, and analyzed, often in real-time and on the edge of the network.**

By offering IoT related services, service providers would inherit vast volumes of continuous data flows. These would need to be aggregated, managed, secured, and

analyzed, often in real-time and on the edge of the network. Suitable network architectures would need to be designed with significant computing resources on the edge to avoid latency from back and forth traffic. These would also need to support real-time analytics applications mostly hosted in the cloud.

Another challenge for service providers, used to only delivering connectivity and related services, is the need to work in much larger IoT ecosystems, involving multiple vendors, regulators, other service providers, end users and their end users. This would be possible in the initial stages where service providers have deep business relationships with end users and in select verticals at a time.

Another opportunity is video on demand where the software and hardware interface units are going through large scale changes and are being adapted to give customers the choice of on-demand and other flexible selection options. Moreover, current trends indicate that the preferred device for video consumption is moving away from the home to the connected mobile device. Virtual and augmented reality is another that promises to increase in demand for mobile consumption. Services providers only need to begin their transformation journey before market forces can make it self-generating proposition. ©

REGIONAL NEWS

MENA 5G Subscriptions to Hit 17 Million by 2023

The first 5G subscriptions in the Middle East and North Africa region are expected to launch in 2020-2022, reaching around 17 million subscriptions by 2023, according to the latest report from Ericsson. The region, which includes more than 70 countries, faces extreme market variations in terms of ICT maturity, but Ericsson's Mobility Report nonetheless predicts a region-wide growth in mobile subscriptions from 1.59 million to 2.03 million by the year 2023. The MEA region in particular will witness a nearly five-fold increase in LTE subscriptions, from 190 million to 860 million, in the same timeframe. The MEA region has a young and growing population with a median age of 21 years which, combined with its improving economy and favorable policies, creates potential for continued growth in the uptake of telecom and ICT services. Particularly in the MENA, which has higher penetration rates of smartphones, mobile traffic, and mobile data traffic compared to Sub-Saharan Africa, operators will be faced with an increasing demand for faster network capability (lower latency and higher data throughput speeds) to deliver better application coverage for more consumers in the coming years. Across the MEA region, smartphone subscriptions are expected to increase from 670 million to 1.51 million over the next five years, resulting in data traffic per active smartphone multiplying nearly six times over, from 2.2 GB/month to 12 GB/month. Today, mobile data traffic in the region represents 83 percent of total mobile traffic, and is expected to increase to 98 percent by 2023, bringing it more in line with the global average. This will require operators to come up with efficient strategies differentiated by exceptional user experiences and optimal network performance. Cellular IoT subscriptions in the region are expected to grow from 35 million to 159 million between 2017 and 2023, at a compound annual growth rate (CAGR) of around 30 percent. This will enable operators to explore new digitalization opportunities as the world becomes more connected and industries experience an ICT-driven transformation. In fact, 5G-enabled industry digitalization revenues for MEA are predicted to at USD 242 billion between 2016 and 2026 – meaning ICT players must adopt and integrate digital technologies into specific industries to generate new revenues.

Arab Start-Ups Key to Building Localized Digital Economy

Start-ups and small businesses play a key role in helping the Arab world shift towards becoming a digitally-based economy, yet they face significant barriers to their growth, attendees at the World Economic Forum (WEF) in the UAE heard. The 'Fourth Industrial Revolution' – the next major industrial era, characterized by rapid evolution of disruptive technologies – is one of the region's "greatest challenges", Sheikha Bodour Al Qasimi, chairperson of the Sharjah Investment and Development Authority (Shurooq), told a WEF event in Sharjah on Friday. It will require companies, governments and entrepreneurs to help 'digitize' existing economies and prevent the region falling behind the rest of the world. "I think we all agree this is the region's greatest challenge: how to build future economies in the Arab world. More precisely, how can we build economies that are being shaped by Fourth Industrial Revolution technologies," Sheikha Al Qasimi said. Such advancements include robotics, AI (artificial intelligence), nanotechnology, 3D printing, Internet of Things (IoT) and autonomous vehicles – "truly transformative technologies that are the key to job creation", she said, as she announced a panel session moderated by The National's editor-in-chief Mina Al-Oraibi. Panel speakers warned that, while start-ups and small-to-medium enterprises (SMEs) can play a big role in developing a knowledge-based economy, many Arab countries have failed to put in place the ecosystems to nurture their growth. "It's because I love the country that I want it to be better. There are a lot of things that need to be changed, it's very frustrating" said Joy Ajlouny, co-founder of UAE-based

logistics start-up Fetchr. "The bureaucracy [in the UAE] is painful and the costs of setting up a business are astronomical. In the US, you only pay taxes on profits; here, you pay fees [for healthcare, licensing, visas], whether you make money or not." Education and lack of skilled talent is another barrier, according to panel speakers, which included well-known figures from Middle East businesses and institutions. Political instability in the region can cause a "brain drain" where talented people seek opportunities elsewhere, noted Imad Elhajj a professor at the American University of Beirut. "I don't think there is a lack of education here, but if there's no stability [in Lebanon, especially], start-ups will start up elsewhere, taking away technologies that could help grow our economies," he said. Another challenge is that consumption of technology is higher in the Arab world

than production of technology. "The community of people entering production is quite small," warned Sarah Al Amiri, UAE minister of state for advanced sciences. She said a government priority was to create a "talent pool of people" whose knowledge is transferable across industries. The UAE last month launched an initiative to train one million Arabs in computer coding. This week, a report by Orient Planet Research and SME Advisor Middle East claimed the UAE is primed for a new wave of SMEs, with 91 per cent of millennials surveyed saying they had either started their own business or were looking to start one in the near future. At the other end of the spectrum, however, large corporates have a role to play in making the digital economy a reality. "It's how we utilize the talent we have," said Khaled Biyari, chief executive of Saudi Telecom Company. "You need an ecosystem," he added. "You need a friendly regulatory environment that can not only create boundaries but open up investment. Then, you need a digital infrastructure that enables everyone to participate and compete, for example, by giving SMEs access to cloud data and IoT platforms so they can do stuff in a completely new and different way." Alain Bejjani, chief executive of UAE conglomerate Majid Al Futtaim Holding, added: "We have to be better, in order to compete globally. Competition in bricks and mortar is now global, let alone in digital. Whoever can't get there has not future."

Saudi Arabia Leads Arab Countries in Online Transactions

Online transactions increased in Arab countries by 22 per cent in 2016, a growth that was led by Saudi Arabia with 27 percent, followed by Egypt with 22 percent and UAE with 21 percent. Events, entertainment, and exhibitions were the fastest growing payments sector with annual 33 percent growth in 2016 in comparison to 2015, according to a survey conducted by the Amazon-owned company, Payfort. Payfort's report "State of Payments in the Arab World" revealed that a total of $30.4 billion of goods and services were purchased online in seven countries last year. They are Saudi Arabia, Egypt, UAE, Jordan, Kuwait, Lebanon, and Qatar. In terms of dollar value and growth in value, UAE was on top with $12.4 billion of transactions, a 21 percent annual growth in total amount paid online, followed by Saudi Arabia with $8.3 billion of transactions and 27 percent growth, and Egypt with $6.2 billion of transactions and 22 percent growth. According to the report, Saudi Arabia was the fastest growing country in the airlines and travel sectors with a 21 percent growth in airline payment and 36 percent growth in travel and tourism. The report also indicated that Egypt led the region in the growth of online shopping with a 32 percent increase in volume of payments, while UAE was the fastest growing country in the entertainment and events sector, showing 36 percent annual growth. Cash-on-delivery remains the most popular payment option in Egypt with 70 percent usage and Lebanon with 60 percent usage. The report attributes that security remains a top concern among online shoppers, with more than 50 percent of cash-on-delivery customers surveyed in all countries stating that they would only switch to online payments if they were convinced that the payment method was secure. Marketing Director of Payfort Nardeen Abdullah stated that despite the enormous growth in the region's online payments and usage of eCommerce, security fears remain prevalent among consumers. "Although we now see a greater willingness to make online transactions, consumers are increasingly aware of the risks of fraud and other cybercrimes. They are also increasingly demanding, seeking faster and easier checkouts," Abdullah added. The report also highlighted the growing interest in mobile payments, with 50 percent of respondents in six out of seven countries showing an interest in mobile payment apps. Consumer usage of mobile wallets is widespread, with 33 percent of surveyed people in Saudi Arabia stated they use mobile wallets, compared to 27 percent in Egypt and Lebanon, 25 percent in Jordan, 23 percent in the UAE and 17 percent in Qatar. Managing Director of Payfort Omar Soudodi explained that 2017 edition of the report marks the most dramatic change to the report since the project was launched in 2014. "This year we put the control in the hands of our readers, providing them with interactive tools that allow them to easily adapt the data sets for their own needs and business decision making," reported Soudoudi, adding that this year's report provides a wealth of information on both consumer behavior online and practical advice for merchants who want to improve performance and meet their customers' rising expectations.

Internet Penetration in Middle East Triples in 8 Years

Internet penetration in the Middle East tripled in the past eight years, from 20 per cent in 2009 to 60 per cent this year, a top official told Gulf News. A new system introduced in 2010 to create internet domain names in Arabic helped boost internet use in the region, said Geran Marby, President and CEO of the Internet Corporation for Assigned Names and Numbers (ICANN), a non-profit body that oversees internet addresses. The ICANN is responsible for managing and coordinating the Domain Name System (DNS) to ensure that every address is unique and that all users of the internet can find all valid addresses. "The penetration in the region was 30 per cent in 2014 and today it is around 60 per cent," he said. However, he clarified that this high rate of internet penetration does not reflect digitization of the economy or related standards. In some of the smaller GCC states like the UAE, the internet penetration is well above the world's average and growing quickly, already exceeding 90 per cent. The UAE, especially Dubai, is a highly digitized economy [and society]. Many other countries in the Middle East, however, have to go a long way in digitization, despite the

region's 60 per cent average internet penetration rate, he explained. However, he said, ICANN does not measure its success in penetration or percentages. "We measure success in making people to connect. We want internet to make world a better place." Internet addresses in local languages, including Arabic, will attract more people to internet in the coming years. Earlier, Arabic names were used as internet addresses but they were in the English alphabets because non-Latin characters had limited use at the second, third or even fourth level. The new Internationalized Domain Name (IDN) web addresses with the generic top-level domain (gTLD) introduced in 2010 enabled the users to register and use domain names based on their local language scripts. These included users of language based on right-to left script such as Arabic and users of languages based on non-alphabetic scripts such as Mandarin Chinese. A gTLD (generic top-level domain name) is the top-level domain name of an internet address that identifies the generic domain class such as .com (commercial), .org (for non-profit organizations), and .gov (government agencies) etc. "Local script is one way to

making it easier for the next generation to come online," Marby said. One billion more people, mostly from rural areas across the globe, will access internet in the next eight years, using their local languages in non-Latin scripts, he said. Of the current world population of 7.6 billion, an estimated 3.5 billion to four billion people are interest users, which will increase to 4.5 billion to 5.5 billion by 2025, Marby said. Most of those new users will be accessing the internet on smart phones. They will be from rural areas, who do not know English. "Most of them may not have read or written English [in life]. At the moment, most of the people who access internet [of around four billion] understand English," he explained. As internet helps connect people, it will be used more for connecting people with things in the coming years. "My summer home [abroad] is connected to my mobile phone [through internet]. I can watch in real time what is going on there." He said internet would be used more for such purposes in future. The UAE's Telecommunications Regulatory Authority (TRA) is hosting ICANN60, the 60th public meeting of Internet Corporation for Assigned Names and Numbers (ICANN). Around 2,000 delegates from 140 nations across the globe will attend the meeting, said G?ran Marby, president and CEO of the ICANN, the non-profit body that oversees internet addresses. The sessions will enable discussions on a broad range of internet-related topics and inform the audience on latest issues of concern to the stakeholders. At the opening ceremony Hamad Obaid Al Mansouri, Director General of the TRA, and Dr. Stephen Crocker, ICANN Board Chair, will address the audience.

Nokia, Zain Saudi Deploying 'FastMile' in Underserved Areas

Nokia and Zain Saudi Arabia are deploying Nokia's FastMile technology to improve in-house coverage and provide ultra-fast mobile broadband speeds to end-users by cost effectively re-using an existing macro network infrastructure. The deployment follows a successful trial of the technology which recorded downlink

speeds of 20Mbps and provided seamless 4G macro network coverage to reach users located in a challenging environment (rural locations and suburban areas with no fiber or copper networks). The trial was conducted on Zain's 1800MHz FDD-LTE network with Flexi Multiradio 10 Base Station. Zain Saudi's CTO Eng. Sultan

Abdulaziz AlDeghaither commented: 'We are enthusiastic about the success of the Nokia FastMile trial and the subsequent deployment of the technology, which will help us address the problem of poor in-house coverage and provide a much-improved user experience.'

9 Circles of H̶e̶l̶l̶ RGK Fraud Control System

## Mobile Subscription Services' Intelligent fraud prevention system

Vendors of the largest anti-virus companies know perfectly well that the fight against fraud, malware is always a catch-up game. In the field of mobile payments, things are exactly the same - an endless arms race, where even a crushing victory gives only temporary results. In such circumstances it is necessary to think/act outside the box.

Today RGK Mobile is in the forefront of successfully fighting fraud and that's thanks to our original intelligent system of fraud control. We look to the future, fully understanding that the long-term stabilization of the VAS market is possible only with an integrated approach to the issue.

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The results of the system with this approach are more than impressive: up to 70 per cent of fraud traffic is detected preventively (proactively), more than 25 per cent is detected in a period of several minutes to several hours, followed by training for preventive (proactive) detection.

Before gaining access to RGK Mobile's media services, any visitor faces a system containing 9 levels of protection and control using neural networks and machine learning. Let's talk about the methods we use, in greater detail:

Alexey Pankratov
Chief Operating Officer
RGK Mobile
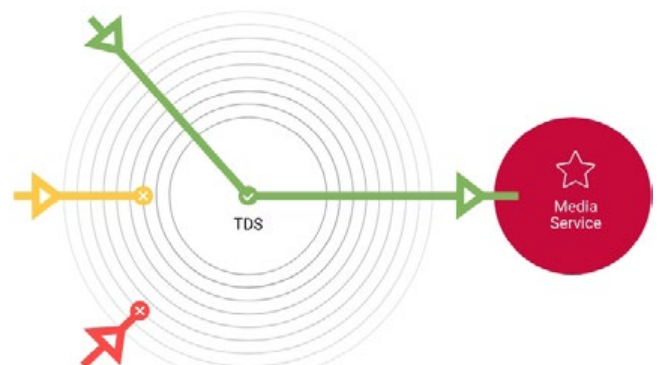
1. **Checking for the number of media service subscriptions.** The check is conducted at the TDS level. With the access to the MSISDN at the TDS level, the check will also be conducted by volumes. If there are several subscriptions for a short period of time, the user will be prevented from accessing to the payment page.

2. **Manual filtering of applications.** Our specialists manually find the features of the transmitted click's parameters, which allow us to determine the source as an autoclicker application or a malware/adware locker application, before entering the landing page. Thus, we remove up to 80% of the traffic described above.

3. **Basic fraud checks.** Several parameters, well-known to specialists, are being checked including: the time of click and other special elements that usually hint at bot activity, as opposed to an ordinary user. In case we are not sure about the traffic stream's quality, we send a portion of it to an additional verification page-layer (pre-landing), which requires a simple and obvious action from the user to continue. This allows us to detect autoclicks with very little loss in conversions.

4. **Original automated monitoring system.** The system makes automatic and manual collection of advertising materials from leading sources, into a CMS, using real devices equipped with conventional SIM cards and located in more than 30 countries; the operators then perform detailed analysis, manual monitoring of cases of interest and, as a result, make their recommendations on the investigated traffic flow. The results are also provided to operators as an assistance in regulating their perspective market.

