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SAMENA TRENDS

FOR SAMENA TELECOMMUNICATIONS COUNCIL'S MEMBERS

BUILDING DIGITAL ECONOMIES



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Featured

Eng. Nezar Banbeela
Chief Executive Officer
VIVA Bahrain

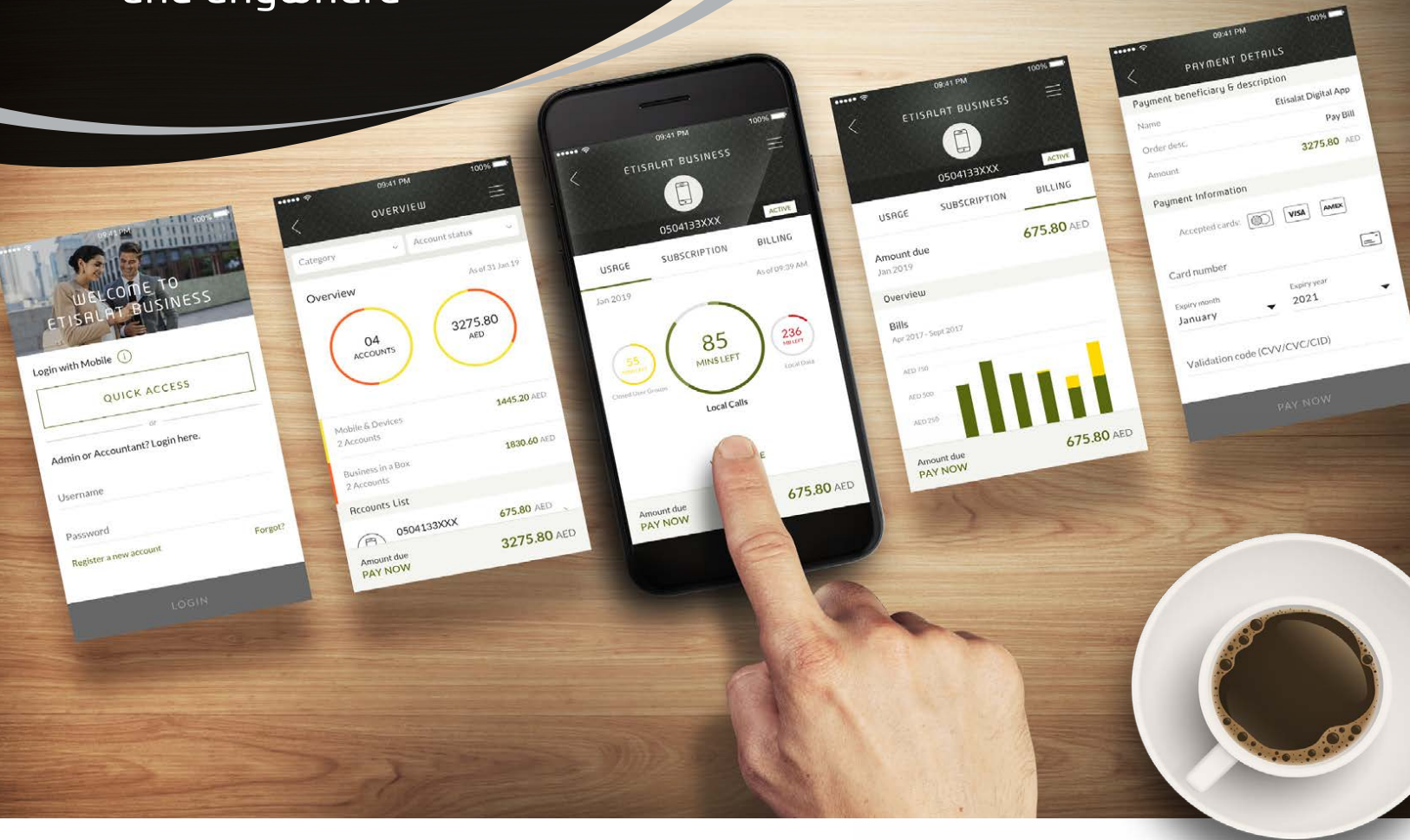
THIS MONTH

MATERIALIZING THE DIGITAL AGENDA

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Single username for admin users to access the App & Etisalat's Business Online Portal



'Quick Access' log in without registering for individual users



Together Matters



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FEATURED



06 **Eng. Nezar Banabeela**
Chief Executive Officer
VIVA Bahrain

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TIME TO ACT

SUSTAINABILITY REPORT 2018

Materializing the Digital Agenda

The world - all of us - need to come together to build a better, sustainable future that benefits everyone, including the 49% still not connected. A specialized focus on promoting and physically enabling digitization could help create such a future.

Taking inspiration from the Digital Agenda for Europe (DAE), which is just one of seven flagship initiatives launched under the Europe 2020 ten-year strategy proposed by the European Commission nearly a decade ago for advancing the economy of the European Union, we can enable the SA-ME-NA region to achieve a smart, sustainable, inclusive, and digitally-driven economy, founded on coordination and collaboration in accelerating digitization. As with DAE, the ultimate aim of any digital agenda should be to harness modern technologies, including the latest wireless broadband and allied innovations, to allow the region to achieve socio-economic growth through the creation of jobs, raising standards of living, and improving both lives and business environments.

The impact of digitization, having been voiced by SAMENA Council for several years now, spans a multitude issues, benefits, challenges, and growth prospects. At the SA-ME-NA regional level, digitization has been on the rise as is evident from a diverse series of national ICT visions and tangible actions by policy-makers and regulatory authorities of the region. Such national ICT visions have directly also created a path forward for the adoption and expansion of the 5G ecosystem. At the global level, however, we many need to consider better ways to define priorities, implement strategies, and to ensure effective cooperation between the relevant stakeholders. This is where clarity in the digital agenda comes into play.

There is an ever growing need to introduce more intelligence, efficiency, creativity, and

innovation-led sustainability across economic sectors, which are ready to benefit from advanced communications technologies, and contributions in which can be readily made by the large human resource that exists in the region. In the age intelligent connectivity and autonomous learning, artificial intelligence is a game-changer for all economic sectors. Given our region's focus on 5G, and to define revenue-rich use-cases for 5G, it is important that we look at some immediately implementation use cases for AI as well. It will require intra and inter-sector collaboration and coordination, and expertise to translate theory into reality.

Over a a decade ago, Administrations adopted a first set of principles to move forward in the digital, Internet-driven world. This has made it possible to identify emerging topics and catalyzing co-operation among the relevant stakeholders. Now in 2019, entering 2020, we are in need for rethinking on many fronts and take into account a myriad of new and emerging challenges, including those linked directly to use-cases of 5G. New ecosystems and new participants have emerged, and a new genre of complexities and sustainability issues have surfaced - not to mention changing (or some may say, receding) world economic dynamics.

Implementing a well-defined digital agenda requires strengthening cooperation and better coordination on digital governance systems. Fulfillment of digital agenda also requires that underlying obvious, and not so obvious, gaps are also pinpointed and addressed so that trust and stability prevails throughout; from identification of processes and mechanisms to implementation strategies, which should be based the best-practice principles of consensus-seeking, inclusiveness, co-operation, encouraging innovation where it truly matters, and aligning priorities. 🌱



Bocar A. BA
Chief Executive Officer &
Board Member
SAMENA Telecommunications
Council

VIVA Bahrain Speaks to SAMENA Council

Since its launch in 2009 VIVA has positioned itself at the forefront of innovation and is focused on bringing the latest developments in technology into the Kingdom of Bahrain. We have taken this commitment to the next level over the past few years by developing and enacting a strategy to transform ourselves into an integrated digital service provider

Q. What factors strongly demonstrate VIVA Bahrain's transformation from a mobile operator to an integrated digital service provider?

A. Since its launch in 2009 VIVA has positioned itself at the forefront of innovation and is focused on bringing the latest developments in technology into the Kingdom of Bahrain. We have taken this commitment to the next level over the past few years by developing and enacting a strategy to transform ourselves into an integrated digital service provider.

As part of this transformation journey we have successfully completed multiple initiatives which have played a pivotal role in not only in VIVA Bahrain transformation but also in the transformation of the Bahrain market towards being more digitally oriented. We launched VIVA Cash – a fully integrated mobile wallet and the only wallet in the country accessible to the unbanked population. Today VIVA Cash is the most popular mobile wallet in Bahrain with the largest customer base and the largest merchant network.

VIVA also launched and successfully pushed our Connected Life portfolio offering smart home devices, connected car devices and smart wearables. On the other hand, we have developed a comprehensive suite of ICT products targeting the B2B segment.

Today VIVA offers end-to-end home entertainment solutions including high-speed "Home Broadband", TV / VoD content and devices such as smart speakers, TVs, gaming consoles, etc.



Eng. Nezar Banabeela
Chief Executive Officer
VIVA Bahrain



All the above initiatives and launches demonstrate VIVA's commitment and efforts towards evolving into a digital service provider.

For VIVA Bahrain, digital transformation is not just another management project, it has become a way of life.

Bahrain's telecommunications market was the first in the Middle East to launch internet services in 1995, and the first in the GCC region to liberalize and open up its ICT sector to investment. Today, it's one of the most ICT developed countries in the Middle East. This is all thanks to a liberal government policy, forward-looking regulator and substantial infrastructure investments made by telecom players such as ourselves.

Q. What are your key differentiators in your core market?

A. A key pillar of VIVA's launch strategy was differentiation and building a strong unique selling proposition. We have been through a multiple of "firsts" in the market whether it was launching of 3.5G, 4G, 4.5G and 5G or being first to market with the latest handsets. Today we offer a highly unique value proposition to our subscribers across voice and data with some of the key differentiators being:

- High quality of service on the best network in Bahrain (based on multiple independent tests and TRA reports)
- Highly diverse portfolio of devices and accessories including innovative offerings such as the iPhone for Life program
- Differentiated and digitized customer

experience across channels including highly advanced self-service machines allowing services such as payment, recharge, SIM-replacement, plan change, and activation of add-ons, cloud-based queuing system at retail stores allowing customers to book appointments in advance and a sophisticated mobile app that allows complete selfcare

Furthermore, being a part of the STC group allows us to offer unique roaming propositions allowing our subscribers to benefit from high quality of service with our unmatched roaming add-ons across more than 140 destinations

On the B2B segment, VIVA is offering a holistic suite of services including our cloud based unified communication service and our cloud-based ERP and POS systems

As we continue to innovate and grow our business, we will continue to ensure that delivering the best possible customer experience remains our top priority.

Q. What have the top 5 key transformation highlights of Bahrain's ICT sector over the past nine years, and where are VIVA Bahrain's contributions most visible?

A. Bahrain's telecommunications market was the first in the Middle East to launch internet services in 1995, and the first in the GCC region to liberalize and open up its ICT sector to investment. Today, it's one of the most ICT developed countries in the Middle East. This is all thanks to a liberal government policy, forward-looking regulator and substantial infrastructure investments made by telecom players such as ourselves.

Looking back at the past nine years, there were several things that played a role in transforming the industry to what we see today. One of the important changes that we have seen was the introduction of new regulations and updating existing laws and policies to support the development of the ICT sector such as the Cloud First Policy, which encourages all government entities to utilize the cloud for data storage. We have also seen many initiatives and developments around FinTech, such as

the launch of Bahrain the FinTech Bay, the regulatory sandbox, which allows firms to experiment with new FinTech products and services in a controlled manner amongst other initiatives.

At VIVA, we have always been committed to introducing the latest digital technologies to the people of Bahrain and help the country unlock its full digital potential, and have been actively supporting Bahrain's Economic Vision 2030 by driving technological advancement, investing heavily in cloud services, connectivity ecosystems, IoT, and broadband access technologies. And in that regard;

- We initiated national-scale projects including Bahrain's first Cyber Security Centre (CSC), built to enhance Bahrain's cyber security capabilities and provide enterprises a one-stop shop for all digital communication and data protection requirements.
- We were the first to break through Bahrain's digital space by introducing "VIVA Connected Life", Bahrain's first, and award-winning collection of smart solutions designed to connect a customer's home, car, health and family.
- We launched a ground-breaking service; VIVA Cash, the mobile wallet – which has been one of the key digital enablers for us to venture into the Fintech sector and reiterates our commitment to invest and develop in the most agile infrastructure products and services
- As experts in the ICT Cloud Computing services, we helped businesses address advanced information security threats and fulfil their cyber security management requirements through providing our business partners with

We were the first to break through Bahrain's digital space by introducing "VIVA Connected Life", Bahrain's first, and award-winning collection of smart solutions designed to connect a customer's home, car, health and family.

the most innovative and advanced technologies in the ICT industry, and the right tools and services that work together to protect our partners against any potential cyber threats.

And while this is yet a growing discipline, VIVA is working fast and hard to enable everyday customers and businesses to become smarter through the use of cloud, cyber security, Internet of Things (IoT) and big data.

We believe that data protection is at the core of moving towards a Digital Economy, and that cross-border data flows directly influence economic growth, job creation and partnerships as a result of accessing new markets.

Q. To what extent do you feel improving cross-border data flows could positively impact VIVA Bahrain's business?

A. Data is the essence of the modern global economy and we see businesses of all sorts use data to create value and become more efficient through centralizing their operations, which ultimately helps them grow their business using flexible, cost-effective, cloud-based infrastructure. Today's digital trade depends on the ability to move data across borders without restriction, creating positive outcomes not only for businesses, but for consumers and countries as well.

We believe that data protection is at the core of moving towards a Digital Economy, and that cross-border data flows directly influence economic growth, job creation and partnerships as a result of accessing new markets.

For us, it is translated to international connectivity, increased demand for higher speed services and more capacity, more opportunity for cyber security services, more cloud-based offerings, such as Content Delivery networks, hosting services. It is all about fulfilling our

customers' needs and demands which is now expanding to more geographic markets.

Q. How is STC Group's strategy reflected in VIVA Bahrain's digital services strategy, especially in terms of regional digital transformational needs?

A. STC is a world-class digital leader, that provides innovative services and platforms to its customers and is working to enable the digital transformation of the MENA region. Being one of the fast-performing subsidiaries of the STC Group across the region, we have the same aspiration; we focus on building a portfolio of innovative, content-rich and customer-centric products and solutions that cater to the growing needs of Bahrain's community and are committed to enabling digital transformation in the Kingdom of Bahrain. As an STC company, VIVA's strategy is aligned with the Group's overall strategy which - simply put - is to expand STC's topline, create value with greater efficiencies, while preparing the company for the future. In other words, this means to become a data driven organization, to reinvent customer experience at world class standards, and to expand aggressively in scale and scope are also.

And that is translated in everything we do; from ensuring that we deliver world class customer experience and providing our customers with a range of contact points, to launching several digital services such as VIVA Cash, Connected life, Apps for queuing systems and VIVA Self Service Machines. Not to mention working relentlessly to diversify and expand our offerings to go beyond the telecom pure

STC is a world-class digital leader, that provides innovative services and platforms to its customers and is working to enable the digital transformation of the MENA region. Being one of the fast-performing subsidiaries of the STC Group across the region, we have the same aspiration; we focus on building a portfolio of innovative, content-rich and customer-centric products and solutions that cater to the growing needs of Bahrain's community and are committed to enabling digital transformation in the Kingdom of Bahrain.

play services, forging new and stimulating partnerships locally, regionally and globally to exceed the expectations of our customers, and of course investing in new infrastructure to pave the way for future connectivity such as the 5G, and cutting-edge communication technologies such as cyber security, cloud computing, mobile payment, and many more.

Q. Do you feel sufficiently equipped and policy-wise enabled to prepare for the 5G world?

A. Since our establishment, we have been working hand in hand with Bahrain Telecom Regulatory Authority to transform Bahrain's telecommunications landscape to the highest international standards. And in June 2018, we achieved a significant milestone by being one of the first countries in the world to introduce 5G elements across our national network. Not only that, but earlier this year we became the first operator in Bahrain to commercially provide 5G network to its customers.

All of this would not have been possible without TRA's remarkable efforts in enabling the launch of 5G networks and securing the necessary spectrum and adequate frequency licenses.

5G is here. 5G network is in its first phase and is available in select areas. We are working night and day to expand our reach and increase the number of locations where 5G is available to meet the raising demand of our customers, who are becoming more internet-savvy and are looking for real-time and on-the-go products and services. But the 5G ecosystem is still developing and it needs sometime before

5G is here. 5G network is in its first phase and is available in select areas. We are working night and day to expand our reach and increase the number of locations where 5G is available to meet the raising demand of our customers, who are becoming more internet-savvy and are looking for real-time and on-the-go products and services.

it can become a mass market technology as there are very few 5G devices available in the market today.

This pioneering network upgrade reinforces our commitment to strengthening Bahrain's leading position as a regional ICT hub.

Q. How is VIVA Bahrain preparing to support the development of the IoT ecosystem?

A. VIVA is one of the key enablers of IoT in Bahrain and our aim is to help Bahrain

become a smart city. With the launch of 5G we can do that as it will enable new technologies and offering customers superior access to the IoT-enabled smart applications such as augmented reality (AR), virtual reality (VR), and focus on providing data and voice services that are high quality, reliable, and affordable, not to mention robotics, and cloud-gaming.

Currently, VIVA is providing many services such as datacenters and cloud hosting, fleet management - our highly-effective fleet tracking system, and esuite solutions which features 8 key solutions that tackle the SME's daily business operation pain point, and Connected Life which offers smart home devices, connected car devices and of course smart wearables.

Q. In what significant ways do you see VIVA Bahrain playing a central role in developing the digital economy across the region?

A. Supporting the government's vision of digital transformation and the FinTech sector, and enabling businesses and customers to leverage next-generation solutions and services has always been at the forefront of everything we do at VIVA. And with technology as part of our DNA, we continuously develop the most agile network and infrastructure to enable customers to meet their business objectives and help them in

their digital transformation journeys. We are constantly investing in best in-class solutions, providing an evolving portfolio of digital solution such as cyber security, smart & managed & modular data centers, automation in hospitality, remote e-learning and smart healthcare, smart office set-up and applications combined with latest enhancements to transport and fleet management services. In addition to our digital wallet VIVA Cash, online booking queuing system, VIVA Online shop, VIVA App and more things are coming soon.

We also provide the SME's with topnotch e-services that manages their daily business operation pain points by offering advanced Point-of-sale (POS) solutions, Accounting system, Customer Relationship Management (CRM), Loyalty solutions, Human Resource, inventory, purchasing and E-commerce software which will enable business customers.

The start of our 5G commercial journey is a milestone for us towards this direction as we pave the way for future connectivity. We are excited to embark on this new digital journey that holds incredible potential and ability to connect everything and enhance our customers' lives with new experiences never imagined before. 📶

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5G
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MEMBERS NEWS



STC Wins the 2019 Best Practices Award by TDWI

STC announced that it has been recognized as a 2019 Best Practices Award winner in the BI, Visual Analytics, and Data Discovery category by TDWI, the premier source for in-depth education and research on all things data. The Best Practices Awards has been presented at TDWI Strategy Summit for Analytics 2019 San Diego-CA, which took place 19th of August 2019. STC Senior VP Technology and Operations Mr. Haithem Alfaraj, commented that keeping in line with the Kingdom of Saudi Arabia's Vision 2030, a sophisticated digital infrastructure is integral to today's advanced industrial activities. It attracts investors and enhances the fundamental competitiveness of the Saudi economy. This award reflects STC's commitment to play a key role in Kingdom's vision 2030, aligning with its DARE Strategy (Digitize, Accelerate, Reinvent, Expand), as we are a world-class digital leader providing innovative services and platforms to our customers and enabling the digital transformation of the MENA region. We have kept the goals of our BI and Data Visualization initiatives aligned with our vision, which has enabled STC to deliver digital platforms that will support and fulfill customers' needs and ensure enablement. TDWI's Best Practices Awards identify and honor companies that demonstrate excellence and innovation in developing, deploying, and maintaining analytics and data management applications. All nominated solutions were evaluated by TDWI analysts and faculty who selected the award winners based on business impact, maturity, innovation, and relevance in their field.



Record Numbers in Mobile Data Usage

For the first time, STC has shouldered the consumption of 7 GB data. Over 7 TB was used in Mina, 6 TB of which was over the mobile network in Mina, an increase of 39% over last year, and 5.1 TB over the 4G network, an increase of 57% over last year, in addition to 7 GB over 5G. The number of subscribers increased by 14% compared to last year, the number of roaming customers increased by 12%, and the network recorded distinct success indicators exceeding 99.7%. STC has launched the 5G network and made it available primarily in three services: Wi-Fi, holograms, and drones. Pilgrims can connect to the high-speed network via Wi-Fi at a number of locations in the Holy Mosque, Holy Places, and camps there.

Saudi Telecom Wins VMware's Certificate for Providing Cloud Computing Service

VMware, which provides cloud computing and virtualization software and services, has awarded Saudi Arabia's Saudi Telecom Company (STC) a certificate for providing cloud computing service. Accordingly, STC became the first Saudi company to be globally accredited for

providing cloud-based services, STC said in a recent statement. The Saudi telecom provider noted that the certificate affirms its leadership in the field of innovative digital solutions, and its vast experience in providing advanced services in the field of cloud computing, which meet the

needs of its customers and keep pace with the ever-changing market demands. STC seeks to raise the efficiency of the business sector via providing a wide range of innovative digital solutions and internet of things (IoT), as being key enablers of the Kingdom's 2030 Vision.

Serving More Than One Million Pilgrims in Six Hours Via Critical Communication Technology

The number of pilgrims who were served by STC critical communication technology, which was used by the General Cars Union of the Ministry of Hajj and Umrah on Tarwiyah Day at Mena, amounted to more than one million pilgrims in 6 hours. Through 2,000 transport lines on which the pilgrims boarded 10,000 buses, the Union was able to serve pilgrims through Tetra critical

communication network. The network, whose capacity was increased during 1440 Hajj season by 31%, can accommodate huge working groups, in addition to its high security and high encryption level for calls, and its 99.99% dynamic operation in emergencies. Ordinary communication networks are not able to handle call traffic in the case of emergency, especially in crowded places, such as the Holy Places, where more than 2 million communication users meet in one place. The Ministry of Health also relied on STC critical communication technology for running ambulance convoys, which served ill pilgrims who were hospitalized in Medina hospitals to the Holy Places in Mecca to complete pilgrimage rituals. The Ministry relied on Tetra critical communication network all the way from Medina to Mecca for a highly seamless experience. STC constructed, developed and expanded several sites, alongside with the Holy Places. It established other networks in vital areas of the Kingdom, e.g. most airports and ports of the Kingdom and the Industrial Zone. It constructed 210 towers, with a plan to cover all major cities and vital regions in the Kingdom.



Airbus, STC Specialized Provide Reliable Communication Solutions for Hajj

Airbus, a leading provider of secure communication and collaboration solutions, provides mission critical communications technology to the Kingdom of Saudi Arabia, for this year's Hajj pilgrimage. Airbus has been a trusted supplier of secure communication solutions for the Hajj pilgrimage every year since 2017. With the implementation of its systems to ensure faster emergency response for public safety, and use of its state-of-the-art technology, Airbus and STC Specialized ensured the smooth running of security operations which safeguard millions of visitors each year. Various security organizations benefited from Airbus' trusted solutions which

include the slimline Th1n Tetra radio and Automatic Vehicle Location (AVL) technology. These inform dispatchers of each mobile units' location, status, and active Tetra talk groups. The information is then sent to all the relevant emergency personnel using the STC Specialized network powered by Airbus' Tetra solution; such as, the Ministry of Hajj, the Ministry of Health, and Mecca Municipality. Airbus' mission critical solutions facilitated the monitoring of this major event, as well as the communication between ground staff and the control rooms, enabling them to immediately address any on-site emergency while benefitting from the stability, continuity, and reliability of Airbus

technology when, and where it is needed the most. "Critical communications technology is a key enabler in widening the scope of emergency response mechanisms and implementing quality and performance standards in order to improve operational efficiency, and increase system-wide coordination in all emergency situations -and especially during critical events, such as the Hajj", declared Olivier Koczan, CEO of Secure Land Communications at Airbus. "Airbus is honored to be considered the partner of choice in providing resilient communications technology infrastructures; enabling the smooth running of the Muslim pilgrimage in the vicinity of Mecca." Koczan adds.



du To Launch Second Phase of 5G in UAE By End 2020

Emirates Integrated Telecommunications Co (du) plans to launch the second phase of the 5G network in the UAE by the end of 2020, the company's chief infrastructure officer Saleem Al Balooshi said. The currently being offered 5G technology services represent the first phase of the launch which depends on the existing 4G network, Al-Ittihad newspaper reported, citing Al Balooshi. The Emirati telecom operator also aims to invest around AED 1.3 billion to AED 1.5 billion this year, mainly in the preparations for the 5G network, Al Balooshi noted. The company has already begun collaborating with a number of global mobile phone manufacturers to launch 5G supported devices in the market, he added. He also expected various models of these mobile phones to be released in the local market within the coming weeks or months. Earlier this day, du announced the signing of a commercial agreement with wi-tribe Pakistan LDI (Private) Ltd, a subsidiary of HB International Investments Ltd, to build 'Orient Express Cable System', a 1,400-kilometre submarine cable system between Karachi and Gwadar in Pakistan and Kalba in the UAE. Under the agreement, both companies will work jointly to ease the development of a high capacity low latency submarine cable between Pakistan and the UAE, du said in a statement to the ADX. Moreover, du highlighted that its relationship with wi-tribe is "purely commercial", adding that it has no investment or ownership in the cable system. du previously announced it logged a profit after royalty of AED 464 million during the second quarter



of 2019, up 2.5% from AED 453 million in Q2-18. The company's board of directors proposed the distribution of AED 589 million in cash dividends for the first six months of 2019.

du Leads MENA as Founding Member of Global Alliance to Promote Adoption of Light Communication Technology

du, from Emirates Integrated Telecommunications Company (EITC), has become the only regional founding member of the Light Communications Alliance (LCA) – a newly launched global consortium of communications, lighting, infrastructure, and device manufacturing industry leaders aimed at promoting new wireless technologies to enable Light Communications (LC). The LCA will also establish and advocate the use of global standards for this emerging industry. As a key advocate for bringing new technologies to fruition across the UAE, du's involvement in this global alliance reiterates the company's commitment towards pioneering technologies that empower citizens, enterprises, and government entities across the country, the region, and the world. "At du, we pride

ourselves on pioneering game-changing technologies to add even more value to our valued customer segments. As LiFi technology becomes a commercial reality, we look forward to shaping the future of this technology as well as expanding customers' potential by complementing our solutions stack with the latest connectivity innovations and developments," said, Saleem AlBlooshi, Chief Technology Officer at EITC. "We are proud to be working alongside the world's leading industry players to bring this communication to life across the globe," he added. Light Communication technologies include Light Fidelity (LiFi) and Optical Camera Communications (OCC), both of which have been attracting increased attention over recent years within several industries, such as smart cities and homes, industry

4.0 and manufacturing environments, as well as retail and tourism. Global Market Insights predicts that the LiFi market will be worth \$75 billion by 2025, creating broad, far-reaching opportunities for the related industries to benefit from Visible Light Communications. The LCA is an open, non-profit association of members who aim to promote Light Communications technology with a consistent, focused and concise approach. The LCA will highlight the benefits, use cases and timelines for Light Communications adoption. The organization will also align innovative leaders across the industries that light and communications touches, defining standards for education, communication, and interoperability.

du and Nokia Collaborate on 5G Cloudification in the UAE

UAE based telco, du, has launched a new research initiative in collaboration with Nokia, that will explore the benefits of 5G-ready cloud-based future network architecture. The pair have launched a white paper that examines the need for cloud-based future network architecture to develop new 5G and IOT use cases. "The digital world is changing very fast, and the arrival of 5G will bring about a plethora of transformation for all industry verticals," said Saleem AlBlooshi, CTO of du's parent company, EITC. "With the cloudification of

our network, this will mean that the future network architecture will be more agile, dynamic, and optimized, opening up a new array of use cases and new product offerings based upon next generation technologies such as 5G and IoT," he added. du argues that the cloudification of its network will allow it to offer a more lucrative array of services to consumers and enterprises alike, helping it to drive up ARPU and maximize its return on the considerable investments it has made in its next generation network infrastructure.



Etisalat Successfully Dials in 5G Call from World's Tallest Tower

Following its global milestones achieved in 5G network this year and the live 5G video calls made across various locations in UAE, Etisalat announced the availability of 5G coverage in the world's tallest and iconic tower 'Burj Khalifa' showcasing readiness of the state-of-the-art 5G network and compatibility with industry leading 5G smartphones. Today's 5G call is a major step for Etisalat as it proves the network readiness and availability of the 5G network and services in the country. Etisalat's landmark announcement earlier in the year also gave subscribers an opportunity to be the first in the MENA region to experience the new super-fast 5G network

on 5G ready smartphones. Etisalat aims to provide customers a unique experience by enjoying blazing speeds and faster response time on the 5G network upto 1Gbps and lower latency to 1 millisecond. At around 20 times faster than 4G and with ultra-low latency, 5G technology will allow users to stream live 4K resolution video anywhere at any time, with virtually no lag. With 5G technology consumers will witness unprecedented network speed allowing users to enjoy uninterrupted 4K & HD videos, AR/VR services, cloud gaming from anywhere in UAE, advanced robotics, autonomous transport, 3D printing and wearable technologies. This

breakthrough achievement was possible due to the continuous efforts in building and investing in the network to enable connectivity, innovation and bring digital transformation. Etisalat aims to build 1,000 5G towers across the UAE during 2019 to enable 5G coverage. Etisalat embarked on its 5G journey in 2014 when it started constructing the network with a dedicated team of engineers and specialists dedicated to build one of the most advanced networks in the region. The major milestone for Etisalat and the telecom industry was the launch of the first commercial 5G wireless network on 14th May 2018 in the UAE becoming the first telecom operator in the MENA region to achieve this technological breakthrough and set an industry benchmark. Expo 2020 was also the first major commercial customer in MEASA to partner with Etisalat on 5G in July 2018 delivering a unique and memorable experience for the millions of visitors. Through its network rollout and the pioneering launch of the first 5G handset in the MENA, Etisalat managed to provide UAE customers with an opportunity to experience the power of 5G technology. Etisalat also empowered visitors at Abu Dhabi international airport with indoor ultra-high speed 5G connectivity, making it the first airport in the region with 5G coverage.



Etisalat C&WS and Sparkle Pioneer in Enabling 5G Roaming Globally

Etisalat Carrier & Wholesale (C&WS) and Sparkle have announced the establishment of a 5G data roaming interconnection between Etisalat and TIM, paving the way for 5G roaming between Middle East and across the globe. This strategic agreement will set the path for 5G and the global mobile and carrier community. While Expo 2020 was the first major commercial customer in MEASA to partner with Etisalat on 5G, Etisalat was also the first telecom operator to launch the first commercial 5G network in MENA. Through its network rollout and the pioneering launch of the first 5G

handset in the MENA, Etisalat managed to provide UAE customers with an opportunity to experience the power of 5G technology. Etisalat also empowered visitors at Abu Dhabi international airport with indoor ultra-high speed 5G connectivity, making it the first airport in the region with 5G coverage. Ali Amiri, Group Chief Carrier & Wholesale, Etisalat, said: "5G is seen as a game changer with rich potential for the wholesale business bringing maximum opportunities with higher connection speeds, mobility and capacity, as well as low-latency capabilities. This has enabled

new use cases and applications positively impacting different industry sectors. "The strategic partnership with TIM will enable mobile operators across the globe with superior roaming services and connectivity. With Etisalat's wide coverage roaming services covering 837 operators in 216 destinations and Smarthub IPX providing wide 4G coverage to more than 460 live LTE partners in 163 countries would play a pivotal role in enabling 5G for all our customers across international networks."

Etisalat Academy Launches Training on World's First Certification of Service Automation Framework

Etisalat Academy has announced the launch of the GCC's first accredited Service Automation Framework (SAF) Training Centre in partnership with APMG and Etisalat Group. The Centre is advanced and provides step-by-step guidance for the design and delivery of automated services. Its aim is to deliver training courses and certification services for a broad range of professional certification schemes. Etisalat Academy is the first to address this concept in the region that provides a deep insight into the theory and methods of service automation. It offers the framework by which any organization can automate its services, 'go digital' and enable them to offer self-service technologies to their customers. Hatem Bamatraf, Chief Technology Officer, Etisalat International, said: "Innovation is always at the core of Etisalat's strategy to 'Drive the digital future to empower societies'. Due to technological advancements and the way that end users have changed their behaviour, interest in service automation has greatly grown in the last decade. Transportation, hotel reservations and e-commerce can now be delivered to customers without any human intervention as the process is completely automated." Commenting on



the launch of the Centre, Dr. Ali Al Qayedi, General Manager of Etisalat Academy, said: "We are pleased to partner with APMG International as the most reputable global accreditation and examination institute, to deliver the Service Automation Framework as the world's first certification that provides step by step guidance for the design and delivery of automated services. The courses of the Service Automation Framework provide a deep insight into the concept of service automation, the concept by which organizations can automate their service offering." Richard Pharro, CEO,

APMG International, said: "We would like to congratulate the Etisalat Academy on their recent APMG accreditation to deliver Service Automation Framework Training and Certification. Our robust assessment of an organization's trainers, training materials and quality management ensures candidates receive the best training and certification experience. SAF is an essential addition to the training schedule for companies going through digital transformation and it is especially relevant in such a forward thinking business community in the UAE."



Omantel Profit Up 25% on the Back of Strong Zain Group Performance

Oman Telecommunications Company (Omantel), the Sultanate's incumbent telecoms operator, has announced its unaudited financial results for the first half of 2019, including the effect of fully-consolidated Zain Group results. Omantel has posted group revenue of OMR1.26 billion (USD3.3 billion) for H1 2019, compared to OMR914.2 million a year earlier, mainly due to the consolidation of Zain's revenue, while turnover from domestic operations fell 7% year-on-year to OMR259.8 million. Group EBITDA rose by 72% to OMR539.5 million in the first six months of 2019, while net profit grew 25% from OMR101.0 million in H1 2018 to OMR126.5 million a year later, thanks to strong performance in key markets of Zain Group, including Kuwait, Saudi Arabia and Iraq. Domestic profit declined 9% year-on-year to OMR39.2 million, mainly due to a fall in mobile pre-paid revenues despite an increase in data consumption. 'We are delighted with these results which clearly reflect the importance and success of our strategic investment in Zain Group that serves around 50 million customers in the region,' commented CEO Talal Said Al Mamari, adding: 'Zain Group performance has enabled us not only to offset the decline



witnessed in the domestic operations but rather to grow our revenues and net profits to new record levels.'

Omantel Renews Deal with OFA



Omantel, Oman's largest telecom service provider, has renewed its long-standing bond with the Oman Football Association (OFA) as it inked its title sponsorship agreement for the top-flight league, popularly known as Omantel League, for the next three seasons. The agreement, starting with the forthcoming 2019-20 season, will be up until the 2021-22.

The deal was signed at the Omantel headquarters by the Omantel CEO, Sheikh Talal al Mamari, and the OFA Chairman, Sheikh Salim al Wahaibi, in the presence of top officials from both sides. Omantel has been the title sponsor of the sultanate's premier football competition since 2008 and the league features the top 14 clubs. Speaking on the occasion, the OFA chief

expressed his 'delight on the renewal of deal' and said, "Omantel has been the longest-standing partner with the OFA and we are very happy that they have decided to continue to support the game and the youth of the sultanate." Mamari said, "For everyone in Oman, football is a real passion, a local and global sport that is followed by the young and old alike. "Omantel works closely with our community to make a meaningful difference to the future development of the nation. Therefore, we are very pleased to announce the renewal of sponsorship contract for the Omantel League for the coming three years." He added, "It gives us great pleasure to nurture and support the development of football in Oman and we hope that all the fans will enjoy a strong performance by the participating clubs." The new domestic season will start with the Super Cup match between Sur Club (HM's Cup champion) and Dhofar Club (Omantel League champion) on September 13. The Omantel League will start on September 14 and conclude on April 10 while the HM's Cup will kick-off on September 30.



Telecom Egypt Announces Its Q2 2019 Financials

Telecom Egypt has announced its Q2 2019 results ending 30 June 2019.

H1 2019 key highlights

- Consolidated revenue totaled EGP 12.7bn, increasing 25% YoY on the back of higher data services and increased cable projects revenue mainly owed to the recognition of the USD 20mn PEACE cable crossing.
- Customer base demonstrated improved trends across all segments with fixed voice customers growing 11% YoY, fixed broadband increasing by 19% YoY and mobile reporting a 29% growth.
- The company recorded a total cost of EGP 1bn for the Early Retirement Program (ERP) with c2000 employees signing up, which will be paid to the employees in Q3. Such cost led to the decline of EBITDA to reach EGP2.6bn and net profit stabilized at EGP 2.1bn.
- Excluding the ERP, EBITDA would reach EGP 3.6bn, growing 11% YoY recording

a margin of 29% and net profit would land at EGP 2.9bn.

- Normalized net profit increased 41% YoY as a result of forex gains, EBITDA growth and the rebound in Vodafone's investment income.
- In-service CapEx intensity reached 29% as a result of the company's plan to accelerate infrastructure and network development to complete the copper-to-fiber replacement program in 2 years rather than 4, ending by 2020.
- Net debt amounted to 10.2bn, representing 1.6x of annualized EBITDA compared to 2.1x in FY 2018.

Adel Hamed, Group Chief Executive, commented: "This quarter, our operational and financial performance demonstrated our ability to successfully execute our strategy and maximize our return on investment by enhancing the quality of our services, which was clearly reflected in the notable growth of our data revenue. The

recognition of PEACE cable revenue that was introduced last April also contributed to the 24% YoY top line growth. We are very pleased with the launch of WE SPACE internet offerings that represent a shift in the Egyptian broadband market through the introduction of high speed bundles with speeds that start from up to 30 Mbps instead of 5Mbps, allowing us to better monetize our network investments. Additionally, the company has completed the groundwork for the preparation for the nationwide launch of IPTV services and the WE Wallet to fulfil our strategy of leading the market as a total ICT provider. In parallel to our strong revenue growth, we successfully implemented cost cutting initiatives including the restructuring of our debt, which lowered this quarter's interest costs, and the activation of the early retirement program that will further reduce our expenses on the short-run."



VIVA Wins Golden Strategic Award 2019

Viva, Kuwait's fastest-growing and most developed telecom operator, announced that it has been recognized with the "Golden Strategic Award 2019" for the best website nationwide, at the annual event held by the Excellence Awards Academy - Dubai for the Golden Shield Awards for Smart Websites and Applications, and social media platforms across the Pan Arab region. On this occasion, Mr. Abdulrazaq Bader Al-Essa, Corporate Communications Director at VIVA said: "The award reflects our excellence in providing modern digital services to our customers that meet different needs and with ease and flexibility. VIVA always endeavors to foster its leading position in the local and regional telecommunications market, through a suite of world-class digital products, services and solutions." He added: "The VIVA website and its application, including its official social media platforms, create



an important portal that VIVA is constantly seeking to update, to communicate with its customers, respond to their inquiries,

provide them with ease and comfort, and keep them posted with the latest offers and packages."



Zain Group Reports Robust Results for First Six Months of 2019



Zain Group, a leading mobile innovator with operations in eight markets across the Middle East and Africa, announces its consolidated financial results for the six months to 30 June 2019. Zain served 49.2 million customers at the end of the period, reflecting 4% increase year-on-year (Y-o-Y). For the first six months of 2019 (H1), Zain Group generated consolidated Revenue of KD 811 million (USD 2.7 billion), reflecting a growth of 61% Y-o-Y. EBITDA for H1 2019 reached KD 354 million (USD 1.17 billion), up 109% Y-o-Y, reflecting an EBITDA margin of 44%. Net Income for H1 2019 reached KD 97.3 million (USD 321 million), up 13% Y-o-Y, reflecting Earnings Per Share of 22 Fils (USD 0.07). For H1 2019, foreign currency translation impact, predominantly due to the 43% currency devaluation in Sudan from an average of 26.5 in H1 2018 to 46.5 in H1 2019 (SDG / USD), cost the Group USD 101 million in Revenue, USD 44 million in EBITDA and USD 15 million in Net Income.

Group Key Performance Indicators (KD and USD) for the second quarter (Q2) of 2019

In the second quarter of 2019 (Q2), Zain Group generated consolidated Revenue of KD 407 million (USD 1.34 billion), reflecting a growth of 66% when compared to the same period in the previous year.

EBITDA for the quarter reached KD 177 million (USD 582 million), up 108% Y-o-Y, reflecting an EBITDA margin of 43%. Net Income for the quarter amounted to KD 50 million (USD 165 million), up 10% Y-o-Y, reflecting earnings per share of 12 Fils (USD 0.04). For Q2 2019, foreign currency translation impact, predominantly due to the 38% currency devaluation in Sudan from an average of 28.1 in Q2 2018 to 45.6 in Q2 2019 (SDG / USD), cost the company USD 46 million in Revenue, USD 19 million in EBITDA and USD 6 million in Net Income.

Key Operational Notes for H1 2019

The consolidation of Zain Saudi Arabia (KSA) into Zain Group that started in Q3 '18 resulted in an additional USD 1.1 billion in Revenue and USD 506 million in EBITDA during H1 2019.

Expansion of 4G LTE networks across key markets and the launch of 5G commercial services in Kuwait, coupled with numerous data monetization initiatives saw Zain Group data Revenue grow 114% Y-o-Y, to represent 36% of the Group's consolidated Revenue. The consolidation of Zain KSA was the primary contributor to the data growth.

The adoption of new accounting standard IFRS 16 – 'Lease' from the beginning of 2019 resulted in a benefit to EBITDA of

KD 37 million (USD 121 million), and an increase in net income of KD 3.2 million (USD 11 million)

Commenting on the results, Chairman of the Board of Directors of Zain Group, Mr. Ahmed Al Tahous said, "The Group's performance in the first half of the year was very pleasing given the numerous operational and competitive challenges we face in several key markets. The Board is working closely with senior management in maintaining our leadership position in many of our markets and future-proofing the business by investing heavily in our networks and seeking new opportunities in the digital space. We are committed to the region's economic and social prosperity and are sincerely grateful for the enabling environment created by the governments and regulatory authorities across our footprint." Mr. Bader Nasser Al-Kharafi, Zain Vice-Chairman and Group CEO commented, "The first six months of 2019 were exceptional as we recorded impressive Net Income and EBITDA growth in all key operations, namely Kuwait, Saudi Arabia, Iraq, Jordan and Bahrain. We also continue to perform remarkably well in all key financial indicators in local SDG currency terms in Sudan, though this progress is negated by currency devaluations. Overall, these robust set of results reconfirm that our digital transformation program, efficiency drive, and growth strategy is on track in delivering the ambitious financial targets we have set in a bid to exceed all expectations from our stakeholders." Al-Kharafi continued, "Zain Group's financial growth during the period in many key indicators was underpinned primarily by the strategic consolidation of Zain KSA, combined with the Saudi operator's impressive performance, which has driven it to profitability for four consecutive quarters. Zain KSA's market capitalization has more than doubled in the last 12 months, offering further testament of investor confidence in the successful implementation of the company's turnaround strategy and future roadmap." The Vice-Chairman and Group CEO concluded, "The recent launch of 5G

networks in Kuwait was a major milestone, as it allows us to offer more innovative and compelling services to our customers in government, business, IoT, and smart city sectors, bolstering the digital economy in these areas. 5G technology will create vast opportunities in the value chain proposition in numerous industries and will push the telecom sector to a new and exciting phase of growth. Zain is mobilizing all its resources to capitalize on this enormous opportunity in creating shareholder value."

Operational review of key markets for the six months ended 30 June 2019

Kuwait: Maintaining its market leadership, the flagship operation of Zain Group saw its customer base serve 2.8 million in a very challenging period that witnessed improving Net Income for the quarter. The Group's most profitable operation saw its H1 2019 Revenue reach KD 165 million (USD 544 million), and Net Income increase

by 10% to reach KD 44 million (USD 144 million). Zain Kuwait's EBITDA amounted to KD 65 million (USD 213 million), an 18% increase Y-o-Y, reflecting an EBITDA margin of 39%. Data Revenue grew by 9% Y-o-Y, representing 37% of total Revenue.

Saudi Arabia: The operator continues to grow all its key financial metrics, recording Net Income for the last four consecutive quarters. For H1 2019, Zain KSA generated Revenue of SAR 4.2 billion (USD 1.1 billion), a 17% increase compared to the same period in 2018. EBITDA for H1 2019 amounted to SAR 1.9 billion (USD 506 million), up 60% Y-o-Y, reflecting an EBITDA margin of 46%. Net Income for the period soared to reach an unprecedented SAR 260 million (USD 69.2 million), reflecting a significant turnaround on the H1 2018 Net Loss of SAR 115 million (USD 30.6 million). Data Revenue represents 44% of total Revenue and customers served reached

8.3 million.

Iraq: Zain Iraq performed exceptionally well in H1 2019 when compared to H1 2018 with Revenue reaching USD 522 million and EBITDA reached USD 220 million, up 14% reflecting an EBITDA margin of 42%. The operation reported a Net Income of USD 25 million for H1 2019, up 39% on the USD 18 million profit recorded for H1 2018. The operator added 600,000 customers (up 4% Y-o-Y) to reach 15.3 million and witnessed significant growth in data Revenue, as well as profitable progress in the enterprise (B2B) segment.

Sudan: Despite the ongoing social and economic issues in the country, the operator continues to perform well in local currency (SDG) terms, as Revenue grew by 45% Y-o-Y to reach SDG 6.4 billion (USD 138 million, down 18% in USD terms) for H1 2019. EBITDA increased by 36% to reach SDG 2.4 billion (USD 52 million, down 23% in USD terms), reflecting an EBITDA margin of 37%, while Net Income increased by 31% to reach SDG 900 million (USD 19 million, down 30% in USD terms). Data Revenue formed 16% of total Revenue, with an impressive growth of 31% (Y-o-Y) in SDG terms. Zain Sudan saw its customer base expand 9% to reach 15.1 million customers.

Jordan: Zain Jordan serves a customer base of 3.7 million at the end of June 2019, maintaining its market leading position. Y-o-Y Revenue was stable at USD 240 million, with EBITDA up 17% to reach USD 113 million, reflecting a 47% EBITDA margin. Net Income increased 9% to USD 39 million in H1 2019. With the continual expansion of 4G services across the country, Data Revenue grew by 4%, representing 40% of total Revenue.

Bahrain: Zain Bahrain generated Revenue of USD 81 million for the first six months of 2019. EBITDA for H1 2019 increased by 41% to reach USD 28 million, reflecting an EBITDA margin of 35%. Net Income amounted to USD 6.7 million, reflecting a 9% increase Y-o-Y. Data Revenue represents 48% of overall Revenue.





