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BUILDING DIGITAL ECONOMIES



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Technology Trends for 2017 and Beyond

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The Advent of Next Generation Networks

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Interview

Osman Sultan

Chief Executive Officer
du

**OVERCOMING ASYMMETRIC REGULATORY EFFECTS
WITHIN THE ICT INDUSTRY**

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16th March, 2017
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About Beyond Connectivity

SAMENA Telecommunications Council's Beyond Connectivity conference is an annual event, bringing together senior to top-level executives from regulatory bodies, telecom operator groups, technology companies, as well as other ICT industry players, including management consulting companies. The goal of Beyond Connectivity is to serve as a knowledge-sharing platform and to convene industry experts together, to discuss industry matters and business areas of interest to the industry, while providing a networking platform for the Council's members. A key outcome of the discussions of the BYC conferences has been the escalation of industry priorities and issues to the decision-making and policy-making tiers of the ICT industry, triggering further policy-level dialogue on key matters, with the involvement of both private and public sector stakeholders. The BYC conference has also served companies as a platform for announcing business partnerships. Various members of SAMENA Telecommunications Council have also used the strategically themed BYC events to showcase their innovations, new products and services.

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Osman Sultan
Chief Executive Officer
du

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Overcoming Asymmetric Regulatory Effects within the ICT Industry

In our industry, continually engulfed by disruptions and on the way to transformation for now over a decade, all inhabitants of the digital ecosystem are seeking new value-additions to differentiate themselves from the competition, to maximize their share of customer spend. While telecom operators still have the grip on the larger share of the ecosystem revenues, alternative communication services providers have significantly grown their revenue by giving strong competition on affordability, data-rich communications capability, and operating beyond terrestrial borders.

Keeping up with the pace of this market competition, and the complexities that it encases when seen from stakeholder interaction and business sustainability within the market, is one of the ultimate challenges for all of us to overcome in order to eliminate, or at least reduce, asymmetric regulatory effects within our industry. In relation to telecom operator versus alternative communication providers, the notion of asymmetries has been very well-pronounced.

Notably, however, we have been seeing regulatory steps being taken to level-up the field in some markets.

Ranging from internet rules to ensure "reasonable" network management, making net-neutrality principles a part of the national telecom acts; requiring over-the-top players to exclusively work with licensed operators; extending telecom rules to Web-based communication service providers; to imposing strict obligations on alternative players to register as local entities with sole ownership or enter through local partnerships and pay industry fees and taxes, the diversity of regulatory attempts to manage the current regulatory imbalances reflects well on government efforts around the world to address the business sustainability challenge.

During the transition that telecom operators are making to next-generation services, driven primarily by software technologies, applications, and systems, concerned government bodies too are trying to find new paths to ensure balance in competition, innovation, and new investments in smarter infrastructure. This is because the governments realize that the economics of regulation and the challenges presented by the implementation of next-generation technologies, and, indeed, by digital disruptions that are enabled by those technologies, have changed much in the industry. Cost reductions, made possible

through the mutual efforts of regulators and telecom operators, and to a considerable extent driven by innovation in digital communication, have made it possible for the general public to be included. This inclusion, subsequently, has taken on other forms, holding new promises in human socio-economics. They also stand reminded that telecom regulation itself faces challenges from general regulation, sometimes triggered by or applied in an ad-hoc fashion. Thus keeping up with the spirit of digital development goals requires transformation in existing regulatory arrangements.

At the end, what is common to both the public and to private-sector players is that both welcome innovation. For this very reason alone, it may be argued, we need to do everything to ensure we keep on track, by continually monitoring where asymmetries arise in regulation, and how promptly they should be overcome to keep the path to innovation clear.

Open communication, just as SAMENA Council facilitated this month at the 3rd MENA Spectrum Management Conference, is of the essence, when it comes to understanding asymmetries and finding ways to work around them. 🟢



Bocar A. BA
Chief Executive Officer
SAMENA Telecommunications
Council

SAMENA COUNCIL ACTIVITY



Communication with Regulatory Bodies on Spectrum Decision-Making Processes

This month, SAMENA Telecommunications Council moderated a regulatory roundtable on spectrum management at the 3rd Annual MENA Spectrum Management Conference, held in Dubai from the 24th to the 25th. The conference, which was hosted by TRA-UAE, was a part of the Global Spectrum Series – the world's largest collection of regional spectrum management events.

The main purpose of the regulatory roundtable moderated by SAMENA Council was to facilitate communication with regulatory bodies from within the Arab region, to provide an overview of the spectrum decision-making processes and spectrum allocation plans for the future, including methods used for allocating spectrum, pricing methodologies, and overall governance of the spectrum.

The main purpose of the regulatory roundtable moderated by SAMENA Council was to facilitate communication with regulatory bodies from within the Arab region.



Spectrum management for developing the next generation of mobile broadband is among the key priority areas for the industry. Thus the Council has always placed emphasis on the need for transparent dialogue, visibility and predictability in decision-making, and on enhancing common understanding of perspectives across stakeholders.

SAMENA Council's member operators, in particular, believe that the allocation of certain frequency bands, which are of importance to the communications industry, at large, require further analysis. This is especially important in the case of prospective fifth-generation candidate frequency bands. Given the socio-economic benefits associated with such bands, multiple views should be heard and transparent considerations need to be made, prior to taking any decisive policy and regulatory steps.

Moderating the regulatory roundtable during the MENA Spectrum Management Conference by SAMENA Council has helped re-enforce the multi-stakeholder imperative of open communication and private-public sector engagement on policy matters. Key questions asked to the government representatives of the

UAE, Qatar, and Egypt aided clarity on regulatory plans. Insights into spectrum distribution mechanisms and the use of spectrum allocation formulae, future spectrum allocation and preparatory work for 5G, spectrum re-farming after phasing out older technologies, and balancing stakeholder requirements and priorities on spectrum and related fronts were gained in the presence of an audience of 200-plus industry professionals and senior executives.

Challenges associated with spectrum management and planning are of importance to telecom operators, and to all public and private-sector ICT players and decision-makers. We need to maximize the overall benefit that could be derived from the required spectrum, allocated at the required time. Upcoming developments in technology will further stimulate new investments and encourage stakeholders to work together in the new data-driven economy. The sooner we engage in working together on high-priority areas such as spectrum, the more time we will have to concentrate on harnessing the power of 5G for the common end-user and for meeting the Sustainable Development Goals.

SAMENA Council has reiterated that WRC-19, which is to be held in Geneva in 2019 and is a key event that the communication industry is anxiously awaiting, presents a good opportunity to reach agreements on key frequencies, defined across the industry to realize efficient socio-economic benefits and to accelerate the digital economy. To enable all communication players across the terrestrial and satellite space, contribute to timely launch of next-gen technologies, develop low-cost devices, and to mitigate cross-border frequency interference, harmonized spectrum allocation efforts are crucial.

The MENA Spectrum Management conference outlined spectrum-related considerations from various angles. Clarity provided by the participating regulatory authorities should give the private-sector of this region the confidence that governments are indeed aware of the needs and the challenges on the spectrum front. 📍

IoT: Revolutionizing the Way Common Citizens Experience the World



Osman Sultan
Chief Executive Officer
du



Q. What's your vision about IoT? How can IoT be an avenue of enhanced revenues and opportunities at large for the telecoms?

A. The Internet of Things (IoT) has been labelled as “the next Industrial Revolution” because of its truly transformative nature. This technology will bring unprecedented opportunity for city leaders and urban planners to revolutionise the way that everyday people experience the world around them; the way they live, work entertain and travel. IoT – which analysts have predicted will grow to 10 billion connected devices by 2020 - will deliver solutions that make life easier by enabling decisions to be made faster; resources to be used more efficiently; infrastructure to be more seamless; and people and data more secure.

We've led the way when it comes to connecting people to the Internet. Now, it is time to do the same and connect them to machines and sensors. IoT is the natural progression where next-generation telecoms won't be limited to providing Internet connectivity via traditional devices. With IoT, we are entering a new era, one that will create billions of connections so there is significant revenue to be made by offering IoT services.

We believe that offering an end-to-end service is key to winning in the market. In addition to providing the network itself, we can also house the data. To complete the circle, we also adopt a best of breed approach, working with different partners who are experts in their field to offer a wide range of IoT services. This strategy is what empowered us to be the first in the Middle East to offer a working IoT network and the first to introduce services which operated from it, such as Smart Lighting and Smart Parking.

With IoT, we are entering a new era, one that will create billions of connections so there is significant revenue to be made by offering IoT services

Q. How should communication leaders differentiate themselves to facilitate better connectivity and hence better ground for IoT deployments?

A. Isn't leading the very essence of leadership? Let me put it to you another way, people are inherently wary of change, yet change, is the only constant. As we transform to life in an IoT world, what is very clear to me is that communication leaders and operators must forge a path to bring key differentiating factors to the table. As such, they should differentiate themselves to facilitate better connectivity and hence better ground for IoT deployments. This is especially relevant when it comes to areas such as Spectrum, Network Technologies, Go-to-Market Strategies, New innovative Business Models, Standards, Value Chain, and Application Platforms. In doing so - through investment by telcos in new technology platforms which can manage IoT solutions - leaders can deliver a better customer experience which will hold up in the connected future.

Q. What are the main challenges in the path of IoT becoming mainstream and how can these hurdles be dealt with effectively?

A. Challenges are only opportunities in disguise. Let me give you a little example. Many believe that the primary

challenge for IoT to reach mainstream adoption is the readiness of the full ecosystem, which includes common network standards, devices, sensors, and most importantly, applications. At du, we have looked at this opportunity, and we believe that the current diversity that exists across IoT networks is a powerful tool that we will further explore to serve different purposes. We are looking at a horizontal IoT platform to be the key enabler for unification.

We need a new breed of 'sensor-friendly' networks to establish the Smart City ecosystem - which is why we were the first to deploy a LoRa (Long Range) network in the region. IoT requires a new type of low-power consumption, long-range network, which can prolong the battery life of sensors. It is about ensuring cost and energy efficiency - which is something that our LoRa network offers.

What I am saying is that we have the network and the services in place. What we require is businesses and institutions with the confidence to invest in these technologies. We're working hard to educate local institutions on the benefits of these services, engage with key decision makers at every opportunity and run a series of live demonstrations.

Q. Dubai is the Middle East's leading city for the adoption of smart cities initiatives. How do you think smart city initiatives are shaping up in Dubai?

A. I think our foray, as a nation, into the world of smart things is shaping up very well indeed. We are very lucky to be living in a country where the leadership puts forth a vision and immediately sets about achieving that vision.

Over the past two decades, we have pioneered a world-class infrastructure to drive global competitiveness. Our transformation into a global benchmark Smart City is being guided by the landmark government initiative, Smart Dubai. The Smart Dubai Platform, which we are associated with as strategic partners, has enabled Dubai to take a unique approach to smart cities because we understand that having smart applications does not make a smart city, it's how these applications all interact and use data for the betterment

of life in a smart society that will make the difference.

Adopting smart technologies powered by IoT will deliver 100 smart initiatives and 1000 smart services to Dubai residents and visitors over the next three years. As Dubai approaches its goal of setting benchmarks for IoT implementation and Smart City transformation, it will create opportunities for global competitiveness and enhance the quality of life for citizens and residents alike.

Smart City technology and IoT are embedded into the citywide blueprint for 2020. Innovation is the primary driver of a knowledge-based economy and society in general. Driven by entrepreneurship, the private sector will benefit most, with AED13.6 billion forecast in technology deployments, according to the report by Cisco. This benefit will empower more entrepreneurs to innovate, seize opportunities, and become the dominant contributors to our growing knowledge-based economy.

Q. What can you tell us about the UAE 5G Innovation Gate (U5GIG)?

A. This is a really exciting initiative for us, and I am so happy you brought it up. du is taking the lead to build a UAE 5G Innovation Lab to prototype, test and validate early 5G and Internet of Things (IoT) equipment and services. U5GIG will also allow universities and technical organisations across UAE to work together and participate in the development of the 5G ecosystem, and for academia and industry to test applications and technologies in a real-world setting.

The primary challenge for IoT to reach mainstream adoption is the readiness of the full ecosystem, which includes common network standards, devices, sensors, and most importantly, applications

U5GIG will allow the UAE to effectively compete with the advanced markets and bring its voice to the technology development debate. As we prepare to be a major industry development leader, we continue to realise the power of collaboration, particularly between industry and academia.

U5GIG has been envisioned to be a consortium of technical and academic organisations in UAE as well as global telecom vendors to plan and use their expertise to define and develop a global 5G network that will radically change lives across the UAE. We plan to work closely with suppliers and SMEs and eventually train future UAE academic and industry leaders to bridge the gap between the telecom industry and academia by establishing and maintaining close, productive collaborations with academic institutions, industry and the community.

Q. What are the minimum requirements that need to be put in place to mark the onset of 5G?

A. du's recent launch of the first LTE-Advanced (LTE-A) live network in the UAE, forms a significant step on the road towards 5G. 5G should be viewed as the overall future solution for providing next generation mobile services to both people and devices. We anticipate that 5G will be rolled out in a few years from now and its main focus will be to drastically revolutionise the mobile broadband experience. The infrastructure provided by 5G networks will have the ability to support a very large number of connected devices, always provide online connectivity, operate for optimum energy efficiency and support flexible air interfaces. This, in turn, will lead to a successful implementation of IoT

We have successfully built several live cases on existing technologies such as 2G/3G/LTE/Wi-Fi/Li-Fi/LoRa. We believe that the main challenge in IoT implementation is connectivity. As a telecom service provider, we are ready to provide the right connectivity for any real usage scenario. We foresee the following 5G requirements as the basic and main ones:

Reduced cost & "green" energy efficiency: 5G has to provide 100x better cost per bit compared to the current networks (both CAPEX and OPEX).

- **Higher network capacity:** 5G has to be able to manage traffic volumes of many orders of magnitude compared to today's networks. In our view, the target should be a minimum of 100x the current capacity offered by the current LTE networks.
- **Higher Speed:** 5G has to practically provide higher speeds compared to today's networks. This also has to be coupled with a much more consistent quality of user experience (QoE) compared to LTE. In our view, the target speed would be the 1Gbps user throughput achievable everywhere.
- **Support for Internet of Things & massive connectivity:** 5G has to allow for the expected massive number of devices to be connected simultaneously to the network in order to support Internet of Things (IoT) that are "always" connected to cloud services. In addition, 5G has to be able to flexibly support more machine type devices for IoT.
- **Very Low RAN latency:** 5G has to provide not only higher speeds, but also a user-plane latency of less than 1ms over the radio access network (RAN). This is crucial for the cloud services and remote real-time control for M2M systems.

Q. You were the first in the Middle East to demonstrate the Li-Fi technology. What can you tell us about this new technology and do you think it will replace WIFI ?

A. Staying true to our 'Smart City' plan, we were able to successfully demonstrate the capability of (LiFi) technology in Dubai in partnership with home-grown company Zero1. In addition, the recent demonstration of LiFi adds further impetus to the initiative of His Highness Sheikh Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of UAE and Ruler of Dubai, in establishing the UAE as a global leader in all aspects and as an innovator in technology in the Middle East region

Through investment by telcos in new technology platforms which can manage IoT solutions – leaders can deliver a better customer experience which will hold up in the connected future

As the global Li-Fi market is expected to reach \$80 billion by 2021, we expected to see further growth over the coming years and hence wanted to make sure that our customers were aware of this technology. In addition, the demonstration of LiFi technology complements our broadband portfolio for the business segment. We are currently working with major businesses to create tailor-made LiFi solutions and to test and validate the applications so that we can ensure we offer the latest in innovation to our valued customers.

Li-Fi is essentially the same as Wi-Fi, except for a small difference—we use LED lights around us to transmit the data wirelessly as opposed to using radio. However, if you want to do a comparison between both, since Li-Fi signals cannot pass through walls, full connectivity can only be enjoyed if capable LED bulbs are placed throughout the home. Not to mention, Li-Fi requires the lightbulb to be on at all times to provide connectivity, meaning that the lights will need to be on during the day. What's more, where there is a lack of lightbulbs, there is a lack of Li-Fi internet so Li-Fi does take a hit when it comes to public Wi-Fi networks.

However, LiFi has proven to be faster and more secure. Li-Fi technology thus offers numerous benefits but there are certain barriers that must be overcome before it becomes a ubiquitous part of our lives.

MEMBERS NEWS



Ooredoo has Appointed its Chief Commercial Officer Ian Dench as the new Chief Executive Officer of Ooredoo Oman.

Dench, who joined majority shareholder Qatar's Ooredoo in 2006, replaces Greg Young who resigned in October. With over 25 years of experience in leading telecommunications companies from around the world, Ooredoo Oman expects Dench to continue to grow Ooredoo's established success. He has worked in telecommunications companies across Europe, Asia and Middle East. Prior to joining Ooredoo he was the head of sales

and marketing operations for Batelco. He also held various senior leadership positions with O2 and British Telecom. Dench joined Ooredoo Qatar operations in 2006 as executive director, corporate and VIP accounts. In 2012 he was appointed as the chief marketing officer. He had significantly contributed in building Ooredoo's market share in Qatar through developing and maintaining strong product and service portfolios. Dench

is a member of the board of Indosat Ooredoo, also ICT Company NavLink and an advisory board member for the Asia Pacific Internet Group. As CEO of Ooredoo Oman, Dench will lead the company through the next phase of network enhancements and the digital evolution of products and services to customers across Oman. The telco reported a 5.4% fourth-quarter profit growth last week.

Ooredoo Opens first Fiber-to-the-home Kiosk in Muscat City Centre

Ooredoo recently opened its first fiber-to-the-home (FTTH) kiosk in Muscat City Centre to connect more customers to its unlimited and high capacity fiber optic network. Set to meet the needs of its rapidly growing customer base, the new outlet will be open from 10am to 10pm weekdays and from 10am to 12am weekends. The company's stand will provide customers with a host of Ooredoo's lat-

est fiber services, including its revamped portfolio of unlimited Superfast Fiber bundles. Comprising five new data plans, the packages feature two top-tier speeds of 300 Mbps and 1 Gbps in addition to 1,000 national minutes per month. Customers can also choose from no contract variants with no early termination charges, as well as a one or two year contract option with zero upfront fees for

installation and equipment. The introduction of the new kiosk comes as part of the company's long-standing commitment to champion the growth of local communities through value added services and the latest technology. Ooredoo's efforts have led to the development of a wide variety of cost-efficient products, services and investments to its state-of-the-art fiber optic network.



Thuraya & Ooredoo set to Transform Communications in Indonesia

Thuraya Telecommunications Company, a leading mobile satellite services operator, and Indosat Ooredoo, leading mobile operator in Indonesia, today signed a Memorandum of Understanding, MOU, to develop a new range of services by combining Indosat products with Thuraya Satellite technology and devices for business customers in Indonesia. The agreement has created a framework for collaboration in three main areas. New services will be developed using Indosat SIMcards roaming on the Thuraya network as well as bundling satellite devices with Indosat Ooredoo digital applications. At a later stage, Thuraya and Indosat also plan to develop additional use cases

for the burgeoning IoT market. The satellite-powered business applications allow organizations to extend their services beyond terrestrial networks whenever they have remote connectivity requirements across various extreme environmental conditions. Indosat has identified an extensive range of specific sector opportunities for Thuraya's land, data and maritime services. The full scope of markets now set for transformational communications capabilities across Indonesia includes oil and gas, mining, plantations, high end yachting, merchants and fishing, military and police services. Thuraya's extensive and reliable satellite network complements Indosat's own

connectivity, extending into those areas that are beyond terrestrial reach. This will enable both companies to offer a seamless customer experience. Bilal Hamoui, Thuraya Chief Commercial Officer, said, "This is an important step towards an extensive and exciting long term collaboration. Indonesia is a large country covering a vast area, and it needs comprehensive connectivity at all times. Our capabilities are complementary, and we will be able to give end users far greater flexibility than they have now. This agreement delivers reliable communication wherever and whenever it is needed, and we are set to save and improve lives across Indonesia." Herfini

Haryono, Indosat Ooredoo Director and Chief of Wholesale and Enterprise, said, " We look forward to working with Thuraya to offer communication services beyond terrestrial reach. This will allow

businesses, military, and oil and gas companies which operate at sea or in remote locations to stay connected with their central offices, bases and partners. It increases the efficiency of

their operations, saves life and increases employee satisfaction by allowing them to keep in touch with their families."



STC becomes Member of "Open ROADM" Agreement

STC- Network Sector joined "Open ROADM" Agreement. The agreement aims

to develop programmatic control and open hardware specifications for optical

networks. Such agreement is aligned with the STC vision for 2020 network.

STC Revenues up 2.4% in 2016; SAR600m loan offered to Oger's Turkish Unit

Saudi Telecom Company (STC) has published its financial results for the twelve months ended 31 December 2016, reporting a 7.8% decrease in net profit to SAR8.539 billion (USD2.27 billion) from SAR9.258 billion reported in 2015. The company attributed the negative result mainly to a SAR2.474 billion year-on-year increase in cost of services (due to the government's biometric registration process), and a SAR387 million increase in operating expenses. In the twelve months to end-December 2016, STC

reported revenues of SAR51.845 billion, a 2.4% increase y-o-y on the SAR50.651 billion booked in 2015. EBITDA however, decreased in the period under review, to SAR18.256 billion, down 5.4% from SAR19.294 billion. Meanwhile, in related news, STC has reportedly offered a loan of roughly SAR600 million to the Turkish unit of its 35%-owned subsidiary Oger Telecom – which alongside Turk Telekom has interests in South Africa (Cell C), plus several internet operations (branded Cyberia) in Lebanon, Jordan

and Saudi Arabia – Bloomberg writes. Oger is understood to be in negotiations with creditors ahead of its next loan payment deadline in March 2017, after missing a USD300 million payment on a USD4.75 billion loan in September 2016. TeleGeography notes that Oger's Turkish unit secured the syndicated loan in 2013 from a consortium of domestic and international banks to reschedule and refinance debt and pay a dividend.



Batelco Continues to Grow its Global Presence Through Partnerships with other Leading Carriers



Batelco, as a major player in the telecommunications industry, continues

to grow its global presence through its strategic global network expansion

projects. The comprehensive plan supports the requirements of businesses in Bahrain and the Middle East region by enabling them to extend their international reach while simultaneously meeting the communication needs of overseas organizations seeking communications avenues with their offices and customers in Bahrain, the Middle East region and beyond. Batelco's expansion projects expedite the growth of the Company's global business; while ensuring network diversity, avoiding single points of failure, providing better country resilience and efficient use of international capacities. As part of the plan Batelco has deployed a number of new Points-of-Presence (PoPs) around the world expanding its global network footprint and providing

services in a more efficient manner. Batelco Chief Global Business Officer, Adel Al Daylami said that Batelco is focused on providing innovative services that are relevant to its diverse range of clients' businesses, such as provisioning of specific global solutions for multinational companies including banks and financial organizations to meet their international requirements and enabling their operations to run proficiently. Partnerships play a very crucial role in the Global telecom industry for Batelco with the Company forming strategic alliances

with a number of reputable regional and global carriers over recent years. By joining hands with others, Batelco is enabled to offer the most in-demand services to its international partners & clients and secure key projects connecting major organizations in disparate locations across the globe. "We are geared towards empowering customers to focus on their core operations, while their network is fully managed by Batelco as a single point of contact no matter where they are. Our Global expansion projects allow us to offer a superior customer

experience to more businesses around the world thanks to our key strengths in project management, continuous service monitoring through our advanced tools, pre and after sales support and a high quality resilient global network," Mr. Al Daylami added. "Ultimately, our efforts and plans are in line with the Kingdom of Bahrain's vision to become a middle east hub for ICT solutions through the expansion of our global network and development of strong partnerships and innovative services," Mr. Al Daylami concluded.

Batelco Presents NFC Mobile Payments in Bahrain

Bahrain operator Batelco signed a deal with one of the country's largest banks, Ithmaar, and electronics payments company Arab Financial Services to launch mobile payment services in the country. In a statement, the companies said the service will be the first in the country to offer NFC-based mobile

payments. Customers can upload credit from an Ithmaar bank prepaid card to their handset and use it to pay for goods and services at retailers across the country. Batelco is one of three major mobile operators in the country with 1.14 million connections, excluding M2M, equating to an estimated market share of 34 per cent.

Its mobile rivals are Viva (owned by Saudi Telecom Company) and Zain. Batelco Bahrain CEO Muna Al Hashemi hailed the mobile payment service as a "step forward" and said it would open "exciting opportunities in the future as technology, digital banking and customers' needs continue to evolve".



Turkcell Hits 24.7 Gbps in 5G Test

Operator aims to drive development of next-generation mobile tech in Turkey. Turkcell this week said it has achieved a 24.7-Gbps connection speed in what it claims is Turkey's first 5G test. "This test on the 15-GHz spectrum...points to the kind of future that awaits us. While we at Turkcell continue to work hard to build one of the world's strongest 4.5G networks, this trial also makes us one of the first companies in the world to test 5G technologies," said Gediz Sezgin, SVP of network technologies at Turkcell, in a

statement on Monday. Turkcell expects the number of connected smart devices worldwide will top 25 billion by 2020, and that the average home will be equipped with around 500 sensors. With that in mind, Turkcell wants to make Turkey a pioneer when it comes to 5G technology. "Turkcell is one of the most active companies in the development of 5G technologies and we at Ericsson have been involved in a strategic partnership with Turkcell in this sphere for around a year and a half," said Ziya Erdem, CEO of Ericsson Turkey.

"Our goal is not only to make Turkey into one of the first countries to adopt 5G, but also to develop 5G technologies here in Turkey, in other words, to make Turkey into a country that not only uses but also produces key next-generation communications technologies," Sezgin said. "We will continue to work closely with Turkcell to pioneer 5G solutions and to support Turkey in its journey to develop and implement 5G technologies until the end," Erdem added.



Türk Telekom & Argela Join Hands for ProgRAN

Türk Telekom, Turkey's leading communication and entertainment technologies provider, and Argela, a leading provider of telecommunications solutions for mobile and fixed operators as well as government and public safety,

jointly announced today that ProgRAN, Argela's innovative, fully programmable radio access network (RAN) architecture allowing for dynamic RAN slicing has been successfully incorporated into Türk Telekom's commercial LTE-A network.

The limited deployment covers an enterprise area in Istanbul's commercial center, Maslak. There are plans on extending the demonstration to a second location in Turkey's capital, Ankara in the near future. "The cellular networks

of today increasingly need to provide support for a wide range of use cases, potentially each with very different quality of service requirements," said Firat Yaman Er, Chief Strategy and Business Planning Officer at Türk Telekom. "For economies of scale, it is imperative to develop a single, highly programmable network that can meet the diverse requirements of all these applications, and ensure that the network remains profitable for the operator. 5G aims to use network slices for this purpose. At Türk Telekom, we are excited to have realized the world's first commercial deployment of RAN slicing. This will allow us to experiment with a fundamental 5G technology and innovate business solutions around it." "5G needs to be built in a flexible way so that capacity and coverage are allocated in virtual RAN slices to dynamically meet the demands of each potential use case," said Bülent Kaytaç, Argela CEO. "A RAN architecture built on the pillars of software-defined networking and network virtualization is necessary to effectively use the limited wireless resources amongst increasingly diverse use cases. At Argela we have developed ProgRAN with 5G in mind, but also made sure that it is operational on today's LTE networks so operators do not have to wait until 2020 to start using the

network slicing technology. We are thrilled to see it in action on Türk Telekom's commercial LTE-A network. "ProgRAN's dynamic RAN slicing capability carries the potential to link network services to new commercial opportunities for operators," Kaytaç added. "ProgRAN allows RAN to programmatically adapt itself to different service requirements and customer experience needs. This means that an operator will be able to offer network functions to many different industries, such as IoT, healthcare or automotive, using a RAN-As-A-Service business model." Argela's ProgRAN provides a dynamically programmable RAN architecture. Its SDN-based programmability feature allows creation, modification, or termination of RAN slices in real-time, where each slice utilizes its own RAN control functions and governs its own wireless resources, allowing operators to quickly innovate new revenue generating services using the platform. Such potential services include massive IoT connectivity, mission-critical services, multimedia applications, MVNOs, Public Safety Networks, time and geography-limited resource reservations for public or private events, as well as dynamic RAN sharing. "For each use case, ProgRAN dynamically creates a

new RAN slice using a so-called profile definition," explained Dr. M. Oğuz Sunay, CTO at Argela-USA. "The ProgRAN profile specifies the size of the RAN slice, the identities of the eNodeBs and devices that are affected, the time duration for the slice as well as the desired RAN control functionalities to achieve the desired service quality. A ProgRAN-enabled network can have multiple such active profiles on the same or different parts of the network at a given time." "ProgRAN does not need a complete re-haul of an operator's existing infrastructure. An operator may deploy ProgRAN capable base stations, or small cells, only in the geography where they feel such dynamic programmability is profitable. In such a deployment, ProgRAN seamlessly works with the rest of the network. This is demonstrated in Türk Telekom's initial deployment of ProgRAN," Dr. Sunay added. A C-RAN implementation of ProgRAN is also available. Türk Telekom and Argela plan on extending their RAN slicing demonstration to include C-RAN platforms in the near future. Argela's ProgRAN will be demonstrated at the Mobile World Congress in Barcelona on February 27-March 2, 2017.



Interwire Internet Services and DE-CIX Sign Memorandum of Understanding

Interwire Internet Services, owner and operator of the Mumbai Convergence Hub (Mumbai CH), India's largest open peering exchange hub, and DE-CIX, the world's leading Internet Exchange operator, have agreed on a Memorandum of Understanding (MoU) to strengthen their ambitions as influential drivers of India's digital infrastructure. Both Interwire and DE-CIX will collaborate to further develop the Internet Exchange and Interconnection eco-system in the local Indian market, with a strong focus on Mumbai.

"New digital environments are creating new challenges and opportunities around the world, and cooperative efforts are crucial to meet those new challenges and take advantage of the opportunities. We appreciate that DE-CIX is a major representative of the International Internet community and therefore has access to a wide range of telecoms business experiences and technical knowledge in the area of Internet Exchange and related Interconnection Services," says Nikhil Rathi, Director of Interwire Internet Services. In recognition of the signed

MoU, Harald A. Summa, CEO of DE-CIX notes that "Interwire is a very experienced and renowned Indian market player as it owns and manages the Mumbai CH, India's largest open peering exchange hub and is uniquely placed to provide access to the Indian telecommunication market. We are interested in establishing a long-term collaboration with Interwire to exchange know-how and create models for business collaboration to boost the Indian digital infrastructure."

Stephan Rohloff New Chief Marketing Officer at DE-CIX

Stephan Rohloff (50) took on the newly created position of Chief Marketing Officer at the Internet exchange point provider DE-CIX in Frankfurt (Main), Germany at the start of January 2017. The business economist reports directly to Harald A. Summa, CEO of DE-CIX Management AG. Rohloff is responsible for DE-CIX marketing activities globally. "We're very happy to have found a very experienced marketing strategist for this crucial role. Stephan Rohloff will help us continue to develop our brand in the B2B

segment, as well as further our strategic global orientation and digital communication in order to reach our global growth goals," Summa said. Rohloff brings more than 20 years of management experience with international marketing and communications teams with him and is a proven IT and B2B expert. Prior to joining DE-CIX, he was Marketing and Communication Vice President at Aareon AG, Europe's leading consultancy and systems house for the property market.



Satellite Operator Yahsat Opens World to Africa

Soon, few places – in South Africa, for example – will be unconnected; if Al Yah Satellite Communication Company (Yahsat), the Abu Dhabi-based satellite operator, has its way. Prince Sebapu, who works for the National Library in Pretoria, has seen at first hand how YahClick, the satellite broadband service provided by Yahsat, has dragged the most analogue of institutions into the digital age. "Our mother department, which is the department of arts and culture, they realised that they needed to improve the library services in different provinces," Mr Sebapu says. "We want people to be able to access information, so the approach of the National Library was to divide province by province. Every year we do internet connectivity in a particular province." The biggest of South Africa's provinces, Eastern Cape, now has 207 libraries in remote rural areas, where some do not even have electricity. The Yahsat chief executive Masood Mahmood says until recently many schools and colleges in remote areas still relied on dial-up terrestrial connectivity to access the wider world, an often unreliable process that hindered learning and development. Satellite broadband has been a game-changer, with more children having access to a wider range of resources and, in some cases, distance learning where a tutor remotely takes a class from another facility. The practice is now spreading across Africa. "We've witnessed how our broadband service, YahClick, is especially impactful in small towns and rural areas in Africa," says Mr

Mahmood. "For example, in Nigeria, we connected remote schools as part of a universal broadband programme giving those children the same opportunities they would have in cities and towns across the country. "Taken for granted in many urban areas, availability of broadband services in rural communities can make the difference between employment and not earning a living, as well as good health. Every student, every school and every community we connect to resources brings us one-step closer to universal education and well-being in Africa." According to Mr Sebapu, many of the 207 Eastern Cape locations did not even have fibre optics or internet cables, so other solutions were needed to get them connected. The answer came in the shape of VSAT (very small aperture system), which requires the individual or business end user to own a box that allows its computer to interface with a satellite via an antenna. This could revolutionise education and change the lives of the children who live in these villages. Mr Sebapu is keen to point out that each library functions individually and is not dependent on the programme being implemented across all 207 facilities before it goes online. "In the province of the Eastern Cape, we are currently using the YahClick system," he says. "The internet connection is very, very good, so it allows the community to be able to have access to the world through the internet. Other services allow you to make calls through the internet." The work of the National Libraries is not

restricted to maintaining connectivity in these libraries. Indeed, it is keen to preserve the very essence of what makes a library a library: the physical books themselves. "I can say I'm excited about it generally because we are getting reports that now there are more people that want to use the services of the library," Mr Sebapu says. "Some of them are discovering there are books here, but their reason for the visit was the internet." Today Yahsat's YahClick has coverage across 28 countries in Africa, central and south-west Asia and the Middle East. The service uses Ka Band satellite technology – the latest in a line that still includes Ku Band and C Band – which has allowed such a rapid spread of coverage across these countries. With the planned launch of the Al Yah 3 satellite this year, the coverage will increase to include a further 19 countries in Africa as well as Brazil. This means YahClick will cover 60 per cent of Africa's population and 95 per cent of Brazil's. Internet usage rates in South Africa vary considerably from one location to another. In many rural areas, a terrestrial connection (like dial-up) is the only option. Even then, the performance of this relatively older technology remains erratic for many users. Satellite technology, an arena in which Yahsat vies with the likes of the UK provider Avanti, might be more expensive than land-based options but it is faster and considerably more reliable. Just as important, connection through the Ka Band is now more affordable than the Ku and C bands.