ID	Profile	Mail	Role	Traffic Quality	Registration Date	State	Actions
249	▶	tech@	Partner		15/11/2017 15:32:05	Online	↩ ✎ 🖨
248	▶	support@	Partner		08/11/2017 17:08:30	Offline	↩ ✎ 🖨
247	▶	contact@	Partner		06/11/2017 18:25:44	Offline	↩ ✎ 🖨
246	▶	partners@	Partner		26/10/2017 04:24:37	Offline	↩ ✎ 🖨
245	▶	traffic@	Partner		17/10/2017 11:09:32	Offline	↩ ✎ 🖨
244	▶	media@	Partner		11/10/2017 13:33:32	Offline	↩ ✎ 🖨
243	▶	partners@	Partner		14/09/2017 14:41:31	Offline	↩ ✎ 🖨

JS code. Inconsistencies between the two are usually a sign of fraudulent activity.

6. **Blacklists.** Based on all the filters described, blacklists of sources are created, joined by subscriber blacklists, in case of an agreement with operator.

7. **Fraud Control AI.** This point is considered in more detail as this is where several methods are combined into one intelligent system.

Fraud Control AI is a tool for detecting low-quality and fraudulant traffic, based on analysis of user behavior in comparison with conversion rates, churn rate, number of subscribed services, rebilling and complaints.

By posting a JS script on both payment and service pages, we collect information about the user's behavior including clicks, page depth navigation, scrolling, finger movements across the screen, use of media content, and more.

Then, based on the available indicators, we manually identify the main negative behavioral patterns, across different types of traffic. Further, these patterns are embedded into a specially- programmed neuron network, which continually evolves, based on data collected from tens of millions of visits per day.
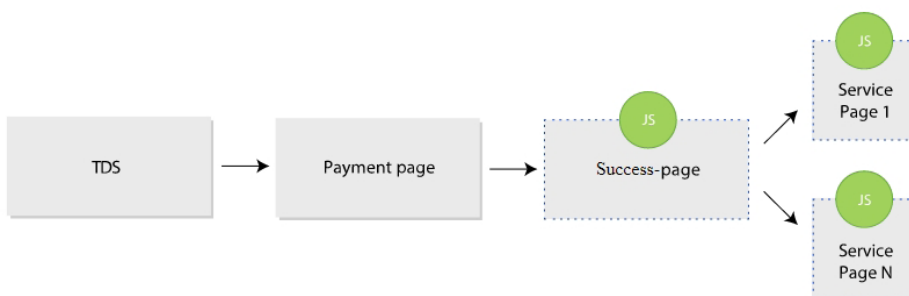
sources. Information on accounts of unscrupulous partners is stored in a unified database. Through a quick scan of system settings and configuration, IP addresses, requisites and other data, we are able to identify and prevent registration of potentially-malicious partners.

9. **Customer Care.** The work of our support service and its involvement in fraud detection and prevention has been described in the past in detail, in an article called Protecting Subscribers against Fraud. All of our local call centers are integrated into a unified RGK Engine, a platform that manages complaints, all broken down into categories, related to specific traffic sources. This allows us to monitor, in real- time, what traffic flows cause issues and identify the type of the issue and its actual urgency. The reaction is carried out in both automatic and manual modes.
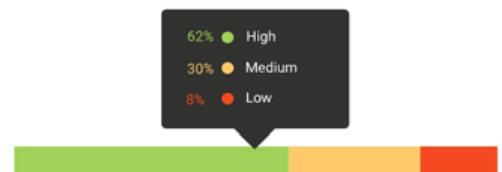
Combining those 9 methods together, we are able to accurately evaluate the quality of the various traffic sources, partners and services; internally, it allows us to score the quality of our own RGK Engine distributors. Indicators are identified quickly and can be reacted to swiftly, if necessary.

RGK Mobile's integrated approach to one of the most urgent issues for operators, in the field of VAS today, has demonstrated high efficiency and significant results. Continual monitoring allows for long-term stability of the mobile commerce market using DCB. The full- automation of the anti-fraud system, combined with human-monitoring allows RGK and its operator partners the opportunity to focus on the quality of services offered to subscribers, rather than playing the never-ending cat and mouse Fraud game. 🔲

5. **Payment page integrity check.** In cases where the payment page is hosted by RGK, and also in cases of special agreements with the operator, we perform a mandatory comparison of the original page with the one that the user finally sees. The goal is to recognize the introduction of malicious

Current result: preventive detection of up to 70% of fraud traffic, a definite success, by industry standards.

8. **Partners Management**. All managers of the company and our platform distributors have clear instructions on mandatory verification of traffic

SATELLITE NEWS

Comtech to Support Mobile Backhaul Expansion in Saudi Arabia

Saudi Arabian systems integrator NovaSat has awarded Comtech Telecommunications a $1.1 million order for infrastructure equipment. According to the contract, a large Mobile Network Operator (MNO) in the country will use the equipment to expand its existing Comtech EF Data-based mobile backhaul network to support both fixed and mobile users. To support the network expansion, the MNO will employ the CDM-760 Advanced High-Speed Trunking and Broadcast Modem and the CDM-625A Advanced Satellite Modem, equipped with the VersaFec-2 Forward Error Correction. According to Comtech, both modems feature the DoubleTalk Carrier-in-Carrier bandwidth re-use technique to provide optimal economics. The mobile operator will leverage these products to support different end user applications, including the high-speed backhaul of 2G and 3G traffic of up to 70 Mbps to fixed remote sites and to temporary 3G installations. Additionally, the solution suite will provide on-demand support for customers and high-speed connectivity to mobile vehicles that provide bandwidth when and where needed on a temporary basis, whether for scheduled events or unexpected purposes such as for disaster recovery communications.

First UAE-Built Satellite Passes Major Test

The first satellite built by Emirati engineers locally has passed the solar panel deployment test in time for its launch into space next year. The Mohammad Bin Rashid Space Centre (MBRSC) announced the success of KhalifaSat in passing the test, after the completion of several installation and assembly tests for its system and different engineering parts. KhalifaSat is the first satellite to be manufactured in the UAE and will be launched into space from Japan next year. It's a solar-powered, remote-sensing satellite that, when placed into a Low Earth Orbit of approximately 613km, can capture detailed imagery capable of competing with the highest industry standards. The Solar Panel Deployment test confirms that the satellite has the full capability of conducting its entire operations smartly after its launch into space in 2018 and reaching its orbit after separation from the rocket. The test also proves that KhalifaSat's solar panels will not open during the launch phase inside the rocket. Yousuf Hamad Al Sheibani, director-general of MBRSC, said achieving this important step in manufacturing KhalifaSat reflects the success of the country's strategy in having its own satellite manufacturing industry. "The country has established world-class infrastructure, which enabled us to manufacture and carry out the necessary tests to the satellite at the Space Technologies Laboratories at the center. The capabilities and expertise of the KhalifaSat team of Emirati engineers raises our pride and confidence in their success in this mission, especially that the satellite has specifications and technologies which make it one of the pre-eminent satellites of its category in the world," Al Sheibani said. "We assertively look forward to successfully accomplish the coming phases, until the satellite is ready to be launched into outer space next year. KhalifaSat puts the satellite manufacturing industry in the UAE in an international competitive position," Al Sheibani concluded. Amer Al Sayegh, KhalifaSat project manager at MBRSC, explained that the satellite's success in opening the solar panels at this phase in the manufacturing process shows the efficient overall operations of its engineering, electrical and mechanical aspects. "Among the tests that KhalifaSat has successfully passed at MBRSC Space Technologies Laboratories were the sun sensors test, Earth magnetic field sensors test, antenna movement and orientation to earth test etc," he said. "After KhalifaSat's separation from the rocket, it will automatically open the solar panels in direct position to the sun. The control command room at the center [here in Dubai] will expect to communicate with the satellite any time then to ensure the operative performance of all its systems in space, and be prepared to smartly capture the first satellite image," he added.

Collaborating to Achieve End-to-End Cybersecurity in Satellite

To what extent must hardware manufacturers, service providers and others across the satellite ecosystem collaborate to ensure secure cyberspace for their customers? During a panel titled "How to Achieve End-to-End Protection?" at the 2017 CyberSat Summit, experts agreed that one of the biggest challenges in cybersecurity today is the ongoing transition to an ecosystem where competing companies must cooperate on joint solutions for their shared customers. "If someone purchases a Boeing [Model] 75 for their own personal use and put a Honeywell system on it for connectivity, and a Satcom Direct router as a backup system, we all have an interest in making that customer secure," said John Zban, Chief Information Officer (CIO) at Satcom Direct. Zban described these interwoven relationships as a "co-competition" — where separate companies will compete for the same customers while also buying or exchanging hardware and information off each other. "Regardless of the competition, we have to make that customer happy," Zban said. In-Flight Connectivity (IFC) for airlines exemplifies a vertical that may leverage solutions from multiple companies to serve their customers' needs. "Instead of using one constellation, there may be one or two or three; instead of one Point of Presence (POP) it may be two or three," Zban said. "It requires expertise from all of those different disciplines … to deliver what the customer needs." The crux of the cybersecurity issue, the panelists agreed, is that all nodes within the satellite ecosystem must be resilient. "If you have a chain and it's made of

titanium, [a] paper link diminishes the strength of the entire chain," Zban said. A paradigm for sharing critical cybersecurity information already exists in the form of the Information Sharing and Analysis Center (ISAC). Since 2012, ISAC has featured threat warning and incident reporting capabilities divided by sectors, allowing those operating in aerospace, for example, to share actionable information related to cybersecurity and situational awareness. But the panelists agreed that the organization is not the only and final solution to coordinate efforts across the satellite ecosystem. Norm Balchunas, senior director of defense/cybersecurity services and connectivity for Honeywell Aerospace, expressed confidence in Honeywell and other companies' willingness to share its cybersecurity knowledge with adjacent manufacturers. "I am impressed with the aviation industry and how we're communicating with each other," he said. "ISAC has to catch up with how we conduct business on a day-to-day basis." Bruce Chesley, senior director of strategy for Boeing Space and Missile Systems, said that the conversations around cybersecurity must be both persistent and dynamic. Original Equipment Manufacturers (OEMs) and service providers must be flexible and willing to communicate in order to adequately serve the wide range of satellite customers and their different demands. "For certain satellite customers, the boundaries of the system and the scope of what we deliver varies pretty widely," Chesley said. The cybersecurity challenge for a mature operator such as Intelsat, for example, is different for other

customers for whom Boeing will develop, operate and maintain the entire core network, including the user terminals. "The edges of the ecosystem that have to be protected is a variable threat surface from a cyber point of view," he said. As space becomes more democratized, service providers will have to be able to adapt their cybersecurity solutions to a "wider variety" of customers, Chesley said. "Certainly a hobbyist has a different level of cyber [assuredness] that they need to achieve than a global operator like SES," he said. "I don't think there's a one-size-fits-all [solution]." Chesley added that even now there are companies that will waive certain cybersecurity protections as a matter of cost versus risk. That will likely change as the cyber threat grows more prominent, he said. "When that choice is made and those consequences knock on the door, it's almost evolutionary in a way … They're not going to last," he said. Chesley also echoed comments made earlier in the CyberSat Summit program, which emphasized companies should continue to develop their cyber capabilities without relying on government-enforced standards or regulations. "Anybody in this audience who thinks the federal government is the answer to the problem has some other problems that we need to address," commented Greg Touhill, Cyxtera president, during his panel at the summit on November 9. Ultimately, according to Chesley, it boils down to the slow, bureaucratic nature of government regulation: "The pace of innovation by the private sector outstrips the government's ability to legislate it," he said.

Turkish Communications Satellite Fleet to Grow to 6

The number of Turkey's active communications satellites will climb to six when three new Turksat satellites enter operation, according to Transport, Maritime and Communications Ministry data examined by Anadolu Agency. When Turksat 5A, 5B, and 6A start operating in the years to come -- joining Turksat 3A, Turksat 4A, Turksat 4B -- the number of Turkey's operating communications satellites will rise from three to six,

according to the Ministry. When the three new satellites go into operation, the combined satellites will be operating over Asia, Africa, and Europe. Next week, Turkey will sign an agreement with Airbus for the production of Turksat 5A and 5B, according to Transport, Maritime and Communications Minister Ahmet Arslan. Arslan, in an interview with Anadolu Agency on Oct. 26, said that Turkey hopes to send Turksat 5A into space by 2020

and Turksat 5B by 2021. Turkey also has three surveillance satellites: Gokturk 1, Gokturk 2 and Rasat. Turkish engineers developed Turkey's first national earth observation satellite, RASAT, in 2011 and Turkey's first high-resolution observation and surveillance satellite, Gokturk2, in 2012. Turkey also launched its third military surveillance satellite -- Gokturk 1 -- last year, from the Kourou Launch Center in French Guiana.

Inmarsat to Verify Third-Party Apps on SwiftBroadband-Safety

Inmarsat has launched a program to certify third-party commercial applications for use on its SwiftBroadband-Safety (SB-S) platform. The company said its Certified Application Provider (CAP) program is open to established application providers and developers. A two-step certification process tests and optimizes applications compatible with the flight deck platform. According to Inmarsat, SB-S provides global, high-speed and secure Internet Protocol (IP) broadband connectivity to cockpits. A growing range of applications can, the company said, improve safety and operational efficiency. Applications provide real-time graphical weather updates, flight optimization, crew workload reduction and other items. Inmarsat said the benefit to certifying applications on SB-S include gaining an expanded ecosystem of expertise and access to new revenue streams and joint business opportunities. The company would also provide test environments and software development kits for optimized data transmission. Inmarsat said it would promote certified applications in its "solutions labs." "Our new aviation CAP program not only opens up a wealth of opportunity for existing applications providers and developers to further their innovative solutions," said Mary McMillan, vice president of safety and operational services at Inmarsat Aviation, "it means we can offer the heightened safety and streamlined operations applications airlines demand." The new program gives SB-S customers access to the latest applications and technologies as part of a wider Inmarsat initiative to incorporate third-party applications across its network. SB-S is currently in service with Hawaiian Airlines, Shenzhen Airlines and United Airlines. Inmarsat said it has also been selected by Airbus for its A320 and A330 fleets.

# KT SAT Launches 'Mugunghwa 5A' Satellite

KT SAT's broadcasting and telecommunication satellite, Mugunghwa 5A, was successfully launched from the United States, according to the company. The satellite service providing arm of KT said a rocket carrying the satellite was launched from Cape Canaveral in Florida at 3:34 p.m. on Monday (local time). The satellite will enter a geostationary orbit Nov. 12 and will undergo performance tests for a month. The Mugunghwa 5A was manufactured by French company Thales Alenia Space. SpaceX, a U.S. aerospace company established by Tesla founder Elon Musk, carried out the launch. It was the first time for SpaceX to carry a Korean satellite, KT SAT said. With the Mugunghwa 5A, which will replace the Mugunghwa 5 as its mission expires in 2021, Korea now has a total of five geostationary satellites including the Mugunghwa 6, 7 and the Cheollian satellite. As the Mugunghwa 5A satellite is capable of providing broadcasting and telecommunication services in an extensive area from China to the Middle East, it is drawing attention from governments and enterprises in the region, the company said. "The Mugunghwa 5A can provide services in India, China and the Middle East. It is also capable of providing global satellite telecommunication and ocean satellite internet of things (IoT) services," KT SAT CEO Han Won-sik said. The Mugunghwa 5A is the second satellite KT SAT has launched this year, following the Mugunghwa 7, which went into orbit in May. The Mugunghwa 7 was deployed to provide satellite services in Asian regions including the Philippines, Indonesia, Vietnam, Laos, Cambodia and India. The company said it will expand global coverage and boost its satellite-based IoT service business, aiming to become the world's seventh largest satellite service provider by 2020. "KT SAT seeks to be a leader in the global satellite service industry. We will establish a ubiquitous satellite-based IoT service environment, connected to KT's fifth-generation ground network infrastructure," Han said. KT SAT said the Mugunghwa 5A is already drawing global interest. The company signed a major deal with Mongolia's top satellite TV enterprise DDISH TV to lease four relay units in the new satellite. Under the deal, the Mugunghwa 5A will provide satellite broadcasting services for all of Mongolia. The company also said it is seeking to expand its presence in maritime satellite telecommunication services with the new satellite. The Mugunghwa 5A has a high-powered maritime telecommunication beam that can provide services in the East Sea, the South and East China Sea, the Bay of Bengal and the Arabian Sea. The company said this new equipment is expected to boost its maritime high-speed data transmission service, which provides unlimited data communication to allow not just high-speed internet but also internet-based voice calls and IoT services on ships. "Governments and telecom companies in multiple countries including Thailand and Pakistan are showing interest in the Mugunghwa 5A satellite," a KT SAT official said.