Accenture Report Reveals New Cybercrime Operating Model among High-Profile Threat Groups



Cybercrime campaigns and high-profile advanced persistent threat groups are shifting how they target victims and focusing more on intricate relationships with “secure syndicate” partnerships to disguise activity, according to the latest 2019 Cyber Threatscape Report from Accenture. Leveraging Accenture Security threat-intelligence capabilities and research from primary and secondary open-source materials, the annual report provides insights and predictions on the cyberthreat landscape and how it will shift over the next year. The goal is to help organizations stay ahead of threats relevant to their organization, industry and geography. “Over the past year, cybercriminals have continued to test the resilience of organizations by layering attacks, updating techniques and establishing new, intricate relationships to better disguise their identities, making attribution more difficult to pursue,” said Josh Ray, a managing director at Accenture Security. “Organizations should understand the tangible elements, or the bread crumb trail left behind, which can help reveal the motivations, operational

procedures and tool use, to create a profile of the adversary. This process is critical for organizations to understand so they can proactively be involved in properly allocating resources and improving their security posture to avoid becoming cybercrime’s next victim.” The report notes a significant increase in threat actors and groups conducting targeted intrusions for financial gain, also referred to as “big game hunting.” Despite the arrests of individuals associated with online underground marketplaces, activity among infamous threat actor groups – such as Cobalt Group, FIN7 and Contract Crew – has continued. Accenture Security analysts have also observed the shared use of tools that automate the process of mass-producing malicious documents to spread malware, such as More Eggs, which is used in both conventional crimeware campaigns and targeted attacks. The continued activity is associated with relationships forming among “secure syndicates” that closely collaborate and use the same tools – suggesting a major change in how threat actors work together in the underground economy.

With syndicates working together, the lines are even more blurred between threat actor groups, making attribution more difficult. In addition, Accenture Security analysts have observed a shift in the way Cobalt Group targets victims to gain access to the victims’ supply chain networks. While malware has typically been sent to internet users via phishing emails, analysts now see an emergence of malware executed through web browsers focused on targeting online merchants and retailers specifically. The report also finds evidence of a continued global disinformation battlefield influencing social media users and cautions that threat actors are becoming more skilled at exploiting legitimate tools. While disinformation campaigns to influence both domestic and foreign political sentiment and sway national elections will continue, the wider potential impact of disinformation on global financial markets is even more concerning, the report notes. The financial services industry – and, more specifically, high-frequency trading algorithms, which rely upon fast, text-driven sources of information – are likely to be targeted by large-scale disinformation efforts in the future. In addition, ransomware is increasingly plaguing businesses and government infrastructures, with the number of ransomware attacks more than tripling in just the past two years. Aside from delivery via spam campaigns, analysts have witnessed threat groups Nikolay and GandCrab planting ransomware directly on networks through network access intrusions. Actors are offering to sell remote desktop protocol (RDP) access to corporate networks, which they’ve likely gained through compromised servers and RDP brute forcing, to those in underground communities.



Analysys Mason Advises Inwit on Landmark Tower Transaction in Italy

Analysys Mason has announced its advisory role in the recently completed merger between Inwit and Vodafone Towers in Italy. The merger is the largest single-market tower transaction in Europe, creating a 22 100 tower powerhouse between two major telecoms providers and is worth over EUR1 billion to each party. Significantly, it is the first tower transaction that involves Vodafone's tower assets, and signals the beginning of a wider strategy announced by Vodafone to spin-off and trade its 61 000 towers across Europe. The terms of the merger include an agreement between Inwit's parent company TIM and Vodafone to

establish an active network sharing partnership for 5G, actively share the 4G network and to expand their existing passive sharing agreement. As part of the merger, Vodafone will combine its towers with Inwit. This will enable more-efficient deployment of 5G in Italy and offers synergies and cost-savings for both companies. The transaction will fundamentally reshape the mobile market in Italy and also highlights potential challenges for tower companies in terms of managing a new wave of Radio Access Network (RAN) share deals and monetizing 5G deployment. Alessandro Ravagnolo, Principal at Analysys Mason, said, "Mobile towers represent a hot asset class for both strategic and financial investors. These transactions will become an essential part of operators' 5G roll-out strategies, but they are complex deals and the impact of future active RAN-share deals between mobile operators should be carefully considered. TIM and Vodafone's tower transaction is likely to become the reference point for future deals across Europe." Various stakeholders were involved including Inwit, Vodafone TIM and Inwit's minority shareholders. Analysys Mason brought together a team with deep knowledge of the tower industry and the Italian telecoms market to provide 360-degree commercial and technical support to Inwit during the negotiation process. The merger is subject to regulatory approval.



AT&T Channel Chief: 'Massive' IoT Growth Creates Win-Win for Partners

So says Stacey Marx, Senior Vice President and Channel Chief at AT&T Partner Solutions. Marx replaced Zee Hussain earlier this year and continues to lead the company's main channel efforts. She conducted a lengthy "listening tour" across the U.S. to hear from partners about trends, goals and pain points. "My goal this year and beyond is not only to keep that momentum from last year going, but to build on it and deliver the best indirect experience in the industry," Marx said. "We really want our partners to know that first and foremost, we are more dedicated to the channel than ever, and our commitment has not gone away." AT&T Partner Solutions (APS) reported a 78% revenue increase from 2017 to 2018, after successfully realigning its three main channel programs under the APS umbrella. Marx said she and her team are working to use best practices across all three channels

and help partners maximize AT&T's offerings. AT&T Partner Solutions recently launched a unified partner solutions webpage featuring the ACC Business, AT&T Partner Exchange and AT&T Alliance Channel. Partner Exchange refreshed its portal and expanded access to marketing and training resources. Marx also credited Steve Pasmanik for helping AT&T upgrade its pre- and post-sale support. Pasmanik joined AT&T Partner Solutions more than a year ago to serve as AVP of technology. He has helped develop new service programs, dedicated back-office project support and white-glove order management. APS also is reporting a generally faster installation process, according to Marx. She said all of these changes serve to make partners more self-sufficient. AT&T and its channel are marching in a "continuum" toward 5G in the meantime. AT&T has launched its mmWave 5G wave network in parts of 21

major U.S. cities and has been running trials with business customers to see how specific industries can benefit from 5G. 5G will ultimately impact how all businesses participate in the economy, according to Marx. She said increased spectrum efficiency, faster speeds and lower latency will lead to "massive IoT growth." And most of that growth will occur in the business world. "Companies will need more and more partners that can understand their needs and customize solutions," she said. "We're in a winning situation because the solution providers have the relationships and understand their customers. They have the resources and skills that our customers are really needing." Marx and her predecessor, Zee Hussain, detailed several new solutions and tools back in April.

AT&T and Dell Technologies Collaborate On Open Source Edge Computing and 5G Software

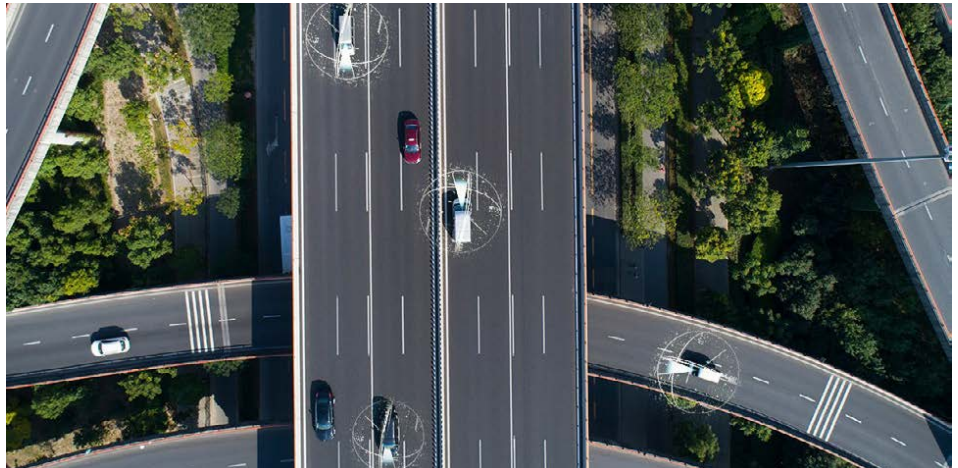
AT&T and Dell Technologies are jointly exploring the development of key open infrastructure technology areas for the next-generation network edge that will be required by service providers to support new use cases and service opportunities in a cloud-oriented 5G world. Combining their respective expertise, Dell Technologies and AT&T will collaborate in the open source community to:

- Align on an overall vision of network disaggregation and accelerate the deployment of open infrastructure and AT&T Network Cloud utilizing Airship – a collection of loosely coupled, but interoperable, open source tools that declaratively automate cloud provisioning and life-cycle management utilizing containers as the unit of software delivery.
- Catalyze the broader Airship community to accelerate Airship toward a 2.0 release, delivering a streamlined aggregator of best-of-breed open technologies for declaratively deploying and managing Kubernetes environments and cloud software.
- Jointly develop and enhance additional open source efforts, including Metal3-io and OpenStack Ironic, and integrate the Kubernetes Cluster API.
- Deliver open source automation capabilities across the stack – from bare metal to network to storage – on Dell Technologies infrastructure.

5G is not simply an evolution from 4G. 5G requires massive transformation. It demands new, distributed architectures that use software-defined, disaggregated and open infrastructure to automate the deliv-

ery and management of mobile services and new analytics-driven telemetry to ensure consistent service levels. The goal of edge computing is to move compute closer to the end user and applications, creating a low-latency environment for a new class of cloud-native applications. Combining edge computing and 5G extends cloud and “IT-centric” requirements beyond traditional fixed-function hardware to deliver more dynamic, agile edge compute, storage and networking solutions on an unprecedented scale. To capitalize on the new business opportunities that edge computing and 5G will create, communication service providers need open, validated, industry-standard architectures, combined with software-defined networking (SDN), network functions virtualization (NFV), cloud-native applications, and Multi-access edge computing (MEC). “Dell Technologies’ addition to the Airship community reaffirms the industry’s growing trust and investment in the open infrastructure model,” said Amy Wheelus,

vice president, AT&T Network Cloud. “This collaboration will not only enable us to accelerate the AT&T Network Cloud on the Dell Technologies infrastructure, but also further the broader community goal of making it as simple as possible for operators to deploy and manage open infrastructure in support of SDN and other workloads.” “Dell Technologies is working closely with AT&T to combine our joint telco industry best practices with decades of data center transformation experience to help service providers quickly roll out new breeds of experiential Edge and 5G services,” said Kevin Shatzkamer, vice president, Dell EMC Service Provider Solutions. “As the world leader in servers, storage and personal computers, Dell’s world class supply chain is best positioned to deliver the cost structure, predictability and access to emerging infrastructure technologies required to enable the transition to a more open, disaggregated mobile network.”



AT&T, T-Mobile Deliver Cross-Network Call Authentication Technology


AT&T and T-Mobile began rollout of cross-network call authentication based on SHAKEN/STIR standards – another big step toward protecting consumers from unwanted robocalls. SHAKEN/STIR technology lets consumers know that an incoming call is really coming from the number listed on the caller ID display – not a spoofed robocall or scammer. While authentication won’t solve the problem

of unwanted robocalls by itself, it is a key step toward giving customers greater confidence and control over the calls they answer. For example, a call that is illegally “spoofed” – or shows a faked number – will fail the SHAKEN/STIR Caller ID verification and will not be marked as verified. By contrast, verification will confirm that a call is really coming from the identified number or entity. More calls will be verified over

time as more device providers participate, and as more network providers implement the standards. The FCC has recommended SHAKEN/STIR standards to digitally validate phone calls. The acronym stands for Signature-based Handling of Asserted Information Using toKENs (SHAKEN) and the Secure Telephone Identity Revisited (STIR).

AT&T's FirstNet Passes 750,000 Connections


Public safety personnel across the country continue to turn to FirstNet to advance their routine and emergency responses. Nearly 9,000 public safety agencies and organizations have subscribed to FirstNet, accounting for over 750,000 connections in service. And the numbers are growing daily. Why? Because the FirstNet communications platform – built with AT&T* and the First Responder Network Authority (FirstNet Authority) – offers first responders and those critical to their response a purpose-built experience they can't get anywhere else. "FirstNet is designed to be different because that's what public safety specifically asked for. This is the only platform that has been built from the ground up just for this community, and we believe FirstNet is the most important network in the country because it serves public safety across the country," said Chris Sambar, senior vice president, FirstNet Program at AT&T. "As we grow and evolve FirstNet, we're proud to connect more members of the public safety community and further empower the men and women we rely on to keep us safe with the advanced communications capabilities needed to help strengthen their mission delivery." For the second consecutive quarter, FirstNet brings its subscribers the fastest overall network experience. According to the results of tests taken with Speedtest as analyzed by AT&T, FirstNet once again performed faster than any commercial network.¹ These results come as the number of markets with the FirstNet Band 14 spectrum nears 650.² We're moving quickly with about 65% of our nationwide coverage targets completed well ahead of schedule. The more we roll out Band 14 across the country, the more we're able to provide first responders with truly dedicated coverage and capacity when they need it. This helps them reliably connect to critical information, communicate and coordinate. And in the coming months, FirstNet subscribers will be getting another boost in their connectivity. AT&T and Assured Wireless Corporation are working together to develop safe and effective solutions that bring first responders the true benefits of high-power user equipment (HPUE). Following 3GPP standards, HPUE solutions can transmit at stronger signals. This signal increase can only be done using the FirstNet Band 14 spectrum. That's huge for public safety. For rural and remote responders, HPUE could significantly increase their coverage area. For urban and suburban responders, this will help solve the common challenge of indoor coverage. The stronger signal will better assist those connecting from hard-to-reach places like basements, elevators, stairwells and parking garages, helping first responders communicate inside and out. "Our collaboration with AT&T is a perfect example of technology's power to do great things for public safety," said Tom Bilotta, CEO of Assured Wireless Corporation. "The standards-based HPUE solutions that we plan to bring forward will build on the unique capabilities of FirstNet to further strengthen first responders' ability to communicate no matter where their mission takes them." Since establishing the FirstNet Response Operations Program a year ago, public safety has turned to FirstNet to help support them during both planned and emergency events. This year alone, we have helped first responders stay connected during nearly 75 emergency events. From wildfires and floods, to a tropical storm turned hurricane and tornadoes, to search and rescue missions in remote locations and more, FirstNet has been there. "The support we received from




MOMENTUM

Built with AT&T


750K+ FirstNet connections




~9,000 Public safety agencies subscribed



75+ FirstNet Ready™ devices




~650 Markets¹ with Band 14 spectrum




FASTER


than any commercial network²




~65% Band 14 coverage completion; well ahead of schedule




50+ Unique apps in the FirstNet App Catalog






75 Dedicated deployable network assets, including 3 Flying COWs™



175+ Asset deployments for planned and emergency events this year



The **only** dedicated communications platform in the country that brings public safety:

-  **Always-on, 24x7** priority and preemption across voice and data communications
-  A physically separate network core **fully dedicated** to public safety
-  Government oversight and accountability from the **FirstNet Authority**

¹ Markets defined by FCC CMAs.
² Based on AT&T analysis of Ookla® Speedtest Intelligence® data average download speeds for Q2 2019. Ookla trademarks used under license and reprinted with permission.
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FirstNet during the record rainfall and flooding earlier this year was second to none," said Keenan Campbell, Situation Unit Leader – Illinois Incident Management Team. "Having a FirstNet SatCOLT rapidly deployed and onsite to keep our command post connected to our broader team was an invaluable asset to our mission, and it gives me peace of mind knowing that I have a network that will be there when and where I need it." "FirstNet is the real deal," said John Rockwell, Statewide 9-1-1 Coordinator, FirstNet SPOC, Acting SWIC, Department of Public Safety, Alaska State Troopers. "We helped organize deployment to fight a fire in northern Alaska last month, and we needed communications. A FirstNet SatCOLT was there in 5 hours. It was the furthest north we've ever had unified communications, making our ability to respond that much easier and more efficient." Plus, we've supported agencies at more than 100 planned events this year, including coast-to-coast 4th of July celebrations. First responders have also relied on FirstNet during music festivals, sporting events and speaker rallies for public officials. When emergencies strike, it's also critical that 911 call centers have the tools they need to maintain operations. To help 911 communicators stay connected during potential service-impacting situations, 911 call centers can now use FirstNet as a wireless backup solution to AT&T ESInet™ – a smarter, modernized 911 call-routing service. This backup capability is enabled by AT&T Private Mobile Connection, which connects AT&T ESInet to FirstNet for added redundancy. If AT&T ESInet detects a failure in the primary connection to the PSAP, emergency calls will be automatically routed over FirstNet. Keeping PSAPs connected during critical times helps improve emergency response and enables 911 communicators to provide seamless service to the community until the primary connection is restored.

Dell Flying to 5G Cloud on AT&T-Led 'Airship'

Dell is signing on to Airship, an AT&T-led initiative to automate provisioning telco cloud infrastructure for 5G. With Dell on board, the Airship project plans to extend automation from cloud infrastructure software to hardware as well. "The crux of it is we're bringing Dell into the Airship community, to accelerate the overall growth of the SDN ecosystem by making it as easy as possible for operators to deploy and manage infrastructure," Ryan Van Wyk, AT&T system VP, network cloud software engineering, tells Light Reading. Dell provides expertise in bare metal

servers, focusing on hardware and node management for deploying and managing open infrastructure. Airship, launched this year, with version 2 due in mid-2020, is a software project for declaratively provisioning cloud infrastructure, stating the parameters for servers, storage and networks in broad strokes and letting the infrastructure itself automatically decide on detailed parameters for provisioning resources. Airship manages lifecycle including creation, update, configuration and major upgrades, using plain text files called YAML documents. "You say this is

what I want, I want X number of machines, I want these networks, this type of storage, you define that in YAML, feed that into a machine and the machine spits out a cloud that meets those definitions," Van Wyk says. In addition to Dell, AT&T is working on Airship with SUSE, Intel, Ericsson, Mirantis and 99Cloud, as well as launch partners Intel and SK Telecom. Dell brings expertise in hardware, RAID storage and BIOS. "How do you interact at the lowest level with the hardware to configure it?" Van Wyk says.

AT&T Introduces 5G in New York City

AT&T is lighting up 5G in parts of New York City. The newly available service starts in limited areas initially, delivering additional capacity and lower latency over 5G millimeter wave (what we call 5G+) beginning with business customers and developers. "As a densely-populated, global business and entertainment hub, New York City stands to benefit greatly from having access to 5G, and we've been eager to introduce the service here," said Amy Kramer, president, AT&T New York. "While our initial availability in NYC is a limited introduction at launch, we're committed to working closely with the City to extend coverage to more neighborhoods throughout the five boroughs." Kramer added, "While we are pleased to take the first step today in NYC, we maintain that the City is in critical need of a strategy that allows wireless carriers to add capacity where it's most needed - particularly in densely populated and trafficked areas - in order for 5G to reach its full potential for our customers." In addition to our plans to provide 5G across NYC, we previously announced the upcoming opening of a WarnerMedia Innovation Lab in early 2020. The 20,000 square foot facility will be located in Chelsea and will serve as



an incubator for exploring and developing new entertainment experiences. With today's news, NYC becomes AT&T's 21st city with 5G+. We will also introduce 5G broadly over sub-6GHz in the coming months, with plans to offer nationwide 5G in the first half of 2020. Providing 5G over multiple spectrum bands will enable our customers to benefit from the ultra-fast speeds of 5G millimeter wave as well as the broader coverage ranges of 5G sub-6. Select customers in NYC can access our 5G+ network today using the Galaxy S10 5G on our AT&T Business Unlimited

Preferred plan. Go to att.com/5GNews to learn more about how we are unlocking new experiences on 5G. AT&T has invested nearly \$1.4 billion in our New York wireless and wired networks during 2016-2018. These investments boost reliability, coverage, speed and overall performance for residents and businesses. We've also improved critical services that support Public Safety and first responders using the FirstNet communications platform. In 2018, AT&T made more than 4,800 wireless network upgrades across New York State.



BT's Cyber Index Reveals the Scale of Today's Cyber Threat

BT's network is one of the largest in the world. Serving almost 200 countries and territories, we own enough terrestrial fiber to go 1.5 turns around the earth, not to mention satellite and wireless networks. One terabyte of data passes through our network every second. We also operate at an industrial scale, with thousands of applications and hundreds of thousands of users. We protect our global network from a huge number of cyber-attacks, and the scale and complexity of attacks is intensifying. For example, between April to June 2019 we blocked on average 111 million connections to malware sites every month. As a network service provider, our expertise is in analyzing and understanding traffic and data flows across public and corporate networks. We can correlate what we see happening on our network, on our customer's networks and with external events. We process 600,000 events per second (2.1 billion events an hour) into BT's Cyber Security Platform, enabling us to proactively hunt threats in real time. This

allows us to understand how and where to put controls in place and how to detect anomalous behavior that could be an early indicator of an attack, enabling us to be on the front foot in continually tuning and refining security policies and our services. We want everyone to feel safe when using our services, so we work behind the scenes to protect our customers - from both large scale attacks and more targeted attempts to steal data. We believe that sharing threat information with trusted partners in industry and government is crucial to improving the overall security ecosystem and protects our customers from a wider range of threats than any one organization can determine on their own. We're now sharing some of the information we monitor on the BT Cyber Index. The Index gives a high level view of cyber threats that we protect our customers from on a daily basis and show some of the challenges we're working against. It includes DDoS alerts, phishing sites taken down, malware sites blocked and scam activity that we

act on. Given the breadth of our network, the data it provides gives an indicative view of the wider security ecosystem and a snapshot of the growing threat landscape. Building awareness of cyber issues is key for improving defences, as it makes people and organizations place more emphasis on their online security, and makes it more difficult for cyber criminals to operate. For example, the increase in the number of phishing attacks has driven us to do more internal education and training of what to look for, how to avoid being caught out and how to report suspect emails. The training has not only helped protect our own network but has also helped employee's share the information they've learnt at home with friends and family. Over time the Index will also give a more insightful, long-term view of the trends and developments in cyber security. We're also working to add further categories and measurements, so that we can provide insight on more types of cyber-attacks.

9%

decrease in DDoS events over the last quarter *

[Read more >](#)

11%

decrease in scam activity over the last quarter *

[Read more >](#)

45%

increase in phishing attacks over the last quarter *

[Read more >](#)

111 million

connections to malware sites blocked per month *

[Read more >](#)

* April to June 2019

BT Lines Up Infrastructure Sale in Netherlands

The UK's BT Group is aiming to sell telecoms towers and broadband infrastructure in the Netherlands worth around GBP100 million (USD121 million),

Mobile World Live reports, citing a Sunday Times article. The Dutch assets form part of BT's Global Services division, serving business clients. BT is in the midst of a

major restructuring program including slimming down Global Services and refocusing on core operations, while last week the group announced it will delist its

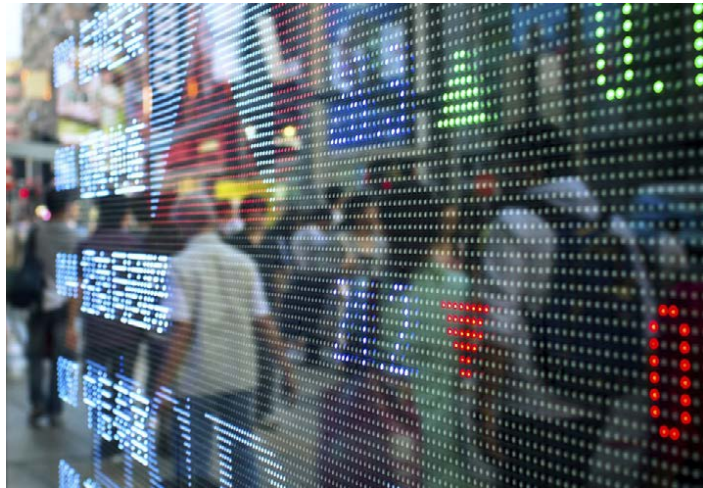
shares from the New York Stock Exchange and deregister with the US Securities and Exchange Commission to reduce reporting costs and complexity. According to reports last month, BT has earmarked its entire

Latin American business for sale, valued at around GBP1 billion, following reports in June which said the British group was exploring the sale of its Spanish division. Furthermore, in April this year the telco

placed a GBP400 million price tag on its BT Ireland unit and the group is also seeking a buyer for its operations in Italy.

BT Announces Intention to Deregister and Terminate Reporting Obligations with the SEC

British Telecommunications plc (BT plc) hereby announces its intention to file a Form 15F with the US Securities and Exchange



Commission (SEC) to deregister all of its registered debt securities and expects deregistration to become effective 90 days later. The decision to delist and deregister is aimed at reducing reporting costs and complexity whilst maintaining the highest standards of corporate governance and transparent financial reporting. BT plc notes the announcement made by its parent company, BT Group plc, with respect to its intention to delist its American Depositary Shares from the New York Stock Exchange, terminate its American Depositary Receipts program and to deregister its equity securities and terminate its reporting obligations with the SEC. The full text of the announcement can be found at <http://www.morningstar.co.uk/uk/NSM> BT plc will continue to positively engage with US debt investors, and its obligations to its existing bondholders will not be affected by the deregistration. BT plc reserves the right to delay these filings or to withdraw them prior to their effectiveness, and to otherwise change its plans in this regard. The person responsible for making this announcement is Rachel Canham, BT Group's Company Secretary.

New MVNO Audacious Launches Mobile Service in the UK in Partnership with BT

Audacious is a new Mobile Virtual Network Operator (MVNO) service that will deliver an enhanced audio experience to assist the 10 million people in the UK who have hearing loss. The new offering is underpinned by BT's EE mobile network which provides the underlying mobile infrastructure for Audacious' voice and 4G data services, as well as international roaming and wholesale billing. By partnering with BT, Audacious gains access to the UK's biggest and fastest mobile network, with EE offering superfast 4G in more places than any other operator. As well as having access to enhanced audio services on their mobile, Audacious' users will enjoy the unrivalled customer experience of the EE network when using data services. The Audacious mobile service works in exactly the same way as a current mobile service with minutes and data, but makes calls clearer too. Contracts will be rolling on a flexible monthly basis, which allow

users the freedom to leave at any time. Customers can take a commitment free sound check on the Audacious website to receive their personal hearing profile. They can then order a personalized SIM card tailored to the individual way they hear. There's no need for customers to replace their mobile phone; to start experiencing clearer calls they simply replace their existing SIM card with their personalized Audacious one. Audacious Founder, Matthew Turner, said: "Having lived with moderate to severe hearing loss since birth, I am fully aware of the emotional impact millions of people are experiencing as they struggle daily to communicate using the mobile phone. It was a real struggle to talk on the phone and it had a negative impact on both my personal and professional life. I made it my personal mission to develop the technology that could tailor phone calls to individual hearing loss or needs and so empower people across the UK to

have better, clearer conversations." Alex Tempest, Managing Director, BT Wholesale, said: "Making better connections is what we do best, so we're really proud to be supporting the launch of a service which will make the world more accessible for people with hearing difficulties. "The strength and breadth of our EE mobile network makes BT the ideal MVNO partner for Audacious. By leveraging the best mobile network in the UK, as well as providing clearer calls to their customers, Audacious can deliver a superior customer experience, with unrivalled 4G coverage and superfast speeds for data services." The EE Network has independently been recognized as the UK's best network for six years running, winning multiple awards for data speeds. Through BT Wholesale the EE network currently supports almost 30 mobile brands via MVNO agreements, providing mobile services to over 5 million end customers.

British Telecom Publishes 1st Quarter Results

BT has delivered results in line with its expectations for the quarter, with adjusted EBITDA declines in Consumer and Enterprise partly offset by growth in Global.

Key strategic developments:

EE successfully launched the UK's first 5G mobile network in six cities

BT named the UK's major broadband universal service obligation provider by Ofcom

12 successive quarters of improvement in Group NPS1, up 0.3 points

Openreach announced updated pricing for wholesale FTTP broadband and the next 36 locations in its FTTP rollout

BT welcomes the Government's ambition for full fiber broadband across the country and is ready to play its part to accelerate the pace of rollout

Sale of BT Centre agreed for £210m and lease signed for new headquarters in Aldgate, London

Operational:

Openreach continues FTTP rollout at c.20k premises passed per week with

267k premises passed in the quarter; 3.7m ultrafast (FTTP and Gfast) premises passed to date

Consumer fixed ARPC £37.9 flat year on year; postpaid mobile ARPC £20.7, down 4.6% on Q1 2018/19 due to the impact of regulation and lower RPI price increases

Fixed churn down to 1.3% following customer experience improvements; postpaid mobile churn remains at 1.1%

EE first in 15 out of 16 RootMetrics tests for mobile network performance

Financial:

Reported and adjusted revenue of £5,633m down 1% with decreases in Consumer, Enterprise and Global

Adjusted EBITDA1 down 1%2 at £1,958m driven by lower revenues and higher spectrum fees and content costs, partly offset by reduction in costs from restructuring and transformation programmes

Reported profit before tax of £642m and adjusted1 profit before tax of £749m, impacted by the higher upfront interest expense on the IFRS 16 lease liabilities

recognized from 1 April 2019

Normalized free cash flow1 of £323m down 36% reflecting increased capital expenditure and higher interest and tax payments, partially offset by working capital phasing

Reported capital expenditure of £931m up 11% primarily due to network investment and customer driven costs

Full year outlook maintained, Philip Jansen, Chief Executive, commenting on the trading update, said. "BT delivered results in line with our expectations for the quarter, with adjusted EBITDA declines in Consumer and Enterprise partly offset by growth in Global. We are on track to meet our outlook for the full year. "We made good progress during the quarter, including launching the UK's first 5G network, delivering an improvement to our group net promoter score for the twelfth consecutive quarter, announcing the first nine cities in our consolidated office footprint, and being named the major broadband universal service obligation provider for the UK. "In building a better BT for the future we need to be even more competitive. We will continue to take decisive action, including on price, to further strengthen our customer propositions and market position, both to respond to any short-term market pressures and to capitalize on longer-term opportunities. "On network investment, we welcome the Government's ambition for full fiber broadband across the country and we are confident we will see further steps to stimulate investment. We are ready to play our part to accelerate the pace of rollout, in a manner that will benefit both the country and our shareholders, and we are engaging with the Government and Ofcom on this."



BT Group plc
Q1 2019/20 trading update
2 August 2019



BT in Talks to Sell Ireland Corporate Unit

BT reportedly entered discussions with London-based Mayfair Equity Partners to sell its corporate business in Ireland, in a deal that could be worth more than €300 million. According to Sky News, the discussions are exclusive between the two companies, with BT set to ask for more than €300 million for the unit, as it looks to cut its heavy debt load. The potential buyer, Mayfair Equity Partners, has a keen

interest in the technology, media and telecoms sectors, providing buyout and growth capital to businesses. News of the potential sale follows speculation last week it was eyeing a £100 million sale of assets in the Netherlands, which serves its business customers. The mooted sales are part of new CEO Philip Jansen's cost-cutting program, with a goal to slim down its global services division and refocus

its core operations. It has already raised £209 million through the sale of its London headquarters this year, while also selling its fleet management business and it is in the process of divesting its global legal software business Tiktak. At home, the company is undergoing a staff reduction push and lowering office costs.



Organization of American States and Cisco to Collaborate on Cybersecurity Innovation

Cisco and the Organization of American States (OAS) today announced joint efforts to democratize and boost Cybersecurity adoption across Latin America through the creation of the Cybersecurity Innovation Councils. This initiative will serve as multi-stakeholder spaces in which leaders and experts from the private sector, public sector, academia, NGOs and security technology vendors will collaborate to drive innovation, raise awareness, and expand best practices, aiming to help solve digital risks and challenges affecting the digital society. "As countries across Latin America digitally transform, Cybersecurity will be the foundation for achieving their national priorities. Our partnership with OAS will help set the stage for communities across Latin America, their governments, and their businesses, to take full advantage of the digital economy," said Michael Timmeny, SVP and Chief Government Strategy Officer, Cisco. The OAS Secretary General, Luis Almagro, said that "these Councils create spaces for collaboration between technology leaders, experts from the public and private sectors, universities and non-governmental organizations to promote innovation, raise awareness and expand best practices. All of this, in order to help solve the risks and challenges facing our

societies, and foster an open, secure and reliable digital environment throughout our region". Education is the foundation of driving awareness and the democratization of Cybersecurity. Therefore, in addition to the Cybersecurity Innovation Councils, both Cisco and the OAS are leveraging Cisco Networking Academy in Latin America to promote educational resources that can help close the professional skills gap in Cybersecurity – allowing citizens to access trainings and career opportunities in this field and help build the workforce of the future. Cisco and the OAS will deploy

their expertise and leverage the regional footprint to lead important dialogue that will generate outputs in order to address Cybersecurity challenges in Latin America. Cybersecurity is a foundational Cisco tenet to help transform digital businesses. This initiative is especially relevant in a global industry where attacks have resulted in financial damages greater than US\$500,000, including, but not limited to, lost revenue, customers, opportunities, and out-of-pocket costs to organizations, according to Cisco 2018 Cybersecurity Report.



Superloop Deploys Cisco NCS 1004 For Two Deployments of 4600km at 400G

Cisco and Superloop announced two deployments of up to 400G for 4600km on the INDIGO West cable from Singapore to Australia, and the INDIGO Central cable from Perth to Sydney, featuring a two-fiber pair 'open cable' design with new spectrum sharing technology. Superloop is a new and exciting, independent fiber infrastructure provider designing and operating networks throughout the Asia Pacific region. They are building critical core infrastructure for wholesale carriers and global content providers who require infinitely scalable and reliable capacity, on-demand. "The INDIGO cable system completes the next stage of our Asia-Pac network infrastructure. We are now the sole operator that owns fiber to buildings

in Australia, Singapore and HK, placing it at the forefront of optical fiber connection and transmission technologies. Working with Cisco on the INDIGO cable system was a logical extension of the partnership that helped create our Australian integrated backhaul network to the 121 points of interconnect. We are now truly positioned as the pan-Asia fiber operator to meet growing customer demand across the region," said Ryan Crouch, Chief Technology Officer of Superloop. "We are thrilled to work with such a forward-looking company that will leverage our NCS 1004 for their subsea routes. Superloop has now completed a new national backbone for Australia and operates carrier-grade metro networks in Singapore

and Hong Kong," said Bill Gartner, SVP/GM of Optical Systems and Optics at Cisco. The Cisco NCS 1004 is optimized to maximize capacity with a minimum space and power footprint. At 2RU, the system supports up to 4.8Tbps of client and up to 4.8Tbps of trunk traffic. And in addition to the subsea applications, the NCS 1004 is also well suited for terrestrial long haul deployments as well as metro data centre interconnect applications. "Every day we are building a network that reaches further and is becoming more advanced. With Cisco as part of our infrastructure, nothing is holding us back," said Drew Kelton, CEO of Superloop.

Cisco Announces Intent to Acquire Voicea

Cisco has announced its intent to acquire privately-held Voicea, headquartered in Mountain View, CA. Voicea is the creator of a market-leading real-time solution that provides meeting transcription, voice search, and meeting highlights/action items, with robust data privacy. It helps teams have more productive and actionable meetings by turning talk into action. With Voicea technology, Cisco will enhance its Webex portfolio of products with a powerful transcription service that blends AI and Automated Speech



Recognition (ASR) to unlock the power of any collaboration, like meetings and calls. Our first focus with Voicea is to turn meetings into a treasure trove of digital meeting notes and insights. Attendees and non-attendees can quickly gather the most relevant information from these digital notes and insights, turning a block of text into actionable information.

Key Facts:

- This acquisition reflects Cisco's vision of Cognitive Collaboration, interoperability, and workplace transformation through combining the power of AI, ML, software, hardware, and the network to remove friction and get work done faster and smarter.
- The acquisition is expected to close in the first quarter of Cisco's fiscal year 2020, subject to customary closing conditions and required regulatory approvals.

- Upon completion of the transaction, the Voicea team will join the Webex portfolio team, led by Sri Srinivasan, Senior Vice President and General Manager. Read the blog for more details.
- Cisco collaboration customers include 95 percent of the Fortune 500.
- More than 130 million people use Webex every month.
- More than 360 million meetings happen on Webex each year.

"Voicea's true market leading technology will be a game changer for our Webex customers to experience more productive and actionable meetings", said Amy Chang, Senior Vice President and General Manager, Cisco Collaboration. "The acquisition of Voicea allows us to leap past basic transcription services and instead, continue delivering on our vision of AI-driven, Cognitive Collaboration across our entire portfolio."

Comviva and N-able Pvt Ltd. Join Hands to Create New Opportunities Around Digital Services in Sri Lanka

Comviva, the global leader in mobility solutions has joined hands with N-able Pvt Ltd. as local strategic alliance partner to catalyze Digital Services in Sri Lanka. As part of this alliance, N-able will leverage Comviva's innovative offerings to the telecom service providers in Sri Lanka, through its Digital Services Delivery Platform (DSDP). The collaboration will provide operators with big data driven real-time marketing solutions to generate actionable customer insights. The digital services suite will offer customers a multi-channel and consistent experience across any device and network. The DSDP will empower mobile operators to move beyond mere connectivity and embrace new growth opportunities in digital services. In addition, Comviva's Enterprise Messaging Platform will provide an omni-channel customer engagement. Peter D'Almeida, CEO N-able Pvt Ltd. said, "What I find most exciting about our alliance with Comviva, is that through their relevant and contextual digital services, we can capture and monetize the intent rich "micro-moments" of customers: to learn, to act on a need, to discover, to watch or to buy. We become part of real-time customer journeys when decisions are made, and preferences are shaped." Tanveer Mahmood, VP & Market Unit Head (SAARC) Comviva Technologies said, "We are very excited to appoint N-able as our strategic alliance partner for Sri

Lanka. We are confident that Nable will deliver our cutting-edge solutions in areas such as analytics and big data, digital services and enterprise messaging, to create personalized, contextual journeys for mobile subscribers, creating more meaningful customer experiences." Comviva's solutions are deployed by over 130 mobile service providers and financial institutions in over 95 countries and enrich the lives of over two billion people to deliver a better future. With over 15 years of presence in the SAARC region working with major operators like Reliance Jio, Vodafone, Airtel, Grameenphone, Banglalink, Robi, Nepal Telecom etc. Comviva has gained extensive market presence, serving over 11 telecom operators across 3 countries with over 25 deployments in the region.





Eutelsat releases Full Year 2018-19 Results

The Board of Directors of Eutelsat Communications, chaired by Dominique D'Hinnin, reviewed the financial results for the year ended 30 June 2019.

Main Highlights

- Revenues of €1,321 million with Operating Verticals at €1,313 million, down 3.1% like-for-like
- EBITDA margin of 78.4% at constant currency
- Attainment of targeted Net Debt / EBITDA ratio, at 2.98x
- Discretionary Free Cash Flow up 9.6%; three-year objective exceeded a year ahead of schedule
- Dividend per share for FY 2019 of €1.27, 1.4 times covered by DFCF
- New DFCF objective of €500 million in FY2021-22

Rodolphe Belmer Chief Executive Officer of Eutelsat Communications, said: "On the operational front, the past year was notable once again for the resilience of core Broadcast, supported by rising channel count and HD penetration. The successful launch of EUTELSAT 7C will bring incremental capacity to the dynamic African market. In Fixed Broadband, our Connect Africa operations are now up and running and our new distribution strategy in Europe is starting to bear fruit. In Mobile Connectivity, we have carved a strong foothold in the maritime segment with some major commercial wins. In the context of a challenged operating environment which continues to weigh on the revenues of our core businesses, the effective execution of our financial strategy has enabled us once again to meet or exceed all our other financial objectives with, notably, a record level of EBITDA margin supported by the successful completion of our LEAP 1 cost-

savings plan, and the attainment of our Net debt / EBITDA target. By leveraging all elements of cash-generation, we produced a further strong rise in Discretionary Free-Cash-Flow, enabling us to exceed our target a year early. Our efforts remain focused on maximizing cash generation, with the two recent successful bond issuances reducing interest by circa €34 million per annum, the reduction of over €70 million in our annual tax burden, and a follow-on cost-savings program aimed at generating additional savings of €20 to 25 million by FY 2021-22. We are setting a new Discretionary free cash flow target with an objective of circa €500 million in FY 2021-22, and enhancing our remuneration policy by maintaining our dividend at 1.27 euros per share and committing to a share buyback program of at least €100 million by end-June 22."



Ultra DTH Signs on the EUTELSAT 65 West a Satellite for Coverage in the Caribbean and the Andean Regions

Ultra DTH Inc. has signed a multiyear, multi-transponder agreement with Eutelsat Americas, a subsidiary of Eutelsat Communications (Euronext Paris: ETL), for capacity on the EUTELSAT 65 West A satellite to support the launch of a white label DTH platform across the Caribbean and the Andean region. Ultra DTH will leverage EUTELSAT 65 West A's Ku-band coverage to reach millions of households in the Caribbean and the Andean territories. Channel aggregation, encoding and ground infrastructure will be provided by United Teleports. Strategically headquartered in San Juan, Puerto Rico, Ultra DTH will rely on a network of key country payTV operators

to commercialize its platform across several markets in the Caribbean and the Andean region. These partner operators will benefit from Ultra DTH's expertise for ease of deployment and expansion within their markets, while retaining the freedom to rebrand the platform to fit the specific demands of each audience. The low-cost service will allow payTV operators to give access to content from across the globe, combining a unique international offering with content in English, Spanish, French, Dutch and Hindi to respond to the diverse demand from the Caribbean islands and Andean region. Ricardo Dias, CEO of Ultra DTH, said that the firm's DTH service will

be able to provide multilingual content to millions of households. By allowing partner operators to create a full range of country specific line-ups, Ultra DTH aims to unlock previously unexplored markets at all price points. Mike Antonovich, CEO of Eutelsat Americas, added that the company is delighted to be joining forces with Ultra DTH to take payTV further in the Caribbean and the Andean region, especially in underserved areas where audiences are eager for content in their native language. This agreement highlights the benefits that satellite can bring to sparsely populated areas with a need for diverse content on a single platform.



Facebook Is Developing a New Messaging App for Instagram Called Threads

Reportedly, Facebook is developing a new messaging app called Threads. It will be tied to Instagram account and is meant to promote constant, intimate sharing between users and their closest friends. The app is designed to be a companion app which automatically invites users to share their location, speed, and battery life with friends, along with more typical text, photo, and video messages using Instagram's creative tools. Too, the app is designed for sharing all the information with your close friends' list on Instagram, are not being tested internally at Facebook. Previously in May, Instagram ceased work on direct standalone messaging app which has been developing since 2017. At that time, the developers told beta testers were frustrated to switch between Instagram and a second app whenever they want to send a message. However, the company remained interested in building new messaging experiences, for instance, Instagram employees who work on messaging were moved to the Facebook Messenger team earlier this year. It is a part of broader consolidation between the parent company and its prized purchased.

A messaging app built around might be quite famous among your close friends. Some reports have indicated that an average snapchat user spends more time inside the app than the average Instagram user does. For Facebook and Instagram which has witnessed Snapchat's strong engagement among younger users. The messaging app Threads could represent another effort to chip away at rival approach, Apart from the automatic sharing, Threads will regularly update your status, giving your friends a real-time view of information about your location, speed, and more. At first, the app will not display your name or your real-time location, instead, it probably says something like a friend is on the move, as per the sources. You would be able to update your status manually, with status appearing in the main feed along with messages. It is the newest effort to automate status sharing using mobile phone sensors and one-tap status sharing. The core of threads appears to be a messaging tool, one very similar to the existing messaging product inside Instagram. Messages from other users appear in the feed along with a green



dot indicating which of your friends are currently active. If your friend has posted a story recently you could also view it from the inside thread as well. Threads has a camera that you can use to capture photos and videos and send them to your close friends.

Facebook Announces New Updates to Enhance Instagram Security

Facebook is announcing two updates to further strengthen Instagram's security and help protect people who use the platform. First is expanding its Data Abuse Bounty program to include Instagram; second is introducing an invite-only bug bounty program for Checkout on Instagram before it expands beyond the US, said a statement. Last April, Facebook launched the Data Abuse Bounty program to help identify potential violations of the platform's policies and reward people who report misuse of Facebook data by app developers. The program is expanding to Instagram, it said. The goal is to help protect the information people share on Instagram and encourage security researchers to report potential abuse so action can quickly be taken. Just like

the bug bounty program, reports will be rewarded based on impact and quality. Since the Data Abuse Bounty is the first of its kind, Facebook continues to welcome feedback on how to help the program improve and grow. The second update is for Checkout on Instagram, which allows people to purchase products directly on Instagram without leaving the app and is currently only available in the US. To continue to ensure this feature's security as it expands globally, a select group of security researchers has been invited to stress test it. As part of their participation, the researchers will receive early access to the feature and receive bounty awards for eligible reports. The researchers who are helping test this feature have previously submitted high-quality research to the

bug bounty program. Since launching the bug bounty program in 2011, Facebook has worked with the security researcher community to help identify and fix potential issues in products and services. This program is one of the longest-running in the industry and has received thousands of bug bounty reports from researchers around the world. Facebook is exploring other opportunities to tap into the expertise of researchers who consistently submit high-quality research to the bug bounty program and invites them to test new features prior to launch. If you would like to be considered for these opportunities, please continue sharing high-quality and high-impact reports, it stated.



Huawei Pushes AI Innovation with Ascend 910 Release

Huawei launched what it claims is the world's most powerful AI processor – the Ascend 910 – as well as an AI computing framework called MindSpore designed to simplify and speed up AI application development. Eric Xu, Huawei's rotating Chairman, said the release of the processor,

which is part of the company's series of Ascend-Max chipsets, marks a new stage in its AI strategy, which it first announced in October 2018. Since then, he said the company has made steady progress, with the Ascend 910 delivering on its performance goals with much lower power

consumption than originally planned. "Without a doubt, it has more computing power than any other AI processor in the world." Speaking at a press event in Shenzhen, Xu said Huawei will continue investing in AI processors to deliver more abundant, affordable and adaptable computing power that meets the needs of a broad range of applications, including edge computing and on-vehicle computing for autonomous driving. AI computing frameworks are critical to speeding up AI application development, making AI applications more accessible and ensuring privacy protection, the company said in a statement. The processor was developed for use in AI model training. The company said the combination of the Ascend 910 and MindSpore will enable about two-times faster training of AI models than other mainstream training cards using Google's TensorFlow. The new processor will be available in China in September and overseas in Q1 2020. MindSpore will go open-source in January.



Huawei Boss Sees Brighter Future Than Feared

The outlook for Huawei's smartphone business is not as pessimistic as founder and CEO Ren Zhengfei forecast back in June, rotating chairman Eric Xu revealed, noting the prediction was a worst-case scenario, with the situation now much better than expected. However, Xu said its handset business, depending on trade issues, could still be reduced by as much as \$10 billion. IDC data showed Huawei increased its market share in the second quarter as its shipments increased 8.3 per cent to 58.7 million units in a falling global market. In China the vendor boosted its market share by nearly 10 percentage points. Xu also noted that despite the latest US export ban reprieve, it is unlikely Huawei will be relieved of the restrictions in the long term. "We know we have to be prepared," he admitted, and the temporary permit won't influence its planned product roadmap. On the sidelines of the event a Huawei representative also confirmed that its 5G gear has been re-engineered to not be subject to any US trade restrictions. Xu explained that despite a global consensus on the need for 5G, operators are taking three very different approaches. The first wave – South Korea and China – are moving ahead with large-scale deployments. The second group is only focused on small-scale rollouts for "branding purposes" and includes

the US, Australia and some countries in Europe. The third is the late-comers in countries where 4G hasn't been fully developed. He took a swipe at Europe, saying it continues "to talk about 5G" while in China "we are doing it".