Engineer Ahmed Abdulsalam Abdulrahman Appointed as Chief Executive Officer of Mobily

Etihad Etisalat (Mobily) announced that its Board of Directors had approved the appointment of Eng. Ahmed Abdulsalam Abdulrahman as Mobily Chief Executive Officer and the acceptance of the resignation of Mr. Ahmad Farroukh. The Chairman and Board of Directors offered their sincere thanks and appreciation to Mr. Ahmad Farroukh for all his efforts in stabilizing the company and wished him the very best of luck and every success in future endeavors. Mobily clarified that the Board of Directors approved Eng. Ahmed Abdulsalam's appointment with effective from 10th of January, enabling him to lead the growth and expansion phase. Eng. Ahmed has extensive experience in the ICT sector. Over the past 24 years, he has played a major role in the growth of various companies that he worked for.

During his long and successful career, Eng. Ahmed has held many positions and responsibilities, including; Managing Director and CEO of Global Telecom Holding, in addition to Vice President of Vimplecom for Asia and Africa. From 2009 to May, 2011, Orascom appointed him to be the CEO of Banglalink Telecom, and under his tenure, he succeeded in growing and transforming the company. Following this role, he was appointed Managing Director in the Group when it became Global Telecom Holding, and contributed in its expansion in the seventh markets where it operates. Between 2000 and 2008, Eng. Ahmed contributed to launching Mobinil services, and he held several top management positions, such as; General Marketing Director, to move afterward to Orascom Group. Between

1993 and 1996, he started his career in Telecom & IT sector by joining IBM, and between 1996 and 1998, Eng. Ahmed led a team that launched the third Internet service provider in Egypt. Mr. Sulaiman Al Gwaiz, Chairman Of Mobily's Board Of Directors, said on appointing Eng. Ahmed, "Mobily has accomplished a great deal of progress in achieving the goals it set itself in 2015, which are in line with Telecom and IT sector orientation. Mobily is now aiming to reach an advanced phase of growth and expansion with the joining of Eng. Ahmed. We are confident that Eng. Ahmed's presence in Mobily will have a positive influence on the next phase of our development And wish him every success in his time with our company."



GBI Board Names Amr Eid as Chief Executive Officer

The Board of Directors of Gulf Bridge International "GBI" named Amr Eid as chief executive officer. Since his appointment as an acting CEO of GBI in March 2016, Amr Eid has successfully spearheaded the company's transformation into a global shared and managed services provider. Abdulla Al Rwali, Executive Vice Chairman and Managing Director, GBI said, "Amr's vision, innovative industry outlook and proven track record of successes have positioned him as a strong leader for GBI. We are confident that he has the wealth of experience, commitment, and the drive to deliver value to shareholders, partners, customers, and to the whole ecosystem. I look forward to supporting Amr in further developing and implementing GBI's roadmap for future growth." Amr Eid, CEO of GBI, said, "I want to thank GBI's Board of Directors, Chairman, Executive Vice Chairman and

shareholders for their confidence and trust vested in me during the company's transition. I am delighted to continue working with my dedicated and talented team and to further guide GBI on its journey towards sustainable growth and success." Amr Eid brings over 23 years of experience in the technology and telecommunications industries having worked at leadership positions for numerous global multinational companies. He enjoys a solid industry track record of achievements in building new companies, divisions and subsidiaries, creating innovative go-to market strategies, driving corporate transformation and establishing sustainable industry synergies. He has won many recognitions and awards regionally and internationally over the span of his successful career.





Cisco to Acquire AppDynamics for \$3.7 Billion

Cisco has acquired AppDynamics, a privately held application intelligence software company based in San Francisco. AppDynamics's cloud application and business monitoring platform enables the world's largest companies to improve application and business performance. The price tag for AppDynamics is for approximately \$3.7 billion in cash and assumed equity awards. "Applications have become the lifeblood of a company's success. Keeping those apps running and performing well has never been more important. Unfortunately, that job has only gotten harder, as IT departments and developers struggle with a tangled web of disconnected, complex data that's hard to understand," said Rowan Trollope, Cisco senior vice president and general manager of Cisco's Internet of Things and Applications Business Group. "The combination of Cisco and

AppDynamics will allow us to provide end to end visibility and intelligence from the network through to the application; which, combined with security and scale, and help IT to drive a new level of business results." "AppDynamics is empowering companies to build and successfully run the applications they need to compete in today's digital world," said David Wadhvani, AppDynamics CEO and president. "With digital transformation, companies must re-define their relationships with customers through software. We're excited to join Cisco, as it will enable us to help more companies around the globe." AppDynamics will continue to be led by CEO David Wadhvani as a new software business unit in Cisco's



IoT and Applications business, reporting to Rowan Trollope. The acquisition is expected to close in Cisco's third quarter of fiscal year 2017, subject to customary closing conditions.

Cisco Partners on Evolved WiFi Networks (EWN)

Just over a year since the Cisco/Ericsson partnership was announced it's been announced that the partnership is being extended to include a new WiFi solution called Evolved WiFi Networks (EWN). So a joint venture of sorts has materialized in the shape of a specific system offering, built from Ericsson and Cisco products in one of the market's hot-spots. EWN combines Ericsson's 3GPP access, core networks and applications with Cisco's Wi-Fi portfolio, to provide, claim both companies, a reliable Wi-Fi with the

with Ericsson's customer support, design and deployment services as well as its managed services. Key elements include:

- Indoor Small Cells: Combining indoor Ericsson access networks with Cisco® WLAN enables deployment in venues of both Wi-Fi and cellular connectivity.
- Operator Wi-Fi: Allowing operators who have outdoor Ericsson access networks to use Cisco WLAN to offer access to their subscribers.
- Traffic Steering: Integrating Cisco WLAN with either Ericsson macro or indoor access networks via Ericsson's unique Real Time Traffic Steering feature enables operators to steer users between mobile and Wi-Fi access networks, ensuring the best end-user experience.

Core Network Integration: Integrating Cisco WLAN into Ericsson packet core using trusted configurations will allow operators to offer all their core network services over Wi-Fi for multimode devices.

Ericsson's highly successful Wi-Fi Calling capabilities already deliver seamless voice mobility over Cisco WLAN. Yvette Kanouff, SVP & GM of the Service Provider Business Unit, Cisco sees a network landscape with Wi-Fi traffic predicted to grow to 50 per cent of the total IP traffic by 2020. It's therefore a top priority for service providers are to deliver the best possible connected experiences to their customers." The design and deployment of solutions based on the new offering will be handled by Ericsson's services organization, with full product support from Cisco. Ericsson's capability to offer worldwide services will allow operators to adopt new business models and expand into new markets. EWN can be offered as a fully managed service with the global reach of more than 180 countries. This enables faster rollout times and ease of adaption of the solution. The technology partnership between Cisco and Ericsson, established in November 2015, has so far garnered over 250 active customer engagements, say the companies, and the engagements are now turning into won deals - more than 60 in the past year.



highest performance to Ericsson's mobile, cable and other industries customers. The solutions are to be complemented



Etisalat Group Active to Promote Telecommunications Services in UAE

The Etisalat Group is actively working to strengthen the Etisalat Enterprise division, which aims to reaffirm its position as a pre-eminent telecommunications service provider in the UAE and beyond. The business-to-business (B2B) wing handles smaller entities, SMEs, large business accounts and government departments, with innovation at the core of its operations. Armed with teams for products and services, in addition to dedicated sales teams, the Enterprise Division is currently working on several new experiences that expand into cloud services, security, Internet of Things (IoT), as well as machine-to-machine (M2M) options, among other booming sectors. To date, Etisalat stands as a complete Information and Communication Technology (ICT) solutions provider and trusted outsourced partner. This is complemented by the Enterprise Division, which has helped the company emerge as a major player in the ICT space, and is expected to make significant contributions in terms of revenues in the near future. Etisalat is keen to provide solutions to customers in a profitable and competitive manner; a strategy geared to transform its product portfolio through project management and professional services. Its position at the forefront of telecom technology in the region gives Etisalat a unique advantage to meet customers' present and future needs. Aside from core services such as fixed line mobility, it also offers a slew of services and products that comprise the digital division. The company invests considerable energy to offer an agile platform that customers can use for cloud and other systems. The telecom giant devises solutions to create secure environments, an interactive platform that allows easy access to digital channels (to send texts and enable payments, for instance), encourage the use of smart devices, and

analyze relevant data. The Endeavour is to create matchless M2M and IoT experiences for its clientele. As a first in the region, Etisalat recently conducted 5G live demos with super speeds of 5Gbps. With international standardization of this technology nearing completion by 2017, commercial networks will be implemented in the year 2020. Similarly, Etisalat's M2M technology will allow intelligent machines to communicate with each other via IP-based networks to automate the collection of essential data faster and accurately without human

be controlled to guide the flow of traffic in real time, thereby easing congestion to a great degree. By 2020, smart meters will replace energy meters. As robotics, augmented reality and automated retail gain wider traction in the UAE, Etisalat is taking the lead in implementing these technologies. Last year, the company launched the country's first 'Smart Mall', an integrated technology eCommerce service that provides shoppers with an engaging shopping experience. The first Smart Mall was unveiled at Mall of the Emirates metro station that gives



intervention. M2M SIMs would provide connectivity to a wide variety of solutions for businesses and communities alike. Etisalat's continued spotlight on IoT is transforming the government's vision of Smart Dubai and other projects into reality. The Roads and Transport Authority (RTA) has already connected most traffic lights in the emirate to a central command centre. By using cameras and sensors, the timings of these lights can

customers a chance to browse through products and make purchases through a 3D-enabled format. Aside from instant purchases with Etisalat's novel payment solution, the Mobile Cashier, customers can also choose to have items delivered to their doorsteps.

REGIONAL NEWS

Saudi Telecom Market Hits \$48 Billion

The volume of the telecom sector in the Kingdom is estimated at SR180 billion while capital investment is more than SR50 billion, said Dr. Abdulaziz Bin Salem Al Ruwais, Governor of the Communications and Information Technology Commission (CITC). Addressing a forum on the sector in Riyadh on Wednesday, Al-Rwais said spending on telecom and IT reached more than SR130 billion in 2016. He added that the contribution of the sector to gross domestic product (GDP) and nonoil GDP reached 6 percent and 10 percent, respectively. He said he expected the volume of spending on telecom and IT services would grow to SR138 billion by the end of 2017, thanks to investments by the government and private sectors. He

said the National Transformation Program (NTP) 2020 came as a key support program to realize Saudi Vision 2030. The telecom and IT sector is considered one of the pillars of the NTP 2020 where components of Vision 2030 include the telecom sector and related elements such as infrastructure, broadband, creativity in advanced technologies and investment in the digital economy. The CITC prepared a plan to bring the sector to a higher competitive position that could provide distinguished services for subscribers and act as a stimulus environment for investors with a number of projects. These steps will increase investments in the sector in hosting, cloud computing, supporting small and medium enterprises

(SMEs), and boosting secured networks and information, he said. He said development in the next years would depend on the telecom and IT sectors covering bank services, e-education, e-government and health services. This will create attractive investment opportunities, which have to be met with skills, creativity and the rich experiences of the private sector to push the wheels of development forward in this generous country, he said. He stressed that the CITC would continue efforts to create an effective regulatory environment in a bid to attract and localize investments in the sector.

Online Healthcare Startup Launched in Pakistan



In an effort to introduce revolution in the healthcare sector of Pakistan and to ensure the availability of authentic and experienced doctors within a user's vicinity, "MARHAM – Find a Doctor" has been introduced as a service to facilitate both the patients and the doctors. Started in January 2016, Healthcare Startup MARHAM is an online platform, which is to provide patients with a list of validated doctors based on their location. Doctor

validation is done with assistance with the consultation of Pakistan Medical and Dental Association, hence also resolving the issue of quacks and incompetent doctors in the Pakistani market. MARHAM can be accessed by website or you can download Marham mobile apps Android and iOS application. The word MARHAM is derived from Urdu Language, which means "to cure someone." MARHAM is a Lahore based startup that is currently

targeting 12 major cities in Pakistan. However, it is looking to rapidly extend its outreach to the second and third tier cities as well. MARHAM's range of products allows the customers to check on the best doctors in Pakistan. A patient can check the personal profile of the doctor to check the expertise and other patients' reviews of that doctor. Once the patient is satisfied, he can digitally book an appointment, by the press of a button, and then meet the doctor. Moreover, Healthcare startup MARHAM also gives a public forum that helps the patients and doctors to interact virtually and get second opinion. Other than that, MARHAM's products also make lives easier for the doctors by giving them multiple services that can help them in getting more patients and ensure the smooth influx of existing patients. That particular product is called "Dashboard". It works as a scheduler for the doctors, where they get live information about the status of their appointments. The doctors are notified whenever a new appointment is placed. It also gives doctors the discretion to cancel or postpone all appointments with one click.

Qatar SMEs Recommended to Utilize Social Media, E-commerce

Maximizing the use of social media platforms and digital technology will not only help Qatar's small and medium-sized enterprises (SMEs) reach a wide range of clients but it will also promote growth in the country's non-hydrocarbon sector, according to industry sources. Citing global statistics, Amro Ahmed, commercial excellence manager LC SME at Qatar Shell, said the average person spends at least one to two hours daily on his or her mobile phone. He said this is "a great indicator" for investors, entrepreneurs, and SMEs, as well as suppliers to utilize social media and Smartphones as a tool to reach clients and to promote and access products online. "Electronic trading, e-Commerce, and social media are very powerful and effective tools that we cannot ignore. Either we move with technology or utilize it in a very practical way or else we will be left behind," Ahmed said in a panel

discussion at a recently held conference on SMEs. He said the practice by "old school businessmen" of posting their products on traditional websites "is dying," and stressed that there are "newer social media platforms that are more effective and efficient for business." Ahmed said Qatar Shell has invested in digitizing its operations, particularly in procurement of goods and services. He noted that Qatar Shell's suppliers are encouraged to upload their products online or to create an app and market their company to a larger client network. "For some small-sized companies outside the oil and gas industry like those in cosmetics or in the mobile accessories business, what they do is upload photos of their products on Instagram or any tool so people can view, rate, or comment. That is a free marketing exercise because it is the public that does it for the company," he explained. Also speaking at the panel, Doha Bank CEO Dr.

R Seetharaman stressed that "e-Solutions are not options...every country has to recognize that digital divide is going to make or break the sustainability of the economy." Citing recommendations from a G20 Summit, Seetharaman said to attain sustainable economics, SMEs "are the single most solution" for sustainable development in growing economies, "whether it is growth, employment, or innovation." "E-commerce will be the way to promote Qatar's SME sector," said Seetharaman, adding that Qatar has already embarked on putting in place the right infrastructure, telecommunications, and technology, as well as access to finance. He added, "We have to use digital transformation and digital trade, as well as breaking barriers and automating every possible documentation and direct access to global markets."

Batelco Expands Global Presence with New PoPs

Bahrain's largest wireless operator by subscribers, Bahrain Telecommunications Company (Batelco), has announced further extensions to its worldwide network footprint with new points of presence (PoPs) added across the globe. The plan will help to support businesses

across Bahrain and the Middle East to expand their international reach, and will also provide overseas companies with better communication capabilities. Adel Al Daylami, Batelco Chief Global Business Officer, commented: 'Our global expansion projects allow us to offer a

superior customer experience to more businesses around the world thanks to our key strengths in project management, continuous service monitoring through our advanced tools, pre and after sales support and a high quality resilient global network.'

Artificial Intelligence Service Launched on Social Networking Platform in Dubai



Dubai Electricity and Water Authority, DEWA, has launched its artificial intelligence 'chatbot', called Rammas, on its Facebook page, with further installations on other social media platforms to follow. This supports the directives of the wise leadership to achieve the UAE Vision 2021 to make the UAE one of the best countries in the world. DEWA has adopted innovation within its vision, and incorporated it within 40% of its strategy. DEWA is the first public organization to use an artificial intelligence platform to engage in real-time text conversations with its customers and answer their enquiries interactively and help them find the right

smart service. Rammas is a virtual employee that is to be available around the clock on DEWA's Facebook page. It also works on DEWA's smart app and website. It answers queries using the chat-bot application to be like a real employee. It has the ability to learn and understand the needs of customers according to their questions and analyze data, assess them and finally take the necessary decisions to answer these queries accurately and helpfully. Rammas can also help to easily complete customer transactions."At DEWA, we work according to a clear and integrated strategy to help our smart services achieve world-class standards, in line with the directives of His Highness Sheikh Mohammed bin Rashid Al Maktoum, UAE Vice President, Prime Minister and Ruler of Dubai, to build a smart government that provides services from smart and online services anytime,

anywhere, to save customers time and make them happier. These objectives represent our core work at DEWA and we are inspired by His Highness when he said that, 'Developing services is a daily task, and such an approach will have a real effect on people's happiness.' The ultimate goal of all our initiatives is to make people happy and make their lives simpler by reducing the time taken for completing government services," said Saeed Mohammed Al Tayer, MD and CEO of DEWA."At DEWA we ensure that Dubai's pioneering position is not just a national one, but an international one as well. We have an integrated strategy in place to anticipate the future by innovative planning to achieve continuous progress in all our managerial services and operations, and achieve industrial leadership. We are always trying to support initiatives by Dubai Government to make

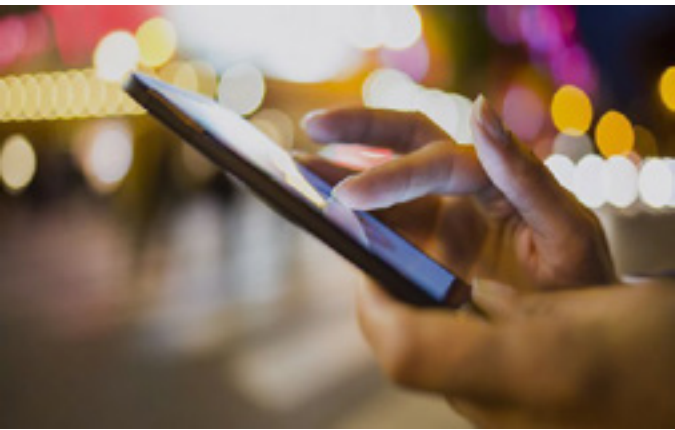
significant progress with connected and smart cities with the adoption of efficient and progressive methods, while adopting the best solutions to achieve our vision to become a sustainable innovative world-class utility," said Al Tayer. DEWA has adopted Strategic Innovation to raise its importance as one of the five strategic goals of the DEWA2021 strategy to instill a culture of excellence, innovation and creativity, and as a means of achieving the progress and continuous development of its services. DEWA has added strategic objectives to innovate and plan for the future, with an integrated strategy for innovation and creative suggestions to serve its customers. This constitutes a major pillar of its corporate values because DEWA is making sure that it is keeping pace with the latest trends in technology.

Pakistan Witnesses a Rise of 8 million 3G/4G Subscribers During 2016

Interestingly, Pakistan Telecommunication Authority (PTA) has released the stats of two months (November & December) in the same month. Pakistan has

of 8 million 3G/4G Subscribers During 2016. The stats simply narrates the success story of efforts of Pakistani mobile operator's regarding digital Pakistan initiatives and providing best ecosystem in the country. According to Pakistan Telecommunication Authority (PTA)'s recent report, the number of 3G/4G users in Pakistan has climbed to 37.57 million at the end of December 2016 as compared to that of 36.41 million in November 2016. On the other hand mobile phone users have also witnessed an increase in the number. They have reached 136,489 million by the end of December

December 2016 as compared to 12.148 million, 6.824 million and 9.504 million by end of November respectively. Whereas 3G users of Ufone also witnessed an increase. The users increased from 5,219,952 in November to 5,305,094 by end of December 2016. Earlier Ufone subscribers witnessed decline in their subscribers. But now the increase in the users is a good sign for Ufone which was once the no. 1 mobile operator of Pakistan. The number of LTE and 4G users of Warid and Zong were also recorded at 637,363 and 2,274,157 respectively as compared to that of 635,054 and 2,080,720 by the end of November 2016. Warid and Zong witnessed an increase in their users in December 2016. Teledensity for cellular mobile also reached 69.80%. Whereas mobile broadband subscribers augmented to 37,574,396 during December 2016 from 36,412,247 in November 2016.



37.57 Million 3G/4G Subscribers till the End of 2016. The stats indicates that Pakistan successfully increased its 3G/4G subscribers from 29 million to 37 million in 2015-2016. Pakistan Witnesses a Rise

of 8 million 3G/4G Subscribers During 2016, up from 135,866 million at the end of November 2016. According to the PTA stats, the number of 3G users of Mobilink, Zong and Telenor reached 12.326 million, 7.134 million and 9.897 million by end of

MVNO SAMATEL ends Mobile Services in Oman

Mobile operator Samatel has abandoned its operations in Oman, terminating mobile services in the Sultanate from 14 January 2017. The MVNO was launched

in 2010, but has now terminated its mobile services, advising customers to port their number to another operator as soon as possible, the Times of Oman reports. It

launched on MVNE Effortel's platform targeting untapped and underserved segments of the market, becoming the sixth MVNO to launch in Oman. In

2015, it acquired Oman's first MVNO Renna Mobile, although it is unclear if the closure of Samatel will impact both brands. "Samatel will bear the cost of porting the number to the requested operator, for all requests received to us

before February 15, 2017, along with a refund of any previous balance on the SIM," Integrated Telecommunications Oman (SAOC), Samatel's parent company, said. An official of Samatel told the Times of Oman the Samatel mobile numbers

will continue to function for one month. "Customers will get one month's time to change to any other operator. We didn't have many subscribers in Oman," said the official.

GSMA Analyzes 4G Availability in Egypt

The GSMA has noted the launch of 4G services by mobile operators in Egypt, and believes that Egypt's leadership in 4G will serve as catalyst for economic growth and deliver broad societal benefits, the association said. During a recent visit to Egypt, the GSMA's Director General Mats Granryd attended the CAIRO ICT Forum and engaged with leaders from the mobile operators and other Egyptian ICT companies. The GSMA found widespread industry support for the Government's plans to release more spectrum in 2017, which were announced by HE Eng. Yasser

ElKady and will further enhance the newly launched 4G services, allowing all mobile operators to offer quality 4G services to the people of Egypt. The International Telecommunication Union emphasizes that abundant spectrum is essential to promoting competition and innovation in telecommunications markets.¹ The Government's plan to release more spectrum in 2017 can help ensure that sufficient spectrum is available for the delivery of high quality, competitive 4G services and to incentivize further investments in 4G

networks. The GSMA represents the interests of mobile operators worldwide, uniting nearly 800 operators with almost 300 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organizations in adjacent industry sectors. The GSMA also produces industry-leading events such as Mobile World Congress, Mobile World Congress Shanghai, Mobile World Congress Americas and the Mobile 360 Series of conferences.

Information Technology Parks to be Built in Pakistan

Ministry of Information Technology and Telecom (MoITT) and Pakistan Software Export Board (PSEB) convened a meeting to review the progress on the establishment of IT parks in Karachi and Lahore, Prime Minister's Internship Program and Capability Maturity Model Integration (CMMI) certification programs used in software development. Minister of MoITT Anusha Rehman chaired the meeting to assess the state of IT industry of Pakistan and steps being taken to strengthen the growth and exports of the industry. PSEB Managing Director Asim

Shahryar Husain informed the ministry that MoU has been signed with Lahore Knowledge Park Company (LKPC) to acquire land for a new IT park in Lahore. Also, Asian Development Bank (ADB) has consented to assist in the feasibility study of IT Park in Karachi. About 1500 interns have been placed in IT companies and IT departments of non-IT firms and a batch of another 1500 interns will be placed in the 3rd quarter of 2017. The board was also notified that about 21 IT companies are shortlisted for CMMI and ISO certifications and their training

process has been initiated which will be completed by February. This will help them in capacity building and earn credibility among foreign clients. IT Minister Anusha Rehman directed the officials to expedite the feasibility studies of IT parks. She also said that maximum IT graduates should benefit from the Prime Minister's Internship Program. She added that local auditors should be used for CMMI certification instead of foreign auditors for cost effectiveness.

Uber Inks Agreement with Dubai Regulator

Ride-hailing service Uber signed an agreement with Dubai's transport authorities on Wednesday to become fully regulated after a series of clashes over pricing and availability. The move signals friendlier relations between the government of the Gulf's most popular business and

tourist destination and what is becoming one of the best known global transport brands. The two will also team up on a project to study how to cut congestion and the cost of transport in the Emirate, which Uber hopes will open up more business opportunities in the future. Under the deal between



Uber and the Roads and Transport Authority (RTA), Uber will be able to use 14,000 vehicles through its app "as per the laws governing the operation of taxis and limousines in Dubai emirate", an RTA statement said. Uber, which has a valuation of around \$70 billion, has grown rapidly to more than 450 cities since 2009, fighting a series of battles with local regulators. Present in Dubai since 2013, Uber has had shaky ties with the RTA partly due to a disagreement about pricing and whether it had to follow the path of local rival Careem and allow customers to book all taxi rides in the Emirate, not just its own. Anthony

Khoury, regional director of Uber in the Middle East, told Reuters the deal did not include providing customers with an option to book a regular taxi. The RTA made no comment about that aspect of their previous disagreements. Previously, Uber, in which Saudi Arabia's Public Investment Fund bought a \$3.5 billion stake in June, had complained that Dubai's regulations required it to price its rides 30 percent above taxi fares - a very large gap by international standards. "The deal is two-fold: Uber is now fully regulated by the RTA and we have become strategic partners undergoing a collaborative study to launch an economy

solution for transportation by the second half of 2017 that is more affordable and reduces congestion on the road," Khoury said. The study, according to Khoury, will help Uber introduce other products such as its car pooling service "UberPool", and driverless cars in Dubai, a city of about 2.5 million people. Uber's relations with neighboring Abu Dhabi have also been frosty. Uber's services have been suspended in the emirate since August in an apparent dispute with authorities there. Careem also halted its Abu Dhabi services in late August but resumed them a few days later.

Digitization Most Common Trend Among Mena Businesses

Digitization is becoming the most common trend among Middle East and North Africa (Mena) businesses to enhance workplace productivity, according to Canon. Its 'Office Insights' report found that 76% of Mena organizations believe that printing or copying documents is "essential" or "very important" for them personally. While scanning is seen as very important by 39%, multi-functional devices (MFDs) such as all-in-one printer, scanner and copiers have "significantly" improved productivity for around 50% of all end-users, with MFD usage increasing

by 38%, it said. The findings are a part of its report which aims to highlight the impact of document handling technology in high-growth markets across Central and Eastern Europe, Eurasia, the Middle East and Africa. "It's clear that businesses across regional markets are being empowered by innovative technology, and are welcoming futuristic ways of working to drive growth," said Hendrik Verbrugghe, marketing director, Canon Middle East and Canon Central and North Africa. However, he said, it is not without its set of challenges and therefore it is

crucial to address concerns and provide the right level of guidance for each unique market, to ensure businesses are making informed and beneficial technology investments. The digitization is becoming the most common technology trend in Mena and is influencing organizations and contributing to increased productivity and service, it said, adding technology is shaping the future for businesses and digital documents and information are both driving companies forward and challenging them in new ways.

Mobilink & Warid Gear-up for Joint Venture

Mobilink and Warid are gearing up to merge their operations into a single brand, having received permission from the Islamabad High Court to merge the two businesses in December 2016, ProPakistani writes. According to the news outlet, the enlarged company is expected to use the 'Jazz' brand previously used by Mobilink for its pre-paid offerings. Consequently, the Warid and Mobilink names will be phased out, whilst former Warid customers will be transferred to Jazz. As previously reported by TeleGeography's CommsUpdate, VimpelCom and Abu Dhabi Group, the respective parents of Mobilink and Warid, agreed to combine their businesses in November 2015, and a share swap - which saw Mobilink acquire 100% of the shares in Warid, whilst Abu Dhabi Group shareholders acquired a 15% stake in Mobilink - was completed in July last year.



Samsung Negotiates Over Egyptian Smartphone, IoT Factory

Samsung Egypt says it has started negotiating with the Information Technology Industry Development Agency (ITIDA) and the Ministry of Information Communications and Information Technology to establish a factory to manufacture its smartphones and Internet of Things devices in technological zones.

Etisalat Group and Mobily to Develop a Service and Technical Support Agreement after Management Agreement Ends



statement that the two sides 'will continue to work closely and foster the relation between each other to enhance the shareholders' value of both companies.' The operator also added that 'Etisalat Group and Mobily are currently working on developing a service and technical support agreement, which will take into consideration Mobily's requirements for the coming period given the scale of its operations and customer base.' TeleGeography notes that at the time of its launch in 2005, Mobily's largest single shareholder was Etisalat with a 35% stake. In April 2008 a further 20% tranche was floated on the stock market (as had been agreed under the terms of its original licence), and the sale saw Etisalat's stake diluted to 26.25%. Etisalat, however, has since modestly increased its holding in the company by buying out Mobily's outstanding shares, and currently holds 27.5% of the Saudi operator.

UAE-based telecoms group Etisalat has revealed that its management agreement with Saudi Arabian affiliate Etihad Etisalat (Mobily) had expired and the companies have decided not to renew the arrangement. Etisalat said in a brief

SATELLITE NEWS

Small Satellite Regulatory Cooperation Strengthened in the Americas

ITU's SmallSat Symposium and Workshop enabled satellite policy-makers, regulators, manufacturers, operators and academia to strengthen cooperation and partnerships among the small satellite

projects and services community in the Americas region. The Symposium was organized by ITU in cooperation with the University of Chile and with the support of Chile's sub-secretariat

for Telecommunications (SUBTEL), and was opened by Rodrigo Ramirez, Sub-secretary of SUBTEL, and attended by 80 participants representing 22 countries, mostly from the Americas region.

Indosat Inks Deal with Thuraya to Launch New Business User Services

Mobile operator Indosat Ooredoo has inked a memorandum of understanding (MoU) with satellite services provider Thuraya Telecommunications Company which the partners say should help transform communications in Indonesia. Under the framework agreement, the pair will promote a new range of joint offerings – combining Indosat products with Thuraya Satellite technology and devices for the Indonesian business user segment. The MoU focuses on three

main areas: firstly, the new services will use Indosat SIM cards roaming on the Thuraya network; secondly, the pair will look to bundle Indosat Ooredoo digital applications with Thuraya devices; and in the future, the two firms will look to exploit potential openings in the nascent Internet of Things (IoT) market. Commenting on the MoU, Herfini Haryono, Indosat Ooredoo Director and Chief of Wholesale and Enterprise, said: 'We look forward to working with

Thuraya to offer communication services beyond terrestrial reach. This will allow businesses, military and oil and gas companies, which operate on sea or on remote locations to stay connected with their central offices, bases, and partners. It increases the efficiency of their operations, saves lives and increases employee satisfaction by keeping in touch with their families.'

Mobile LTE Wins' Satellite Operator Licensee in Thailand

Thailand's National Broadcasting and Telecommunications Commission (NBTC) has granted Mobile LTE a satellite operator license. Mobile LTE has received a 15-year licence to operate both a

satellite-transponder leasing service and a satellite-signal uplink/downlink service, The Nation reports, citing NBTC member Prawit Leesatapornwongsa. According to Leesatapornwongsa, Mobile LTE will

talk with the Minister Ministry of Digital Economy and Society to reserve an orbital slot.