Intersat, ABS Presenting Satellite Broadband Services across Africa

InterSat and ABS have launched iDirect platforms on ABS-3A C-band and Ku-band beams. These platforms will provide quality broadband internet across Sub-Sahara and South Africa, as well as serving French-speaking African countries. With the growing demand for broadband internet services, users in Africa demand services at low entry cost including hardware and bandwidth. InterSat and ABS can now offer Software Virtual Network Operator (SVNO) access to resellers in Africa to distribute and manage internet services at affordable pricing on both C and Ku-band. Resellers can control their VSAT network and manage services to their clients without the need for investment in hardware. InterSat will operate the services from its new and state-of-the-art teleport in Nairobi using ABS-3A's pan-Africa beams. Both Ku- and C-band coverage offers excellent elevation across Africa. "The requirement for satellite capacity in the broadband market in Africa continues to grow," said Hanif Kassam, CEO of InterSat. "At InterSat, we are now ready to start a new chapter towards accelerated growth and our renewed collaboration
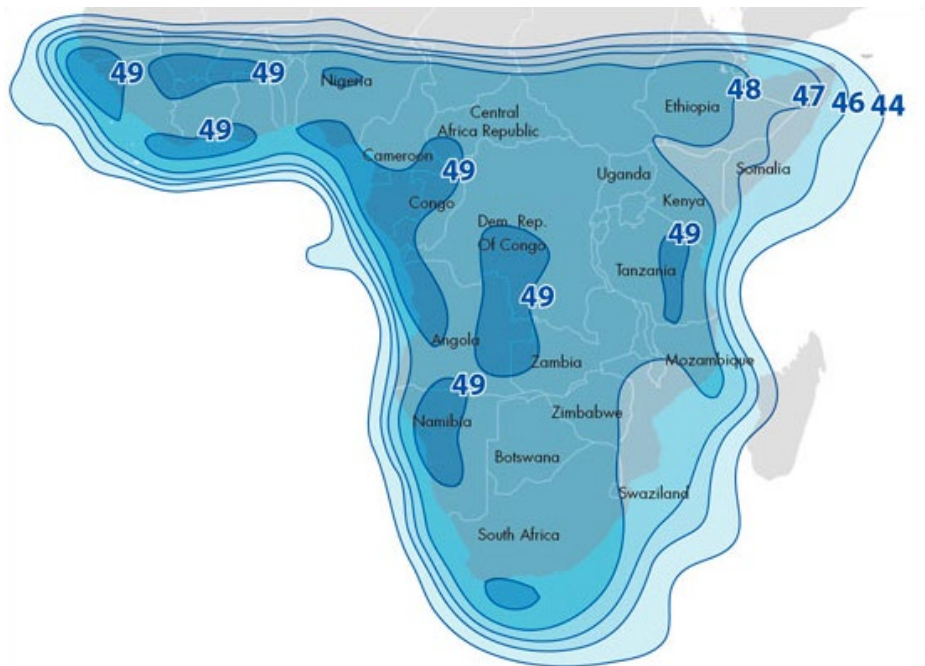
with ABS marks that new beginning. With our high-quality and affordable service offerings on ABS-3A satellite, we are confident that our customers in Africa will reap many benefits of a next-generation network." Flavien Bachabi , MD of Africa for ABS, commented, "ABS-3A is a new choice for high profile broadband

as well as broadcast distribution in Africa, MENA, Europe and the Americas. Our VNO services in cooperation with InterSat will provide a cost-effective way for resellers and clients to establish a comprehensive communication network without the capital investment on a hub infrastructure."

Orbital ATK Completes Eighth Cargo Mission to the ISS

Orbital ATK successfully launched an Antares rocket carrying a Cygnus spacecraft on November 12 from NASA's Wallops Flight Facility in Wallops Island, Virginia. The launch is Orbital ATK's eighth cargo delivery mission to the International Space Station (ISS). During the mission, designated OA-8, Cygnus will deliver vital equipment, supplies and experiments to the astronauts aboard the space station, as well as conduct scientific experiments onboard Cygnus while docked with the orbiting laboratory. The Antares rocket launched the Cygnus spacecraft loaded with approximately 7,400 lbs. of cargo for the ISS' crew of six. Following an approximate nine-minute ascent, Orbital ATK deployed the Cygnus spacecraft into orbit. Orbital ATK's engineering team confirmed reliable communications have been established and the vehicle's solar arrays are fully deployed, providing the necessary electrical power to operate the spacecraft. Cygnus will be grappled

at approximately 4:50 a.m. EST on November 14. The spacecraft will remain attached to the ISS for approximately three weeks before departing with more than 4,000 pounds of disposable cargo. Upon arrival at the ISS, the Cygnus will be unloaded and used for the first time as an extension of the orbiting laboratory for an experiment featuring a SpaceTango facility. TangoLab is a reconfigurable general research facility designed for microgravity research and development. This exercise will highlight the ability to expand the station's capabilities for hosting experiments using the Cygnus module. During the three weeks Cygnus remains docked, the astronauts on the space station will perform the transfer of the lab to Cygnus and then back to the station where it will remain. Once Cygnus is unberthed, a NanoRacks deployer will release 14 Cubesats, a record number for the spacecraft. Upon completion of its secondary missions, Cygnus will

perform a safe, destructive reentry into Earth's atmosphere over the Pacific Ocean. Under the CRS 1 contract with NASA, Orbital ATK will deliver a total of approximately 66,000 pounds of cargo to the ISS. Beginning in 2019, the company will carry out a minimum of six cargo missions under NASA's CRS-2 contract.
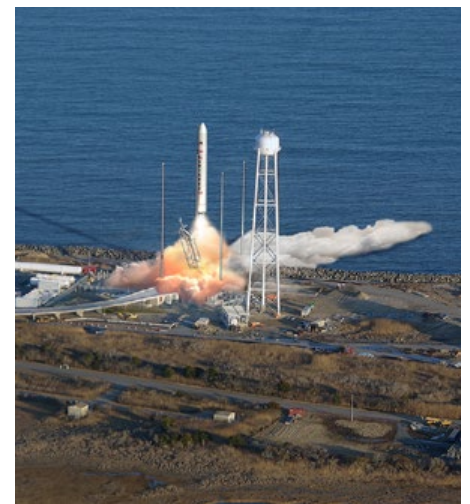
Intelsat, Gilat to Supply 4G Broadband to Mobile Operators

Intelsat and Gilat Satellite Networks announced they will jointly offer 4G broadband infrastructure to Mobile Network Operators (MNOs). IntelsatOne Mobile Reach Solar 4G bundles connectivity provided by Intelsat's global network with Gilat's Very Small Aperture Terminal (VSAT) system for small cell and cellular backhaul. According to Intelsat, the service provides an additional end-to-end managed solution for MNOs that want to upgrade existing Mobile Reach Solar 3G service or expand service footprints into regions where traditional terrestrial network buildouts are uneconomical due to reliability of infrastructure or geographic considerations. The combination includes power supply, mono-pole, and all satellite and cellular equipment. Intelsat believes the Mobile Reach Solar 4G small cell over satellite solution will help MNOs satisfy growing demand for advanced cellular services in Africa, which is the fastest growing mobile phone market. According to Intelsat, the broader availability of more robust internet services will create more expansion opportunities for enterprises and small businesses that rely on those advanced applications, and this, in turn, will deliver additional socio-economic benefits for all citizens. "Intelsat's globalized network has supported 2G and 3G services for decades, and now our network can accelerate the adoption of 4G," said Jean-Philippe Gillet, Intelsat's vice president and general manager for broadband.

SpaceX Testifies: First Prototype Satellite Coming This Year

SpaceX is on track to begin launching its broadband constellation as early as 2019, and aims to have the full system on orbit by 2024. In an October 25 testimony delivered to the Senate Committee on Commerce, Science, and Transportation, SpaceX Vice President of Satellite Government Affairs Patricia Cooper reaffirmed the company's plans to launch the first prototype of its Low Earth Orbit (LEO) broadband constellation before the end of the year and an additional prototype in the early months of 2018. Cooper also stated that SpaceX expects to begin offering commercial services with as few as 800 satellites on orbit. When fully deployed, the constellation — dubbed "Starlink," as a recent trademark filing revealed — will comprise 4,425 Ku- and Ka-band satellites operating in 83 planes. In her testimony, Cooper referred to an additional constellation of 7,500 V-band satellites that will fly even closer to Earth than the Starlink system, in Very Low Earth Orbit (VLEO)"In the future, these satellites will provide additional broadband capacity to the SpaceX system and further reduce latency where populations are heavily concentrated," Cooper said. "By combining the umbrella coverage of the LEO Constellation with the more intensive coverage from the VLEO Constellation, the SpaceX system will be able to provide high volume broadband capacity over a wide area." SpaceX did not provide dates on when it plans to begin launching the secondary constellation. Cooper emphasized that Starlink will primarily deliver broadband directly to end-users, "particularly individual houses and small businesses," which will be able to connect to the constellation via user terminals sold by SpaceX. Cooper described the flat-panel terminals as "roughly the size of a laptop," and noted they will use phased-array antenna beams to track the satellites as they cross the LEO arc. Once deployed, the constellation will be able to provide broadband service at speeds comparable to fiber. According to an application submitted to the Federal Communications Commission (FCC) earlier this year, SpaceX has already begun testing its Starlink communications links at its corporate headquarters in Redmond, Washington, and will continue tests through to April 2018.

4 Satellites Set to 'Burn up' In the Sky — Soon

On October 16, the disintegration of the Russian-made Progress module as it broke up into smaller chunks and burned up like fireworks created a night-time spectacle in the UAE. Now, space-tracking site Satview states that China's defunct Tiangong-1 space lab is falling out of orbit. China launched the 8.5-tonne Tiangong-1 ("Heavenly Palace") in 2011. It has a Norad ID No. 87820 and was hovering at an altitude of about 300km above the North Pacific, as of 8.32am on Tuesday, October 24, 2017. The satellite, 12 meters long and 3.3 meters in diameter, was used by Chinese astronauts for a series of spacecraft docking tests and visits. In March 2016, the space lab broke down and in May 2017, Chinese officials told the UN that Tiangong-1 was expected to re-enter Earth's atmosphere between October 2017 and April 2018. But as of October 24, the satellite was still orbiting at a high altitude (about 300km, which varies depending on which part of the globe it floats over) and wasn't expected to come down immediately, according to the tracking site SatFlare. This was confirmed in a tweet by a popular astrophysicist, Dr. Jonathan McDowell, who said that Tiangong-1 poses no threat to the earth's inhabitants. Dr. McDowell, who works at the Harvard-Smithsonian Center for Astrophysics, says there's nothing to fear about the Chinese station that's about to fall. "It's big, but our planet is bigger," he twitted on October 20.

Thuraya Launches New Voice over IP Service

Thuraya has announced the launch of Thuraya Talk, its new Voice Over IP (VOIP) service. According to Thuraya, the service opens up unique communication capabilities for both personal and professional use. All users will receive their own dedicated number that can be used for outgoing and incoming calls. The initial phase of the service allows callers to make voice calls and send text messages using the Thuraya Talk app. The app can be used over any internet connection from anywhere in the world, either using Wi-Fi or mobile data. Callers can make phone calls to Thuraya satellite phones or to any destination globally. It is ideal for users who call Thuraya numbers and offers those savings of up to 60 percent, the company stated. The second phase of the service, planned for launch early next year, will introduce simultaneous voice and data for the first time on Thuraya's satellite network. Optimized for efficient bandwidth usage, Thuraya Talk can be used as an add-on solution to any Thuraya broadband terminal. By connecting the VOIP gate adapter to the terminal, the customer will be able to use any analog phone to make and receive VOIP calls for operational purposes. "Through future enhancements, we also aim to make Thuraya Talk the go-to app for maritime crew welfare, by adapting it to become the ideal solution for crew on board ships to stay in touch with family and friends," said Puneet Lihala, Thuraya Talk product manager.

Alaska Communications Expands Network Over Eutelsat Capacity

Alaska Communications announced it recently became a satellite network provider. The company entered an agreement with Eutelsat Americas, leasing transponder space in the C-band. This now allows favorable economics and significant savings in offering services for businesses, schools, health care providers, and government applications in remote communities across Alaska, the company stated. One of the remote areas Alaska Communications will serve with its new satellite capabilities is St. Paul Island, a community north of the Aleutian Island chain almost 300 miles out in the Bering Sea, through TDX, the Alaska Native Corporation for the island.

TDX, as the primary internet service provider, will provide last-mile broadband internet service to its customers through its newly laid fiber optic cable, and will be using Alaska Communications' new satellite offering to provide the middle mile broadband capacity to the island. Alaska Communications will help TDX with its main focus: using broadband to improve the quality of life in St. Paul's remote and harsh environment. "Entering the market as a satellite provider instead of a reseller gives us more flexibility and control over our product, which we will use to provide more value for customers," Alaska Communications Senior Vice President for the Business Market Bill Bishop said. "We can offer our customers competitive pricing and value-added services we'll manage end to end. As a statewide provider, it's important to us to serve customers in remote areas, including the North Slope and Arctic regions." "Like in much of rural Alaska, when faster broadband speeds are available, the possibilities can be life changing. St. Paul residents can now explore online job training, e-commerce for locally produced arts and crafts, and better access to state government services, tourism promotion, and better videoconferencing with friends and family off the island," said TDX Chief Executive Officer (CEO) Ron Philemonoff.

InterSat to Deploy Broadband Internet in Africa on ABS 3A

InterSat and Asia Broadcast Satellite (ABS) announced the launch of iDirect platforms on ABS 3A C-band and Ku-band beams. According to InterSat, these platforms will provide broadband internet across Sub-Sahara and South Africa, as well as serving French-speaking African countries. With the growing demand for broadband internet services, InterSat said users in Africa demand services at low entry cost including hardware and bandwidth. InterSat with ABS can now offer Software Virtual Network Operator (SVNO) access to resellers in Africa to distribute and manage internet services at affordable pricing on both C- and Ku-band. Resellers can control their Very Small Aperture Terminal (VSAT) network and manage services to their clients without the need for investment in hardware. InterSat will operate the services from its new teleport in Nairobi using ABS-3A's pan-Africa beams. According to InterSat, both Ku- and C-band coverage offers excellent elevation across Africa. "ABS-3A is a new choice for high profile broadband as well as broadcast distribution in Africa, the Middle East, Europe and the Americas. Our VNO services in cooperation with InterSat will provide a cost-effective way for resellers and clients to establish a comprehensive communication network without the capital investment on a hub infrastructure," said Flavien Bachabi, managing director of Africa for ABS.