Huawei Mobile Services Breaks Through 100 Million Active Users Outside of China



From August 9th to 11th, Huawei held its Huawei Developer Conference 2019 in Dongguan, China. HDC 2019 featured a number of key announcements: Huawei Mobile Services now boasts over 100 million users outside of China. In addition, an updated developer engagement program named 'Shining-Star' will be launched along with Huawei DigiX Labs that offers open capabilities for development and testing. Huawei announced the global launch of HMS-Core which provides 14 kits for more than 910k global developers. Besides, a new content partnership for Huawei video is introduced at HDC 2019. "Intelligent connections are the future. Huawei Mobile Services provides a global platform, connecting more than 910K global developers and 100 Million users outside of China", said Jervis Su, Vice President of Mobile Services, Huawei Consumer Business Group. "These connections make a real difference. With the Huawei Mobile Services portfolio, we have been able to show that there is real demand for a more intelligent solution. We are very proud to be able to announce a number of milestone successes for our portfolio." These milestone successes for Huawei Mobile Services for the first half of 2019 include:

- In-App Purchase (IAP) is now available in more than 140 countries.
- The Huawei AppGallery generates 1 Billion+ apps downloads outside of China
- Outside the Chinese market, over 280 Million Themes are being downloaded each year
- Huawei Browser has reached 100% MoM growth since its launch outside of China in March 2019
- Huawei Video will open its WiseVideo capability for content partners to provide optimized video experience for users.
- Huawei Music and Assistant will start its global roll-out from 2019 with top partners.

In keeping the momentum of these results, Huawei announced a new developer engagement program, dubbed 'Shining-Star'. The Project has invested 1 billion USD resources to provide comprehensive support for developers, and create a smart mobile service innovation ecosystem, helping partners to create digital innovation in full scenario, encouraging developers to access Huawei's open capabilities and services, and promoting developers' services in the marketing segment. "Our 'Shining-Star' program is just one of many

ways that Huawei is furthering innovation across the board" comments Alex Zhang, President of Mobile Services, Huawei Consumer Business Group. "We feel that many excellent and innovative ideas are lacking the means to show their true luster. With the new initiative, we hope to transform these specks of light to truly shining-stars. Huawei is determined to help developers reach their true potential. 'Shining-Star' program will complement our new Huawei DigiX Labs." The new Huawei DigiX Labs are going to open in 6 regions in 2019, the first one in Dusseldorf, Germany. In these labs, developers and partners all across the world can test their service remotely, also they can find all resources they need to develop the apps and services of the future. The Labs are equipped with AR, VR, AI, CameraKit, Ability Gallery, HMS core and other open technological capabilities and offer a truly open space for innovative work. The introduction of the HMS-core, a collection of Huawei developer kits support and augment functionality across devices. These kits work together seamlessly to ensure that Huawei devices provide a great user experience right out of the box. The global launch of HMS-core means in the trend of full-scenario intelligent connect. This motivates Huawei to continue boost innovation and bring open-capability to developers. To engage with more partners and boost the partnership ecosystem, Huawei has partnered with the best content providers in the world to offer unique viewing experience to their users. At the Huawei Developer conference, the company signed a new cooperation agreement with Filmin, which will bring their streaming catalogue to Huawei users in Spain. Filmin boasts over 9000 movies, 248 TV series and 400 broadcast partners that guarantee that users never go without entertainment. Through over 400 collections and thematic channels, users can discover new content, with recommendations based on moods or tags.

Huawei Reveals In-House Operating System HarmonyOS

Huawei released its 2018 Sustainability Report. It has published this report for the 11th year in a row. The 2018 report explains Huawei's four strategies for sustainability: digital inclusion, security and trustworthiness, environmental protection, and a healthy and harmonious ecosystem. Over the past year, Huawei has been working to help achieve the UN's Sustainable Development Goals (SDGs), build a sustainable and more inclusive ecosystem with its industry partners, and execute its own sustainability strategies. At the launch event for the report, Liang Hua, Chairman of Huawei, said, "Huawei has been creating value for its customers through innovation. We are doing everything we can to bridge the digital divide and meet the world's needs for connectivity," Liang continued, "We want to make digital services more affordable and equally accessible to all, and to do

our part in contributing to social and economic development." Liang explained that environmental protection is also a key component of Huawei's sustainable development initiatives. Liang added, "Energy efficiency has become a major consideration for future communications networks. We have to use less energy to transmit more data, and reduce the overall energy consumption of power systems. ICT technologies can help." Liang explained that Huawei has made many innovations in the course of its 5G research, product development, and engineering. Huawei has managed to reduce the power consumption per 5G site to 20% less than the industry average. This has been made possible by the new Huawei chipsets, system software, professional services, and advanced hardware and heat dissipation technologies. These innovative technologies have made Huawei's 5G more

energy-efficient. With the right solutions, Huawei's 5G will be a green technology. Kevin Tao, Board Member and Chairman of Sustainable Development Committee of Huawei, remarked, "We want to bring the benefits of digital technology to every person, home, and organization. To this end, we have launched a global digital inclusion initiative called TECH4ALL. For example, our RuralStar solution has connected 40 million rural residents as of the end of 2018." Tao added, "We currently provide communications services to over three billion people around the world, and we are committed to supporting secure network operations worldwide. We honor this commitment no matter what. For example," he said, "In 2018, after a magnitude 7.7 earthquake hit Indonesia, Huawei was the first and the only vendor to the scene." Tao also announced Huawei's new sustainability strategies, which include two major changes. First, Huawei has expanded its strategy of bridging the digital divide into a digital inclusion strategy. Building on connectivity, the company is now also paying more attention to applications and skills. Second, its strategy of supporting stable and secure network operations and protecting user privacy has been upgraded into the "security and trustworthiness" strategy. Huawei incorporates sustainability in everything it does – in its innovation, value creation, and value sharing with its partners – so that it can deliver greater business value and social value. Looking forward, Huawei will work even harder and do its part in building a better, sustainable future.



Algar Stages 3.5GHz 5G Test with Huawei

Brazilian regional operator Algar Telecom has staged a 5G trial in association with Chinese vendor Huawei and the Universidade Federal de Uberlandia (UFU). According to the telco, the tests utilized

3.5GHz spectrum, after the issuance of a trial license by the National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel). For testing purposes, Huawei provided Algar with its

Huawei Mate 20X 5G smartphone, which is not yet commercially available. Download speeds surpassed 1Gbps, while upload speeds reached 114Mbps.

Huawei Joins Paris Call for Trust, Security in Cyberspace

Huawei Technologies has joined the Paris Call, a declaration aimed at spurring collective action toward securing cyberspace. In becoming a Paris Call member, Huawei joins 564 other entities who have made a public commitment to strengthening the security of digital products and digital systems. The group's members include 67 states, 139 international and civil society organizations, and 358 private-sector companies. Launched by the French government in November 2018, the Paris Call is a declaration of commitment to work collaboratively on one of the world's most challenging issues. Members work together to make digital products more secure, strengthen collective defenses against cybercrime, and promote cooperation among stakeholders across national borders. They also pledge adherence to international norms of responsible behavior in cyber space. As a leading provider of information and communications technology, Huawei invests heavily in research aimed at making our products and solutions as secure as possible, and is committed

to ensuring security for all customers and users. "The quest for better security serves as the foundation of our existence," said John Suffolk, Global Cyber Security & Privacy Officer at Huawei. "We fully support any endeavor, idea or suggestion that can enhance the resilience and security of products and services for Governments, customers and their customers. We support global collaborative action on improving defenses against cybercrime, including openness, transparency and internationally agreed standards". As a

member of the Paris Call, we will advocate zealously for the universal adoption of objective testing and verification standards for all technology vendors. By relying on objective third-party standards to test the security of technology made by any vendor, we can ensure that decisions about security are based on facts, rather than emotions or political rhetoric. Huawei will work with governments, other private companies, and civil society to promote capacity-building measures that make the digital world more secure.



NOKIA

Nokia Anticipates That Brazil's 5G Auction Will Be World's Largest

Nokia's CTO for Latin America believes that Brazil's impending auction of 5G-ready spectrum will be the world's largest. In an interview with Reuters, Nokia's Wilson Cardoso noted that Brazil was the vendor's largest market in the continent and claimed that Brazil had the "political will to carry out a large spectrum auction" in Q1 2020. He noted that Nokia was hotly anticipating 5G's debut in Brazil. The country's regulator Anatel is currently finalizing the licensing process, having in May allocated 2.3GHz and 3.5GHz frequencies for 5G. The 26GHz

and 700MHz frequencies meanwhile will facilitate the ultra-reliable and low latency communications required for industry. These latter frequencies were described by Cardoso as the "crown jewels". He has previously stated his belief that 5G's greatest impact in Latin America will be on industry, including agriculture, mining, and energy such as smart grids. Nokia is working in these sectors with partners in Brazil and Chile, and conducted 5G trials with Brazil's TIM Participacoes in February last year. If Anatel opts to put all four

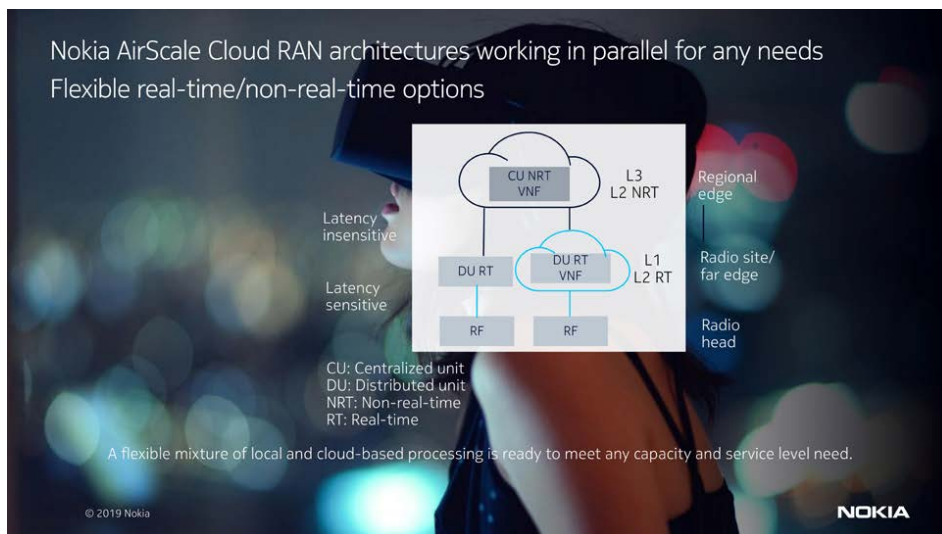
frequencies up for bidding in March 2020, Cardoso noted that it would be the world's largest 5G auction yet. The regulator is also cooperating with other vendors, including Ericsson and Huawei, although Cardoso was confident that the Chinese vendor in particular could lose out due to the widely-known security concerns over its equipment. He referred to Nokia as "the western alternative to Huawei's products and their direct competitor, as our end-to-end portfolios are quite compatible."

Nokia Takes 5G Cloud RAN Live, Works to convert vRAN Skeptics

Nokia this week boasted what the vendor said is the world's first commercially deployed cloud-based 5G radio access network (RAN), which went live in North America. Among major global RAN vendors, Nokia has been at the forefront of advocating for virtual RANs for some time, said Global Data principal analyst Ed Gubbins in comments emailed to FierceWireless. Gubbins noted Nokia's vRAN position forms a sharp contrast to others, specifically Huawei, which has publicly questioned the value proposition for vRAN. "There's still a lot of skepticism surrounding vRAN among operators globally," Gubbins said. "Nokia has its work cut out for it in terms of convincing operators to embrace this concept." Earlier this year speaking at MWC 2019

in Barcelona, T-Mobile CTO Neville Ray said the RAN has become increasingly complex in the past several years, making it particularly challenging to disaggregate hardware from software in the RAN to achieve virtualization. While Gubbins didn't have specific information about Nokia's newly announced 5G cloud RAN deployment, he indicated additional similar moves could help the Finnish vendor in its efforts to get operators on board with vRAN. "The more Nokia can tout real-world operator activity like this – plus its trials with Orange last year, and even its participation in the Rakuten vRAN network in Japan – the more it may persuade operators and then benefit from the credibility it's earned in this area," Gubbins said. In a blog post sharing the

announcement, Mark Atkinson, head of the 5G & Small Cells Business Unit within Nokia Mobile Networks Business Group, attributed the 5G milestone to the Nokia's cloud base station, "which splits traffic to ensure each connection gets the service it needs." Nokia's AirScale distributed units process time-critical functions at the cell site close to the radios, connected by Ethernet fronthaul, while non-real-time functions are performed fully virtualized by the centralized control unit in a centralized data center, Atkinson described. "This flexible mix of local and cloud-based processing a real game changer," wrote Atkinson, noting Nokia's cloud RAN offering supports centralized and distributed deployments that run Virtualized Network Functions (VNFs). "This means that we can combine performance, scalability and efficiency at its best – in the radio unit (RU), distributed unit (DU) and centralized unit (CU)," wrote Atkinson. Gubbins noted that Nokia's efforts in the vRAN space have given the company a level of thought leadership on the topic among major RAN vendors, and said smaller vRAN vendors like AltioStar and Mavenir also have a lot of credibility. Earlier this year, analyst Iain Gillott, founder of iGR Research, told FierceWireless he believes there will be scenarios where multiple vRAN vendors coordinate, with smaller firms providing software solutions and larger players like Nokia and Ericsson providing network integration and management.



Nokia Appoints Gabriela Styf Sjöman as Chief Strategy Officer and Member of the Nokia Group Leadership Team

Nokia's 5G "factory of the future" in Oulu, Finland was selected by McKinsey and the World Economic Forum as an Advanced 4th Industrial Revolution (4IR) Lighthouse, reflecting leadership and proven success in adopting and implementing 4IR technologies at scale. Leveraging Nokia technologies to digitalize its own pre-production facility demonstrates Nokia's ability to digitally transform and modernize its customers' manufacturing facilities for Industry 4.0. Designed to showcase Industry 4.0 concepts for the

manufacturing of Nokia 4G and 5G base stations, the "factory of the future" in Oulu leverages Nokia's private (4.9G/LTE) wireless networks for secure and reliable connectivity for all assets within and outside the factory, IoT analytics running on Edge cloud, and a real-time digital twin of operations data. The factory, which produces 1,000 4G and 5G base stations per day, generated significant annual improvements, including more than 30 percent productivity gains, 50 percent savings in time of product delivery to

market, and an annual cost savings of millions of euros. The Lighthouse program, conducted in collaboration with McKinsey, includes select Lighthouse factories that are transforming work to make it safer, less repetitive, diversified and productive. Nokia was selected as a Lighthouse by an expert panel based on its implementation of 4IR technologies that drove financial and operational impact in the Oulu factory. As part of the Global Lighthouse Network, Nokia will collaborate with other world leaders to share knowledge and

best practices to help enterprises and manufacturers adopt the technologies of the future, and overcome key challenges enterprises face during their digital transformation journeys. Kathrin Buvac, President of Nokia Enterprise and Chief Strategy Officer, said: "We are paving the way for enterprise customers to realize the vision of Industry 4.0 and industrial automation by applying our technology to our manufacturing needs. For our Oulu 5G facility, we created a 'factory of the future' environment leveraging private wireless networks for reliable and secure in-factory connectivity, edge cloud and

NOKIA

"With its broad portfolio and innovative technology, Nokia is well positioned to help its customers realize the full potential of 5G, and I look forward to being part of further strengthening Nokia in this 5G journey."

Gabriela Styf Sjöman
Chief Strategy Officer and member of the Nokia Group
Leadership Team, effective December 1, 2019



PCCW Global

HBO Asia and Viu Announce Second Season of Endemol Shine Group's The Bridge

Viu, a leading pan-regional OTT video service from PCCW Media Group, and HBO Asia jointly announce their partnership in the second season of Viu Original's The Bridge, which will begin shooting its second 10-episode season this year and will be simulcast on Viu and HBO Asia's channels and services in early 2020. Loosely based on the second season of the original series, season two will pick up one year after where the story ended in season one. A yacht registered in Singapore drifts ashore in Johor with a deceased Indonesian family on board. Investigating the slew of serial killings that ensue, the characters become mired in a web of treachery, deceit and personal tragedy. Mr. Jonathan Spink, Chief Executive Officer of HBO Asia, said, "HBO Asia is delighted

to once again partner with Viu and PCCW Media Group on the second season of The Bridge. This series, an Asian adaptation of the successful licensed format, which is produced in association with Viu, will complement our growing slate of HBO Asia Original productions that are available to a global audience." Ms. Janice Lee, Managing Director of PCCW Media Group, said, "Our partnership with Endemol Shine and HBO Asia on the second season of The Bridge is taking our collaboration to a higher level. We are excited to extend on the success of the first season with a storyline that resonates with audiences in Asia and take it even further by adding new elements." Ms. Rashmi Bajpai, Executive Director Asia of Endemol Shine International, said, "We are thrilled about Viu's faith in renewing

The Bridge. It has been a stellar example of knitting together the nuances - culturally, creatively and commercially to produce a drama that has worked in a diverse region. The commissioning of the second season reinforces our belief in the potential of scripted formats in Asia and we hope this will pave the way for many more co-productions." The Bridge is licensed from global producer and distributor Endemol Shine Group. Viu is also working with longtime partner Double Vision to produce season two, as it did with the first season. The second season will be available on Viu in all its markets as well as on HBO Asia's network of channels and services, including HBO, HBO GO and HBO ON DEMAND, across 24 territories. The Bridge was originally created and written by Hans Rosenfeldt as a joint production of Sweden's Filmlance International, part of Endemol Shine Group and Denmark's Nimbus Film. The Bridge (Bron/Broen) was produced in co-production with Sveriges Television, DR, ZDF German Television network, ZDF Enterprises GmbH, Film i Skåne, NRK, Copenhagen Film Fund, Lumiere Group, Stiftelsen Ystad Österlen Filmfond, Norvison and in co-operation with Malmö Stad. It has aired in more than 188 territories/countries and spawned localized remakes in the U.K/France, the United States/Mexico, Germany/Austria, Russia/Estonia and Serbia/Croatia.



PCCW Global and Mauritius Telecom Collaborate to Launch Island's First Mobile Payment Solution

Mauritius Prime Minister, Pravind Jugnauth, has launched the Indian Ocean island nation's first national mobile payment solution in the capital city Port Louis. Based on the proven Tap & Go mobile payment service in Hong Kong, Mauritius Telecom's my.t money is a mobile payment solution provided by PCCW Global, the international operating division of HKT, Hong Kong's premier telecommunications provider. Mauritius Telecom's my.t money mobile payment solution helps to close the digital divide by facilitating both payment and non-payment transactions through a mobile application platform that offers a rich digital lifestyle experience beyond traditional payment services. Key elements of a cashless society can be integrated into the platform, including education, commerce and finance, transportation and government social welfare initiatives. In addition, the service has the ability to address the "unbanked" portion of the population with accessible financial services and applications that run on both modern and older phones and networks. Speaking of his company's vision in launching this service, Mr. Sherry Singh, Chief Executive Officer of Mauritius Telecom, said, "In terms of vision and ambition, Mauritius Telecom is not just launching another service. We intend to positively disrupt the payments industry. my.t money seeks to make payment fast, simple and fun. 200,000 customers have already signed up and at launch we already have 1,000 merchants and more than 200 loyalty partners." The market-proven Tap & Go mobile payment service upon which my.t money is based was first launched in Hong Kong in 2015 by HKT Payment Limited, an affiliate of PCCW Global and a holder of a Stored Value Facilities license granted by the Hong Kong Monetary Authority. PCCW Global's experience and expertise in the development and launching of mobile payment services

was made available to Mauritius Telecom both prior to, and during, the development of my.t money, which greatly assisted in ensuring a smooth and efficient product development process. The solution itself is cloud-based with local hosting for sensitive customer data, while mobile apps and the payment engine can be localized or delivered internationally. The my.t money chip card is compliant with the Europay Master and Visa (EMV) security standard and the solution design follows best practice security standards. In addition to Tap & Go mobile payment service, PCCW Global will also provide international network connectivity, system installation and integration, supply of Point of Sale (POS) equipment, and the management of native cloud applications to Mauritius Telecom. The IT environment is also specifically compliant with General Data Protection Regulations (GDPR). For greater resilience, reliability and remote support purposes, the my.t money service is also connected to PCCW Global's advanced

international network which spans 160 countries and has Points of Presence (PoPs) located in cities throughout Europe, Asia, Africa and the Americas. The network is further complemented by 188 worldwide wholesale partners that expand network reach to even more locations. PCCW Global has recently assisted numerous worldwide customers to implement digital transformation initiatives, including international connectivity, FinTech, smart cities, smart buildings, Internet of Things, Big Data Analytics, cloud, and orchestration projects. Mr. Marc Halbfinger, Chief Executive Officer of PCCW Global, said, "When combined with a high-speed, robust and secure global network, our FinTech experience in Hong Kong places us in an ideal position to work with ICT service providers in rolling out cutting-edge mobile payment solutions anywhere in the world. It is exciting to think of all the new possibilities and opportunities this service can bring to a connected world."

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Umniah Signs an agreement With Jordan University of Science and Technology to Offer Courses in Cybersecurity

Umniah, a subsidiary of Batelco Bahrain and a pioneer in the field of managed security services and Cybersecurity, signed a memorandum of understanding with the Jordan University of Science and Technology (JUST) that will see Umniah offering free specialized training courses in Cybersecurity to the university's students as well as new graduates - a first in the Kingdom. The signing agreement between Umniah CEO Ziad Shatara and JUST President Dr. Saeb Khreisat took place at JUST headquarters in Irbid, and also saw the attendance of senior personnel from both sides. This latest initiative by Umniah, which is directly in line with its corporate social responsibility strategy, seeks to instruct university students and fresh graduates, free of charge, in the field of Cybersecurity, preparing them for international accreditation certificates in order to supply the Jordanian and regional market with specialized and qualified personnel in this area of specialization. According to this agreement, Umniah's experts and its specialized team in Cybersecurity will train JUST students through workshops that merge practice with theory, with the aim to sign similar agreements with other Jordanian universities. Speaking at

the signing ceremony, Umniah CEO Ziad Shatara said that he valued the high level of confidence that JUST has in Umniah's innovations in the field of Cybersecurity. He went on to add that the company will share its cutting-edge Cybersecurity knowledge with students who seek to build and strengthen their capacities, contributing to supplying the regional job market with needed expertise. Shatara noted that these courses will also support government efforts aimed at providing the infrastructure as well as the legal and legislative environment in the field of Cybersecurity. He noted that last June, the government approved the Cybersecurity Law, which protects against the Cybersecurity threats and builds national capacities to confront dangers facing information systems and infrastructure. Also at the ceremony, JUST President Dr. Saeb Khreisat spoke of the value the university places on its partnership with Umniah. He added that the exchange of expertise will allow JUST graduates to advance in the field of Cybersecurity. According to Dr. Khreisat, this cooperation is in line with the university's objectives of forming partnerships between academic and business sectors, which will, in turn, reflect positively on the development of

the educational process at the university. Dr. Khreisat said that Umniah's excellent reputation and its pioneering role in Cybersecurity, is a trustworthy partner, noting that the specialized courses will contribute to providing and maximizing the scientific and practical experiences of JUST students. The partnership will also qualify graduates for high-level knowledge jobs in the Jordanian market. Umniah implemented its first 40-hour training course for JUST students, offering a variety of subjects in Cybersecurity. The students with the highest grades at the end of the course were offered fully paid internships by the Umniah in cooperation with the Jordan Engineers Association. Umniah, through its Security Operation Center (SOC), which was awarded the international standard for information security management (ISO27001), performs around-the-clock monitoring and follow-up of gaps in the information systems structure for companies and institutions and provides various solutions to close security gaps. The center also works to reveal and counteract anticipated threats, offering the highest levels of protection for data and at low costs and a high level of reliability.





SES Pioneers Cloud Based Network Automation and Service Orchestration

SES announced it will create an open, standards-based network automation and service orchestration platform, built on Open Network Automation Platform (ONAP) and powered by Amdocs' network functions virtualization (NFV) technology. With today's announcement, SES is the first satellite network solutions provider to adopt ONAP, an open software platform designed for orchestrating the creation and delivery of new services in an automated operational environment. SES is implementing ONAP with Amdocs on Microsoft Azure, the industry's scalable and flexible cloud services platform supported by Microsoft's expansive global network. With ONAP operating on Azure, SES can extend network services and activate virtualized network functions quickly and at scale, accelerating time-to-market and improving service agility for customers anywhere on the globe. In addition, SES is partnering with Amdocs, a leader in developing and integrating ONAP solutions on Microsoft Azure. Together, Amdocs and Microsoft represent best-in-class ecosystem partners to deploy open, cloud-based network automation and orchestration. As the first satellite network solutions provider to adopt ONAP, SES is continuing its leadership in



driving open networking initiatives into the satellite industry, advancing its vision to make satellite networks a seamless extension of the global communications ecosystem. SES is a founding member of Linux Foundation Networking (LFN), which hosts the ONAP project, an initiative with widespread adoption as the preferred platform for open network automation and orchestration. By standardizing on the same orchestration platform as leading telcos and mobile network operators, SES will make it easier and faster for its customers to deliver services over its high-performance satellite-based network. "Our vision is to make satellite-based networks

a seamless and wholly integrated part of a global, cloud-scale network ecosystem. Central to this vision is an open, automated operational environment that allows our customers to easily create and deliver new, innovative services anywhere," said JP Hemingway, CEO of SES Networks. "To make our vision a reality, we are pleased to be the first satellite operator to develop ONAP with Amdocs on Microsoft Azure. SES envisions delivering cloud-scale connectivity services and virtualized network functions such as SD-WAN, virtualized Evolved Packet Core (vEPC), security and more, creating massive value for our customers well into the future."



Syniverse and LG Uplus Collaborate to Offer first 5G Roaming Service between Korea and Finland

Syniverse, the world's most connected company, announced it is working with LG Uplus to offer a 5G roaming service with mobile operators around the world. As part of this, mobile customers of LG Uplus from Korea will be able to access Elisa's 5G services while traveling abroad in Finland. LG Uplus recently completed the world's first commercial testing of 5G roaming in Finland. Elisa Finland's 5G network is now available for LG Uplus customers, and 5G roaming service has been available on this network by LG Uplus since July 19. LG

Uplus, in partnership with Elisa, Finland's leading wired and wireless operator with more than 6 million subscribers, provides 5G roaming service to its customers using LG Electronics V50 ThinQ smartphone at 5G data speeds in Finland. LG Uplus has launched the world's first commercialized 5G service in Korea and is leading in wireless and wired technology with 13 million subscribers. Syniverse is using its IPX Network as a core solution to enable LG Uplus' 5G roaming service. The solution reduces complexity and delivers end-to-

end quality of service to ensure roaming and interworking for mobile services, with a secure and reliable network connected to more than 750 mobile operators in over 150 countries. Syniverse's work with LG Uplus on its 5G roaming service builds on a long history of collaboration in which Syniverse has helped enable LG Uplus to go-to-market with other industry firsts, such as voice over LTE (VoLTE) roaming service. LG Uplus plans to actively collaborate with other mobile operators around the world to gradually expand the number of countries

where LG Uplus mobile users can enjoy seamless 5G roaming services. 5G service is rapidly becoming more prevalent around the world, which now includes more than 24 commercial service launches from mobile operators. The Syniverse IPX Network and Diameter Signaling Service will serve as the bridge between 4G LTE and 5G since the two technologies will have to interoperate for many years to come. Syniverse provided active mediation services to allow a 4G mobile network, not fully 5G enabled, to launch 5G roaming to 5G ready markets, thereby providing

the critical 4G to 5G interoperability required for such roaming. Syniverse has also launched a 5G roaming hub and 5G signaling service to help mobile operators launch more advanced services based on the 5G stand-alone architecture. Enabling cross-network 5G roaming for mobile users is the first step in delivering on the promise that 5G will ultimately foster larger ecosystems of industries and market sectors. A global survey by Heavy Reading shows that 59% of mobile operators expect to shift focus from subscribers to these business ecosystems. In addition,

77% said they expect to offer advanced 5G business services, which will power such innovations as smart cities, smart driving, healthcare systems, factory operations, and virtual reality broadcasting. Syniverse offers a network readiness service for 5G as part of its Global Services product portfolio. Through its 5G Network Readiness Services, Syniverse evaluates a mobile operators' network capabilities and their roaming partners to ensure seamless availability of 5G services for mobile users when roaming.



Tech Mahindra and BlockApps Partner to Accelerate Adoption of Blockchain Business Networks Globally

Tech Mahindra, a leading provider of digital transformation, consulting and business reengineering services and solutions, and BlockApps, the leading enterprise blockchain platform provider, have announced a partnership to accelerate the adoption of blockchain business networks. Demand for enterprise blockchain networks is at an all-time high as companies are beginning to see the value in the immutability and transparency created by the blockchain; however, current adoption has been limited by the challenge of bringing data from existing systems onto blockchain. To solve this issue, BlockApps will be leveraging Tech Mahindra's extensive experience helping companies with digital transformation and the companies will be sharing resources to assist clients with integrating the BlockApps STRATO blockchain platform product and ensure a seamless experience. Rajesh Dhuddu, Global Practice Leader, Blockchain, Tech Mahindra, said, "Enterprises across the world are proactively seeking new ways of incorporating blockchain technology in their legacy systems. Through Tech Mahindra's partnership with BlockApps, we have simplified this process, enabling companies to transform their legacy systems into a blockchain-based business network without disruption."



BlockApps STRATO, the first Blockchain-as-a-Service platform, allows for the creation of blockchain solutions across all industry verticals. Built on proven Ethereum protocols, it also provides core enterprise features, such as flexible API (Application Program Interface) integration capabilities, high transaction performance, and the capability to query and report on blockchain data using a traditional business tools. Kieren James Lubin, CEO of BlockApps, said, "As we continue to launch blockchain business networks across industries such as agriculture, supply chain and entertainment, we have seen a clear need to communicate with the systems enterprises already

have. By working with Tech Mahindra, we can make this process easier than ever, while helping companies preserve existing investments." The new blockchain partnership is in line with Tech Mahindra's TechMNxt charter, which focuses on leveraging next generation technologies and solutions to disrupt and enable digital transformation, and to build and deliver cutting-edge technology solutions and services to address real world problems to meet the customer's evolving and dynamic needs. Blockchain has been a key initiative for Tech Mahindra and it is the company's aspiration is to become one of the most admired blockchain companies in the world.

Tech Mahindra Q1'20 PAT Up 6.8% YoY, Revenue Up 4.6% YoY

Tech Mahindra Ltd., a specialist in digital transformation, consulting and business reengineering services announced the audited consolidated financial results for its first quarter ended June 30, 2019.

Financial highlights for the quarter (₹)

- Revenue at ₹ 8,653 crore; up 4.6% YoY
- EBITDA at ₹ 1,314 crore; down 3.2% YoY;
- Margins at 15.2%; down 120 bps YoY
- Profit after tax (PAT) at ₹ 959 crore; up 6.8% YoY
- Earnings per share (EPS) was at ₹ 10.98 for the quarter ended June 30, 2019
- Free Cash flow for the quarter stood at ₹ 598 crore
- Cash conversion to PAT at 62.3%

Financial highlights for the quarter (USD)

- Revenue at USD 1,247.1 mn; up 1.9% YoY
- Revenue growth at 3.7% in constant currency terms
- Digital revenues grew 37.4% YoY, at 36% of Revenues
- EBITDA at USD 190.0 mn; down 4.8% YoY
- Consolidated PAT at USD 138.7 mn, up 5.2% YoY

Other Highlights

Total headcount at 125,773; up 4,691 QoQ CP Gurnani, Managing Director & Chief Executive Officer, Tech Mahindra said, "We are very encouraged to see TCV deal wins worth close to half a billion USD

across Enterprise and Communications. We remain optimistic on the demand environment, evident from a very strong pipeline and deal conversions. Digital will continue to be a primary growth driver underscoring our collaborative approach through TechMNxt platform." Manoj Bhat, Chief Financial Officer, Tech Mahindra said, "Business seasonality has affected revenue and margins this quarter. Our focus on automation and AI will help realize operational efficiencies as we look to accelerate growth through the year."

Key Wins:

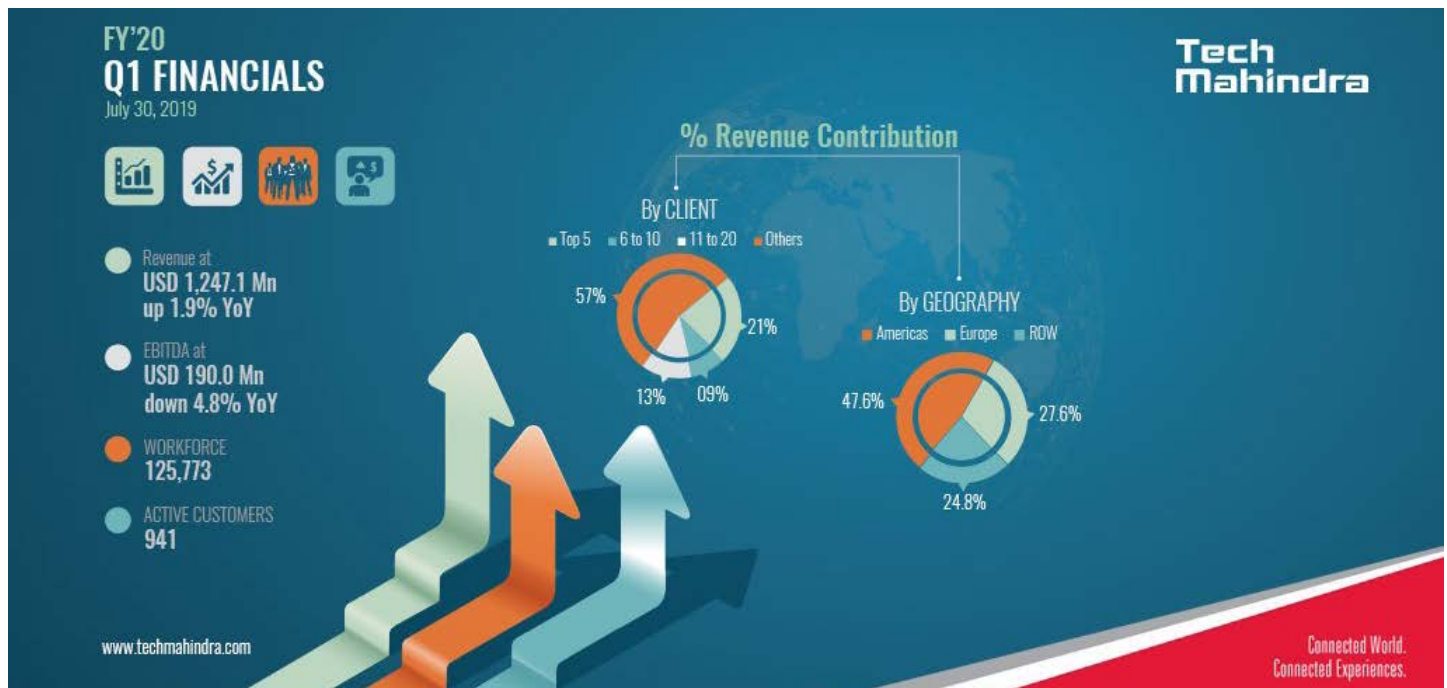
- Engaged by one of the Canadian multinational mass media firm to modernize and transform their next generation network infrastructure.
- Selected by one of the fastest growing wireless provider in Mexico for driving enhanced customer experience.
- Selected by a Japanese ICT Provider company for migration of SAP ECC to S4Hana.
- Signed a deal with a leading water treatment manufacturer to assist in their digital transformation journey through modernization of infra, apps & security.
- Engaged by a leading Telecom Operator to provide end to end customer experience transformation.
- Tech Mahindra has won a deal with a health insurance organization to provide

application portfolio transformation across various business units and technologies.

- Selected by Indian Navy to create an RFID-based secured digital access control system.
- Engaged by a leading aviation engine manufacturer for improving their manufacturing and supply chain processes leveraging artificial intelligence.
- Tech Mahindra has won a deal with Baltic telecom operator for their digital application transformation program.
- Chosen by an APAC based Insurance and Banking major to support and maintain the data ecosystem across business units, leveraging TechM's analytics platform solutions.
- Selected by a leading cognitive solutions and cloud platform company as the infrastructure managed services partner for their cloud platform as well as for build-up and deployment of power infrastructure.

Business Highlights:

Tech Mahindra and Prometeia collaborate to provide governance, risk and compliance services to banks helping them respond effectively to the evolution of business and investment strategies in dynamic market scenarios in line with Basel III framework. Tech Mahindra and K2View enter into a strategic global alliance to accelerate



digital transformation for enterprises by enabling them access to real-time data via a single, secure, seamless platform, reducing project's cost by 60%.

Tech Mahindra and IIT Kanpur collaborate to address future cyber security challenges by developing and fostering an environment to deal with automation in cyber security and bringing real world industry exposure to IIT Kanpur students to find suitable solutions.

Tech Mahindra inaugurates Technology Center in St. Louis, Missouri with a focus on innovation in next-gen technologies and help create a future-ready digitally skilled local workforce.

Tech Mahindra and Strands collaborate to provide customized digital banking solution to financial institutions globally by providing data-driven analytics of user behavior.

Tech Mahindra and MKI collaborate to

develop next generation digital enterprise solutions in the Japanese Market.

Tech Mahindra introduced K2, the first Human Resource (HR) Humanoid, for its Noida Special Economic Zone Campus in Uttar Pradesh, India. K2 will take over the routine HR transactions to provide constant assistance to the HR team in creating an enhanced employee experience.

Awards and Recognitions:

- Tech Mahindra's New Age Delivery wins in the best use of AI in software delivery lifecycle category at the eighth Global customer engagement awards.
- Tech Mahindra's CSR arm, Tech Mahindra Foundation won ET Rotary CSR awards.
- Tech Mahindra recognized with the Golden Globe Tigers award 2019 as a 'Dream company to work for' and an 'Organization with innovative HR practices'.

- Tech Mahindra received the Malaysia best brand award for 'Innovation in career development' and 'Excellence in HR through technology'
- Tech Mahindra received the 2019 Microsoft Supplier Program (MSP) sustainability excellence award.
- Tech Mahindra has been listed in the inaugural Forbes list of America's best-in-state employers 2019.
- Tech Mahindra recognized as winner for 2019 Microsoft partner of the year award for providing outstanding solutions and services in Media and Communications segment.
- Tech Mahindra bagged the Business World digital India awards 2019 in the best Public services initiative category for its project 'JSCL-ICT solid waste management solution'.
- Tech Mahindra won the People first HR excellence awards 2019.

Tech Mahindra to Enable Digital Transformation for Aakash Educational Services



Tech Mahindra, a leading provider of digital transformation, consulting and business re-engineering services and solutions has announced a strategic tie-up with, Aakash Educational Services Ltd. (AESL), a national leader in test preparation services, to manage digitization of its IT operations including infrastructure, data center and applications. As part of the three-year contract, Tech Mahindra will provide support to AESL's digital transformation journey by implementing a comprehensive automation model for digital support and maintenance. Sujit Bakshi, President, Corporate Affairs & Business Head APAC, Tech Mahindra, said, "Education plays a definitive role in nurturing skills that will

define the workforce of the future. With quality coaching and techniques, Aakash Educational Services has been a pioneer in the country's education sector. We are delighted to be partnering with them to accelerate their digital transformation. Tech Mahindra's proven expertise and wide array of digital solutions and offerings with help Aakash deliver superior connected experiences to its students." The digital transformation journey at AESL involves redesigning of traditional processes to support business functions and website revamp. This will be accompanied by automation of the entire customer interaction journey including purchase and course specific registration that will

be enabled by a robust e-Commerce platform at the backend. Further, a mobile application for students will be offered to provide all the information pertaining to their attendance, fees, course etc. Aakash Chaudhry, Co-Promoter & CEO of Aakash Educational Services Ltd. (AESL) and Founder & Trustee of Plaksha University, said, "In this fast-changing world, we are putting our best foot forward by investing heavily in technology, so that we constantly improve our offerings to students and increase efficiencies. AESL's digital transformation will be triggered with the implementation of digital-enabled solutions, right from automation of student journey touch-points. This will take user experience to the next level. The option of online payment gateways will be another significant convenience for our users. AESL's website will also be undergoing complete overhaul with latest digital solutions offered by Tech Mahindra." As part of its TechMNxt Charter, Tech Mahindra is focused on leveraging next gen technologies to cater to the customer's evolving and dynamic needs. As a leading digital transformation company, Tech Mahindra continues to deliver tangible business value and experiences to solve real business problems.

Tech Mahindra and Qualcomm Collaborate to Offer Smart City Solutions Globally

Tech Mahindra, a leading provider of digital transformation, consulting and business reengineering services and solutions announced its collaboration with Qualcomm Technologies, Inc. a subsidiary of Qualcomm Incorporated to offer smart city solutions globally. The 'Smart City Accelerator Program' launched by Qualcomm Technologies in April, is aimed at connecting cities, government agencies and enterprises with service providers offering Qualcomm Technologies-based smart city solutions. Manish Vyas, President Communications Business, Tech Mahindra, said, "Tech Mahindra is committed to develop innovative solutions by leveraging next generation technologies to devise and manage smart solutions for cities, local governments, enterprises and industries. We are excited to partner with Qualcomm Technologies as part of their 'Smart City Accelerator Program' to ensure the development and deployment of cutting edge Smart Cities solutions globally." The Qualcomm Smart Cities Accelerator Program hopes to accelerate the transformation of smart urban infrastructure and services for the 21st century. Its members represent a breadth of hardware and software providers, cloud solution providers, system integrators, design and manufacturing companies, as well as companies offering end-to-end solutions with Smart Cities in mind. With Tech Mahindra's digital transformation

capabilities and pedigree of establishing many smart cities in Asia, Tech Mahindra as the system integration partner will help roll out Smart City solutions. Sanjeet Pandit, Senior Director of Business Development and Head of Smart Cities, Qualcomm Technologies, Inc., said, "Tech Mahindra is a global system integrator and leader of innovative smart city and IoT solutions. "The Qualcomm Smart Cities Accelerator Program provides a central hub for smart cities solutions across regions and verticals, and we are pleased to see Tech Mahindra participate as the leading system integrator in our program." Tech Mahindra's business applications span the spectrum of needs for Smart Cities including smart parking, smart energy management, smart street lighting, and smart automated meter reading. These

solutions, combined with Tech Mahindra's global Managed Services capabilities and industry leading ecosystem of partners, allows Tech Mahindra to provide value to Cities seeking to enrich their infrastructure requirements in areas such as: measuring and reducing energy usage across buildings, enhancing the citizen experience via smart mobility applications and preventing vandalism and theft. As part of the TechMNxt charter, Tech Mahindra is focused on leveraging next generation technologies and solutions to disrupt and enable digital transformation, and to build and deliver cutting-edge technology solutions and services to address real world problems to meet the customer's evolving and dynamic needs.



Tech Mahindra Launches GAiA 2.0 to Expedite Adoption of Artificial Intelligence & Machine Learning by Enterprises

Tech Mahindra Ltd. a leading provider of digital transformation, consulting and business re-engineering services and solutions, announced the release of GAiA 2.0, the latest version of its Enterprise Artificial Intelligence (AI) & Machine Learning (ML) lifecycle management platform GAiA, powered by Acumos. GAiA 2.0 will enable comprehensive AI and ML driven platform capabilities and services to be deployed across mainstream, optimizing enterprise operations in real

time across industry verticals. It offers an enriched marketplace of models and numerous features to empower enterprises across industry verticals to build, manage, share and rapidly deploy AI and ML driven services and applications addressing critical business problems. Manish Vyas, President, Communications, Media & Entertainment Business, and CEO, Network Services, Tech Mahindra, said, "GAiA 2.0 is a reinvention based on insights and feedback received for the initial version. We have

now incorporated features such as Jupyter Notebook Integration, AutoML support, Model Validation, Security and Governance that add extremely high value to business transformation journey of an enterprise, by unlocking and delivering superior connected experiences. Tech Mahindra with proven expertise in leveraging digital technologies will help foster collaborative innovation by democratizing Artificial Intelligence and Machine Learning." GAiA 2.0 supports most of the commonly used

AI/ML development frameworks & toolkits including Python, Sci-kit learn, H2O-Java, R, Tensorflow and Keras. Tech Mahindra will also offer numerous professional services to help enterprises realize AI/ML objectives, including Platform Setup & Deployment, Features Customization, As part of its TechMNxt charter, Tech Mahindra continues to design new GAIa features to leverage next generation technologies like support for additional ML frameworks,

Model training Enhancements, Data pipelines & Notebook Enhancements, Support for ONAP, API-fication for Model-as-a-service and Platform-as-a-service capabilities. Jamil Chawki, Intrapreneur CEO, Orange AI Marketplace and Chairman of LF AI Outreach Committee, said, "The availability of vendor enterprise grade solution is a key element to accelerate the adoption of LF AI open source projects. GAIa, powered by the LF AI Acumos AI

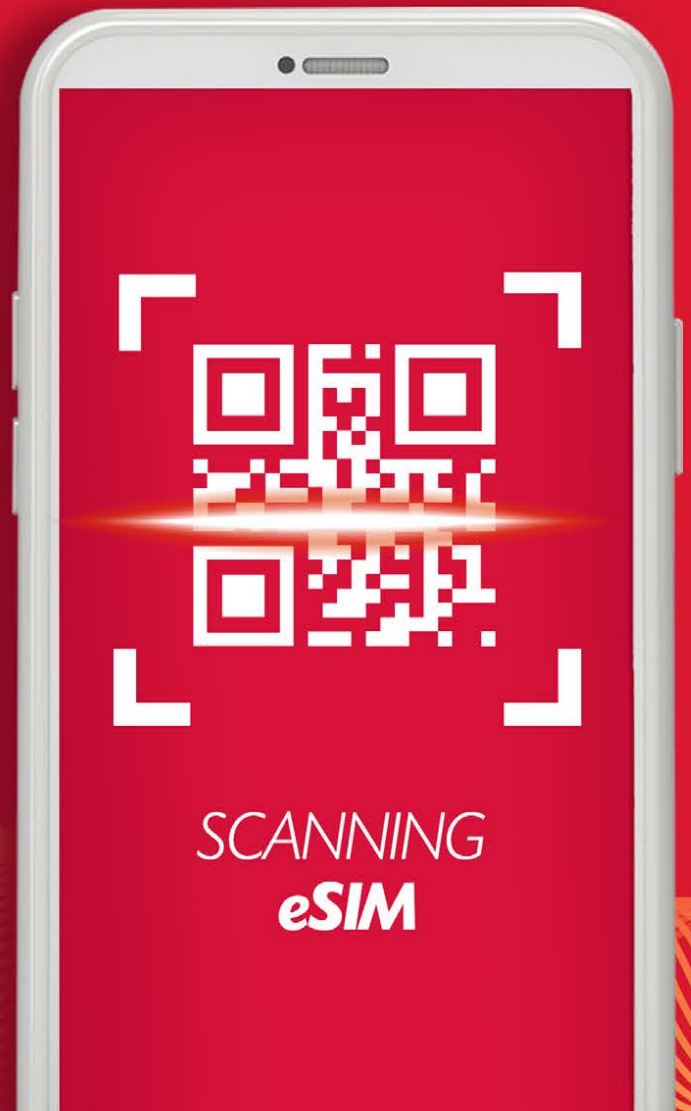
project, will help enterprises to publish AI models in a company catalog and deploy AI applications for any vertical use case. We are happy to see new features and tools in GAIa 2.0 such as security and model scoring, integration of Jupyter notebook, support of AutoML and the onboarding of new AI Deep Learning ONNX format" Dr. Ibrahim Haddad, Executive Director of the LF AI Foundation, said, "We're very excited to see commercial deployment of the second Acumos release - code named Boreas - taking full advantage of new features and enhancements addressing the real need of expanding AI uses within enterprises beyond specialty areas. Tech Mahindra has been a participant in LF AI and a strong contributor to the Acumos project." GAIa is an industrialized version of the open-source Acumos platform. Acumos is co-created by Tech Mahindra & AT&T and available under LF AI, an umbrella foundation of the Linux Foundation that supports open source innovation in artificial intelligence, machine learning, and deep learning. [📄](#)





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ARTICLE

Building Key Pillars of Digital Agenda in a Level-playing Field



Elie Abdallah

Corporate Strategy Analyst

Alfa

The fourth industrial revolution is rapidly transforming all sectors and markets. Digital transformation is no longer an option or enhancement to existing businesses; it is a core feature, an unavoidable evolution for any process and solution in every organization. The Information and Communication Technology (ICT) is no longer a vertical sector within the global economy, it has become a horizontal layer, deeply integrated in the foundation of every other sector. This digital revolution is not only transforming the corporate world, it has also shaped our lives as individuals and our communities. This innovative transformation is evolving at a scale and speed that bring immense opportunities for innovation, growth and prosperity. In order to make a better use of these unlimited opportunities offered by the digital technologies, 5G and IoT, all key stakeholders should push towards a common digital agenda in a level-playing field.