ACMA Cuts Satellite Tax Rate to Encourage Investment

The Australian Communications and Media Authority (ACMA) has announced that the taxation rate for satellite licenses has been reduced in an effort to improve spectrum efficiency and encourage investment in Ka-band satellite and space-based services. The ACMA will decrease taxes for satellite services operating over the 17.3GHz-51.4GHz spectrum bands by 30 percent for Australia-wide and high-density area (HDA) licenses; by 50 percent for medium-density area (MDA) and low-density area (LDA) licenses; and by 100 percent for remote-density area (RDA)

licenses -- apart from a minimum tax of AU\$39.57. The ACMA also announced that it will encourage spectrum sharing by reducing its taxation of earth station spectrum by 30 percent where it is shared in co-frequency terminals located within 500 meters for earth stations in HDAs; 1,000 meters for MDAs; and 2,000 meters for LDAs and RDAs. The ACMA will also remove the fixed annual tax of AU\$279/MHz for non-geostationary orbit (NGSO) services licenses operating in frequencies higher than 8.5GHz. The federal government agency said it undertook the satellite taxation review as a response to

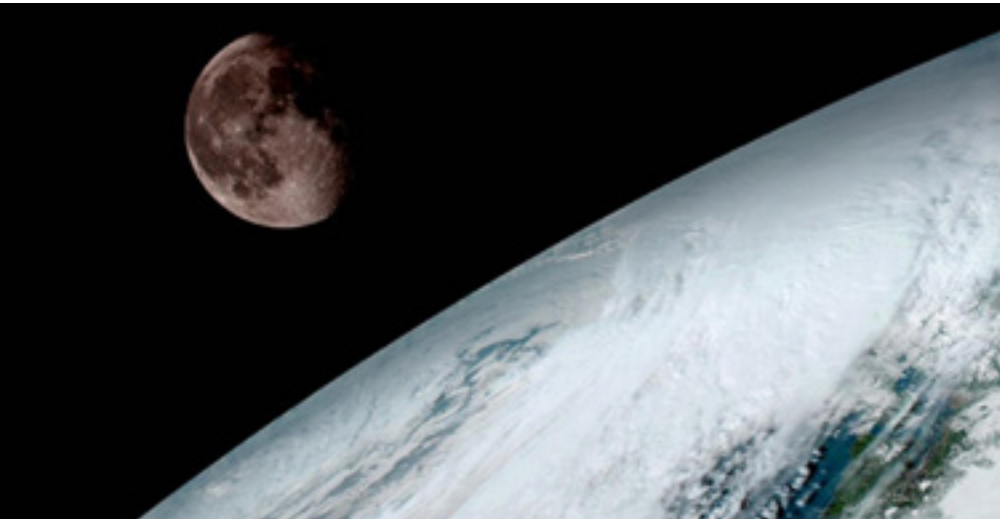
concerns raised that the rates in Australia were higher compared to industry averages internationally, especially when taking into account the Ka-band's large bandwidth requirements. Australian telco industry group Communications Alliance welcomed the new taxation rates, saying it would improve efficiency in using spectrum and increase investment in the Australian satellite industry. "The ACMA has acknowledged that making Australia's pricing structure more aligned with international norms should mean that Australia can derive greater value from the space sector, which already

contributes more than \$4 billion per annum to Australia's GDP," said Communications Alliance CEO John Stanton. Optus' satellite division owns the largest number of satellites covering Australia and New Zealand, with six satellites in orbit providing coverage to the region, while the Australian government's National Broadband Network (NBN) has launched two Ka-band satellites over the last year to provide high-speed broadband for the 400,000 eligible premises in rural areas. While both Optus and NBN rely on satellite coverage for connecting those living in remote areas, however, the Australian

Medical Association (AMA) earlier this month said NBN's satellite technology is unsuitable for telehealth, as it does not provide high enough data allowances and speeds. Regional and rural communities already face a range of disadvantages when compared to their city counterparts," AMA vice president Tony Bartone said. "Many regional and remote areas have very poor internet connections, with relatively small download allowances, and at a much higher cost and slower speed than the services available in our cities." NBN's Sky Muster satellite service provides speeds of up to 25/5Mbps and

data allowances of 150GB per month, with an additional 50GB download per month for distance education students. The AMA said it is specifically calling on the federal government to "develop measures to priorities or optimize the broadband capacity available by satellite for hospitals and medical practices, either by exempting or allocating higher data allowance quotas, or by providing a separate data allowance", as well as extending its fiber, cable, and fixed-wireless network footprints and increasing mobile coverage where possible.

NOAA Releases First GOES 16 Image



The National Oceanic and Atmospheric Administration (NOAA) has released the first image taken by Harris's Advanced Baseline Imager (ABI) onboard their next-generation weather satellite. The image taken from the Geostationary Operational Environmental Satellite 16 (GOES 16) is of Earth's full western hemisphere with detailed cloud and water features.

The Harris ABI, the main payload on the satellite, is a high-resolution digital camera with image resolution of one-tenth of a square mile, or four times better than current imagers, according to a statement released by Harris. Additional filters, or spectral bands, on ABI will detect more information about volcanic ash, dust, clouds, winds, fires,

rainfall rate, and hurricane intensity than previous generations of geostationary weather satellites. Critical information about severe weather events can come as fast as 30 seconds, five times faster than previous technology. "Once the satellite is fully operational, the resolution of the imagery taken from the Harris ABI will be comparable to seeing a quarter from a mile away," said Eric Webster, vice president and general manager of Harris Environmental Solutions. The image was downloaded and processed by the Harris-built enterprise ground system, which controls the weather satellite and all of its six major instruments, including ABI. The ground system will also process the increase in new data, producing 1.75 terabytes of data per day for the National Weather Service and other users. GOES 16 was called GOES R prior to its launch from Cape Canaveral, Fla., Nov. 19, 2016. Like its predecessors, GOES R was renamed GOES 16 after launch, following NOAA's numerical naming convention.

US Air Force SBIRS GEO Flight 3 Satellite Successfully Launched

United Launch Alliance (ULA) successfully launched the U.S. Air Force's Space Based Infrared System (SBIRS) Geostationary (GEO) Flight 3 satellite from Cape Canaveral Air Force Station in Florida on Jan. 20. The Lockheed Martin-built satellite began responding to commands as planned, approximately 37 minutes after lift-off, according to the

company. SBIRS GEO Flight 3 is equipped with scanning and staring sensors that collect and transmit infrared surveillance information to ground stations. The U.S. military will use this information to detect missile launches, support ballistic missile defense, expand technical intelligence gathering, and bolster situational awareness on the battlefield.

This mission was launched aboard an Atlas 5 Evolved Expendable Launch Vehicle (EELV) 401 configuration vehicle, which includes a 4-meter diameter Large Payload Fairing (LPF). The Atlas 5 booster propulsion for this mission was powered by the RD AMROSS RD-180 engine, and the Centaur upper stage was powered by the Aerojet Rocketdyne RL10C

engine. Aerojet Rocketdyne propulsion systems on the Atlas 5 include the RL10C-1 upper-stage engine, six helium pressurization tanks, and 12 Centaur upper-stage Reaction Control System (RCS) thrusters; also, Aerojet Rocketdyne provided 18 monopropellant hydrazine thrusters on the GEO Flight 3 satellite. The satellite will begin transitioning to its final location in geosynchronous orbit, approximately 22,000 miles above the Earth. There, its solar arrays, light shade and antennas will be deployed to begin

early on-orbit testing. SBIRS GEO 1 and GEO 2, which were launched in 2011 and 2013 respectively, continue to meet performance expectations, according to a statement by Lockheed Martin. The satellites' sensor pointing accuracy and sensitivity for detection of targets significantly exceed specifications. While SBIRS' primary mission is strategic missile warning, infrared data will also be made available for new qualified military and civilian applications at the Air Force's recently opened Tools, Applications and

Processing Lab in Boulder, Colorado. The next satellite, GEO Flight 4, will undergo final assembly, integration and test prior to its planned launch later this year. SBIRS GEO 5 and GEO 6, which are currently in production, incorporate a new common spacecraft bus, the modernized A2100, to dramatically reduce costs and cycle times while increasing the potential to incorporate future, modernized sensor suites.

Similarity, Taqnia Launch AI for Satellite Imagery Analysis

Similarity, a Silicon Valley-based company that focuses on Artificial Intelligence (AI), has partnered with Taqnia Engineering and Technology Services, with the aim to provide automated anomaly detection in daily satellite images that will deliver timely alerts for monitoring remote locations. Taqnia is a technology development company owned by the investment

arm of the Saudi Arabian government. "Our remote sensing clients need timely alerts regarding what's happening on the ground. The increasing volume of satellite imagery data is driving the need for an AI-assisted solution," said Abdulaziz S. Aljowair, CEO of Taqnia. Satellite constellations are now providing huge volumes of high-cadence images. Using these near-daily images, Similarity's

AI software can automatically detect and monitor unusual activities across vast amounts of terrain. It is designed to instantly compare incoming data and images to historical information about the same location or asset, using machine learning to determine if changes are unusual or predictive of problems, according to a statement provided by Similarity.

US Government Will Likely Remain Largest Buyer of Satellite Services

The United States government will likely remain the largest purchaser of commercial satellite services as global military tensions rise. With a Compound Annual Growth Rate (CAGR) of 3.6 percent, this market is stable but is expected to average \$53.78 million per year through 2022, according to a new report by Research and Markets.

The U.S. government is the single largest purchaser of commercial satellite services in the world, and accounted for \$1.34 billion in 2015. Global tensions and military conflicts around the world are driving the need for surveillance and information sharing. Thus, satellite demand fluctuates significantly with global U.S. relations; however, many

of these regions, such as the Middle East and Africa, remain consistent, high-demand locations for U.S. military satellite communications. As a result, these contracts are highly competitive, with many organizations custom tailoring new satellites and ground hardware to meet the unique needs of the U.S. government/military.

UAE's Thuraya Speeds Up Command and Control



For the first time, smart phone users can use unified Thuraya and cellular networks for mission critical, crisis management, defense and civil protection operations thanks to CRYPTTIA, a unique command and control platform developed by EYEONIX SA. CRYPTTIA is a global platform combining both terrestrial and satellite voice technologies to

bring push to talk services to smart phone users. CRYPTTIA is an IP-based end to end solution which offers "bring your own device" (BYOD) capability for fast and reliable communications in mission critical environments. It offers speed of deployment and ease of use. CRYPTTIA is the only platform that can be fully operational, from scratch, in less than four hours as a mission critical unified system. The portable version, which is deployable in less than five minutes,

serves as a fully operational command, control and decision support system. It

requires less than one day to train mobile users, command and control centre

training is completed in three days, and administrator training takes five days.

Airbus Wins Four-Year Satcom Contract from French Administration

Airbus Defence and Space has won a contract to supply satellite communication systems for UGAP, the French public procurement agency. This four-year contract covers the supply of equipment and services for fixed and mobile satellite communications (satcom) in the Ku and Ka frequency bands. UGAP is a public institution and the only national procurement agency in France, serving mainly the state, local

authorities and hospitals. The contract foresees all public technical services to use a simple order form for satcom equipment and services anywhere on French territory. Airbus Defence and Space's users of fixed or mobile (vehicle, trailer, or shelter) satcom stations include the Interior Ministry's General Directorate for Civil Security and the departmental Fire and Emergency Response Brigades, plus about 40 French Departments.



Canada on Path to Provide High Speed Internet to All



On December 21, the Canadian Radio-television and Telecommunications Commission (CRTC) declared that broadband access internet service is now a "basic telecommunications service for all Canadians," vowing to bring high-speed internet access to all citizens. With the government setting its sights on speeds of 50 megabits per second (Mbps) downloads and 10 Mbps upload for fixed broadband internet access services, the CRTC will now look to expand internet infrastructure throughout the country through \$750 million in funding that will come available in the next five years for areas that do not meet the targets. But what piece of that pie belongs to the satellite industry? As a large country

with far-reaching remote regions, the government is looking to all players in the communication landscape to do their part to ensure Canadians have access to "the services they need to participate in the digital economy," Jean-Pierre Blais, chairman and CEO of the CRTC, said in a statement released along with the December announcement. "Access to broadband Internet service is vital and a basic telecommunication service all Canadians are entitled to receive. Canadians who participated during our process told us that no matter where they live or work in our vast country – whether in a small town in northern Yukon, a rural area of eastern Quebec or in downtown Calgary – everyone needs access to

high-quality fixed Internet and mobile services. We are doing our part to bring broadband services to rural and remote communities," said Blais. Currently, according to the "2014 CRTC Satellite Inquiry Report," about 90 communities in rural areas of the country rely on satellite for telecommunications services provided through two models: Direct-to-Home (DTH), and the community aggregator model, which uses a local access distribution network that connects end users to an earth station using satellite transport that can support both voice and data services. This amounts to more than 18,000 households that rely on satellite services throughout the country. "Many Canadians who depend on satellite services for some or all of their telecommunications needs are located in some of the nation's most remote areas, where terrestrial transport facilities are minimal or non-existent. In particular, satellite-dependent communities present a challenge to connect terrestrially due to significant costs, lack of roads, harsh terrain, and short construction seasons," Patricia Valladao of the CRTC told Via Satellite. While many Canadians rely on satellite internet throughout the country in areas where it is prohibitively expensive to build out terrestrial broadband networks, only about 1.5 percent of households in Canada subscribe to satellite-based internet. This pertains mainly to areas in Northern Canada that rely on satellite

as a sort of “last resort” technology, but these are not the only areas reliant on satellite tech. “Lesser known is that many communities just outside major metropolitan cities also rely on satellite internet, places that are not quite urban, and not quite rural, but somewhere in between. For instance, the ISP Xplornet mentioned in the proceeding of this decision that their satellite customers are most concentrated right outside Toronto, Canada’s largest city,” said Cynthia Khoo, an internet and digital policy lawyer that advises several organizations on CRTC hearings. The problem in expanding satellite alongside this decision, however, is that current satellite-based internet services do not meet the new standards that the CRTC decision set out, especially at affordable prices, according to Khoo. When it comes to actual service on the

ground, as opposed to advertised service, many do not even meet the former targets of 5 Mbps downlink, 1 Mbps uplink speeds. She notes that the last federal government set previous speed targets at 3 Mbps for the rural communities in Nunavut and in Nunavik, Quebec, due to their reliance on satellite. “The real challenge for satellite internet, though, is not necessarily speed in the sense of bandwidth, or throughput. Where satellite falls down compared to other forms of internet access is in other quality of service factors such as latency, or the time it takes for the user’s data packet to travel from their home device and back,” says Khoo, noting that this is a physical limitation due to satellites being so far away and the data having that much more distance to travel. Weather susceptibility is another common barrier. “All things

considered, satellite companies will have to come up with some really advanced and innovative solutions if they are to contribute meaningfully to advancing Canada’s national broadband plan,” said Khoo. Going forward, the CRTC has dedicated up to 10 percent of each year’s total funding limit to supporting operational and some capital costs of internet service in satellite-dependent communities. According to Khoo, this means that satellite-based internet service providers are eligible for funding related to improving speed, capacity and quality of internet access, including the costs of satellite capacity and equipment, satellite links, modems and other costs related to building and maintaining earth stations.

Made in Space, Axiom Ink Collaboration to Manufacture Products in LEO

Made In Space, a 3D printing company that provided metal 3D printers to the International Space Station (ISS), and Axiom Space, developer of a privately owned commercial space station, have struck an agreement to manufacture products in Low Earth Orbit (LEO). The companies are currently working out the logistical elements of in-space manufacturing, outfitting the in-space factory with equipment, utilities, power and thermal management to meet “growing demand,” according to a statement released by Axiom. Made In Space’s technology, operating aboard Axiom’s modules, aims to service and expand satellites and station capabilities. In parallel to the manufacturing element,

the companies are working together to plan the delivery of completed products to Earth, ensuring quality during flight and upon arrival. “This partnership allows us to continue to evolve and develop new products and allow our customers to invest in space manufacturing knowing that there will be an ongoing human presence on orbit,” said Andrew Rush, CEO of Made In Space.



Telefonica Launches 4G LTE In Antarctica

Telefonica Moviles Argentina (Movistar) has launched Antarctica’s first 4G LTE mobile network. At Marambio Base, a permanent Argentine research facility in Antarctic territory, the most remote region on the planet, the only viable method of data communication is through a satellite network. In addition to increased data capacity to support 4G service for the 70

permanent residents and 5,000 annual visitors at Marambio, the solution has increased network stability and reliability compared to the previous communication network solution, according to a statement released by the company. Telefonica’s deployment at Marambio has increased data transfer speeds from 1.5 Mbps to 20 Mbps. 4G data is transmitted

and received through a point-to-point link between Balcarce Teleport in continental Argentina and Marambio base and uses NovelSat NS3000 High-Data Rate (HDR) satellite modems and the NovelSat NS4 software package that aims to boost capacity.

Bangabandhu Satellite-1 Passes Critical Design Review

Thales Alenia Space has revealed that its Bangabandhu Satellite-1 has passed a major milestone by passing the Critical Design Review at the end of 2016. Completion of Critical Design Review means that the company can now commence the production phase of the satellite. Bangabandhu is a turnkey satellite telecommunications system, comprising a satellite and the complete ground segment (control, mission and user segments). The production phase will commence with the integration of the communications module in Thales Alenia Space plant in Toulouse and the service module in Cannes, with the mating set for March 2017. At the same time, the

ground team is kicking off factory acceptance tests and starting local work on the installation of ground antennas. Thales Alenia Space is also in charge of building two facilities in Bangladesh for all ground support equipment needed to control the satellite and operate the telecom system. Thales Alenia Space Belgium, Thales Alenia Space Italy and Thales Alenia Space Spain are all involved in this project, as suppliers of various ground and satellite components. The launch



service is also covered by the contract, and will be provided by a SpaceX Falcon 9 launch vehicle.

Eutelsat 117 West B All-Electric Satellite Enters Commercial Service



Eutelsat Communications' Eutelsat 117 West B satellite has entered into full commercial service and is now ready to support customers across Latin America. Commercialized by the Eutelsat Americas affiliate, Eutelsat 117 West B

is the second all-electric satellite in Eutelsat's fleet. It is equipped with 48 Ku-band transponders, a 36 MHz equivalent, and connected to four beams covering Mexico, Central America and the Caribbean, the Andean region and the Southern Cone. Eutelsat's new satellite complements its Eutelsat 117 West A, launched in 2013, to create a multi-satellite neighborhood at 117 degrees west, which is already used by Millicom's Tigo Star, Stargroup and Televisa. It will also provide key services to telecom operators and government service providers in Latin America, according to Jan. 16 statement released by the company. Eutelsat 117 West B features a new-generation Wide

Area Augmentation System (WAAS) payload operated by Raytheon as prime contractor for the U.S. Federal Aviation Administration (FAA), which will go live in 2018. Developed for the civil aviation community, the WAAS payload is designed to receive signals from ground stations that verify signal accuracy and rebroadcast the information to GPS users, including airline cockpits, the most demanding of civil GPS applications. It will increase GPS signal accuracy from 10 meters to 1 to 2 meters, enhancing aviation safety for users in Canada, Mexico, Puerto Rico and the continental United States including Alaska, according to Eutelsat.

UrtheCast Agrees to Sell and Operate First Two Satellites in SAR Constellation for \$180 Million

UrtheCast has entered into a binding agreement with a confidential government customer for the sale and shared operation of the first two satellites in its OptiSAR constellation, a commercial EO constellation with integrated optical and Synthetic Aperture Radar (SAR) sensors. The deal is valued at \$180 million, according to a Jan. 17 statement released by UrtheCast. The customer has also agreed to pay an additional \$30 million

for other products and services related to the sale of the satellites, contingent on the parties reaching mutual agreement on the final scope of these deliverables. The geospatial and geo-analytics company is currently developing two EO satellite constellations, OptiSAR and UrtheDaily. UrtheCast has planned for the OptiSAR constellation to comprise 16 satellites in total, eight optical and eight SAR, flying in two orbital planes, with each plane

consisting of four satellite pairs. Each pair will fly in tandem and consist of a high-resolution optical satellite offering video and pushbroom imaging and a dual-band SAR satellite comprised of X and L radar bands. Subject to UrtheCast financing the build and launch of the remaining six satellites in the first orbital plane, the first eight satellites are scheduled for launch in late 2021, with operations expected to begin in 2022.

Thuraya Donates Telecom Equipment to Boost ITU Disaster Readiness

Thuraya Telecommunications has donated new supplies of emergency telecommunication equipment to the International Telecommunication Union (ITU) under the decade-old Emergency Telecommunications support arrangement. This donation aims to strengthen the ITU's capacity in natural disaster preparedness, search and rescue, and response through the use of new mobile satellite communication equipment. Thuraya's satellite equipment

will enhance the scale at which the ITU can deploy mobile communications to assist countries affected by disasters, and strengthen response, relief and recovery interventions. The donation, which includes Thuraya XT-LITE handsets, SatSleeve+ and SatSleeve Hotspot units, meets the demand and requirements of disaster affected regions: it's transportable, easy to use and easy to deploy, according to a statement released by the company. Thuraya's

previous donations to the ITU have helped to provide a critical path for relief in emergency and disaster situations. Most recently, in 2016, the ITU deployed Thuraya terminals in flood-stricken Sri Lanka. These units were used to support relief and coordination efforts on the ground during the torrential rains that caused loss of lives and destruction to infrastructure.

Viva Partners with TikiLIVE to Boost OTT Services



Viva Entertainment Group, a developer of Over-the-Top (OTT) systems, has signed a strategic sales agreement with OTT content aggregator TikiLIVE, an OTT and Internet Protocol Television (IPTV) provider. The agreement will give Viva access an array of TikiLIVE services, including Nielsen-rated networks and

technology aggregation for its consumers and its business partners, as well as channels such as ESPN, AMC, Discovery, A&E, FX USA, History, National Geographic and others.

Satellite Constellations Could be Poised to Challenge the Broadband Industry

A new generation of satellite entrepreneurs is headed back to the launch pad. Backed by billions of dollars from deep-pocketed investors, they plan to blanket the earth in the next few years with perhaps thousands of miniature satellites beaming cheap, ubiquitous broadband service. What's different? Launching one of these smaller satellites can cost a fraction of the price for a larger, school-bus-sized satellite. These new satellites will largely be mass-produced. And consumers now demand high-speed Internet connectivity pretty much everywhere, on airplanes, cruise ships and in the remotest village in Africa. Companies such as SpaceX, OneWeb and Boeing have all recently proposed networks of satellites in low-Earth orbit to provide high-speed broadband access around the globe. Even Facebook chief executive Mark Zuckerberg has aspirations to bring Internet to poorly connected areas — a plan that was derailed in September after a satellite set to beam high-speed

service to areas including sub-Saharan Africa was destroyed in the explosion of a SpaceX rocket on a Florida launch pad. If this latest wave of satellite networks gets off the ground, it could pose a challenge to a \$224.6 billion industry currently dominated by telecom and cable companies with their miles of fiber optic and copper wires. "That's going to shake up how these operators are controlling different regions, and it's going to allow the consumer a little more of an option," said Taylor Palmer, industry analyst at market research firm IBISWorld. In mid-December, the Arlington, Va.-based OneWeb said it secured \$1.2 billion of funded capital in a round led by Japanese technology giant SoftBank Group Corp., which contributed \$1 billion of the total. The money will fund construction of a Florida satellite manufacturing plant, which is set to start production in 2018. SoftBank is just one addition to OneWeb's list of big-name investors, which includes Qualcomm Inc., Airbus Group, Coca-Cola

Co. and Richard Branson's Virgin Group. Satellite-provided broadband service is still tiny. It generated revenues of \$1.9 billion in 2015, according to a June report from the Tauri Group that was commissioned by the Satellite Industry Association trade group. That compares with \$97.8 billion for satellite television. But interest in satellite broadband is growing as consumers expect high-speed service in places that aren't always well-served by fiber or cable. Analysts say satellite constellations could have the biggest effect in remote areas. In 2014, almost half of the world's population lived in rural regions, which are largely unconnected to the Internet, according to a report from ITU, a special agency of the United Nations that handles information and communication technologies. "Internet access is fundamental for understanding of culture, cultural differences, civic understanding and participation," said Greg Wyler, founder and executive chair of OneWeb. "It helps

make the unconnected economically relevant to the developed world. When they're economically relevant, we pay a lot more attention to them." The company has an ambitious timeline. It plans to launch the first 10 satellites into low-Earth orbit in early 2018 to test their capabilities. More launches will follow, with its broadband access beginning as early as 2019. By 2022, OneWeb says it

will connect every unconnected school to the Internet. Eventually, OneWeb plans a 700-satellite constellation. OneWeb's satellite manufacturing facility in Exploration Park, Fla., is key to these plans. The company will mass produce its microsatellites with automated assembly capabilities similar to those used in aircraft production facilities, eventually making three a day. SpaceX, based

outside Los Angeles, plans to eventually launch more than 4,000 satellites for its network. In 2015, the company received a \$1 billion infusion from Google and Fidelity Investments and opened an office in Redmond, Wash., near Seattle, to focus on developing the small satellites. SpaceX chief executive Elon Musk has said the whole constellation could cost \$10 billion to \$15 billion.

OmniAccess Starting to Look at LEO Capacity



OmniAccess is confident it will continue to see strong growth in its key target markets, such as the high-end yacht market and the boutique cruise market, as it looks to acquire capacity on Low Earth Orbit (LEO) satellites in the next five years. OmniAccess CEO Bertrand

Hartman told Via Satellite that more High Throughput Satellite (HTS) capacity coming online could impact how the company acquires capacity going forward. He believes that the static HTS available now, in which the spot beams can't be moved, "may not be the way forward." According to Hartman, while those Mbps on a price-per-beam basis are very competitive, there are examples with static beams where the bandwidth is not exactly where the customer needs it to be. "I think that model [of buying

capacity from fixed Geostationary satellites] compared to LEO, for instance, could change. If you are pushing 50 to 100 Mbps, it is no longer the speed that is governing things; it is latency that is becoming the driving factor in the user experience. I think, increasingly, as the bandwidth per user numbers become more mainstream, LEO is going to become more and more interesting in proposals. We are certainly looking at those things. We think the next five years will be different than the last five years," said Hartman. With the company targeting the high-end yacht market, as well as the boutique cruise market, its demands for capacity are spiking upward. To compensate, OmniAccess is developing its HTS strategy. The company already has capacity on Telesat's T12 Vantage satellite, which has high throughput capabilities. Hartman believes HTS will impact the business in "multiple ways."

Hughes Launches Testing of EchoStar 19

Hughes Network Systems has begun system-level testing of its new EchoStar 19 broadband high-throughput satellite following successful placement into its permanent geosynchronous orbital slot at 97.1 degrees west longitude. The satellite was manufactured by Space Systems Loral (SSL) and launched aboard a United Launch Alliance Atlas 5 launch vehicle from the Kennedy Space Center at Cape Canaveral, Florida on Dec. 18, 2016. Designed with Hughes Jupiter System high-throughput technology, EchoStar 19 is a multi-spot beam, Ka-band satellite that will power HughesNet Gen5, the company's next generation of satellite

internet service, according to a statement released by Hughes. From its orbital slot, EchoStar 19's 138 beams aim to provide coverage for high-speed internet service to homes and small businesses in the continental United States, Alaska, Mexico and parts of Canada and Central America. EchoStar 19 joins EchoStar 17, which has been in service since 2012, and will more than double HughesNet's current capacity, support faster speeds and provide more data for today's online activities, according to Hughes. HughesNet currently has more than 1 million subscribers. The company expects to begin delivering service to



customers over EchoStar 19 by the end of the first quarter of 2017.

Intelsat Announces Final Results of Exchange Offers by ICF



Intelsat has announced the final results for the two private offers to exchange certain outstanding notes of Intelsat, which were previously announced by its wholly owned subsidiary, Intelsat Connect Finance (ICF). On December 7, 2016, ICF offered to exchange up

to \$217 million principal amount of outstanding 6.75 percent senior notes due 2018 of Intelsat Luxembourg (Lux Notes) and up to \$624 million principal amount of outstanding 7.75 percent senior notes due 2021 of Intelsat Luxembourg for cash and newly issued 12.5 percent senior notes due 2022 of ICF. On December 22, 2016, tenders from holders of approximately \$167 million, or 35 percent, of the aggregate principal amount of outstanding 2018 Lux Notes (other than notes held in treasury by Intelsat Luxembourg and its affiliates) and tenders from holders of approximately \$624 million, or 31 percent, of the aggregate principal amount of outstanding 2021 Lux Notes, were accepted for purchase in the exchange offers. After December 22, 2016 and before the expiration of the exchange offers, ICF received tenders

from holders of approximately \$25,000, or 0.005 percent, of the aggregate principal amount of outstanding 2018 Lux Notes, and are expected to be accepted for purchase in the exchange offers. No additional 2021 Lux Notes will be accepted for purchase. ICF has tendered, or will tender, approximately \$402 million principal amount of 2018 Lux Notes into Intelsat Luxembourg's ongoing offer to exchange 2018 Lux Notes for newly issued 12.5 percent senior notes of Intelsat Luxembourg due 2024, comprised of all of the 2018 Lux Notes it has acquired, or will acquire, in the exchange offers, together with the approximately \$210 million principal amount of 2018 Lux Notes it received in connection with certain private exchanges for ICF Notes and the \$25 million principal amount of 2018 Lux Notes it held in treasury.

China Launches Second Telecom Test Satellite

China successfully launched its second telecommunication technology test satellite on Jan. 5 from the Xichang

Satellite Launch Center in southwest China's Sichuan Province, Xinhua, China's state-run news source, has reported. The

satellite was launched at 11:18 p.m. local time by a Long March-3B carrier rocket.

Yahsat Seeks to Expand Y1B Satellite Broadband Services



AlYahSatelliteCommunications has placed an order for the Hughes Network Systems-built very small aperture terminal in an effort to expand Yahsat's broadband services and other offerings delivered through its Ka-band Y1B satellite. The Hughes-built Jupiter System is a VSAT platform that integrates the DVB-S2X air interface standard through the company's second-generation system-on-a-chip, a very large scale integration processor that facilitates 200 megabytes per second of throughput, Hughes said Wednesday. Yahsat expects the Jupiter System to increase the bandwidth for

YahClick, a satellite broadband service that works to support companies and government agencies in Central and South West Asia, Africa and the Middle East. Yahsat also plans to use Hughes' VSAT to support services that will be offered through its third Ka-band high-throughput satellite, Al Yah 3. Al Yah 3 is slated for launch in early 2017 and will work to expand Yahsat's presence in Africa and Brazil. Yahsat is a private joint stock firm wholly owned by Mubadala Development and offers satellite services such as YahClick, YahService, YahLink and Yahlive through its two Ka-band satellites, Y1A and Y1B.

UK Space Agency Awards exactEarth 1.1 Million for Small Vessel Tracking



ExactEarth Europe Limited, a U.K. subsidiary of exactEarth Ltd, the leading provider of satellite Automatic Identification System (AIS) data services, has been awarded a 1.1 million pound (approximately \$1.3 million) grant from the UK Space Agency under its International Partnerships Program (IPP). The IPP funding will support the operational deployment of exactEarth's satellite AIS-based small vessel tracking technology "exactTrax" to improve Safety Of Life At Sea (SOLAS) for South Africa's small boat owners and operators – in particular the artisanal fishing sector. As such, exactEarth Europe will be working closely on the project with the South African Maritime Safety Authority (SAMSA) and South Africa's National Sea Rescue Institute (NSRI). The grant award follows the successful South Africa Safety Initiative for Small Vessels (OASIS)

project, also partly funded by the UK Space Agency, which trialed exactEarth's exactTrax service with SAMSA in 2015/2016. Small vessels in the fisheries, leisure marine and workboat sectors in South Africa typically operate without a tracking system onboard, making it difficult for the authorities to locate them if they are involved in an accident at sea. OASIS demonstrated that exactEarth's exactTrax technology provides the small vessel tracking required by the safety authorities. Under this new project, OASIS Operational Take-up (OASIS-TU), South Africa's most "at-risk" small boat population – artisanal fishing boats under 10 meters – will be operationally equipped with exactTrax-enabled AIS transponders. Position reports (and alerts in the case of SOS situations) from these will be provided as standard AIS messages for integration into SAMSA's

and the NSRI's maritime domain awareness and Search and Rescue (SaR) systems. To assist with the rollout of the project, exactEarth will be partnering with two South African companies, Marine Data Solutions and Stone Three Venture Technology, both based in Cape Town. The expected duration of this project is 18 months. The UK Space Agency's International Partnership Program is a 150 million pound (approximately \$183 million) multi-year program which uses space knowledge, expertise and capability to provide a sustainable, economic or societal benefit to undeveloped nations and developing economies. Grants are awarded to industrial and academic partners to run projects that address real-world problems in developing nations.

WHOLESALE NEWS

Altan Signs PPP Deal for Mexican Wholesale Mobile Network



Agreement signals formal start of project to roll out infrastructure covering 92.2% of the population. Altan Redes this week signed a public-private partnership (PPP) agreement with Mexico's

Organismo Promotor de Inversiones en Telecomunicaciones (Promtel), formally kicking off the process of building a nationwide wholesale mobile network in the country. Altan, a consortium led by funds owned by Morgan Stanley, the World Bank, and Spanish business man Eugenio Galdon, in November won a 20-year license to deploy and operate the network, called Red

Compartida. "This wholesale broadband network will allow 92.2% of the country's population to have access to some of the best communications technology

available worldwide," Altan Redes said, in a statement on Tuesday. "As of today, the undertakings and efforts needed to deploy the Red Compartida will begin with operations commencing as of March 31st, 2018," the company said. The license was awarded in controversial circumstances though, after the only other bidder in the process, Rivada Networks, was disqualified for allegedly failing to provide financial guarantees when it submitted its bid. Rivada Networks is challenging the outcome of the tender, insisting it complied with the terms and conditions. Last week it pointed out that the Chinese government indirectly holds 23.6% of Altan's equity, and argued that Mexico's constitution prohibits ownership of Red Compartida by foreign governments. The Secretaría de Comunicaciones y Transportes (SCT), the government body that conducted the tender, has maintained that the process was carried out properly.

O2 CR Relents to CTU Request on Wholesale LTE pricing; Vodafone to Appeal

O2 Czech Republic has said it will cut its wholesale prices for LTE services, in the wake of a threat from the regulator, the Czech Telecommunication Office (Cesky telekomunikacni urad, CTU), that it could lose its frequencies if it failed to comply. As reported by TeleGeography's CommsUpdate, on 20 January the CTU called on O2 and rival Vodafone to reduce wholesale access prices charged to MVNOs to access their 4G LTE networks, warning that failure to do so could result in them losing frequencies won at auction. The watchdog pointed out that a condition of the license awards included assurances from operators that wholesale prices for LTE services to virtual operators or third-party operators leasing capacity and data spectrum would be set at a level to allow them to operate profitably. O2

has now said it will comply, although it is understood Vodafone intends to appeal the decision. 'Vodafone has fully complied with the call by CTU from February last year and it has adjusted its LTE wholesale price accordingly,' spokeswoman Marketa Kuklova said, adding 'CTU's claim that Vodafone does not meet the conditions from last year's notice is false, the decision of CTU is not final'.