Morocco to Orbit Earth Observation Satellite

Morocco is set to join a select group of countries in Africa that have a satellite in orbit with the launch on Nov. 8 of its Earth Observation satellite. An Arianespace Vega rocket will launch the satellite, Mohammed 6-A, from the Guiana Space Center in French Guiana. The launch will mark the North African country's major breakthrough in mastering space technology, an official statement said. The Mohammed 6-A satellite is an EO satellite built for the Kingdom of Morocco by Thales Alenia Space as system prime contractor and Airbus as co-prime. The satellite will be used for mapping and land surveying activities, regional development, agricultural monitoring,

the prevention and management of natural disasters, monitoring changes in the environment and desertification, as well as border and coastal surveillance, according to an Arianespace statement. A three-axis stabilized satellite, the Mohammed 6-A will weigh approximately 1,110 kg. Thales Alenia Space, as system prime contractor, supplied the payload, including the optical instrument, the image transmission subsystem, and the ground segment for image processing and production. Airbus, as satellite prime contractor, was in charge of its integration, as well as supplying the platform and the ground segment for mission planning and satellite control. The space imagery

will play a key role in the implementation of national strategies for socio-economic development, especially those relating to the agricultural sector, which constitutes one of the main pillars of the Moroccan economy. According to government officials, the satellite will help in land management, through effective control of housing and buildings, as well as tighter monitoring of slum eradication. It will also help Morocco better manage water resources, prospect underground water, improve cartography and topography, and support the control of littoral zones, infrastructure and transport networks.

Further Growth at Eutelsat 7/8° West Video Neighborhood: Now Reaching into over 56 Million TV Homes in Middle East and North Africa

Eutelsat Communications presented the results of its industry-benchmark survey on TV trends across the Middle East and North Africa at the ASBU BroadcastPro Television Summit in Dubai. Satellite TV reception in the MENA region has continued to increase its market-share compared to terrestrial and IPTV, and now reaches into 59 million homes. This represents 94% of the 62.2 million TV homes in 14 Arab-speaking countries, up from 92% only 12 months ago. Eutelsat's 7/8° West neighborhood has further reinforced its pole position, with reach into 56.2 million homes in 14 Arab countries, up 3.1 million homes in only one year. The attraction of 7/8° West for 95% of the satellite homes in the region is driven by an exceptional line-up of over 1,200 Arabic and international channels, with a high diversity of free-to-air content and exclusivity (55% of exclusive channels). This latest audience growth also reflects the expanding offer of High Definition content at 7/8° West, up 34% in 12 months to 179 channels (15% of channels). The pace of adoption of HD is accelerating in the MENA region, with

HD-equipped homes now reaching 28.2 million, up from 17.7 million in 12 months and representing 46% of TV homes. This percentage is even more significant at the Eutelsat/Nilesat 7/8° West neighborhood where 66% of homes own HD displays. Michel Azibert, Eutelsat Chief Commercial and Development Officer, commented on the figures: "Our 2017 survey confirms the dominance of satellite as the preferred digital infrastructure across the Middle East and North Africa and highlights key trends, notably the

increasing significance of High Definition broadcasting. It also confirms the 7/8 ° West neighborhood as the prime gateway for broadcasters, reaching into over 56 million homes from Morocco to the Gulf States. In addition to this capability, our complementary HOTBIRD neighborhood broadcasts almost 80 Arabic channels, making it a compelling neighborhood for reaching into millions of homes across Europe as well as in the Middle East and North Africa."

SURGE OF HDTV SCREENS IN MENA

46% OF TV HOMES

+30% IN ONE YEAR
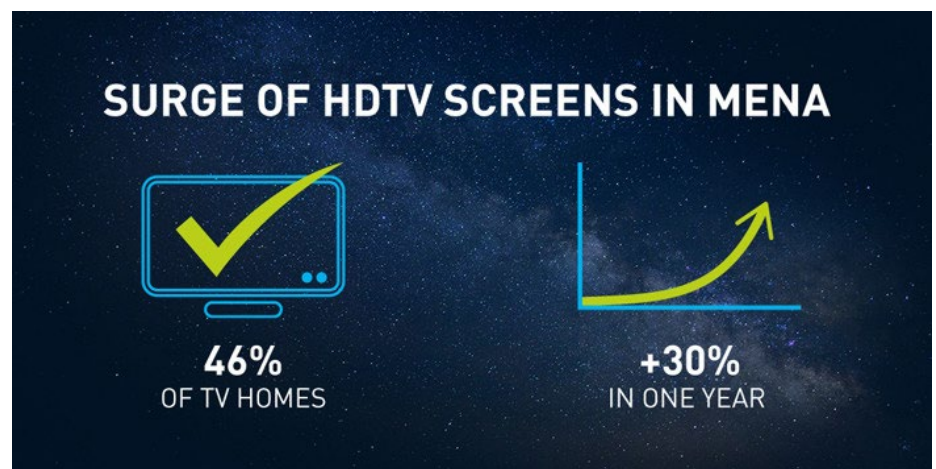
BUILDING THE BEST FOR BUSINESS

A Wonderful World

# Mobile Security an Opportunity for Mobile Operators

One word is on the mind of all CISO's and CIO's globally – Security! In a world rapidly moving towards ever greater interconnectivity, with 5G on the horizon and IOT becoming a reality, security is at the forefront. How do we become more open and retain security? How do we share more data and expose more end points and link our digital world yet still remain secure? How do we prevent this unleashed data from being abused and misused? What role can or should Mobile Operators play and what stake should they have in securing this interconnected future?

Cyber-attacks are increasingly threatening and costly. Studies show that they drain $450 billion annually from the global economy—a number that some project will reach $2 trillion by 2019.

Cyber-attacks are increasingly threatening and costly. Studies show that they drain $450 billion annually from the global economy—a number that some project will reach $2 trillion by 2019. Highly sophisticated attackers can hide their tracks for weeks, months and even years without being noticed.

Many enterprises manage device access to corporate resources, networks and identity, but they can't remediate a threat they can't identify. As more of our computing goes directly from mobile devices to cloud services, network threat detection solutions are ineffective since data often resides outside the corporate data center. Adoption of a non-signature based mobile threat detection software to protect your organization and its data is required. This fact is a serious and growing concern for all CEOs and CIOs.

Allowing employees to use their own devices can certainly improve productivity, but it also puts the organization at risk for additional security threats. Whether these devices are sanctioned or not through a corporate BYOD program, IT departments need to grapple with setting unified policies especially when it comes to securing mobile devices and the information they access.
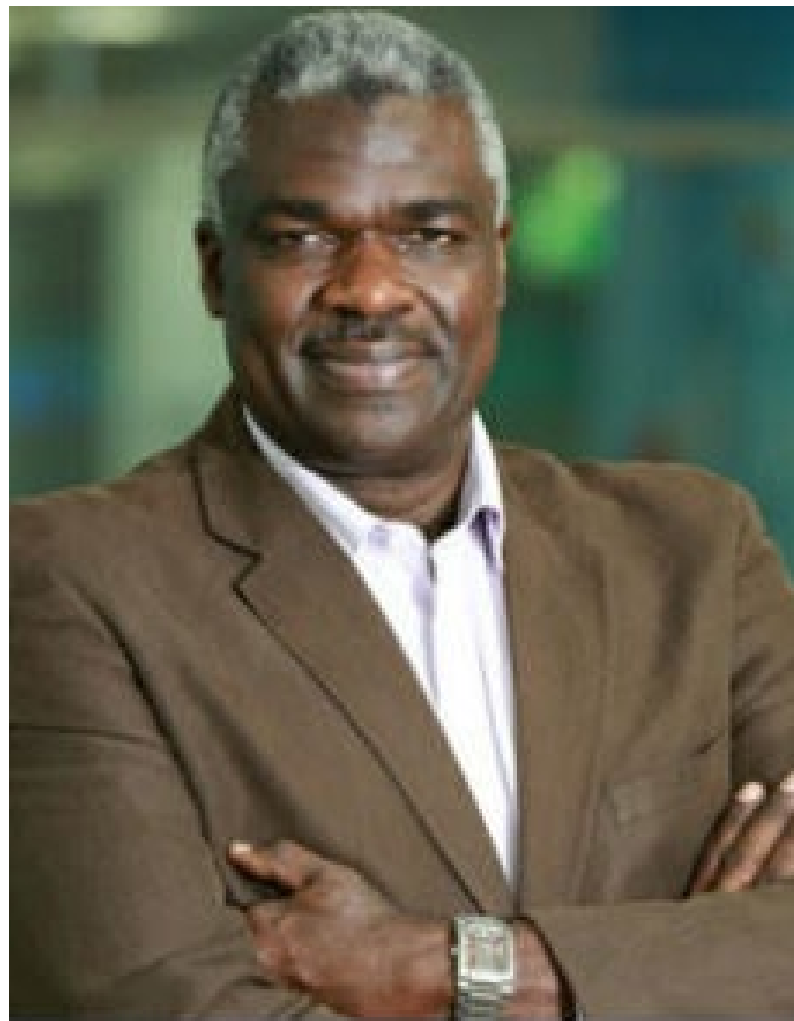
Shuaib Mahmud
Chief Executive Officer
Staxx Solutions

Staxx Solutions

Security on the mobile device can be segmented into 3 principal areas:
- Device management, for policy enforcement, corporate application access and data segregation
- Threat detection
- Secure voice and messaging
- Addressing all three components provide a significant level of security that ensures that CIO's and CISO's are able to rest easy.

Mobile Security – The Opportunity
As Mobile Operators, the opportunity to move up the value chain for enterprise, consumers and prosumers means the delivery of critical value-added services. Identifying the right services will be essential to driving revenues, increasing profitability and reducing churn as technology continues to rapidly evolve. It is expected that mobile security spending will rise over the next 5 years reaching $73.5 billion a year as threats and losses continuing to increase globally.

Security is one of the essential areas in which Mobile Operators can play a key role. Becoming a key service provider in this area broadens the service portfolio and provides significant tangible value to customers in an area that is set for significant growth.

It is expected that mobile security spending will rise over the next 5 years reaching $73.5 billion a year as threats and losses continuing to increase globally.

Mobile Device Management: This area of security is probably best left to enterprise customers to manage through their internal IT, as policy rules, changes and end-user management could become more costly than it is worth for most operators to manage as a service. MDM products such as MobileIron offer a wide range of EMM solutions for enterprise.

Mobile Threat Detection: While managing employee devices doesn't make sense for every organization, securing devices does. Gartner recommends that security and risk managers, "Propose installation

of an MTD product in situations where BYO users are unwilling to allow EMM supervision on personal devices". A logical provider of MTD is the mobile operators, offered as an enterprise service with a nominal per user monthly charge or direct to consumers as a package service for a nominal monthly fee. Gartner predicts that, "By 2019, 25% of mobile-ready enterprises will deploy mobile threat defense capabilities on enterprise-issued mobile devices". Key Enterprise customers include Finance, healthcare, energy, and government sectors.

Given the current mobile landscape, it is clear that the threat is real. Take the ongoing BankBot malware attack that is focused largely on Middle Eastern banks and their customers. BankBot is Android-targeting malware that uses fake overlay screens to mimic existing banking apps and steal user credentials. BankBot and other exploits aren't going away anytime soon, in fact they are increasing every single day. To ensure enterprise customers stay secure, operators should partner with mobile security companies like Zimperium that offer continuous, real-time cyber threat protection for both mobile devices and applications.

For a relatively small fee customers can have the peace of mind that their devices are fully protected wherever they might be. Products offered through Zimperium, the global leader in mobile threat defense (MTD) and the only provider of real-time, on-device protection against known and unknown threats, provides its z9 product for Mobile Malware. In addition to its proven effectiveness against zero-day device and network attacks, z9 is the only machine learning-based engine capable of detecting previously unknown mobile malware on-device without the delays and risks of cloud-based lookups. Zimperium provides the most integrated and scalable mobile threat defense platform. The solution delivers real-time, on-device threat detection for Android and iOS devices. To date, Zimperium's machine learning-based engine, z9, has detected 100 percent of zero-day mobile exploits without requiring an update. z9 protects devices and their data via the zIPS™ mobile Intrusion Prevention System app, and mobile apps and their sessions via zIAP™, the In-App Protection SDK.

Encrypted voice and messaging services are a concern of not just operators, but also a serious national security concern, as bad actors use these unregulated and unrestricted means to communicate globally and evade law enforcement and intelligence agencies.

The number of post-paid customers can be used as a yard-stick to determine the potential uptake of this service by consumers. The hurdle for enterprise customers is much lower as the inherent risks of BYOD users is already apparent and of growing concern, Financial services firms with mobile banking applications see MTD as a means to safe guard their customers and protect them from losses. MTD as a driver of revenue could be significant for operators seeking new value added services that are income generating.

Secure Voice & Messaging: Third party OTT VOIP applications enable smartphone users to talk and chat with one another with greater ease and near global coverage as long as the users at both ends of the connection use the same application. While these applications drive additional data consumption, from the operators perspective, the incremental data usage revenues do not make up for the erosion of traditional minutes revenue. Popular VoIP apps, such as WhatsApp, are free for download and use. The operators do not generate revenue from selling or using the service. Encrypted voice and messaging services are a concern of not just operators, but also a serious national security concern, as bad actors use these unregulated and unrestricted means to communicate globally and evade law enforcement and intelligence agencies.

OTT's that provide these services are reaping benefits by monetizing data or charging fees for the services that typically bypass the operator. There are certainly legitimate reasons for encrypted communications at an enterprise level

and within governments. Conceivably this is where regulatory bodies should step in requiring non-enterprise VOIP services to be un-encrypted as the uncontrolled use by parties capable of terrorism and other nefarious activities can be coordinated globally evading law enforcement.

How do Operators benefit from secure communication? By offering secure voice and messaging as a service to enterprise customers. KoolSpan has partnered with several Operators around the world to develop service offerings of secure mobile communications for both voice and text. Operators offer these solutions initially to their business-to-business (B2B) customers, including government organizations, enterprises and even small and medium sized businesses (SMB). As demand accelerates, several leading carriers are also rolling out "prosumer" and consumer secure communications service offerings. The result? The operator is perceived as a Trusted Security Service Provider.

While secure communications services vary slightly from one to the other, they share a common foundation of end-to-end (E2E) encryption. However, KoolSpan's high definition (HD) audio quality and robust performance across a wide range of network environments exceeds the quality and performance

of both regular calls and all other VoIP calls, so that users who are not satisfied with their free, "you-get-what-you-pay-for" app are willing to pay a nominal fee for KoolSpan TrustCall. End users are replacing WhatsApp with TrustCall because of the security and quality advantages.

Operators that build "value-add" packages around secure mobile communications can open up additional business and revenue streams as customers return for additional security services.

From a government security risk and compliance perspective, it is known which enterprises have deployed TrustCall, additional regulations could be applied to ensure each enterprise is vetted by authorities and approved for encrypted communication and messaging. The end result will be a profitable business for Operators, working fully in compliance with the requirements of government regulators.

Operators that build "value-add" packages around secure mobile communications can open up additional business and revenue streams as customers return for additional security services.