A level-playing field is a fair market situation in which all players have the same chance of succeeding. It is a market that ensures the free movement of goods, services, and capital. A status quo where individuals and businesses can seamlessly access and exercise online and digital activities all under the same laws, regulations, regardless of the user, network or servers' location.

The digital agenda in a level-playing field relies on three key pillars:

1. Better **Access** for individuals and organizations to digital products and services.
2. A fair and commonly regulated **Environment** in which digital and innovative services can flourish
3. A maximized growth potential for the digital **Economy** and connected **Society**.

1. Access

The level-playing field can provide suppliers and consumers with an open and free market in which any consumer may have access to any digital product and service. Entry barriers for young entrepreneurs will be reduced, creating job opportunities and innovative digital services.

A fair marketplace, where all players have the same success

The Information and Communication Technology (ICT) is no longer a vertical sector within the global economy, it has become a horizontal layer, deeply integrated in the foundation of every other sector.

chances and operate under the same cross-border regulations, have less entry-barriers. Entrepreneurs, especially young ones, have more chances to participate in the digital realm and introduce their digital innovations to consumers. Successful ideas can easily scale up once they are able to manage their businesses under a common set of rules. Thus, it is essential to break down barriers between countries by reducing the differences in contracts, e-commerce, digital copyrights and consumer protection laws.

Cross-border parcel delivery is another hurdle in e-commerce. Stakeholders suffer from lack of transparency, excessive costs in particular for small shipments, complicated customs' rules and fees. In a level-playing field of digital services, e-commerce providers should have access to affordable, high-quality and cross-border parcel delivery, that can encourage consumer trust in cross-border online sales.

Large players, mainly in oligopoly markets, tend to restrict access to consumers based on their location; they sometimes force a redirection to local or regional websites, completely ban access to some content or also show different prices and currencies for different users. Such practices are sometimes referred to as forced segmentation of customer base, or geo-blocking. Authorities and regulators should protect the right of consumers to access any digital content and the right of sellers to offer their products to any user. A cross-border digital law or agreement should ban any unjustified geo-blocking practice.

Taxes imposed on products sold across countries represent a tricky challenge for all cross-border sellers, in particular online stores. In fact, having to deal with many different national

Access

- Global regulation laws for online transactions
- High-quality and affordable cross-border parcel delivery
- Reduced geo-blocking practices
- Common Taxation system

Environment

- Balanced regulatory framework among all players
- Updated legislations for online media
- Reinforced digital trust and cybersecurity

Economy & Society

- Data Economy
- Interoperability and Standardization
- E-society and e-government

taxation policies and systems increases administrative efforts and costs for merchants. In a level-playing field, a new innovative taxation system should govern transactions between suppliers, vendors and consumers.

2. Environment

A level-playing field should rely on a high-speed, affordable and reliable infrastructure, from one side allowing innovative services to flourish, and on another side safeguarding consumers' rights to privacy and personal data protection. ICT networks are well positioned to provide the backbone for such an infrastructure. However, competition and user demands are still pushing towards lower prices and better quality of services. The ICT sector and telecommunications in particular, are undergoing structural changes to cope with the new trends and market requirements.

A consistent market approach to spectrum policy and management, a balanced regulatory framework for all ICT and OTT players, incentives for investments in high-quality broadband networks and an effective regulatory institutional framework are the main characteristics of a productive ICT environment.

Rapid technological changes and the development of new business models are having a very high impact on the media landscape. The ways users are accessing, streaming and buying audiovisuals are completely shifting. An imperative update

of the audiovisual and media services legislations and rules is required, with special focus on the protection of minors, advertising rules, privacy and copyrights protection.

As security, privacy and copyrights are becoming the real hurdles in this digital world, joint efforts from all key stakeholders shall combat illegal content, increase visibility over collected personal identifying data, fight redistribution of copyrighted content and increase transparency for paid advertisement versus natural content, especially on social media platforms. These measures can reinforce the trust and security in digital services and in handling of personal data, which constitute a major milestone in achieving a successful digital realm.

3. Economy and Society


In the coming few years, most economic activities will depend on digital ecosystems. Digitization of processes, interfaces and business models would offer unprecedented opportunities to all sectors. Digital economies and societies will experience intelligent transport systems, smart grids and metering, automation of everything, sustainable use of natural resources, healthier environments, smart cities, developed healthcare, mobile education... thus improved well-being of citizens.

Embracing the digital transformation of economies and societies require building a data-driven economy, encouraging

interoperability and standardization and introduce an e-government to oversee this whole ecosystem.

Data is a key catalyst for economic growth, innovation and digitization across all markets. ICT contribution is vital to store, explore, analyze, monetize and make the best out of data. Innovative solutions and technologies such as cloud computing, virtualization, big data, analytics and artificial intelligence are major contributors to building a data economy.

In the digital economy, interoperability ensures effective communication between digital platforms, interfaces, devices, networks and data repositories. It reduces obstacles between digital components, resulting in a more efficient connection across solutions and borders. Standardization has an essential role to play in increasing interoperability of new technologies within a level-playing field.

Public administrations, governments and institutions are striving to achieve higher citizens' experience, reduce costs, and increase transparency while maintaining a higher level of security and economic stability. Converging towards an e-government, would make it easier later on to connect official authorities across the globe, interconnect business registers, unify taxation systems, connect digital gateways and process e-contracts and e-signatures. Which shall create a user-friendly global e-government platform for citizens and businesses across the globe. 

REGIONAL NEWS

Saudi ICT Plan Delivers US\$13 Billion Boost for Economy

Saudi Arabia's Information and Communications Technology (ICT) sector will increase its contribution to the national economy by SR50 billion (\$13.3 billion) in the next five years, thanks to a major digital development strategy. Minister of Communications and Information Technology Abdullah Al-Sawaha said that the five-year strategy will expand the Kingdom's digital capabilities in ICT, allowing the sector to pursue optimal growth in future projects as part of Vision 2030 economic reforms. The plan will also help the sector keep pace with national requirements and global developments, and attract more foreign technology investment. Al-Sawaha said the strategy "will draw a roadmap for the future of the Kingdom in innovation and the digital economy." As part of the plan the level of Saudi manpower in the sector will be raised to 50 percent by 2030. It also aims to promote and create opportunities for women and boost foreign investment in the sector. The Saudi minister said that the ICT strategy will strengthen development activities, and raise the effectiveness and performance of the public and private sectors by enabling digital transformation. "It will make the Kingdom one of the world's leading countries in the field of ICT," he said. The strategy is part of the ministry's efforts to establish a robust and sophisticated digital structure that will

enhance the role of the ICT sector in building a digital community, digital government, a thriving digital economy and an innovative future for the Kingdom.



Egypt Focuses on Digitization Services

Egyptian President Abdel-Fattah El-Sisi said that creating comprehensive databases of all information about Egyptians is a matter of "national security," underscoring the importance of the country's digital transformation efforts. Speaking at a youth forum in televised comments, El-Sisi said that a major project to digitalize government services will use artificial intelligence (AI) technology to allow the government to have a full picture of financial and health conditions of Egyptians, identify their needs and offer proactive services before citizens request or apply for them. The system will replace extensive surveys Egypt had to rely on to offer social services, El-Sisi said. Examples the president cited include using death data to know when a family has lost its breadwinner and needs financial assistance, verifying those entitled to subsidies and identifying healthcare needs in a given region. It is a matter of "national security to have comprehensive databases

for Egyptian society," El-Sisi told the gathering, describing the scheme as a "major national project." The ambitious plan starts with turning the canal governorate of Port Said into a digital city where all government services will be automated by the end of the year. The government intends to roll out the system nationwide later on. The government is launching 18 new digital government services in the governorate on Tuesday and is planning to increase them to 174 services by the end of this year, Communications Minister Amr Talaat told the audience. These include online services, mobile applications, communication services as well as special government offices. The system, which can verify the identities of citizens, is aimed at combating fraudulent practices, ensuring that subsidies reach those entitled to them, and guaranteeing proper management of government resources, the minister said. Egypt has so far created around 60 interconnected, AI-enabled

databases where all information needed about Egyptians is available for service providers. El-Sisi also addressed those who are concerned about privacy, saying that personal data used in the ambitious plan "is handled with extreme privacy and confidentiality and can never be revealed." Under the planned system, Egyptians will be able to contact customer service numbers and have services delivered to their doorstep instead of having to move between multiple government offices for several days, Talaat said. The government is also planning to launch the "digital signature" technology for the first time in Egypt in December since a law regulating it was passed in 2004, the minister said. The move, which involves signing contracts and official documents online, is aimed at making communication between the government and investors easier and finalizing business deals swiftly.

The UAE is the First in Government Electronic and Mobile Services Maturity Index

The United Arab Emirates (UAE) has been ranked first in the Arab region in Government Electronic and Mobile Services (GEMS) Maturity Index, according to a report issued by the United Nations Economic and Social Commission for Western Asia (ESCWA). This indicator is a measuring tool of progress at the national level in achieving transition to digital services. GEMS Maturity Index measures the maturity of government services provided through online portals and smart Apps in the Arab countries. It seeks to bridge the gap of most international indicators, in terms of identifying the service development, usability and user satisfaction. Commenting on this new accomplishment, Hamad Obaid Al Mansoori, The Director General of the Telecommunications Regulatory Authority (TRA), said: "Smart and advanced services are the key to customer happiness, therefore, we develop our government services in the UAE, inspired by the directives of our wise leadership, which emphasize on people as the goal and aim of the overall process of digital transformation. Achieving the first position in GEMS Maturity Index is the result of the collective efforts of the UAE Government towards full digital transformation. We work as one team in federal and local governments and we have a unified work mechanism, namely the Executive team of Online Services Indicator, which aims

to enhance the country's progress in government services provided through all available channels." In turn, Salem Al Housani, Acting Deputy Director General for Information & e-Government Sector, said: "This achievement comes one year after announcing TRA as the entity responsible for smart government and digital transformation of the UAE's model of digital government maturity." He added: "The UAE model of digital government maturity is a unified reference for electronic/digital government in the UAE, which guides the work on the various pillars of digital transformation, and measures the capability to create a digitally mature government and maintain its stability. TRA has launched the Digital Government Maturity Model to achieve the National OSI, and to reach the first position globally in OSI." The ESCWA report highlights the UAE's leadership in all pillars of the indicator. According to the report, the availability of services in the country reached 90%. As for the access to services, the report showed that 80% of the UAE population have access to services. GEMS Maturity Index allows to track the progress in the transition to e-channels for government service provision, by annual comparison of the national performance. It also allows comparison between different countries and entities in e-services transformation. The index evaluation process is based

THE UAE



The first in the Arab region

In Government Electronic and Mobile Services (GEMS) Maturity Index

on three main pillars: service availability and sophistication, service use and satisfaction, and public outreach. GEMS Maturity Index complements the e-Government Development Index launched by ESCWA in 2001, which indicates the availability of services, infrastructure and resources, while GEMS Maturity Index indicates the services use, satisfaction and public outreach. The UAE Government provides about 3730 federal and local online services through its official portal. It also provides more than 270 procedural services at the federal level. TRA assesses the digital maturity of local government through six main pillars: leadership, strategy, governance, emerging technologies, technology and regulatory legislation.

Public Services to Go Digital By 2022

Oman is planning to digitalize 59 public services provided by different Omani government ministries and institutions over the next four years as part of a strategy to develop the Information and Communications Technology (ICT) industry. The Information Technology Authority (ITA) is spearheading the project with the support of a wide array of government agencies and institutions, reported Oman Observer. The private sector will play a key role in the initiative, notably by financing this landmark project under a PPP-type framework. Plans for the digitalization of key public services stem from a month-long 'Lab' hosted earlier this year by the ITA with the support of the Ministry of Transport and Communications and the Implementation Support & Follow-up Unit (ISFU) of the Diwan of Royal Court.



iGA Bahrain Circulates Latest Cyber Security System

The Information and eGovernment Authority (iGA) presented an overview of an Advanced Endpoint Protection Solution at the Fourth Cyber Hawks Meeting. More than 70 IT specialists representing 51 governmental and semi-governmental entities attended the event, which was organized by the iGA, represented by the Information Security Services Directorate. iGA Vice Chief Executive for Operations and Governance, Shaikh Salman bin Mohammed Al Khalifa, said that the meeting is in response to directives by the Supreme Committee for Information and Communication Technology (SCICT), chaired by His Highness Shaikh Mohammed bin Mubarak Al Khalifa, Deputy Prime Minister. The aim is to institute the use of modern technologies in addressing

potential cyber security threats. Shaikh Salman explained that the meeting is part of iGA's plan to implement robust standards that will enhance the level of security in the government network by

addressing the increasing levels of cyber threats faced by the Kingdom, adding that iGA constantly seeks to further enhance the security levels of the government's IT infrastructure.



ITA Forum Explores Trends in Emerging Technologies

The Information Technology Authority (ITA) Oman organized the 4.0 Digital Trends Forum at the Public Authority of Civil Aviation (PACA) in Salalah. The forum was held under the patronage of Eng. Ahmed bin Hassan al Dheeb, Undersecretary in the Ministry of Commerce and Industry and Deputy Chairman of ITA Board of Directors, in the presence of Omar Salim al Shanfari, ITA's Deputy CEO for Operations along with

a number of IT officials and professionals from government and private entities. Held under the theme 'Internet of Things (IoT)', the forum aimed to explore the emerging technologies produced by the Fourth Industrial Revolution, mainly IoT, and encourage their adoption in different work sectors in the sultanate, as well as establishing a discussion platform for enthusiasts and IT professionals. Hassan

Fida al Lawati, Director General of the Digital Society Development Division at ITA in his speech, said, "IoT provides a powerful drive to digitalization, connecting devices to the Internet. It provides an enormous opportunity for innovation and transformation." He added, "IoT growth is projected to grow rapidly over the years. Estimates of installed IoT devices worldwide vary widely. We can expect an increase of 20bn devices by 2020 to be installed globally." Jane Zavalishina, Co-Founder of Mechanica AI and an international speaker, presented a paper on IoT and governments' role in using Artificial Intelligence (AI) and other technologies to utilize data in building smarter cities. Salim Abid, Developer Ecosystem, Region Lead (Middle-East and North Africa) at Google, highlighted in his paper the future technology trends of AI and provided solutions for the challenges facing IoT. Mohammed al Yahyae, General Manager, Customer Services at Diam presented a paper on Diam's experience in incorporating IoT for smart metering.



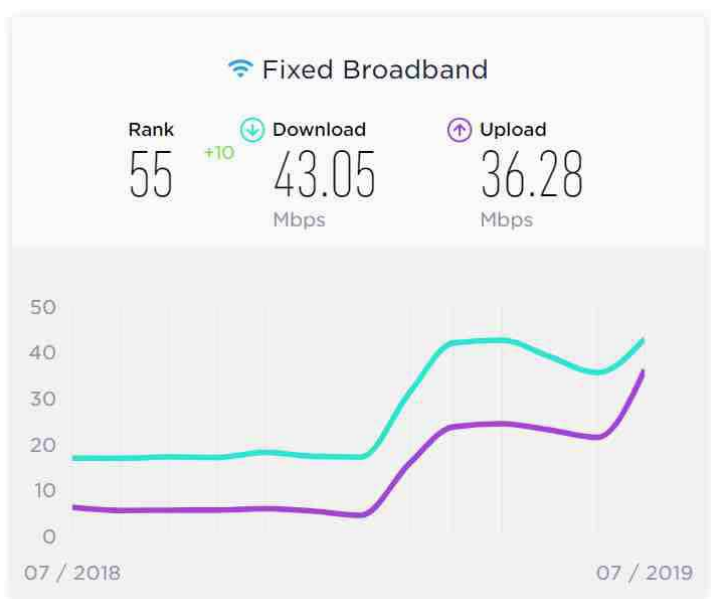
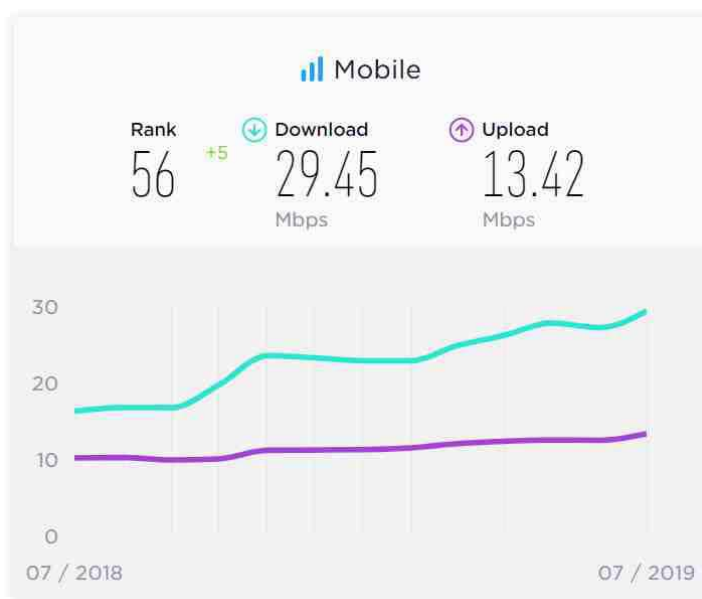
Egypt's Global Telecom Approves VEON's US\$2.3 Billion Asset Transfer Offer

Global Telecom Holding's (GTH) board of directors has approved Veon's offer to acquire all of GTH's operating assets for \$2.3 billion, according to GTH's bourse filing. Veon will acquire the company's stakes in Jazz, Bangalink, Djezzy (including MedCable), and Mobilink Bank for PKR 313.3 billion, BDT 24.9 billion, DZD 70.2 billion, and PKR 14.7 billion respectively. The board also postponed the shareholders' meeting to discuss the transaction to 9 September instead of 27 August. The

Financial Regulatory Authority approved in June Veon's mandatory tender offer (MTO) to acquire 1.99 billion shares in GTH, equivalent to a 42.3 percent stake in the company. The MTO closed earlier this month, leaving Veon with around 98 percent of GTH's total outstanding equity. Plans for the MTO were a long time in the making, having suffered delays due to a long-running tax dispute between GTH and the government. The dispute was eventually resolved in June, and the Financial

Regulatory Authority (FRA) subsequently approved the MTO at EGP 5.08 per share, down from EGP 5.30 per share formerly. In July, GTH shareholders completed the sale of 37 percent of the company's shares in a mandatory tender offer (MTO) launched by majority shareholder Veon to acquire 42.3 percent of the company. Shareholders offered to sell the 753 million shares when the MTO kicked off on 2 July, a few days after GTH reached a dispute settlement with Egypt's Tax Authority.

Internet Speed Rises in Bahrain



The Kingdom's Internet speed has improved considerably, according to findings of a new report. The latest Speedtest Global Index July revealed that Bahrain has the 55th fastest broadband Internet in the world. Bahrain's position rose by 10 places in just one month, according to the report. The monumental gain was made in July in comparison to June when Bahrain was placed 65th. Qatar has ranked first in the Gulf region and fifth globally on the mobile Internet speed index at 59.90 Mbps. In the region, Qatar is followed by the UAE at the third place globally at 55.12 Mbps, Saudi Arabia at the 58th place globally at 42.34 Mbps, Oman at the 94th place at 22.91 Mbps and Bahrain at the 55th place at 43.05 Mbps, according to Speedtest Global Index. The index ranks mobile and fixed broadband speeds from around the

world on a monthly basis. "Results are updated midmonth for the previous month. January 1, 2019 onward countries must have at least 300 unique user results for mobile or fixed broadband to be ranked in either category. "Prior to January 1, 2019, we required 670 unique user results for mobile and 3,333 for fixed broadband," Speedtest stated. This comes as Bahrain prepares to take a lead in making the best out of 5G technologies. "There were a lot of challenges along the way – ensuring spectrum availability as soon as possible was a big challenge, but overcoming these obstacles exemplifies the support and co-operation amongst Team Bahrain and demonstrates how Bahrain can move quickly, deliver enormous progress against an accelerated timeframe, and be a partner to technology leaders," said the Minister of

Transportation and Telecommunications in Bahrain, Kamal Ahmed said about Bahrain's effort to launch 5G. Batelco has selected Ericsson to launch 5G, while VIVA Bahrain has partnered with Huawei that has registered 1,529 5G patents, according to data analysis firm IPLytics. Last month Batelco launched Xiaomi Mi Mix 3, the first 5G network supported device in Bahrain at Batelco's City Centre Branch. The Xiaomi Mi Mix 3 was tested on Batelco's 5G network by a professional gamer who commented on the speed of the device when connected to Batelco 5G network, as well as its practicality to use digital applications including social media apps, streaming services and online games as it features a large screen with fast mechanism to switch between apps.

Saudi Arabia Calls for Increased Tech Innovation to Combat Cyber-Attacks

Increasing foreign cyber-attacks on Saudi Arabia are pushing for more institutionalization by developing national cadres specialized to combat threats, according to Information Security Expert Eng. Samer Omar. Omar further highlights that such initiatives should be established to support the Kingdom's Vision 2030, digital transformation and eGovernment development. "There is a significant qualitative improvement in the quality and number of gifted and talented Saudis working in Cybersecurity and we will see in the near future more awareness and greater capacity in this vital sector of cyber security by these young men and women," said Samer. "Today we have specialized courses in cybersecurity in universities and other concerned institutions, and this in itself is a significant transformation that is important and demonstrates the

depth of the Kingdom's Vision 2030," he added. Last year, Saudi Arabia ranked first among the Arab countries in the number of cyber-attacks against it and ranked 17th in the world within the same context. This then underscores the importance of the newly established National Cyber Security Agency along with that of the Saudi Arabia Federation for Cybersecurity, Programming & Drones (SAFCPSD) and their remarkable roles and impact already in building and developing specialized human resources to combat cyber-attacks, according to Omar. To further highlight the need for increased innovation to combat cyber threats, Omar who is also the CEO of VirtuPort's 7th Middle East and North Africa Information Security Conference 2019 announced the launch of the conference's 7th edition. The event, which will be hosted in Riyadh on 9th to 10th September under the

theme "Cyber Space, The New Frontier: Deception, Orchestration and Blackholes." The increasing attacks on Saudi Arabia are due to its economy being one of the strongest economies in the Middle East and ranked among the top 20 global economies, making Saudi companies and institutions a direct and indirect target of cyber-attacks to disrupt their operations and seize their data and resources. In line with Vision 2030, the Saudi government is working to support the information technology sector, promote creative and innovative thinking for companies and protect their data and systems. Omar then underlined the importance of continued focus on human capital in addition to investments in tools and technologies required by companies and government agencies to secure themselves from cyber related threats.

Cloud Based Messaging app Launched in UAE



UAE residents can now make voice and video calls to their loved ones for just Dh5 for the whole day - and that too legally. Launched by Yzer Group on Wednesday, the cloud-based message app Yzer offers automatic translation, video calls, voice calls, texts, group chats and more to the users. The app can be downloaded from Google Play Store (for Android) and App Store (for Apple). Du's mobile users can subscribe to Dh50 a month and Dh5 per day packages, while home WiFi users will have to shell out Dh100 a month to enjoy the VoIP service. It excludes the five per

cent value-added tax. The single-day package of Dh5 will be attractive to cost-conscious consumers and blue-collar workers in the UAE. Etisalat subscribers will be able to use this messaging app in the near future once the two companies sign up. Osman Sultan, CEO of du, said the company is open to every app that is compatible with the UAE regulations. "Yzer is a partner and we don't see it as a competitor. We welcome it because our partners have extra features. Translation is an added value. We are a channel partner and we want to offer as many possibilities to our customers as possible," he said. The UAE is now seeing the entry of third party voice over internet protocol (VoIP) service providers, giving more economical options to the residents to make audio and video calls. Currently, VoIP is blocked in the UAE, but local telecom providers have introduced their own apps - Botim, C'me - to make international calls. The app currently supports 16 languages for chat translation including Arabic, Chinese, Hindi, Farsi and

others. Urdu, Malayalam and Bengali will be introduced in the near future. Commenting on the launch, Alibek Issaev, Founder, Chairman and CEO of YZER Group, said "We are confident that we have developed a promising and technologically advanced product, and are thrilled to introduce such a dynamic product to the UAE. Moreover, the interest in the product from such a large player in the UAE market shows the high potential of the application not only in the region but also globally." Dubai-based businessman Balvinder Singh Sahni (popularly known as Abu Sabah), partner and Co-CEO of YZER Group, has acquired a 10 per cent stake for Dh400 million in the Yzer Group. "This investment is not just an investment into an application, it is an investment towards the future of UAE. I see this as an opportunity that will be a key driver in bringing people and businesses closer. This application has every chance to become the most popular means of communication globally," said Sahni.



Zong Claims Pakistan's First 5G Trial; Download Speeds Surpass 1Gbps

Zong, Pakistan's third largest mobile operator in terms of subscribers, has announced that it is the 'first network to successfully test 5G in Pakistan'. The cellco, which is backed by Chinese powerhouse China Mobile Communications Corporation, staged the trial at its headquarters in Islamabad, and generated download speeds in excess of 1Gbps. As previously reported by TeleGeography's CommsUpdate, in July this year the Pakistan Telecommunication Authority (PTA) published guidelines for issuing temporary 5G authorizations to service providers, vendors and research organizations. The 'Framework for Test and Development of Future Technologies (Particularly Fifth Generation [5G] Wireless Networks)' document stated that the frequencies can include – but are not limited to – airwaves in the 2.6GHz, 3.6GHz and millimeter wave (mmWave) ranges. There is no charge for a temporary license, which have an initial duration of either three or six months but may be extended – subject to approval from the PTA.

Bangladesh Records 5 Million New Mobile Phone Users

Bangladesh's cellphone companies in the first half of this year saw nearly 5 million new users to take the country's total subscribers base to 161.772 million at the end of June, statistics of the country's telecom regulator showed Tuesday. According to data from the Bangladesh Telecommunication Regulatory Commission (BTRC), the country's four phone

operators added 4.783 million new users in January-June period. Of the total, the BTRC data showed the companies added 0.943 million new subscribers in June. Bangladesh has currently four mobile companies, three of which are foreign-backed cellphone operators. The number of subscribers of the mobile operators, Grameenphone, Robi Axiata, Banglalink

and Teletalk stood at 75.330 million, 47.939 million, 34.667 million and 3.836 million respectively at the end of June, BTRC data showed. According to the statistics of the country's telecom regulator, the number of Bangladesh's mobile phone subscribers was 156.989 million at the end of December 2018.

97% of People with Higher Education Use Internet in Iran

Some 97 percent of people with higher education are internet users in Iran, according to statistics released by Information Technology Organization, Mehr reported. Moreover, 99 percent of people with higher education use mobiles and 93.4 percent of people use computers, the report added. The internet penetration rate for illiterate people is 8.4 percent and the computer penetration rate is 8.1 percent. However half of illiterate people are mobile users. The statistics show that 41.4 percent of internet users have elementary school education, 64.4 percent have middle school education, and 88.6 percent of internet users hold diplomas. Meanwhile, 16.6 percent of internet users

are elementary school students, 16.2 percent are middle school students, 35.9 percent are high school students and 29.4 percent are university undergraduates. Amongst the internet users aged six years old and above, 94 percent use mobile internet. Some 80 percent use internet at their homes, 5.9 percent use internet at their workplaces, 6.7 percent use internet at their educational places, 1.2 percent use internet at libraries, and about 1.3 percent use internet at coffee nets, restaurants, and airports. According to the statistics, about 29.4 million Iranians use internet at least once a day. Meanwhile, 3.5 million people use internet once a week and 749,000 people use internet once a

month. According to the statistics, some 99 percent of people with higher education use cellphones. Some 80 percent of people with unofficial education and 58 percent of illiterate people use cellphones. About 97 percent of employed people, 91 percent of unemployed people, and 66 percent of students aged 10 and above use cellphones. The computer penetration rate is 35.7 percent amongst people with elementary school education. The figure is 46.6 percent among people with middle school education. The computer penetration rate is 48.6 percent amongst people who hold diplomas and is 93 percent amongst people with higher education.

Oman Plans to be a Safe Haven for Critical Data

Oman is banking on its reputation as a friendly and peaceful nation as it plans to become a regional digital hub for disaster recovery services, offering to store backup copies of critical data for its neighbors. Should other countries in the GCC and the rest of the Arab region unfortunately lose their data owing to natural disasters, Oman will be able to provide them with a backup copy, ensuring they don't have to spend precious time and money rebuilding their databases and thereby enabling services to resume more quickly. Oman's plans to become a data haven were raised by the nation's Implementation, Support and Follow-up Unit (ISFU), the government organization that is overseeing the country's Tanfeedh plan for economic diversification. The plans were discussed during a recent Information and Communication Technology Lab spearheaded by ISFU. Plans to set up this hub are already underway, with public and private investment into this project expected to reach OMR25 million. The project also hopes to create more than 850 jobs. Speaking to Times of Oman, an official from ISFU said: "Oman is the ideal country to provide disaster recovery services in the region, thanks to the unique geographical location of the Sultanate, which gives it a competitive advantage over its neighbors, in addition to its political stability. These services are defined as a facility used by the institutions to host their basic applications and data, in order to operate and recover them when they are not available in their original sources for any reason." He added: "In addition, the Sultanate can ideally provide these services as it is connected to most of the major submarine cable systems in the region. It is also connected to the Asia-Africa-Europe line, which is the new major link connecting more than six billion people through the internet." To gather further support and spread awareness of Oman's plans to become a digital disaster recovery hub for the GCC and the region, the Omani government embarked on a promotional program, in collaboration with other public agencies. The ISFU official said: "A promotional program will be spearheaded by the Information Technology Authority in cooperation with the Public Authority



for Investment Promotion and Export Development (Ithraa). The issuance of the Oman Data Protection Law will accelerate the implementation of this project." He added: "The work on this project has already started and is expected to continue for the next 5 years. The government and private investments in this project will reach OMR 25 million and will create more than 850 job opportunities by 2024. The lead implementer of this project is the Information Technology Authority. The key stakeholders are the Telecommunications Regulatory Authority, the Ministry of Foreign Affairs, Ithraa and the data centers which will be set up in Oman to store this information." ISFU also laid out how the backup center would work during a disaster. Under normal conditions, the data recovery centers in Oman will be synced with the main data centers of the organizations responsible for uploading that data, wherever they are. This way, the information that is stored in the back-up data centers is up to date. During a natural disaster or an emergency, if the data in the main centers is lost, this can then be replenished by the back-up copies that are present in the data center in Oman. Oman is one of the six-member Gulf Cooperation Council (GCC), with the other nations being Saudi Arabia, Kuwait, Qatar, Bahrain and the United Arab Emirates. Commenting on the importance of disaster recovery, a spokesperson for the country's Information Technology Authority (ITA) said such centers proved critical to restoring services in the aftermath of natural disasters. He told Times of Oman, "Data recovery often acts as the savior in disasters, and the cost of implementing data recovery is worth the value of protecting this data. These days,

the presence of systems and ready data availability is particularly important to customers, because data recovery acts as a backup that may mitigate human errors. Since the demand for data recovery is increasing by an annual rate of more than 50 percent, there is a high demand for cross border data recovery, especially since some countries cannot meet the minimum requirements to have these systems within their own nation." He added: "A DR or a disaster recovery data center is a facility an organization can use to recover and restore its technological infrastructure and operations when its primary data center becomes unavailable." Ramanuj Venkatesh, a financial analyst and risk manager in Oman, said that rebuilding lost databases often cost organizations time and money, which could be mitigated by investing in a fallback plan. "These days, everything is digitized, so if something happens to your data, be it either through natural disasters or cyber security lapses, then you could potentially spend millions of dollars and hundreds of hours just to get this back. All of this can be avoided if you have a sound back-up plan. Oman being a non-controversial and peaceful nation in the Middle East makes it a very good choice to have such a center." He added: "This way, countries also don't have to spend money on their own data centers and can rely on the back-ups available here. Building individual data centers could cost a lot of money, which could be allocated elsewhere, particularly if those needs are more pressing. This sort of cooperation will also lead to closer ties between these nations and Oman, since Oman has always had a role as an impartial mediator and a friendly nation to all."

First Regionally-Based e-Mail Security Firm Announces a Locally Hosted Platform in Saudi Arabia

DMARC360, a Bahraini technology startup, known for being the region's first and only cloud-based DMARC intelligence platform, has announced its locally hosted platform dedicated to Saudi Arabia. The localization of data is as per the regulatory framework set by the Communication & Information Technology Commission, KSA. Email is involved in about 92% of malware attacks globally, according to the telecommunications company, Verizon. For years the security industry has struggled on how to manage and address this situation since the initial email protocol design did not include any security checks. Despite the various security frameworks and tools introduced over the years, regulators across the globe have found the DMARC framework to be the most critical in any organization's security infrastructure. The framework was designed to manage the issue of email impersonation and ensuring email content isn't being tampered with during transit. DMARC360, based out of the Middle East, has taken on the initiative to ensure DMARC compliance and awareness across the region by developing the required technology platform. Last month, they had partnered up with the Global Cyber Alliance (GCA) to eradicate cyber risks involved with email and to improve the region's cyber readiness. DMARC360 enhances email deliverability by assisting their clients' implementation of DMARC policies through a cloud-based intelligent incident response/reporting platform. "DMARC is a powerful tool to defend against email domain spoofing, and GCA has worked

tirelessly to advocate global adoption across public and private organizations. We congratulate our partner DMARC360 for the deployment of its DMARC platform in Saudi Arabia, thus expanding the DMARC footprint across the Middle East and further empowering organizations to implement important Cybersecurity measures." - GCA President and CEO Philip Reiting. With growing concerns of offshore data storage and requirements from regulatory authorities to have their data hosted within their country, DMARC360 has been able to address the needs successfully. The approach of DMARC360 locally hosted platform in Saudi Arabia, will not only benefit the Saudi Arabian audience but also to any country that may need to host their data within the region/country. "We have had the leading advantage of being the region's first locally hosted DMARC

platform in Saudi Arabia. The swift implementation of Virtual Vision's cloud services has given DMARC360 the tactical advantage of being a forerunner in DMARC compliance across the region."-Abdullah Mirza, Director-Strategy & Growth, DMARC360. Further to data localization in Saudi Arabia, DMARC360 also plans to implement the same strategy for UAE, Kuwait, Pakistan, Sri Lanka, Malaysia and many more. This approach of localizing data enables DMARC360 to become the leading global service provider in this field. "It's great to be able to partner up with such a fast-paced company as DMARC360. They have truly been able to prove their parent company's, EDX Labs, the rationale of 'building locally & scaling globally' as a regional company serving at par with global vendors."- Hazem Sondouka- COO at Virtual Vision.



Export of IT Services Earns Over US\$1 Billion

Pakistan earned \$1008.490 million by providing different information technology (IT) services in various countries during the first eleven months of the fiscal year 2018-19. This shows growth of 4.37 percent when compared to \$966.240 million earned through provision of services during the corresponding period of fiscal year 2017-18, Pakistan Bureau of Statistics (PBS)

reported. During the period under review, the computer services grew by 12.21 percent, from \$654.170 million last year to \$734.020 million during July-May (2018-19). Among the computer services, the exports of software consultancy services and repair and maintenance of computers related services increased by 26.87 percent and 231.93 percent respectively.

In addition, the other computer services increased by 34.77 percent. The exports of call centers services also increased by 7.95 percent, from \$93.039 million to \$100.436 million whereas the exports other information services increased by 53.28 percent from \$1.068 million to \$1.637 million.

Sri Lankan Company Implements Cloud-Based Digital Strategy

With operations supported by a range of Microsoft solutions, Capital Alliance Group (CAL) recently featured in a Microsoft client case study (published on their website) highlighting how customers at CAL benefit from a reliable and trusted service, while employees enjoy a highly collaborative and connected workplace with the support of Microsoft solutions and products. Capital Alliance Group (CAL) is a full-service investment bank offering a broad spectrum of integrated investment and capital market solutions to all investor categories including family businesses and institutional clients. Commencing operations in 2000, the bank specializes in originating, trading and investing in debt and equity securities. CAL is also a Primary Dealer registered with the Central Bank of Sri Lanka, and has been named 'Best Investment Banking Company Sri Lanka', 'Best Investment Banking Solutions Provider Sri Lanka', 'Best New Asset Management Company Sri Lanka' and the 'Fastest Growing Unit Trust Manager Sri Lanka' at the Global Banking and Finance Review Awards 2015. In recent years, CAL has focused on using technology to help build more efficient capital markets, whilst maintaining a high degree of operational stability. To do this, and realize its strategic goals, CAL has

become one of Sri Lanka's first and most innovative cloud-centric investment banks supported by Microsoft Azure, Office 365, Dynamics 365 and Power BI. "Microsoft is one of the main partners in our digital transformation journey," says Tharindra Kulasinghe, Chief Information Officer at CAL. "Cross-platform tools like Power BI, Dynamics 365 and Office 365 offer around-the-clock availability and seamless productivity gains." A key transformation pillar at CAL is the importance of a reliable digital working environment for employees. The bank purchased Office 365 licenses from globally recognized partner Microsoft partner H One for its head office in 2017. By the end of 2018, the bank had rolled out Office 365 across the entire organization. "Office 365 ensures that we always have the most up-to-date modern productivity tools from Microsoft," explains Kulasinghe. "Using Office 365, we share daily operational notices, milestones and other event updates with the company. With Outlook, Skype for Business, OneDrive and Microsoft Teams, our employees can now collaborate no matter where they are or what device they are on 24/7." Security is another key strategic pillar at CAL. The bank collaborated with Jinasena Infotech to integrate Microsoft Enterprise Mobility + Security and Azure

Backup, including solutions for customer information classification, protection, real-time analytics, and identity management through Dynamics 365 and Power BI. "Power BI allows us to create our own analytical reports and derive insights from existing ones. The integration between Dynamics 365 for managing client data and Power BI gives us the capability to personalize workspaces, while allowing us to access the Power BI reports directly from Dynamics 365," notes Kulasinghe. With Power BI as an option for analytical reporting in Dynamics 365, employees at CAL experience great visual presentation of data in different mediums like graphs, pie charts, etc. Users also have the ability to tweak the reports as needed and can easily analyze financial trends. Thanks to cloud-based technologies, communication and collaboration are simpler and more powerful—not only for CAL but for other financial services all around the world. Kulasinghe explains, "Microsoft's tools have greatly increased our collaboration capability and capacity for data-driven intelligence. We have greatly reduced our capital expenditures on physical technology, allowing us to improve the return on investments and explore other avenues for growth and success."

Idea to Harmonize Digital Policies in Africa Mooted

African leaders in the Information and Communication Technology (ICT) sector have proposed an idea to harmonize digital policies to accelerate the continent's digital transformation. The leaders are meeting in Kigali for the India-Africa ICT Summit and Expo. Paula Ingabire, Rwanda's Minister of ICT & Innovation, told participants that there was a need to have inclusive policies. "We need to think about inclusive policies because the levels of development, levels of resources, as well as skills are not similar on the continent," she said. This, she argued, will facilitate the delivery of equitable opportunities for the entire African population. Ingabire suggested that policymakers ought to leverage on the continent's youthful population, which is agile and adaptable to drive digital transformation. More than ever, countries across the continent are



talking about digital transformation and investing in technologies. There is a flourishing section of firms providing services to the population. Leaders say the policy making institutions should be proactive to properly harness digital technologies and leverage these unprecedented benefits. However, Mark Botomani, Malawi's Minister of Information, Civic Education and Communications Technology, argued that without political leadership commitment, Africa will never be able to achieve its policy targets. "We can have infrastructure and partners to support us, but if we do not have strong leadership that will drive these things, we will not be successful," he said. In Malawi, he added, the Government has committed to drive ICT growth through investing in infrastructure and establishing legislations like the 2016 Financial Crimes

and Cyber-security Act. "As of now, in terms of infrastructure, we have already laid 11,000 kilometers fiber backbone across the country, which means that even the people in remote areas are able to access network," he noted. The country has also recently commissioned a project to set up towers to enable citizens to have full-time signal, and Botomani believes it is such kind of commitments that Africa leaders should undertake. But Kazembe Kazembe, the Minister of ICT, Postal and Courier Services in Zimbabwe said there was a need to harmonize policies and regulations in Africa to remove border barriers. "We have to remove the borders; we have to work as one African family. If we are to have our own Alibaba, we have to look at Africa as one global village when it comes to technology," he stated. The World Bank pre-

dicts that by 2032, the impact of 5G alone in Sub-Saharan Africa will be \$30 billion. Kazembe said his country has understood the need to invest in broadband infrastructure, highlighting that more than 20,000 km of optic fiber has been deployed so far. "We have also ensuring that each and every village in Zimbabwe has access to internet by deploying what we call community information centers and today, we have installed about 146 centers through our regulator," he noted. Zimbabwe became the latest member of the Smart Africa Alliance last week, attesting to the belief the country has toward the unified ICT agenda the organization is trying to promote. "I believe the Smart Africa Alliance is bringing us together as a continent and it will facilitate to remove borders," he said.

Oman Based Platform Looks to Revolutionize e-Commerce

Oman-based Nabay Technologies LLC has launched a new innovative global online marketplace offering three services from a single platform for consumers and businesses around the world – both on the Web and mobile apps. Nabay.com is a unique e-commerce platform – one of its kind – driven by the vision of its founder and chairman Nabeel Jawad Sultan. This new platform is a subsidiary of Nabay Technologies LLC, a vibrant technology firm with a focus on cyber security and emerging and futuristic technologies. Nabay.com is a triple-offering innovative platform, which unites opportunities for the online community through its three pillars – Barter Engine, Nabay Mall and Plugged In. Barter Engine allows users to swap items with one another. It's a cashless engagement that can be done in public forums or with the familiarity of private groups or special interest groups. Nabay Mall allows businesses to open their personalized stores within a dynamic and diverse global virtual mall, offering the entire gamut of fulfillment bouquet, including payment gateways, logistics and analytics. They have complete freedom to build their own brand identity. Plugged In pillar allows users to plug their existing websites into Nabay.com and gain access to the Nabay world of opportunity, more global exposure and more access to consumers. 'As a whole, Nabay.com is a unique one-stop multi-purpose global marketplace platform. You think of shopping for a product or need to use some service – with or without cash – Nabay.com is the place for you. We have an inclusive mentality and want to represent the long tail of entrepreneurial initiatives regardless of the size,' Nabeel said in an interview with Muscat Daily. The concept of Nabay.com was conceived in Oman, structured in the UAE and it now operates globally. 'A user can be sitting in London and bartering with a user in India. A business can be headquartered in Turkey and sell to someone in Brazil using Nabay services. Our online shopping and brick and mortar business experiences fuelled the Nabay innovation,' Nabeel explained. He emphasized that Nabay.com is designed to enhance

the user experience, which would be unique and different from conventional e-commerce platforms. 'The future of e-commerce I believe is primarily through the user's experience. Our focus is on what's unique to Nabay and the constant improvement of the consumer experience every day.' Explaining the bartering concept of Nabay.com, Nabeel said that barterers would love the cashless exchanges with Nabay members or within their own private groups. 'It's all about giving people the option to opt for upcycling or recycling their products – swapping something you loved for something you love. We all have items lying around our houses with no signs of wear-and-tear that could do someone else some good!' 'Our coupling of two social power tools [the Internet and bartering] is what I believe sets Nabay.com apart from the competition – a simple feature that provides people a plethora of options,' he added. Nabay.com, which aims to become one of the largest cross-border e-commerce marketplaces, will drive the focus through the GCC region. On pricing policies, Nabeel said, 'As for businesses, we want to build an e-commerce platform with incredible pricing, policies and velocity. We have no hidden costs for stores or buyers. Our pricing policy is simple and our pricing model tailor fits to the needs of businesses. I am proud to say that we have the lowest marketplace prices.' 📌



INNOVATION
ORCHESTRATOR
FOR
**NETWORK
TRANSFORMATION**



ACCESS

CORE

OSS

ENTERPRISE

ARTICLE

The Rise of the DX-Organization



Pankaj Braroo
Regional Head MENA, ICS
Tech Mahindra

**Tech
Mahindra**

In the IT services business, the pillars of people, process and technology have become hygiene issues today - The emphasis no longer is on the process and people part of the services trinity, but on the technology pillar as it is single handedly driving transformation. With extensive possibilities of new disruptive digital technologies, technology is becoming limitless. After all, Digital Transformation involves a radical rethinking of how an enterprise uses technology to create and deliver value to customers.

The history of human civilization is full of stories of men and women constantly pushing boundaries in every sphere of life. Whenever inventions and discoveries led to an evolved way of life, it has defined that era. The growing fusion of business and technology that has occurred in the last century defines this era and shall determine the course of the future too. It is in this context, that we must view the rampant growth of digital technologies globally and their impact, though not only limited to how companies are run, but also how they engage with their customers as well. It is in this 'last mile' that change has been both drastic and dramatic. Moreover, these factors in essence have let companies free to decide their 'digital' course.