CTU Threatens to Revoke Licenses if O2, Vodafone Refuse to Cut Wholesale LTE Prices

The Czech Telecommunication Office (Cesky telekomunikacni urad, CTU) has called on mobile network operators (MNOs) O2 and Vodafone to reduce wholesale access prices charged to MVNOs to access their 4G LTE networks, warning that failure to do so could result in them losing frequencies won at auction. The watchdog points out that a

condition of the license awards included assurances from MNOs that wholesale prices for LTE services to virtual operators or third-party operators leasing capacity and data spectrum would be set at a level to allow them to operate profitably. The CTU has suggested a levy of around CZK0.10-CZK0.15 (USD0.004-USD0.006) per 1MB of mobile data, and CZK0.01 for

1MB of fixed data – rates both O2 and Vodafone are accused of exceeding by a considerable margin. The regulator has given the cellcos one month to comply with its request or face the threat of legal proceedings that could ultimately see them losing their frequencies. Reuters says both O2 and Vodafone have so far declined to comment.

CNMC Approves Wholesale Fiber Offer; Revises Wholesale Broadband Pricing

Spanish telecoms regulator the Comision Nacional de los Mercados y la Competencia (CNMC) has announced the approval of Telefonica Espana's 'NEBA Local' service – the equivalent of what many other European countries call virtual unbundled local access (VULA). In February 2016 the regulator approved the final regulations governing Spain's wholesale broadband market, as part of which it ordered fixed line incumbent Telefonica to maintain differentiated

obligations for its copper and fiber-based networks dependent on the level of competition in each geographical area. As part of these responsibilities, Telefonica was required to make available a VULA service within 18 months of the ruling, applicable in those areas deemed non-competitive; approximately 65% of the population are in such areas, with only 66 municipalities having been declared competitive. With the CNMC now having published a resolution approving the

new wholesale service (Resolution OFE/DTSA/005/16), altnets will be able to offer symmetrical speeds of up to 300Mbps over the incumbent's fiber infrastructure. In parallel to the above, the CNMC has approved a significant reduction in wholesale prices for capacity via Resolution OFE/DTSA/003/16, with the price of contracted capacity for indirect access to both Telefonica's fiber and copper networks having been cut from EUR7.98 (USD8.53) per Mbps to EUR4.79.

Togo Joins West African Free Roaming Scheme

Togo has become the latest country to join a programme abolishing international mobile voice roaming charges between a group of west African nations. Agence Ecofin reports that the Togolese Authority of Posts & Telecommunications Regulation (ART&P) signed an agreement last week with its Senegalese counterpart to introduce free voice roaming for travelers between the two countries from 31 March 2017. Via the pact signed

in Dakar, Togo also abolished mobile roaming costs with Cote d'Ivoire, Guinea, Mali and Burkina Faso, all of which ratified a Protocol on regional roaming alongside Senegal on 28 November 2016. Director General of Senegal's Regulatory Authority for Telecommunications & Post (ARTP), Abdou Karim Sall, announced upon Togo's signing: 'The free roaming will enter into force on 31 March 2017, [which] will enable those travelling within six Protocol

countries ... to receive and make calls as if they were in their own country.' Although not mentioned in this statement, several regional publications have reported that a seventh country, Sierra Leone, is joining the west African roaming initiative, which is part of a wider plan to create a more united African continent as promoted by the Economic Community of West African States (ECOWAS).

STC Named Best Middle Eastern Wholesale Operator

STC won the prize of the best Middle Eastern wholesale operator in the

Telecom Review Summit 2016 which took a place lately in Dubai.



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ARTICLE

Digitalization of the Senegal Economy

In Africa, Senegal is classified 1st African country for the weight of Internet in the economy (I-PIB) estimated at 3.3%, due in particular to a very good international connectivity and a good domestic network of transmission.

The Senegal GDP shows that 91% of its value are due to private consumption while other dimensions such as the contribution of the private sector investments, public and export remain low.

In Africa, Senegal is classified 1st African country for the weight of Internet in the economy (I-PIB) estimated at 3.3%, due in particular to a very good international connectivity and a good domestic network of transmission.

Senegal undertook a large program of digitalization of the centralized and decentralized public administration. And the country intends to consolidate the furnished efforts because of a report of the World Bank entitled « Development in the world 2016: the Numeric dividends » which highlights the importance for Senegal to adopt and implement quickly its strategy and its program of reform in the sector of communication and information technologies in order to generate the digital dividends.

Those will be beneficial for the whole Senegalese economy via an accelerated development of the generating activities of employment.

The development of the digital sector is consigned within the Senegal Digital Plan which is an axis of the Emerging Senegal Plan, which directs a structural transformation of the Senegalese economy currently in hand.



Fatou Kamara

Brand and Digital Director
Expresso Sénégal



The Digital Senegal Plan is made up by the prerequisite and priority angles articulated around the slogan "the digital for all and all the usages in 2025 in Senegal with a dynamic and innovating private sector, in a powerful ecosystem".

The development of the digital sector is consigned within the Senegal Digital Plan which is an axis of the Emerging Senegal Plan, which directs a structural transformation of the Senegalese economy currently in hand.

The total costs of these reforms and the projects over the period 2016/2025 that this plan aims, are of 1,361 billion F CFA and 300 million; 73% will be financed by the private sector, 17% by the public and 10% in PPP mode.

This plan will offer real digital opportunities in the long term. Those are consigned in a chapter devoted on the promotion of an industry of digital innovating and creative of value articulated around three points.

The first aims at the improvement of the environment of support for the local private sector. Thus the Contribution to the Development of Telecommunications and Energy (CODETE) will be re-examined so that the resources planned for the development of the universal service of Telecommunications will increased, and the rationalization of the taxes applied to the sector will be committed.

A program "Start-up Senegal" and funds of support to "the entrepreneurship and the promotion of digital" will be also launched.

The second point relates to the promotion of the investment and the export of services.

With the Digital Park of Technologies (PTN) of the new city close to the capital,

Diamniadio, a space will be dedicated to encourage the digital by the means in particular of a program of incubation. It is also envisaged a development of digital poles of activities near to the university campuses in order to constitute zones of economic activities arranged with adequate infrastructures, to create an engine of growth, layers of employment and facilities for the activities of Business Outsourcing Process/Information Technology-Enabled Services.

The last point refers to the creation of access terms to the market in order to reduce the obstacles weighing on the local Small and medium-size companies for the access to the public order.

In the medium term, 50% of the public contracts TIC will be dedicated to the local companies or companies in the neighbour countries, and 3000 qualified jobs will be created a year by 2025.

In addition, with the project « Start - Up Sénégal », 100 companies a year will be incubated and a billion (1.000.000.000) F CFA a year will be devoted to the promotion and the entrepreneurship.

In the long term, the plan of digitalization of Senegal by 2025 will make it possible to support priority economic sectors: agricultural productivity, security and maritime safety, e-commerce and financial services, E-health and telemedicine, education system, cultural industry ...

For that, the State of Senegal will continue its extensions of network and will optimize the existing one.

As its General Manager underlines it, the Agency of the data processing of State (ADIE) aims to modernize the Senegalese administration by placing at its disposal a coherent and evolutionary information system with an aim of offering a qualitative public service to the users. This agency will have soon nearly 4500 km of optical fibre through Senegal.

This project of deployment of the national backbone whose phase 3 started in January 2016, reached an interesting threshold of national coverage to which is

added a cellular network of the CDMA type and a wireless networking of the WiMax type.

This high-speed coverage is carried by infrastructures which are supplemented or accompanied by private operators which makes Internet and its associated services, more and more accessible to the Senegalese citizens.

Among these services, it is necessary to quote the on-line means of payment, via mobile and all the digital electronic banking which allowed the creation and fast development of number of companies of Money transfer, sites of on-line purchases, but also the development of solutions of digital banking transactions.

In addition to the electronic money, the increasingly powerful digitalization in Senegal made it possible to gradually stabilize Digital terrestrial television (TNT) but also all the audio-visual platforms with services with strong added value.

This potential of digitalization of the offer, and all the chain of creation of value of the companies, should be more accompanied by a legal and lawful framework which impels competition in this sector at high rate of development.

It is a situation well taken into account by Senegal. 🇸🇳

The plan of digitalization of Senegal by 2025 will make it possible to support priority economic sectors: agricultural productivity, security and maritime safety, e-commerce and financial services, E-health and telemedicine, education system, cultural industry

TECHNOLOGY NEWS

OTT App Platform to be Deployed by German Cable Operator

The app will be part of its recently launched advanceTV multiscreen service, which delivers TV, films, apps and Web content across devices. Metrological is powering the advanceTV smart app portal, which will deliver app and Internet content for an enhanced viewing experience. The Metrological platform allows operators to manage their branded TV app stores via a cloud-based back-end that also provides real-time business intelligence data and marketing analytics. Operators have access to Metrological's App Library too,

which contains over 300 apps, or they can build their own apps with an open software development kit. "Tele Columbus advanceTV opens up a new dimension of television enabling consumers to enjoy their content on the main TV screen or second screens in a single viewer experience," said Stefan Beberweil, CMO, Tele Columbus. "Metrological's cloud-based TV application solution allows us to offer relevant apps and Internet content as an added value to our customers." Thijs Bijleveld, SVP, sales and marketing,

Metrological, added: "We are proud to team with Tele Columbus to give their consumers a holistic TV experience that includes TV integrated with apps and internet content. Tele Columbus is able to showcase a range of unique premium and niche apps to satisfy all of their customers' viewing preferences." This is the latest deal for Metrological; in December, Liberty Global announced that it has implemented Metrological's over-the-top (OTT) approach for its Netflix rollout.

Turkish Cellcos Collaborate with State Defense Firm on 4.5G Base Station Development

Turkish state-run defense company ASELSAN and mobile operators Turkcell, Turk Telekom and Vodafone Turkey have cooperated to develop a homegrown base station antenna to be used in 4.5G networks in the country. Sector minister Ahmet Arslan attended the signature ceremony for the domestic base station project on 26 January at the '5G and Beyond Technologies Conference', whilst

ASELSAN's general manager Faik Eken said in a statement: 'Our base station is undergoing hundreds of tests in operator labs. These efforts are coming to an end and they will be set up on live network[s] soon.' Kaan Terzioglu, Turkcell's CEO, said the project partners were 'working non-stop ... to make Turkey a leading country in development and production of next generation communication technologies.'

Turk Telekom CEO Paul Doany added that his company wanted to test the domestic base station antenna on its network 'as soon as possible'. Colman Deegan, CEO of Vodafone Turkey, said the UK-owned cellco is supporting the state's efforts aimed at creating a communication sector with a larger domestic production rate and its steps to develop a locally-produced system.

5G Plans Will be Developed in H1 2016



The Republic of Belarus plans to begin developing the implementation of fifth-generation mobile services starting from the first half of 2019, in line with

measures set down in the 'Programme of Socio-Economic development of Belarus, 2016-2020', as approved by the Council of Ministers. Providers.by reports that as part of the government's five-year policy programme, moves to realize commercial 5G services will take into account the adoption of the preferred standard agreed upon by the ITU – currently pending – but targets data speeds of up to 7Gbps in the long term. In addition, the country is also planning to develop its fiber infrastructure, and

targets rollout of some 10,000km of fiber-optic lines direct to the consumer, over the course of the policy programme. As previously reported by TeleGeography's CommsUpdate, in December 2016 mobile infrastructure operator Belarusian Cloud Technologies (beCloud) – which owns a 15-year license to operate 4G LTE infrastructure in the 1710MHz-1730MHz/1805MHz-1825MHz and 2530MHz-2565MHz/2650MHz-2685MHz bands – announced that it is doing all it can to ensure that 5G technology starts being rolled out in Belarus from 2017, and to that end is working with a number of vendors to provide the necessary equipment for initial testing of 5G from this year.

Beeline, Huawei Testing 4.5G, 5G Technologies



Russian mobile operator VimpelCom (Beeline) has signed an agreement with China's Huawei to test 4.5G and 5G technologies, announcing in a joint statement: 'Cooperation with Huawei is aimed at setting the right steps to develop Beeline's network on its way to 5G within the strategy of VimpelCom's digital transformation.' In the immediate phase the partners

will test LTE-Unlicensed (LTE-U) and LTE-Advanced Pro (4.5G) technology in January-March 2017, whilst also developing and testing Internet of Things (IoT) and machine-to-machine (M2M) technologies throughout the year. The companies' statement added: 'The research will help Huawei to design new technologies and standards and VimpelCom to create networks of a new generation, raise the level of connection quality and launch new digital services for clients.'

MegaCom Adding UMTS-900 Services to 3G/4G Line-up

Kyrgyzstan government-backed mobile operator MegaCom has received a license to use the 900MHz frequency band for 3G (UMTS-900) services, and is the first Kyrgyz cellco to do so, reports Telecompaper citing local news site Tazabek. TeleGeography says MegaCom

has offered 3G W-CDMA/HSPA services using the 2100MHz band since January 2012, whilst the upcoming addition of 3G UMTS-900 frequencies to the network is assumed to be based on refarming a portion of its 2G GSM-900 band. MegaCom also offers 4G services, having

launched its LTE network in March 2016 using the 800MHz and 1800MHz bands (the latter utilizing partly refarmed GSM-1800 spectrum), and in December 2016 it also began aggregating 2100MHz and 1800MHz bands to boost LTE mobile data speeds.

NTT to Demo New Subsea Cable Fibre-Optic System at 1.44 Petabit

even though research into and development of improved subsea cables continues apace it seldom gets the



sort of industry or media attention that is routinely lavished on 5G or network transformation based on SDN and NFV. However, today comes the news that the Japanese telco, NTT, is about to demonstrate a new fiber-optic system that, by placing 12 separate cores (or light paths) within a single 125 micron glass fiber, will be able to handle traffic at

1.44 petabit per second (a petabit is one quadrillion binary digits or one thousand terabits). Back in 2012 NTT, in partnership with Fujikura, Hokkaido and the Technical University of Denmark, demonstrated one petabit transmission on a single-strand 12 core fiber over a distance of 52.4 kilometers - the equivalent of simultaneously transmitting 5,000 two-hour-long HDTV-standard movies in a single second. Generally, efforts to increase optical network capacity to accommodate ever-increasing data traffic have been focused on lowering the cost of infrastructure by developing more efficient optical communications

equipment whilst maintaining the current and proven structure of the optical fiber itself. The fiber most commonly deployed in extant long-haul networks is a terabit per second. The problem with multi-core fibers is that light can actually 'leak' through and between neighboring strands with concomitant crosstalk, interference and loss or degradation of signal and

transmitted data. NTT scientists have been working to pack more spatial paths into fibers to ensure that each glass strand can accommodate multiple paths. NTT scientists have concentrated on placing 12 cores in a square lattice after also having looked at the viability of a 10 core circular model and a 19 core hexagonal model. It turns out that the 12 core configuration is the optimum configuration within a normal 125 micron fiber. The 10 core model resulted in reduced throughput of data while the 19 core, whilst it did provide more data throughput, could not be crammed into a 125 micron fiber. It needed 250 microns and that obviated the raison d'être of the research given that the task was to increase throughput in 125 micron fiber. The full details of the trial and its results will be released and debated at the OFC's Optical Networking and Communication Conference and exhibition to be held in Los Angeles, California between March 19 and March 23. However, as far as commercial deployment of the new technology is concerned, NTT says it is at least a decade away.

How IoT and Internet will Merge

The ability to connect machines, devices, sensors, and other everyday things into an intelligent network and make sense out of them, has huge promises

Internet Protocol driven applications, software tools and diagnostic kits, have been developed and exist, that can be applied to IoT devices and sensors, with

strategy to ensure the end result is managed chaos instead of unmanaged chaos. Industry consultants who have gone through such projects point out, IoT application and network designs need to be built looking at requirements five years from now. When in doubt the rule of thumb is design networks for a requirement that is 10X the number of devices that are connecting in now. Another important consideration is to design the wireless environment thinking about what will happen in that specific industry over next five years. While the benefits of such best practices are self-evident, industry surveys show that such discussions are not happening as much as they should. If all else fails, the minimum rule of thumb to apply, think big for IoT. Looking ahead into the requirements for IoT type of networks there is a significant change in the way devices will communicate. More often than not, communication signals will hop from device to device, to enter and leave the network of devices, connecting into and out of their mesh network. Using

to change everyday life. As can be expected by taking in our entire world and attempting to change it one stroke and with one magic wand is unrealistic, challenging and cause for chaos in the short term. For business decision makers and technology providers, some measure of clarity and progress can be made by understanding the challenges of applying IoT to business. We look at two principal challenges in making this happen.

Technology protocols

The challenges of IoT are resident in the ability to connect sensors and devices directly to the Internet. To connect to the Internet any device and application must use Internet Protocol stacks. It is for this reason that devices called Internet Gateways have been created that connects to non-Internet Protocol devices and networks on one side and the Internet driven applications, devices and networks, on the other side. By doing so, Internet Gateways need to be designed for the type of local networks and local applications that they manage on one side and how they connect to the Internet on the other side. Over the years, countless

or without much adaptation. This will help to get the IoT environment up and running in a short period of time, relatively speaking. That is provided they are in the same Internet Protocol environment. The basis for the development of Internet Protocol applications till now has been growing availability of large computing power and significant memory capacity to manage complexity of the Internet Protocol based applications. And all this within localized high cost nodes like desktops, notebooks, Smartphones, tablets, amongst others. This is the exact antithesis of the IoT environment as it exists today, which is low cost, low power consuming, low computing capacity, and distributed computing nodes.

Networking architecture

When building an IoT network it is essential to plan and look ahead. It is also important to converse with all departments associated with the benefits and operations of the IoT network and applications. When dealing with tens of thousands and hundreds of thousands of sensors and devices in any IoT project, it is important to have a networking

a number of hops between devices rather than the conventional hub to spoke jump will become the standard for most IoT applications and networks. The key here is multiple and random paths between IoT devices, based on predefined algorithms, rather than a fixed point to point hop. This saves power, saves cost, builds scale, and builds redundancy. Such networks are called mesh networks and the devices are called wireless nodes. Since connectivity within mesh networks rely on each other, their efficiency grows with an increase in the number of devices. Mesh networks become more efficient as the number of wireless nodes inside them increases. This is the opposite of what happens with the hub and spoke, star network arrangement. As silicon technologies improve the computing capabilities of IoT sensors, devices, machines and appliances, they will increasingly become more and more Internet like. At that stage the two worlds will come together in exponential fashion and the true power of IoT will become a reality.



Qualcomm, Ericsson and AT&T Announce Collaboration on 5G New Radio Trials Intended to Accelerate Wide-scale 5G Deployments

Qualcomm Technologies, Ericsson, and AT&T today announced plans to conduct interoperability testing and over-the-air field trials based on the expected 5G New Radio (NR) specifications being developed by 3GPP, which will form the basis of the global standards. The trials intend to help move the mobile ecosystem to faster 5G deployment based on standards-compliant 5G NR infrastructure and devices once 3GPP completes the first release of the official specifications, which is expected as part of Release 15. The trials will support operation in millimeter Wave (mmWave) spectrum, aiming to accelerate commercial deployments in the 28GHz and 39GHz bands. In the trials, the Companies will showcase new 5G NR mmWave technologies that utilize wide bandwidths available at these higher frequency bands to increase network capacity and expect to achieve multi-gigabit per second data rates. These technologies will be important to meeting the increasing consumer connectivity requirements for emerging consumer mobile broadband experiences such as virtual reality, augmented reality and connected cloud services. Additionally, the proliferation of 5G NR mmWave technology can make it more cost-effective and easier for multi-gigabit Internet service to reach more homes and businesses. The trials will utilize device and base station prototype solutions from Qualcomm Technologies and Ericsson respectively, along with spectrum from AT&T, to simulate real-

world scenarios across a broad set of use cases and deployment scenarios. The trials will employ 3GPP 5G NR Multiple-Input Multiple-Output (MIMO) antenna technology with adaptive beamforming and beam tracking techniques to deliver robust and sustained mobile broadband communications at the higher frequency bands, including non-line-of-sight (NLOS) environments and device mobility. It will also make use of scalable OFDM-based waveforms and a new flexible framework design that are also expected to be part of the 5G NR specifications. The trials are expected to yield valuable insight into the unique challenges of integrating mmWave technologies into mobile networks and devices. "The roadmap of 5G technologies is complex, and collaborations such as this are critical to ensuring timely deployment of 5G networks," said Matt Grob, executive vice president and chief technology officer, Qualcomm Technologies, Inc. "The 3GPP-based trials we are planning with AT&T and Ericsson will help us accelerate integration of advanced 5G New Radio technologies in form-factor accurate devices, building upon our long history of 3G and 4G LTE leadership and paving the path to wide-scale 5G deployments." "5G technology comes with new challenges, but more importantly, it offers tremendous opportunity to revolutionize the way we use mobile networks across industries," said Tom Keathley, senior vice president, wireless network architecture and design, AT&T. "We're tackling these challenges

head-on through testing in our labs and field trials. We look forward to working with Ericsson and Qualcomm on these standards-based trials as we continue to accelerate standards efforts and move down our 5G evolution path." "5G is the greatest opportunity our industry has ever experienced. It will provide a platform for operators to address new markets, such as media, transportation and manufacturing," said Ulf Ewaldsson, senior vice president and chief technology officer, Ericsson. "This important 5G standard-based trial collaboration will demonstrate compliance to 3GPP and support the accelerated commercialization of the global 3GPP 5G standard. Ericsson continuously works with leading operators and ecosystem players in 5G to enable global scale and drive the industry in one common direction." The interoperability testing and trials, which are planned to launch in the United States starting in the second half of 2017, are intended to track closely with the first 3GPP 5G NR specification that we expect to be part of Release 15 – the global 5G standard that is expected to make use of both sub-6 GHz and mmWave spectrum bands. Tracking the 3GPP specification is important because it promotes adherence and validation with the global 5G standard, accelerating the time to standard-compliant devices and infrastructure. Focusing on the 5G NR standards also should validate that the technology will work correctly with any future 3GPP 5G NR updates.

New ITU Standards to Assess Quality of Adaptive-Bitrate Video Streaming



A new suite of ITU standards provides model algorithms to monitor the quality of video streaming over mobile devices as well as large screens with fixed-network connections. The standards are applicable to both progressive-download and adaptive-bitrate video streaming. Adaptive-bitrate streaming – where the rate of media delivery adapts to fluctuations in available bandwidth – makes a valuable contribution to interruption-free video streaming, especially for mobile devices moving at

high speed, for example in cars and trains, or from outdoor to indoor environments. This adaptive bit rate may however give rise to variations in the audiovisual quality experienced by end-users, variations that industry will monitor and address with the help of the new ITU-T P.1203 suite of standards. The ITU-T P.1203 suite for "Parametric bitstream-based quality assessment of progressive download and adaptive audiovisual streaming services over reliable transport" was developed by ITU's standardization expert group for 'performance, QoS and QoE', ITU-T Study Group 12. ITU-T P.1203 describes a set of objective parametric quality-assessment modules, which together

form a complete model to predict the impacts on end-user experience resulting from audio and video encodings and observed IP network impairments. The standards provide models for short-term estimations of video and audio quality, as well as a final integration model to incorporate these short-term estimations into a long-term estimation of audiovisual quality. The standards describe different model realizations for different levels of content encryption and computational complexity. ITU-T P.1203 currently supports quality estimations for HD video encoded using ITU-T H.264. ITU-T Study Group 12 is extending the standards to provide support for '4K' UHD

video encoded using ITU-T H.264, ITU-T H.265 and VP9. The ITU-T P.1203 suite is structured in line with the functionality of its three modules:

- ITU-T P.1203: Introduction to the ITU-T P.1203 suite
- ITU-T P.1203.1: Module for short-term estimations of video quality
- ITU-T P.1203.2: Module for short-term estimations of audio quality
- ITU-T P.1203.3: Module for audiovisual integration to estimate the quality of viewing sessions between 30 seconds and 5 minutes

Low-power IoT Networks More Than Doubled in 2016

Almost three times the number of commercial Low Power Wide Area (LPWA) networks were announced last year compared with 2015, led by an increase in action around the fledgling NB-IoT standard and growth into new markets. Statistics released by research firm

market remains fragmented with at least eight different LPWA standards now in use around the world. Analysys Mason said the growth in NB-IoT was driven by Vodafone Group. The company long championed the standard and announced in October it would be launching live LPWA networks in Germany, Ireland, The Netherlands and Spain during Q1 2017. The group is expected to have similar deployments in place across its global footprint by 2020. In 2015 operator initiatives accounted for 82 per cent of new LoRa announcements. The majority of mobile operators, it seems, will support the 3GPP-backed NB-IoT standard for LPWA Internet of Things services (the report states the 25 NB-IoT operator-led initiatives accounted for 66 per cent of all new operator LPWA initiatives in 2016). Sigfox, which received significant financial backing last year from high profile names including Intel, Salesforce, the French Government and Telefonica, announced 23 new initiatives in 2016 (up from nine in 2015), with only three of its new projects led by operators.

Global reach

While early LPWA deployments were concentrated in the US and Western Europe, Analysys Mason found interest in the technology spread during 2016, with strong traction being seen in the APAC market. During 2015, two thirds of initiatives took place in the US and Western Europe whereas in 2016 the figure was down to less than a third. Simultaneously APAC showed growth from 4 per cent in 2015 to 30 per cent in 2016. The report identified developments in Japan, Singapore, South Korea, Australia and New Zealand as being especially significant in the regional shift identified last year. Lead analyst on the report, Aris Xylouris, concluded: "LPWA network deployments more than doubled in 2016 as countries outside Europe enter the race to deploy networks." He added Analysys Mason anticipates further significant announcements in the lead up to MWC 2017, in addition to at the event itself. Indeed, the report claims "it is likely that the launch of the first real commercial deployment of an NB-IoT network will be among the announcements at MWC 2017."



Analysys Mason show 85 new networks were announced as live, in a trial phase or in development in 2016 compared with 29 in 2015. In 2016 some 25 NB-IoT networks were announced, and while several operators including Deutsche Telekom say they have live networks, to date none have launched commercial services. The report also highlighted the

Indosat Ooredoo to Launch 4.5G Technology in 2017

Indonesian mobile operator PT Indosat Ooredoo says it is preparing to launch 4.5G (presumed LTE-A Pro) technology this year, doubling data speeds in the

process. The company's head of network strategy and solutions, Yune Marketatmo, said: 'We have been developing the 4.5G technology since 2012 and we are

ready to launch this year, starting with the introduction of new technological infrastructures such as modernized [base transceiver stations] BTS in several

regions.' To support the launch, Indosat Ooredoo has been upgrading data centers with 4.5G support in a number of areas in Java since 2016. Headquartered in

Jakarta, Marketatmo also noted that the new data centers 'will be built in strategic locations close to customers so they can communicate easily and take advantage

of this new technology'. Indosat Ooredoo currently has 81.6 million mobile subscribers.

New ITU Standard Provides Basis for High-quality Voice Over LTE

A new ITU standard highlights the key factors influencing end-to-end Quality of Service (QoS) for voice communications over 4G mobile networks. The standard will form the basis of future ITU standards on specific aspects of QoS for Voice over LTE (VoLTE) and Video-telephony over LTE (ViLTE). The entrance of 4G mobile-wireless communications signaled the arrival of a multimedia-rich user experience. Despite 4G's significant advances over previous generations of mobile-wireless technology, ensuring high-quality voice communications remains a significant challenge in

the packet-based communications environment. Recommendation ITU-T G.1028 "End-to-end QoS for voice over 4G mobile networks" was developed by ITU's standardization expert group for 'performance, QoS and QoE', ITU-T Study Group 12. ITU-T G.1028 offers guidance on the factors impacting the end-to-end performance of "managed" voice applications over LTE networks and how the impacts of these factors should be assessed. The standard describes typical end-to-end scenarios involving LTE access, including scenarios where one of the parties connects using a wired

or wireless access technology other than VoLTE. These scenarios are based on typical reference connections defined in ITU-T G.1028, connections which are composed of segments including terminals, wireless access, backhaul networks and core networks. The standard also presents considerations relevant to the sharing of the budget of some key parameters, in addition providing the locations where these parameters can be assessed across the segments of VoLTE connections.

5G Could Give \$3trn Boost to Global GDP – Qualcomm

Chip maker says next-generation mobile tech could create up to 22 million jobs. 5G could create as many as 22 million jobs enable the creation of \$12.3 trillion (€11.5 trillion) worth of goods and services by 2035. This is according to a new study evaluating the potential economic impact of 5G that was commissioned by chip maker Qualcomm, and carried out by research firm IHS Markit, WPP-owned PSB, and David Teece, who is director of the Tusher Centre at the Haas School of Business at the University of California. "These respected researchers confirmed our strong belief that 5G will be a fundamental game changer," said Qualcomm CEO Steve Mollenkopf. According to the study, 5G's full economic benefits should be realised by 2035. The next-generation mobile technology is

expected to generate up to \$3.5 trillion in revenue by then, which is more than the entire output of the global mobile value chain today. It is also expected to boost the world's GDP to the tune of \$3 trillion between 2020 and 2035, which is approximately equal to the size of India's economy today. The Qualcomm-commissioned report expects the global economy to grow at 2.9% during the forecast period, with 5G accounting for 0.2% of that growth. "The study indicates that 5G will catapult mobile into the exclusive realm of general purpose technologies, like electricity and the automobile, that provide the foundation for massive innovation, give rise to new industries and benefit entire economies. This will happen as 5G advances mobile from a set of technologies connecting

people to people and information to a unified fabric connecting people to everything," Qualcomm said. In addition, the researchers expect collective investment in R&D and capex by players that are part of the 5G value chain will average \$200 billion per year between 2020 and 2035. The U.S. and China are expected to dominate in 5G R&D and capex, investing a total of \$1.2 trillion and \$1.1 trillion respectively over the course of the forecast period. "We have been hard at work helping create some of the key technologies and applications that will make 5G a reality, pushing the boundaries of LTE, collaborating with industry leaders, and spearheading the critical research behind the next-generation global wireless standard," Mollenkopf said.

Austrian Regulator RTR Prepares Framework Conditions for 5G

Austrian regulator RTR said it preparing auctions of frequencies for 5G networks. The auctions are envisaged to start from

2018. Besides the 3400-3800 MHz band, the additional resources will come from the digital dividend, available from July

2020.

Brazil Regulator Awaits Global Accord on 5G Standards



the country's telecoms regulator told Reuters. Juarez Quadros (pictured), president of regulator Anatel, revealed the 5G timeline during an interview discussing progress in implementing changes to Brazil's telecoms licensing legislation. The new legislation is designed to give carriers ownership of assets related to their fixed-line concessions in a bid to clear up legal ambiguities of the old regulations, Reuters reported. Carriers, in return, are expected to invest billions in expanding mobile and fixed broadband across the country. Anatel's bill was passed by congress, but there is currently a legal challenge preventing it from being signed into law. While Brazil may have hit the pause button with regard to 5G technology, the country is pressing ahead with plans to expand availability of 4G. In early 2017, the Brazilian government unveiled a plan to boost 4G coverage in the country, particularly in less densely populated regions.

Brazil will hold 5G licence auctions after 2020 once global terms on bandwidth and frequencies are agreed by regulators and operators, the head of

Ericsson, AT&T, Qualcomm Team on mmWave 5G Trials



Ericsson, AT&T and Qualcomm announced 5G trials based on forthcoming 3GPP New Radio specifications with the aim of speeding up commercial deployment of the next generation technology. The trials will investigate technologies utilising 5G New Radio protocols in mmWave spectrum. By utilizing higher frequency bands, the companies expect to demonstrate increased network capacity and multi-GB/s data rates. Ultimately, the partners hope to accelerate

commercial deployment in the 28GHz and 39GHz bands, which have been earmarked by US regulator the FCC for 5G usage. During the second half of 2017 the companies will conduct interoperability tests and field trials in the US based on protocols currently being developed by technical standards body the 3GPP. Qualcomm and Ericsson will provide the equipment while tests will take place using AT&T spectrum. Announcing the collaboration, the partners said the findings would be an important step towards developing infrastructure to enable emerging technologies including virtual reality, augmented reality and cloud services. Ericsson SVP and CTO Ulf Ewaldsson (pictured) said: "5G is the greatest opportunity our industry has ever experienced. It will provide a platform for operators to address new markets, such as media, transportation

and manufacturing. This important 5G standard-based trial collaboration will demonstrate compliance to 3GPP and support the accelerated commercialization of the global 3GPP 5G standard." Tom Keathley, AT&T's SVP of wireless network architecture and design, added: "5G technology comes with new challenges, but more importantly, it offers tremendous opportunity to revolutionize the way we use mobile networks across industries. We look forward to working with Ericsson and Qualcomm on these standards-based trials as we continue to accelerate standards efforts and move down our 5G evolution path." The collaboration with AT&T is Ericsson and Qualcomm's second surrounding 3GPP New Radio specifications in recent weeks. In December the duo announced plans to commence interoperability and over-the-air field trials of 5G New Radio standards with SK Telecom in South Korea in the back-half of 2017.

Ooredoo Qatar Achieves 40Gbps Download/Upload on Nokia's NG-PON2 Technology



Bernard Najm, Head of the Middle East Market Unit at Nokia

Nokia and Ooredoo Qatar have achieved a 40 Gbps download and upload speed using Nokia's Time and Wavelength Division Multiplexing Passive Optical Network (TWDM-PON) innovative fiber technology in a trial in Doha. The TWDM-PON, also referred to as NG-PON2 (Next Generation PON 2) technology, was deployed over Ooredoo's existing single fiber network as an overlay to achieve this

speed. This overlay technology is capable of smoothly adding more capacity to existing networks, saving the additional cost of laying new fiber.