Bottom line, delivering services like MTD and TrustCall secure voice and messaging to B2B customers helps operators as they change their business model so that not only does it drive direct higher ARPU, but it also enhances the trusted provider relationship for operators with their customers, leading to multiple new revenue streams. Key points for operators to consider:

- Secure voice and messaging for the business market is an innovative service that provides new revenue streams
- MTD is a rapidly growing area of need in the Security space
- Adding security creates a strong competitive advantage
- Protecting confidential information exchanges brings new customers from competitors, reduces churn, and increases customer satisfaction

Contributors:
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WHOLESALE NEWS

Orange Jordan Launches Competitively Priced International Calling Bundle for Syria

Orange Jordan recently launched an international calling bundle to all Syrian networks, which is considered to be the best among all telecommunication offers due to its competitive price, as the company constantly seeks to provide its best services to all segments of the local community, including Syrians living in
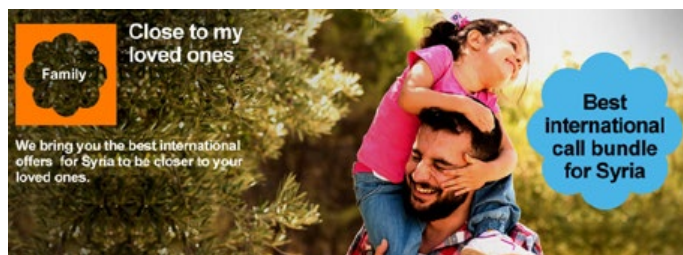
Jordan. Through this bundle, Orange Jordan gives its subscribers the opportunity to make calls to Syria, offering 50 minutes of international calls, 1000 minutes on Orange network, as well as 1 GB data, at a cost of only JD 5 in order to keep them constantly connected with their families and relatives in Syria. Customers with Orange new prepaid lines, including Orange Basic Line, Orange 2, 5, 6, 7, 9, and 11 and "Humat Al Watan" line, can benefit from the bundle by pressing *620#. Orange Jordan's launch of the new bundle comes as a result of applying the company's five-year corporate strategy, Essentials 2020, which aims to better connect its subscribers, from different sectors and segments, with all that is essential to them and provide them with an unmatched telecommunications experience through rich and diverse options.

BICS to Provide Swazi Mobile with Voice, Data Roaming

Global communications enabler BICS has agreed to provide its complete range of voice and data roaming services to Swaziland's second mobile network operator (MNO) Swazi Mobile. The full roaming platform will allow Swazi Mobile's end-users to benefit from international voice and data services, SMS messaging,

signaling, IPX and data clearing services. Wandile Mtshali, the CEO at Swazi Mobile, said: 'The immediate access to over 800 of BICS' partners will give our customers the ability to roam like never before, and BICS' PoP in Johannesburg will provide us with a competitive differentiator through service quality.' TeleGeography

notes that Swazi Mobile launched 2G/3G/4G mobile services in the country in July 2017. The new operator advertised services in 28 towns at launch, with 80% of the population covered by October 1, 2017.

Roaming Tariff Cut Between South Asian Countries in the Works

International travelers across South Asian countries could look forward to a sharp cut in their roaming bills in the New Year. The telecom regulators of the South Asian countries are expected to bring out a proposal by December to cut down high roaming charges for subscribers travelling between member nations. A committee of the South Asian Telecommunication Regulatory Council (SATRC) is studying intra-region roaming rates being offered by various service providers in 11 countries. The regulatory initiative, if allowed, would help mobile subscribers of countries such as Afghanistan, India, Iran, Nepal, Bangladesh, Pakistan, the Maldives and Sri Lanka to avoid bill

shocks while travelling within the region. "Roaming tariff reduction is one of the issues among other things that are being deliberated within the SATRC," Telecom Regulatory Authority of India (TRAI) Secretary Sunil K Gupta told ET, adding that a concrete guideline may emerge by December. The regulatory council of South Asian nations takes up bilateral as well as other issues such as cross-border interference, radio frequency coordination, technology standards, and related trends and challenges as a part of its action plan. .. "A proposal will be given to telecom regulators by a designated SATRC committee that would ultimately lead to a final decision on the

roaming charges," the TRAI official said. The telecom regulators of the South Asian nations are meeting at Kathmandu in Nepal by December end, and during a three-day summit, would discuss regional roaming charges among other issues. Currently, data is being collected from 11 countries, according to Gupta, who added that the council would analyses and see what could be done to lessen roaming tariff for subscribers travelling within the South Asian countries. The European Union (EU) had in June this year abolished extra roaming charges for subscribers travelling within member countries, following nearly a decade-long deliberations.

Vodafone Slams ACCC Mobile Roaming Decision

The Australian Competition and Consumer Commission (ACCC), as expected, decided not to declare a wholesale domestic mobile roaming regime, a move which immediately drew sharp criticism from Vodafone Australia, the country's third largest mobile operator. Dan Lloyd, Vodafone's CSO, said the ACCC's final report is a bad decision for regional Australia. In a statement he said: "Large parts of the country will continue to miss out on the mobile coverage and choice that it wants, needs and deserves. This decision rings alarm bells for regional communities. The inquiry has shone a spotlight on the alarming lack of competition and high prices for mobile in many areas, but the ACCC seems to think that this is ok." ACCC Chairman Rod Sims said its inquiry found a declaration would likely not lead to lower prices or better coverage or quality of services for regional Australians. The regulator, however, identified a range of regulatory and policy measures which

could improve inadequate mobile phone coverage and poor quality of service in regional areas. The ACCC head acknowledged it heard from many consumers and businesses about how inadequate mobile coverage in regional areas affects the social and economic well-being of the communities. "We will shortly commence a review of the facilities access code to identify barriers to co-location or infrastructure deployment," Sims said: "Better transparency about network coverage and quality, more accountability about network investments and better information for regulatory and policy decision makers are all important." In May ACCC proposed not to declare a wholesale domestic mobile roaming regime, which would require operators to share their mobile networks with rivals. Sims said at the time it was unclear a declaration would improve the current state of competition overall. The regulator invited comments on the draft decision. Lloyd said: "Domestic roaming

has been the answer in virtually every other large western economy and has successfully brought increased coverage and competition to countries including the US, Canada, New Zealand, Spain and France." He said the status quo clearly isn't good enough for regional Australia: "If domestic roaming isn't the answer, what is? While the ACCC refers to some alternative measures, such as more information on coverage and investment, these have already been in place for some time and have failed to deliver the coverage regional areas need." Lloyd noted the final decision is particularly disappointing given the federal court hasn't handed down its ruling as to whether the ACCC inquiry was carried out properly and in line with the law: "Given that the federal court decision is imminent, it is curious that the ACCC has chosen to sidestep the court." Market leader Telstra and number two Optus welcomed the decision.

STC Wins Award for Best Wholesale Operator in the Middle East

STC took part in the European conference for international capacities 'Capacity Europe2017' that was held in London where Saudi Telecom represented by Wholesale sector won the award for best operator for wholesale services in the Middle East. This award is considered one of the international awards in this domain in the Middle East region where it is awarded through the process of nomination and differentiation between distinguished operators each year. The award was received by Dr. Homoud M. Alkussayer, STC Wholesale VP after his participation in one of the panel discussions of the conference that discussed the strategic issues for telecom services and the agreement to grow in wholesale field and with the most modern infra-structure. Winning the award affirms the company's leading role in the area of wholesale services on the local, regional and international levels making its main successes in this area this year as a continuation of its previous successes.

Gambia Looking at Full International Gateway Liberalization Next Year

According to Gambia's Minister of Information and Communications Infrastructure Demba Jawo – quoted by The Point newspaper – the government is aiming to 'fully liberalize' the country's international telecoms gateway, with a final decision on the proposed move expected by January 2018, when the current six-month gateway management term of state-owned Gamtel expires. Previously, alternative operators were given rights to operate their own international data links, but the voice

gateway has remained a monopoly of Gamtel, which took over direct running of the operation from intermediary provider MGI in July 2017. Minister Jawo was also quoted as saying that the ICT Agency Bill has been drafted and will be presented to the National Assembly for adoption 'before the end of the year', enabling the establishment of the National ICT Agency in line with government strategy to 'enhance coordination of activities in the sector'. Jawo also noted that the government via Gamtel is set to

implement the National Broadband Network (NBN) project, following the successful implementation of the related ECOWAN Project, with further fiber-optic rollouts aimed at reducing the digital divide. The minister added that the project also seeks to 'address the last mile connectivity issues in the country', and furthermore involves establishing a data center for the government. Project costs will run into USD25 million to be financed as a concessionary loan from EXIMBANK.

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LEADING
new
ICT IN SMART CITY

ARTICLE

5G in Kuwait, Hype or a Real Need

Trevor Liu
Chief Executive Officer
Huawei Technologies

In the last 20 years, as part of the rapid ICT development, we have witnessed a major evolution of Mobile broadband services started at 2G, grew with 3G, and diversified in 4G, and now we are talking about 5G.

Though 5G is still considered as a 'buzz' word for consumers, the industry has been busy in getting ready for this new era, 3GPP is aiming to have full 5G standards developed in next two years, globally operators are conducting 5G trails with major vendors, it is one of the key strategies high on mobile operators agenda globally.

5G will unleash huge business potential for carriers and great benefits to Kuwait Economy. Leveraging existing Huawei infrastructure we will ensure smooth transition from 4.5 G to 5G.

Yet, when discuss the 5G with leaders and decision makers in Kuwait, many concern about the real value 5G would bring to people, operators, and even on to Kuwait as a nation. Many believe that 4G is already satisfying immediate consumers and businesses needs in terms of services and experience, the 5G use cases like self-driving cars, or AR (augmented reality) could only be considered in the long term, and there are lack of factors and numbers to justify the huge investment that is required for 5G, Shall Kuwait be an early adopter?

From Kuwait market situation, operators and consumers behaviors, we believe 5G can bring great value to Kuwait, here is why:

Consumer always ask for more: looking into network data , the total data traffic in Kuwait increased by 10 folds from 2011 to 2016 , the average Kuwait LTE DOU (Data of use) is reaching 50GB per month which is far above from worldwide average. Yet , customers are asking for higher speed, the bar is raising higher and higher, a user is expecting to see HD video without buffering in the busy hour, which is a major challenge on 4G. Only in 5G, with introduction of 10 Gbps per site concept which will radically solve this bottleneck and give operators a competitive edge.

Pay TV & VOD Services : IPTV based PayTV and VOD services are considered as a main new revenue source by operators globally. Compared to Saudi , UAE , or Qatar where IPTV offerings is reaching maturity level, Kuwait has much lower IPTV penetration rate, this is largely due to lack of fibre infrastructure in Kuwait. Even if 100% fiber coverage done in Kuwait, operators will still have the challenge to route fibre installations inside the building adding the cost and time. These obstacles position 5G as an attractive technology choice: with fiber is only needed to reach wireless site, then homes could be targeted by 5G , or what Huawei name WTTX, imagine that we just need a 5G router to enjoy Gbps

> **… Enterprise services in Kuwait have great growth potential, whether it's enterprise communication, CCTV, cloud services or IoT Services, businesses increasingly rely on the ICT technologies to help them ensuring quality, stability, and efficiency and continuity in the business…**

speeds , without the hassle to plan fiber installations! Similar services also could be considered like Cloud CCTV Video surveillance with new MOI regulations boosting adoption on massive scale, or VOD apps that are growing at an impressive rate, welcome to 4k-8K wireless era!

Enterprise services: Enterprise services in Kuwait have great growth potential, whether it's enterprise communication, CCTV, cloud services or IoT Services, businesses increasingly rely on the ICT technologies to help them ensuring quality, stability, and efficiency and continuity in the business, many of the connectivity requirement beyond 4G's capability, and the alternative solution fiber or microwave present entrain limitations such as cost of fiber reach. Here we find that 5G makes perfect sense as technology choice, guaranteed speed ensured due high site capacity, cost effective as we avoid on premises expensive terminals, fast deployment as no bulky microwave/fiber installations.

New Kuwait : His highness Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah set the NewKuwait 2035 vision , a major pillar of this vision is to have a modernized Kuwait, evolve to Smart cities. MEW smart grid/metering and smart government projects are great examples of immediate needs that could be served better with

> **… His highness Amir Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah set the NewKuwait 2035 vision , a major pillar of this vision is to have a modernized Kuwait, evolve to Smart cities…**

5G, adding to many other smart city use cases, the potential is just endless.

These are just some examples of 5G use cases that needed now, with the huge potentials in 5G, there are more use cases we don't foreseen now, will be enabled and gaining popularity. This has happened in 4G, many services we use today such as, YouTube, Instagram, face book live or Snapchat sage, whose development and popularity were not envisaged prior to 4G roll out.

5G will unleash huge business potential for carriers and great benefits to Kuwait Economy. Leveraging existing Huawei infrastructure we will ensure smooth transition from 4.5 G to 5G. Together with Kuwait government, business and industry leaders, Huawei looks forward to making 5G a reality in Kuwait, and who knows, maybe in 5 years we will not need a driving license … 🍃

TECHNOLOGY NEWS

Ericsson and Telstra Claim World's First 5G Data Call Using 26GHz Spectrum

Ericsson has announced what it termed a 'key step in the advancement of 5G global development', revealing that in partnership with Australian mobile network operator (MNO) Telstra it has completed what it claims is the world's first 5G data call using 26GHz millimeter-wave (mmWave) spectrum. In a press release announcing the development, Ericsson noted that, using the MNO's production core network, it represented the first time the 26GHz band had been

used in the field, with the 5G data call demonstration said to be the first in what will be a series of trials at a new 5G testing center Telstra has established on the Gold Coast. Commenting on the matter, Mike Wright, Telstra Group Managing Director, Networks, was cited as saying: '5G will mean we can use more and different spectrum bands to deliver faster speeds, more capacity and lower latency to our customers … We will conduct further tests with Ericsson to gain further insights

into how mmWave 5G can be scaled and integrated into commercial mobile networks, as well as work with Australian industries to help them unlock future benefits and use cases based on 5G technology.' To that end, it was noted that Telstra and Ericsson will trial associated 3GPP technologies at the Gold Coast testing center, including MIMO antenna with adaptive beamforming and beam tracking techniques and OFDM-based waveforms.

Intel Introduces Family of 5G NR Multimode Commercial Modems

Intel introduced the Intel XMM 8000 series, its family of 5G New Radio (5G NR) multimode commercial modems and said it has successfully completed a full end-to-end 5G call based on its early 5G silicon, the Intel 5G Modem. Intel also said that the XMM 7560 modem unveiled at Mobile World Congress 2017 has achieved gigabit-class speeds. Announced at CES 2017, Intel's early 5G silicon is already making calls over the 28 GHz band, according to Alex Quach, vice president of the Network Platforms Group and General Manager of 5G Strategy and Program Office. Profound changes are taking place in networks in order for 5G to become a reality, he added. Intel has been a key contributor to the SDN/NFV ecosystem and it's seen more than 160 NFV deployments across the world in 2017, and Quach said that will accelerate. The company has also been working with leading service providers around the

world on fixed trials ahead of the rollout of 5G. The Intel XMM 8000 series represents Intel's family of commercial 5G multimode modems, operating in both sub-6 GHz and millimeter wave global spectrum bands. This series will enable a range of devices to connect to 5G networks—from PCs and phones to fixed wireless consumer premise equipment (CPE) and vehicles. Intel said that its first commercial 5G modem, the XMM 8060, is capable of delivering multimode support for the full 5G non standalone and standalone NR, as well as various 2G, 3G (including CDMA) and 4G legacy modes. It's expected to ship in commercial customer devices in mid-2019. Intel also announced the Intel XMM 7660 modem, which delivers Cat-19 capabilities and supports speeds up to 1.6 gigabits per second. The modem features advanced MIMO, carrier aggregation and support for a range of bands. It will ship in commercial devices
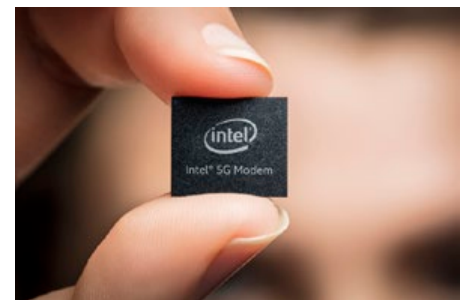
in 2019. Of course, it's worth noting that Intel rival Qualcomm Technologies back in February cited as a key milestone its first successful 5G connection based on the NR work in 3GPP. The connection, which was completed using a 5G NR prototype system capable of operating at 3.3 GHz to 5.0 GHz, demonstrated how advanced 5G NR technologies can be used to efficiently achieve multigigabit-per-second data rates at significantly lower latency than today's LTE networks.