As has been the case always, the 'back office' has to follow suit. Often, with astounding results. The initial wave of offshoring of IT services, that made India into an IT powerhouse; with Ireland, East European nations and Philippines amongst others following suit; might be in for another jolt. This is because the initial wave that depended on passing on benefits of cost arbitrage has more or less plateaued out as a business model. The infusion of 'digital' seems to have given it a new lease of life. However, therein also lies the danger for IT service providers that fail to see the impact

of this change. Add to this mix, nationalist regimes calling out outsourcing of services as a 'theft' of opportunities for the native workforce. It is in this milieu that both the large global companies and the IT service providers have felt the need of making their operations completely digital thereby reducing the dependence on manpower. So, the entire value chain gets impacted in a never seen before fashion.

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What makes a company truly 'digital'? The key impact elements remain the same – social, mobility, analytics, cloud and sensors (SMACS). These were the initial foundation stones of the new digital wave. Automation, robotics and AI have added to this mix and, lo and behold, we have a comprehensive kick-off of the 'digital'. In soccer parlance, this would be akin to a Ronaldo with Messi-like wizardry at his disposal! Or combining the power of an Airbus A380-800 with the agility and speed of an F-16 fighter jet.

In the IT services business, the pillars of people, process and technology have become hygiene issues today - The emphasis no longer is on the process and

people part of the services trinity, but on the technology pillar as it is single handedly driving transformation. With extensive possibilities of new disruptive digital technologies, technology is becoming limitless. After all, Digital Transformation involves a radical rethinking of how an enterprise uses technology to create and deliver value to customers. We have all seen an interesting turn of events in this digital era of technology progression where next-generation technologies have found way into the back office of IT, i.e., operations.

Some of the leading Tier 1 Indian IT service providers have caught on to this 'digital' transformation like fish to water that has transformed the way the IT services is being run as well how the services have been delivered. In the recently released ranking of '100 public companies shaping digital economy' by Forbes, Tech Mahindra is the top ranked non-US company listed at #15 and also the only IT service provider company in the top 15 ranked companies. Some of the 'digital' led investments that has made Tech Mahindra a tour-de-force in this esteemed list of DX-companies (read digital companies).

So, what makes Tech Mahindra a stand out "DX" IT services provider. In the slew of digital platforms that Tech Mahindra has launched over the last 3-4 years, one of the leading platforms has been Meridian. A leading European telecom major deployed Meridian to acquire a single pane of glass view with integrated maps of the entire IT landscape with built in tools for analysis, correlation and visualization needed to quickly determine the root cause of performance issues. Similarly, a leading aircraft manufacturer uses Meridian to provide a converged view of multiple data

centers, reducing MTTR and improving capacity planning and reporting. While there are similar platforms in the marketplace, these platforms do not have the same magnitude of built-in analytical, cognitive and AI based capabilities to provide predictive data inputs.

In the recently released ranking of '100 public companies shaping digital economy' by Forbes, Tech Mahindra is the top ranked non-US company listed at #15 and also the only IT service provider company in the top 15 ranked companies.

Another key introduction has been the TACTiX automation platform that has constantly evolved in terms of its depth over the last couple of years. TACTiX employs AI and cognitive computing to provide actionable intelligence and insights from application data with NL/ML capabilities and advanced data analysis. This has resulted in a drastic upturn in operation metrics and other KPIs leading to agile operations, better resource utilization and increased CSAT ratings. One of the leading European telco majors saw its operations cost reduced by upto 40% with sustained usage of the platform.

As the DX-companies continue their march to the new frontier, we are in the midst of what you may call the fifth industrial revolution. At Tech Mahindra, we refer to this as the 'revolution of IT intelligence'. Be ready or sit out! 🚀

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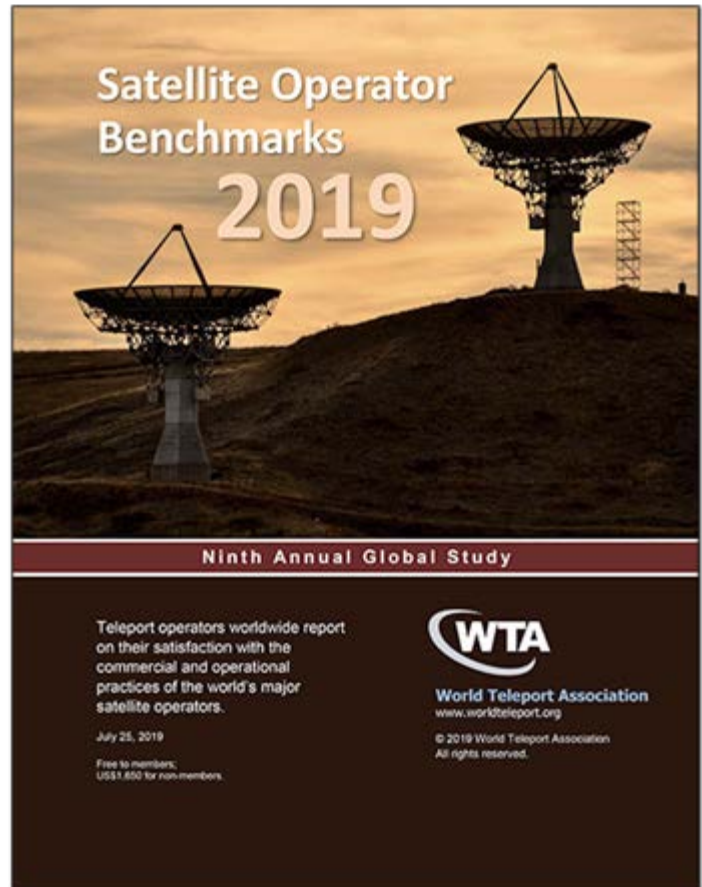
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SATELLITE NEWS

World Teleport Association's Operator Benchmarks 2019 Report

The World Teleport Association (WTA) has published their Operator Benchmarks 2019, the ninth in its report series, which tracks, rates and compares the operational and commercial performance of satellite operators, as experienced by teleport operators, in order to strengthen the industry by driving self-improvement across all companies. The Benchmarks study got its start from concerns among teleport operators about direct competition from their satellite vendors for managed service business. In 2019, the majority trend for satellite operators was toward increased direct competition with teleport operators, according to respondents. Five of nine were cited for competing directly more often in 2019 than in 2015. The 2019 survey reports on nine global and regional satellite operators: ABS Global, Arabsat, AsiaSat, Eutelsat, Gazprom, Hispasat, Intelsat, SES and Telesat. ABS Global and Gazprom are new to the analysis this year. Among key findings was the average price paid for satellite capacity rose 60%. The reason seems to be that teleport operators are buying in lower volume, with the strongest growth in annual commitments of less than 100 MHz. Overall, teleport operators rated the commercial performance of satellite operators 8% lower than the previous year. Research for the report was conducted by Futuresource, which provides market research, analytics, and forecasts to industry. WTA Executive Director and report author Robert Bell said that satellite operators have seen the future, and it is in managed services. This makes commercial sense for them, because the value of networks lies not in connectivity but in the ability of that connectivity to solve problems or create opportunities for customers. Most teleport operators made this transition long ago, as the margins available from basic uplinking shrank to the vanishing point. With their satellite vendors now making the same move and ratcheting up the competitive pressure, teleports are in



search for new efficiencies in their businesses and new roles in the market.

Nahid-1 Satellite Ready to Be Launched

Nahid-1 telecommunication satellite is ready to be delivered to Defense Ministry within few days for being launched, Iran's Minister of Communications and Information Technology Mohammad Javad Azari Jahromi announced. "It is a home-grown telecommunication satellite and can stay in space for 2.5 month, 250 kilometers away from earth," he said.

Nahid-1, which means "Venus" in Persian, is a Low-Earth orbit communications micro-class satellite, designed and developed by ISA in cooperation with the Iranian Space Research Center. The solar-powered satellite will be placed in the geosynchronous orbit for carrying out telecommunication missions. A telecommunications satellite is an

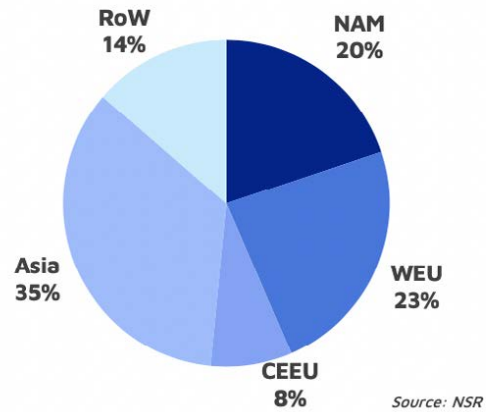
artificial satellite that relays and amplifies radio telecommunications signals via a transponder; it creates a communication channel between a source transmitter and a receiver at different locations on Earth. Iran successfully launched into orbit its first indigenous data-processing satellite, Omid (Hope) in February 2009.

NSR Covers the “New Normal” in Satellite Manufacturing & Launch

Satellite manufacturing and launch markets are evolving at rates never seen before. With a bevy of actors entering the satellite market at different levels of the value chain, the new dynamic is changing the way this industry measures growth – with the number of satellite orders and price/ kg losing relevance as market indicators. In this market dynamics where customer preference and priorities vary greatly, from time to orbit to low cost, quick adaptability and prudent pricing strategies by the players may be the key to future market success. Declining capacity prices seen in the past years and uncertainty around the long-term success of LEO constellations has resulted in declining number of GEO satellite orders in the recent years. As the industry looks for a new normal, different operators are adopting different strategies, ranging from high cost, and high throughput satellites to generic, software-defined and small GEO satellites. The ability of satellite manufacturers to meet the tailored needs of the market has certainly increased the demand to an average of 13 – 15 GEO communication satellite orders per year, as NSR reported in its recently released Satellite Manufacturing and Launch Services, 9th Edition report. While demand for GEO orders over the next decade is expected to remain stable, overall market revenues will continue to experience an overall decline as manufacturers aim to lower their efficiency ratio by adopting more cost-efficient processes. As such, satellite order numbers are no longer a relevant market indicator, and revenues only tell one side of the story. The ease and speed at which players adapt

to this fast changing environment, through M&A's, cost efficient processes and flexible product offerings, will determine success of the players and the overall market. The satellite launch market is at the same time going through a period of transition and will experience more competition and diversity over the next decade. Depending on the diverse customer priorities, such as the target orbit, altitude, time to orbit and cost, the launch service providers are offering different options from dedicated launch to rideshare to dedicate rideshare. In addition, launch providers are adopting different approaches including reusability, sea launches and partnerships with companies offering last mile delivery to lower the internal costs and offer better services to the customers.

Commercial GEO Communications Satellite Orders, 2018 - 2028



KSF Space Foundation Launches First IoT Small Satellite Mission from Mexico

KSF Space Foundation and Edison effects Mexico has recently launched a successful near space mission from Mexico carrying a platform consisting of small satellites from different universities (Morocco, Mexico &

UK) and schools with the ability to transmit IoT command from Earth to space, and vice versa. This mission is considered the world's first near space mission of its kind. The Stratos Satellite CubeSat experiment

will focus on stratospheric studies across the ozone layer and beyond to conduct scientific experiments to collect data on the effects of global warming. Additionally, KSF Space is preparing to launch a new near space small satellite mission supporting microbiology testing in microgravity on the 19th of October 2019. The mission will offer medicine and biotechnology students the opportunity to send their experiments to outer space to be observed in microgravity aboard KSF's "Space Capsule". Dr. Kayyali Says "We welcome experiments and nanosatellites from universities and schools to join our future missions; we are always open to help and guide academic research all over the world".

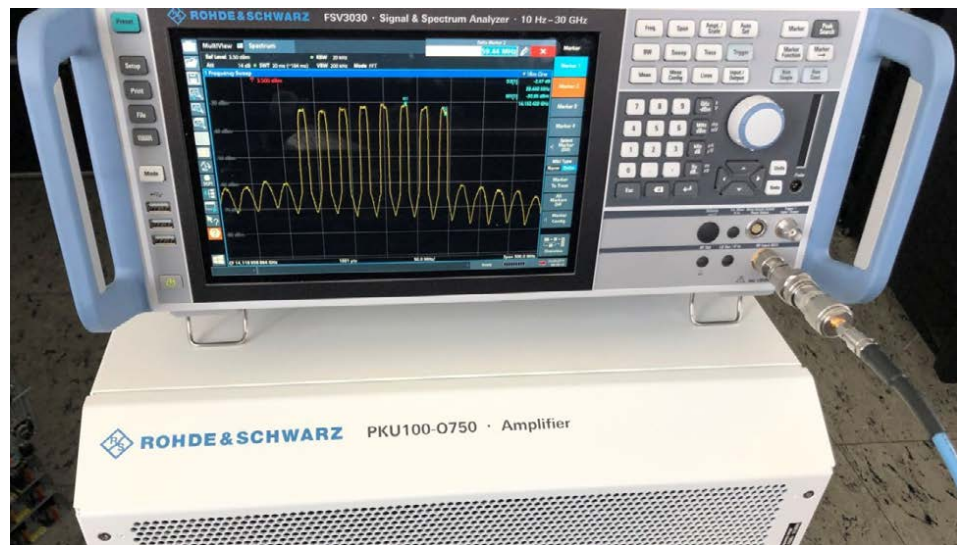


New High-Power Solid-State Satellite Uplink Amplifier from Rohde & Schwarz Launched at IBC 2019

At IBC 2019, Rohde & Schwarz will extend its range of solid-state satellite uplink amplifiers with the launch of a new high-power model. The R&S PKU100-0750 is rated within 750W power class and is designed for outdoor operation – it represents the world’s most compact and lightweight high-power satellite amplifier that is based on solid-state technology. Together with all of the Rohde & Schwarz R&S PKU satellite amplifier family, this new model will be commercially available at IBC. When first launched, the R&S PKU amplifier family represented a new and radically different approach to satellite amplifiers through their use of solid-state enabling technology in place of traditional tube-based amplifier systems. With all its models commercially available, Rohde & Schwarz reports significant interest in this new range of satellite amplifiers. Although the R&S PKU100-0750 is rated at 750W, it comes in a superior form factor, representing the most compact and lightweight high-power satellite amplifier available on the market today. Furthermore, through a rigorous research and development process, Rohde & Schwarz’s design engineers have achieved the highest power efficiency of any

amplifier within its power category. “The R&S PKU100-0750 is clearly differentiated as a high-power satellite amplifier since it produces a significantly better signal quality than any other solid-state device,” commented Christian Baier, Product Manager and Technical Sales, Satellite Amplifiers at Rohde & Schwarz. “For the first time, it offers a reliable high-power solid state alternative to traditional tube-based amplifiers. In developing its new family of satellite amplifiers, Rohde & Schwarz’s

goal was to substitute traditional tube technology with the latest advances in solid-state transistors. Working at high frequency, the big challenge is to develop a heat sink concept to keep the transistors cool which increases their lifetime and performance and to come up with a compact topology for the RF components with as little as possible attenuation caused by the insertion losses of power splitters, combiners, connectors and cables.



UbiquitiLink Wants to Launch Satellite “Cell Towers”

The SpaceX Falcon 9 rocket that launched to the International Space Station last week carried a tiny package that could



UbiquitiLink’s payload attached to a Cygnus cargo capsule in February Image: NASA

eventually lead to the smartphone you have in your pocket getting cell service from space. If it works, the instrument could be a precursor to a giant constellation of thousands of mini-satellites that function as cell towers circulating all over the globe. The package is the product of a startup called UbiquitiLink, the latest company to propose putting a mega-constellation of satellites into low orbit above Earth. But unlike many of these other proposed satellite projects – such as those of SpaceX, OneWeb, or Amazon – UbiquitiLink is not hoping to beam specialized internet connections from space. Instead, the company is solely focused on cellphone service, with the goal of placing small satellites into orbit that any mobile phone can connect to seamlessly, without any changes being made to the phones themselves. “There are 5.2 billion phone users on the planet,” Charles Miller, co-founder and CEO of UbiquitiLink, tells The Verge. “We’re going to turn all their phones into satellite phones.”

Fujitsu and Qualcomm Complete 5G Data Calls in Sub-6 GHz and mmWave Spectrum Bands

Fujitsu Limited and Qualcomm Technologies, Inc., a subsidiary of Qualcomm Incorporated, have achieved non-standalone (NSA) 5G New Radio (NR) data calls on sub-6 GHz and mmWave spectrum bands(1). The two parties successfully conducted Network-Device Vendor Interoperability Testing (NV-IOT) for NTT DOCOMO, INC., leveraging Fujitsu's commercial 5G base station (gNB) products together with a mobile smartphone form-factor test device, powered by the Qualcomm Snapdragon X50 5G modem and antenna modules

with integrated RF transceiver, RF front-end and antenna elements. These latest NV-IOT testing bi-directional data calls, compliant with the 3GPP release 15 specifications, were completed in mid-July at Fujitsu in Japan. This achievement marks a significant milestone to build a successful 5G end-to-end ecosystem in Japan, composed of 5G network infrastructure from Fujitsu and a broad range of 5G user devices using Qualcomm Technologies' modems and RF Front-end solutions. "These data calls bring 5G technology one step closer to commercial

rollout," said Durga Malladi, Senior Vice President and General Manager, 4G/5G, Qualcomm Technologies, Inc. "These live tests deliver on the commitment of Qualcomm Technologies and Fujitsu to make 5G a commercial reality in 2019 and are major milestone in driving 5G network launches around the world. We look forward to continuing our collaboration with Fujitsu, enabling 5G networks and providing consumers with transformative 5G experiences starting this year."

KLEOS Space Funding to Initiate Procurement of Second Smallsats Cluster



Kleos Space S.A. has entered into a binding term sheet for a 1.83 million euros debt instrument, to be issued in the form of secured convertible notes. The procurement of Kleos' 2nd cluster of satellites can now commence and the launch in 2020 will be booked over the coming months. The second cluster will collect more data which in turn means an improved and higher value product for our customers. The multi-satellite Scouting Mission system will form the foundation of a constellation that delivers a global picture of hidden maritime activity, enhancing the intelligence capability of

government and commercial entities when AIS (Automatic Identification System) is defeated, imagery is unclear or targets are out of patrol range. The first scouting mission is comprised of 4x smallsats built by GomSpace in Denmark, each the size of a shoebox. The first tranche convertible notes will have an aggregate face value of equivalent 1.35 million euros and will be issued at a discount for an aggregate issue price of 1.22 million euros. The First tranche notes will have an interest rate of 10 percent per six-month period, may be converted into CDIs at an issue price of equivalent 0.305 euros per CDI at the

election of the investors, and must be redeemed 6 months from the date of issue unless earlier converted by the holder. The maximum number of CDIs that may be issued on conversion of the first tranche notes is 2.96 million euros. The investors may elect to subscribe for the second tranche notes which will have an aggregate face value of equivalent 673.000 euros and will be issued at a discount for an aggregate issue price of 612.000 euros and will otherwise be issued on the same terms as the first tranche notes. The maximum number of CDIs that may be issued on conversion of the second tranche notes is 1,480,000 euros. The investors will also be granted up to 917,000 euros options over CDIs with an exercise price of 0.245 euros per CDI and a three- year exercise period. Andy Bowyer, CEO of Kleos, said that this investment is targeted to enable the firm to accelerate business development and revenue generating activities. Additional product development engineers will be recruited to strengthen the management team to assist with the delivery of the company's data products. Over the coming months, KLEOS Space will also recruit sales and sales support professionals to help respond to inbound sales inquiries and manage key accounts, increasing orders and contracts.

Ready-To-Fly Satellite Computers to Be Developed By RUAG Space and Kubos Corporation

RUAG Space and Kubos Corporation have signed a Memorandum of Understanding (MOU) – the agreement outlines how the companies will work together on multiple new lines of ready-to-fly satellite computers. These new integrated products, geared toward the U.S. commercial and government satellite constellation market, take the KubOS software and RUAG Space satellite computing hardware into the quickly growing mega constellation and >150 kg markets. This agreement is an important first step for KubOS and secure open source, which has been a mainstay of the nanosatellite market, to the larger mini/medium size satellite enterprise. Several industries, from smartphones

to enterprise IT, have made the turn towards open source software. The KubOS community has swelled in 2019 to more than 500 aerospace developers, making it the largest open source movement in the space community. Kubos CEO Marshall Culpepper said that the collaboration of large, successful aerospace firms with innovative software companies is going to be an unstoppable trend as more large constellations are planned and launched into orbit. The underlying truth for those applications is that they need both flexible software and reliable hardware. The company has developed an open-source, integrated flight software framework that can easily run on an array of different

hardware combinations. KubOS is the Android of space systems. By combining it with a wide range of powerful hardware platforms, it can bring incredible value to its end-users. Dr. Peter Guggenbach, CEO of RUAG Space, added that customers have come to know and expect reliable systems from RUAG Space, but the challenge the company faces as an industry is producing the same reliable systems at scale and at a level that makes them affordable for a mega constellation. To accomplish this requires strategic partners, particularly in software – and visionary thinking and innovative collaborative approach – which leads to this partnership with Kubos.

General Atomics Orbital Test Bed Satellite Payload Commissioning is Underway

General Atomics Electromagnetic Systems (GA-EMS) reports that the commissioning of NASA's Deep Space Atomic Clock (DSAC), the primary hosted payload on-board the Orbital Test Bed (OTB) satellite, is now underway – GA-EMS' OTB was successfully launched at 2:30 a.m. EDT on June 25, 2019, on board the SpaceX Falcon Heavy rocket. DSAC is a miniaturized, ultra-precise, mercury-ion atomic clock intended to support deep space navigation and exploration. It was designed and built at NASA's Jet Propulsion Laboratory for NASA Space Technology Mission Directorate's Technology Demonstration Missions Program. In addition to DSAC, GA-EMS' OTB spacecraft is hosting technology demonstration payloads including: a Modular Solar Array developed for the U.S. Air Force Research Laboratory (AFRL); an Integrated Miniaturized Electrostatic Analyzer sensor payload developed by cadets at the U.S. Air Force Academy; the RadMon next generation radiation effects monitor; and the FlexRX programmable satellite receiver. Also on board OTB as a passive payload are Celestis cremains for Earth orbit memorial spaceflight. Scott Forney, the President of GA-EMS OTB spacecraft



is operating nominally and the company has successfully met the first milestone in DSAC commissioning, which involves power up and establishing normal telemetry. GA-EMS is working closely with JPL to successfully bring DSAC to operational status, and will continue to provide operations support services as DSAC enters its year-long mission to demonstrate its capabilities to support deep space navigation.

Brazil Launches Consultation for New Satellite Exploitation Rights

Brazil's National Telecommunications Agency (Anatel) launched a public consultation to sound out interest in using satellite capacity for at least five years, from 01 January 2021. The result will influence the regulator's decision regarding the future

conference on Brazilian Satellite Exploitation Rights for four orbital positions (61, 65, 70 and 84 West), for which the rights expire on 31 December 2020. Contributions in the public consultation will be received until 07 September.

ULA Successfully Launches 2nd GPS III Satellite

A United Launch Alliance (ULA) Delta IV rocket carrying the second Global Positioning System III (GPS III) satellite for the

U.S. Air Force Space and Missile Systems Center lifted off from Space Launch Complex-37 today at 9:06 a.m. EDT. This mis-

sion marked the 29th and final flight of the Delta IV Medium rocket and the 73rd GPS launch by a ULA or heritage vehicle. The GPS III system was built by Lockheed Martin. This mission launched aboard a Delta IV Medium+ (4,2) configuration vehicle, which included a 4-meter Payload Fairing and two Northrop Grumman solid rocket motors. The common booster core for Delta IV was powered by the RS-68A engine, and the Delta Cryogenic Second Stage was powered by the RL10B-2 engine, both supplied by Aerojet Rocketdyne. "Thank you to the team and our mission partners for the tremendous teamwork as we processed and launched this critical asset, providing advanced capabilities for warfighters, civil users, and humankind across the globe," said Gary Wentz, ULA vice president of Government and Commercial Programs. "We are proud of the strong legacy of the Delta IV Medium program, and look forward to the future with our purpose-built Vulcan Centaur."



Viasat, ReadyNet Demonstrate Satellite Internet across Jamaica

In a public demonstration, Viasat and Jamaican operator ReadyNet successfully showed how Viasat's high-speed satellite internet service could help connect communities and businesses across Jamaica. The demonstration took place in Portland, Jamaica, a community located on the northeast coast of the island, and showcased the ViaSat-2 satellite. The demonstration aimed to show how the satellite could deliver connectivity and broadband satellite speeds that are faster,

and more resistant to hurricane and other outages, than current island terrestrial-based services. The demonstration also aimed to show how businesses and government organizations could connect to critical business applications such as cloud-based collaboration, Voice-Over-IP (VoIP), email, point-of-sale transactions, high-speed file transfers, streaming video, and more. "The collaboration between Viasat and ReadyNet creates an opportunity for many Jamaican business

owners and government officials to use satellite broadband in new ways," said Chris Dehring, CEO of ReadyNet. "Through Viasat's high-speed satellite internet service we could offer an economical solution that can be quickly installed and online anywhere across the island. Because of its capabilities, we are exploring ways to deliver Viasat's satellite internet service to connect multiple Caribbean territories."

India, France Work to Develop Satellite Constellation

French space agency CNES, in a statement released to the media, said that an agreement its president Jean-Yves Le Gall and ISRO Chairman K Sivan had signed earlier has not been made official, and that work to start development and production of a constellation of satellites will begin. India

and France also discussed possibilities of the latter training future flight surgeons who'll cater to India's astronauts. "On the occasion of the state visit to France of Prime Minister, an agreement signed by CNES President Jean-Yves Le Gall and Sivan K, Chairman, ISRO, was officially

announced to start development and production of a constellation of satellite on which studies have been underway since French President Emmanuel Macron's visit to India in March 2018," the statement read.

Astranis' First Satellite to Launch via a SpaceX Falcon 9 Rocket

Journalist Darrell Etherington at the TechCrunch infosite is reporting that Y Combinator-backed startup Astranis is now set to launch its first commercial telecommunication satellite aboard a Falcon 9 rocket, with a launch time frame currently set for some

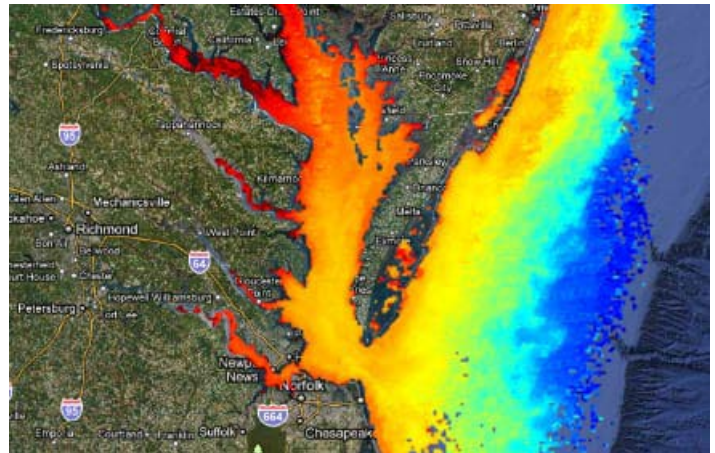


A SpaceX Falcon 9 rocket launching to space. Photo: SpaceX

time starting in the fourth quarter of next year. Astranis aims to address the market of people who don't currently have broadband internet access, which is still a huge number globally, and they hope to do so using low-cost satellites that massively undercut the price of existing global telecommunications hardware, which can be built and launched much faster than existing spacecraft, too. Astranis satellites are much more cost-efficient because they're smaller and easier to make, which changes the economics of deployment for potential carrier and connectivity provider partners. Its approach has already attracted the partnership of Microcom subsidiary Pacific Dataport, an Anchorage company that was formed to expand satellite broadband access in Alaska. This will be the goal of the company's first launch with SpaceX, to deliver a single satellite to geostationary orbit that will add more than 7.5 Gbps of capacity to the internet provider's network in Alaska, tripling capacity and potentially reducing costs by "up to three times," according to Astranis.

Raytheon will Build NASA's First GEO Hyperspectral Imager

Raytheon has been contracted by The University of New Hampshire to build the Geostationary Littoral Imaging and Monitoring Radiometer (GLIMR) sensor that will serve as NASA's first hyperspectral imager in geostationary orbit, the company announced August 26. NASA and the University of New Hampshire will use the hyper spectral imagery to obtain a highly detailed view of physical and biological conditions in coastal waters, which will be made available to scientists, researchers and educators around the world. The University of New Hampshire is serving as NASA's prime for the contract. GLIMR will launch aboard its host spacecraft (tbd) in either 2026 or 2027. "The instrument will provide high-sensitivity, high-spatial and high-temporal resolution measurements of coastal and ocean ecosystems in the Gulf of Mexico, parts of the southeastern U.S. coastline and the Amazon River plume," Jeff Puschell, GLIMR instrument scientist and principal engineering fellow at Raytheon Space Systems, said in a statement. "Decision-makers will use the GLIMR data to respond rapidly to natural and manmade coastal water disasters,



such as harmful algae blooms and oil spills. It will also help improve the coastal ecosystem's sustainability and resource management."

MITRE Joins Space ISAC Cybersecurity Initiative

MITRE has become the latest founding member of a major space cybersecurity initiative – Space ISAC. This follows on from a key announcement in April when the Space Information Sharing and Analysis Center (ISAC) and National Cybersecurity Center (NCC), a national non-profit for cybersecurity influencers jointly

announced the launch of Space ISAC on April 8, 2019. MITRE will become the Space ISAC's newest founding member, joining Kratos Defense & Security Solutions and Booz Allen Hamilton. Scott Kordella, MITRE's Executive Director for Space, will serve on the Space ISAC board of directors. The Space ISAC is the only space-

dedicated ISAC and is made possible through the investment by its board and founding members. MITRE joins as an integral player with significant expertise in safety, security, and reliability of space systems, with a focus on information management and decision support for both government and commercial assets.

Arianespace Will Launch the Ovzon-3 Satellite for Ovzon

Arianespace has announced the signature of a launch services contract with Ovzon for the company's first geostationary-orbiting telecommunications satellite: Ovzon-3. With offices in Sweden and the United States, Ovzon is dedicated to meeting the demand for increased mobile broadband connectivity in underserved regions. Ovzon-3 will have a mass at liftoff of approximately 1,500 kg and will be placed in geostationary transfer orbit by an Ariane 5 launch vehicle in 2021 from the Guiana Space Center – Europe's Spaceport in French Guiana (South America). As an

innovative small geostationary satellite, Ovzon-3 will feature multiple high-performance steerable beams to meet challenging communication requirements. In addition, the proprietary on-board processor developed by Ovzon enables such new functionalities as single-hop communications between very small terminals, reduced latency and more efficient use of the bandwidth. The next generation Ovzon service is based on complete end-to-end proprietary components and patented technology. Ovzon-3 will significantly increase service

performance, lead to new types of services, enable the use of even smaller terminals, expand coverage areas and increase the amount of available bandwidth. As a result, Ovzon is to offer a revolutionary mobile broadband service via satellite that combines high bandwidth satellite communications services with highly mobile terminals. Ovzon selected Maxar Technologies to build the satellite, using Maxar's mid-size SSL-500 spacecraft platform.

NSR: Satellite M2M/IoT a \$11.6 Billion Market Over Next Decade

NSR's M2M and IoT via Satellite, 10th Edition (M2M/IoT10) report, forecasts \$11.6 billion in revenues will be generated over the next 10 years. All M2M and IoT applications will grow, with total retail revenues to rise at 6.6% CAGR over the coming decade, with a 14% CAGR for in-service M2M/IoT units during this same period. And, while significant attention is paid to emerging IoT smallsat constellations, NSR found MSS and VSAT offerings continue to play a solid role in the M2M/IoT growth story. Transport & Cargo has been the main M2M/IoT market driver traditionally; however, a change in the mix

of applications driving revenue will occur as new technologies, such as Iridium Certus, new flat panel antennas, and most crucially small satellite constellations, enter the market. Agriculture and Construction market segments see the strongest increases driven by partnerships with heavy machinery makers, but other segments, like Energy and Maritime, will also contribute to the future revenue pie. "Existing satcom IoT offerings will grow strongly, although operators are preparing for longer term strategies with increased distribution, dual-mode offerings and higher bandwidth, as well as targeting

new applications and offering more end to end solutions combined with analytics," stated Alan Crisp, NSR Senior Analyst and report lead author. Traditional MSS and VSAT satellite IoT services remain a core opportunity, but small satellite IoT constellations will disrupt the market longer term. Lower cost satellite architectures, with lower total cost of ownership for end users, will drive new customers to these services. This is especially the case where there is a pressing need for connectivity and the economics have not previously stacked up, or there were issues integrating existing form factors.

Privatization of AsiaSat Approved – To Become Effective in Early September

Bowenvale Limited and Asia Satellite Telecommunications Holdings Limited have jointly announced that the proposal for the privatization of AsiaSat by way of a scheme of arrangement ("Scheme") has been approved at the Court Meeting on August 23rd. Approximately 99.98 percent of the shares held by the shareholders of the Company other than Bowenvale (the "Scheme Shareholders") that were voted in person or by proxy

at the Court Meeting were voted in favor of the privatization and a majority of the shareholders voting in person or by proxy on a headcount basis also voted in favor of the privatization. Subject to the Scheme becoming effective. The Scheme Shareholders will receive a cancellation price of HK\$10.22 per share in cash. Proceeding to the next step of the privatization, AsiaSat will seek the sanction of the Scheme at the court

hearing of the petition on August 30, 2019 (Bermuda time). Assuming the Scheme is approved by the court, it is expected that the Scheme will become effective on September 3, 2019, whereupon AsiaSat will become a private, wholly-owned subsidiary of Bowenvale and the listing of the shares in AsiaSat on The Stock Exchange of Hong Kong Limited will be withdrawn on September 5, 2019.

Höegh Autoliners Sselects Marlink-Managed IT Services to Meet Future IT Compliance Regulations

Marlink announced that it has signed a new agreement with Höegh Autoliners to supply the international transport and logistics company's 38 car and truck carriers with the industry-leading maritime-optimized IT solution, KeepUp@Sea, which is part of Marlink's new ITLink portfolio. Marlink will provide managed services designed to ensure the resilience and compliance of the vessel IT networks on Höegh vessels. Onboard implementation of the service is estimated to start in September, after hardware delivery and shore tests have been completed. As an integral platform within Marlink's advanced ITLink portfolio of IT solutions, KeepUp@Sea has been specifically designed to efficiently deploy and manage IT infrastructure and software across an entire fleet of vessels. Through standardization, automation and remote network management, KeepUp@Sea will enable Höegh to keep its IT systems always available, updated and secured, and to achieve material cost savings in operations. Over-the-air (OTA) applications and file distribution will limit the risk of human error, and dramatically reduce the resources and time required for updating software and antivirus manually. By replacing the outdated process of using physical media to upgrade onboard networks, Marlink is also assisting Höegh Autoliners to improve IT compliance, ensuring readiness for new regulations and guidelines, including the IMO 2021 Cyber Security section. Marlink's ITLink solutions portfolio is also future-proofed to accommodate fleet expansion and processes of controlled

change. Tore Morten Olsen, President Maritime, Marlink said: "Our comprehensive, integrated ITLink portfolio of IT solutions is a bespoke means of enabling an efficient, cost-effective vessel ICT environment that requires less human interaction on board and by the customer's IT team. We are confident that Höegh Autoliners will see significant value of moving towards a maritime IT environment optimized for 'floating offices' including over-the-air file deployment, software updates or changes, to stay fully compliant towards both regulatory bodies and industry best practice."



Hughes Network Systems Announces Partnership with Axesat

Hughes Network Systems, LLC, the global leader in broadband satellite networks and services, today announced that Axesat, a leader in satellite connectivity and telecommunications in Latin America, has chosen to offer Hughes satellite connectivity to enterprise customers throughout Colombia. The Ka-band service will be delivered using capacity on the Hughes 63 West satellite, which

provides coverage across 96% of the population of Colombia. "At Axesat, we focus on serving companies in locations where terrestrial infrastructure is not available," said Mauricio Segovia, chief executive officer, Axesat. "With Hughes Ka-band service, we will offer these customers better performance, pricing and flexibility to go with the Axesat managed services that today's distributed businesses need

to make the most of their networks." Along with Hughes satellite connectivity, Axesat offers enterprise customers a suite of managed network services to make the most of their multisite networks. "Axesat's choice of offering Hughes satellite service to its customers enables them to be more competitive in their market," said Hugo Frega, senior director, International Division, Hughes. "We value our relationship with Axesat and the trust they place in Hughes to help their customers throughout Colombia transform their networks and make the most of the cloud-based applications that businesses depend on." In addition to selling enterprise service plans from Hughes in Colombia, Axesat is also an authorized reseller of HughesNet® satellite Internet service for consumers and small businesses in Colombia, Ecuador, Peru and Chile.



EM Solutions Gains Thales Contract for Satellite Radio Systems

EM Solutions has been awarded a AUD\$ 6.5M contract by global prime contractor Thales for the supply of satellite radio systems to support a major connectivity project. EM Solutions' ability to make timely modifications to their Commercial-Off-The-Shelf (COTS) products to suit Thales' specific customer requirements was a key factor in determining the contract award. In 2016, a framework agreement was signed between the two companies to streamline ordering – in 2018, EM Solutions' work was again recognized when the company received the Thales Australia's Supplier of the Year award for Export Achievement. For EM Solutions, the success in winning

export business through the Global Supply Chain program has meant an expansion of its test and assembly capacity. Similar products to those supplied are also in use in several of EM Solutions' own on-the-move satellite terminals for a range of land and maritime applications, including the Cobra X/Ka tri-band Maritime Satellite Terminal, which is now operational on a number of different classes of Navy vessels, both in Australia and internationally. Thanks to its collaboration with Thales, EM Solutions is positioning to win further global business and extend its reach into other projects. Dr. Rowan Gilmore, CEO, said that because of this business, EM Solutions

has expanded its capacity, purchased additional equipment and hired new staff to meet delivery requirements. The firm is delighted to extend the company's near-decade long track record in working with Thales across the globe. Thales and EM Solutions have been collaborating through the work of the Thales Global Supply Chain team. Anne Munro, who heads Thales' GSC team, said that Thales has built trust with EM Solutions over an extended period and it is as a result of good communications and its proven track record that Thales has the confidence in EM Solutions to deliver.

United Launch Alliance Successfully Launches Communications Satellite for the U.S. Air Force Space and Missile Systems Center

A United Launch Alliance (ULA) Atlas V rocket carrying the fifth Advanced Extremely High Frequency (AEHF) communications satellite for the U.S. Air Force Space and Missile Systems Center lifted off from Space Launch Complex-41 on August 8 at 6:13 a.m. EDT. This marked the 80th successful launch of an Atlas V rocket, which has successfully launched and precisely delivered the entire AEHF constellation on orbit. ULA has a track record of 100 percent mission success with 134 successful launches. "The ULA and supplier teams continue to demonstrate the highest dedication to mission success as we overcame several technical issues during the last few weeks," said Gary Wentz, ULA vice president of Government and Commercial Programs. "Thank you to the entire team and our government mission partners for the outstanding partnership and teamwork to deliver these critical payloads to orbit." Producing more than two and a half million pounds of thrust at liftoff, the Atlas V 551 configuration rocket is the most powerful in the Atlas V fleet. The 551 rocket has launched groundbreaking missions for our nation—from the critically important MUOS constellation to historic science missions including New Horizons, the first mission to Pluto and the Juno mission to Jupiter. The AEHF system, developed by Lockheed Martin, provides vastly improved global, survivable, protected communications capabilities for strategic command and tactical warfighters. This mission launched aboard an Atlas V 551 configuration vehicle, including a 5-meter large Payload Fairing (PLF) and standing at 197 ft. tall. The Atlas booster for this mission was powered by the RD AMROSS RD-180 engine. Aerojet Rocketdyne provided the five AJ-60A solid rocket boosters (SRBs) and RL10C-1 engine for the Centaur upper stage. ULA's next launch is the GPS III SV02 mission for the U.S. Air Force Space and Missile Systems Center aboard the final Delta IV Medium

rocket. The launch is scheduled for August 22 at Space Launch Complex-37 at Cape Canaveral Air Force Station, Fla. With more than a century of combined heritage, United Launch Alliance is the nation's most experienced and reliable launch service provider. ULA has successfully delivered more than 130 satellites to orbit that aid meteorologists in tracking severe weather, unlock the mysteries of our solar system, provide critical capabilities for troops in the field and enable personal device-based GPS navigation.



Orbex and Innovative Space Logistics Sign Space Launch Agreement

Innovative Space Logistics B.V. and UK-based orbital launch services provider Orbex signed a wide-ranging Cooperation Agreement at the 33rd Annual Conference on Small Satellites in Logan, Utah. The co-operation will include technical launch services including launch manifest coordination and payload integration. As part of the agreement, ISL will also procure



orbital space launches from Orbex for a number of its smallsat customer missions. Netherlands-based company ISL is one of the world's leading players in smallsat launches, having executed or supported the launch of over 350 CubeSats into orbit over the past decade. With \$40 million in project financing, Orbex is the best-funded European private launch provider. In February 2019, Orbex publicly unveiled the engineering prototype of the Stage 2 of its reusable Prime launch vehicle, a dedicated smallsat launcher, which is up to 30 percent lighter and 20 percent more efficient than any other vehicle in the micro launcher category. Orbex Prime utilizes bio-propane, a clean-burning, renewable fuel that cuts carbon emissions by 90 percent compared to traditional hydrocarbon fuels. On August 1, 2019, Orbex's partner, Highlands and Islands Enterprise (HIE) confirmed that it had signed a 75-year lease option with landowners, the Melness Crofters Estate, to build and operate a spaceport on its land. "It is extremely attractive for many of our customers to be able to launch from Europe," said Abe Bonnema, Director at ISL. "Orbex has very quickly emerged as a leader in the developing European launch market, and it makes sense to cooperate further, as this market evolves. The innovation in their launch vehicle, Prime, as well as the quality and experience of their personnel makes Orbex a natural partner for ISL." "There are very few companies globally that have the dedicated smallsat expertise that ISL has accumulated" said Chris Larmour, CEO of Orbex. "This cooperation will enhance both ISL's and Orbex's commercial offerings and together we will be able to provide competitive all-European solutions. The European launch services market is evolving fast and we will be able to jointly address many of the emerging requirements for European launches."

Intelsat and Stratosat Power Business Expansion and Enable International Commerce across Central Africa

Intelsat S.A. has announced an agreement with Stratosat Datacom that provides for the delivery of high-speed broadband services to sites across Central Africa by integrating managed connectivity from Intelsat's high throughput global network with valued-added engineering and management services from Stratosat. Together, the companies will bring internet and Virtual Private Networking (VPN) connectivity to markets across the region that have traditionally lacked access to reliable communications capabilities. The Stratosat NextGen managed service – powered by Intelsat's FlexEnterprise – can be rapidly deployed and will dramatically improve the reach and performance of networks for small, medium, and large businesses in the region, including schools, hospitals, financial firms, mining,

and agriculture companies. Stratosat NextGen will also enable multi-national enterprises to engage and connect with their partners and customers throughout the region, driving business and overall economic growth. Intelsat's FlexEnterprise is a secure, managed connectivity service with broad global coverage that removes the complexity of delivering high-speed broadband services to enterprises. FlexEnterprise delivers a superior experience while reducing the total cost of ownership and improving the economics of network expansion by pairing high-throughput connectivity from Intelsat's space-based network with smaller, more capable ground hardware. This delivers dramatically enhanced network speed, coverage, and security, enabling access to services and applications that are

not supported by traditional networks. "Because connectivity is essential to supporting the growth of local and regional economies, Intelsat is committed to making broadband connectivity more attainable for businesses, communities, and individuals across Africa," said Brian Jakins, Intelsat's Regional Vice President, Africa. "Stratosat is the first of Intelsat's FlexEnterprise partners to focus on expanding broadband connectivity in the Central African region." "Stratosat Datacom is pleased to partner up with Intelsat to bring unique connectivity to the Central Region in Africa. We are highly committed to empower local service providers to offer cost-effective broadband solutions to end-users," said Dieter Kovar, Schauenburg International – Africa Group CEO.

LEO Satellites Will Change the IFC Game

Qatar Airways, which was only launched in 1997, is one of the world's fastest growing airlines and a pioneer in terms of In-Flight Connectivity (IFC). Ashi Hoseini, manager of Electronic Flight Bag (EFB) systems at the airline, spoke to Via Satellite recently about the airline's view of the connected aircraft market, and what could be coming down the pipeline. She believes the influx of Low-Earth Orbit (LEO) satellites will dramatically change the game. "Absolutely (they will impact the market)! LEO satellites are a new and growing technology and like any new technology, they will have an impact and will probably disrupt the market. These satellites are cheaper to build and will open up the possibilities for other type of players and solutions. Other benefits are more redundant systems, highly resilient and much greater bandwidth compared to the traditional High Throughput Satellites (HTS)," she said. For an airline like Qatar Airways that invests aggressively in IFC, it needs to be aware of all the latest technology and solutions as it looks to remain at the cutting edge of customer experience. Hoseini admits there are many new technologies and players in the connectivity field, and new possibilities to be explored and evaluated. She said she hopes to see more established solutions and more concrete examples and statistics related to benefits and paybacks. She also talks about the possibilities of Artificial Intelligence (AI) and Machine Learning (ML). She said, "I hope that more and more vendors and application developers incorporate the AI and ML technologies into their solutions. I believe that as a developer in this fast pacing industry, you should be one or two

step ahead of your customers in order to be able to deliver the best solution and experience. This is something that I hope to see more of in the airline industry over the next two to three years. My ambition is of course to continue the digital transformation in new ways to increase simplicity and operational efficiency." One of the big questions for airlines when investing in connectivity solutions, particularly around satellite, is the potential Return on Investment (ROI). With passengers seemingly somewhat reluctant to pay for these services, the challenge for airlines is how they can justify huge investments in equipping their fleets with state-of-the-art connectivity. On the business model question, Hoseini says, "Basing your business case and model on the revenue from passengers is not correct and will never give the expected ROI. The business model should be based on other types of benefits such as revenue gained via partnership with other relevant industry players or by focusing on the benefits gained as a result of automation of data distribution such as aircraft health monitoring, more frequent and accurate weather and turbulence data, etc. The model is more complex and requires more creativity and re-thinking." However, Hoseini believes that the market as well as the digital transformation taking place within airlines is leading to positive change. She said that during the last two to three years, connectivity has been growing and the benefits are becoming more and more visible and tangible. "Be connected at any time has also become a need and expected to exist by consumers and customers who connect to the internet in order to interact with digital content, services, experiences and brands. This digital connectivity, which supports the very existence of connected consumers, has altered all aspects of life," she said. "We have also seen solutions that are more secure and mature with proven track record in the industry. Many airlines have also gone through a digital transformation and mobility in different areas is growing. Connectivity is the main pre-requisite and the best way to benefit from a digital and mobile solution, which makes the way to a decision very short and a natural step. I think that the combination of all above factors have led to a large change in the market. And more and more airlines are joining the trend and make connectivity part of their mobile strategy."