Nokia's TWDM-PON technology delivers four additional wavelengths, each providing 10 Gbps upload as well as download speeds, eventually providing a total of 40 Gbps. This significantly

enhanced speed will allow Ooredoo Qatar to cost-efficiently upgrade its networks from the existing GPON (2.5Gbps) to XGS-PON (10Gbps) and in the future to TWDM-PON (40Gbps) using the same access node ISAM FX. Nokia is the industry leader in TWDM-PON technology with 8 commercial deployments and more than 20 completed trials around the world.

Waleed Al Sayed, chief executive officer of Ooredoo Qatar, said: "Every single step we take is to support the Qatar National Vision 2030, which aims to boost the knowledge-based economy. Through the current successful trial with Nokia's NGPON technology we are evolving toward deploying 40 Gbps speeds to provide a significantly enhanced broadband experience for individual subscribers and launching new, high-bandwidth services demanded by enterprise customers. It's yet another step for us in the direction of enabling IoT, smart home, and smart city services in the country."

Bernard Najm, head of the Middle East Market Unit at Nokia, said: "This trial with our long-term customer Ooredoo Qatar is a testimony to our continued commitment for bringing our latest innovations to the operator and the country. It also reiterates that Nokia continues to lead in the Fixed Access networks market. This technology will evolve Ooredoo's network now and in the long term to meet the increasing data demand of subscribers across the country."

STC Announces the Successful Launching of 5th Generation Network Speeds; Upgrades its Submarine Cable

STC announced the success of all advanced technical tests for the fifth generation technology to reach high levels in the network speed (more than 70 gigabits per second). The launch was part of the STC's strategy to lead the technological development to provide

modern and advanced services. This is the first event of its kind in the Middle East and North Africa. STC also completed the upgrade for the one of the most important submarine cables (SMW4 - IMEWE - EIG) which link the Indian subcontinent with the east and south of Asia and middle

east, and passing by north Africa all the way to Europe. Such upgrade will raise the efficiency and reliability of the international network to better serve company's clients.

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ARTICLE

Technology Trends for 2017 and Beyond

Growth of Internet traffic and the need for broadband

By 2020, global Internet traffic will be 95-times the volume of the global Internet in 2005. This growth is driven by more Internet users, more connected devices, faster broadband speeds, and more video. By 2020, 71% of network traffic will originate from non-PC devices including smartphones, tablets and televisions. Digitization and the Internet of Things (IoT) will also contribute to driving increased network traffic.

Applications such as video surveillance, smart meters, digital health monitors and mobile to mobile services will create incremental traffic and new network requirements.

Digitization requires digital ready networks

At the World Economic Forum in Davos this year, the Fourth Industrial Revolution was a central theme. This industrial revolution will be different in that it is characterized by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.

The world has the potential to connect billions more people to digital networks, dramatically improve the efficiency of organizations and even manage assets. As the world becomes digital and everything becomes connected, data becomes the most strategic asset of any company or country. The ability to secure data, act on the data and deliver services based on the data will determine the success of organizations. However, there is an important pre-requisite for successful digitization: digital ready networks.

Going forward, network connectivity will become increasingly easy as corporate networking shifts to an open model. A digital ready network provides automation, real-time analytics, virtualization and the limitless scalability of the cloud. An open, software-driven network helps digital transformation by providing insights,



Mike Weston, Vice President of Cisco Middle East, looks at different points of technology inflexion that are shaping the areas of networking, connectivity, security, artificial intelligence and workforce engagement – changing the way we live and work, and driving new business models and use cases.

Mike Weston

Vice President
Cisco Middle East



automation and threat protection. For example, in the digital age, network devices can detect and shut down a pipeline spill automatically, or enable preventive maintenance in manufacturing plants.

The Internet of Things gets into higher gear

The race to connect the unconnected will continue, enabling the Internet of Things (IoT) where billions of sensors will soon change the way we live our lives. IoT in consumer and business life will accelerate, connecting data, things, processes and people.

More things will become intelligent and connected to address the range of business needs. Medical devices, appliances, performance monitors, connected vehicles and smart grids are some of the early areas of adoption. For consumers, wearable devices will continue to grow and mesh with healthcare and big data. Intelligent systems will grow at a quick pace in 2017, as more applications and products become available. New products will by default have connected networks and Wi-Fi built into them, opening the door for new use cases and innovative business models.

Security becomes even more paramount

The growth of IoT will place even greater emphasis on security. The growth of connected devices and networks will largely depend on the success of being able to secure them successfully. The current generation of security technologies and architectures will not be sufficient to protect billions of devices in exponentially more complex connections. Inadequate security will be a critical barrier to large-scale deployment of IoT systems and broad customer adoption of IoT applications. Simply extending existing IT security architectures to the IoT will not be sufficient. Solving the security challenges being raised through the adoption of IoT requires disruptive and innovative solutions.

Couple this with the life cycle of devices without the possibility of physical

upgrades. A starting point is likely to be cloud-based security services, with resource-efficient, thing-to-cloud interactions.

We also see a shift toward a cyber-physical paradigm, where we closely integrate computing and communication with the connected things, including the ability to control their operations. In such systems, many security vulnerabilities and threats come from the interactions between the cyber and physical domains. An approach to holistically integrate security vulnerability analysis and protections in both domains will become increasingly necessary.

Plug and play will be the new norm

Other than the challenges of security and privacy being raised by the adoption of IoT, lack of interoperability between different products and different solutions is also currently limiting its growth. Going forward solution vendors of IoT will focus less on setting their own standards and instead build their products on the basis of being able to complement and align with others.

This will allow us to enjoy fantastic applications that fully unleash the power of IoT. An immediate use-case will be the successful integration of the smart home including solutions like automated lighting and window blinds, energy management, movement sensors, face recognition and smart home appliances.

Changing the way we work

According to 2016 research by Harvard Business Review, while individual workforce members are becoming more connected on their own, effective team communication has become more important over the past two years. Work collaboration with partners, suppliers, customers, consultants, as well as colleagues in dispersed locations has increased in importance. However, not all collaboration tools are equally effective. Tools that are not aligned with business processes and mismatched with workstyles tend to be used less.

Cloud, file sharing, video conferencing and content management have become

We're currently involved with a number of interconnect trials in North America as well as other regions, and this number is starting to accelerate as operators are increasingly making it a priority to provide IMS services like VoLTE, ViLTE and RCS.

highly effective. The next generation of collaboration tools will be cloud-based, mobile-first and capable of integrating various workflows.

Fog Computing - Intelligence at the edge of the network

The increasing investment in smart city applications will drive intelligence to the edge of the network. Compute, storage and networking capabilities will move to the most remote devices, allowing data from sensors to be converted into intelligent commands. This will improve urban services such as traffic management, smart lighting, security, and parking.


As an example, surveillance video may pick up first responder traffic on the roads and adapt traffic signals to give them priority. Drivers of mass transportation may get alerted to maintenance faults and receive alerts to stop at the next station. Sensors inbuilt into utility networks may switch from multiple renewable energy source options to drive the best yield at the lowest cost.

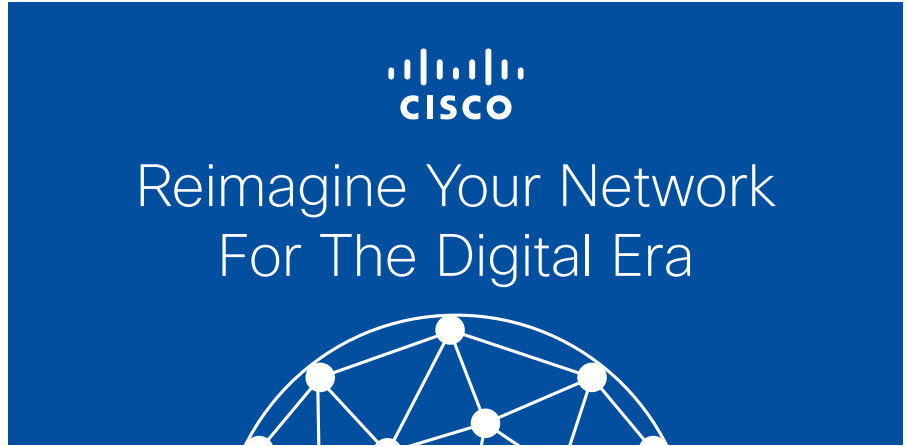
Data deluge drives deep learning and artificial intelligence

The vast volumes of data being generated by sensors lead to statistical patterns that can be mapped to normal business or consumer behaviour. This opens up the frontiers for deep learning and predictive analytics driving insights into business or consumer response. Other use cases are when a network is intelligent enough to defend itself, which is especially useful for securing the IoT.

Moreover, the current incidence frequency of cyber threats has grown to such a level that it is beyond human intervention and more automated forms of response and remediation are required. Artificial Intelligence helps analyse and automatically investigate suspicious web traffic. With artificial intelligence, we can discover attacks before they can begin to steal sensitive data. Then next twelve months promise to open up new possibilities of technology applications driving never seen before use cases and significant improvement to human life as we know it today.

The advent of alternate realities

The blending of dimensions is something that we'll continue to see more of in 2017 as purely online retailers are now launching physical presences (Amazon book stores and Amazon Go), and Pokémon Go brought augmented reality to the attention of the masses. Virtual reality technology has reached the point that it is now accessible to the average consumer, as with devices like smartphones and tablets. New open software driven platforms are enabling businesses to innovate in how they might use the technology – whether in the online, physical or virtual spaces. 



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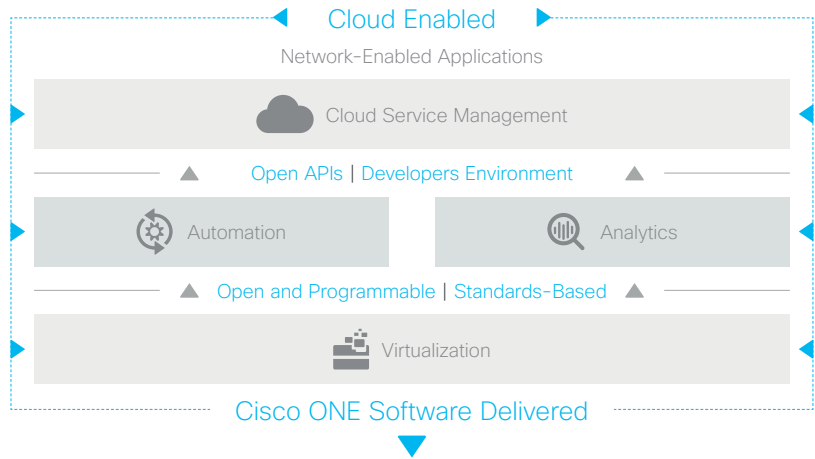


Digital disruption will displace nearly 4 of the top 10 incumbents by industry over the next five years*

Digital Network Requirements





Cisco Digital Network Architecture



Business Benefits



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It's all about what matters to you

ARTICLE

The Advent of Next Generation Networks

Orange Jordan Seeks to Launch a New Era of Connectivity

As people and companies continue to seek faster, more advanced and reliable connectivity options, Next Generation Networks (NGNs) is a hot topic of discussion that has been trending lately around the globe. The shift towards highly-advanced technologies has led telecommunications companies to venture into new areas to expand their offerings in terms of connectivity solutions and to remain at the forefront of competition.

Since Orange Jordan entered the Jordanian market in 2000, it has been a key player in shaping the Jordanian ICT sector, continuously introducing state-of-the-art technologies that ensure that its individual and enterprise customers remain connected at all times, wherever they are. Orange Jordan was the first telecommunications company to introduce the internet to the Kingdom, and it became the first company in Jordan to introduce 2G and 3G services. Soon after, building on its excellence in being the leading provider of fast internet and in alignment with its five-year corporate strategy, Orange Jordan launched its 4G network in 2015. This was the same year that Essentials 2020 was introduced, with the main goal of connecting people to all that is essential to them. The strategy also focuses on five key drivers that will essentially drive Orange Jordan towards success for itself and its customers, including offering richer connectivity options, reinventing customer relationships, building a people-oriented and digital employer model, accompanying the transformation of enterprise customers, and diversifying operations by effectively capitalizing on its assets.



Jerome Henique
Chief Executive Officer
Orange, Jordan



The shift towards highly-advanced technologies has led telecommunications companies to venture into new areas to expand their offerings in terms of connectivity solutions and to remain at the forefront of competition

To fulfill the promise of its strategy and in pursuit of being the strongest provider of fast internet, Orange Jordan is now focusing on NGNs, which are a new era of networks representing the future of connectivity, including LTE, Fiber-To-The-Home (FTTH) for individual subscribers, Fiber-To-The-Business (FTTB) for enterprise customers, and IMS (IP Multimedia Subsystem). These NGNs, with their capacity to connect people in more ways and on a different level than ever before, make the idea of ultimate convergence in the telecommunications industry an achievable reality. Today, the company is heavily investing in this area to make them viable services for users in Jordan. Between the years 2017 and 2020, Orange Jordan will invest JD 250 million to further enhance and develop its infrastructure, which will go, in part, towards developing its fixed and fiber networks, and increasing mobile coverage, providing an unmatched

Orange Jordan will invest JD 250 million to further enhance and develop its infrastructure, which will go, in part, towards developing its fixed and fiber networks, and increasing mobile coverage, providing an unmatched experience to its customers

experience to its customers. More than 2,000 locations across the Kingdom are currently covered by 2G, 3G, and 4G networks with 95% of the country inhabitants being covered by 4G/LTE, and fiber will be available to more than 50% of households across the Kingdom by 2022. Currently, we have already laid 6,000 kilometers of Fiber-To-The-Business (FTTB) cables and 700 kilometers of Fiber-To-The-Home (FTTH) cables.

The main focus for Orange Jordan in 2017 is the full-scale launch of its fiber services, which are part of NGNs and are not only believed to benefit individuals and businesses, but also revolutionize the ICT sector as a whole. Each aspect of fiber has the potential to open new sectors, opportunities, and advanced solutions to facilitate business operations and everyday life, drastically altering the national ICT scene. With technologically superior IoT services and devices, smart homes, businesses, and cities, and IPTV, for example, everyone has the chance to take part in this new era. There is no doubt that these services will enhance the efficiency and productivity of both enterprise and personal customers, allowing them to stay up-to-date with the latest technologies and compete on the international playing field. Advancing beyond just the ICT sector, fiber will also bring a wealth of benefits to the Kingdom as a whole.

Fiber, with the ability to bring an unprecedented level of connectivity to people and their surroundings, is also an integral component of another area that Orange Jordan is focusing on, "Smart Cities." The company's strategy therein spans three key sections that comprise all aspects of operations for growing urban areas to meet their challenges and bridge the gap between the release of the latest technologies and the ability of cities to adopt them as part of their current infrastructures. On three fronts,

Fiber, with the ability to bring an unprecedented level of connectivity to people and their surroundings, is also an integral component of another area that Orange Jordan is focusing on, "Smart Cities."

including "Smart Territories," "Smart Utilities," and "Smart Transport," the concept of "Smart Cities" aims to help cities develop their security and infrastructures while improving quality of life for their citizens, gain efficiency to make best use of public spending, attract trade and economic development, find new ways to finance growth, and, finally, champion sustainability. Internationally, Orange Business Services has constructed "Smart Cities" at Msheireb and The Pearl in Doha, Qatar; Abdali in Amman, Jordan; Solidere in Beirut, Lebanon; and ITCC and Yanbu Industrial City in Saudi Arabia; as well as at a number of key locations in France. 

REGULATORY NEWS

Egyptian Court Confirms ECA can Investigate Monopoly Issues in Telecoms Sectors

An Egyptian administrative court has ruled that the country's antitrust watchdog, the Egyptian Competition Authority (ECA), is authorized to examine monopolistic practices in the telecoms sector, *Ahram Online* reports, citing a

statement from the ECA. It is understood that the case was filed by local mobile network operator (MNO) Orange Egypt (formerly MobiNil), which claimed that the ECA did not have the right to refer communications providers to court.

The cellco had claimed that by doing so the ECA was trespassing on the authority of local telecoms regulator the National Telecommunications Regulatory Authority (NTRA).

TRAI Recommends Government to Fund 100 MB Data Per Month for Rural Consumers



After barring contentious programmes like Facebook's Free Basics and Airtel Zero, telecom regulator TRAI on Monday recommended government to fund around 100 MB data per month for rural consumers and mooted introduction of third party platforms to provide free internet in a non-discriminatory manner to promote digital economy. The regulator has given clean chit to model of providing data credit in subscriber's account as reward if "it is structured in a manner that is open and non-discriminatory." "In order to bridge the affordability gap for the persons residing in rural areas and to support government's efforts towards cashless economy by incentivizing digital means, the Authority recommends that a scheme under which a reasonable amount

of data, say 100 MB per month, may be made available to rural subscribers for free," TRAI said. The Telecom Regulatory Authority of India estimates 100 Megabyte (MB) free data for 50 million rural subscribers in a month would cost Rs 600 crore. The regulator has suggested that the cost of implementation of the scheme may be met from Universal Service Obligation Fund (USOF) -- which is meant to promote telecom services in rural areas. Under USOF, the government charges in the form of Universal Access Levy, from telecom licensees to fund setting up of telecom infrastructure in all uncovered rural and remote areas of the country. "It is a good start. Anything sustains if subscribers understand its value and then they start paying for it.

With 100 MB of data, our wallet user can make thousands of transaction which is more than enough," MobiKwik COO Mrinal Sinha said. For third party aggregator platforms, the regulator has cautioned the data through aggregator should not be designed to circumvent 'The Prohibition of Discriminatory Tariffs for Data Services Regulations' which bars operators from entering into exclusive pacts with internet companies to subsidize their access. However, net neutrality volunteers see loophole in TRAI's aggregator model and feel that it leaves room for zero rating model. "Government subsidizing data for subscribers is a great step. However, aggregator model would lead to violation of differential pricing regulation. Whether you give data back immediately or later, it will be same a zero rating platform," Internet Freedom Foundation, Co-founder Nikhil Pahwa said. Zero-rating, is a term that is generally used to describe schemes that provide free access to data services for subscribers of a particular service provider for accessing specific content. TRAI in February barred differential pricing on Internet which ended services of platforms like Facebook's Free Basics and Airtel Zero. The regulator also released a consultation paper in May where it explored the reward model, toll free model, Direct Money Transfer Model for provision of free data services.

EU Negotiators Agree to Coordinate 700MHz use

The European Parliament, the European Council and the European Commission have agreed on how to coordinate the use of the 700MHz spectrum band, as part of a wider plan to facilitate the introduction of 5G mobile technology by 2020. The agreement, which focuses on the ultra-high frequency (UHF) band (470MHz-790MHz), including the 700MHz band (694-790 MHz), builds on a proposal presented by the Commission in February 2016. It also represents the first deal made under the Digital Single Market strategy, as presented by the Commission

in May 2015. As per the terms of the pact, the 700MHz band should be assigned to mobile operators and made available for wireless broadband use by 30 June 2020 at the latest in all EU Member states, although duly justified exceptions are possible until 30 June 2022. Further, EU member states will adopt and make public their national plans for releasing this band by 30 June 2018. They will need also to conclude cross-border coordination agreements by the end of 2017. In the sub-700MHz band (470MHz-694MHz) meanwhile, long-term priority

is given to broadcasting use until 2030. Andrus Ansip, Vice-President for the Digital Single Market, commented: 'Better spectrum coordination is vital to provide higher quality internet to all Europeans. It paves the way for 5G, the next generation of communication networks, and the internet of things (IoT). We made a first step today with a joint approach to use the 700MHz band in the EU. We should go further and this is one of the main objectives of our new Electronic Communications Code and 5G action plan presented earlier this year.'

CTIA, CCA Blast FCC for Slipping Cybersecurity Rule into 5G Order

Both CTIA and the Competitive Carriers Association (CCA), which don't always see eye-to-eye on wireless regulatory issues, agree on one thing: The FCC's proposal to require millimeter wave (mmWave) licensees to disclose network security plans is a bad idea. Actually, both organizations say it violates the Administrative Procedure Act (APA) because the FCC did not propose the rule in its original Notice of Proposed Rulemaking (NPRM), where entities like CTIA and CCA could have voiced their objections. Instead, they say the commission barely mentioned a security obligation in a "fact sheet" that was published less than a month before the order was adopted. The requirement appears as Rule 30.8, published in the Federal Register on Nov. 14, and states that each licensee is required to submit to the FCC a statement describing its network security plans and related information, which must be signed by a senior executive within the licensee's organization with personal knowledge of the security plans and practices within the licensee's organization. It also spells out other specific requirements. "The lengthy and complex NPRM raised numerous issues, but contained no discussion of Rule 30.8. Nor did the rule appear in the NPRM's appendix of proposed rules or in the [Jan. 13, 2016] Federal Register notice," CTIA said in its Dec. 14 filing with the FCC. "The Commission failed to seek comment even on whether to impose

a requirement at all. The NPRM merely sought comment on 'how to ensure that effective security features are built into key design principles for all mmW band communications devices and networks' without setting forth any specific proposals." CTIA, which represents the largest U.S. carriers, spelled out a host of arguments against the rule, including that Rule 30.8 "threatens security by publicizing information that can help bad actors. Network providers take pains to not reveal security plans, system architectures, or the tools they use. Public dissemination of even 'high level' network security plans risks exacerbating threats." CCA, in its December 14 commentary, said the cybersecurity requirements will saddle carriers with administrative and competitive burdens and should be rejected. In addition, "the obligations that will be imposed on mmW licensees are discriminatory and against the public interest as there are no similar obligations currently imposed on licensees in other spectrum bands or on wireline providers. Further, there is no record evidence that mmW technology poses a higher risk than any other use of spectrum." CCA, which represents smaller and regional U.S. carriers, further states that licensees, especially wireless licensees, are not the appropriate party to make cybersecurity disclosures. Rather, "OEMs are in the business of constructing and selling network infrastructure and would be in the best position to provide security

information." In a separate December 14 filing, T-Mobile echoed the sentiment that the cybersecurity statement requirement is unreasonably discriminatory as it's being applied only to millimeter wave band licensees despite any evidence in the record that security is a unique concern for them. "T-Mobile does not dispute the importance of security in the millimeter wave bands or other bands, but the lack of any justification for this mechanism or discussion of its effectiveness or appropriateness prevents the Commission from adopting rules imposing new regulatory burdens on licensees," the carrier said. "Security protocols are best developed in response to customer demands by industry through standards-setting bodies or otherwise. Providers of wireless communications services have ample incentive to ensure that their networks are sufficiently protected. There is no need for the Commission to unnecessarily insert itself into network design." However, if the FCC believes a cybersecurity statement requirement is within its authority and necessary, it should initiate a separate rulemaking proceeding to ensure that interested parties have the necessary procedural opportunities to evaluate the proposal, T-Mobile said, adding that would ensure the commission and the public get a full opportunity to analyze its implications in accordance with the APA.

TRAI Wishes to Provide Broadband to 500 Million People Via Cable TV

Telecom regulator TRAI Chairman R S Sharma today said broadband connectivity to 500 million people can be provided in a short span of time by leveraging digital cable TV network. "We have made a number of recommendation and our recommendations if followed could transform our ranking which is abysmally low," Sharma said at Skoch Summit. He said that there are 100 million homes in India connected with digital cable TV. "The cable TV connection will become digital. If you

have 100 million homes where you take this digital, these 100 million homes with same pipe with little bit of up gradation can be used for delivery of robust broadband connectivity," Sharma said. He said that recommendation in this regard has been sent by the Telecom Regulatory Authority of India. "We have been following it with the Department of Telecom and Ministry of Information and Broadcasting. Yesterday that pipe was used for providing cable TV service, it can now also transfer bits and bytes. That can

immediately provide connectivity to 500 million people," Sharma said. He said that an average cable TV home is estimated to have five members. Wireless or mobile broadband subscriber in September grew by was 173.87 million and fixed line broadband connections were at 17.84 million. Government under National Telecom Policy 2012 has set target to connect 600 million people by the year 2020 at minimum 2 Mbps download speed.

Australian Broadband Prices Set to Rise as Government Proposes NBN tax

Broadband prices in Australia are set to rise after the government this week proposed levying a charge on ISPs to help state-owned wholesaler NBN cover the cost of its fixed-wireless and satellite services. The government has put the cost to NBN of serving fixed-wireless and satellite broadband customers at AU\$9.8 billion (€6.9 billion) between 2010-11 and 2039-40. Recovering these costs directly from end users would make these services prohibitively expensive, so NBN must look elsewhere. At the moment, NBN cross subsidizes the fixed-wireless and satellite services with revenue generated by its fixed-line operation. But this has been made harder because NBN faces more competition than expected in metropolitan areas. With that in mind, the Department of Communications and the Arts on Monday unveiled the Regional Broadband Scheme (RBS), which proposes that NBN covers around 90% of those costs, and that the remainder – between AU\$40 million (€28.2 million) and AU\$60 million per year – is paid for by alternative providers. In the first year, altnets will have to pay AU\$7.09 per month plus a AU\$0.0127 monthly admin fee for every fixed broadband connection. Exemptions have been proposed for altnets with fewer than 2,000 subscribers, and services delivered via fixed-wireless connection or over lines incapable of providing a minimum speed of 25 Mbps. ISPs that are in the process of transferring to the NBN's fixed-line network won't have to pay either. "NBN and NBN-comparable providers would pass the charge on to their end user base," the



Department said, in a regulatory impact statement (RIS). The government has proposed the RBS for the simple reason that NBN's fixed-line business faces more competition than expected. "Network providers have expanded into population-dense areas with existing infrastructure beyond what was originally conceived," the Department said. The government cited fibre-to-the-basement (FTTB) provider TPG, which it said is rolling out networks to high-value apartment blocks and undercutting NBN's prices. "While NBN is able to reduce its prices in commercially viable areas to respond to competition, if it does so, it will be less capable of supporting cross subsidies to fixed-wireless and satellite services," the

government said. In addition to the RBS, Australia has also proposed introducing a Statutory Infrastructure Provider (SIP). SIPs will be required to connect premises to high-speed broadband upon request from a retail service provider. NBN will be the default SIP, but other network operators will be able to be SIPs where appropriate. The government has also proposed new wholesale and retail rules designed to stop anticompetitive behavior and put downward pressure on broadband prices. Australia has launched a public consultation on the proposals; interested parties have until 3 February to respond.

Microsoft's Acquisition of LinkedIn Gets EC Approval

Microsoft addressed the European Commission's concerns about bundling LinkedIn with its products, in return for approval of the \$26 billion takeover. Of particular concern to the EC was, post-merger, how Microsoft could use its strong market position in operating systems via Windows, as well as productivity software (Outlook, Word, Excel and Powerpoint), to strengthen LinkedIn's position against its rivals. The commission said it was nervous of Microsoft pre-installing the professional social network on all Windows PCs, as well as integrating it into Microsoft Office and combining the two companies' user databases. This development could have been reinforced by shutting out LinkedIn's competitors from access to Microsoft's APIs, which they need to interoperate with its products and to access user data stored in the Microsoft cloud, the commission said. The EC was concerned that these measures would mean LinkedIn getting bigger, so making it harder for new players to provide competing services. In addition, it could have tipped the market towards LinkedIn in those markets, such as Austria, Germany and Poland, where rivals currently operate. The commitments made by Microsoft to the commission include ensuring that PC manufacturers and distributors would be free not to install LinkedIn on Windows, and allow users to remove LinkedIn if pre-installed. In addition, it must allow competing professional networks to maintain current levels of interoperability

with Microsoft Office through the Office add-in programme and APIs. Finally, Microsoft agreed to allow competing professional social networks access to Microsoft Graph, a gateway for software developers. Microsoft Graph is used to build applications and services that can, subject to user consent, access data stored in the Microsoft cloud, such as contact information, calendar data and emails. In a recent speech, EU competition commissioner Margrethe Vestager highlighted how acquiring user data, or even data from objects such as connected cars, can be central to M&A

activity, and hence within her remit. The Microsoft/LinkedIn deal provides a prime example of such an acquisition and, consequently, of how the EC will scrutinize them. Salesforce, an unsuccessful rival bidder for LinkedIn, earlier urged the EC to dig further into Microsoft's proposed acquisition. CEO Marc Benioff pressed the Federal Trade Commission (FTC) in the US to investigate the deal, but the agency declined. Benioff argued the acquisition is anticompetitive because Microsoft can restrict access to LinkedIn's data, making life difficult for rivals (including Salesforce).



Liquid Telecom Obtains Regulatory Approval

Liquid Telecom has received the final regulatory approval to close its latest transaction in Tanzania and has become the majority stakeholder of Raha, Tanzania's leading Internet Service Provider. Raha today serves over 1500 businesses as well as a growing number of retail customers with a range of connectivity solutions, including fiber, satellite, WiMAX and Wi-Fi. The acquisition provides Liquid Telecom's

enterprise and wholesale customers with direct and faster access to Tanzania and to all Eastern, Central and Southern Africa. Tanzania will become the latest market to be added to Liquid Telecom's extensive fiber network, which is the largest of its kind serving eastern, central and southern Africa, spanning over 40,000km across 12 countries. The Tanzania Communications Regulatory Authority (TCRA) approved the agreement on December 8, 2016.

"We are very pleased to announce that this transaction has received its final approval. The agreement enables Liquid Telecom to expand its footprint into Tanzania, a growing and dynamic African country," said Nic Rudnick, CEO, Liquid Telecom. "We are thrilled with this approval and look forward to being part of a pan-African connectivity movement," said Aashiq Shariff, CEO, Raha.

Commission Proposes New Tax Rules to Support e-commerce and Online Businesses in the EU

The European Commission has unveiled a series of measures to improve the Value Added Tax (VAT) environment for e-commerce businesses in the EU. Our proposals will allow consumers and companies, in particular start-ups and SMEs, to buy and sell goods and services more easily online. By introducing an EU wide portal for online VAT payments (the 'One Stop Shop'), VAT compliance expenses will be significantly reduced, saving businesses across the EU €2.3 billion a year. The new rules will also ensure that VAT is paid in the Member State of the final consumer, leading

Finally, the Commission is delivering on its pledge to enable Member States to apply the same VAT rate to e-publications such as e-books and online newspapers as for their printed equivalents, removing provisions that excluded e-publications from the favorable tax treatment allowed for traditional printed publications. Andrus Ansip, Vice President for the Digital Single Market, said: "We are delivering on our promises to unlock e-commerce in Europe. We have already proposed to make parcel delivery more affordable and efficient, to protect consumers better when they buy online

Pierre Moscovici, Commissioner for Economic Affairs, Taxation and the Customs Union, said: "Online businesses operating in the EU have been asking us to make their lives simpler. Today we're doing that. Companies big and small that sell abroad online will now deal with VAT in the same way as they would for sales in their own countries. That means less time wasted, less red tape and fewer costs. Our proposals mean that European governments stand to gain an additional €100 million a week to spend on services for their citizens." Today's proposals embrace a new approach to VAT for e-commerce and follow up on the commitments made by the European Commission in the Digital Single Market (DSM) strategy for Europe and the Action Plan towards a single EU VAT area.

In particular, we propose:

- New rules allowing companies that sell goods online to deal easily with all their EU VAT obligations in one place;
- To simplify VAT rules for startups and micro-businesses selling online, VAT on cross-border sales under €10,000 will be handled domestically. SMEs will benefit from simpler procedures for cross-border sales of up to €100,000 to make life easier;
- Action against VAT fraud from outside the EU, which can distort the market and create unfair competition;
- To enable Member States to reduce VAT rates for e-publications such as e-books and online newspapers.
- These legislative proposals will now be submitted to the European Parliament for consultation and to the Council for adoption.



to a fairer distribution of tax revenues amongst EU countries. Our proposals would help Member States to recoup the current estimated €5 billion of lost VAT on online sales every year. Estimated lost revenues are likely to reach €7 billion by 2020 and it is essential that we act now.

and to tackle unjustified geo-blocking. Now we simplify VAT rules: the last piece in the puzzle. Today's proposal will not only boost businesses, especially the smallest ones and startups, but also make public services more efficient and increase cooperation across borders."

Nigeria's Telcos are Being Forced to Increase Mobile Internet Prices

Around a year ago, Nigeria's mobile internet subscriber base had nearly hit a landmark figure: 100 million. But, due to unfavorable government policies, that trend is likely to be reversed. Last year, the Nigerian Communications Commission (NCC), the country's telecoms regulator

earned praise for deregulating data prices. The removal of a data floor price allowed local telcos to set lower mobile data prices making them cheaper than ever before and enabling more Nigerians access to the internet. But, in a surprising move, the NCC has reinstated its data

floor price, forcing telcos to jack prices back up. In a letter sent to telcos, the NCC claims the price increase is necessary "in order to provide a level playing field for all operators in the industry." The prices will take effect from December 1. The NCC cited the need to allow "small operators



and new entrants" who hold "less than 7.5% market share" and have operated "less than three years in the market" to operate profitably. Put another way: the NCC thinks that, by charging lower prices for data, large telcos, like MTN, could kill off smaller internet service providers

who'd be unable to compete profitably. Reports suggest the new regulation is due to lobbying by smaller operators. More expensive mobile internet access costs will particularly stifle internet usage growth given Nigeria's low fixed line broadband internet penetration. The

move is being widely criticized by players in Nigeria's fast-growing tech sector. Iyin 'E' Aboyeji, who made his name as a co-founder of Andela, one of the country's high-profile young tech companies, called the decision the "biggest threat" to the Nigerian government's own stated ambitions for the local tech sector. Aboyeji who now runs a payments startup called Flutterwave, addressed president Buhari directly in a series of tweets. The decision also comes at a time when Nigeria's mobile internet usage has been steadily regressing. While the NCC's decision to make telcos hike data prices is surprising, there was a chance the price of internet access was going to increase. As Quartz has reported, in a bid to increase government revenue, Nigerian lawmakers have discussed a bill to levy a 9% communications tax on various services including internet data. But with service providers unlikely to bear the extra expense, the costs was likely to be passed down to end users.