Italy Claims European Lead in 5G Development

An Italian government Minister says the country is a year ahead of the rest of Europe in terms of the development of 5G wireless technologies. Antonello Giacomelli, Under Secretary of State for the Ministry of Economic Development, says trial networks are expected to be up

and running in a number of Italian cities by mid-2018, with wider rollouts taking place during 2019. The Minister was speaking at a presentation by Telecom Italia, Fastweb and Huawei, who together are rolling out 5G trial networks in Bari and Matera using 3.6GHz-3.8GHz spectrum.

The government has also granted permission for other Italian telcos to test 5G systems, including Vodafone in Milan and a venture involving Open Fiber and Wind-Tre covering Prato and L'Aquila.
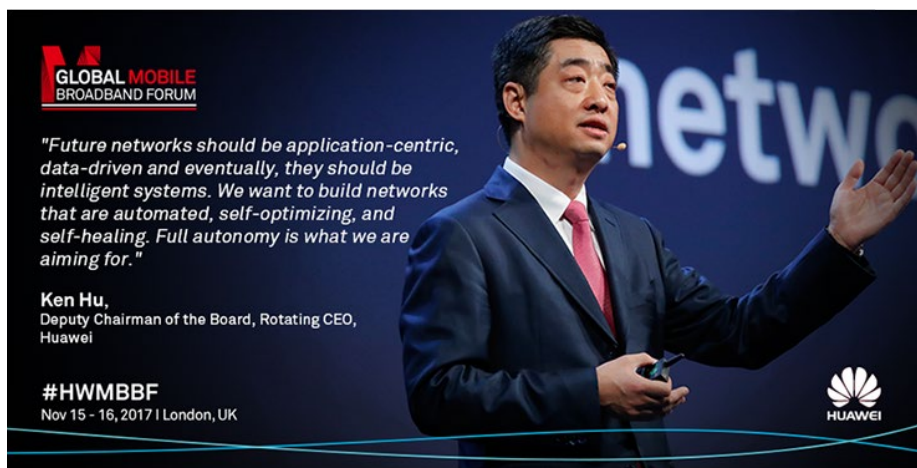
CBRS Alliance, WISPA Team Up to Advance 3.5 GHz Ecosystem

It's full steam ahead for the Wireless Internet Service Providers Association (WISPA) and the CBRS Alliance. The two signed an agreement to cooperate closely in the advancement of the Citizens Broadband Radio Service (CBRS) spectrum band, even though some of their members were on opposite sides of the fence ahead of proposed new 3.5 GHz rules. Under their agreement, the organizations will work together to address technical challenges and business opportunities in the 3550-3700 MHz band. Activities under consideration include collaboration on standards, testing and certification of equipment and holding joint workshops and meetings. The two groups also plan to share roadmaps and planning schedules, as well as nominate members to sit on committees of mutual interest. The whole idea is to reduce redundant efforts, create better end products and accelerate commercialization of the CBRS band.

"Members of WISPA and many other businesses and nonprofit organizations are making substantial investments in this band, and are strongly committed to further commercialization," said WISPA President Chuck Hogg in a press release. "The FCC's current policy framework is an excellent opportunity to bring state-of-the-art broadband services to unserved and under-served parts of America." "More than 50 companies from a broad range of wireless industry sectors have joined the CBRS band," said Michael Peeters, president of the CBRS Alliance and head of innovation portfolio management at Nokia, in the release "We're looking forward to exploring ways to coordinate our common interests in the CBRS band and maximize cooperation on services offered both by members of the Alliance and WISPA." The CBRS Alliance has been steadily growing since it was founded by six companies (Federated Wireless, Google, Intel, Nokia,

Qualcomm and Ruckus Wireless) back in August 2016. Ericsson has since joined as a sponsor member, and all four of the biggest U.S. operators are members. WISPA, in contrast, has more than 800 members that include smaller WISPs that serve mainly rural or less populated areas. CTIA is a board member of the CBRS Alliance and was pleased that the FCC voted last month to seek changes in the 3.5 GHz band rules—changes that WISPA had opposed in part because its members had already made significant investments in the band based on rules that were initially agreed upon about two years ago. At the time of the vote, Hogg said WISPA was very disappointed that the FCC was prioritizing the "wants" of the mobile industry over the "needs" of rural Americans," but he also indicated WISPA was ready to move on, so the deal with the CBRS Alliance isn't totally out of the blue.

IoT Will Be a Cash Cow for Carriers

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"Future networks should be application-centric, data-driven and eventually, they should be intelligent systems. We want to build networks that are automated, self-optimizing, and self-healing. Full autonomy is what we are aiming for."

Ken Hu,
Deputy Chairman of the Board, Rotating CEO,
Huawei

#HWMBBF
Nov 15 - 16, 2017 I London, UK

Telecoms operators will need to think creatively as they go in search of their next billion subscribers, which could well be bovine rather than human and could bring in sizeable revenue streams, according to Huawei. The Internet of Things (IoT) will open up new opportunities for carriers to sell enhanced data services to a wide range of new subscribers, Huawei's deputy chairman and rotating CEO Ken Hu said at the Chinese vendor's Global Mobile Broadband Forum in London. In

north-western China dairy farmers are using smart collar technology to track everything from the grazing habits of their herds to the specific body temperature of individual cows. In doing so they are dramatically increasing milk yields and raising profitability, Hu explained. "Every cow can now generate an additional US$420 per year, that's a 50% increase for the dairy farmers. But there is money for the carriers too. Every connected cow is a new subscriber," he said. In this

scenario, carriers could sell everything to the farmers, from the collar itself to the data connection and the data analytics services. "This solution can bring in $10 per cow, per year [for the carrier]. A connected cow is a cash cow," said Hu. 1 million cows were used in an initial trial but there is huge potential for carriers to "scale up and scale out" from this model, Hu said. In the U.S. alone there are an estimated 100 million head of cattle. "Globally, this is a big business with 1 billion potential new subscribers at $10 per head," said Hu. And the opportunity for carriers to monetize the provision of data services through their IoT service offerings is not limited to the agricultural sector. "This is just one of the many opportunities out there. There are 20 million shipping containers in the world and there are 100 million new bicycles manufactured every year. There are 300 million LED street lamps and 1.8 billion water meters throughout the world. The opportunities are everywhere; the only limitation is our imagination," Hu said.

DOCOMO, Huawei Claim 'World First' with Outdoor 5G Trial

Japan's largest mobile operator by subscribers and revenue, NTT DOCOMO, and Chinese ICT solutions provider Huawei Technologies have announced a 'significant field trial milestone', completing the world's first 5G Ultra-Reliable and Low-Latency Communication (URLLC) field trial in the 4.5GHz frequency band (C-Band), using a new radio interface of similar features such as 3GPP 5G New Radio (NR) air-interface. The pair say the field trials demonstrate that 'the current 5G trial system over 4.5GHz can meet the performance requirements for URLLC as defined by the International Telecommunication Union – Radio Communication Sector (ITU-R),' and will pave the way for a widespread deployment of macro cell sites to support URLLC and the creation of a 'solid foundation for the extensive application of 5G NR across various vertical industries'. The 5G URLLC trial was conducted in Minato Mirai 21 District, in Yokohama city.

5G: The Beginning of the End for Telcos

5G will be the end of the line for many telecoms operators. You wouldn't think so, given the hype around the next generation of mobile technology from the operator community, but the fact is that 5G will change the landscape of the industry so much that telcos will be caught with their pants down, if they don't act soon to evolve their businesses. 5G represents "a new hope," for telcos who gave away their competitive advantage in the HSPA world and failed to capitalize on the promise of 4G, opening the way for competing providers, Veon's forward-thinking group CTO Yogesh Malik said during a panel session at Total Telecom Congress this week. But Malik cautioned that operators must make sure they get the most out of 5G, rather than merely focusing on data bundle pricing, a position many telcos find themselves in at present. The nature of 5G means network-sharing is now front of mind for many operators, which shifts the focus of differentiation to services from infrastructure. 5G will bring significant network densification, although opinion on how many small cells any one area will require still varies wildly. One operator predicts the London area will need half a million, while others estimate somewhere around 40,000-50,000, explained Bryn Jones, CTO at 3UK, sitting on the same panel. "We need to work together," Jones said, because it is not possible for all the mobile networks in operation today to densify. Indeed, 5G could lead us much closer to a world in which one wholesale player operates

the network and the retail telcos rent capacity on it. That frees up telcos to focus on services, but for many, such a world would leave them hugely exposed, since the advantage in services is for the most part with the over-the-top (OTT) players. All telcos talk a good game. The vast majority insist they are transforming into digital service providers and putting themselves at the center of customers' digital lives. To digress only slightly, use of the word 'digital' is "lazy...[since] networks have been digital for 30-40 years," and 'OTT' is an "ignorant" choice of terminology, given that the so-called OTT players have rolled out "more proper technology than most telcos," said Dean Bubley, founder of Disruptive Analysis. That's a story for another day, but telcos would do well to take heed of Bubley's insistence on the importance of choosing one's words carefully, because to my mind, many of today's operators talk a good game, but haven't the substance to back up their claims.It's much like the fact that you would be hard pressed to find a telco that doesn't claim to put its customers at the center of everything it does. Yet for many, this means little more than the appointment of a handful of new customer service staff or investment in a customer-centric ad campaign. They are just telling us what we want to hear. I'm disinclined to get into a customer service rant at this juncture, but the point is that many telcos do not have the types of services that are so compelling as to attract paying customers, once

you decouple them from the network. They are still selling data bundles so that customers can stream music from Spotify, engage in group messaging on WhatsApp, and while away the afternoon watching box sets on Netflix. They are hiding behind the network and once you take that away, there's not a lot left. There are, of course, notable exceptions.

Turkcell is right up there. The Turkish operator's chief executive Kaan Terzioglu made quite an impression at Total Telecom Congress when he shared his company's approach to capturing the service opportunity. Amongst other things, the telco has launched messaging platform BiP, a direct competitor to WhatsApp that has signed up 16 million users, and a music platform that is three times bigger than Spotify in Turkey. Most interestingly, it considers these offerings its core services, and bundles voice and data in with them, rather than the other way round. There are clearly some local market characteristics at play there that would not necessarily apply elsewhere, but it's certainly food for thought. "The most important thing is 5G now," said Turkcell's director of digital media services Baris Zavaroglu. 5G is a highway and the "vehicles are your tools to sell more data and make more profit," he said. That seems a straightforward enough statement, but it encapsulates an innovative approach: Turkcell is pushing content-based services to encourage data usage, when most operators sell

customers a data bundle for a lower price than they would like, then complain when the customers use that data to access competing OTT (sorry, Dean!) services. For some operators, it is the customer data generated by the network that will be key to future growth. Veon's Malik notes that telcos have neglected technology, and relied instead on innovation from elsewhere. CTOs in general "have done OK, but not good," he admitted. Telcos now need to identify their key areas of focus, he advised, "To own everything is impossible," he said. "Data engineering is one of the technologies we want to own at Veon." Telcos might have taken their eyes off the ball in recent years, but some are now looking to foster innovation as a way to future-proof their own businesses. Zain Jordan is one of a number to have launched a scheme to back start-up companies with a view to getting in on the ground floor with the next big thing. In 2014 Zain launched ZINC, or the Zain Innovation Campus, which enables it to work with start-ups in a way that traditional telcos cannot. "Survival is only for those who are the most adaptive," declared Zain Jordan chief executive Ahmad Hanandeh. Japan's Softbank has a similar vision. While market-watchers

obsess over whether it will agree to merge its U.S. mobile operation Sprint with T-Mobile US (you can find all the latest on that story on Total Telecom) the telco is building up a sizeable venture capital fund to invest in tech firms worldwide. It launched the Softbank Vision Fund a year ago with a view to raising US$100 billion and has to date reached $93 billion. The VC route is not for everyone. Another tack telcos can take is to move into adjacent industries, using the strength of their brand and customer base to tap new revenue streams. Orange Bank opened for business this week. Orange has extensive experience in mobile financial services in Africa that it hopes to lean on in Europe. It will face an uphill challenge - "being a bank is actually tough," said Arnaud Burger, managing director, global co-head of TMT finance at Societe Generale – but it brings with it an opportunity. "It could possibly be differentiating," said Laurence Hainault, managing director, head of EMEA telecoms at Credit Suisse. Content is perhaps a more natural fit for telcos though, but that can be an expensive business. U.K. incumbent BT has made a big play for sports rights for its TV service in recent years and has established itself as a credible player in

that market, but at a price. BT published its fiscal Q2 numbers on Thursday which showed a 4% decline in earnings in no small part due to its investment in sports rights. BT's Italian peer TIM is in the process of being transformed into a media company by major shareholder Vivendi, and has agreed to form a joint venture with sister company Canal+ with the goal of creating compelling content that will stimulate demand for fiber. The Italian government is not best pleased with Vivendi's influence at TIM – to simplify a rather complex story – and has exercised its golden power to protect national interests, something TIM agreed to comply with on Thursday. For now, TIM gets to keep its network, but Rome has imposed a number of controls on it. But for every BT and TIM, there are numerous other operators blowing hot air about their "digital services" that amount to little more than me-too TV offerings or bundling something like Spotify in with a monthly data subscription. These operators will be caught swimming naked when the tide goes out, to borrow an expression from someone who knows a thing or two about spotting opportunities and turning them into dollars.

Qualcomm Performs 5G Test on First 5G Smartphone

Qualcomm has successfully achieved a 5G data connection on a 5G modem chipset for mobile devices in San Diego. Qualcomm was working on 5G technology for a long time and has finally developed Snapdragon X50 5G modem chipset which delivered gigabit speeds and a data connection in the 28GHz mmWave radio frequency band. Now it seems that 5G enabled mobile devices will start to roll out in the market soon. Qualcomm also previewed its first 5G smartphone, the smartphone in the image is Qualcomm's first mmWave 5G reference design which is designed to test and optimize 5G mmWave performance within the constraints of a mobile form factor. An employee of Qualcomm also shared an image of the smartphone on Twitter. His tweet states-"Hard to believe that I have the world's first 5G smartphone in my hand!" The company stated that they established a 5G

connection with greater than gigabit per second download speeds using multiple 5G carriers and were also able to establish an over-the-air connection using our tiny 28 GHz mmWave antenna module. According to Qualcomm, the Snapdragon X50 5G NR modem family will be supporting commercial launches of 5G smartphones and networks in the first half of 2019. "Achieving the world's first announced 5G data connection with the Snapdragon X50 5G modem chipset on 28GHz mmWave spectrum is truly a testament to Qualcomm Technologies' leadership in 5G and extensive expertise in mobile connectivity," said Cristiano Amon, Executive Vice President, Qualcomm Technologies, Inc. and president, QCT. "This major milestone and our 5G smartphone reference design showcase how Qualcomm Technologies is driving 5G NR in mobile devices to enhance mobile broadband experiences for consumers around the world."

DOCOMO and MediaTek Announce Successful 5G Trial Using NOMA Device

Japan's largest mobile operator by subscribers, NTT DOCOMO announced that in a joint trial conducted with MediaTek it has successfully developed a chipset to increase the spectral efficiency of mobile devices by up to 2.3 times compared to existing LTE technology. The press release confirms that the vendor's chipset 'combines DOCOMO's non-orthogonal multiple access (NOMA) radio access technology and MediaTek's multi-user interference cancellation (MUIC) technology, which is required to achieve NOMA. The radio access technology multiplexes signals at a base station transmitter to leverage the increased signal processing capacity of user devices and cancel interference among multiplexed user signals. MUIC removes interference from other users when a base station transmits a signal to several users simultaneously. The trial – which comprised three smartphone-sized devices embedded with the chipsets, each placed in a different location – resulted in up to 2.3 times greater spectral efficiency than that of single-user Multi Input Multi Output (MIMO).