Russia Refuses Approval for OneWeb Satellite Signals

Journalist Chris Forrester has posted at the Advanced Television infosite that OneWeb wants to girdle the planet with around 650 satellites to provide global broadband coverage. To do this, the company needs the permission of major countries to send and receive signals from the overhead satellites — Russia has refused to grant these rights to OneWeb. OneWeb had applied to the Russian State Commission for Radio Frequencies to approve the use of OneWeb's signals. Specialist

publication Bleeping Computer said the reason could be anxieties by Russia that it could not control the services from, and to, OneWeb's satellites. In May Russia's President Putin signed a bill that obliges all Russian web-traffic to pass through points that are controlled by the government. GfK stated that a quarter of Russians do not have internet access. The latest refusal for the OneWeb platform was a sign that the country's authorities remain keen to continue tightening their control of internet

access, according to Professor Christopher Newman at Northumbria University, speaking to the BBC. "[Satellite internet] presents an existential strategic threat to their trying to limit internet activity within their boundaries." OneWeb already has 6 satellites on-orbit and, last month, started mass-production of satellites at a rate of two per day. Somewhat ironically, OneWeb will be using Russian-built rockets to launch the bulk of the company's satellite fleet. 🚀

ARTICLE

Loon: Overcoming the Infrastructure Challenge in Broadband Connectivity



Julie Kearney
Head of Regulatory Affairs
Loon



While it seems that the world is more connected than ever before, there are 3.8 billion people who lack access to the Internet. In fact, less than 50 percent of the world's landmass is covered by terrestrial Internet infrastructure. On top of that staggering number of disconnected people, there are many more who lack reliable Internet access. When Bocar Ba asked Loon to contribute a piece to SAMENA Trends to talk about Loon and our role in connecting the unconnected, we immediately accepted his gracious invitation. We are honored to share Loon's story with our colleagues in the SAMENA community.

What is Loon?

Loon is an Alphabet company based in Mountain View, California in the United States. We are working tirelessly to bridge the digital divide through the use of balloons traveling on the edge of space. At this point, SAMENA Trends readers probably have read this sentence a few times. Balloons? On the edge of space? To solve the enormous global challenge that billions of people around the world lack access to the Internet?

That's right! Loon is developing and deploying technology to bring the benefits of the Internet to everyone. Loon balloons travel in the stratosphere, acting as floating cell towers, to deliver connectivity to people in unserved and underserved areas around the world. And these balloons aren't your everyday party balloons. Loon's balloons are made from sheets of custom-developed polyethylene. Each tennis court-sized balloon is built to last more than 150 days in the stratosphere before landing back on Earth in a controlled descent. In fact, a Loon balloon just passed the 223 day milestone, breaking our previous record of 198 days. Loon

balloons are designed and manufactured to endure the harsh conditions in the stratosphere, where winds can blow over 100 kilometers per hour, and temperatures can drop as low as -90 celsius.

A Moonshot from California

Prior to July 2018, when Loon became an independent company in the Alphabet family, Loon began its life as "Project Loon" at Google X, the Moonshot Factory (Alphabet is the parent company of Google, so Loon and Google are sister companies). Google X's mission is to create radical new technologies to solve some of the world's hardest problems. We all can agree that one of the world's hardest problems is that traditional, ground-based infrastructure is limited in its ability to provide Internet access to those in remote or hard-to-cover areas. Additionally, traditional ground-based infrastructure is vulnerable to destruction in natural disasters. Because Loon's balloons navigate wind currents 20 kilometers above the Earth, they can be arranged in small clusters to provide periods of prolonged connectivity down below. What started as an idea at the Moonshot Factory several years ago has come a long way: Loon balloons have flown over one million hours in Earth's stratosphere. In all of those hours aloft, Loon's balloons have traveled nearly 40 million kilometers – enough to make 100 trips to the moon or circle the Earth 1,000 times.

Partnering with Mobile Network Operators
Loon itself is not a telecommunications

Loon is developing and deploying technology to bring the benefits of the Internet to everyone. Loon balloons travel in the stratosphere, acting as floating cell towers, to deliver connectivity to people in unserved and underserved areas around the world.



service provider. We partner with Mobile Network Operators (MNOs) to expand the reach of their service. The MNO has the customer relationship, while Loon serves as the infrastructure provider or "cell tower in the sky." Together, we help expand coverage into remote and rural locations, upgrade existing networks, and also provide expedient coverage after natural disasters. How do users actually receive their Internet connectivity via Loon balloons? A wireless Internet signal is transmitted to the nearest Loon balloon from our MNO partner on the ground using a Loon-provided ground station. That signal is relayed across the Loon balloon network and down to users on the ground. In order for users to connect to the Internet whenever a Loon balloon is overhead, they need the sim card of our MNO partner in that country and a standard LTE handset.

Each balloon has a coverage area of around 5,000 square kilometers, which is significantly greater than traditional ground-based cell towers, which have a reach of about 50 square kilometers. Currently, we are preparing to deploy commercial service in Kenya with our partner, Telkom Kenya. In Peru, we were able to deliver support with our partner, Telefonica, in the Loreto region after a recent earthquake. We also were able to provide service after Peru's devastating

2017 floods. And this is just the beginning - Loon is constantly talking to MNOs around the world about potential partnerships..

Ready, Set, Launch!

At Loon, we have developed flight equipment (also known as the "payload") for our balloons that is highly energy efficient and is powered by renewable energy. Solar panels power the system during the day while charging an onboard battery to allow for nighttime operations. Our balloons also carry the antennas that transmit connectivity from ground stations, across a balloon mesh network, and back down to the user's LTE phone. The flight capsule holds the brains that command and control the Loon system. A parachute automatically deploys to guide the balloon safely back to Earth after its flight.

We launch our balloons from sites in Nevada and Puerto Rico, depending on the winds. Our custom-built, two-story tall Autolaunchers are designed to launch Loon balloons safely and reliably at scale. Side panels protect the balloon from the wind as it is filled with lift gas and positioned for launch. A crane points downwind to smoothly release the Loon balloon up into the stratosphere. Each launcher is capable of launching a new balloon into the Loon network every 30 minutes.



Navigating the Wind

Loon balloons can reach countries around the world from our launch sites by navigating the wind. In the stratosphere, different wind currents exist at different altitudes. By moving up or down into these different currents, balloons can change speed and direction and navigate to where we need them to go. Predictive models of the winds and autonomous decision-making algorithms help the balloons navigate efficiently. Loon's entire navigation system functions autonomously using our custom software. By moving with the wind, Loon balloons can be arranged into small clusters to provide periods of prolonged connectivity in a defined area. One balloon moves into place just as another one leaves. Originally, Loon envisioned creating rings of balloons sailing around the globe, and balloons would take turns moving through a region to provide service. Advances in the understanding of wind currents in the stratosphere, combined with improvements to the software algorithms that help balloons navigate, have allowed us to cluster balloons over specific areas. This helps maximize the time balloons are spending over areas where people need service. In fact, during a test in 2016, Loon engineers managed to keep a balloon in Peruvian airspace for 98 days. The team

has since improved on our techniques to increase the amount of time one balloon can remain over areas needed service.

Aviation Safety - Our Number One Priority
Loon operates at an altitude nearly twice as high as commercial aircraft. Because we operate in air space, Loon secures necessary approvals in all locations where we operate. Safety is critically important to our operation and mission, so we adhere to or exceed the international

standards for unmanned free balloons set by the United Nations' International Civil Aviation Organization's (ICAO). These ICAO standards are recognized by the vast majority of countries around the world. Loon maintains continuous telemetry and command links with every balloon, tracking the location using GPS. When a balloon is ready to be taken out of service, the lift gas keeping the balloon aloft is released and the parachute automatically deploys to control the landing. Descents are coordinated with local air traffic control to land the balloon safely in a sparsely populated area. We have a team in Mountain View dedicated to managing balloon retrieval and analyzing the balloons when they return, and we have trained recovery teams around the world, on call to retrieve the balloons for reuse and recycling after they land.

Ready for Flight

We are thrilled to share the Loon story and look forward to continuing the conversation. Loon will be at the upcoming Mobile World Congress in Barcelona from 24 to 27 February, 2020. I also welcome you to contact me in Mountain View at juliekearney@loon.com. Please follow us at www.loon.com and on LinkedIn. We'll see you in the stratosphere! 🌍



WHOLESALE NEWS

Sri Lanka Telecom Launches Xyntac wholesale Brand

Sri Lanka Telecom (SLT) has launched the Xyntac brand in order to better position itself in the market as a true global carrier. Xyntac will promote voice and data services along with innovative digital services to cater for evolving global market requirements. The Xyntac brand was launched at ITW 2019, which was held in Atlanta and attended by 7,000 delegates from over 2,000 companies, representing more than 130 countries. "The launch

of Xyntac brand by our global team is a remarkable milestone in our journey to become a global player. ITW was the ideal occasion to launch Xyntac, since it is an annual meeting and networking platform for the global wholesale telecom industry. Thus, Xyntac received the full attention of the global telecom fraternity at the event," said Kiththi Perera, Chief Executive Officer of SLT. "We were fortunate to be able to meet up with SLT's current

international business partners and the general wholesale telco community to communicate Xyntac's products and services. Xyntac will operate as the global business unit of SLT and expand to cater to the global wholesale community." Xyntac has already started developing its IP backbone network and expanding its service portfolio to colocation, cloud and evolving digital services. The company said: "Xyntac's ISP service (ASN: 45489) has been ranked among the first 100 global internet service providers and it is proud to be the first Sri Lankan telco to be listed among the global ISP giants." Xyntac aims to be a key regional player by providing global services through major investments in multiple international submarine cable systems, such as: SEA-ME-WE 5, SEA-ME-WE 4, SEA-ME-WE 3, Bharat-Lanka (between India & Sri Lanka), Dhiraagu-SLT (between Maldives & Sri Lanka), and multiple interconnected data centers. Xyntac's international PoPs are spread across the US, Europe and Asia, which will enable faster deployment of services around the globe. Xyntac will also boost SLT's plans to expand the business to new territories and emerging markets in the world.



Subtel Presents Automatic Roaming Bill

Chilean regulator the Department of Telecommunications (Subsecretaria de Telecomunicaciones, Subtel) has introduced a draft bill that will require companies to offer access to their networks to other operators that do not have coverage in certain areas of the country. The National Automatic Roaming (RAN) Bill aims to improve connectivity for remote communities, with Subtel noting that due to the limitations of coverage in some areas customers are forced to resort to impractical solutions, such as having multiple devices and SIMs to ensure they

have access to a network. The legislation would allow users in these areas to connect to any network with coverage of the area, regardless of their service provider; the service provider in question would then compensate the network operator for use of their infrastructure. In order to implement the measure, Subtel will require operators to create and maintain wholesale offers, which will be subject to approval from the regulator and review from the National Economic Prosecutor (Fiscalia Nacional Economica, FNE). Commenting on the bill, which has already

been signed by President Pinera but still requires parliamentary approval, Minister of Transport and Telecommunications Gloria Hutt said: 'Our role is to find solutions to the problems of citizens in terms of connectivity. Therefore, as a government, we have decided to promote this bill, in order to prevent telecommunications users living in rural or isolated areas from having to hire more than one mobile service, in addition to ensuring that those who visit these areas have constant connectivity.'

South Africa: Cell C, MTN Conclude Roaming Agreement Term Sheet

South Africa's third-largest mobile operator Cell C and telecommunications giant MTN South Africa have concluded a detailed term sheet regarding a national roaming agreement, majority shareholder Blue Label said. In an update to shareholders, the JSE-listed group assured that the mutually beneficial deal would result in substantial cost savings for Cell C by reducing network and capital expenditure through an extensive roaming arrangement. Negotiations are now under way for a long form agreement that will detail the principles set out in the term

sheet. Further, Blue Label welcomed the permanent appointment of Douglas Craigie Stevenson as Cell C CEO. Craigie Stevenson had been interim CEO since March. "In the past five months, Douglas and his team have led the company to improved financial stability, sound business ethics and good governance, better operational performance and have established a path to sustainability. "His permanent appointment was unanimously approved by the board and we are fully behind his efforts to lead Cell C," said Cell C Chairperson Kuben Pillay.



ANCOM Opens Consultation on Lower Mobile Termination Rates

Romania's National Authority for Management and Regulation in Communications (ANCOM) has opened a public consultation on its plan to reduce mobile termination rates (MTRs) with effect from 1 January 2020. The regulator has proposed a maximum tariff of EUR0.0076 (USD0.0085) per minute, down from the

current rate of EUR0.0084, as a transitional measure until a single European rate is established before the end of 2020 under Directive (EU) 2018/1972. The operators designated with significant market power – Lycamobile, Orange Romania, Vodafone Romania, RCS&RDS and Telekom Romania Mobile Communications – will have the

obligation not to exceed the maximum regulated rate on their own networks. The rate will apply to national calls and calls from inside the European Economic Area (EEA), as well as calls initiated outside the EEA where there is no international agreement in place governing termination fees.

Bell Claims Wholesale Rate Hike will Reduce Broadband Rollout by 200,000 Households

Bell Canada has released a statement claiming that a regulatory decision to reduce wholesale broadband rates will negatively impact its high speed access network expansion in smaller towns and rural communities, reducing the scope of its current plans in

such areas by 20%, or approximately 200,000 households. On 15 August the Canadian Radio-television and Telecommunications Commission (CRTC) ordered large telcos and cablecos to reduce tariffs for wholesale broadband network services, applicable retroactively back to 2016. Bell estimates that the decision will cost it around CAD100 million (USD75 million). TeleGeography notes that over half a million subscribers to third-party ISPs use Bell's fixed access network. Bell's release highlights that in 2018 it announced the rollout of its new Wireless Home Internet (WHI) service, targeting areas that are difficult to reach with fibre or cable connections, with an original target to deploy WHI to 800,000 small-town households in Manitoba, Ontario, Quebec and Atlantic Canada later raised to 1.2 million premises with the help of federal funding. Bell has so far rolled out WHI to more than 130 small communities in Ontario and Quebec. The operator says it will now be forced to reduce the scope of the WHI build out plan to approximately one million premises.



CRTC Lowers Wholesale Broadband Rates to Boost Competition Among Providers

Canada's telecoms regulator says it has lowered the rates for wholesale broadband



access as it looks to increase competition among internet providers. The lower rates announced by the CRTC Thursday means it will be cheaper for smaller internet providers to buy broadband capacity on the networks owned by the big telecom providers. The CRTC requires that the large cable and telephone companies make available parts of their network, at rates set by the regulator, to improve competition and lower prices. In 2016, the CRTC set interim wholesale rates after it decided the rates proposed by the telecom companies were not "just and reasonable." It says the final rates are 15 to 43 per cent lower than

the interim rates for monthly capacity, and three to 77 per cent lower for access rates. "As the demand for faster broadband speeds grows, we are putting measures in place to ensure Canada's internet market remains dynamic," said CRTC chair and CEO Ian Scott in a statement. Major telecom companies have warned that their investments in expanding infrastructure could be impacted if wholesale rates are set too low. The CRTC announcement was welcomed by the Canadian Network Operators Consortium, which represents smaller internet providers.

Cell C Scraps Wholesale FWA LTE Access

South African mobile operator Cell C is poised to discontinue its wholesale fixed-wireless LTE service, Tech Central reports, citing correspondence between Internet Solutions and its channel partners. The site says that Cell C will continue to offer fixed-wireless LTE packages to its own customers, while other affected wholesaler providers are thought to include Afrihost and Vox. All 100GB and 200GB packages will be terminated at midnight on 31

October, while 20GB and 50GB packages will cease working on 31 December. The Internet Solutions letter explains: 'This is a result of Cell C's numerous business challenges, including their inability to sustainably support the demand that fixed LTE has placed on its network ... Through extensive negotiations, we have made every effort to find a suitable alternative for our customers and Cell C to ensure there is no interruption in connectivity.

These conversations did not yield the desired outcome of keeping our customers connected via Cell C's fixed LTE.'



Iceland's PTA Consults on New Termination Rates for 2020

Telecoms watchdog the Post and Telecom Administration (Post-og Fjarskiptastofnun, PTA) has opened a public consultation on its draft decision outlining the mobile and fixed termination rates for the 2020

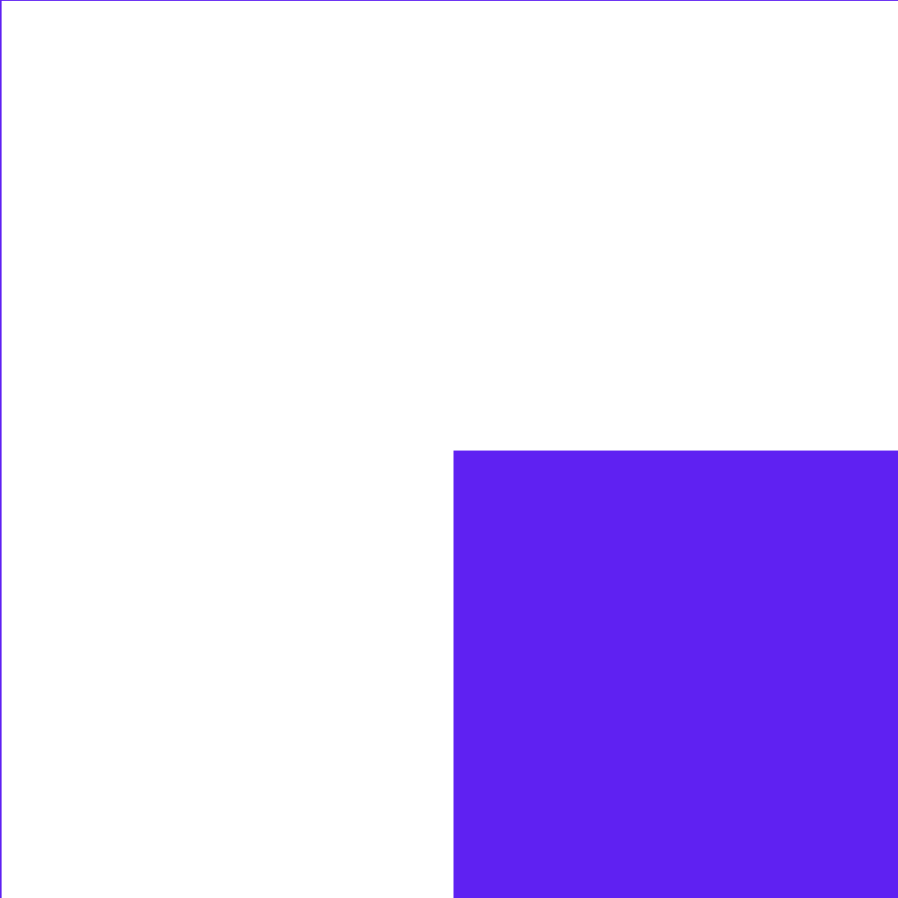
calendar year. The regulator proposes that from 1 January 2020 the mobile termination rate (MTR) in the country should increase to ISK1.02 (USD0.00823) per minute, up from ISK0.96 per minute

(in effect until 31 December 2019). For fixed termination, the rate will remain at its current level (ISK0.12). The PTA has invited comments on its draft decision until 30 August. 📧

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ARTICLE

Secure Global Connectivity Is Imperative for Age of IoT

As businesses explore new opportunities for the IoT, they must acknowledge that the public internet is no longer fit to provide the secure global connectivity that is imperative to fulfill its promise. Instead, the use of a private, isolated network has emerged as an alternative and more practical answer to protecting online transactions in an age when the IoT is creating ever-greater risk.

With promises of limitless opportunities for convenience and efficiency, the internet of things (IoT) is a full-fledged craze in the business world. But what's often overlooked in this enthusiasm is that the "I" in the IoT is also an internet of shared data and networks. As a result, we are dangerously reliant on public internet connectivity to underpin many of the IoT's new services, without fully grasping the security implications.

The public internet was never designed to be a secure environment. It was originally conceived as a network with built-in redundancy for academics to share data within a known community, not protect itself from unknown users and malicious actors. Consequently, from a security standpoint, it's become more of a best-effort network than a best-in-class network needed to ensure the confidentiality, integrity and availability of today's transactions. This poses a profound systemic risk for countries in the Middle East and Africa, as well as the entire world.

With the IoT poised to enter a crucial growth phase in this region, it's important to understand the implications of this systemic risk as companies begin work on their 2020 business plans. In fact, according to the GSMA, as of early this year, total IoT connections already numbered 400 million across the Middle East and North Africa, split equally between consumer and industrial uses, and the IoT market in the region was valued at \$16 billion. By 2025, though, total IoT connections in the Middle East and North Africa are projected to hit 1.1 billion and reach a market value of \$55 billion.



Phil Celestini

Senior Vice President and Chief Security and Risk Officer, Syniverse

Syniverse®

To understand what's at stake with this rapidly rising market, let's look at the risks of today's public internet, the latest growth of the IoT, and one approach to securing network connectivity in this new era.

Among the many online risks businesses must face, malware and ransomware, data thefts and breaches, and distributed denial of service (DDoS) attacks have all become threats to cloud- and IoT-focused companies relying on the public internet.

Systemic risk of public internet

Unlike a targeted threat that jeopardizes one element of a company, a systemic risk can bring an entire operation to a halt and cause total failure. Put simply, many businesses continue to face this systemic risk by relying on the public internet to connect to hosted cloud services and support their adoption of the IoT in pursuit of new opportunities.

Among the many online risks businesses must face, malware and ransomware, data thefts and breaches, and distributed denial of service (DDoS) attacks have all become threats to cloud- and IoT-focused companies relying on the public internet. And the world has now seen even greater cyber-calamities, like cloud-based cryptojacking, cloud ransomware, and DDoS attacks on an unimaginable scale, generating terabit per second volumes of malicious traffic that were previously

thought impossible just a few years ago.

Rise of the IoT

At the same time, advancements in miniaturization and mobile technology have accelerated IoT adoption. This explosion of devices able to collect and transmit massive amounts of data poses an additional risk for all those sensitive transactions that need to happen at the speed of business. With everything connected to the public internet potentially vulnerable to being hacked, millions of new IoT devices designed and produced without any meaningful attempt to secure them will become subject to impending compromise.

This growth raises the stakes exponentially for unsecured (and unsecurable) networks and calls into question previous risk acceptance decisions that connected business systems via the public internet. Since the IoT's entire premise is built upon connectivity, an attack that exploits or compromises this connectivity has the potential to wreak unprecedented havoc.

Private, isolated networks

As businesses explore new opportunities for the IoT, they must acknowledge that the public internet is no longer fit to provide the secure global connectivity that is imperative to fulfill its promise. Instead, the use of a private, isolated network has emerged as an alternative and more practical answer to protecting online transactions in an age when the IoT is creating ever-greater risk. A private network can significantly reduce business risk by connecting devices and processes completely independent from the public internet.

In order to do this, the private network must have four qualities:

1. Privacy and isolation from the public internet in order to protect valuable data and assets.
2. Connectivity global in scale but flexible enough to address specific vertical market needs.
3. High capacity, high speed, and low latency to meet the needs of new use cases.
4. Ability to view and manage all members of a network environment.

With everything connected to the public internet potentially vulnerable to being hacked, millions of new IoT devices designed and produced without any meaningful attempt to secure them will become subject to impending compromise.

A future built on security first

The Middle East and Africa are primed for a dynamic growth phase for the IoT and a new era in connectivity – as well as vulnerability. As businesses seize the opportunities of this era, they risk leaving their commercial data exposed to a public internet never intended for that purpose. Ultimately, smart companies that want to conduct business and transact at speed with the highest security and privacy must integrate the use of a private, isolated network to protect their data. 📍

TECHNOLOGY NEWS

5G Network Revenue to Surpass \$4B in 2020

Global 5G network infrastructure revenue is tipped to almost double between 2019 and 2020, hitting \$4.2 billion as 5G rollouts begin to accelerate over the next 12 months. Analyst company Gartner expects there to be an 89 per cent increase in 5G infrastructure revenue for communications service providers (CSPs), from 2019 figures of \$2.2 billion. The upward trend is expected to continue, with revenue from 5G forecast to hit \$6.8 billion in 2021. Sylvain Fabre, senior research director at Gartner, noted that at present CSPs are using non-standalone technology, which “enables them to introduce 5G services more quickly”, with 5G New Radio equipment running alongside existing 4G core network infrastructure. This will change in 2020, as CSPs roll out standalone 5G technology, requiring 5G NR equipment and a 5G core network, “which will lower costs and improve performance for users.” As a result, Gartner also forecast that investments in 5G NR network infrastructure will account for 6 per cent of the total wireless infrastructure revenue of CSPs in 2019, and that this figure will

reach 12 per cent in 2020. With 5G service already underway in the US, South Korea and major European countries including the UK and Switzerland, Gartner said 2020 will see a number of other major markets join the party. CSPs in Canada, France, Germany, Hong Kong, Spain, Sweden, Qatar and the UAE have all announced plans to accelerate 5G through next year. Gartner said 2020 will also see enhanced

use cases of the technology, with more CSPs targeting the enterprise, covering a range of industries. There will also be the emergence of private network use, for industrial users, which is seen as a huge potential market by equipment vendors. Fabre said: “It’s still early days for the 5G private-network opportunity, but vendors, regulators and standards bodies have preparations in place.”



Fiber Set to Become Europe's Leading Fixed Broadband Technology by 2023

xDSL is the leading fixed broadband technology in Europe, accounting for 49.9% of all fixed broadband lines, but fiber is forecast to overtake it by 2023. According to new analysis from GlobalData Technology, fiber will grow at a compound annual growth rate of 12.4% to 2024. At present, Russia has the highest share of fiber lines in Europe as a percentage of total broadband lines (75%), but Spain expected to take the lead in 2023, with an 86.5% share. “To meet ever-growing consumer data demands and offer new digital products and services, European telcos are strongly investing in high-speed

fiber broadband,” GlobalData Technology said. The research notes that European fixed telecom providers are increasingly joining forces through co-investments projects and network sharing agreements, to accelerate coverage and reduce the costs of fiber deployment. For instance, in April this year, Vodafone and Orange agreed to grant shared access of their future fiber networks to both operators in Spain. European telecom regulators and governments are also encouraging and incentivizing fiber deployment. For instance, the French regulator, ARCEP, announced a ‘fiber zone’ initiative in

December 2018 to stimulate the migration from copper lines to fiber broadband. The Italian government is planning to provide subsidies – via a voucher scheme – of up to \$3,423 (€3,082) for small and medium enterprises (SMEs) and up to \$5,705 (€5,137) for schools when migrating fixed broadband to the fiber-optic network. The Italian government also incentivizes fiber deployment in less profitable areas such as rural areas or areas with a low population density. A debate continues in Italy about the consolidation of the fiber network operators, TIM and Open Fiber.

NGMN Recommends Common RF Cluster Connector to Cut Costs

The Next Generation Mobile Networks (NGMN) Alliance has recommended the cluster connector type C (MQ4/5) as a common radio frequency (RF) cluster connector for early 5G deployment. NGMN's new white paper – Recommendation for RF Cluster Connector for use in 5G NR 8T8R TDD Deployment – describes the selection process and explores the features that make a common RF cluster connector the most suitable for early 5G deployment. Across the mobile communication industry, there is increasing demand for highly integrated antennas with a large number of RF ports. At the same time, antenna size is a critical factor in network deployment which limits the number of connectors. Cluster connectors solve this problem by integrating several RF ports into single connectors. The NGMN cluster connector project, bringing together international operators as well as network equipment, antenna and connector suppliers, worked to align the industry towards using a common cluster connector to deliver operations and maintenance benefits to operators. Tomas Sedlacek,

Chairman of the NGMN cluster connector project and Site Infrastructure Expert at Deutsche Telekom, said, "This cluster connector industry recommendation, aligning equipment suppliers towards using a common type of connector, will help operators to simplify logistics and reduce operations and maintenance expenditures." Dr. Peter Meissner, NGMN

CEO, added, "This will accelerate time-to-market and decrease installation costs. The selection of a cluster connector marks a significant step in this mission, and we are committed to continuing to work with the industry as we move forward towards the new era of connectivity that 5G is set to bring."



FCC Finds 5G Poses No New Risk

US officials set public concerns about the health impacts of 5G aside, concluding there is nothing about the technology or the bands it operates in which would require new limits on radio frequency (RF) exposure. After a six-year review of existing RF standards, Federal Communications Commission (FCC) Chairman Ajit Pai proposed an order to renew them and impose new service-agnostic rules for compliance. The order would cover all sources of RF emissions, including handsets, laptops, small cells and tower operations, across all technology iterations including 3G, 4G and 5G. The regulations aim to protect people against harmful RF exposure by limiting

the acceptable amount of energy absorbed by the human body when exposed to electromagnetic fields. On a call with journalists, senior FCC officials noted the US' current RF standards for handheld devices in particular, are among the strictest in the world. They added a review of scientific evidence conducted by the Food and Drug Administration's Centre for Devices and Radiological Health found no adverse health effects in humans caused by RF exposure at or under the current limits. Many countries follow IEEE RF exposure guidelines for handheld devices, which allow 2 Watts per kilogram averaged over 10 grams of tissue. However, the FCC uses a standard of 1.6 Watts over

1 gram. FCC officials said renewing the limits will ensure all authorized uses of RF are safe, regardless of technology or frequency employed. They added there is nothing special about 5G which would require additional protections. Pai's push to renew the existing FCC standard comes as operators battle public concerns about the safety of 5G and mmWave devices and equipment. Though the move would, among other things, require some operators to change the formulas used to calculate the placement of antennas, the officials said it is not expected to represent a major shift for industry players.

Deutsche Telekom Paves the Way for 5G with Small Cells

Deutsche Telekom is collaborating with Huber+Suhner to deploy small cell antennas that support 4G and 5G frequencies. The Sencity Urban antennas cover the range of frequencies from 1.7 to 4.2 GHz. They will initially be deployed in Deutsche Telekom's 4G network at selected sites and can be upgraded to 5G easily, the operator says. The antennas' capacity and coverage benefits could be boosted further with MIMO (Multiple Input Multiple Output) technology. Walter Goldenits, Telekom Deutschland's



CTO, said, "Small cell antennas are an important component of our expansion strategy. We can systematically cover squares and streets with the new antennas. This helps us create more capacity in the downtown areas and thus further optimize our network. A big added value of our Swiss partner's antennas is their flexible handling: we can convert the supply to 5G in a few easy steps." The antennas will be used first in the German cities of Kiel, Lüneburg, Osnabrück, Munich and Mülheim and will be installed on public telephone boxes, bus and streetcar shelters, walls, or on LED furniture. "Developing small cell antennas that support 4G and 5G technology and can be integrated properly into the cityscape despite the limited space was a challenge," said Claudia Bartholdi, Product Manager at Huber+Suhner. "The Sencity Urban antennas have optimized performance and allow flexible mounting so that the network can easily be extended to 5G in urban areas." According to the Small Cell Forum, Europe lags behind North America and Asia in the deployment of small cells. The Forum says that small cells are proliferating in regions where work has been undertaken to lower regulatory barriers relating to cost, sites approvals and deployment processes. Its research in December found that deployment rates in North America are projected to rise by 92% annually between 2017 and the end of this year, and 74% in South East Asia – above the global average of 68%.

US Cellular Targets 2020 5G Launch

US Cellular seeks to activate its planned 5G network in 2020, CEO Kenneth R. Meyers has confirmed. The chief executive noted: 'We acquired new licenses during the Federal Communications Commission's (FCC's) recent millimeter wave (mmWave) auctions, giving us access to high-frequency spectrum required to deliver high speed and low latency capabilities of 5G to our current and future customers. Together, the mmWave spectrum we acquired provides at least 300MHz of spectrum in markets that serve 97% of our customer base. We expect to begin [the] commercial launch of 5G services in 2020.' As previously reported by TeleGeography's CommsUpdate, US Cellular paid USD256.0 million for a combination of 28GHz and 24GHz mmWave licenses in Auction 101 (28GHz) and Auction 102 (24GHz). Despite the

mmWave spectrum haul, the cellco is expected to prioritize the use of its 600MHz frequencies – acquired in June 2017 – for its initial 5G networks.



Verizon Seeks FCC Permission for 3.5GHz Trial

US mobile giant Verizon Wireless has applied to the Federal Communications Commission (FCC) for a Special Temporary Authority (STA) which will allow it to stage TD-LTE trials using the 3.5GHz Citizens Broadband Radio Service (CBRS) band. The

application – discovered by Light Reading – covers the period between 8 August 2019 and 31 January 2020. If approved, the trial will take place in Methuen, Massachusetts and utilize 3650MHz-3700MHz frequencies. TeleGeography notes that the

3.5GHz CBRS band comprises spectrum in the 3550MHz-3700MHz range and has been earmarked for future 5G use. However, FCC officials have indicated that an auction is unlikely to take place before Q2 2020 at the earliest.

Vodafone Germany Extends 5G Coverage to Berlin, Other Cities

Vodafone Germany has announced that its 5G network is now available in Berlin, with the mobile network operator (MNO) also confirming that it currently has 40 active 5G base stations across a number of locations across the country. With a first base station now having been switched on in the capital (at the Adlershof Technology Park), Vodafone Germany has noted that two more will be activated shortly. In addition, the cellco revealed in a press release regarding the network development that the first 5G sites had also gone live in a number of other new locations, including Bremen, Duisburg, Frankfurt, Solingen and Wolfsburg. As previously reported by CommsUpdate, in July 2019 Vodafone Germany announced the commercial launch of 5G services for consumers, with its first 25 5G base stations switched on in 20 cities and communities at that date, including Cologne, Dusseldorf, Hamburg, Dortmund and Munich, and the municipalities of Birgland (Bavaria), Lohmar (North Rhine-Westphalia) and Hattstedt (Nordfriesland). As per the cellco's plans, it said at the time of launch that it was aiming to increase the number of 5G base stations it had in operation to more than 50 by the end of August, with other areas expected to gain coverage

including Dresden, Darmstadt, Leipzig and Mulheim an der Ruhr. Looking further ahead, by end-March 2020 the cellco aims to have more than 160 5G antennas live in 25 cities, 25 municipalities and ten industrial parks and by the end of that year ten million people will be connected to the 5G network, rising to 20 million twelve months later.



Vodafone Portugal Stages 3.6GHz 5G Trial with Ericsson



Vodafone Portugal has successfully trialed 5G technology, in association with vendor partner Ericsson. The National Communications Authority (Autoridade Nacional de Comunicacoes, ANACOM) allowed the telco to utilize a 100MHz block of 3.6GHz spectrum to power the test, which involved a 'real-time 5G holographic broadcast'. The demonstration involved TV host Jose Alberto Carvalho being 'teleported' 400km between the TVI studio in Queluz de Baixo and the Paredes de Coura music festival venue. For its part, Ericsson provided Vodafone with its AIR 6488 5G equipment.

ANFR Authorizes 5G Trials at 273 Sites

France's independent regulator, the National Agency of Frequencies (Agence Nationale des Frequences, ANFR), has given the green light for 65 trial 5G base transceiver stations (BTS) in the 3.5GHz band in July, bringing the total authorized

5G sites in the country to 273. Orange has been allowed to trial fifth-generation technology at 191 sites, followed by Bouygues (57) and Altice France (SFR, 25). The ANFR also published in its monthly update on the number of 2G, 3G and 4G LTE

BTS in the country that it had authorized a total of 47,200 sites for LTE use by 1 August 2019, with 42,209 of these BTS currently in service.

Russian Operators Claim European First Using mmWave Frequency for 5G

MegaFon, MTS, Beeline and Tele2 are set to run trials in Moscow this autumn ahead of wider launches next year. The parties claim this will be the first 5G NR (for New Radio, the 3GPP global standard) mmWave (band n257) network launched in Europe this year. The Moscow-based project will enable the testing and commercialization of new applications, from better fixed broadband and mobile wireless access for private users to “unique business solutions” according to a press statement from Qualcomm. The project is intended to kickstart new 5G-enabled digital services and innovation in the city, including virtual and augmented reality applications, which “are set to become some of the most important elements of the Russian capital's digital space”. Further, it is hoped that it will create new jobs developing next-generation applications and boost local high-tech industries, raising Moscow's

global profile. So far the US has shown more interest in mmWave than Europe: the frequency provides high capacity and data rates, but less good coverage compared to the mid-band spectrum European operators are using. “Moscow is scheduled to be the first city in Russia to deploy fully-fledged 5G pilot zones across all telecom operators this fall. In many of the world's megacities, the deployment of 5G networks is restricted by mobile operators' business needs and their access to the spectrum frequencies needed. In our case, spectrum access has been resolved at state level to accelerate the rollout of high-capacity 5G mmWave. Also, this 5G pilot is coordinated by the Moscow City Government and, in particular, the Department of Information Technologies of Moscow. “We are keeping up with the market in building a safe and reliable 5G infrastructure that will allow Moscow to create more high-paying jobs

and attract further investment to the city,” said Eduard Lysenko, head of the IT department of Moscow. Yulia Klebanova, Vice President, Business Development, QUALCOMM Europe, noted, “Moscow is one of the most dynamically developing cities in Europe. Over the next few years, Moscow plans to equip business centers, stadiums, main streets, congress halls, railway stations and airports with high-capacity ultra-fast, low-latency mobile communications to bring a whole new level of services to individuals and businesses in the capital. “Deploying 5G networks on the n257 mmWave band will allow operators to achieve this goal in a very efficient way... we are working with manufacturers to bring 5G mmWave technology to...devices, from smartphones to fixed wireless access points, which will be essential to the city achieving its goal.”

Dhiraagu Switches on 5G in the Maldives

Dhivehi Raajjeyge Gulhun (Dhiraagu), the Maldives' incumbent telecoms operator, has announced the commercial launch of 5G services. The network is currently available in Male, Villimale, Hulhumale, Velana International Airport, Addu City, Hithadhoo, Haa Dhaalu Atoll and Kulhudhuffushi. Customers in these locations with 5G compatible devices will be able to access the service with no additional data charges using their existing SIM card. ‘Dhiraagu will continue to work with key partners in bringing the latest technological developments to Maldives in the telecom and digital space. Our 5G deployment has been made possible with our close collaboration with Huawei, the leading 5G vendor,’ commented Dhiraagu's CEO Ismail Rasheed, adding: ‘We would like to thank Huawei for their support in delivering the equipment and providing implementation services in a timely manner, which



has enabled Dhiraagu to launch the first 5G commercial service in Maldives and South Asia.'

ER-Telecom Issued Trial 5G Spectrum

Russia's State Commission for Radio Frequencies (SCRF) has issued trial 5G frequencies to the country's second largest fixed broadband provider by subscribers, cableco/fiber network operator ER-Telecom. Broadband TV News

cites an Izvestia report saying that ER-Telecom (branded Dom.ru) may start tests in the autumn utilizing 4.8GHz-4.99GHz and 27GHz band spectrum in 'over 50 experimental zones' located in Moscow City, Moscow Region, St Petersburg

and surrounding areas, Yekaterinburg, Ulyanovsk, Kaliningrad and other regions. All Russian operators participating in 5G trials are expected to submit results of testing to the relevant authorities by September 2020.

Mobitel Signs MoU to Research and Develop the Next Generation Telecommunication Networks and Applications

The National Mobile Service Provider, Mobitel recently signed a landmark Memorandum of Understanding (MoU) with the University of Sri Jayewardenepura, to co-create and co-innovate in the area of telecommunication, 5G, Internet of Things (IoT), Artificial Intelligence (AI) and more - with both parties sharing their respective areas of expertise and knowledge towards the common goal for collaborative research and development. Mobitel will be jointly working with the Faculty of Engineering (Department of Electrical and Electronic Engineering) of the University for the above mentioned cause. This MoU is a promising union of academia and industry to bring novel research and development to the country. A key benefit

of this collaboration will be the valuable exposure that students will gain in latest technologies related to telecommunication, facilitating further experimentation and innovation before venturing into the marketplace or on their entrepreneur journey. Commenting on the occasion, Mr. P. G. Kumarasinghe Sirisena - Chairman of Sri Lanka Telecom and Mobitel said, "We are pleased to sign this MoU with the University of Sri Jayewardenepura as we believe collaboration with the University's Faculty of Engineering can bring enormous benefits to each of us, which ultimately will benefit the citizens of the country. The university has already demonstrated its prowess in producing qualified engineers and this research and development

agreement will also benefit Mobitel, which has unfailingly broadened the boundaries of innovation with an inclusive approach." Adding further, Snr. Prof. Sampath Amaratunge - Vice Chancellor University of Sri Jayewardenepura said, "We are delighted to have Mobitel taking such an interest to partner with university students who in turn will benefit by working with experts in the field of telecommunication related technologies. We welcome this MoU as the best way to power innovation as a partnership between academia and corporates in order to drive greater opportunities. Our students look forward to achieve maximum leverage on this opportunity to learn and grow."



Smart Completes 5G Video Call in the Philippines

PLDT Inc. mobile arm Smart Communications has successfully completed the 'first video call in Southeast Asia' using a standalone 5G network with equipment partner Nokia. The Philippine Daily Inquirer notes that the call was made using Nokia's 5G standalone (SA) core, radio and user equipment installed at the PLDT-Smart 5G Technolab. In a statement, the pair noted that using a standalone 5G network allows 'the full

benefit of 5G capabilities to be tested and demonstrated'. As reported by TeleGeography's CommsUpdate, last month PLDT-Smart postponed the commercial launch of 5G services to early 2020, as the country's largest operator by subscribers continues its quest to select suitable equipment vendors for the project. In a news briefing, chairman and president Manuel Pangilinan was quoted as saying 'I don't think it will happen this

year, but certainly sometime next year, early next year,' despite having previously announced that it was targeting Q4 2019 for fifth-generation services to be available for home broadband and enterprise customers. Ahead of the launch, however, PLDT-Smart has powered up 5G sites across Luzon, specifically at Clark Freeport Zone, Makati central business district, Ateneo de Manila University campus and Araneta Center in Cubao.

Turkcell Achieves 'World Record' 2.283Gbps Speed in 5G Trial

Turkcell has achieved downlink transmission speeds of 2.283Gbps in an Istanbul-based trial, claiming that this feat represents a 'world record speed'. The tests were carried out in conjunction with Ericsson and utilized spectrum in the 3.5GHz band and a 5G-compatible smartphone, the Oppo Reno 5G. The trial utilized non-standalone architecture, meaning the smartphone connected to 4.5G and 5G networks simultaneously. Gediz Sezgin, CTO at Turkcell, commented: 'With world record speeds yielded on Turkey's first 5G-device test, Turkcell proudly added another first to its track record. We have one of the world's fastest networks in Turkey and with this milestone passed, we continue our efforts to build the best 5G network.'



T-Mobile Netherlands Performs 850Mbps 5G Smartphone Test

T-Mobile Netherlands has achieved 850Mbps data download speed on its 5G Field Lab test network at its headquarters in The Hague using the OPPO Reno 5G smartphone. The speed compares with a maximum data rate of about 400Mbps on T-Mobile's 4G network. The operator's CTO

Kim Larsen said: 'We're proud to have been the first to achieve a 5G connection on a live network using an OPPO smartphone. T-Mobile is always looking for the newest, fastest, and most innovative smartphones for its customers. By experimenting with a variety of 5G functionalities in our 5G

Field Lab, consumers can get a taste of the possibilities that 5G will offer in the future.' The Netherlands is gearing up for 5G launches in 2020 after an auction of 700MHz frequencies scheduled for completion early in the year. 📶

HUAWEI OceanStor Dorado

6 OF THE TOP 10 CARRIERS PROCESS THEIR DATA WITH THE WORLD'S **FASTEST** ALL FLASH STORAGE



ARTICLE

5G Reimagining the Next Level Smart City



Safder Nazir

Regional Vice President,
Digital Industries Strategy
Huawei



5G opens up new use cases that, especially when combined with artificial intelligence, will shape the future of our world.

A city is only as smart as its connectivity will allow. While 4G has provided a solid foundation for fledgling smart city initiatives across the region and further afield, the next level smart city will only be possible with the introduction of the next generation of connectivity: 5G. More than just an enabler of smart cities as we currently know them, 5G opens up new use cases that, especially when combined with artificial intelligence, will shape the future of our world.

Connectivity is the lifeblood of a smart city, in which everything requires a connection in order to sense, understand, and respond to the world around it. This technology-enabled nervous system comprises digital solutions across infrastructural platforms such as the Internet of Things (IoT), cloud, artificial intelligence (AI) and big data. Together, these platforms constitute the foundation of ubiquitous connectivity that a smart city requires – but in order for many use cases to be adopted at mass scale, a low-latency network that facilitates near instantaneous connection is also required. For example IoV (Internet of Vehicle), as a part of mass autonomous vehicle adoption, or flight control of drones if the sky is full of them, in order to avoid collisions.

This is exactly what 5G can offer. With the ability to deliver data speeds of up to 10 gigabytes per second, 5G is fast. To put that into perspective, on a 5G network you can download a high definition movie onto your smartphone in just two seconds. Now, imagine the possibilities for application in a smart city.

Autonomous vehicles and smart mobility systems are some of the most talked-about prospects of the connected future. Dubai, for example, is pursuing this aggressively with its Dubai Autonomous Transportation Strategy, through which the emirate aims to transform 25% of its total transportation into autonomous mode by 2030. 5G will have a solid role to play in making this vision a reality. When combined with AI, 5G will be a driving force – no pun intended – in the realization of smart traffic management. Not only will it connect autonomous vehicles with the world around them, it will monitor traffic lights, flow of traffic, and built-in car navigation systems to manage road safety and congestion, amongst other benefits.

There are myriad applications for 5G in a smart city, ensuring we build our cities as 5G cities is key. Tomorrow's world will leverage super-fast connectivity to improve efficiencies beyond what we might imagine. 5G will not only empower our cities, but our imaginations, as it opens up possibilities that were previously only a dream. 🌐

REGULATORY NEWS

Regulator Meeting Ends With OTT Accord

Telecom regulators in Asean have agreed in principle on revenue collection from over-the-top (OTT) service providers operating in the region, though the approaches will have to be figured out by the countries themselves. The regulators met in Bangkok at the 25th Asean Telecommunication Regulators' Council meeting, which ended on Thursday. OTT was one of the key topics of discussion as the regulators sought ways to properly regulate operators, including taxation. OTT refers to digital applications or services that operate on internet networks. These players include Facebook, YouTube, Line and Netflix. Takorn Tantasith, secretary-general of the National Broadcasting and Telecommunications Commission (NBTC),

said regulators from the 10 Asean countries agreed on revenue collection from the OTT operators, based on three principles raised earlier at the meeting. First, the measures must not negatively affect consumers of OTT services. Second, OTT revenue must be given to the state. Third, OTT businesses should give their consent to the measures. The regulators will need to consult on the issue with their governments and leaders, said Mr. Takorn, who chaired the meeting. Any additional proposals or amendments to the meeting's resolution by members must be filed within a month, then the outcome of this year's meeting will be officially concluded. Each country needs to figure out the details on how to proceed with revenue collection itself, Mr. Takorn

said. According to Mr. Takorn, Singaporean and Malaysian regulators indicated they could collect corporate income tax from OTT operators, many of which have head offices set up in those countries. "The NBTC also needs to figure out a model for revenue collection," he said, refusing to term the model as a taxation regime. Revenue collection could be based on the volume of bandwidth usage by OTT operators through telecom infrastructure. "This issue needs to be raised with the NBTC board again," Mr. Takorn said. After the revenue collection approach is clearly defined, it will be forwarded to the cabinet for consideration, he said.