Europe Set to Finally Make its OTT Move

The European Commission is reported to be in the process of introducing new regulations for OTTs which will level the playing field for telcos in Europe. The e-privacy directive, which currently only applies to telcos, will be expanded to OTT services such as Microsoft's Skype and Facebook's WhatsApp, as the EC lumbers towards some sort of decision on regulation. The telco industry has long been lobbying regulatory decision makers to address the imbalance in rules governing how telcos can monetize mined data, as there has been a general acceptance the OTTs have significantly more freedom. The draft wants to extend the rules to ensure the OTTs will have to guarantee the confidentiality of communications and obtain the users' consent to process their location data, mirroring similar provisions included in the Gaggle of Red-tapers' General Data

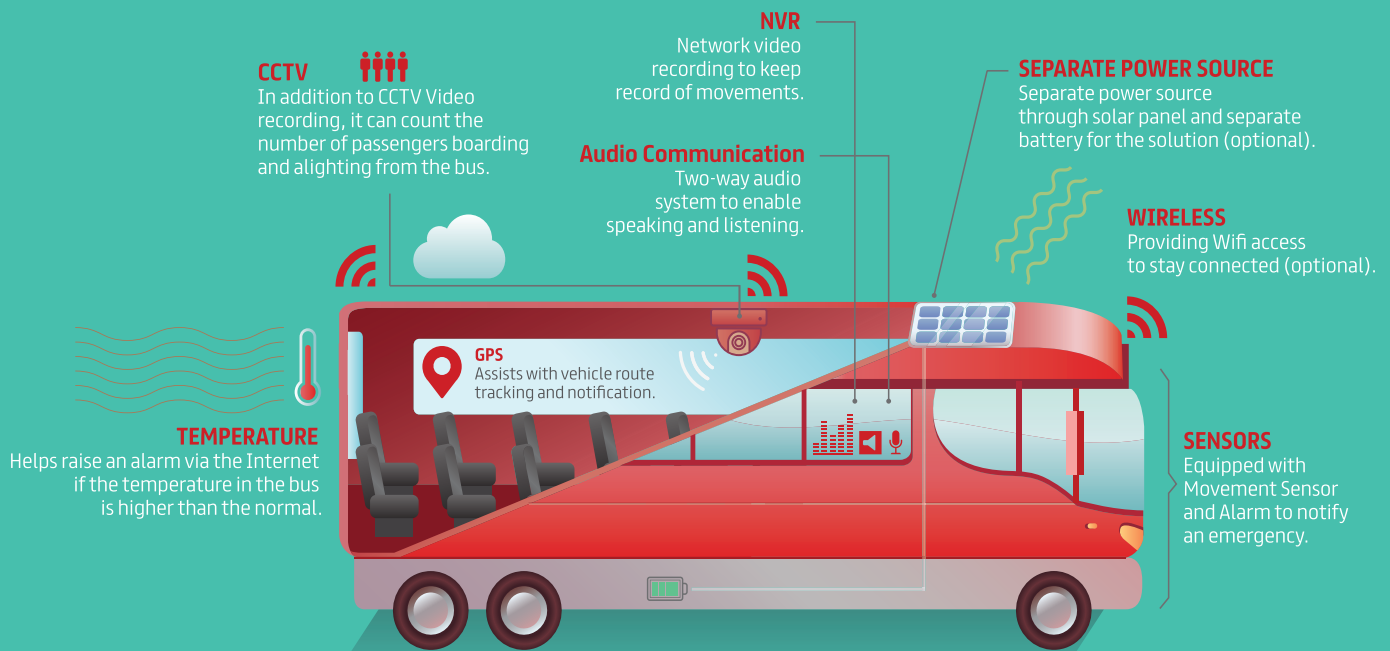
Protection Regulations (GDPR), set to come into force in 2018. "This creates a void of protection of confidentiality for the users of these services," the draft reads, referring to the OTTs. "Moreover, it generates an uneven playing field between these providers and electronic communications service providers, as services which are perceived by users as functionally equivalent are not subject to the same rules." While the telcos have been begging for equality in the digital economy, this may not be what they had in mind. You do have to feel a bit sorry for the cumbersome telcos, they have had revenues shattered by the OTTs who are offering very similar services, but playing to a different rule book. The parity maybe welcomed by the telcos, and will give them the opportunity to monetize data in a similar manner to OTTs and open up new revenue channels. The

proposal will also remove the obligation on websites to ask visitors for permission to place cookies on their browsers, which currently appears via a banner, assuming the user has already consented through the privacy settings of the web browser. "If browsers are equipped with such functionality, websites that want to set cookies for behavioral advertising purposes may not need to put in place banners requesting their consent insofar as users may provide their consent by selecting the right settings in their browser," the draft said. The proposal is set to be unveiled in January as a late-Christmas present from the Gaggle of Red-tapers to itself. After all, the Gaggle of Red-tapers wouldn't be the party-animals they were if they weren't given the opportunity to throw their red-tape all over the shop and complicate matters.



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A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION



Algeria

The Regulatory Authority for Post and Telecommunications (Autorite de Regulation de la Poste et des Telecoms, ARPT) has granted its permission to celco Ooredoo Algeria to deploy 4G services in 27 additional wilayas (provinces) – Ouargla, Djelfa, Biskra, Ghardaia, Adrar, Algiers, Oran, Constantine, Setif, Boumerdes, Bejaia, Blida, Annaba, Tipaza, Sidi Bel Abbes, Bouira, Chlef, Batna, Bordj Bou Arreridj, Media, Mascara, M'sila, Tiaret, Defla, Mostaganem, Relizane and Ain Temouchent. The regulator disclosed that it made the decision (No.120/PC/ARPT/2016) after Ooredoo achieved its minimum coverage and quality of service (QoS) obligations in the wilayas of Tizi Ouzou, Tlemcen and Bechar. The operator is now authorized to offer LTE services in a total of 30 wilayas.

(January 10, 2017) telegeography.com

The government has reportedly passed a new telecoms law, the Code of Posts and Electronic Communications,

which includes an obligation for fixed line incumbent Algeria Telecom (AT) to open its unbundled local loops to alternative operators, in addition to granting extra powers to the telco to undertake widespread monitoring of all international phone calls. Domestic news source ALG24 writes that the Council of Ministers also voted to 'strengthen the authority of the post and electronic communications regulator' via the establishment of a new Radio Frequency Management Agency, which will monitor communications. In October last year Algeria's ICT Minister Iman Houda Feraoun disclosed that the draft legislation would be submitted to the country's Cabinet for discussion. The legislation, which was previously named Code of Posts and Telecommunications, will replace Telecom Law 03-2000 of August 5, 2000, which provided for the establishment of AT as the country's sole fixed line operator.

(January 3, 2017) telegeography.com



Bahrain

Bahrain's Spectrum Strategy Coordination Committee approved the national plan for frequencies at a meeting held recently. The meeting was chaired by Mohamed Ali AlQaed, chief executive of Information and eGovernment Authority, and attended by committee members representing 10 governmental entities. During the meeting, the chairman praised last year's achievements and highlighted the need of developing the telecommunications sector, increasing Bahrain's ranking in ICT international indicators, as well as enhancing the utilization of the advanced technology, which will reflect positively on investments in line with Bahrain's Vision 2030. Responding to the decree issued in May 2016 by His Royal Highness the Prime Minister for adopting the recommendations of the Fourth National Telecommunications Plan; the committee approved the National Plan for Frequencies. The plan was prepared by a sub-committee and based on the outputs of the World Radio Conference 2015. This plan focuses on the international regulations, optimal use of the spectrum and the requirements of various sectors, including entities specialized in national security. The plan stresses on developing the Directorate of Wireless Licensing, Frequency & Monitoring, utilizing the frequencies effectively to meet current and future needs of all

users, attracting investments to the kingdom, developing the ICT sector as well as meeting the international requirements. The committee also agreed on adopting the technical part of the fixed links prepared by the Directorate of Wireless Licensing, Frequency and Monitoring, adding new frequency bands for fixed services which support the private and commercial communications network infrastructure. This will contribute in increasing the capacity to fit requirements of launching the latest global communication systems in Bahrain, it felt. The committee also adopted the 2.6 GHz frequency band allocation plan, and technical specifications that provides a smooth use of the fourth and fifth generation mobile services technologies (LTE), without technical issues. The committee discussed its upcoming plan, along with the process of implementing the decisions, and achieving greater milestones in the field of spectrum planning. The committee comprises 10 governmental entities, representing the Information & eGovernment Authority, Ministry of Interior, National Security Agency, Bahrain Defense Force, Ministry of Transportation & Telecommunications, Telecommunications Regulatory Authority, Ministry of Information Affairs, and the National Guard.

(January 18, 2017) tradearabia.com



Bangladesh

Mobile operators sold more than 1.6 million subscribers identification module (SIM) cards in October than September in 2016. This indicates the number of active mobile connections have increased in the later part of the past year after the government launched mandatory biometric re-registration of SIMs, says a report of Bangladesh Telecommunication Regulatory Commission. According to the report, the number of internet subscribers has also increased in the country. The process of bio-metric re-registration reduced the number of

active mobile phone connections dropped to 117 million from 132.6 million before the re-registration process started. At present the number of active connections is more than 120 million. Among the mobile phone operators, Grameenphone sold the highest number of SIMs. It has 55.7 million active subscribers. Airtel merged with Robi and the number of its subscribers is 24.4 million. Banglalink has around 30 million subscribers and Teletalk has more than 2.8 million subscribers.

(January 23, 2017) en.prothom-alo.com



Egypt

Egypt's National Telecommunications Regulatory Authority (NTRA) has reportedly requested that the nation's three mobile network operators (MNOs) – Vodafone Egypt, Orange Egypt and Etisalat Misr – halt trials of 4G services. According to the Egypt Independent, which cites an unnamed source within the local telecom sector, the regulator is said to have called for the suspension as the new services are reportedly impacting the quality of existing third-generation connectivity. With complaints related to degrading mobile services said to have increased dramatically in the wake of the trials getting underway, complainants are most concerned about the inability to complete voice calls without interruption, while low voice call quality and slow mobile internet connections have also been reported. As per the report, the nation's 4G service trials are

said to have utilized frequencies currently used for 3G services, though it has been noted that when LTE-based offerings are launched commercially, spectrum in a different band will be used. Another unnamed source within one of the three MNOs confirmed that they had been receiving more complaints on the low quality of service from clients, with this attributed to 4G service trials running on 3G spectrum. The source was cited as saying that an as yet unnamed company would suspend the 4G trials in accordance with the request of the NTRA. Separately, however, Ahram Online reports that Orange Egypt's 4G trials are continuing, with the cellco saying that once these are complete, and subject to receiving official LTE-suitable spectrum from the NTRA, it will be ready for a commercial launch.

(January 24, 2017) telegeography.com



Iran

In early January billboards started going up around Tehran and other large cities with the second mobile operator MTN-Irancell announcing new "super fast mobile connections." Turning technical, 4.5G or License Assisted Access (LAA) works by aggregating licensed and unlicensed (5 GHz) LTE frequency bands, using massive MIMO technology (multiple inputs, multiple outputs) and 256-QAM modulation. In other words, it uses the licensed radio spectrum in a more efficient way for better download speeds. Meaning one antenna can host more users at higher speeds. The technology is not entirely new, nor will it require users to buy new devices that do not already have 4G Internet capabilities. Irancell also has made no comments that existing 4G SIM cards will need to be replaced. According to one YouTube video of the upgraded technology, one person testing out the signal saw speeds of up to 1.2Gbps which is roughly 700x faster than the standard 4G Internet offered to most mobile subscribers. The example used to show the speed range was visible when a user started downloading a two-gigabyte High-Definition film off a torrent site. He downloaded the movie in 14 seconds. On the standard

ADSL connection, the film would take hours to download. MCI has also started to offer its services as '4.5G', however there are no information available as to whether they can achieve speeds as close as those made by Irancell. Their marketing campaign for the technology also seems to be less organized than the South African-backed MTN-Irancell. New posters across the capital follow a showcase event in Mashhad by the MTN-Irancell in August where the first wireless 4G TD-LTE home and office broadband network were released. The company's TD-LTE network was launched simultaneously in 25 cities. MTN-Irancell's CEO Alireza Ghalambor Dezfouli noted that 1,038 areas in the country, including 527 cities, have access to the 3G network and 239 areas currently have 4G coverage. He added that Irancell had 17 million and 25 million broadband and data subscribers respectively at the time. Irancell received the countrywide TD-LTE license in August 2015. The pilot phase was launched soon after at an event attended by Minister of Communications and Information Technology Mahmoud Vaezi.

(January 26, 2017) financialtribune.com

A consortium of Iranian companies will reportedly be granted a license to launch a mobile service operation in Syria under agreements to expand economic ties between the two countries, Al Arabiya writes. The five Memorandums of Understanding (MoUs) were signed at a ceremony attended by Syrian Prime Minister Emad Khamis and Iranian Vice President Eshaq Jahangiri in Tehran on January 17. In November 2016, a number of Iranian companies were said to have set their sights on taking a share in a proposed third Syrian mobile network operator to compete with South African-backed MTN Syria and domestically-owned SyriaTel. According to an unnamed 'official' source, the government-owned fixed line incumbent operator Syrian Telecom (ST, formerly Syrian Telecommunications Establishment [STE]) would take a minority stake of approximately 20% in the proposed new Iranian-backed third mobile operator. The previous attempts to attract further cellular competition to Syria via international tenders collapsed in 2011 as political unrest gripped the country, with the new development indicating a change in policy away from open tenders and towards 'closed-doors' negotiations.

(January 18, 2017) telegeography.com

The Iranian parliament has set out obligations for the Ministry of Communications and Information Technology as part of a five-year social and economic development plan. The Majlis has introduced legislation which tasks the ministry with increasing bandwidth in the country to 30Tbps by March 2021. The ministry will also be tasked with undertaking structural reform of the state-owned Telecommunications Infrastructure Company of Iran (TIC). TIC is the exclusive provider of bandwidth to local internet companies. The ministry wants to split TIC into three parts, which will operate independently; The International Data Transit Company, Research and Development Company, and Infrastructure Development Company. All three will be overseen by a new national telecommunication company. The parliament has also challenged the ministry to attract investment from the

private sector and foreign organizations as Iran looks to expand its telecoms infrastructure. It comes just months after Italian equipment vendor Italtel made a pitch to build a nationwide ultra-fast broadband network in Iran focused on health and education services. The Telecoms Ministry has been tasked with digitizing schools, according to the reports. It comes just months Sparkle and Interoute representatives agreed that clearer regulatory rules are needed to boost foreign direct investment (FDI) into Iran and grow the telecoms market. Speaking at Capacity Eurasia, delegates from the two companies said a reduction in sanctions meant there is naturally an increasing demand for wholesale providers to partner up with local players to not only enter the Iranian market, but to do so smoothly utilizing existing infrastructure in the country which has invested heavily in landline models. Capacity panelist Alessandro Talotta, chairman and CEO of Sparkle, said to delegates: "When we were in Iran two weeks ago, we had the opportunity to speak with private enterprises willing to invest and we are in favor of partnering as it creates better opportunities for consumers and enterprises."

(January 17, 2017) globaltelecomsbusiness.com

The government of Iran has laid down a series of reform targets for the telecoms sector under its latest five-year plan for 2016-2021. According to a report from the Financial Tribune, authorities want internet bandwidth increased to 30TB by March 2021, with school networks and e-government services digitised. The Ministry of ICT is also being urged to attract further private sector collaboration and foreign investment to the telecoms industry. In addition, the government is calling for structural reform at state-owned firm Telecommunications Infrastructure Company of Iran (TIC), which operates fixed line networks which are leased to third-party telcos and ISPs. TIC is to be split into three separate entities: the International Data Transit Company, Research & Development Company and Infrastructure Development Company.

(January 16, 2017) telegeography.com



With the government still looking into which measure to adopt to increase revenues from the telecom sector, one option is imposing fees on using Voice over Internet Protocol (VoIP) services such as Skype, Viber or WhatsApp. "We are still looking into the scenarios and will take the interest of all stakeholders into account," Nader Dhneibat, secretary general of the ICT Ministry, told The Jordan Times. One of the scenarios is imposing a fee on using apps such as WhatsApp or Viber to make calls, he said. If a fee is imposed on this service, it will range from JD1 to JD2 per month, according to Dhneibat, and it will only be on making calls, not messaging. VoIP enables people to use the Internet as the transmission medium for voice calls. According to estimates by experts in the field, there are more than 3 million WhatsApp users in Jordan. Experts have repeatedly stressed that it is difficult and unrealistic to impose fees on such services, as there are technological solutions

to bypass any blockage and many alternatives to these apps online. Another scenario that is being studied is imposing JD1 as a monthly deduction from postpaid lines. One other option entails imposing a fee on the purchase of a new SIM card. In addition, the government is looking into increasing sales tax on the Internet from 8 per cent to 16 per cent. "These scenarios are still under study. One scenario might be adopted, or two at the same time...Our objective is to support the Treasury while at the same time not to affect users or harm investments by telcos in the sector," said Dhneibat. According to latest available figures by the Telecommunications Regulatory Commission, mobile subscriptions by the end of September 2016 reached 16.7 million. Of the total, around 1.2 million are post paid. Internet penetration reached 87 per cent by the end of the third quarter of last year, with some 8.6 million users.

(January 23, 2017) jordantimes.com

Jordan



Kuwait

Kuwait is said to spent about KD4.74 billion (\$15.6 billion) on infrastructure and other projects in fiscal year 2017-2018 with the private sector contributing 16.9 per cent of the spend, said a report in a local daily. The projects cover houses, roads, electricity, ports, airports, telecommunications and renewable energy, reported Arabic newspaper Al Anba, quoting Dr. Khaled Mahdi, the secretary general of the General Secretariat of the Supreme Council for Planning and Development. The

government will contribute 49.3 per cent of the investments, revealed Dr Mahdi. Around 33.8 per cent will be spent by the state-owned oil sector, while 16.9 per cent will be spent by the private sector within a public-private partnership (PPP) programme, he said. "The 2017-2018 Development Plan, which is part of the second Five-Year Plan, includes projects intended to diversify the income sources, develop the tourism sector and increase investment flows," he added.

(January 17, 2017) albwaba.com



Lebanon

Lebanon's Cabinet of Ministers has dismissed Abdel-Moneim Youssef from his post as Director General of the country's state-run incumbent telco Ogero, and appointed two successors: Imad Kreidieh to lead the Ogero telecoms authority, and Bassel Al Ayyoubi as director-general of investment and maintenance at the telecoms ministry, reports Gulf News. Youssef, who

occupied both posts simultaneously, is on trial for corruption and negligence including 'depriving the state of funds'. The trial has focused on a number of unlicensed internet networks that were found to be operating across Lebanon. Kreidieh's previous jobs include Deputy Managing Director at SyriaTel and CEO of MTN Sudan. (January 9, 2017) telegeography.com



Morocco

Moroccan operator Inwi has made a formal complaint to the National Agency of Telecommunications Regulation (Agence Nationale de Reglementation de Telecom, ANRT) over fixed line incumbent Maroc Telecom's (IAM's) failure to comply with the country's local loop unbundling (LLU) regulations, which were first introduced in December 2014, media24.com writes quoting unnamed sources. The move follows a previous ANRT ruling against the incumbent (published in October 2016), which ordered Maroc Telecom to open up its fixed line network to alternative operators willing to provide LLU services; the regulator's move was prompted by a complaint filed by Orange

Morocco (formerly known as Meditel). The ANRT first published the rules governing LLU in Morocco in June 2014. Under the new regulations, Maroc Telecom is required to provide colocation for third-party operators' equipment in its existing cabinets, install multi-operator cabinets for part of their future nodes and establish an active wholesale offer for third-party operators under a virtual unbundled local access (VULA) model. While Maroc Telecom was initially required to provide a technical and tariff wholesale offer for passive access to its fixed local loop by August 1, 2014, it was accused of failing to publish the required documents on numerous occasions.

(January 3, 2017) telegeography.com



Nepal

During a meeting of the Telecommunications Policy 2060 high-level monitoring committee at the Ministry on Tuesday, Minister Karki wondered if the policy has ensured the people from the far-flung area the access to a telecommunications facility. According to him, the government has forwarded the activities on ICT with top priority so that people from remote areas could get the internet service in a convenient and reliable way. On the occasion, Ministry Secretary Mahendra Man Gurung underscored the need of integrated policy rather than separate and scattered policy on communications. Spokesperson at Nepal Telecommunications Authority, Min Prasad Acharya,

informed that high level discussion was focused on amendment of Telecommunications Act 2053 for the implementation of the Telecommunications Policy 2060. The discussion was attended by high-level officials from NTA, Nepal Telecom and the experts. They discussed the strategy to be adopted for the practical aspect of the implementation of the policy. Meanwhile, the first meeting of the committee discussed the provisions on Telecommunications Policy and its implementations. The meeting decided to implement the interconnection guideline 2008 prepared by the NTA, said a press release issued by the Ministry Joint Secretary Ram Chandra Dhakal.

(January 25, 2017) annapurnapost.com

Nepal Telecommunications Authority (NTA) has announced that it has authorized Nepal Telecom to operate 4G/LTE through technology neutral operator in 1800 MHz band. Other mobile operators are also in the process of getting authorization for operating technology neutral 4G/LTE in the near future, the NTA added. (January 6, 2017) telecompaper.com

Currently, MVAS service providers are delivering their services in association with telecom operators, where the telecom operators need to seek permission from NTA before allowing MVAS firms to deliver such services. MVAS refers to all non-core services in the telecommunication sector beyond standard voice calls and fax transmissions. It includes non-core telecommunication services like ringtone, music download; SMS based news/information, mobile banking, mobile commerce, mobile governance, mobile education, mobile health services, load shedding routine and callback tone, among others. Different organizations are providing these mobile phone-based services to customers via SMS, Unstructured Supplementary Service Data (USSD), Wireless Application Protocol (WAP) and General Packet Radio Service (GPRS), among others. NTA has prepared a consultation paper on licensing provisions to open Mobile Value Added Services in Nepal with mandatory provision for MVAS providers to take licenses from NTA, and the telecommunication sector regulator has shared the paper with stakeholders for feedback. "We will entertain feedback on the paper for next one month and will incorporate the feedback in the draft of MVAS directive before sending it to the Cabinet for endorsement," said Min Prasad Aryal, spokesperson for NTA, adding that provision of separate license for MVAS operators is being introduced to regulate the MVAS industry of the country. Though NTA does not have exact number of MVAS service providers in the country, Aryal believes there are hundreds of such firms in operation. "As MVAS is becoming highly popular in Nepal, there is a need to develop relevant regulatory framework, rules and regulations to regulate the MVAS sector," said Aryal. However, MVAS providers that are currently providing services to customers can continue to provide their services without obtaining a license for up to one year after this provision comes into effect. Such firms will have to acquire MVAS license within a year and in case of failing to do so, the NTA will penalize such firms and may even

restrict their services if deemed necessary. Meanwhile, telecom operators with valid mobile licenses do not need to need to apply for MVAS license. According to NTA, they are authorized to provide MVAS to their customers under existing licensing conditions. (January 18, 2017) thehimalayantimes.com

As many as 4,300 models of mobile phones have received type certification from Nepal Telecommunications Authority (NTA). According to existing rules, importers must get type certification from NTA before selling mobile phones in the Nepali market. Among them, 1,243 models have received permanent type approval, according to Ananda Raj Khanal, director of NTA. "Models imported regularly for five years get permanent type approval," he added. Similarly, NTA has registered IMEI number of around 3,300 handsets brought from abroad by individuals between May to December last year. The telecom sector regulator has made type certification for mobile phones mandatory to combat illegal imports of handsets. Mobile phones of more than 40 brands are available in Nepal. Around 22-25 of them are internationally accepted brands. Deepak Malhotra, president of Mobile Phone Importers Association (MPIA), said that some brands disappear from the market after launching one or two models. "We are trying to import only quality mobile phones in Nepal," he added. There are around 25 mobile phone importers in Nepal and 16 of them are associated with MPIA. Meanwhile, retailers have said that the process of getting type certification is full of hassles. "We have to present lengthy documents of 200-300 pages to get type approval," Purushottam Basnet, coordinator of Nepal Mobile Traders Association, said. "Because of this, many traders are not being able to introduced foreign brands in Nepal." If traders are allowed to import mobile phones easily, the grey market will be controlled easily, he added. Though more than 400,000 mobile sets are imported to Nepal every month, around 60 percent of the country's population still does not have access to smartphone. Transaction of mobile phones is growing by 40 percent annually. Mobile phone industry recorded transaction of Rs 25 billion in 2015/16. In the first four months of the current fiscal year, the industry has already recorded transactions worth around Rs 12 billion. (January 5, 2017) myrepublica.com



The Telecommunications Regulatory Authority (TRA) says it will soon launch an awareness campaign focusing on child protection as it comes up with new regulations. According to Times of Oman, TRA plans to launch such a campaign in the early part of this year, focusing on different telecom services such as SMS, phone calls and the internet. It will also educate teachers and parents on how to guide children when they are using telecom services. The campaign will not only serve Omanis but also expats and will be disseminated in both Arabic and English. It will also produce materials for people with special needs. The TRA is currently coordinating with the Ministries of Education and Social Development and the operators. The

campaign is currently being planned for the whole of 2017 after which it will be evaluated and a decision will be taken on how to continue. (January 25, 2017) telecompaper.com

Oman government has decided to raise royalty paid by telecommunication service providers to 12 per cent of revenues in 2017, from 7 per cent now. The country's market watchdog Capital Market Authority (CMA) has received a letter from Telecommunication Regulatory Authority (TRA) about the Council of Minister's decision to revert royalty percentage on telecommunication operators to 12 per cent. A severe drop in oil revenue has prompted the government to find alternative

Oman

sources of revenue, through new levies and increase in existing taxes. Although there was a serious discussion on raising telecom royalty in January 2016, the government did not take a decision at that point of time. The majority state-owned Oman Telecommunications Company (Omantel) in a disclosure statement posted on MSM website said; "If the same increase had been applied for the first nine months of 2016, the effect on net profit would have been a reduction of OMR16 million." Omantel group's profit for the first nine months of 2016 grew by 4.8 per cent to OMR95.1 million. Likewise, Omani Qatari Telecommunications Company (Ooredoo) said that if the same

increase had been applied for the first nine months of 2016, the effect on net income would have been a reduction of OMR 8.7 million or 23.3 per cent. Ooredoo has achieved a 16.4 per cent growth in net profit at OMR37.6 million for the first nine months of 2016. The Muscat Securities Market had suspended trading of both telecom shares on Thursday as the companies could not disclose the decision on royalty revision before the market started trading. However, both companies have disclosed the information later in the day.

(December 31, 2016) world.einnews.com



Pakistan

PTA Inaugurated & Establish Internet Exchange Point at HEC. Industry players in collaboration with Pakistan Telecommunication Authority (PTA) and Higher Education Commission (HEC) host the inauguration ceremony of the Internet Exchange Point (IXP) at HEC. Minister of State for IT Mrs. Anusha Rahman was the chief guest of the event. Federal Secretary IT Mr. Rizwan Bashir Khan, Chairman HEC Dr. Mukhtar Ahmad, Chairman PTA Dr. Syed Ismail Shah, Mr. Philip Smith NSRC and CTOs of the IXPs, Huawei CTO and professionals from the academia and the industry were there at the inauguration ceremony. PTA has already taken several steps toward awareness of modern technologies and capacity building of IT and Telecom sector of Pakistan. It has arranged several training programs on IXP operations, IPv6 routing, Big Data, DNSSEC and Internet Resource Management (IRM), in collaboration with international organizations like ICANN, ISOC, APNIC, and NSRC, at Islamabad, Lahore and Karachi. Internet Exchange Point (IXP) is used to exchange local internet traffic internally with-in the country between ISPs rather than looking-up worldwide exchanges and networks. This internet exchange is going to benefit local hosting companies, data centers, service providers, banks, corporations and everyone who is hosting websites/services locally with-in Pakistan. It will also help ISPs greatly by not only improving their performance but also by reducing their bandwidth prices.

(January 27, 2017) phoneworld.com.pk

The Ministry of Information Technology and Telecom (MOITT) has projected the software and telecom exports to be \$6 billion by 2020 in the National IT Policy Draft 2016. MOITT has completed the consultation process about the draft and published it on the website for views, comments and feedback. The draft policy is expected to be submitted to Economic Coordination Committee (ECC) next month for approval. According to SBP, IT sector earned \$560 million in FY 2015-16 while analysts estimate the real figure to be \$2 billion. The annual revenues from freelancing and the domestic markets are \$90-100 and \$300 million respectively. The mobile companies represent a huge market with total imports of Rs. 73.224 billion for the FY 14-15. Pakistan has the 4th largest base of freelance IT Professionals as the rankings of world's most reputed

freelance markets show. MOITT established Pakistan Software Export Board (PSEB) to ensure sustainable growth of Pakistan IT industry. Pakistan has more than 2000 software houses and 14 Software Technology parks. Pakistan's IT exports have grown by more than 11 times over the last decade, growing to about 30 to 40 percent every year. The key imperatives of IT policy are sectoral digitization, cross-sector collaboration, IT sector sustainability, entrepreneurship and innovation, infrastructure development, cloud computing and big data, cyber security and ICT education. The vision of policy is, "To become a strategic enabler, by making the full use of ICT, for an accelerated digitization ecosystem, aiming to expand knowledge-based economy and drive socio-economic growth".

Goals of IT Policy

- To double the IT exports by 2020.
- To set-up at least one software technology park in each major city of Pakistan by 2020.
- Triple the 2015 value of e-commerce by 2020.

The IT policy will concentrate on the areas like legislative framework, human resource development, e-Governance, e-Agriculture, e-Education, e-Energy and e-Commerce and innovative infrastructure development. Also, it will focus on emerging trends like mobile apps, Internet of Things (IoT), focus on moving up in global IT chain, and encourage local and foreign businesses to invest in the software industry, cyber security and providing ICT education in all institutes of Pakistan. IT sector is one of the most dynamic and crucial sectors and so all necessary measures will be taken to formulate a feasible 'Action Plan' and then take steps to implement it countrywide.

(January 5, 2017) techjuice.pk

With the launch of 3G and 4G services in Pakistan, there is no doubt that the telecom sector of Pakistan is witnessing boom with each passing day. The report of FY16 issued by Pakistan Telecommunication Authority (PTA) indicates the same. It shows an increase of Rs 126.3 billion during Fiscal Year 2014-15 (FY15) to Rs 157.8 billion in FY 16. Telecom Contribution to National Exchequer Increases by Rs 157.8 B in FY16. Also the Government collection have increased by 25% along with telecom revenues that have also increased to 1.47% in the FY 16; which is something very good and clearly indicates that the

Pakistan's telecom industry has huge potential. The PTA report also highlighted: "In the reported period the telecom sector continued to grow positively in terms of subscriptions, revenues and tele-density. Broadband penetration has increased to 18.3% from just 2% in the year 2014. ICT solutions, being offered on mobile broadband, are making a big difference in every walk of life. Hundreds of billions of rupees are being sent and received over the mobile money channels by the people of Pakistan. In



Paltel Group's mobile and fixed line licenses were prolonged by the Palestinian Authority for another 20 years at a cost of USD 290 million, Reuters reported from a statement by the operator. Half of the amount will be paid when the deal is signed on 28 December, while the remaining sum will be paid in four phases



Minister of Transport and Communications, H E Jassim bin Saif Al Sulaiti said that the Ministry was set to launch an online system for licensing of telecommunications and radio equipment. "We are launching an electronic registration system soon for licensing of telecommunications equipment and radio devices. The applicants will also pay license-fee online. It will convert the current 2-3 day long process into a ten minute job," the minister told the media after inaugurating CRA's National Monitoring Centre. Earlier, the Minister inaugurated CRA's National Monitoring Center – equipped with Automated Spectrum Monitoring System (ASMS) and the Automated Frequency Management System (AFMS). On newly launched systems, the minister said that with the help of ASMS and AFMS, all devices causing disruption in frequency and spectrum either possessed legally or illegally would be detected with their exact location. He said that CRA's Monitoring Centre would help organize the telecom sector of Qatar. "With these systems, we can catch violations. It is very important to regulate telecom sector using reliable information through indigenous sources,"



Field tours by the ministries involved in the Saudization of the telecommunications sector confirmed that 13,197 establishments have successfully implemented the decision. The ministries conducted a total of 41,879 inspection visits in various regions of the Kingdom to ensure that the Saudization of jobs in the telecom sector is at 100 percent, Al-Riyadh daily reported. The field visits were carried out by the ministries of labor and social development, interior, municipal and rural affairs, trade and investment, and communications and

FY 2015-16, the amount transacted through the Mobile Banking was Rs. 1,492 billion." A part from growth figures, the PTA report also focused on cost-effective and innovative solutions that are offered in different areas including e-commerce, e-health, online education and governance sectors. Recently, Telenor Pakistan also acquired 4G license and has started offering 4G services in Pakistan. (January 4, 2017) phoneworld.com.pk

Palestine

over two years, with a payment every six months, Finance Minister Shukri Bishara of the West Bank-based Palestinian Authority said. Paltel's units include mobile operator Jawwal, ISP Hadara, and a fixed line provider.