KDDI to Launch Software-Defined Network Platform

Japanese group KDDI has revealed plans to switch on a software-defined network (SDN) platform for its corporate customers, starting 5 December 2017. In a press release, the telco says it will begin offering its SDN-based 'KDDI SD-Network Platform' solution to corporate customers in 37 countries – including Japan, Taiwan, South Korea, Hong Kong, Singapore, Thailand, Malaysia,

Philippines, Indonesia, Vietnam, Mongolia, Myanmar, India and Australia – and regions. The platform is designed to alleviate congestion and help enterprises cope with surging data traffic growth by allowing branch officers to establish a direct internet connection between particular applications and cloud services. The service uses virtualization technology from Versa Networks including the vendor's Cloud IP Platform and SD-WAN and SD-Security solutions. These offer functions including multipath control, segmentation and a next generation firewall, it says. Customers will be able select and dynamically change the package of product features being consumed depending on their situation and quickly deploy the offering on an existing VPN service and internet connection. Furthermore, KDDI will also launch its KDDI Security Cloud service, which it claims improves the level of security when using cloud services.
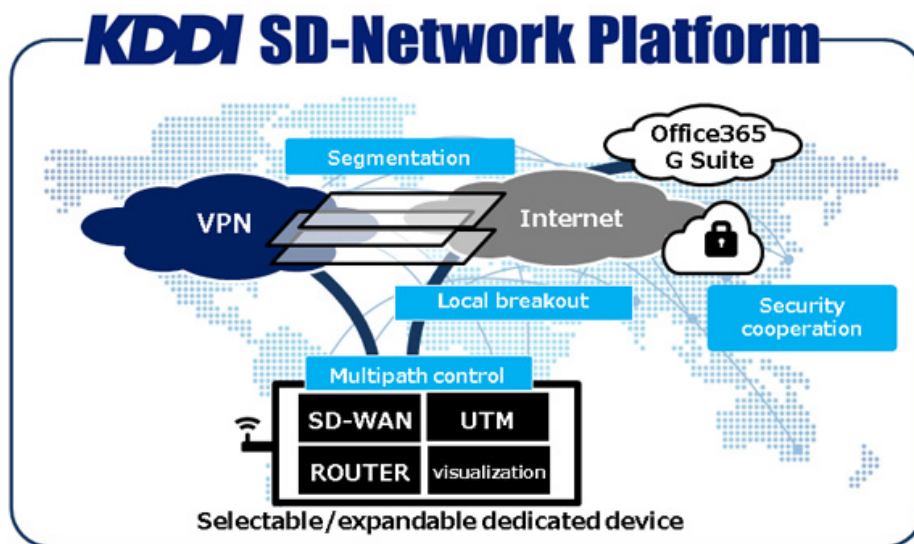
Vodafone Turkey Tests 3.5GHz Spectrum, on the Path to 5G

Vodafone Turkey has claimed a national first by testing the coverage and performance of the 3.5GHz spectrum band on its existing '4.5G' LTE mobile network under the Technology City project in Istanbul, it announced in a press release, adding that the 3.5GHz band is 'the most suitable band to meet the high data needs of 5G technology in terms of coverage and speed'. The tests in partnership with Huawei used 3.5GHz TDD spectrum with commercial antennae and other radio equipment supporting 4×4 MIMO technology, achieving mobile data speeds up to 185Mbps. Four 20MHz TDD blocks were utilized. Mallik Rao, Vice President (Technology) at Vodafone Turkey, said: 'We are continuing our efforts to develop the 4.5G network and to prepare for the 5G technology with the aim of bringing this global experience to Turkey as well. We previously tested the 700MHz band which is very important for reaching roads and rural areas through the existing 4.5G network in Turkey. We used multi-antenna technology for the first time in Euroleague Basketball Quarter Final matches and now we are the first to test 3.5GHz spectrum band in Turkey with commercial equipment and terminals, especially in urban centers, which will benefit the [high] subscriber and data traffic areas.'

Verizon and Ericsson Partner to Deploy Massive MIMO

Verizon and Ericsson have announced the completion of their first deployment of FDD Massive MIMO on the US cellco's network in Irvine, California. The deployment involves 16 transceiver radio units driving an array of 96 antenna elements supplied by Ericsson, and utilizes a 20MHz block of AWS spectrum.

For customers, Verizon says the result will be higher and more consistent speeds for using apps and uploading and downloading files. 'Massive MIMO is a key technology enabler for 5G, but already today, 4G LTE service providers and end users can benefit from the superior capacity and network performance

this technology enables,' commented Niklas Heuveldop, Head of Market Area North America at Ericsson, adding: 'The current trial is an important step in the collaboration we have with Verizon to prepare their network for 5G.'

Huawei Joins Intel in 5G Collaboration on NR Based Interoperability Development Testing

Huawei partnered with Intel to launch 3GPP 5G New Radio (NR) based Interoperability Development Testing (IODT) to verify 5G technologies and their degree of maturity. Based on Huawei's 5G base station prototype and Intel's

3rd Generation 5G Mobile Trial Platform (MTP), both companies will jointly verify performance of key 5G NR technologies at sub-6GHz including C-Band, mmWave and mobility. The companies will conduct tests in real mobile with over

the air environments directly connecting Huawei's infrastructure and Intel's terminal platform. Huawei and Intel will work closely to accelerate the era of 5G.

How 5G Will Affect the Internet of Things?

The Internet of Things (IoT) is at the heart of modern big data. It's what allows companies, and even cities, to collect endless quantities of information with minimal effort – and to act on that information, monetizing it, basing decisions on user data. Right now, though, IoT is on the edge of change because there's a new kid on the scene: 5G connectivity. 5G has the potential to seriously change IoT capabilities and the data that stems from it.

Expanding Options
5G's predecessors – 3G and 4G – were popularized by Apple to support apps, video content, and other activities requiring high-speed internet connectivity – and has brought us to our current moment. Now phones act like computers and the competition for the next cutting edge innovation is stiffer than ever. 5G is that next landmark, with the promise of connections 50 to 100 times faster than currently available with 4G LTE wireless. As of this writing, 5G wireless technology is not yet ready to launch but the competition to bring it to market is stiff. Some reports suggest that the final guidelines for 5G networks won't be approved until

2020 but T-Mobile plans to release 5G for their phone plans, currently offering widespread 4G LTE service, in the near future. Consumers can rest assured that other brands will follow closely on the heels of T-Mobile – the stakes are too high. With 5G on the horizon, IoT developers are hard at work on new classes of products, some barely imaginable in today's world. In particular, the advancement of digital assistant technology in recent years is liable to come together with 5G connectivity capabilities in exciting ways. One item many companies have been experimenting with in the last few years is the mirror. Smart mirrors today can do things like display the time and weather or maybe show your schedule by synchronizing with another device. In the age of 5G, smart mirrors will turn on the car or the oven, project representations of possible outfits, and ping information between an arrays of diverse devices. It's also predicted that its connectivity will enable an added degree of human intelligence powered by neuroscience-based algorithms. Right now, neural network-style technology is restricted to series servers and have to be carefully programmed in order to pick up new information. With it,

the neural network will live in your phone or your table, the oven or the mirror. And companies will have to find the best ways to extract that information because there will be an overwhelming quantity of it.

Preparing For 5G
As with past IoT advances, the rise of 5G will demand serious adjustments on the part of big data groups. To begin with, greater quantities of data will require infrastructural upgrades as well as an increased number of highly capable analysts. With so much incoming data, the ability to pull quality data from the deluge is going to be more necessary than ever. Companies that want to take advantage of 5G-driven data should also begin developing new mobile solutions to pair with IoT devices and honed to their particular brand angle. If companies don't start out ahead in terms of apps and cloud capability, they'll quickly find themselves behind. No one can say right now just how far down the road 5G connectivity is, but let's just assume it's on the horizon – and will be in hand soon. And once 5G gets the stamp of approval, expect it to be everywhere. Can your data system handle it?

EE Achieves 2.8Gbps Downlink Speeds in End-to-End 5G Test

British mobile network operator (MNO) EE, which is part of BT Group, has demonstrated 2.8Gbps download speeds across an end-to-end 5G test network in its UK mobile lab, having carried out what it called a 'breakthrough test' in partnership with Huawei. In the trial, the cellco said it had linked a fully virtualized 5G core network to 100MHz of 3.5GHz test spectrum via a 64×64 Massive MIMO active antenna unit provided by the Chinese vendor. It noted that the consistent 2.8Gbps speeds and sub 5ms latency had been delivered end-to-end, rather than just across the air interface. Commenting on the development, Tom Bennett, EE Director of Network Services & Devices, said: 'We're using our experience in cutting edge 4G technologies and our dedicated partnership approach to ensure technology leadership in 5G. The network architecture we've proven today is a huge step forward, and will drive our ambitious rollout timetable to be first for 5G.'

US Cellular and Ericsson Trial 5G at 28GHz

US Cellular, the fifth largest wireless operator in the US by subscribers, has completed 5G trials using the 28GHz frequency band in conjunction with Ericsson. The trials, which were carried out in Madison, Wisconsin, were conducted under a variety of real-world conditions, and achieved peak throughput speed of 8.5Gbps. In addition, tests of virtual reality equipment achieved peak speeds of 4Gbps. The companies also tested augmented reality, advanced beamforming and Massive MIMO functionality. The live over-the-air trials expanded on 5G trials between the two companies in 2016 that achieved 9Gbps speeds at 15GHz.

Telefonica Trials Plastic Optical Fiber and 60 GHz Wi-Fi

Spanish telco Telefonica has tested plastic optical fiber (POF) and 60 GHz Wi-Fi technologies in partnership with Spanish chipset manufacturer KDPOF. According to Telefonica, the POF solution is cheaper, quicker and simpler to install than glass-based fiber, and is capable of providing download speeds of up to 1Gbps to end-users. The operator added that existing pipelines in the home can be used for the installation without any risk, and that the system is 'immune' to interference. Telefonica trialed the technology in 30 homes, using a hybrid POF network combined with Wi-Fi and a smart Wi-Fi amplifier. The operator also tested 60 GHz Wi-Fi technology, with a theoretical maximum data transfer rate of 4.6Gbps. Telefonica noted in its press release: 'This new technology has various scopes of application, including rapid content download, high-quality video streaming without decompression, wireless docking and virtual reality device connectivity.'
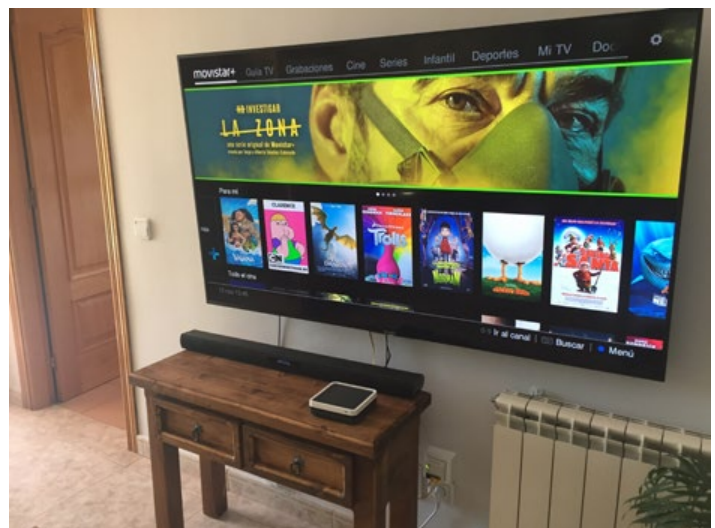
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REGULATORY NEWS

FCC to Vote on Net Neutrality

The U.S. Federal Communications Commission (FCC) will vote on whether to kill off net neutrality on December 15. This is according to sources cited by Bloomberg late on Thursday, who claimed that the regulator will propose to keep only the portion of the 2015 Open Internet Order that requires telcos to

inform customers of their traffic management practices. FCC Chairman Ajit Pai, who was voted in for another five years in October, has made no secret of his opposition to regulating ISPs as common carriers under Title II of the Communications Act. In April, he proposed re-categorizing ISPs as information services, subjecting them to lighter-touch regulation. Such a move would prove popular with broadband providers, which claim that Title II regulations are unnecessary for preserving a free and open Internet, and have discouraged investment in new networks. Meanwhile, supporters of net neutrality dispute these claims, arguing that the rules have not damaged investment, and are sorely needed in order to stop the likes of AT&T, which has expanded aggressively into video, from favoring its own online content services over those offered by rivals. Whatever arguments are proffered ahead of the alleged vote in December, Pai is likely to get his way, given he leads a Republican majority of commissioners at the FCC.

FCC Wireless Chief Urges Regulation Cut for 5G Success

Reducing unnecessary regulation and finding ways to free up more spectrum are vital to meet the demands of 5G, noted US Federal Communications Commission (FCC) chief of wireless Donald Stockdale. After talking-up the results of the FCC's well-publicized incentive auction, which redistributed broadcast spectrum for wireless use, he implored regulators around the world to take similar measures to ensure the bandwidth needed would be available. "Because much of [the necessary] spectrum may have been allocated and assigned to other uses in some countries, making more spectrum available may prove

challenging," Stockdale said. "Regulators will need sufficient mechanisms to induce incumbent licensees to give up their spectrum or relocate," he added, stating where this was impossible, policies to share spectrum between industries should be explored. In addition to increasing spectrum availability, he pointed to the need for light touch regulation in both the fixed and wireless sectors, a regular theme of the FCC under Chairman Ajit Pai. "Wireline and wireless broadband offers huge benefits to consumers and businesses, but broadband also poses challenges to regulators," he told the audience. "Among

other things, going forward regulators will need to eliminate unnecessary regulation to encourage private investment, provide efficient support for broadband deployment in unserved or underserved areas and make available significantly more spectrum for flexible use so society can fully benefit from the potential of 5G."

EU Members Aim for End-2018 Completion of Digital Single Market Legislation

EU members have agreed further coordination in spectrum policy is needed in order to ensure the path to 5G mobile networks, the EU rotating

presidency Estonia announced following a meeting of EU telecom ministers. The first talks with the European Parliament and Commission on finalizing the new

Electronic Communications Code will start on October 25.

UIDAI Approves New Re-Verification Methods as Deadline Nears

The Unique Identification Authority of India (UIDAI) has approved plans to enable customers to re-verify their SIM cards with its Aadhaar system – a unique twelve-digit identity number linked to citizen's biometric and demographic data – without having to go in-person to one of their provider's retail outlets, as part of efforts to ensure that subscribers can complete the process before the 8 February 2018 deadline. The Economic Times writes that from 1 December users will be able to complete the re-verification process using a one-time password (OTP), interactive voice response system

(IVRS) or through an application from their service provider. Subscribers that are not physically able to travel to complete the verification in store with a fingerprint scan – due to a disability or illness, for example – are entitled to a home visit from their provider, with the verification completed via an iris scan. In March this year the Department of Telecommunications (DoT) ordered the re-verification of the nation's cellular subscribers by linking customer accounts to the Aadhaar system following a Supreme Court order to that effect the previous month. Operators were given

a year to complete the process, but with the deadline rapidly approaching, the matter remains controversial. The Aadhaar system was initially made voluntary to assuage privacy concerns, but New Delhi has increasingly shifted towards requiring citizens to confirm their identity via Aadhaar for government or financial services. Indeed, earlier this month the head of the DoT said that mobile operators would not be required to deactivate unregistered accounts until the legality of the decision has been confirmed by the apex court.