5G Upgrade Requires Massive Outlay: NBTC



Telecom operators may need to spend 200-300 billion baht each to change their network equipment for 5G technology, says the National Broadcasting and Telecommunications Commission (NBTC). Takorn Tantasith, Secretary General of the NBTC, said he invited various players in the

telecom industry for talks about steps to make 5G technology available in Thailand by late next year. The parties ranged from licensed telecom operators to internet providers, importers and producers of IT devices. The operators pointed out they need to invest a huge amount of money

to transfer from 4G to 5G technology if the government and the NBTC aims to have 5G be adopted completely within the given time frame, Mr. Takorn said. "Operators need to completely change their network equipment," he said. "Each operator may need to invest at least 200-300 billion baht, excluding expenses from spectrum auctions and 5G service." Yet Mr. Takorn insisted 5G technology would be a boon for the industrial sector, where manufacturers can make use of the technology to undergo production restructuring. He said 5G network equipment is expected to be ready by the middle of next year at the earliest. "The change from 2G to 3G was from analogue to digital, while the change from 3G to 4G is seen as a top-up. But the change from 4G to 5G is a major transformation that requires a lot of investment," said Mr. Takorn. "This is a whole new world of communication and connectivity." The NBTC needs to heed all the players in the industry to make sure 5G technology can get off ground and operators survive financially, he said.

FCC Chairman Formally Recommends T-Mobile-Sprint Merger Approval

Federal Communications Commission (FCC) Chairman Ajit Pai has shared with his colleagues a draft Order that would approve, subject to conditions, the proposed merger between T-Mobile US and Sprint. Addressing his fellow commissioners, Mr. Pai wrote: 'After one of the most exhaustive merger reviews in Commission history, the evidence conclusively demonstrates that this transaction will bring fast 5G wireless service to many more Americans and help close the digital divide in rural areas. Moreover, with the conditions included in this draft Order, the merger will promote robust competition in mobile broadband, put critical mid-band spectrum to use, and bring new competition to the fixed broadband market. I thank our transaction team for the thorough and careful analysis reflected in this draft Order and hope that my colleagues will vote to approve it.' Last month, satellite TV giant DISH Network agreed to acquire Sprint's nationwide portfolio of 800MHz spectrum, as well as its pre-paid mobile businesses, including Boost Mobile and Virgin Mobile – easing antitrust concerns and paving the way for the long-running USD26 billion merger to close.



NCC To Decommission 693 Abandoned Telecoms Masts

The Nigerian Communications Commission (NCC) may decommission about 693 telecoms masts alleged to have been abandoned in several parts of the country. NCC however, gave owners of the mast 90-days to rehabilitate, commence usage or dismantle and remove the masts/towers from the relevant locations. Though the Commission was not forthcoming about the operators that are likely to own the masts, but further checks showed that larger percentage of the abandoned masts might belong to some Code Division Multiple Access (CDMA) operators, such as Starcomms, Multilinks, Reltel/Zoom, among others. The commission in a public notice titled: "First phase of Decommissioning/Dismantling of Abandoned Masts/Towers in the Country," published on its website, dated August 9, 2019, said it has identified several abandoned telecommunication masts and towers located in various parts of the country. According to

the telecoms regulator, failure to maintain these structures over long periods of time has resulted in their technical failure and constant vandalism with negative consequences on public health and safety. In certain locations, NCC said it observed that criminals took advantage of these abandoned structures to host illegal broadcast equipment for relaying subversive messages against the State. NCC in the document, which was signed by its Director of Public Affairs, Dr. Henry Nkemadu, said it issued guidelines on technical specifications for the Installation of Telecommunications Masts and Towers in 2009 to provide for various issues including the appropriate maintenance of telecommunications masts and towers. In line with the provision of the Guidelines, "owners of the listed abandoned masts and towers are hereby given notice to rehabilitate, commence usage or dismantle and remove the masts/towers from the relevant locations within 90 days of the publication of this notice." The Commission noted that where there is a failure to comply with the directive, it shall exercise its regulatory mandate by taking necessary steps to decommission / dismantle the relevant abandoned masts/towers. NCC said affected licensees will also be required to reimburse the Commission for expenses in this regard, in addition to the payment of a fine as provided in Chapter 5(4)(d) of the Guidelines. The Guardian checks showed that about 210 telecommunications masts may be decommissioned in the South West, while 159 are in the South East. In the South, 147 masts are to be brought down. From the North West region, 65 abandoned masts will be brought down; North East has 48 to be brought down and in the North Central, 64 telecoms mast may be brought down.



Orange Slovensko and Slovanet 3.5GHz Spectrum Deal Close to Completion

Press reports from Slovakia suggest that local fixed and mobile operator Orange Slovensko is close to finalizing a deal to acquire 3.5GHz spectrum licenses from wireless ISP Slovanet. Zive.sk revealed in June this year that Orange was in negotiations with Slovanet regarding its 3.5GHz permits, and the news site now writes that the deal is agreed, Slovanet has informed the regulator about the transfer

of frequencies, and Orange is now awaiting the award of its license, which the report describes as a formality. A purchase price has not been disclosed. Orange is thought to be acquiring a total of 40MHz in two paired 20MHz blocks (3470MHz-3490MHz/3570MHz-3590MHz), with the licenses valid until 2025. With 700MHz – and potentially 1500MHz – spectrum coming up for auction in Slovakia later

this year, Orange will have a range of frequencies at its disposal for 5G wireless services. Rival operators O2 and 4ka (SWAN Mobile) also have access to 3.5GHz frequencies, while Slovak Telekom (ST) has a 3.5GHz permit covering the Bratislava region only. For its part, Slovanet will retain 2x15MHz in the 3.5GHz band for its TD-LTE fixed-wireless services, while it also holds 3.7GHz spectrum covering 47 districts.

GTH Board Approves VEON's Asset Buyout

Global Telecom Holding (GTH) informed the Egyptian Exchange (EGX) on Sunday that its board of directors have approved its parent VEON's offer to acquire the company's assets in Pakistan, Bangladesh and Algeria. VEON intends to directly acquire GTH's stakes in mobile operators Jazz (Pakistan), Banglalink (Bangladesh) and Djezzy (Algeria) for PKR313.34 billion (USD1.95 billion), BDT24.92 billion (USD290 million) and DZD70.19 billion (USD590 million, including another

asset, MedCable) respectively, plus Mobilink Bank (Pakistan) for USD92 million. In dollar terms the offers add up to a value of USD2.9 billion. GTH will hold an extraordinary general meeting related to the asset offer on 9 September. Earlier this month, Amsterdam-headquartered multinational telecoms group VEON completed a mandatory share buyout offer to up its stake in Egypt-based GTH to around 98.24%. GTH will subsequently be delisted from the EGX.



Parliamentary Committee Recommends National Broadband Network Remain in State Hands

Following an investigation into the Irish government's decision to award preferred bidder status for the National Broadband Plan (NBP) contract to National Broadband Ireland (NBI), a company led by private investment firm Granahan McCourt, a report by the Oireachtas Committee on Communications has recommended that the broadband network infrastructure remain in public ownership. According to local news source RTE, in this report the committee also recommended that the state commission an external, independent review on whether its current proposals, and the costs associated with them, are the only viable option for the NBP

project. In addition, it suggested that a new cost-benefit analysis should be carried out before the final contract is signed with NBI later this year, while calling for the government to re-engage with state-owned power company Electricity Supply Board (ESB) to examine the best model for the delivery of a new broadband plan via that company. The committee's report argued that the original terms of the NBP tender were too narrow, and that a lack of research into the actual cost of the final project proved to be a structural flaw which led to prospective bidders withdrawing. Among other concerns raised by the report it noted that, while the state will invest

almost EUR3 billion (USD3.3 billion) in the NBP project, it will have no ownership rights to the infrastructure that is created. It also raised concerns over the fact that just one government representative is being appointed to the board of NBI. While the Department of Communications, Climate Action & Environment (DCCA) has reportedly said it will consider the committee's report when it is officially published, RTE cites a government source as saying the recommendations it contains would mean abandoning the current process and starting again, which they claimed could take years.

OFCOM Could Get New Powers to Regulate 'Harmful' Social Media Content

The government has been consulting on plans to regulate social media platforms and is considering giving responsibility to Ofcom. Ofcom could be given the power to fine social media companies in a bid to protect youngsters from "harmful" content online. The regulator does not currently have the ability to take action over material on websites like Facebook and YouTube, but the government is considering expanding its remit beyond more traditional media. Earlier this year, the Home Office and Department for Digital, Culture, Media and Sport (DCMS) drew up proposals on online harms that would see social media firms become legally required to protect users, with

bosses potentially held personally liable if they do not comply. It was suggested that a new body could be set up to issue fines or even block access to certain websites, but for now the government has proposed giving Ofcom "interim powers" to regulate "video-sharing platform services". The DCMS said the move would allow the UK to meet its obligations to the EU regarding online safety, which members must have complied with by September 2020. A spokesman said: "The directive proposed a number of appropriate measures to protect minors and the general public from harmful content. "The government has proposed that Ofcom is given interim powers to regulate video-sharing platform

services and ensure they comply with minimum standards set out in the AVMSD (Audiovisual Media Services Directive) by the transposition deadline - 19 September 2020. We are currently consulting on this approach."



UK Telcos Set Out Their Conditions to Make Fiber Broadband Universal

UK operators have outlined their requirements to make Prime Minister Boris Johnson's demand for full-fiber broadband "for all" by 2025 a reality. They priorities four key issues and say that urgent action is required within 12 months if universal coverage is to accelerate. An open letter from the telecoms industry said, "The industry stands ready to rise to this challenge, but we need a Prime Minister who can provide the direction, idealism and commitment to fulfil this ambition." It was signed by the leaders of the Internet Services Providers' Association, the Federation of Communications Services and Independent Networks Cooperative Association which represent the telecoms industry, including large infrastructure players, start-ups and suppliers. Members include BT, Sky, Virgin Media, Google and Vodafone. BT's new CEO, Philip Jansen, has already visited the Prime Minister asking that his government creates the right investment environment to make universal full-fiber possible.

Fibrous ambitions

Johnson outlined his wish for 100% rollout of fiber-optic broadband to properties across the UK "in five years at the outside" in an article for the Telegraph published before he won the Conservative Party leadership vote. He called the then

government's plans to achieve universal full-fiber broadband by 2033 "laughably unambitious". The UK was bottom of the fiber penetration rankings (34 out of 34) for European countries with 1.3% according to research carried out between September 2017 and the same month in 2018, published in March by the FTTH Council. Other laggards include Germany with 2.3% (fourth from the lowest). France is mid-ranking with 19.4%. For the third year running, Latvia top the table with 50.3% penetration, with Lithuania, Spain and Sweden close behind.

Four key areas

In their letter, the telecom organizations highlight four key areas which they say need addressing within in one year if the Prime Minister's target is to be achieved:

- Reform of the 'fiber tax' – the organizations argue that fiber cables are still taxed as if they were to business premises. "Significant reform to this fiber tax would provide an immediate boost to the industry and significantly unlock more ambitious rollout plans," they say.
- Wayleaves – plans to allow telecoms providers access to buildings and land to deliver broadband services where landlords are unresponsive need to be implemented as quickly as possible.

Too often unresponsive landlords delay rollout in urban and rural areas, the organizations say.

- New builds – telcos claim too many new build homes are being developed without fiber connectivity as standard and plans to mandate fiber to all new builds should be put in place without delay.
- Skills – "National fiber rollout is one of Britain's greatest engineering challenges," the letter says. The groups call for investment in digital and engineering skills needs to be prioritized.

100% commitment needed

The National Infrastructure Commission has estimated that building and maintaining a full fiber network across the UK would cost £33.4 billion over 30 years. The letter notes, "Nationwide full fiber coverage is not a can that can be kicked down the road, and these issues need to be resolved by your Government within the next 12 months to ensure that industry can continue to accelerate rollout. "Industry is ready and willing to work with yourself, your Government and the new Digital Secretary to ensure that Britain's connectivity is fit for the future. But that work needs to start now, and 100% fiber coverage requires a 100% commitment from Government."

FCC Proposes USD20.4Bn Rural Digital Opportunity Fund

The Federal Communications Commission (FCC) has unveiled plans to establish a Rural Digital Opportunity Fund, which will commit at least USD20.4 billion over the next decade to support high speed broadband networks in rural America. The program will be two-pronged: Phase I will target those areas that current data confirms are wholly unserved, while Phase II will target those areas that are partially served as well as any areas not won in the first phase. The watchdog believes that at least four million rural homes and small businesses lack a modern broadband service.



EU Approves Greek Rural Broadband Rollout

The Greek government has secured EU approval to proceed with a EUR300 million (USD334 million) scheme to roll out ultrafast broadband networks in unserved and underserved areas of the



country. The project will be funded by the European Regional Development Fund (ERDF), the European Agricultural Fund for Rural Development and private investors. The scheme will target regions where there is currently no access to broadband at speeds of 30Mbps or above and will look to deploy networks offering connectivity at download rates of between 100Mbps and 1Gbps. The open access infrastructure will be available to all operators on a non-discriminatory basis. EU Competition Commissioner Margrethe Vestager commented: 'With this decision, the Commission endorses the use of EU funds for the development of ultra-fast internet in areas of Greece where private investment is insufficient. This is an important step for competitiveness and innovation in Greece as well as for social and territorial cohesion, enabling Greek households and businesses to benefit fully from the Digital Single Market.'

Slovakia Opens Consultation into Spectrum Auction

Slovakia's Regulatory Office (Regulacny Urad, RU) has opened a consultation into its terms for awarding wireless spectrum in the 700MHz, 900MHz, 1500MHz and 1800MHz bands. The watchdog wants to auction 2x30MHz at 700MHz, 2x4MHz at 900MHz, 18 blocks of 5MHz in the 1500MHz range and 2x9MHz in the 1800MHz band. Frequencies in the 700MHz and 1500MHz

ranges will be suitable for 5G services, the RU says. At present, sub-1GHz spectrum is held only by the country's three largest cellcos – Slovak Telekom (ST), Orange and O2 – and the watchdog is favoring the entry of a new player in the 700MHz range in order to encourage competition. This could come in the form of either fourth cellco SWAN Mobile (4ka) – which

currently only has access to 1800MHz spectrum – or an entirely new operator. Winning bidders must begin utilizing frequencies in the 700MHz and 1500MHz ranges within two years of receiving their licenses, while a time limit of six months will apply to the other two bands.

UK Consults on Planning Rule Changes to Bolster Rural Mobile Coverage

The UK government has launched a consultation on proposals to simplify planning rules with a view to improving rural mobile coverage. In a press release regarding the matter, the Department for Digital, Culture, Media & Sport (DCMS) noted that the consultation on potential changes to permitted development rights for mobile infrastructure in England includes proposals on: changing the permitted height of new masts to deliver better mobile coverage, promote mast sharing and minimize the need to build more infrastructure; allowing existing ground-based masts to be strengthened without prior approval to enable sites to be upgraded for 5G and for mast sharing; deploying radio equipment cabinets on protected and unprotected land without prior approval, excluding sites of special scientific interest; and allowing building-based masts nearer to roads to support 5G and increase mobile coverage. Further, the consultation also seeks views on

what measures the industry could offer to mitigate the impact of any new infrastructure, including assurances of a greater use of existing sites and the removal of redundant masts. Commenting, Esther McVey, Minister of State for Housing and Planning, said: 'we're committed to delivering the homes people across the country need, and that includes delivering the right infrastructure such as broadband

connectivity and good mobile coverage. There is nothing more frustrating than moving into your new home to find signal is poor. That's why we are proposing to simplify planning rules for installing the latest mobile technology – helping to extend coverage and banish more of those signal blackspots, particularly for those living in rural areas.'



UK To Pump £30M into Rural 5G

The UK government pledged a £30 million investment to boost access to 5G technology in rural parts of the country, a move it hopes will spark a "tech revolution". In a statement, Digital Secretary Nicky Morgan said up to 10 locations in rural UK will be chosen to run innovative trials of 5G applications, with the aim of ensuring the "whole country can grasp the opportunities and economic benefits of next-generation 5G technology". The latest funding is part of a £200 million project that aims to develop 5G testbeds in the

UK. The government statement pointed to 5G deployments already in place in certain rural locations, including the Orkney Islands which is remotely monitoring fisheries and improving efficiency of wind farms. "In modern Britain people expect to be connected wherever they are. And so we're committed to securing widespread mobile coverage and must make sure we have the right planning laws to give the UK the best infrastructure to stay ahead," said Morgan. In addition to the funding announcement, the government also launched a

consultation on proposals which aim to simplify rules to improve rural mobile coverage. The government has declared it wants to reform planning laws for mobile infrastructure, as a way to ensure the entire country can benefit from next-generation technology. The consultation will look at a number of proposals including: changing the permitted height of new mobile masts, promotion of mast sharing and the deployment of radio equipment cabinets on land without prior approval.

Russian Deputy Minister Targets 24.5GHz-29.5GHz 5G Auction by Year-End

Russia's Deputy Minister of Communications Oleg Ivanov expects to hold the first commercial 5G frequency auctions in the range of 24.5GHz-29.5GHz by the end of 2019, he told Vedomosti. In addition, the Deputy Minister expects that 5G in the 4.4GHz-4.9GHz band will be developed in the near-term, in the absence of available 3.5GHz 5G spectrum which is currently

reserved for military/security/intelligence use. Furthermore, Ivanov claims that all the 'big four' operators – MTS, MegaFon, Beeline and Tele2 (backed by Rostelecom) – are 'ready' to jointly build 5G infrastructure using sub-6GHz bands. He was quoted as saying: 'the operators have reached a consensus on approaches to creating a single infrastructure operator

– specifically for building [wholesale, shared 5G] infrastructure for the band below 6GHz, not for doing business [with end-users].' Meanwhile, Tele2 Russia has announced that its ongoing 5G pilot in central Moscow recorded a top speed of 2.1Gbps using the 28GHz band, Cnews reported, with minimum latency of 9ms.

PURA Fines Cellcos for Activating Unregistered SIMs; Suspends third-Party Sales

The Gambia's Public Utilities Regulatory Authority (PURA) has fined the country's largest mobile operator Africell GMD5.58 million (USD109,000) for breaching the law by selling SIM cards activated at points of sale to customers without registering their ID details, newspaper Foroyaa reported. PURA explained that it carried out a SIM registration monitoring exercise for all GSM operators in randomly selected locations across the country, and was able

to purchase 186 Africell SIM cards without ID registration, for which it levied a fine of GMD30,000 per SIM. QCell and Gamcel received small fines of GMD120,000 and GMD90,000 for illegally activating four and three SIMs respectively, while no such transgressions were recorded for Comium. PURA also ordered the GSM operators to suspend the sale of SIMs by third parties until the following remedying conditions are put in place:

- new SIM Cards can only be sold at their branches or Customer Care Centers
- conduct extra training for Customer Care Agents and third-party sales personnel
- review awareness of the whole SIM card registration process
- institute additional checks and controls on the system.

FCC Ready to Authorize Funding for CAF II Auction Winners, Impacts 375 Bids across 12 States



The FCC said that it is ready to authorize funding for six more Connect America CAF II auction winners. The "ready to authorize" designation indicates that the FCC has reviewed and approved a winner's application to deploy broadband in high-cost areas for which the entity won funding. Entities on the "ready to authorize" list released yesterday have until September 10 to obtain irrevocable standby letters of credit and bankruptcy code option letters from their legal counsel in order to obtain final authorization. The Connect America CAF II auction used a reverse auction

process that awarded funding to entities that committed to deploying broadband service to unserved or underserved rural areas for the lowest level of support. A weighting system provided an advantage to entities that said they would deploy service at higher speeds or with lower latency. The auction, completed one year ago, tentatively awarded a total of \$1.488 billion over 10 years to the winners. The FCC has been releasing "ready to authorize" lists at the rate of about one per month and also has issued several lists of entities that have obtained final authorization.

Nigeria: ALTON Condemns Regulatory Breaches by National IT Development Agency

The Association of Licensed Telecommunications Operators of Nigeria (ALTON) has condemned regulatory violations by the National Information Technology Development Agency (NITDA) which border on communications matters within the regulatory scope of the Nigerian Communications Commission (NCC). In a letter addressed to the NCC, signed by Engr. Gbenga Adebayo, Chairman of ALTON, the association spoke on

subsidiary frameworks and legislations issued by NITDA on Public Internet Access (PIA) 2019. The said frameworks had set out rules for the provision of Public Internet Access disregarding the powers of the Commission. Also, ALTON mentioned the Nigeria Data Protection Regulation 2019 guideline that was issued by NITDA as another violation. The association said that it appeared as if NITDA had assumed the role of a Data Protection Agency in

Nigeria and believed that its Regulation overrides the NCC's existing provisions on data processing in the sector. ALTON noted that the preceding developments brought to light the dreaded multiple Regulation which had been a recurring challenge for the local industry. The association urged the NCC to intervene in the current issue with NITDA in order to safeguard the interest of market players and respect the powers of the Commission.

European Commission Objects to Czech Mates' Network Sharing

The Commission warned operators O2 CZ and T-Mobile CZ, and the Czech telecom infrastructure provider CETIN, that their network-sharing agreement limits competition. This is in breach of the European Union's antitrust rules. Commissioner Margrethe Vestager, who oversees competition policy, said in a statement, "Operators sharing networks generally benefits consumers in terms of faster roll out, cost savings and coverage in rural areas. "However, when there are signs that co-operative agreements may be harmful to consumers, it is our role to investigate [them] and ensure that markets indeed remain competitive. "In the present case, we have concerns that the network sharing agreement between the two major operators in Czechia reduces competition in the more densely populated areas of the country." O2 CZ and T-Mobile CZ are the

main operators in the Czech retail mobile market. O2 CZ's mobile infrastructure and wholesale business have been transferred to CETIN, a network infrastructure company belonging to the same corporate group. The network sharing by O2 CZ/CETIN and T-Mobile CZ started in 2011 and the Commission alleges "has been increasing in scope". Now it covers all mobile technologies (2G, 3G and 4G) and the entire territory of Czechia with the exception of Prague (pictured) and Brno, which equates to about 85% of the population. The Commission is unhappy because the Czech mobile market is concentrated, with only three mobile network operators. Further, those doing the network sharing are the two largest, whose networks serve around 75% of the population. On these grounds, pending further enquiry, the Commission holds the view that

instead of leading to greater efficiencies and higher service quality, the network-sharing agreement is likely to remove the incentives for the two mobile operators to improve their networks and services to benefit customers. The Commission says its analysis of the situation is in line with the principles applied by the Body of European Regulators for Electronic Communications (BEREC) in its common position on mobile infrastructure sharing of 13 June 2019. The Commission opened a formal investigation in October 2016. O2 CZ is a mobile communications subsidiary of the PPF Group, with more than six million lines, both fixed and mobile. T-Mobile CZ is a mobile communications subsidiary of the Deutsche Telekom group, which has operated in the Czech Republic since 1996.



A SNAPSHOT OF REGULATORY ACTIVITIES IN SAMENA REGION



Afghanistan

Discussions were made on mechanism for online registration and investigation of the customers' complaints in the meeting organized between ATRA Customer Care Unit and representatives of the telecom companies; the system was explained to the companies by Licensing and Legal Department of ATRA. Speaking in the meeting, Mr. Nazer Hussain Raihani, Customer Care Head, termed the purpose of online process for customer's complaints registration facilitating and speeding up investigation the complaints and problems. The system, to investigate the

complaints through ATRA, has been designed in a manner that the complaints are referred online to the companies with least time, and the companies then provide ATRA with actions and information through the system on investigating the complaint without wasting time as he said. The companies were requested in the meeting to strictly cooperate in regard to complaints registered by ATRA on a timely manner so as to investigate the complaints in a better way.

(August 7, 2019) atra.gov.af



Algeria

It has been confirmed that Algerian WiMAX-based B2B broadband operator Smart Link Communication (SLC) and its satellite subsidiary Divona ceased all telecom activities in the country

on 21 August 2019. The two companies were accused of non-payment of taxes and denied the renewal of their licenses by the regulatory authorities. (August 28, 2019) Agence Ecofin



Bahrain

The Telecommunications Regulatory Authority is pleased to announce that pursuant to its powers under Article 3 of the Telecommunications Law, section 4.9 of the Fixed Telecommunications Infrastructure Network License and paragraph 21 of the Reference Offer Order (Ref: LAD 0619 178) the Authority has published the BNet BSC ("BNet") (formerly

NBNETCo BSC(c)) Reference Offer ("RO") on its website. The RO incorporates the regulated wholesale products and services (including the price and non-price terms) to be offered by BNet to other Licensed Operators and is effective as of 1 August 2019. The published version of the RO now in effect is available on the Authority's website. (August 1, 2019) tra.org.bh



Bangladesh

Bangladesh's government proposed simplifying regulations by introducing a single spectrum license for mobile operators to replace separate permits for each mobile technology, The Daily Star reported. The country's seven operators currently have separate 2G, 3G and 4G licenses expiring in 2026, 2028 and 2033 respectively. The consolidated licenses would expire in 2033, with operators required to pay additional fees for the 2G and

3G licenses to be extended to match the expiry data for the 4G licenses, which were issued in February 2018, the newspaper said. The Bangladesh Telecommunication Regulatory Commission (BTRC) also proposed calculating spectrum charges based on an operator's subscriber base. SM Farhad, Secretary General of the Association of Mobile Telecom Operators of Bangladesh, welcomed the move and said "we appreciate the initiative. It will

be guiding the future investment in the sector and will be impactful for the next 15 years. While Banglalink said in a statement it appreciates the initiative, as it will help simplify documentation and operational activities, it noted the proposal was not really a unified license but a consolidation of existing ones, the newspaper reported. Banglalink, the third largest operator in the country, said it expects Bangladesh to follow the global trend of introducing licenses which allow a licensee to provide any service, adding that the new regime must be compatible with future technologies. BTRC opened a public consultation on the proposal, which closes on 31 August. (August 27, 2019) The Daily Star

The Bangladesh Telecom Regulatory Commission (BTRC) plans to take steps to ensure proper e-waste management of such stuff as handsets, computers and electrical gadgets, as their causal disposal poses a risk to the environment and public health. BTRC Chairman Jahurul Haque said: "This is a problem that needs to be resolved immediately. We are trying to make a regulation for e-waste management so that these items are not dumped haphazardly. We are now in the era of 4G. After introduction of 5G, we will switch to full automation. Then the amount of e-waste will increase." The commission is yet to decide on the spending of a part of the social obligation fund (SOF) on e-waste management, BTRC sources said. Environmentalists say the increasing use of electrical and electronic devices in the country poses a big threat to the environment and public health. They stress the need for effective management of electronic waste (e-waste) such as handsets, computers and electrical items. According to a study conducted by the Bangladesh University of Engineering and Technology, the growth rate of e-waste generation is about 20 per cent per year. The e-waste contains a number of toxic substances, including lead, chromium and plastic additives. So, their indiscriminate dumping poses health and environmental risks. In February, the BTRC had considered spending a part of the social obligation fund (SOF), created with contributions from telecom operators, on e-waste management. According to the Telecom Act, the SOF can be used only to extend telecom facilities in remote areas. The study carried out last year found that the amount of e-waste rose to 4 lakh tons in 2018 from 1.30 lakh tons in 2010. The volume is projected to be 46.2 lakh tons by 2035. Recycling of scrap and second-hand electrical equipment is a profitable business in developing countries like Bangladesh, and 13,300 tons of e-waste enter the recycling business every year,

the study says. Common sources of e-waste include television sets, air-conditioners, computers, mobile phones, IT equipment, CFL bulbs, fridges, and electric fans. Such items contain precious metals such as gold, silver, copper, iron, and heavy metals. But they may also contain mercury and lead, two of the most hazardous metals for human health. The most common disposal method is the burning of the waste in open pits. But this method releases toxic substances into the ecosystem and prevents extraction of valuable metals from the waste materials. Stakeholders, therefore, say a proper system is long overdue. (August 17, 2019) theindependentbd.com

The Bangladesh government will use money from its \$208 million IT project fund to send graduates for blockchain training in Japan and India. Bangladesh authorities plan to send 100 new IT graduates abroad to boost expertise in the fields of distributed ledger technology, artificial intelligence, machine learning and cyber security. As a part of the initiative, the government will also send 200 graduates of computer science and software, electrical and electronic engineering to learn about future trends of information technology, the report notes. The program description is available on the official website of Bangladesh Hi-Tech Park Authority, where candidates can apply. Candidates under age 32 will be required to take an exam with the Information and Communication Technology (ICT) Division in order to qualify. Per the report, the program will be bankrolled by a governmental fund created in association with an Indian line of credit to establish 12 district ICT and hi-tech parks. Worth 17.96 billion Bangladeshi taka (\$208 million), the project's fund was reportedly launched for implementation in July 2017, and will last until June 2020. Institutions of higher learning around the world have been prioritizing education and developing programs in distributed ledger technology. In June, the Canada-based University of British Columbia announced a blockchain and distributed ledger technology training program for Master's and PhD students. Last week, Ripple partnered with Kyoto University and the University of Tokyo as part of its University Blockchain Research Initiative. The University of Tokyo will award scholarships to students doing blockchain research, while its economics department arranges seminars on blockchain and settlement. At Kyoto University, graduate students are conducting blockchain-related research in the areas of remittances and supply chain management, among other spheres.

(August 5, 2019) cointelegraph.com



Within the framework of NTRA's effective participation in the activities related to universal acceptance in collaboration with the Internet Corporation for Assigned Names and Numbers (ICANN), the NTRA, in cooperation with the Faculty of Computer and Information Sciences, Ain Shams University, hosted the Universal Acceptance Hackathon during the period from 25 to 27 August 2019. It is worth noting that roughly 30 contestants from Ain

Shams University participated in this event. They were supervised by some foreign experts from the Universal Acceptance Steering Group and ICANN as speakers and evaluators of projects at the end of the competition. This competition aims to develop the skills of future software developers and raise their awareness about the significance of universal acceptance and the impact of developing Internet programs and systems to be ready to receive

Egypt

the internet's next billion users. Universal Acceptance (UA) is a universal requirement and prerequisite for attaining a truly multilingual Internet, particularly for domain names and e-mail addresses in non-Latin characters. It is mandatory to facilitate the usage of domain names and e-mail addresses in non-Latin characters as one of the most important prerequisites of the multilingual Internet in order to eliminate the obstacles that hinder the enrichment of multilingual content, and achieve universal acceptance. As such, the Universal Acceptance Steering Group (UASG) has considered the development of all aspects related to Internet systems and applications, such as domain names and e-mail addresses one of the most significant criteria for universal acceptance so that they could deal in a manner consistent with both Latin and non-Latin characters in terms of their acceptance, validation, storage and processing and display.

(August 18, 2019) tra.gov.eg

Egypt is well on the way towards achieving digital transformation and attaining the goals of financial inclusion, the Ministry of

Finance said. Thanks to the government's electronic payment and collection system, launched in May, government services have become more accessible to citizens at their actual prices, whether online or through payroll, bank, prepaid or credit cards, the ministry added in a statement. The ministry has supplied all administrative bodies nationwide with E-collection systems; however, some of them have been found to be unused, the ministry said. The ministry further underscored the need to use the new systems and return any surplus equipment to the competent budget authority to avoid wasting public funds and exercise strict control over state investments. Prepaid cards are now available free of charge at the National Bank of Egypt (NBE), Banque Misr, Bank du Caire (BdC), Agricultural Bank of Egypt (ABE) and the Commercial International Bank (CIB) until the first of November, the ministry noted. Citizens could now pay their government dues, which exceed EGP 500, at any of the 4,000 postal offices nationwide or any of the banks subscribing to the government E-payment system, the ministry added.

(August 13, 2019) egypttoday.com



Dr. Sayyid Babak Ebrahimi, Deputy President of Strategy and Market Development at the Communications Regulatory Authority (CRA), announced that in accordance with the latest ranking by the International Telecommunication Union (ITU), I. R. of Iran ranked 87th with overall score of 75 in 2017 and 77th with overall score of 82 (3rd generation regulator) in 2018, respectively. In comparison to last year, it has grown 5 overall scores and 12

ranks. He also expressed that by carrying out close cooperation with international specialized organizations and implementing a comprehensive set of appropriate plans to enhance country's regulatory status and gain at least overall score of 85 in the coming years and consequently, Islamic Republic of Iran will achieve fourth-generation of regulatory.

(August 14, 2019) cra.ir



The International Telecommunication Union (ITU) has recently approved the final version of the TRA recommendation on measurement campaigns, monitoring systems and sampling methodologies for monitoring the quality of services provided through mobile phone networks. The Chairman of the Board of Commissioners, Dr. Ghazi Al-Jabbour, stressed the importance of this achievement, stressing the role played by the TRA at the international level as one of the influential bodies in drawing up the relevant policies in coordination with the international institutions concerned with the development and development of the telecommunications sector. As an international training center in the field of quality of telecommunication services. Dr. Al-Jabbour pointed out that the recommendation was made by the head of the quality control department representing the TRA in the ITU Study Group 12 during his participation in the ITU Conference (ITU-T SG 12). It applies to all users of quality control systems. Jabour added that the recommendation describes a basic

framework for best practices to measure the quality of services provided and covers the quality of mobile phone networks, characteristics and requirements for monitoring systems and scenarios for post-analysis of the required samples, as well as the sampling methodologies used by system users, manufacturers of used testing equipment and network measurement and data analysis agencies. And service providers to monitor the quality of services at the national level. (August 21, 2019) trc.gov.jo

Total investments in the mobile phone sector stood at around JD93 million during the last year, according to Telecommunication Regulatory Commission Chief Commissioner Ghazi Jbour. He indicated that these investments amount to 68 per cent of the overall investments by the companies operating in the telecommunications sector, including property, technical equipment and specialized computer programmes and machines, according to the Jordan News Agency, Petra. Investments in fixed

Iran

Jordan

lines rose in 2018 to around JD36 million, he added, saying most investments were used to update the fiber optics network. The number of workers in the telecommunications and information

technology sector posted a 1 per cent increase compared to 2017, and it reached 4,045, Jbour said.

(August 6, 2019) jordantimes.com



The Communication and Information Technology Regulatory Authority (CITRA), which is responsible for the country's IT sector and technology adoption in the government, has welcomed the launch of the new AWS Middle East Region in Bahrain as an important step in the security of cloud computing. Salem Muthib Al-Athainah, Chairman and CEO of CITRA, said: "We welcome the launch of the new AWS Middle East Region as an important step in bringing reliable and secure cloud computing technologies closer to end-users in the Middle East. This launch underlines the important location of the Middle East as a center to the global

data movement worldwide. "The presence of the AWS Middle East Region opens up new prospects for companies and government organizations to serve customers in the region, contributing to the enhancement of infrastructure, digitization, connectivity and customer experience. "Our significant work with AWS supports CITRA's strategy of transforming Kuwait into a regional ICT hub, and the digitization of the Kuwaiti economy, and we look forward to continue to build on that while leveraging the new AWS Middle East Region in Bahrain."

(August 21, 2019) intelligencio.com

Kuwait



Maroc Telecom has signed its sixth investment agreement with the Moroccan government for the development of telecommunications in the Kingdom, it announced on its group website. Under the agreement, the full-service telco committed to an investment program of MAD10 billion (USD1.03 billion) over

the three-year period 2019-2021, focusing on developing and strengthening infrastructure, deployment of mobile/fixed high speed broadband services and the creation of new jobs. Maroc Telecom invested more than MAD58 billion over the previous five investment agreement periods. (August 27, 2019) telegeography.com

Morocco



The Nepal Telecommunications Authority (NTA) has revoked the license of Nepal Satellite Telecom (NST) following the company's failure to pay NPR70 million (USD607,000) in outstanding royalties and renewal fees by the 18 August deadline, reports The Himalayan Times citing NTA Chairman Purshottam Khanal. NST, which owes the regulator almost NPR1 billion in unpaid fees and other liabilities, has the right to appeal the decision within 35 days beginning 18 August. The regulator noted it had been forced to take such action in order to encourage license holders to honor their financial commitments and expand their services. NST was first issued with a Basic Telecommunications Service licence in 2008, enabling it to operate limited mobility services (LMS) and WiLL fixed-wireless services in the rural areas of mid-western region of Nepal, although the company failed to realize its plan to expand services nationwide. As of mid-December 2018, NST had

a total of 25,554 LMS and 2,984 WiLL subscribers.

(August 20, 2019) The Himalayan Times

The telecoms regulator, Nepal Telecommunications Authority (NTA), has threatened to issue a license to a foreign firm due to concerns about a lack of competition and investment in the telecoms market. The market is currently dominated by three operators, namely Nepal Telecom, Ncell and Smart Telecom. Mr Khanal warned that the regulator will rescind the license of any firm that has failed to develop telecom services and award it to a foreign operator. This could affect companies such United Telecom and Nepal Satellite Telecom, which have failed to introduce services or expand them nationwide and also owe significant amounts in unpaid fees and taxes.

(August 8, 2019) The Himalayan Times

Nepal



Oman

Oman's Telecommunications Regulatory Authority is seeking opinion from people in the country on the facilities they want to see in a new telecom network that will be set up in the country, with the aim of providing good quality services of a reliable nature. A statement from the TRA said, "Over the last six months, the Telecommunications Regulatory Authority had developed its first draft proposal for in-building telecommunications infrastructure framework in Oman. The framework is intended to generate a common and efficient system of in-building infrastructure which does not constrain the quality of services, supports competitive choices for users within a building, supports a multi-operator competitive environment and provides developers and owners guidance to deploy efficient and future-proof telecommunications infrastructure which best contributes to a better value of the property." Those who wish to provide feedback on this program are welcome to contact the TRA on their website, www.tra.gov.om. Those who wish to submit suggestions are welcome to also submit their contributions by post to the Telecommunications

Regulatory Authority. Locals and foreign nationals in the country can also hand deliver their suggestions at the TRA building, which is located at the Airport Heights area of Seeb in Muscat. TRA have decided to go ahead with the setting up of this framework after several discussions with stakeholders in the country's telecom sector, as well as public institutions which will be part of this new network. All of these organizations provided their inputs into the framework, which will form the guidelines for the establishment of the country's new telecom network. The TRA added: "the authority is seeking the approvals of interested parties and stakeholders on the proposals put forward for comment. TRA shall give due consideration to all comments and contributions received from these interested parties. However, incorporation of any proposed changes will be at the sole discretion of the authority. The TRA at its own discretion may publish comments and views of the respondents unless confidentiality is requested and justified by them."

(August 25, 2019) timesofoman.com



Pakistan

The number of 3G and 4G users in Pakistan reached 69.64 million by end July 2019 compared to 68.93 million by end June 2019, said Pakistan Telecommunication Authority (PTA). Number of mobile phone users in Pakistan reached 161.24 million by end July compared to 161.02 million by end June, which registered an increase of 0.22 million during the period under review. Jazz's total count for 3G users stood at 12.912 million by end July compared to 13.105 million by end June, registering a decrease of 0.193 million. Jazz 4G user numbers jumped from 11.116 million by end June to 11.782 million by end July 2019. Zong 3G subscribers decreased from 8.513 million by end June to 8.270 million by end July while the number of 4G users jumped from 12.658 million by end June to 12.794 million by end July. The number of 3G users of Telenor network decreased from 8.174 million by end June to 8.128 million by end July i.e. registering a decline of 0.046 million. The number of 4G users jumped from 6.461 million by end June to 6.766 million by end July 2019. Ufone 3G users decreased from 7.015 million by end June to 6.968 million, registering a decline of 0.047 million. The number of 4G users of Ufone increased from 1.886 million to 2.016 million during this period. Teledensity for cellular mobile remained at 76.56 percent and broadband subscribers reached 71.71 million by end July compared to 71.241 million by end June. PTA received 7403 complaints from telecom consumers against different telecom operators including (cellular operators, PTCL, LDIs, WLL operators and ISPs) as of July 2019. According to PTA data Jazz (Mobilink + Warid) leads the chart with 2359 complaints and Telenor stands at second position as

the most complained telecom operator with 1583 complaints. PTA said that it was able to get 7396 complaints resolved i.e. 99.91 percent. Cellular mobile subscribers constitute major part of overall telecom subscriber base, therefore, maximum number of complaints belong to this segment. Total number of complaints against CMOs by July stood at 5852. In terms of the segregation of complaints on operator basis, a total of 2359 complaints were received against Jazz which is 40.31% of the total CMO related complaints. Telenor, which has the second largest number of consumers, was also second with 1583 i.e. 27.05 percent complaints were received against it. Zong stood third with 977 complaints i.e. 16.69 percent of total complaints. Ufone had 933 complaints against its various services which make up 15.94 percent of the total CMO related complaints. PTA also received 560 complaints against basic telephony where 577 were addressed during July 2019. Further 983 complaints were received against ISPs where 979 were addressed.

(August 27, 2019) brecorder.com

The government has prepared a draft e-commerce policy framework to pave way for holistic growth of e-commerce in the country through creating an enabling environment where small and large enterprises would have equal opportunity to grow steadily. It is hoped that, Pakistan's e-commerce sector grows exponentially to claim a substantial share in global trade, which in turn will create employment opportunities and generate more revenues. The overall share of services sector

in real GDP is around 60 per cent at end of fiscal year 2018, and around 56 per cent in nominal Gross Domestic Product (GDP), the latter is higher than South Asia average. Service sector has been witnessing a shift towards the digitization as growing internet penetration is revolutionizing the way consumers and businesses gain and share information, executes transactions, and manages their day-to-day operations. As per draft policy framework document prepared by Commerce Division, improving digital connectivity is reshaping consumer behavior, which is increasingly tilted in favor of convenience, cost savings, and customized retail experiences. Businesses are also capitalizing on opportunities emerging from the digitization, such as supply chain efficiency, lower transaction cost and enhanced flexibility in addressing consumer needs. Pakistan is among the economies where digitization is triggering changes in some components of the service sector. The shift is most prominent in areas like e-commerce, fintech and e-government, where new ventures and approaches to deliver services are picking. Specifically, the market size of e-commerce has grown significantly in Pakistan over last few years, transforming the way consumers interact with, and especially pay businesses. The other objective of this initiative is to Bottom of Form Bottom of Form transform Pakistan into a significant player in regional and global digital economy. Listing the goals, the document further revealed that it would increase e-commerce industry's growth to make the area one of the key drivers of Pakistan's economy. The other goal is to streamline regulatory framework for e-commerce businesses in Pakistan, to contribute achieving higher export growth through enhanced activities from e-commerce platforms, to promote small e-businesses and create employment opportunities through digital connectivity for empowering youth, especially in remote areas. As per details, in 2017-18, the number of registered e-commerce merchants was 496 which reached 1,094 by year-end and was around 1,242 by first quarter of 2018-19. E-commerce transactions processed by these merchants are also increasing proportionately. Pakistan's e-commerce industry is emerging rapidly and has the potential to strengthen the country's economy by creating more job opportunities, linking remote areas to the mainstream, development of small and medium enterprises and finally enhancing exports through online platforms. For this, it is crucial to develop a policy framework for consumer protection, the role of the financial sector in optimizing its growth and its revenue-generating potential in the medium and long run. This policy framework provides a glimpse of the current status of Pakistan's e-commerce as country's basic laws concerning Information Technology (IT) extend legal recognition to transactions carried out in digital environment and electronic payments. However, generally, e-commerce is regulated under statutes concerning traditional commerce. This gives rise to various concerns for industry and the concerned authorities. For addressing these issues it is necessary to take measures for allowing re-export/re-shipment of goods, launch National Single Window (NSW) for speedy processing, especially for export of large volume of low-cost goods/items. Moreover, in order to cater for possible impact of import of digital goods in Pakistan, infrastructure and technical capacity should be developed to enable the government to impose customs duties on such products on their import. At present, there is no mechanism/registry for e-commerce businesses. This policy

framework proposes registration of e-commerce businesses with the Securities & Exchange Commission of Pakistan (SECP) and making it mandatory for them to maintain a physical address in Pakistan. In addition, for enhancing consumers' trust, measures for protection against counterfeit goods and a code of conduct are proposed under this Policy Framework. Moreover, with e-commerce enterprises making their presence felt, laws and regulations have been introduced to enable existing financial institutions to cater to electronic transactions and encourage new private sector intermediaries to enter the field. However, a lot more is required to be done to address needs of a large segment of population, which the e-commerce industry shall target as its consumer base in the future. In relation to this, it is essential to enable Card-Not-Present (CNP) transactions and explore the possibility of co-badging with international card payment schemes. Moreover, it is proposed that banking services should be improved for promoting use of local online merchant accounts by online businesses and exploring the possibility of establishing an international payment gateway in Pakistan. With regard to consumer protection, the existing laws in the country do not contain specific provisions for addressing concerns of consumers transacting in digital environment. In relation to this, recommendations have been made for introducing specific amendments in these laws. An important aspect of consumer protection is 'dispute resolution mechanism'. This Policy Framework proposes that it should be mandatory for all online businesses to provide for an efficient customer support and dispute resolution mechanisms and Federal and provincial governments should make arrangements for establishing independent alternate dispute resolution centers for expeditious settlement of disputes. Taxation is one of the major issues for stakeholders of online marketplaces. The Primary concerns relating to taxation are imposition of minimum income tax, withholding tax and provincial sales tax. This policy framework proposes that for purposes of provincial sales tax, online businesses should be treated at par with other businesses and parallel to that, provincial sales tax regimes should be harmonized to address concerns of online marketplaces. In Pakistan, business-to-consumer (B2C) e-commerce model has grown significantly in last few years and this trend is likely to continue. Logistics play a pivotal role in the B2C model. The main area of concern to be addressed is system automation of B2C players and third-party-logistics (3PL) businesses. In addition, within framework of Pakistan's National Transport Policy, a policy on logistics shall be formulated to address concerns relating to e-commerce industry including expeditious processing for export of low-priced small consumer goods. Another important area is Data Ownership and Localization which is termed as 'oil' of the digital industry and is the most valuable resource in digital economy. To unleash the true potential of e-commerce, it is essential to localize data generated in Pakistan and prevent its transfer to any other country or any entity not incorporated in Pakistan for the utilization of local digital industry. At present, Ministry of Information Technology and Telecommunication (MoIT) is in process of formulating Pakistan Cloud Policy. The said policy should also address issues concerning e-commerce. Overall, this policy framework is aimed at ensuring reasonable growth of e-commerce, creating employment opportunities and generating revenue for state. (August 4, 2019) urdupoint.com



Saudi Arabia

In collaboration with Saudi Arabia's Ministry of Communications and Information Technology (MCIT), Huawei, a leading global provider of information and communications technology (ICT) infrastructure and smart devices, hosted a dedicated 5G onboard training program at MCIT's headquarter. This program is part of Huawei's ongoing 5G Roadshow in Saudi Arabia, which is touring the Kingdom to raise awareness of the next generation of 5G connectivity and seeking to develop ICT talent locally. The latest three-day training program was conducted by Huawei experts in partnership with MCIT under the umbrella of the Ministry's ThinkTech initiative, with the attendance of Dr. Ahmed Altheneyyan, Deputy Minister for Technology and Digital Capacities Development. The training provided end-to-end 5G knowledge as well as hands-on demos available within Huawei's 5G Roadshow truck. The workshop covered topics such as 5G motivation and industry trends, 5G network architecture and key technologies, as well as providing recent 5G use cases and global best practices. In addition, it touched on the key challenges facing the sector, including the procedures required to equip telecommunications networks in the Kingdom. Saudi Arabia is poised on the brink of the 5G era, as operators across the Kingdom prepare to roll out the next generation of connectivity nationwide. According to MCIT, there are around 1,000 5G towers up and running across the country already, establishing the Kingdom as a forerunner in deploying 5G not only in the region, but on a global scale. Dr. Ahmed Altheneyyan, Deputy Minister for Technology and Digital Capacities Development noted: "A deeper understanding of 5G's value will enable us to better explore the full potential of ultra-broadband networks and applications. As a superior connectivity solution, 5G will usher in new ways of working across our society, empowering us to achieve the ambitions of Saudi Arabia's National Transformation Plan 2020 and Vision 2030. As a global leader in the development of 5G networks and technology, Huawei has been the ideal partner for us in this endeavor." Dennis Zhang, CEO of Huawei Tech. Investment Saudi Arabia Co., Ltd., Huawei, said: "Our 5G Roadshow truck is the first of its kind in Saudi Arabia, which not only allows people to learn about the value of 5G connectivity, but to experience it with real applications—giving them a sense of the immense potential of this next generation of connectivity. Working with partners such as MCIT enables us to contribute to the development of a deeper understanding of the technology as it rolls out in the Kingdom. The 5G On Board training program and roadshow itself also offers an opportunity for those within the community to get a first look at 5G and the exciting careers within Saudi Arabia's thriving ICT sector." Huawei has been a partner of choice for telecom carriers globally in 5G network development, in part because of its broad range of end-to-end 5G solutions covering network sites, architecture, protocols, network operations and maintenance. To date, Huawei has secured 50 commercial 5G contracts and has shipped more than 150,000 base stations to markets around the world.