(December 28, 2016) newslocker.com

Qatar

he said. The National Monitoring Center (NMC) established by CRA is the central command and control center for integrated network of Fixed and Mobile Monitoring stations in Qatar. NMC is equipped with customized software clients/ tools, integrated with servers of the monitoring sites, for performing operations of all monitoring sites. Addressing the launch ceremony, the minister said: "The two systems which have been launched today are one of main infrastructure that Qatar invests in to improve the overall performance of the institutions and government entities for their interest, and to enhance economy and community benefits by using advanced and innovative technologies. Using the advanced technologies on a large scale in government work field has become an integral part of the work effective management." "Today we see a great example as CRA is launching advanced systems classified as the first of its kind in the region, these systems with no doubt will be part of Qatar's international achievements and part of the future preparations to host major international events," the minister added. (January 18, 2017) thepeninsulaqatar.com

Saudi Arabia

information technology. The teams confirmed that 3,081 stores in the Eastern Province adhered to the decision, followed by 2,442 stores in Makkah and 1,957 stores in Riyadh. Inspection teams transferred 1,809 shops to the sanctions committee, out of 1,983 stores that did not adhere to the decision. These include 500 shops in the Riyadh region, 471 stores in the Eastern Province and 411 stores in Madinah. Undersecretary of the Ministry of Labor and Social Development Dr. Mohammed Al-Falih called on the ministry's clients to cooperate with them

and report violations of the Saudization law through the app "Together for Monitoring" or by calling 19911. He said all reports of violations will be immediately dealt with.

(January 7, 2017) saudidailyrecord.net

Saudi Arabia warned organizations in the kingdom to be on the alert for the Shamoon virus, which cripples computers by wiping their disks, as the labor ministry said it had been attacked and a chemicals firm reported a network disruption. An alert from the telecoms authority seen by Reuters advised all parties to be vigilant for attacks from the Shamoon 2 variant of the virus that in 2012 crippled tens thousands of computers at oil giant Saudi Aramco. Shamoon disrupts computers by overwriting the master book record, making it impossible for them to start up. Former U.S. Defense Secretary Leon Panetta said the 2012 Shamoon attack on Saudi Aramco was probably the most destructive cyber attack on a private business. In the 2012 hacks, images of a burning U.S. flag were used to overwrite the drives of victims including Saudi Aramco and RasGas Co Ltd. In the recent attacks, an image of the body of 3-year-old drowned Syrian refugee Alan Kurdi was used in recent attacks, according to U.S. security researchers. The Shamoon hackers were likely working on behalf of the Iranian government in

the 2012 campaign and the more-recent attacks, said Adam Meyers, vice president with cyber security firm CrowdStrike. "It's likely they will continue," he said. State-controlled Al Ekhbariya TV said on Twitter, using the hash tag #Shamoon that several Saudi organizations had been targeted in recent cyber attacks. The state news agency, meanwhile, said the labor ministry had been hit by a cyber attack, but that it did not impact its data. Jubail-based Sadara Chemical Co, a joint venture firm owned by Saudi Aramco and U.S. company Dow Chemical, said it had experienced a network disruption on Monday morning and was working to resolve the issue. The company made the disclosure on its official Twitter account after the warning by Al Ekhbariya TV, which cited the telecoms authority. It did not say whether the disruption was due to a cyber attack but said as a precautionary measure it had stopped all services related to the network. Other companies in Jubail, the hub of the Saudi petrochemicals industry, also experienced network disruptions, according to sources who were not authorized to publicly discuss the matter. Those companies sought to protect themselves from the virus by shutting down their networks, said the sources, who declined to identify specific firms. (January 24, 2017) reuters.com



Sri Lanka

Melstacorp-backed Lanka Bell, the Sri Lankan operator which offers fixed-wireless internet access or CDMA WLL and WiMAX connectivity via wholly owned ISP Bell Net, plans to reinvigorate its business in 2017 through cost cutting and efficiencies. The parent company's managing director Amitha Gooneratne confirmed that the telco has undergone a difficult period of trading due to a government decision to remove the industry's exemption status from value-added tax (VAT) of 14%, while taxation of data has also increased sharply over the past three months, levies that Gooneratne says are 'excessive'. 'In terms of Lanka Bell, we're looking to see how we can make it more efficient, we're looking at the processes to see how we can economise,' he said, adding: 'Almost every year [taxes] have been increased, so at the moment most of the revenue that we generate or a substantial amount is contributed to the government in terms of frequency fees, VAT fees and various other levies, so that's a substantial amount going out and contributing to the government coffers.'

(January 3, 2017) telegeography.com

Sri Lankan mobile operator Etisalat Lanka, a unit of UAE-based Emirates Telecommunications Corp (Etisalat), has embarked on a significant service expansion, adding 300 additional mobile towers to its national network to improve point-to-point connectivity across the country. The cellco says it is looking to meet pent up consumer demand for mobile data, which will soon see it rolling out 'customised personal and corporate data plans', while also working to improve its record on customer service provision. 'With the recent fortifications to our network and hardware alike, Etisalat's customers are now empowered with faster and reliable mobile internet connectivity, offering our subscribers seamless connectivity across Sri Lanka,' Etisalat Lanka CEO Suleiman Salim Alkaabi said. The company notes that the latest service expansion forms part of a wider rollout project which began in 2014, as well as its acknowledgement of the Sri Lankan Government's initiative to expand 3G coverage throughout the island.

(January 12, 2017) telegeography.com



Tunisia

Tunisian regulator the National Telecommunications Authority (INT) has announced that it has developed a specialized application to measure the quality of service (QoS) offered by mobile operators in the country. President of the INT, Hichem Besbes, remarked that the new application will measure several aspects of mobile QoS, including downlink and uplink speeds, video quality, and the download time of web pages. These

results can be viewed by customers and will give them a better understanding of the mobile market and how each operator's services are performing. The new plan is part of the INT's goal for greater transparency and clarity for consumers in 2017. The regulator has also launched a call for bids to measure the QoS of the country's fixed line internet services, which is slated to begin around July 2017. (January 26, 2017) Agence Ecofin



Turkey

Saudi Telecom Co. offered a loan of about \$160 million to a subsidiary that missed a repayment on \$4.75 billion of debt last year, according to people familiar with the matter. The funds would allow Otas, a special purpose vehicle formally known as Ojer Telekomunikasyon AS that owns 55 percent of Turk Telekomunikasyon AS, to cover an interest payment that was due in September, the people said, asking not to be identified as the information is private. Otas missed a \$290 million repayment -- including principal -- as a slump in the lira led to a decline in the dollar value of the dividends that it receives from Turk Telekom, a person familiar said in October. Saudi Telecom indirectly owns a stake in Otas through Oger Telecom and is considering buying a direct stake to help resolve the debt issue, the people said. Lebanon's Hariri family, which owns Oger Telecom through its Saudi Oger business unit, has started to sell assets to deal with mounting debt, agreeing to a deal to sell a 20 percent stake in Jordan's Arab Bank in December. Saudi Telecom owns the remaining 35 percent in Oger. "If the acquisition by STC moves forward, we think this would be a positive for Turk Telekom as it would be in the hands of a stronger shareholder," Trieu Pham, a credit strategy analyst

for emerging markets at MUFG Securities in London, wrote in e-mailed comments on Wednesday. "Moreover, we think that such an acquisition would avoid a change of control event." Turk Telekom shares swung between gains and losses on Thursday after jumping 0.9 percent on Wednesday to the highest level since Nov. 29. The stock was trading unchanged at 5.55 lira as of 11:36 a.m. in Istanbul. A spokesman for Saudi Telecom declined to comment. Otas directed queries to Oger Telecom which declined to comment. Turk Telekom will probably not be able to pay dividends this year for the first time since 2009 because of foreign-currency losses, Deutsche Bank AG analyst Koray Pamir said in a research report. The bank trimmed its net income forecast by 7 percent to 1.4 billion liras (\$369 million) and expects the company to post a net loss of 483 million liras for 2016. The failure of the loan repayment was also mainly due to the lira's decline against the dollar, which eroded the dividends that Ojer Telekom are dependent on for the payment. The currency has slid 22 percent since the beginning of 2016, the biggest decline among 24 emerging markets tracked by Bloomberg. (January 18, 2017) bloomberg.com



United Arab Emirates

The Telecommunications Regulatory Authority (TRA) received recently a high-level delegation from the International Telecommunication Union (ITU), who visited the UAE to review the ongoing preparations for hosting the 20th Session of the ITU Plenipotentiary Conference, which will be held at Dubai World Trade Center in late 2018. The visiting Delegation was headed by Dr. Ahmed El-Sherbini, Head of Conferences in the ITU. The Delegation also included a group of experts in the fields of information technology, protocol, safety, security, and matters relating to the technical aspects and consultations of media and others. The delegation were received by H.E Mohammad Al Kitbi, Acting Deputy Director General for Support Services Sector at the TRA and Engr. Nasser Bin Hammad, Director International Affairs and member of the ITU Radio Regulations Board, as well as a delegation representing Trade Center headed by Ahmed Al Khaja, Senior Vice President at Dubai World Trade Center. The visit began with a welcoming speech delivered by H.E Mohammad Al Kitbi, in which he stressed that the UAE, represented by TRA, has the necessary experience to host major and important events listed on the ITU list, following the successful hosting of ITU major events in 2012 and 2014. Afterward, the Delegation members were provided with detailed explanatory presentation by the management of the World Trade Center (the event location) on the capacities and services provided by the center for such conferences. This has been followed by holding a closed meeting during which they discussed the most prominent organizational, administrative,

technical and protocol matters related to organizing this event in the most appropriate way on the ITU level as well as the global level, and to reflect the leading position of the UAE in hosting major international events and forums. Commenting on this visit, H.E Hamad Obaid Al Mansoori, TRA Director General, said: 'Holding the Plenipotentiary Conference in the UAE for the first time represents a continuation of our close relationship with the ITU. It reflects the confidence of the ITU and all its members in the ability of the UAE to provide all the necessary elements of the event's success, similarly to many previous major events hosted by the UAE in previous years. We would like to commend on the cooperation and coordination between all the concerned parties to host this events, from government entities and private sector, that work together as one national team to provide an honorable image that reflects the vision of our wise leadership aiming to achieve top ranks, as well as presenting an honorable image of the UAE that truly reflects the size of our technical, urban and humanitarian development.' Commenting on the preparations and capabilities reviewed during the visit, Dr. Ahmed El-Sherbini, head of the ITU Delegation, said: 'We are delighted to be present today in the UAE, where we are used to successful and excellent hosting of several ITU conferences, which is a source of pride for all of us. We express our confidence and satisfaction of what we have seen from the preparations and serious willingness by the event's organizers in the UAE through the immediate response and action to meet all the requirements to host a conference of this importance, which is held every four years.'

Today, we work as one team to ensure that this conference, which is of great importance to all states members, is one of the most successful ITU Plenipotentiary Conferences.' In his turn, Ahmed Al Khaja, Senior Vice President at Dubai World Trade Center, said: 'We are delighted to host the next session of the ITU Plenipotentiary Conference in 2018, since this major event represents a great importance to us in the Dubai World Trade Center, as a destination of events, and organizers of many of the world's largest events in various sectors including GITEX Technology week, one of the most important events in the ICT sector globally.' Engineer Nasser Bin Hammad, added that this conference is held once every four years, and it is considered as the General Assembly and the World Summit of the international ICT sector. During this Conference, which lasts for nearly three weeks, the supreme management of the organization is elected, including the Secretary-General, his deputy, heads of the three sectors, in addition to electing the ITU member states, consisting of 48 members, as well as the members of the ITU Radio Regulations Board, which is considered the highest component of the ITU, consisting of 12 members.

(January 25, 2017) tra.gov.ae

The amendments made by the TRA to compel the licensees to provide a summary of terms and conditions covering various aspects concerning the applicable fees, payments, discounts, their durations, and other benefits bundled in the provided product or service as well as early termination fees, if any. The amendments approved by the new CPR include, inter alia, requiring the licensees to maintain a record of the consumer consent to the provisions of the contract in the event of a dispute about the existence or non-existence of the consent, and to provide evidence proving that the consent was obtained properly. In the absence of such evidence, the TRA presumes that the relevant Licensee did not obtain the Consumer consent. A new article was also incorporated requiring licensees to increase monitoring and controlling third-party apps and services and that is done by obligating these partners to comply with requirements for activating and deactivating their products and services. These amendments come under TRA's periodic review of the laws and regulations governing the operation of the telecommunications sector in the UAE, which reflect the serious commitment of the TRA to realize its mission, and its primary role aimed at protecting the interests of consumers in the UAE within the general framework of excellence and continuous improvement applicable in the TRA. The continuous modernization of all aspects of the telecommunications sector whether at the level of infrastructure or mechanisms governing this sector falls within the framework of the vision of UAE's leadership aimed at strengthening the presence of the UAE on the global competitiveness indicators and shortening the time required to achieve targets at the national level. The TRA emphasized that these amendments will have a positive impact on promoting the role of the telecommunications sector and its continued provision of value-added services to consumers. The TRA has, out of its keenness on reinforcing the principle of transparency and commitment to its procedures followed in this area, consulted licensees over the past year with respect to the amendments covered in the new regulation, where both operators had presented their observations in this regard to the TRA. Version 1.3 of the CPR was approved by the TRA's Board of Directors on 3rd January 2017, and stipulated in one

of its clauses that all communications as well as terms and conditions should be written in Arabic or English as selected by the consumer. It also includes an emphasis on not allowing the consumer to purchase any product, service, game, tone, etc. supplied by a Partner by a single-click process. Partners also shall provide a simple opt-out mechanism so that subscribers can easily cancel any purchase and avoid further recurring charges for that purchase. The new version obligates licensees to take reasonable measures to create awareness of the consumer's right to receive invoices in paper form.

(January 24, 2017) zawya.com

The General Authority for Regulating the Telecommunications Sector (TRA), represented by the aeCERT, has won membership in the general assembly board for computer emergency response teams (CERTs) in the Organization of Islamic Cooperation (OIC). The announcement came during the TRA's participation in the agenda of the annual conference and meeting of the general assembly of CERTs in the OIC, entitled "Toward a responsive nation to the variables of cyberspace" held during the period 11-14 December 2016 in the KSA. The assembly board consists of representatives of seven countries. The UAE's winning of this membership came after a fierce competition between five countries, where the UAE gained 13 out of 16 votes, which is the number of countries entitled to vote in elections out of 56 member states in the OIC. Commenting on the importance of winning the membership, H.E. Hamad Obaid Al Mansoori, TRA Director General said: "Winning the membership of the board of the CERT's general assembly in the OIC is an important achievement added to the series of achievements made by the TRA during 2016. We look forward in the coming period to further coordination and cooperation between the various Islamic countries and board members in order to reach the desired goals and objectives in exchanging experiences with all OIC countries and helping them develop future strategies and plans in this area." In turn, Eng. Adel Rashed Al Mehairi, Director aeCERT at TRA said: "This step reflects the trust of the OIC member countries in the ability of UAE, represented by the TRA, in playing a vital role in strengthening the efforts of cooperation and coordination at the OIC level as a whole, and in contributing to future plans in cooperation with the rest of the member countries in the OIC. We look forward through winning this membership to contribute to the formulation of policies and programs that would change the security and integrity standards of information, data and cybersecurity at the level of OIC countries." The OIC aim at strengthening the relationships amongst CERTs in the OIC Member Countries, OIC-CERT partners and other stakeholders in the OIC member domain and Encouraging Experience and Information Sharing in Cyber Security. It also helps Promoting Collaborative Research, Development and Innovation in cyber security, and Promoting international cooperation with international cyber security organizations. The conference witnessed many active participations, and the agenda focused on mechanisms and ways for promoting international cooperation on cybersecurity among the various member countries. In addition, the conference included several dialogue sessions and workshops focusing on the most important current subjects related to data and information security, as well strategies, programs and initiatives to be adopted later in this regard. (January 5, 2017) zawya.com

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION



Argentina

The authorities published guidelines intended to deliver more competition in the country's telecoms sector. As part of the process, watchdog ENACOM said that "within no more than six months" it will call for a spectrum auction. The intention is to create the conditions for the entry of new mobile operators into the market, as well as allocating new frequencies to improve the quality of services. Argentina currently has three big mobile operators – America Movil (Claro), Telefonica (Movistar) and Telecom Argentina (Personal). Also present is Clarin, which is a small mobile player through the former Nextel business, but is a significant force in the cable market via its Cablevision unit. ENACOM also said procedures will be adopted to enable the reallocation of frequencies assigned for other services to "wireless or fixed

wireless services with LTE or higher technology". Mobile is not the only area covered: the new regime also paves the way for telecoms companies to provide cable TV services, and authorizes satellite television companies to offer internet services (if they have the required permits). This will pave the way for multiplay services, as the various players look to move into their adjacent markets. The guidelines are designed to "encourage investments in new technologies to bring high-speed internet to the whole country", ENACOM said. It is looking to ensure an investment framework that "protects the deployment of infrastructure for 15 years in last-mile networks". The new guidelines also covers areas such as interconnect fees and policies for new entrants.

(January 3, 2017) mobileworldlive.com



Australia

Australia's telco watchdog, the Australian Communications and Media Authority (ACMA), has invited bidders to its upcoming 700-MHz auction, which it expects to begin on April 4. Going under the hammer are 2x15 MHz of spectrum that remained unsold following the 2013 digital dividend auction. It is comprised of two lots: one lot of 2x10 MHz in the 738 MHz-748 MHz range paired with 793 MHz-893 MHz, and one lot of 2x5 MHz in the 733 MHz-738 MHz range paired with 788 MHz-793 MHz. According to the auction guide published by the ACMA, licenses will be valid from 1 April 2018 and expire on December 31 2029. Australia's government has set a reserve price of A\$1.25 (€0.87) per MHz per head of population, which works out at approximately A\$867 million (€796 million) based on 2013 census data. "This spectrum band – made available after Australia switched from analogue to digital TV – is highly-valued for mobile broadband, in particular 4G services," said acting ACMA chairman Richard Bean, in a statement. "We expect that the spectrum will be used to provide high-speed mobile voice and data coverage to regional and metropolitan Australia." As previously disclosed, the ACMA has been directed

by the government to restrict the amount of 700-MHz spectrum that any single operator can own to 2x20 MHz, making incumbent Telstra, which picked up 2x20 MHz at the 2013 auction, ineligible this time round. Rival Optus holds 2x10 MHz of 700-MHz spectrum, so it will be able to bid for at least one lot of frequencies in this latest auction, while Vodafone Hutchison Australia (VHA) did not take part in the 2013 auction at all. A year ahead of the auction, then-CEO Bill Morrow indicated that Vodafone wanted to reuse its 1800-MHz spectrum for 4G instead. With bandwidth demand steadily rising, and with Telstra not in the running, Vodafone Australia – now led by Iñaki Berroeta – might look again at taking part. However, it could face stiff competition from TPG, which has been ramping up its mobile business since winning a chunk of 1800-MHz spectrum at an auction held last year. Interested parties have until 13 February to apply to take part, and the auction is expected to begin on 4 April. If any spectrum is left unsold this time, a subsequent allocation process – open to all-comers regardless of their existing frequency allocation – will take place.

(January 17, 2017) totaltele.com



Austria

Austria's telco regulator, the Regulatory Authority for Broadcasting and Telecommunications (RTR), this week announced it has begun work on allocating 3.4-GHz-3.8-GHz spectrum for 5G services. The 5G standard itself is still under development and there is plenty of work to do before the industry can say with certainty exactly what constitutes 5G. One thing is clear though: a lot of spectrum is needed in order to meet the kind of 5G performance requirements being

bandied about. "The demands on mobile networks for even higher performance are constantly increasing," said Johannes Gunzl, managing director for the RTR's telecommunications and post division, in a statement on Monday. "We are already working intensively on preparing the allocation of frequencies for this [5G] standard," he added, noting that the RTR conducted a consultation on proposed 5G spectrum in spring 2016. As per its spectrum release plan, the RTR plans

to release the tender document for the 3.4-GHz-3.8-GHz auction either at the end of this year or the beginning of 2018. The auction will take place not before the second quarter of next year, the RTR said. The RTR also plans to auction frequencies in the 700

MHz and 1500 MHz bands for mobile broadband services in the second quarter of 2019. Furthermore, 2020 has been earmarked for a possible auction of 2.3-GHz spectrum and additional 1500-MHz spectrum. (January 17, 2017)



Burundi

The Director General of Burundi's Agency for Regulation and Control of Telecommunications (ARCT), Deogratias Rurimunzu, has called on domestic ISPs to sign up to the country's national Internet Exchange Point (IXP), in order to help internet access in the East African country. According to Mr. Rurimunzu internet penetration is running at 8.2%, or

761,061 users in a country of eleven million people – among the lowest in the region. He argues that by joining the IXP, ISPs will be better placed to exchange internet traffic less expensively via interconnection agreements, in turn making it easier for them to reinvest their savings in extending their network and reaching more people.

(January 23, 2017) telegeography.com



China

China, the world's largest LTE market by a large margin, added 347 million 4G subscribers in 2016 to take the country's 4G penetration to 57 per cent. The three mobile operators' LTE connections jumped 54 per cent last year to 762 million, which accounted for 43 per cent of the world's total of 1.77 billion LTE connections at the end of 2016. According to GSMA Intelligence, global 4G connections increased 63 per cent last year. The country's largest operator China Mobile ended 2016 with 535 million 4G subs, up 71 per cent from the end of 2015. In December it added 25.2 million 4G connections, its highest monthly gain ever. Almost two thirds (63 per cent) of its customers are now on 4G plans. The operator accounts for 30 per cent of global LTE connections. Just 12 per cent, or 103.4 million, of its subscribers are on its 3G network. China Telecom's 4G user base doubled last year to 122 million, with LTE subscribers accounting for 57 per cent of its mobile connections, while China Unicom's 4G subs rose from 44.1 million at end-2015 to 104.5 million, representing 40 per cent of its customer base. China Mobile's net gain of nearly 223 million 4G subs was only slightly below

its two rivals' combined 4G total of 227 million. The marker leader's total users increased 2.8 per cent to 849 million. China Telecom's total number of mobile connections increased 6.8 per cent to 215 million. China Unicom, the country's second largest mobile operator, continued to grow slowly, with total mobile connections inching up 2.5 per cent to 264 million.

(January 23, 2017) mobileworldlive.com

China's National Development & Reform Commission and telecoms watchdog the Ministry of Industry & Information Technology (MIIT) have created a three-year action plan for the construction of information infrastructure (2016-2018), setting out plans for projects worth a combined total of CNY1.2 trillion (USD174.35 billion). C114 writes that the plan aims to support the development of high speed fiber optic, advanced mobile broadband systems, global network facilities and the strengthening of capabilities to support applications. The programme focuses on 92 infrastructure projects, which need a combined investment of CNY902.2 billion.

(January 18, 2017) telegeography.com



Costa Rica

The government is planning to allocate 100MHz of 700MHz-band spectrum freed up from the introduction of digital TV – the so-called 'digital dividend' – for mobile broadband services, but will not be able to tender the airwaves until mid-2018 at the earliest. In an interview with El Financiero, Deputy Minister of Telecommunications Edwin Estrada explained that the migration from analogue to digital TV is expected to be completed by the end of 2017, with the current deadline set at December 15, 2017, although an assessment of the progress in the middle of the year could lead to the deadline

being postponed. The official added that, while the frequencies may be freed up by the end of the year, the process of allocating them to operators would be delayed by the general election in early 2018. Further, once the new government instructs the regulator to distribute the spectrum, the Superintendency of Telecommunications (Superintendencia de Telecomunicaciones, SUTEL) must conduct a market analysis before drafting the tender documents for the sale of the spectrum, potentially pushing back an auction to late 2018 or early 2019.

(January 16, 2017) El Financiero



El Salvador

El Salvador's Electricity and Telecommunications Superintendency (SIGET) plans to hold the long-delayed auction of 120MHz of mobile spectrum in the first half of this year, La Prensa Grafica quotes the regulator's head, Blanca Coto, as saying. 'We are in the process of identifying which companies would be interested in participating. We have had a very good reception, not only with local companies but also with international companies, since this additional spectrum means having better and bigger networks for telecommunications,' she stated. The process has been delayed after competition regulator the Superintendencia de Competencia (SC) suspended a tender for 40MHz of nationwide mobile spectrum in

the 1900MHz and 1700MHz/2100MHz (AWS) bands back in October 2013. The SC argued that the auction rules put potential new players at a disadvantage as they faced barriers to market entry, thus inhibiting the development of competition. The SC objected to the fact that the spectrum would be awarded to the highest bidder, regardless of how much spectrum the company already had, or its current market share. Eventually, amendments to the Telecommunications Law concerning the allocation of spectrum were approved by the government in May 2016, including changes in the procedure of assigning frequencies and an alternative mechanism to the auction, indicating that the process was set to be resumed.

(January 18, 2017) [telegeography.com](#)



Finland

Spectrum in the 700MHz band will be usable for wireless broadband services from February 1, the Finnish Communications Regulatory Authority (FICORA) has announced. Confirming the timetable in a press release, the watchdog noted that, with the simulcasts of the Turku main broadcasting station having ended on 10 January, terrestrial television network operator Digita completed the 700MHz frequency change process that initially commenced in Northern Finland in July 2015. Commenting on the matter, Anne Berner, Minister of Transport and Communications, said: 'In the Government Programme, we are committed to developing Finland's digital infrastructure. The Internet of Things, for example, requires communications

networks to have an even larger connection capacity in the future. By introducing the 700MHz frequencies, we are strengthening the availability and standard of high-quality wireless broadband throughout Finland.' Separately, the FICORA has outlined proposals it hopes will increase competition in the fiber broadband sector, releasing a draft decision related to significant market power (SMP) in this sector. As per the regulator's plans it has called for the market's three largest fiber broadband providers by subscribers – Elisa, TeliaSonera and DNA – to cap wholesale prices for such services for the next three years. Feedback on its proposals has been requested from interested parties, with a deadline of 3 March 2017 set for submissions. (January 25, 2017) [telegeography.com](#)



France

The Authority of Regulation for Electronic Communications and Posts (ARCEP) has proposed a number of guidelines aimed at ensuring competition in the fixed markets, including allowing alternative operators better access to Orange France's infrastructure. 'ARCEP notes and welcomes the investment effort that Orange has made. This momentum must now spread to all market players. Through its actions, ARCEP will work to prevent any obstructive behavior from Orange, whether with respect to other operators wanting to invest in fiber-to-the-home [FTTH] networks, or to upgrading broadband networks to superfast and ultrafast systems', the authority said in a press release. On the basis of these guidelines, next month ARCEP is planning to launch public consultations on three draft analyses (of Market 3a, Market 3b and Market 4). Final decisions will be adopted in the second half of 2017.

(January 13, 2017) [telegeography.com](#)

ARCEP is planning to allocate spectrum from the bands during the second half of next year and has launched a two month consultation to see what the best use for it would be. It cited bringing mobile

internet to remote areas, strengthening existing LTE networks, paving the way for 5G, dedicated public sector networks, such as the emergency services, and boosting the Internet of Things as potential outcomes for the spectrum. ARCEP is proposing 40MHz of the 2.6GHz band will be used by public sector bodies and 40MHz of the 3.5GHz band be used to improve coverage in rural areas. Both tranches of spectrum would be allocated by the end of 2017. The regulator said further spectrum within the 3.5GHz band would be made available for 5G use, once the technology has been fully standardized and becomes more mature. Interested parties have until 6 March to register any concerns or suggestions. Last year, ARCEP launched 10 trials using the 2.6GHz and 3.5GHz bands to see how they can deliver mobile broadband services. Trials involving 2.6GHz spectrum were recently held by Telekom Austria, as part of tri-band carrier aggregation research. In October, Vodafone and Huawei completed a trial of Massive-MIMO technology using 2.6GHz. Also in the same month, Italy's Linkem launched a 3.5GHz network covering the city of Rome.

(January 12, 2017) [mobileurope.co.uk](#)



Georgia

Wireless operator Mobitel, has secured a license to operate a 3G network in the 2100MHz frequency band from the Georgian National Communications Commission (GNCC). The VimpelCom-owned operator paid a combined total of GEL14.49 million (USD5.4 million) for two concessions comprising 2x5MHz of spectrum in the 2100MHz band, after it was the sole bidder in the regulator's auction. In a press release on its website, Mobitel said it expects to

launch the new 3G network in major towns and cities in March 2017, followed by other locations across the country later in the year. Mobitel already offers 4G LTE services, operating in the 800MHz band, which was launched in 30 towns and cities on February 1, 2015. Overall, the firm plans to invest GEL30 million in the deployment of its 3G network and the expansion of its existing 4G LTE network during 2017.

(January 4, 2017) telegeography.com



Hon Kong

Hong Kong fixed and mobile operator Hong Kong Telecom (HKT) has called on the government to implement spectrum trading to aid the development of future 5G cellular services, by allowing operators to freely trade spectrum among them. HKT said in a statement: 'Spectrum trading provides a commercial mechanism to assist the government in

clearing spectrum bands and re-farming spectrum.' It added: 'The efficient use of spectrum brings important benefits to consumers in terms of broader services availability (e.g. true 5G and the Internet of Things [IoT]), better service quality, lower prices, increased investment and innovation, and enhanced competition.' (January 23, 2017) telegeography.com



Iceland

Icelandic telecoms regulator the Post and Telecommunication Administration (PTA) has decided to impose a fine on 365 Media, following its failure to meet its 800MHz license obligation of offering broadband access to 70% of the population over its own infrastructure by October 31, 2016 (and covering 97% of the population with 10Mbps access by end-2016). The regulator said that the company claimed that it currently fulfilled the obligation under an MVNO agreement with Siminn, though the claim was not in compliance with the terms and conditions of its authorization. With Decision No. 19/2016, the PTA imposed a fine of ISK100,000 (USD885) for each day of infringement, in effect from 16 January 2017 until 365 reached the required level of coverage. The operator requested an amendment to its 4G authorization to offer 10Mbps speeds to 99.5% of

the Icelandic population in May 2015 due to 'special circumstances'. 365 Media justified its demand by stating that the state of the telecoms market has changed completely following the February/March 2013 auction for 800MHz frequencies, thus diminishing its competitiveness. Meanwhile, the PTA has also revealed that 365 Media and Vodafone Iceland (Fjarskipti) have been in acquisition talks since August 2016, with domestic news source IcelandReview claiming that Vodafone has offered ISK8 billion for the broadcaster/telecoms provider. Vodafone Iceland's CEO Stefan Sigurdsson was cited as saying that the two sides were currently looking closely into the conditions of the deal (which has to be approved by the country's competition authority), adding that the expected completion date would be in the first quarter of 2017.

(January 19, 2017) telegeography.com



India

Sector watchdog the Telecom Regulatory Authority of India (TRAI) has asked the Attorney General to weigh-in on whether or not the free services provided by Reliance Jio Infocomm (Jio) should be considered predatory pricing, the Hindu writes. Jio's 'Welcome Offer' and 'Happy New Year Offer' have provided customers with free voice, data and messaging services since the cellco's launch in September 2016 and are due to last until the end of March 2017 – potentially allowing subscribers six months' connectivity at no cost – and the move has sparked a price war as the nation's incumbents fight to compete with Jio's aggressive strategy. The regulator has also come under increasing pressure to act against the newcomer, with both Bharti Airtel and Idea Cellular filing cases with the Telecom Disputes Settlement Appellate Tribunal (TDSAT) against the TRAI. Accusing the watchdog of being a 'mute spectator' in the matter, the pair claims that the TRAI should have

taken steps against Jio for extending its promotion beyond the 90-day maximum permitted. Under the TRAI's rules, Jio's Welcome Offer should have ended on 3 December rather than December 31, and the extension to 31 March would not be allowed. For its part, the TRAI last month requested clarification from Jio on why its promotional offer should not be considered predatory. Jio justified its extension of the deal by saying that the Welcome Offer and Happy New Year Offer are 'substantially different' as they feature differing fair usage limits for data, the first allowing up to 4GB per day and the latter 1GB per day. The first deal also did not provide a way for customers to purchase additional data once they exceed 4GB, whereas the option was introduced for the current promotion.

(January 18, 2017) telegeography.com

TRAI sets its new agenda for 2017, concentrating on the Set Top Box consumers of India. After the meeting

of the Board of Directors of Broadcasting regulator TRAI, the regulator hoped that it would be convenient to implement Set Top Box interoperability as 2017 agenda to preserve the interests of consumers who seek to change their service provider. Chairman of Telecom Regulatory Authority of India (TRAI), Mr. R S Sharma recently held a meeting with leading broadcasters of today to discuss the generating issue of interoperability of Set Top Boxes (STBs) in India. After the completion of the meeting, Mr. R S Sharma said in an interview, "Centre for Development of Telemetric (C-DOT) has done quite impressive work on the issue of technical interoperability. I think we are nearing a solution to having an interoperable STB. That is one of the items on the agenda this year." Interoperability of Set Top Box means that STBs which are provided for the household purposes by a DTH or cable operator would still continue to function, even if the consumer moves to another service provider. The TRAI chairman Mr. R S Sharma also said "It is decided that the "friction points" in the broadcasting industry will be discussed and consultations in this direction will be held after which TRAI may come up with some effective recommendations." Mr. R S Sharma has put forward another issue which came up later during the discussion. The issue revolved around inadequate knowledge prevailing in the broadcast centre. The proposal for the development of a portal for recording details of service providers was also discussed during the meeting. It is known that some broadcast providers have put forward the issue of infrastructure sector during the meeting. Chairman of TRAI is looking deep into the subject matter.

(January 11, 2017) tecake.in

Telecom regulator TRAI has said it will finalize in 20-25 days its views on 'public WiFi networks' terming the affordability and availability of broadband as a "prerequisite" for growth of digital transactions.