Vodafone Tax Arbitration Hearing Scheduled for February 2019

Vodafone India's decade-long tax battle with the Indian government is scheduled to go to trial at an international arbitration tribunal in February 2019, the Economic times writes, citing a statement from the company's British parent group. New

Delhi claims that it is owed billions of dollars in taxes, interest and penalties from Vodafone Group's 2007 acquisition of a 67% stake in the cellco – the amount sought by the government has varied from demand to demand, ranging from INR79.9 billion (USD1.2 billion), to INR221 billion. In 2012 the Supreme Court had sided with Vodafone, ruling that the acquisition was not taxable in India. Later the same year, however, the government implemented the Finance Act 2012, changing the law to enable it to tax the transaction retrospectively. In 2014, Vodafone challenged the fresh demand under a Dutch-Indian bilateral

investment treaty (BIT), as the purchase had been carried out via a Netherlands-based subsidiary, Vodafone International Holdings BV (VIHBV). For its part, India has raised objections to the application of the treaty to Vodafone's claims, and disputes the jurisdiction of the tribunal under the BIT. The February 2019 hearing is set to assess the government's jurisdictional objections, as well as VIHBV's claim. Whilst awaiting international arbitration, however, India's tax authorities have continued to issue tax demands to the operator, threatening in early 2016 to confiscate the provider's assets if the sum is not paid.

EC Opens Investigation into Romanian Call Termination Rates

The EC has announced that it will conduct an in-depth investigation into the prices of wholesale voice call termination rates offered by Romanian fixed and mobile operators set by the country's regulator the National Authority for Management & Regulations (ANCOM). The current fixed and mobile termination rates were set by the ANCOM in February 2014, and the regulator wants to keep these prices, with a cap of EUR0.0096 (USD0.0112) per minute for mobile termination and EUR0.0014 per minute for fixed calls. This

proposal was subsequently challenged by Romanian telco RCS&RDS in October, when the company threatened legal action against the ANCOM if it did not reconsider its decision to freeze mobile and fixed termination rates, despite other dominant players in Romania – Orange, Vodafone and Telekom, supporting the watchdog's decision. RCS&RDS addressed the parliamentary committee on the matter, and now the EC has launched an investigation into the issue. The EC has noted that the proposed fixed

and mobile termination rates are not compliant with the Regulatory Framework and is concerned that Romania's rates are not following the price decrease trend generally found in other EU member states, with the EC fearing the gap between Romania's termination rates and the rest of the EU will continue to widen. The EC now has three months to discuss the matter with the ANCOM in order to find a solution.

SPRK Revokes Baltcom 2600MHz License, Plans Auction of 5G Spectrum

Latvian telecoms watchdog the Public Utilities Commission (Sabiedrisko Pakalpojumu Regulesanas Komisija [SPRK]) has cancelled the 2600MHz license of Baltcom 4G, a subsidiary of ISP Balcom, following the announcement of the former's closure on 28 September this year. In its decision, the SPRK noted that it had given Baltcom permission to transfer the license, which comprised 2×10MHz at 2560MHz-2570MHz/2680MHz-2690MHz, to its subsidiary in May 2016.

The permission was due to expire in December 2028. The SPRK has also announced that on November 27 it will be auctioning spectrum in the 3400MHz-3450MHz and 3650MHz-3700MHz bands for the provision of 5G services.

RCOM/SSTL Merger Gets Final Approval from DoT

India's Department of Telecommuni-cations (DoT) has approved the demerger of the wireless operations of Russian-owned Sistema Shyam TeleServices Limited (SSTL) into Reliance Communications (RCOM), finally clearing the long-awaited deal to proceed. RCOM confirmed the development in a press release, adding that it expects to close the transaction by early November. Under the deal, SSTL will transfer its wireless operations to RCOM in exchange for a 10% equity stake in the enlarged company. Through the merger RCOM will gain roughly two million subscribers and additional annual turnover of around INR7 billion (USD107 million). In addition, RCOM will take on SSTL's spectrum portfolio, comprising 30MHz in the 800MHz range and thereby extend the validity of its 800MHz concessions in eight circles – Delhi, Gujarat, Tamil Nadu, Karnataka, Kerala, Kolkata, Uttar Pradesh West and West Bengal – by twelve years, from 2021 to 2033. RCOM will, however, also be liable for the remaining spectrum payments to the DoT, totaling INR3.9 billion per year for the next eight years. Whilst the consolidation will help shore up RCOM's worsening position in India's extremely competitive wireless market, it will do little to soften the blow of losing out on the other side of its three-way merger plan. The cellco had also planned to combine its operations with those of Aircel, to form 'Aircom' – the merged operator would control around 15% of the segment and rank third behind Bharti Airtel and a merged Idea Cellular/Vodafone – but the deal was scrapped earlier this month amidst regulatory uncertainty. RCOM had been banking on the transaction to help reduce its debt burden from its current level of around INR450 billion. Making matters worse for the group, the Financial Express reports that RCOM will also close down its direct-to-home (DTH) TV service when its license expires on November 18, having failed to find a buyer for the business.

EU Gives Final Approval to €120M Public Wi-Fi Plan

The European Parliament gave the final nod to the WiFi4EU project, which will see local authorities in member states bid for a share of a €120 million fund to pay for the installation of free Wi-Fi in public areas. Mariya Gabriel, commissioner for Digital Economy and Society at the European Commission (EC), described the development as "a concrete step forward for delivering results to all EU citizens". Regional authorities are expected to be able to submit applications for a stake of the pot before the year-end. The money will be awarded to authorities across the economic bloc deemed to be most deserving, in the form of vouchers covering the cost of installing equipment in community areas such as libraries and town squares. WiFi4EU was announced by the EC in September 2016 and since gone through a lengthy approval process, which also saw the European Council of member states give the green light to the bill. Following today's final sign-off from the European Parliament, it will be recorded in the EU's official journal and passed into law. The announcement comes a day after Broadband Competence Office (BCO) Director Jan Droge tipped WiFi4EU to have a significant impact on connectivity in underserved areas when the first round of funds are made available. Speaking at Broadband World Forum in Berlin, Droge said the program was: "A new aid mechanism which is quite innovative. It will make connectivity in small public spaces easier". The BCO is an EU body set-up to supply advice and support for member states struggling with the technological and logistical aspects of fiber broadband deployment, including securing funding and partnerships with regulators.
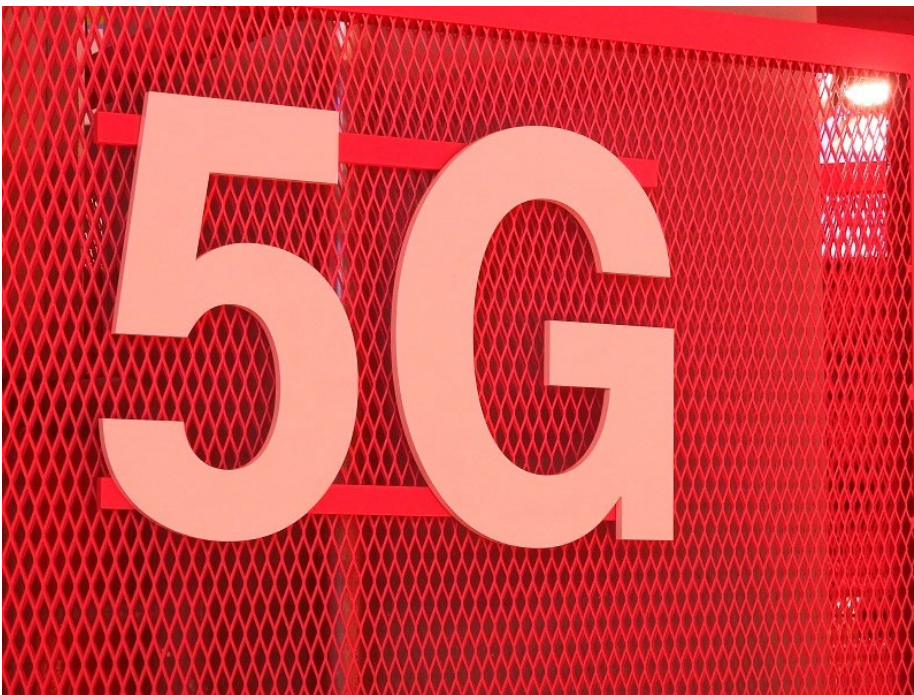
FCC Action May Delay Deployment of 5G and Industrial IoT Applications and Services under Innovative New Spectrum Sharing Regime in 3.5 GHz Band

The FCC's plan to release an additional 150 MHz of spectrum in the 3.5 GHz band under the new Citizens Broadband Radio Service (CBRS) shared spectrum access regime will likely be delayed as the agency continues to work out final details of shared access rights. In action earlier today the Commission adopted a notice of proposed rulemaking seeking

comment on several proposed changes to several aspects of CBRS regime, including potential changes to the size and term of priority access licenses, and changes to certain technical rules. In 2015 the FCC adopted an innovative new spectrum allocation regime to assign spectrum use on a shared basis. The sharing regime (often referred to as CBRS, or the "innovation" band) reflected the agency's decision to reject existing binary choices of spectrum allocation – either offering the spectrum as licensed or unlicensed. Instead, the FCC forged a third way by adopting rules intended to facilitate opportunistic use of the 3.5 GHz band on both a licensed and unlicensed basis, while also protecting existing incumbent users of the spectrum band. To achieve this goal spectrum users in the newly developed CBRS 3.5 GHz band will be classified in one of three tiers that will define their access rights:

1. Incumbent users – which include the

federal government (the Navy), certain existing fixed satellite services and certain wireless ISPs with existing 3650-3700 MHz licenses.

2. Priority access licensed users – entities that obtain priority access licenses (via an auction originally planned for 2018) will occupy the second tier of access rights and receive protection from general authorized access users, but must not interfere with incumbent users.

3. General authorized access users – entities that choose to utilize available spectrum on an opportunistic basis, when such spectrum is not already used by incumbents or priority access licensees.

The task of operationalizing this sharing regime in the real world will fall to advanced frequency coordinators, known as the Spectrum Access Systems (SAS) administrators, who will mediate and control access rights between the three tiers of users. Under this system one, or several, SAS administrators will utilize advanced algorithms and databases to operationalize a dynamic spectrum assignment and mediation process to facilitate shared access amongst all users of the spectrum across all three access tiers. Today's NPRM is focused primarily on changes to the priority

access license (PAL) structure. Under existing rules, the PAL licenses would be issued for a term of three years, and cover a census tract. However, today's NPRM asks whether the Commission should extend the license term to ten years, and change the geographic size of the license area. Some interested parties, including mobile service providers, have argued that PALs should be issued for a longer term and larger geographic area, and that the current rules should be amended such that PALs are enlarged to cover an entire Partial Economic Area (PEA), rather than much smaller census tracts. Other providers and interested parties have argued that the Commission should maintain the existing size of the license areas, and the shorter license terms. All interested parties will now have an opportunity comment on these proposed changes. There is significant interest in this spectrum band from a wide variety of organizations. More than two hundred experimental licenses have already been issued to mobile service providers, cable operators, wireless ISPs, DAS system providers, and industrial users (such as GE). As currently conceived these entities have publicized their intentions to utilize this spectrum to expand small cell capacity and enable 5G services, extend rural broadband services over fixed wireless connections, provide neutral host networks, and catalyze industrial IoT applications and services. Millions of dollars have already been invested in these efforts to commercialize services and networks under the new 3.5 GHz band. However, the Commission's decisions concerning PAL license terms and sizes could affect how, or whether, many of these potential applications can be viably operationalized on a commercial basis. While the Commission is likely to adopt final rules for certain general authorized users in 2018, this latest rulemaking effort could delay the planned auction of priority access licenses to the end of 2018, or beyond. Stay tuned for additional developments in this space, and how this spectrum sharing regime may be applied to other bands in the future.

Copper Retirement Regulatory Red Tape Needs to be Cut: Ajit Pai, Chairman FCC

As the FCC moves to update the copper retirement process at its upcoming monthly meeting this Thursday, Chairman Ajit Pai has been making his case heard that a more streamlined method will drive service providers to ramp up broadband network investments. Ajit Pai, Chairman of the FCC, told attendees during the recent Reason Media Awards that a friendlier regulatory regime will give service providers more freedom to replace aging copper facilities with fiber. "We will vote on making it easier for broadband providers to move from the copper networks of yesterday to the fiber networks of tomorrow," Pai said during the Reason Media awards, according to a transcript. "Some of these copper lines have been in the ground for a century. They're nowhere near as resilient or robust as fiber. But our rules too often still demand that companies maintain those fading networks. That comes at a cost to consumers. By definition, every dollar that a company spends propping up copper is a dollar that can't be spent building a next-generation network. That's the kind of red tape that needs to be cut." Pai also called out those who oppose new changes to the copper retirement process. "Here too, this proposal has its detractors," Pai said. "They refuse to let go of the past and stoke fears about the future. They also complain, ironically, that we don't have enough Internet access or more competition—precisely what we'd get by ridding the rust from our regulations." During the monthly meeting, the regulator will consider its Report and Order, Declaratory Ruling and Further Notice of Proposed Rulemaking and Order to revise and seek comment on further changes to the Commission's pole attachment rules, network change disclosure processes and section 214(a) discontinuance processes. The regulator said these efforts are focused on removing "barriers to infrastructure investment and promote broadband deployment." In April, the FCC the regulator put out its Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment notice of proposed rule-making to allow ILECs, CLECs and others affected by proposed changes the chance to comment. Under the proposal, the FCC

set a few common goals: easing the transition to IP networks, streamlining network notification rules, eliminating rules that require service providers to dedicate capital to maintain TDM equipment and speeding up the legacy service discontinuance process.

Telcos call for simplicity

Copper retirement overall has been a divisive issue between service providers and even amongst FCC commissioners, some of which are concerned that changes could compromise end-user service. Traditional telcos such as AT&T, CenturyLink and Verizon—all of which are migrating more of their customers to fiber—said the copper retirement notice period should be shortened to 90 days. Former FCC Chairman Tom Wheeler in the regulator's 2015 Technology Transitions Order developed a longer 180-day period. As part of that order, the FCC proposed giving competitive carriers and businesses a six-month notice, while residential customers get three months' notice before copper facilities are shut down. According to these rules, AT&T, Verizon and other ILECs are required to provide notice to CLEC wholesale customers that use copper facilities to deliver voice and Ethernet over Copper (EoC) services to business customers. ILECs would also be given the option to retire copper networks and replace them with fiber without prior commission approval, but only if no service is discontinued, reduced or impaired. Verizon, for one, continues to retire copper throughout its wireline footprint, focusing initially on larger cities and towns. In September, the service provider filed requests with the FCC in towns and cities in the legacy ILEC markets of Virginia, New York, New Jersey, Pennsylvania, Rhode Island, Massachusetts, Maryland and Delaware. The telco has encouraged the regulator to repeal its existing prohibition against disclosing a contemplated copper retirement prior to filing notice. Verizon claimed this process "keeps us from efficiently working with customers and landlords to help coordinate deployment of fiber and migration to newer technologies." Likewise, AT&T has been an advocate of

copper retirement reforms with an eye on ensuring clarity. The telco claims that the current copper retirement notice process can cause confusion for retail residential and business customers. "Customers will be contacted to schedule appointments for any required changes in equipment at the customer's premises," AT&T said in an earlier FCC filing (PDF). "A rule requiring retail notices—and the contents of those notices—is redundant, and a rule that requires months of advanced notice is confusing to customers and thus harmful."

CLECs raise concerns

While traditional telcos are calling for simpler copper retirement policies, other service providers like Windstream, which operates as both an ILEC and a CLEC to business customers, is concerned about the impact it and other competitive providers face in the transition of business customers to new services. A key concern Windstream raised in a previous FCC filing (PDF) that not being able to get access to these facilities makes it challenging to provide EoC services in areas where it can't make an initial case to build fiber to buildings. The service provider suggested in an earlier filing that "if the Commission returns to the 90-day notice period, it should reinstitute the objection process so that interconnecting carriers may obtain additional time if necessary to maintain uninterrupted service to retail customers." Likewise, TelePacific which is now known as TPX Communications, raised similar issues. The CLEC said it is concerned that an ILEC's copper loop retirement could potentially cause it from having to discontinue provisioning service to a community or part of a community.