Public WiFi networks would offer data connectivity at 10 per cent of the prevailing rates. TRAI chairman R S Sharma said their recommendations would come in 20-25 days. The basic objective of Digital India was to encourage digital transactions of all kinds, he said, adding that the broadband access needed to be ubiquitous, reliable and robust. In its consultation paper floated in July last year, TRAI had said that it is estimated that cost per MB in Wi-Fi Network could be less than 2 paise per MB while consumers on an average are paying around 23 paise per MB for the data usage in the cellular network like 2G, 3G and 4G. The broadband shortage with regard to wired infrastructure will also be addressed through the growth of community WiFi hotspots. Digital payment channels have seen major rise in transactions after demonetization. (January 10, 2017) indiantelevision.com

The Telecom Regulatory Authority of India (TRAI) has published a new consultation paper on net neutrality, inviting stakeholders to provide their views on issues relating to the establishment of a comprehensive framework for non-discriminatory access to the internet. The paper focuses on transparency, traffic management, the core principles of net neutrality, and how India should approach the matter from a regulatory and policy perspective. The TRAI began looking into net neutrality following a request for recommendations from the Department of Telecommunications (DoT) in March 2016 but, due to the complexity of the matter, the regulator implemented a two-stage consultation process. For the first stage, the TRAI published a pre-consultation paper in May 2016 to identify the relevant issues, feedback from which was used to form the new consultation paper. Stakeholders have until February 15, 2017 to submit their responses to the paper, with counter comments due by 28 February. The TRAI will then submit its final recommendations to the DoT.

(January 5, 2017) telegeography.com



Ireland

Ireland's telecoms industry regulator, the Commission for Communications Regulation (ComReg), has launched a public consultation on the national PTO eir's request to transition from its copper network in some parts of the country. The company said in a letter to the regulator: 'eir is modernizing its network facilities and within the next two to three years, we anticipate there will be geographic areas with widespread availability of next generation access facilities ... As the utilization of the legacy [copper] network declines, it will not be economically efficient for eir to maintain parallel next generation and [copper] networks and services. eir would therefore like to be in a position to undertake the orderly and timely retirement of legacy networks and services.' The company, however, has been cited by The Independent as saying that it would not withdraw such legacy network services from areas that do not

have access to fiber technologies, adding: 'We have a vision of an all-IP network, based on a EUR400 million [USD429 million] investment in fiber plus an additional EUR200 million for a further 300,000 homes. That means we can retire these legacy services.' In its public consultation, the ComReg is asking for input on the potential implications of a transition from eir's existing copper access network to a new infrastructure. In particular, whether and under what circumstances eir (which is currently designated as holding Significant Market Power [SMP] in certain regulated markets) would be allowed to withdraw access to its copper access network in the National Broadband Plan (NBP) intervention area. All interested parties are invited to submit their comments by February 17, 2017.

(January 25, 2017) telegeography.com



ITU

According to the recent report of "State of Broadband 2016" there exists a fundamental division between connected and unconnected world. United Nations International Telecommunication Union (ITU) says this division is indeed a point of worry. ITU's "Connect 2020" Targets to Connect 60% of Population across the Globe. More than half of the population is unable to avail internet opportunity due to high broadband cost and inaccessibility. The report also lightens the point that out of total, 3.5 billion people don't have domestic or mobile internet. This problem is basically common in women, aged lot and uneducated people. ITU emphasizes to bring all people together on one internet platform to promote equal opportunity regarding usage of technology. In this way more number of people will be able to participate in digital economy and access to internet at work place and education sectors etc. The ITU's "Connect 2020" targets to connect 60 percent of total population to be online which is actually increase of 1.2 billion people within four years. There are certain hurdles in achieving these goals which includes high rates of internet broadband packages. Cost of fixed broadband has lowered in past years but still it's near to unaffordable for poor countries. According to revealed stats in

2008 average price for basic broadband connection around world was \$80 which decreased to \$25 within an year. In poor countries fixed broadband package with one Giga byte of data costs more than half of average annual salary. Another alternate of Internet broadband is Mobile broadband which is the only solution available. In 2016 people no longer go online, they are online, Yet many people are still not using the internet, and many users do not fully benefit from its potential. 3.9 billion people offline is a large number. Underdeveloped countries like Pakistan, Bangladesh and Nigeria collectively contributing to 55% of the world's offline population. Tech giant Facebook has collaborated with French satellite Eutelsat to expand connectivity with Africa. They have goals of powering satellite technologies to get more Africans online. According to agreement, the capacity will be shared between Eutelsat and Facebook. They will each deploy internet services designed to meet rising demand for connectivity for most of users in Africa. Facebook is building solar-powered drones which will fly for months at a time above remote regions, beaming down an internet connection. To incorporate this Facebook has purchased British business called Ascenta. It specializes in solar powered drones.

(January 5, 2017) phoneworld.com.pk



Jamaica

Jamaican firm Symbiote Investments, which has plans to launch the island's third mobile network under the 'Caricel' brand, has failed in its legal bid to prevent a regulatory investigation into its licensing. The country's Spectrum Management Authority (SMA) had called for a probe into the award to Symbiote last May of a domestic mobile carrier license and a service provider license to offer local, fixed and international services. The SMA raised concerns following an earlier investigation by the Office of the Contractor General

(OCG), which found that the prospective cellco had connections to businessman George Neil, who had 'adverse traces' linked to his name. Authorities in the US had also voiced concern that the license award could raise national security issues, though this was dismissed by the latest judicial ruling which, while finding that regulators were within their rights to carry out an investigation, decided that a threat to national security was not apparent.

(January 25, 2017) [The Jamaica Gleaner](http://TheJamaicaGleaner.com)



Kenya

Safaricom, Kenya's largest mobile operator by subscribers has paid a fee of USD25 million for a license to provide 4G LTE services across the country. Business Daily cites a statement from the Communications Authority of Kenya's (CA's) Director of Human Resources, Juma Kandie, as saying that the country's other two wireless network operators, Airtel and Telkom Kenya, 'are still in the process of doing [LTE] trials, after which they shall be given offers for a 4G license [during] the course of 2017'. Safaricom has already launched a limited LTE-Advanced (LTE-A)

network in Nairobi and Mombasa in December 2014, with coverage of other major towns added in October 2016. CA gave Airtel and Telkom approval to start testing 4G using their current spectrum allocations in April 2015. The CA is offering licenses for 10MHz of 800MHz spectrum to the three incumbent mobile network operators for USD25 million each, although it was proposed that the trio would also be obliged to share at least 30% of their 4G network capacity with smaller players, including MVNOs and tier-two infrastructure providers. (January 6, 2017) [Business Daily](http://BusinessDaily.com)



Mauritania

The telecoms watchdog, the Autorite de Regulation (ARE), has once again criticised the country's three mobile operators for poor quality of service (QoS). Mauritel, Mattel and Chinguitel have all been handed fines in the past for failing to meet minimum QoS levels. The regulator carried out its most recent QoS study between October and November 2016, and there were shortcomings in both voice and 3G data services in a number of cities and towns. According to the ARE, Maroc Telecom subsidiary Mauritel and

Tunisie Telecom's local unit Mattel both had problems with their voice services in 24 cities and towns, while Chinguitel, which is owned by Sudatel of Sudan, had voice service issues in 21 cities and towns. In the 3G data segment, Mattel had failings in eleven locations, while Mauritel and Chinguitel showed poor levels of service in eight regions. The three cellcos have been given until the end of January to correct the problems or they will face fines from the regulator. (January 13, 2017) Agence Ecofin



Mexico

The Altan consortium and Mexico's Promoting Body of Investment in Telecommunications (Promtel) have formally signed the public-private partnership to mark the start of Altan's 20-year concession to build and run the country's wholesale 4G shared network (Red Compartida). The aim is to install the first antenna in a few weeks' time with a view to covering 30 percent of the population by 31 March 2018 and 92 percent by 2023. Under the terms of the tender, Altan must commence commercial operations by March

2018. The total amount of investment is estimated at USD 7 billion. Altan's largest shareholder is Morgan Stanley Infrastructure, with 33.38 percent, followed by the China-Mexico managed by a unit of the World Bank's International Finance Corporation, with 23.36 percent. The consortium also includes Mexican operators Megacable and Axtel but the companies cannot have representatives on Altan's board of directors, according to the tender rules.

(January 27, 2017) telecompaper.com



Myanmar

Myanmar's fourth telecoms licensee, Myanmar National Tele & Communications (MNTC), will operate under the 'Mytel' brand name and make use of existing telecoms infrastructure currently owned or used by sister company MECTel. MNTC is a joint venture of Vietnamese telecoms group Viettel, Myanmar National Telecom Holding – a consortium of eleven local firms – and Star High Public Company, a subsidiary of Myanmar military-owned Myanmar Economic Corporation (MEC), the latter of which also owns MECTel. At a press conference, the official revealed that Mytel would use MECTel's existing infrastructure, previously reported to include 1,000 towers and more than 13,000km of fiber, although these claims could not be confirmed. In terms of its plans, Mytel will concentrate on extending 2G, 3G and 4G coverage in rural areas and seems to be considering an aggressive pricing strategy, with U Zaw Min Oo commenting: 'Operators are racing [to compete] with price or services charges, so I think that we should reduce services charges [to be less] than other operators, although we cannot announce prices yet.' According to the official, Mytel will also have access to the Asia-Africa-Europe 1 (AAE 1) submarine cable and as such 'will not have to worry about internet bandwidth.'

(January 17, 2017) Myanmar Times

Myanmar finally awarded its fourth mobile license to a joint venture led by Vietnam-based Viettel. Viettel owns 49% of Myanmar National Tele and Communications (MNTC), while Star High Public Company, a unit of the Myanmar military's Myanmar Economic Corporation (MEC) holds 28%. The final 23% is controlled by Myanmar National Telecom Holding – a consortium of 11 local businesses. According to a separate report by the Myanmar Times, MNTC paid \$300 (€282.3 million) for its license, significantly less than Myanmar's last two mobile market entrants, Telenor and Ooredoo. "The government fixed the \$300 million fee because [MNTC] entered the market later than the other operators," leaving it with some catching up to do, explained U Zaw Min Oo, in the report. "Almost everyone has SIM cards," he said. With the arrival of MNTC, Myanmar is now home to two state-owned operators and two privately-controlled players. Incumbent Myanmar Posts and Telecommunications (MPT) claims 20 million users; however, that figure includes fixed as well as mobile customers. Telenor's and Ooredoo's Myanmar businesses had 17.8 million and 8.8 million subscribers respectively at the end of the third quarter. All three currently offer 4G services as well. Ooredoo was first to market, launching 4G in May 2016. It was quickly followed by Telenor in July. Meanwhile, MPT began offering 4G services in October.

(January 13, 2017) reuters.com



Netherlands

Virtual mobile operators in the Netherlands counted 6.8 million customers at the end of September 2016, up 2.9 percent from six months earlier and good for a 34 percent share of the market, according to a latest research. The VO market is divided roughly equally between independent MVNOs and second brands

run by the mobile operators, with respectively 3.4 and 3.3 million customers. Both segments grew by 2.9 percent in the six-month period, with especially 'no-frills', low-cost brands and the fixed providers doing well. The low-cost segment remains the largest in the VO. (December 28, 2016) [telecompaper.com](#)



Peru

Peruvian telecoms watchdog the Supervisory Agency for Private Investment in Telecommunications (Osiptel) has partially suspended 393,090 pre-paid mobile lines – belonging to 333,953 individual users – as part of its crackdown on unregistered SIMs. In a press release, the regulator explained that the lines were not considered verified as the personal data for the subscribers did not match the records of the National Registry of Identification and Civil Status (Registro Nacional de Identificación y Estado Civil, RENIEC). Of the total, 153,042 of the lines were attributed to Vietnamese-owned Bitel, followed by 141,410 Movistar lines, 58,078 Claro lines and 40,560 belonging to Entel subscribers.

(January 25, 2017) [telegeography.com](#)

Peruvian regulator the Supervisory Agency for Private Investment in Telecommunications (OSIPTEL) has implemented new net neutrality regulations, guaranteeing equity and transparency in the conditions of access and use of data. The

new regulations bar providers from imposing restrictions, additional charges or quality limitations on applications that access the internet, such as WhatsApp, YouTube and Netflix. Further, the rules regulate the traffic management measures that may be utilized by providers to preserve the security and integrity of networks, restricting the use of measures that arbitrarily priorities certain services. In a related development, the regulator has also confirmed that operators can now only activate pre-paid lines once the user's identity has been confirmed via biometric verification in the form of a fingerprint scan. The rule came into force from 2 January, despite protests last month from two of the nation's cellcos over the fees they would need to pay to the National Registry of Identification and Civil Status (Registro Nacional de Identificación y Estado Civil, RENIEC) to verify their customers' identities. OSIPTEL added that it will be carrying out inspections at points of sale to ensure compliance with the new regulations.

(January 5, 2017) [telegeography.com](#)



Poland

Poland's Office of Electronic Communications (UKE) has reportedly initiated a procedure to annul the results of a sale of frequencies in the 1800MHz band carried out in 2007. In October that year CenterNet bid PLN128 million (USD31 million at current exchange rates) for frequencies in the 1710MHz-1730MHz band, but declined the paired band between 1805MHz and 1825MHz. This was later won in a separate tender process by Tolpis, a joint venture between Italian ISP Eutalia and Telekomunikacja Kolejowa, which agreed to pay PLN102 million. The start-up subsequently took on the name Mobyland before being bought by another domestic new entrant, Aero2. Both CenterNet and Aero2 are now part of the Cyfrowy Polsat group, which also includes mobile network operator (MNO) Polkomtel. In August 2009 Mobyland and CenterNet signed a letter of intent to share usage of their 1700MHz/1800MHz spectrum for rolling out LTE services, going on to launch Poland's first 4G service in September 2010. At the time of the auction, the outcome was disputed in court by second-placed bidder T-Mobile Poland (then known as PTC). In July 2009 the Warsaw Administrative Court ruled that the participants in the original October 2007 tender were not treated equally and that the result should be annulled. UKE launched a successful appeal, but

T-Mobile continued its legal battle. While UKE now appears to be ready to cancel the auction result, according to a report from Telko.in the watchdog is unlikely to be looking to force Aero2/CenterNet to hand back its spectrum or shut down its LTE network. The report suggests that UKE will instead negotiate with all parties involved to settle this and other separate disputes, including the result of the 2015 tender for 800MHz/2600MHz 4G spectrum auction, the result of which has also caused some controversy.

(January 27, 2017) [telegeography.com](#)

Polish fixed and mobile operator Orange Polska has been told it must pay PLN115 million (USD27.5 million) to renew its license in the 450MHz band for a further 15 years. Telecoms regulator the Office of Electronic Communications (UKE) has given the firm 14 days to decide whether or not it wants to retain its concession, Rzeczpospolita writes, with reports suggesting that the telco does not agree with UKE's valuation. Orange uses the 450MHz spectrum to offer CDMA fixed-wireless services for users in rural areas. It had just 27,000 CDMA subscribers at the end of September 2016, down 60% year-on-year.

(January 20, 2017) [Rzeczpospolita](#)



Portugal

The National Communications Authority (ANACOM) has announced that it is maintaining its decision not to impose access regulation on the fiber-optic infrastructure owned by PT Portugal (MEO), putting it firmly at odds with the European Commission (EC) which opened an 'in-depth investigation' into the watchdog's standpoint in August 2016. A statement on the regulator's website reads: 'ANACOM considers that its decision is the one that best safeguards the interests of the country and of citizens, promoting coverage of the territory by next generation networks [NGN] and combating digital exclusion. Portugal is a unique case in Europe and a case of success in terms of the development of next generation networks, not

only due to the high level of territorial coverage but also due to the fact that competition exists based on multiple network infrastructures.' ANACOM has divided the Portuguese territory into two distinct geographic retail markets: 'competitive' parishes (mostly urban areas where alternative operators are present with significant coverage of NGNs and/or a limited market share by MEO) and 'non-competitive' parishes (mostly rural, where MEO is by far the strongest provider of broadband services). As such, ANACOM declared its intention not to regulate access to MEO's fiber network in the 'non-competitive' areas, thus falling foul of EU rules.

(January 4, 2017) telegeography.com



Singapore

The Info-communications Media Development Authority (IMDA) of Singapore has announced its intention to launch a public consultation sometime this year to consider mobile developments related to 5G technology and the spectrum requirements needed to support it. With 5G increasingly becoming a reality, the regulator recognizes that the next generation technology will place even greater demand on spectrum resources given it is expected to support a larger range of applications, meeting requirements from 'high reliability and high bandwidth applications, to ultra-low latency and mobility'. IMDA Assistant

Chief Executive Aileen Chia is quoted as saying: 'IMDA will continue to promote greater technological innovation by encouraging trials in 5G technology to explore its potential benefits and applications'. She went on to point out that with commercial services of the new generation of technology expected to come on-stream from 2020, trials will now take place in a real-world environment to 'assist the industry in better understanding how 5G will work in Singapore's business environment and its optimum deployment scenarios'. (January 18, 2017) telegeography.com



South Korea

South Korea is aiming to increase the bandwidth allocated for fifth-generation services by 2018 in order to accommodate an anticipated spike in data traffic, Yonhap News Agency reports, citing comments made by the Ministry of Science, ICT and Future Planning (MSIP). It is understood that the ministry is planning to secure bandwidth totaling 1,300MHz, as it continues preparations for moving to 5G connectivity. No concrete information on which frequencies are being targeted have been revealed, however, although Choi Young-hae, an official in charge of policy at the MSIP, did say: 'The ministry will form a team within this month to work on allocating 5G bandwidth and

come up with the detailed plan.'

South Korea's mobile network operators are expected to roll out trial 5G services in time for the 2018 Winter Olympics in Pyeongchang, while in November 2016 KT Corp revealed it aims to commercialize 5G by 2019, a year ahead of an earlier timetable; the operator's updated launch plans were announced at the same time as it detailed its 5G technical specifications, after reaching a consensus on these with global network and mobile chipset manufacturers including Nokia, Samsung Electronics, Intel and Qualcomm.

(January 19, 2017) Yonhap News Agency



Spain

Spanish telecoms regulator the Comision Nacional de los Mercados y la Competencia (CNMC) has given final approval to measures related to the retail market for access to fixed telephony (Market 1) and the wholesale market for fixed call origination (Market 2). In November 2016 the watchdog revealed its intention to maintain the majority of existing wholesale regulation, arguing that doing so would be of benefit to those users taking an unbundled fixed voice service in particular. As per its plans though, it noted that some elements of wholesale

regulation were no longer required, specifically noting that carrier pre-selection (CPS) regulation would be discontinued. Meanwhile, in Market 1 the CNMC set out its stall to remove the few remaining obligations that were still in place, a move which was intended to bring it in line with European Commission (EC) recommendations. In announcing the final approval for the new legislation, the CNMC has now confirmed that obligations under which Movistar will be required to provide wholesale access at cost oriented prices are being retained. The 'Acceso Mayorista a la Línea

Telefonica' service (Movistar's wholesale fixed line offering) guarantees that alternative operators can offer subscribers a standalone fixed voice service, while also enabling customers to receive a single invoice for all fixed line services they may take. Also in line with its previous proposals, the regulator has confirmed the removal of obligations relating to CPS, while the remaining obligations in the retail sector have also been discontinued.

(January 25, 2017) telegeography.com

Telefonica Espana, which offers its services under the Movistar banner, has been fined by local telecoms regulator the National Commission for Markets and Competition (CNMC) over what the latter has referred to as a 'serious infringement' related to its handling of complaints related to its local loop unbundled (LLU) services. In a press release the CNMC confirmed it

was fining Movistar EUR5 million (USD5.2 million) after determining that between 1 January 2014 and 31 October 2015 the operator had incorrectly labeled a number of technical complaints from alternative providers using its LLU network as 'false alarms', while the fixed line incumbent subsequently levied financial penalties on these operators. With the CNMC ruling that Movistar had failed to investigate these complaints fully, it has argued that between 53.8% and 78.2% of those declared as false alarms might have, in fact, been incorrectly designated. Such a situation, the CNMC noted, may have caused losses for alternative operators totaling several million Euros, while also impacting the image of these companies. Movistar has the right to appeal the fine, though it must do so within two months.

(January 5, 2017) telegeography.com



Taiwan

The National Communications Commission (NCC) has unveiled plans for new legislation that would enhance its power to determine what entities are designated as holding significant market powers (SMP), the Taipei Times reports. With the proposed regulations also expected to enable companies to utilize spectrum in a more flexible fashion, a draft telecoms service management act is said to have been introduced at the NCC's final weekly meeting for 2016, along with a draft digital communications act. With the former intended to replace the existing Telecommunications Act, the latter is understood to address issues related to internet use. Commenting on the Commission's proposals, Planning Department Director Wang De-wei was cited as saying: 'The new rules would allow the [NCC] to look at the type of service an operator offers and determine the market to which it belongs ... After identifying the market, the Commission would determine whether there are SMPs in it that might affect competition. Those players would be subject to specific regulations and required to fulfill certain legal obligations.' Meanwhile, although existing regulations stipulate that operators must obtain a license before they can use designated frequencies to offer services, should the proposed legislation be implemented companies will instead be able to apply to use spectrum without first having to secure a concession. It is understood that companies will be required to submit plans regarding how they

plan to use the frequencies and have these approved by the NCC, with firms only needing to register with the regulator as a telecommunications service operator to access full rights to use an assigned frequency. NCC Chairwoman Nicole Chan noted that service operators are exempt from registering with the Commission if their services do not involve the use of frequencies or the appropriation of telephone numbers, while NCC spokesman Wong Po-tsung added that as per the proposed regulation operators would be able to build telecoms networks with frequencies they own and lease them to other service providers, provided such a move was approved by the NCC. In separate but related news, the Taipei Times also reports that the NCC is urging the nation's 2G subscribers to ensure that they have migrated to a 3G/4G service ahead of the expiration of the nation's GSM licenses on 30 June 2017. To draw consumer attention to the matter, the regulator has reportedly produced two new commercials, while the regulator has also noted that operators such as Chunghwa Telecom, Taiwan Mobile and Far EasTone are offering low monthly subscription services to encourage 2G users to switch to 3G or 4G-based offerings. As per a previous announcement, the NCC has said that to ease the impact on 2G subscribers, there will be a six-month grace period after 30 June 2017 allowing such users to migrate to more advanced services.

(January 3, 2017) telegeography.com



Thailand

The telecom regulator plans to auction 380 megahertz of bandwidth for four telecom frequencies by 2020 in a drive to support further development of the country's digital infrastructure. The spectra will comprise 180MHz of downlink and uplink bandwidth on the 2600MHz spectrum by 2017; 90MHz on the 1800MHz spectrum and 20MHz on

the 850MHz spectrum by March 2018; and 90MHz on the 700MHz spectrum by 2020. Takorn Tantasith, secretary-general of the National Broadcasting and Telecommunications Commission (NBTC), said the planned auction is intended to accommodate explosive demand for online services and the emerging Internet of Things (IoT). Up to 420MHz of

downlink and uplink bandwidth from various spectra have so far been allocated for telecom service uses. But Mr. Takorn said the existing amount of spectra in the industry is not sufficient to keep pace with the rapid developments in service innovation in the digital age and the widespread deployment of 5G wireless broadband technology. 5G mobile service is expected to be launched commercially in the global market by 2020. 5G technology could provide up to 100 times faster data rates than 4G. This is likely to create opportunities for new IoT use cases, augmented reality and virtual reality-based applications, smart vehicles, remote healthcare and robotics. "The development of the digital ecosystem in Thailand requires more bandwidth resources to build core digital infrastructure to provide service innovations," said Mr. Takorn yesterday at the 5G technology showcase held by Ericsson. After the auctions take place, there will be a total of 800 MHz of downlink and uplink bandwidth for telecom service uses, exceeding the 700MHz level recommended by the International Telecommunication Union, he said. Nadine Allen, president and head of Ericsson Thailand, said the country has been at the forefront in adopting information and communications technology (ICT) in Asia-Pacific. She said Thai consumers are ahead of or on par with global peers when it comes to embracing and using ICT. Ericsson expects to see fast adoption of 5G technologies among telecom service providers in Thailand as companies are moving quickly to meet customer needs, she said. Mrs. Allen said 5G technologies will not only bolster the growth of mobile broadband and video streaming demands, it could also be a cost-effective alternative to fixed-line

services. Based on its internal reports, Ericsson found that consumers expect to see innovative services stemming from a 5G system. They include broadband and media everywhere, interactions between humans and machines or IoT, new sensor networks, smart vehicles and transport, and critical control of remote devices. Ericsson projects 4.1 million new devices will get connected every day worldwide in 2017, reaching 18 billion by 2022. (January 26, 2017) bangkokpost.com

Thailand's National Broadcasting and Telecommunications Commission (NBTC) has enlisted Swedish vendor Ericsson to perform the first live 5G end-to-end demonstration in Thailand, using its 5G test bed and 5G-ready core. The showcase achieved a peak throughput of 5.7Gbps, the vendor's press release notes. Takorn Tantasith, Secretary General of the NBTC, commented: 'We expect to have broadband connectivity everywhere in Thailand, both in big cities and in over 75,000 villages nationwide by 2018. Along with the fixed internet deployment, we plan to release more spectrum bandwidth – 380MHz by 2020 – which will add to the existing 420MHz already allocated to the telecommunications industry. This will handle the rising demand for online services, the Internet of Things (IoT) and innovative applications, as the country transforms into a Digital Thailand.' According to a parallel report by the Bangkok Post, the frequencies in question will comprise an 180MHz block of downlink/uplink bandwidth in the 2600MHz band by 2017; a 90MHz block of 1800MHz spectrum and 20MHz of 850MHz spectrum by March 2018; and 90MHz worth of 700MHz spectrum by 2020.

(January 26, 2017) telegeography.com



United Kingdom

British telecom's regulator OFCOM has fined mobile network operator (MNO) EE GBP2.7 million for overcharging tens of thousands of its customers. The penalty, the watchdog said in a press release, followed an investigation into EE which found that it 'broke a fundamental billing rule on two separate occasions'. Firstly, EE customers who called its '150' customer services number while roaming within the EU were incorrectly charged as if they had called the United States; this mistake reportedly led to the cellco overcharging some 32,145 customers by around GBP245,700 in total. Secondly, despite making it free to call or text the '150' number from within the EU from 18 November 2015, EE continued to bill 7,674 customers up until 11 January 2016. OFCOM said that its investigation had determined that, while EE had not set out to make money from its first error, it had decided not to reimburse the majority of affected customers until the regulator intervened. It was noted, however, that EE did take prompt action with regards to the second error, issuing full refunds to those affected. As a result of its failings, OFCOM imposed the financial penalty on EE, which must be

paid within 20 working days, and will be passed on to HM Treasury. The fine reportedly incorporates a 10% reduction to reflect EE's agreement to enter into a formal settlement, while as part of this agreement the MNO has admitted to, and taken full responsibility for, the breaches. Commenting on the matter, Lindsey Fussell, OFCOM's consumer group director, said: 'EE didn't take enough care to ensure that its customers were billed accurately. This ended up costing customers thousands of pounds, which is completely unacceptable ... We monitor how phone companies bill their customers, and will not tolerate careless mistakes. Any company that breaks OFCOM's rules should expect similar consequences.' (January 20, 2017)

telegeography.com

British telecom's watchdog OFCOM has approved two license variation requests from wireless provider EE (now part of BT Group), in support of the operator's Emergency Services Network (ESN). EE was awarded a contract to provide ESN services by the Home Office in 2015, one aspect of which will allow the temporary extension of mobile coverage for occasions when the

emergency services are responding to an incident in an unserved or poorly served area. To that end, certain emergency vehicles will be fitted with nomadic base stations – dubbed ESN Gateways – that will be deployed within the cellco's normal coverage area to boost the signal to cover the incident area. The system will use LTE technology, but the 1900MHz-band frequencies set aside for the platform are currently restricted to use with UMTS technology. OFCOM's approval allows EE to use its 1899.9MHz-1909.9MHz

spectrum allocation for the temporary LTE networks set up by the ESN Gateways. Meanwhile, the ESN Gateways will use EE's main network for backhaul, and the second license variation request approved by the regulator will allow the ESN Gateways to transmit at a higher power than usually permitted. The nomadic base stations are now allowed to transmit at a power of 31dBm in the uplink frequencies 837MHz-842MHz and 1736.7MHz-1781.7MHz.

(January 11, 2017) telegeography.com



United States

The FCC is boosting the number of bidding rounds in the fourth, and last, stage of the broadcast incentive auction. On January 30, it will move from two two-hour rounds to four one-hour rounds in an effort to goose the bidding. In addition, the FCC has released some information on the assignment phase of the auction. After the main auction closes, there will be a second auction in which winning bidders will compete for actual frequency assignments. The FCC is predicting that auction could take several more weeks after the current auction closes. The forward auction bidders are currently competing for generic blocks—seven 10 MHz licenses—in each partial economic area (PEA), the 416 geographic areas in which the licenses are being auctioned. Within “a few business days” after the end of the current auction—which won't end until demand fails to exceed supply in any PEA—the FCC will issue a public notice announcing when the assignment phase bidding will begin and provide an online tutorial and user guide similar to the one for the current “clock phase” auction. About a week after that, it will let bidders check out the system and conduct a practice and mock auction.

(January 27, 2017) broadcastingcable.com

U.S. president Donald Trump this week formally nominated Ajit Pai as Chairman of the Federal Communications Commission. Pai already serves as a Republican commissioner at the FCC, having been appointed by former president Barack Obama in 2012. His nomination requires Senate approval before it becomes official. Assuming he gets the nod, he will succeed Tom Wheeler, who served as chairman from October 2013 until Trump's inauguration last Friday. “I am deeply grateful to the president of the United States for designating me the 34th chairman of the Federal Communications Commission,” Pai said, in a brief statement on Monday. Pai was not in favor of the FCC's decision to regulate net neutrality under Title II of the Communications Act, prompting many commentators to predict he will set about repealing these rules once he is in charge. “I look forward to working with the new administration, my colleagues at the Commission, members of Congress, and the American public to bring the benefits of the digital age to all Americans,” Pai said.

(January 24, 2017) totaltele.com

The U.S. Federal Communications Commission (FCC) announced this its long-running incentive auction will conclude at the end of the next round of bidding, due to take place next Monday. Bidding by telcos on 600-MHz spectrum in the forward auction have reached \$18.21 billion (€17.13 billion), topping the asking price set by TV broadcasters in the reverse auction. The price for the frequencies has also exceeded the threshold of \$1.25 per MHz per head of population. The final round of the auction, stage four, will continue until there is no excess demand in any market, after which it will move into the assignment phase, where participants can bid for specific blocks of spectrum. “The world's first spectrum incentive auction has delivered on its ambitious promise,” said outgoing FCC chairman Tom Wheeler, in a statement. “We will repurpose 70 MHz of high-value, completely clear low-band spectrum for mobile broadband on a nationwide basis. On top of that, 14 MHz of new unlicensed spectrum – the test-bed for wireless innovation – will be available for consumer devices and new services.” In return for relinquishing their 600 MHz licenses, TV broadcasters will collectively receive \$10.05 billion. The net proceeds will fund a public safety network, with any leftover going towards reducing the federal deficit. The incentive kicked off in March 2016 with the reverse auction, during which broadcasters set the price at which they would sell their 600-MHz holdings. The initial price set was \$86.4 billion for 126 MHz, which was ambitious to say the least. Further rounds saw a reduction in the price and subsequently the amount of spectrum that would go under the hammer in the forward auction. The forward auction began in mid-August. “There is still a long road ahead to successfully implement the post-auction transition of broadcast stations to their new channels and bring the new wireless and unlicensed spectrum to market. This will be an extremely important task for my successor and the new Commission; I wish them well,” Wheeler said. Indeed, Donald Trump's inauguration as president of the United States on Friday will signal the official end of Wheeler's tenure as FCC chairman.

(January 19, 2017) totaltele.com

The US Federal Communications Commission (FCC) has confirmed that the 'clearing cost' attached to Stage Four of its 600MHz Broadcast Television Spectrum Incentive Auction ('Auction 1002') has been reduced to USD10.055 billion, down from USD40.313 billion in Stage Three, as the regulator seeks to bring the long-running process to a successful close. The clearing cost has been established by a so-called 'Reverse Auction' with the country's broadcasters; Stage Four of the parallel 'Forward Auction' is expected to commence this week. At the end of Stage Three the total proceeds of Auction 1002 stood at USD19.676 billion, far short of the clearing cost. The

proceedings cannot be brought to a definitive end until the clearing cost is met. Both Stage Two and Stage Three of the auction ended abruptly late last year, with a solitary round of bidding in each instance. A total of 62 companies registered to participate in the process, including mobile giants Verizon Wireless (bidding as Cellco Partnership d/b/a Verizon Wireless), AT&T Mobility (AT&T Spectrum Holdings) and T-Mobile US, while Sprint Corp opted to sit out the process. In addition, cable giant Comcast is bidding under the CC Wireless name, while satellite TV firm DISH Network is participating as ParkerB.com Wireless.

(January 17, 2017) telegeography.com



Zimbabwe

Zimbabwe's National Social Security Authority (NSSA) which part-funded the government's buyout of a 60% stake in the country's third mobile operator Telecel, says it is looking to recoup its USD30 million outlay over a three-year period. The NSSA has requested that state-owned ISP Zarnet pay back the USD30 million and take over the interest in Telecel on behalf

of the government. When it first emerged in November 2015 that the state was looking to buy VimpelCom's stake in Telecel, Zarnet was put forward as the vehicle for the transaction. While the cash-strapped ISP did come up with a quarter of the USD40 million asking price, the NSSA was drafted in to pay the remainder.

(January 26, 2017) telegeography.com

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