(August 27, 2019) samenacouncil.org

The International Telecommunication Union (ITU) has highlighted the telecommunications and information technology records achieved during Hajj this year, praising the Kingdom's distinguished infrastructure which has served as many as 2.5 million, in a specific geographic and situational range. This came in a report issued by ITU saying "this year, 2.5 million people made the journey to Makkah; a journey that required dedicated information and communication technology (ICT) infrastructure planning by the Kingdom of Saudi Arabia to ensure that both locals and pilgrims could access data-heavy mobile applications to capture and share special moments with families and friends around the world." ITU also said that the provision of telecommunications and information technology services to these numbers represents a major logistical challenge, which the Kingdom has been able to overcome, thanks to its distinctive infrastructure in the field of communications and information technology. ITU added that there were more than 32.5 thousand terabytes of data consumed by pilgrims – equivalent to watching over 13.3 Million hours of HD 1080p video – an increase of 26 percent from last year. There was a 44.83 Mbps average download speed – an increase of 69 percent from last year. The daily individual consumption of data was 352.5 megabytes, exceeding the global average of daily individual data consumption by 95 percent. More than 309 million calls, both national and international, were made by pilgrims with a 99 percent success rate.

(August 17, 2019) citic.gov.sa

The use of Information and Communication Technology services (ICT), during this season of Hajj 1440-2019, witnessed a significant rise; the average number of subscribers reached nearly [4.6million] per day, the number of voice calls exceeded [364] million, and the total data consumption during the entire season exceeded [38.9 thousand] terabyte, with a rise of [% 27] compared to last year, according the statistics issued by CITC about the ICT services consumed in Makkah AlMukarramah, Al Madinah Almunawarah and Holy sites throughout Hajj season1440-2019. Implementation of daily measurements showed that the Internet average download speed is [44] Mbps in Makkah AlMukarramah with a rise of [67%] compared to last year. While in Madinah it reached [48.14] Mbps with a rise of [54%] compared to last year, due to availability of advanced infrastructure for communication networks and massive increase of their capacity. It is noteworthy that ICT authorities have implemented several operational plans and procedures performed for this season of Hajj, providing guests of Allah with world –class telecommunication services, to let them connect with their families easily and comfortably. Furthermore, they had several specialized field teams equipped with the technical capabilities, for supervision of all telecom services in Makkah AlMukarramah, Al Medina Almunawarah and their devoted air, sea and land ports, to be at the pilgrims' service. Meanwhile, CITC Governor, Dr. Abdulaziz bin Salem Alruwais, congratulated the Custodian of the Two Holy Mosques

King Salman bin Abdulaziz Al Saud and HRH Prince Mohammed bin Salman bin Abdulaziz Al Saud, Crown Prince, Deputy Prime Minister and Minister of Defense- May Allah protect them-On the success of the ICT sector's operational plans and procedures for this season of Hajj, mentioning that it would not have been possible without the ultimate support and guidance of the wise leadership, the continuous guidance and follow ups of HRH Prince Abdulaziz bin Saud bin Nayef bin Abdul Aziz, Minister of Interior and Chairman of the Supreme Hajj Committee, HRH Prince Khaled Al Faisal Bin Abdul Aziz, Advisor to the Custodian of the Two Holy Mosques, Governor of Makkah Region, and Chairman of the Central Hajj Committee, and HE Eng. Abdullah Bin Amer Al Sawahah, Minister of Communications and Information Technology, Chairman of the CITC.

(August 13, 2019) citc.gov.sa

The Communications and Information Technology Commission (CITC) revealed statistics of the performance of telecommunication networks in Makkah for the tenth day of Dhu al-Hijjah 1440-2019 where data consumption reached 1820 terabytes with a rise of 32 % compared to last year. This is equivalent to watching more than 746 thousand hours of video footage at 1080p HD resolution. The statistics also included average of daily data consumption per person; the average rate reached (299.12 MB / subscriber) compared to daily global data consumption rate per person (180 MB / subscriber), noting that the most popular applications are (in

order): YouTube, Snap Chat, Facebook, WhatsApp, Instagram. The statistics additionally mentioned that average Internet download speed reached (45.61) in Makkah, achieving an improvement rate of (71.79%) compared to last year. The number of domestic calls reached (22.7 millions) while international calls reached (7.6 millions) with success rate of 99.06%.

(August 12, 2019) citc.gov.sa

The Communications and Information Technology Commission (CITC) revealed statistics of the performance of telecommunication networks in Makkah for the ninth day of Dhu al-Hijjah 1440-2019 where data consumption reached 1946 terabytes with a rise of 34 % compared to last year. This is equivalent to watching more than 704 thousand hours of video footage at 1080p HD resolution. The statistics also included average of daily data consumption per person in Makkah during the seventh day of Dhu al-Hijjah 1440 A H-2019. The average rate reached (344 MB / subscriber) compared to daily global data consumption rate per person (180 MB / subscriber), noting that the most popular applications are (in order): YouTube, Facebook, Snap Chat, WhatsApp, Instagram. The statistics additionally mentioned that average Internet download speed reached (44.91) in Makkah, achieving an improvement rate of (72.47%) compared to last year. The number of domestic calls reached (16.7 millions) while international calls reached (5.9 millions).

(August 11, 2019) citc.gov.sa



The Telecommunications and Regulatory Commission of Sri Lanka (TRCSL) is mulling a cut to mobile termination rates (MTRs) in the country, and to that end has published a White Paper on the matter. Since their introduction back in 2010 – to replace the outmoded 'sending-network keeps all' (SKA) regime – MTRs have been pegged at LKR0.50 (USD0.0028) per minute for on-net/off-net calls and LKR0.15 for SMS. However, the regulator is now considering a reduction which could benefit end users by driving

down call charges. 'Reducing of this rate is directly beneficial to the consumer. This was introduced a decade ago and it needs to be revised now,' Bharti Airtel Lanka MD/CEO Jinesh Hegde told during a recent interview. He also revealed that the actual cost of call termination currently stands at less than LKR0.03-LKR0.04 a minute.

(August 6, 2019) The Mirror Business

Sri Lanka



Regulation on Online Radio, Television and On-Demand Broadcasts ("Regulation") which sets out the procedures and principles for granting broadcasting licenses and authorization for broadcast transmission and inspection of such streaming services has been published in the Official Gazette on 01.08.2019. The Regulation shall apply to the online radio, television and on-demand broadcasting services and private media service providers providing such services and platform operators transmitting such broadcasts. Without prejudice to the authority of the Radio and Television Supreme Council ("RTUK"), Article 4 of the Regulation

states that individual communication services shall not fall within the scope of the Regulation. It also stipulates that the platforms that are not allocated for such online services and real persons and legal entities that are solely hosting providers shall not be considered as platform operators under the Regulation. Media service providers having temporary broadcasting right and/or broadcasting license may provide their broadcasting/streaming services by using such rights and licenses in accordance with the Law No. 6112 on the Establishment of Radio and Television Enterprises and their Media Services ("Law No. 6112"), the Law No.

Turkey

5651 on the Regulation of Broadcasts via Internet and Prevention of Crimes Committed through Such Broadcasts ("Law No. 5651") and the Regulation. However, media service providers wishing to provide such services through only internet shall be obliged to obtain an online broadcasting license from RTUK. Media service providers meeting the requirements set out under the Regulation shall be granted INTERNET-RD, INTERNET-TV or INTERNET-IBYH licenses depending on whether they request to provide online radio, television or on-demand broadcasting services respectively. In similar to the Law No. 6112, the Regulation states that each media service provider may only provide one online radio, television and on-demand broadcasting license and shall be obliged to obtain a separate license for each broadcasting type. In case the media service provider wishes to broadcast also through satellite, cable or terrestrial channels, it must obtain a separate appropriate

license for each type of broadcasting. It is important to note that the Regulation shall also apply to (i) the online broadcasting transmissions of broadcasting services carried out by media service providers or platform operators under the jurisdiction of a third country broadcasting in a manner that violates the international treaties that fall under the jurisdiction of RTUK and Law No. 6112 and (ii) online broadcasts in Turkish aimed at the audience in Turkey or allocating commercial communication publications aimed at the audience in Turkey even though the broadcast is in a foreign language. The Regulation emphasizes that such organizations must obtain online broadcasting licenses and the platform operators must obtain the authorization for online broadcast transmission from RTUK in order to continue to provide their online broadcasting services.

(August 6, 2019) mondaq.com



The Telecommunications Regulatory Authority (TRA) will have an active participation in the ITU Annual Forum on "Internet of Things (IoT), Big Data, Smart Cities and Societies" for Arab Region, which will be launched tomorrow 28 August 2019 in Dubai, through several activities that highlight the UAE's experience in digital transformation, future shaping, Fourth Industrial Revolution and other headlines that shape the current directions in the UAE. Over the two-day-event, a group of specialists in ICT, IoT, smart cities, big data, environment and climate change, will gather to discuss a range of key ICT issues in the Arab region. On this participation, Hamad Obaid Al Mansoori, TRA Director General, said: "Hosting and participating in this forum by TRA aims to enhance the UAE's global leadership in supporting the ICT sector globally in general, and in the Arab region in particular. It is also a reflection of the wise leadership directives to make the UAE a global laboratory open for experiment and implementation of the Fourth Industrial Revolution technology. We have the pleasure to host this forum in the UAE especially that its theme relates to advancing the progress in Arab countries in the fields of IoT, smart cities and big data, which are the most prominent headlines in the next phase of human development." Al Mansoori emphasized that the importance of this forum is based on its timing as the world is witnessing the launch of 5G networks. He added: "The talk about 5G networks is currently trending due to its expected technological and developmental results. It is expected to see clearer features of smart cities and the spread of artificial intelligence technologies on a larger scale, hence the importance of this forum, which will discuss the requirements of the next phase, and the best way to meet these requirements by the Arab countries." The Forum aims to contribute to raising the readiness of the Arab countries to achieve e-transformation and access to

United Arab Emirates

smart cities, and strengthen partnerships with Arab, international and regional organizations to regulate the role of education, science, technology and innovation in achieving sustainable development, as well as sharing successful experiences in the field of and electronic/smart transformation among Arab cities. The forum will also identify regional challenges regarding using big data that should be addressed by stakeholders in the region, as well as highlight regional opportunities that can be leveraged in this area, particularly those that can lead to the implementation of the Sustainable Development Goals. The sessions will focus on the technical aspects and potential roles of 5G and IoT, "Big Data for Development" in the Arab region. The sessions will also discuss the launch of development applications of big data in all areas. The forum will discuss opportunities and challenges related to IoT, and the difficulties faced by policymakers and regulators during the adoption of the IoT ecosystem and sustainable smart cities. In addition, the forum will highlight the acceleration of digital transformation, the role digital transformation will play in business, the milestones and the roadmap for future digital transformation in the Arab region. The UAE has succeeded in building smart, eco-friendly and sustainable cities to improve the quality of life of the population and future generations, through the use of ICTs to improve wellbeing, raise the efficiency of urban processes and services, increase competitiveness, and meet the needs of current and future generations in economic, social, environmental, and cultural fields. The UAE Government ensures sustainable development and seeks to protect the environment and balance economic and social development. The UAE is also developing several sustainable smart cities, such as Masdar City, Dubai Sustainable City and Dubai Silicon Oasis. 🌱

(August 27, 2019) zawya.com

REGULATORY ACTIVITIES BEYOND THE SAMENA REGION



Albania

Telecoms watchdog the Electronic and Postal Communications Authority (Autoritetit Te Komunikimeve Elektronike Dhe Postare, AKEP) has opened a tender for the allocation of two 2x10MHz blocks in the 800MHz band, requesting bids by 9 September. The two blocks of spectrum on offer are 791MHz-801MHz/832MHz-842MHz (A1) and 811MHz-821MHz/852MHz-862MHz. The concessions have a duration of 15 years, and a starting price of EUR7.44 million (USD8.34 million). Under the terms of the license, a new entrants would be subject to rollout

obligations requiring 25%, 50% and 75% of the nation's territory to be covered with six, twelve and 18 months, respectively. The regulator had previously sought to auction the airwaves last year, originally intending to split the available frequencies into six 2x5MHz blocks. The sale was modified and delayed several times, however, with the final deadline pushed back to February 2019. Vodafone Albania was the only provider to purchase any of the frequencies, however, securing the 'A2' block at 801MHz-811MHz/842MHz-852MHz.

(August 13, 2019) telegeography.com



Angola

International auditing group KPMG has been selected to evaluate bids for Angola's fourth mobile license. An inter-ministerial working group overseeing the tender for the country's fourth cellular operating license chose KPMG Angola to provide expert advice on the evaluation and review of all tender documentation, as well as the evaluation of applications, offers and the preparation of the tender process. KPMG Angola will also support the international promotion of the call

for tenders, to be launched 'soon' according to the Finance Ministry. In April 2019 Angola's President Joao Lourenco cancelled the award of the fourth mobile network operating license to local start-up Telstar Telecomunicacoes for non-compliance with certain procedures. Lourenco demanded higher levels of transparency in a relaunched tender for the license, which will also include rights to offer fixed network and TV services. (August 20, 2019) Agence Ecofin



Argentina

The legacy Nextel Argentina iDEN network was deactivated on 30 June 2019, parent company Telecom Argentina has confirmed. The telco stated: 'All the services that were identified under the brand Nextel (including the radio service over the iDEN network) ceased to be active. For this reason, Telecom through its corporate services brand FiberCorp, presented 'Smart Radio', a new option for customers and their businesses so they may continue communicating. Smart Radio is a new service for direct and immediate voice connections with multimedia messaging for companies and governments, which offers the best benefits of the Personal 3G/4G network.' According to the Buenos Aires-based telco, the network was still

servicing 182,000 subscribers as of 30 June, albeit down from a peak of 2.023 million in December 2013. The iDEN statement was included in Telecom Argentina's 1H19 financial report. The telco generated consolidated revenues of ARS94.8 billion (USD1.7 billion) in the first half of 2019, while OIBDA for the first six months of the year amounted to ARS31.8 billion. Net income, meanwhile, amounted to ARS6.7 billion in 1H19. Nextel Communications Argentina was absorbed by its sister company Cablevision on 1 October 2017 and 'dissolved without liquidation'. All assets and obligations passed to Cablevision, which itself became part of Telecom Argentina on 1 January 2018.

(August 14, 2019) telegeography.com



Australia

Australia's Department of Communications and the Arts (DCA) has released a discussion paper which it says is designed to 'help inform the design of the Regional Connectivity Program, aimed at improving digital connectivity in regional Australia'. In a press release the government body said it was encouraging submissions from people in the telecommunications industry, all levels of government and other interested stakeholders, and it has set a deadline of 9 September

for any feedback. According to the DCA, the Regional Connectivity Program will 'tailor solutions to individual regions' as part of the state's AUD220 million (USD149 million) 'Stronger Regional Digital Connectivity Package'. The program forms part of the government's response to the 2018 Regional Telecommunications Review, which examined the communication needs of people living in rural and remote areas of the country.

(August 12, 2019) telegeography.com



Austria

The Federal Ministry for Transport, Innovation and Technology (BMVIT) has announced the country's new national broadband strategy 'Breitbandstrategie 2030', following a public consultation launched in February 2019. The strategy aims for nationwide access to gigabit-capable broadband services by the end of 2030, which will be achieved through five

interim phases. These goals are: nationwide access to 100Mbps speeds by the end of 2020; the launch of 5G in all federal state capitals by end-2020; Austria becoming a '5G pilot country' by early 2021; coverage of 5G along all main traffic routes by end-2023; and nationwide coverage of 5G by the end of 2025.

(August 9, 2019) telegeography.com



Brazil

Brazil's National Telecommunications Agency (Agencia Nacional de Telecomunicacoes, Anatel) has selected US-based Viavi Solutions to evaluate and test 5G-suitable spectrum ahead of the multi-band spectrum auction that will take place in 2020. The planned auction is expected to be the biggest in the history of Anatel, and involve the 700MHz, 2.3GHz, 2.5GHz and 26GHz frequency bands. As per the press release, the government does not plan to generate revenue from the bids but will instead seek investment commitments from bidders with deadlines for network implementation, as well as coverage and capacity goals that must be met. Viavi – which will provide the watchdog with its CellAdvisor portfolio of base station analysers to measure and troubleshoot 4G and 5G signals – explains: 'Peculiarities in frequency spectrum distribution in Brazil necessitate spectral analysis of 5G new radio (NR) access technology.'

(August 24, 2019) telegeography.com

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(August 22, 2019) telegeography.com

The National Telecommunications Agency (Anatel) has issued a statement denying a recent report by newspaper O Estado de Sao Paulo, which claimed that the government is considering an imminent intervention in the debt-wracked telco, as it fears the interruption of Oi services next year. The watchdog confirmed that the 'special monitoring' of Oi's services relates to the telco's judicial reorganization and has been ongoing since 2014. Further, Anatel observes that a 'definitive market solution is the preferred scenario for the positive evolution of the group's situation, given its adherence to the current regulatory model', suggesting it would not block any M&A activity involving Oi and its rivals.

(August 19, 2019) telegeography.com



Canada

The Canadian Radio-television and Telecommunications Commission (CRTC) has published a new code of conduct for ISPs which comes into effect on 31 January 2020 to safeguard users against unexpectedly high bills and help them resolve disputes with their provider. The Internet Code promises to ensure:

- easier-to-understand contracts, documentation and policies regarding service calls, outages, security deposits and disconnections
- clearer information on prices, including for bundles, promotions and time-limited discounts
- bill shock protection, through notifications when

customers approach and reach data usage limits

- greater flexibility via rules permitting customers to cancel a contract within 45 days without paying early cancellation fees, if the contract differs from the offer.

The Code, administered by the Commission for Complaints for Telecom-television Services (CCTS), applies to the following large ISPs: Bell Canada and its Northwestel division, Rogers, Cogeco, SaskTel, Videotron, Eastlink, Shaw and Xplornet.

(August 2, 2019) telegeography.com



Chile

The lower house has approved plans to include digital platforms in tax reforms which, if written into law, would oblige international over-the-top (OTT) providers to pay VAT on services offered in Chile. The 19% levy would be applied to 'digital services provided by persons or entities domiciled or residing abroad, regardless of where the server or technological platform that supports them [is located], and to the extent that said services are used in Chile by natural persons'. Amongst the list of services covered by the tax are the provision of digital content such as movies, videos, music and games, and cloud storage or computing and other forms of software as a service (SaaS). The text also looks to close any potential loopholes by noting that the tax would be applied independently of the device used to connect to the internet, the access technology, or any intervening application or platform. It was not made clear whether digital communications services,

such as messaging and calling applications, would be covered by the new taxation. Senior lawmaker Patricio Melero explained the need for the reform saying: 'It is not fair that some digital services from abroad such as Netflix or Spotify do not pay VAT and all those who serve in Chile do pay it.' The official went on to note that such external entities can generate revenue in Chile and impact the competitive environments of various sectors but make no tax contribution. Some details of the plan remain to be settled, however: the tax collection agent is still to be determined and there is a lack of clarity on areas of potential double-taxation. Food delivery services were one area expected to be affected by the latter, as customers would be charged VAT on the food, as well as the digital platform used to make the order.

(August 28, 2019) News Portal Cooperativa



Estonia

The telecoms watchdog, the Consumer Protection and Technical Regulatory Authority (Tarbijakaitse ja Tehnilise Järelevalve Amet, TTJA), has defended its decision to split 5G-capable spectrum in the 3.6GHz band into three blocks of 130MHz. The decision was made following consultations with operators, it says, and providing three larger blocks of spectrum rather than a greater number of smaller blocks will have benefits for network speed and capacity. In a statement it commented: 'The TTJA is of the opinion that the chosen solution is technologically significantly better and more sustainable than splitting the frequency bands

even further.' Levikom Eesti, a provider of IoT and fixed-wireless internet services, filed a complaint in March this year saying that auctioning only three licenses in the 3.6GHz band would favor the country's trio of incumbent cellcos, while also hampering competition. The regulator says the legal challenge 'has created a situation where the development of new services is delayed for an indefinite period and their delivery to customers is delayed, which is certainly not beneficial for the overall development of the telecommunications market or Estonia'.

(August 1, 2019) telegeography.com



Finland

Finland's DNA has confirmed that, following a governmental plenary session, it has been decided that the proposed acquisition of a majority stake in the telco by Norway's Telenor Group will not have an effect on the Finnish operator's licenses. In April 2019 Norway-based telecoms giant Telenor Group entered into separate agreements with DNA's two largest shareholders to acquire 54% of its shares. With the

deal having gained EC approval last month, DNA now notes that the completion of the deal remains subject to approval by Finland's Ministry of Economic Affairs and Employment. Nonetheless, it said Telenor Group expects to conclude the transaction this month, after which it will trigger a mandatory public tender offer for the remaining outstanding shares in DNA.

(August 9, 2019) telegeography.com



France

France's independent regulator, the National Agency of Frequencies (Agence Nationale des Frequences, ANFR), has given the green light for 65 trial 5G base transceivers stations (BTS) in the 3.5GHz band in July, bringing the total authorized 5G sites in the country to 273. Orange has been allowed to trial fifth-generation technology at 191 sites, followed by Bouygues (57)

and Altice France (SFR, 25). The ANFR also published in its monthly update on the number of 2G, 3G and 4G LTE BTS in the country that it had authorized a total of 47,200 sites for LTE use by 1 August 2019, with 42,209 of these BTS currently in service.

(August 7, 2019) telegeography.com



Germany

Telekom Deutschland (TD), the domestic operating unit of Deutsche Telekom (DT), has enabled maximum fixed broadband speeds of 250Mbps for a further 877,000 lines nationwide. The additions bring the total number of 250Mbps-enabled lines to over 23 million. The company also announced that the number of lines with maximum 100Mbps connection speeds using VDSL vectoring technology has been increased by an additional 65,000, bringing total household coverage of the rates to 29.5 million.

(August 9, 2019) telegeography.com

German telecoms company Deutsche Telekom (DT)

has announced the implementation of seamless call handover between its mobile 2G and 3G networks in Germany, Austria, Poland, the Netherlands and the Czech Republic. The move will eliminate call interruptions when crossing national borders and changing networks. Talks with providers from neighboring countries, including France, Switzerland, Denmark and Belgium, are ongoing. 'We connect Europe and make mobile phone calls even easier. Especially in the holiday season, millions of customers are already benefiting from this,' commented CEO of Telekom Deutschland Dirk Wossner.

(August 7, 2019) telegeography.com



Iceland

Iceland's Post and Telecom Administration (PTA, or Post-og Fjarskiptastofnun [PFS]) has announced the cancellation of Yellow Mobile's 2600MHz concession. In a press release the regulator noted that, with the license having been issued to the cellco in July 2017, it was required to have started using the spectrum within twelve months but failed to do so. According to the PTA, it had subsequently granted Yellow Mobile several deadline extensions to allow it to fulfil its obligations, despite which the cellco has still yet to offer connectivity via its 2x10MHz block of 2600MHz spectrum. As a result of the continued failure to fulfil the terms of its license, the PTA has now confirmed the concession has now been revoked by Decision

No.18/2019.

(August 14, 2019) telegeography.com

The telecoms watchdog Post and Telecom Administration (PTA) has opened a public consultation on its draft decision outlining the mobile and fixed termination rates for the 2020 calendar year. The regulator proposes that from 1 January 2020 the mobile termination rate (MTR) in the country should increase to ISK1.02 (USD0.00823) per minute, up from ISK0.96 per minute (in effect until 31 December 2019). For fixed termination, the rate will remain at its current level (ISK0.12). The PTA has invited comments on its draft decision until 30 August. (August 14, 2019) telegeography.com



India

India's planned spectrum sale is unlikely to take place until early 2020 as the Department of Telecommunications (DoT) hasn't finalized the pricing or how much spectrum will be allocated. In addition, the newspaper said draft documents outlining the terms and conditions have not been completed. The DoT scheduled the auction, the country's first since October 2016, to be held before the end of 2019. The government proposed auctioning off as much as 3,000MHz of spectrum across eight bands, including two 5G bands, potentially its largest auction ever. A DoT representative told ET: "The timeline may be delayed by around a month." The department announced in December 2018 it would wait until the second half of 2019 to auction additional spectrum, giving some ground to mobile operators' plea to delay the sale due to high levels of debt and an ongoing price war. Vodafone Idea urged the DoT to push back future auctions until 2020, arguing demand for new spectrum will grow only once the 5G ecosystem is in place, while Bharti Airtel executives previously said they would sit out any early auction of 5G spectrum due to a lack of clarity over business cases and a shortage of compatible handsets. In early August, the Confederation of Indian

Industry warned the high reserve price set for the 5G auction would put additional downward pressure on mobile operators' already sinking ARPU and slow growth of the sector.

(August 27, 2019) The Economic Times

India's Department of Telecommunications (DoT) has asked the Registrars of Companies (RoCs) in Delhi and Mumbai to halt the merger of Bharti Airtel and the consumer mobile division of Tata Teleservices Limited (TTSL), as the regulator had not given its written approval to the transaction. Airtel announced that it had completed the merger in July this year, after the Telecom Disputes Settlement and Appellate Tribunal (TDSAT) rejected the DoT's demands on the merger and instructed the ministry to provide the duo with the last of the approvals needed to go ahead with the tie-up. Unnamed industry sources were cited as saying that the DoT will challenge the merger in the Supreme Court on various grounds, including the companies' competition of the merger through a TDSAT ruling, which the ministry claimed 'is in contravention ... of the approved merger scheme'. A spokesperson for Airtel explained that 'both parties have operationalized the

merger following the TDSAT's order directing the DoT to take the merger on record'. The DoT's opposition to the takeover was originally based on demands related to controversial one-time spectrum charges (OTSC), the validity of which remains sub-judice. Throughout

the recent move towards consolidation in the nation's mobile sector, the DoT has sought to block or delay many of the transactions by withholding approval until the companies involved submit bank guarantees for the disputed OTSC. (August 21, 2019) The Economic Times



Kosovo

The telecoms watchdog has issued a statement on the cancellation of Z Mobile's MVNO contract by state-owned operator Telecom Kosovo (TK), assuring consumers that it is monitoring the situation and will take action to guarantee continuity of service for customers. To that end, the Regulatory Authority for Post and Electronic Communications (ARKEP) has instructed the companies not to take any unilateral action that may harm customers. The regulator also directed Z Mobile not to issue any new SIMs, enter new contracts with customers or create new packages for the moment. ARKEP went on to say that over the next few days it would gather additional information from the two providers and analyze European practices on the matter. Last month TK chose not to renew its controversial MVNO contract with Z Mobile; the two providers are involved in an ongoing legal dispute.

(August 8, 2019) telegeography.com

Kosovo's telecoms watchdog, the Regulatory Authority for Post and Electronic Communications (Autoriteti Rregullator i Komunikimeve Elektronike dhe Postare, ARKEP), has renewed the spectrum licenses of incumbent cellcos Telecom Kosovo (TK – which operates under the Vala brand) and IPKO for 20 more years. ARKEP Chairman Kreshnik Gashi said that TK has had spectrum authorizations comprising 2×10MHz in the 900MHz band and 2×25MHz range renewed, whilst IPKO's concessions covering 2×10MHz of 900MHz range spectrum and 2×20MHz in the 1800MHz band were also updated. State-owned TK will pay EUR15.7 million (USD17.5 million) over ten instalments for its renewal, whilst IPKO is expected to pay EUR11.7 million. The license renewal is the first phase of the regulator's spectrum allocation program. The next stage is due to take place during H2 2019 and will feature the auctioning of unused frequencies in the 800MHz, 900MHz, 1800MHz, 2100MHz and 2600MHz bands. (August 6, 2019) Koha



Mexico

The Mexican government has selected state utility firm Comision Federal de Electricidad (CFE) to oversee its 'Internet para Todos' initiative, via subsidiary CFE Telecomunicaciones. The decision was rubber-stamped on 2 August, when it was included in the

government's Diario Oficial de la Federacion (DOF). The unit will be in charge of extending fixed broadband infrastructure to parts of the country not yet covered by the country's private operators.

(August 6, 2019) telegeography.com



Mozambique

The Communications Regulatory Authority (Autoridade Reguladora das Comunicacoes, ARECOM) has approved a new TV-White Space (TVWS) technical standard to regulate the use of frequencies in the 470MHz-694MHz band. The watchdog says that the

measure will enable it to offer frequencies to telcos for wireless broadband services without impacting TV broadcasters which utilize spectrum in surrounding UHF bands.

(August 12, 2019) telegeography.com



Namibia

The Minister of Information and Communication Technology, Stanley Simataa, has officially activated Mobile Telecommunication's (MTC) new 3G network tower in Vergenoeg Farm in the Omaheke region. MTC, Namibia's largest mobile network operator (MNO) by subscribers, plans to erect eight towers in the Omaheke Region as part of its 081Every1 project, which aims to provide network coverage to 100% of the Namibian population by constructing 524 network

towers nationwide. The new tower in Vergenoeg and another in the nearby settlement of Helena have now been switched on in phase one of the project, which will initially extend coverage to 80% of the region's population. Elsewhere, five towers have also been activated in the Tsumkwe constituency in the Otjozondjupa Region, where another four are still under construction.

(August 12, 2019) New Era Live



Nigeria

The Nigerian Communications Commission (NCC) has announced it has approved spectrum for the trial of 5G mobile services in the country. Without providing further details, the regulator's Executive Vice Chairman Umar Garba Danbatta revealed the development in Abuja at the ITU's 'First Digital African Week' event. He acknowledged the evolving trends in the ICT ecosystem, giving rise to technologies such as IoT applications and smart cities, adding that the NCC was well positioned to embark on the trial of 5G in the country.

(August 29, 2019) telegeography.com

The Nigerian Communications Commission (NCC) is set to host the Conference of African Telecommunications Regulators on Consumer Affairs (CATCO) in Abuja from August 20 to 22. The Executive Vice Chairman of NCC, Umar Danbatta, disclosed this in a statement issued on Wednesday in Abuja by Mr. Henry Nkemadu, the Commission's Director of Public Affairs. Mr. Danbatta said the 3-day conference with the theme: "Empowering the Telecom Consumer in an Era of Technological Evolution" is geared towards pursuing a continuous collaboration between African telecommunications regulatory Agency of individual country and their regional body. He said the conference would look at how regulatory activities of the 54-member nations of African Union (AU) could be integrated for seamless connectivity to boost customers' satisfaction. Mr. Danbatta said bodies such as West Africa Telecommunication Regulatory Association (WATRA), East African Communications Organization (EACO) among others would participate in the conference.. According to the EVC, the conference will provide the platform for Africa to establish unity, solidarity, collective self-reliance in the ICT sector.

(August 14, 2019) premiumtimesng.com

The Nigerian Communications Commission (NCC) said there was no justification for the huge interconnect debts threatening the telecom sector. Its Executive Vice Chairman, Prof. Umar Danbatta, who stated this in Abuja, argued that with over 90 per cent of pre-paid customers on mobile networks which meant that cash must be paid before service is rendered, "operators have no reason not to be settling their interconnection bills as and when due." He urged the debtor operators to settle their debts without further delay to prevent possible revenue drop and customer flight from their networks to competitors. Dambatta frowned at the slow pace at reaching settlement over interconnect bills among the affected operators. He advised subscribers having difficulties in making calls at this time to take advantage of the "multi-SIMing nature of telecoms market." The EVC also assured the over 174 million telecoms subscribers of their protection from suffering any service disruption as a result of ongoing

regulatory intervention aimed at resolving the rising interconnectivity debts among telecoms operators in the country. He said as a consumer-centric regulatory agency, the NCC is keen on ensuring that consumers continue to enjoy uninterrupted service while efforts are ongoing to address the issue of indebtedness in the industry. Danbatta said the issue of interconnection is a matter that the Commission is handling delicately within the purview of the regulatory provisions to protect consumers by ensuring the quality of experience (QoE) is not compromised. He said while regulatory approval on permission for disconnection was granted to creditor networks late last year as a last resort towards resolving the huge interconnection debts threatening the health and sustainability of the industry, the Commission is ensuring that no telecoms subscriber is disconnected. "Though the Commission granted approval to MTN's request to disconnect debtor networks from its network in line with Section 100 of the Nigerian Communications Act (NCA) 2003, the Guidelines on Procedure for Granting Approval to Disconnect Telecoms Operators, 2012 and other regulatory instruments, what is happening now is that the creditor networks are restricting certain services to their debtor networks in form of one-way disconnection. "It is one-way disconnection because, as a regulator, we prevented total disconnection; not doing that would be frustrating for the consumers. So, we have ensured that subscribers on the affected debtor networks are able to receive calls and text messages from creditor networks. This means they might not be able to make seamless calls or send text messages to the creditor's network at all times because of restriction of access to debtor networks, pending when satisfactory payment plans are reached with respect to the interconnect debts. This is to prevent further accumulation of interconnect debt by the debtor networks. "You will recall that in the Pre-Disconnection Notice issued last year on December 18, 2018, we gave another period of between 10-21 days for the debtors (depending on whether they are service networks or exchange operators) to pay, so as not to lose their interconnection rights. We had expected that as responsible business entities, the debtor companies will either pay up or agree satisfactory payment plans with their creditors. But it appears no agreeable settlements plans have been reached after the expiration of the deadline, leading to the creditor's decision to go ahead with the execution of the one-way disconnection, as permitted by the NCA Act 2003, which is what some subscribers are currently experiencing." While assuring subscribers that the issue will soon be resolved, expressed the commitment of the Commission to ensure the settlement of the issue soon. "As regulator, our central role is to protect the consumers and ensure sustainability of the telecom industry through creating a level-playing field for all the licensees such that no operator is allowed to

undermine the operations of another licensee in a way that is capable of negatively impacting on the health of the industry." Interconnect debts among licensees to accumulate without ensuring settlement is dangerous for our industry and for the telecoms consumers. The

ongoing regulatory intervention is a consumerist move on our part as a regulator and we appeal to telecoms consumers for their understanding as we work with operators to resolve the matter," Danbatta said.

(August 4, 2019) thenationonlineng.net



Philippines

The Philippines' Department of ICT (DICT) has signed a partnership agreement with the United Nations Development Program (UNDP) aimed at fast-tracking the deployment of free Wi-Fi access in public places. Under the agreement, the UNDP will provide support for the government's Pipol Konek – Free Wi-Fi Internet Access in Public Places Project. The UNDP will conduct area-based network analysis of target sites, oversee monitoring of project impact, and continue to provide technical training to stakeholders involved in the rollout. The UNDP and the DICT will meanwhile jointly take charge of project oversight. The project participants plan to hold workshops and consultative

meetings to address the challenges with the rollout and investigate potential solutions. The DICT sought the assistance of the UNDP in September last year to expedite the project and aid in the capacity-building initiatives of the companies involved in the rollout. A formal signing ceremony was held last week during the first project board meeting. "Today as we set to seal this meeting of minds, the Department is optimistic that our goals of providing free Internet access and promoting knowledge-building among our citizens will soon be realized," DICT Acting Secretary Eliseo M Rio Jr. said at the signing ceremony.

(April 1, 2019) telecomasia.net



Poland

Poland's Office of Electronic Communications (Urząd Komunikacji Elektronicznej, UKE) has decided to allocate 5G-capable spectrum in the 3.4GHz-3.8GHz range via a competitive auction rather than a tender process. A report from Gazeta Wyborcza says that the decision was reached following 'consultation with the market'. While there has been some criticism of

the move, including claims that UKE is simply looking to maximize government revenues from the sale of 3.5GHz frequencies, the regulator says that an auction is the fairest method of allocation and allows operators room for maneuver, given that the sale will not be divided into evenly sized spectrum blocks.

(August 29, 2019) telegeography.com



Portugal

Portuguese digital-terrestrial TV broadcasters will have to vacate the 700MHz band in a process that is set to begin in January and will take place over approximately six months, according to a timetable set by regulator ANACOM. ANACOM, like other European regulators, is clearing 700MHz spectrum to make way for 5G mobile services. The European Parliament and Council have required EU member states to complete the process of 700MHz migration by June 30 next year. ANACOM has chosen to complete the process maintaining current DTT technology, without the need for a simultaneous transmission period. The regulator has maintained that its decision to stick with the current generation of DTT technology still leaves room for the future enlargement of the DTT offering in Portugal, and has said there is still capacity available to create two additional standard definition channels to be added to the current line-up. The migration will kick off in

earnest in January in southern Portugal, with other regions completing the switch in a phased way, ending with migration in the Azores and Madeira in June. The watchdog has composed a draft DTT decision that sets out the technical changes that platform operator Meo/Altice Portugal will have to make to the DTT network, and also calls for a pilot to be launched in the second half of November to assess the actions needed to support users. According to ANACOM, some DTT users will need to retune their reception equipment but will not be required to reorient their terrestrial antennas. The regulator has called for support for users to clarify and resolve difficulties, including face-to-face support for older TV viewers and those experiencing difficulty understanding the steps required to continue viewing services, and is collaborating with the agencies to ensure this.

(August 26, 2019) digitaltveurope.com



Romania

The Romanian government has approved an emergency ordinance requiring mobile network operators to register the personal details of pre-paid SIM users from 1 January 2020, reports Profit.ro. Anyone buying a pre-paid SIM will need to present their identity card, while existing pre-paid SIM users will have until 1 September 2020 to register their details or face disconnection. The information will be made available to the national emergency services call centers to help identify callers.

(August 29, 2019) telegeography.com

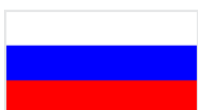
Romania's National Authority for Management and Regulation in Communications (ANCOM) has opened a public consultation on its plan to reduce mobile termination rates (MTRs) with effect from 1 January 2020. The regulator has proposed a maximum tariff of EUR0.0076 (USD0.0085) per minute, down from the current rate of EUR0.0084, as a transitional measure until a single European rate is established before the end of 2020 under Directive (EU) 2018/1972. The operators designated with significant market power – Lycamobile, Orange Romania, Vodafone Romania, RCS&RDS and Telekom Romania Mobile Communications – will have

the obligation not to exceed the maximum regulated rate on their own networks. The rate will apply to national calls and calls from inside the European Economic Area (EEA), as well as calls initiated outside the EEA where there is no international agreement in place governing termination fees.

(August 13, 2019) telegeography.com

OTE Group, which has fixed and mobile operations in Greece and Romania, has recorded a 0.3% rise in sales in the first half of 2019 to EUR1.86 billion (USD2.1 billion). The firm said that increased revenues from its fixed business were partially offset by a 2.5% drop in mobile turnover. Group EBITDA for the first half climbed from EUR592.4 million in 2018 to EUR625.4 million this year, though there was a 20.8% fall in net profit from continuing operations to EUR80.5 million. OTE Group has been downsizing its activities, completing the sale of its operations in Albania at the start of this year, and the sale of its stake in Telekom Romania is also expected.

(August 8, 2019) telegeography.com



Russia

A draft law introducing universal mobile service access points for Russian settlements of between 100 and 500 people has been approved by the government and sent to the lower house of parliament (State Duma) for consideration. The amendments also remove Wi-Fi-based shared access internet points from the list of universal communications services (UCS) after such rollouts ceased due to a lack of demand. If the amendments are passed, settlements of 100-500 inhabitants will be covered by the UCS program for the first time. The draft envisages settlements with a population of 250-500 receiving mobile UCS access point coverage by 2024 and communities of 100-250 residents gaining UCS access by 2026. State-backed Rostelecom is currently the sole UCS provider, and is expected to fulfil new mobile UCS commitments via part-owned mobile subsidiary Tele2 Russia – although with Tele2's coverage being less extensive than larger rivals MTS, MegaFon and Beeline, the actual network provision in certain zones could be contracted out. MegaFon's corporate communications manager Dmitry Lukyanchikov was quoted as saying that he believes the bill could enter law before the end of this year.

(August 14, 2019) ComNews

Russia's Ministry of Digital Development, Communications and Mass Media (Ministry of Communications or Minkomsvyaz) has proposed allocating new frequencies for 5G in the 4.4GHz–4.99GHz range. Although this band is not commonly

allocated for 5G worldwide, TeleGeography notes that China Mobile was given access to trial 5G spectrum at 4.8GHz-4.9GHz in December 2018 before being awarded a commercial 5G license in June 2019, while in April 2019 Japan's NTT DOCOMO was authorized to use the 4.5GHz-4.6GHz band for its 5G network rollout, having trialed 5G 4.5GHz services in 2017-2018. Furthermore, Russian fixed broadband operator ER-Telecom has been permitted to utilize 4.8GHz-4.99GHz spectrum for 5G connectivity tests, aiming to provide wholesale services to cellcos. The process to free up 'mainstream' 3.4GHz-3.8GHz 5G mobile spectrum in Russia remains stalled as the latter frequencies are reserved for security/law enforcement/intelligence/military usage. Minkomsvyaz has recently rejected several operators' applications for 3.4GHz-3.8GHz bandwidth. Vice Prime Minister Maxim Akimov told reporters last week that the government will establish a working group to plan 5G pilot zones using 3.4GHz-3.8GHz spectrum in cooperation with other state agencies and special services departments (in addition to ongoing projects for 27GHz-28GHz 5G pilot zones in Moscow).

(August 13, 2019) Telecom Daily

The Ministry of Digital Development, Communications and Mass Media (the Ministry of Communications or Minkomsvyaz) has rejected a series of 3.5GHz trial applications from the country's major players, denying them access to 5G-suitable frequencies for testing purposes. The rejected applications were revealed in

the minutes covering the watchdog's 25 July meeting, as published on its website on 1 August. In each case, the regulator says that the decision was made 'on the basis of a negative opinion on the possibility of allocating a radio frequency band'. MegaFon had two applications rejected, covering spectrum in the 3481.125MHz-3498.875MHz and 3581.125MHz-3600MHz bands (alongside a broader 3.4GHz-3.8GHz request), at locations including Moscow and St. Petersburg; Rostelecom had two applications rejected, covering spectrum in the 3400MHz-

3440MHz, 3440MHz-3450MHz, 3500MHz-3545MHz and 3545MHz-3550MHz bands (alongside a broader 3.4GHz-3.8GHz request); locations included Moscow, St. Petersburg, Kazan and the Republic of Tatarstan; VimpelCom (Beeline) had two applications rejected covering spectrum in the 3400MHz-3800MHz band (Moscow, St. Petersburg, Kazan and the Republic of Tatarstan); and Mobile TeleSystems (MTS) had one application rejected, covering the 3400MHz-3800MHz band (Moscow, St. Petersburg, Kazan and the Republic of Tatarstan). (August 6, 2019) telegeography.com



Senegal

The government has announced it is partnering with Spanish telecom infrastructure specialist Liteyca on a two-year project to expand the country's fiber-optic network and connect government offices in all regional and municipal capitals. The XOF50 billion (USD84.7 million) PASSANT project (Projet d'Appui Structurel a la Strategie d'Amenagement Numerique du Territoire), managed by the state IT agency ADIE (Agence De l'Informatique de l'Etat), will extend the country's

backbone network by nearly 340,000 kilometers, improve backhaul links with the deployment of over 75,000 kilometers of fiber, and bring high speed connectivity to more than 400 government buildings. The public administration will also benefit from a new national data center, which could be built in Kaolack, while 125 Wi-Fi hotspots will be deployed in public places to provide access to digital services.

(August 27, 2019) telegeography.com



Slovakia

The Slovak regulator RU has awarded a license to operate the country's first DVB-T multiplex to the national transmission company Towercom. Towercom's current license is valid until May 31, 2021 and its new one, for which it will be required to pay a one-off fee of €501,000, expires on September 9, 2029. Under the terms of the new license, Towercom will have to ensure the first multiplex covers at least 86.6% of the population by June 1, 2021, the date the company has fixed for the launch of commercial DVB-T2 services. Channels on the multiplex will be distributed using HEVC (H.265) coding system by January 1, 2024.

(August 24, 2019) broadbandtvnews.com

According to a report a 700MHz band 5G frequency auction is likely to be launched in Slovakia by the end of this year, while the auction could potentially also include

licenses for the 1500MHz band. Slovakia's Office for Regulation of Electronic Communications & Postal Services (RU) is yet to announce an exact timetable for the 700MHz auction, although it stated last month that it had begun the process for awarding frequencies in the 694MHz-790MHz range by a deadline of 30 June 2020 in accordance with EU guidelines, whilst work is ongoing to transfer digital TV broadcasts out of the band. The Zive report quotes RU spokesperson Roman Vavro as saying: 'RU will carry out a public consultation this quarter and after its evaluation will decide on the conditions of the selection procedure and on which frequency it will allocate.' Note that several Slovakian operators already hold 3.4GHz-3.8GHz spectrum which RU has authorized for 5G services, with 4ka recently announcing plans for live 5G trials using the 3.5GHz-3.7GHz band. (August 14, 2019) zive.aktuality.sk



Slovenia

Telcos in Slovenia say they plan to provide around 47,500 unserved households in rural areas with broadband internet services, leaving approximately 50,000 households in so-called 'white' areas to be covered by state-funded rollouts. STA reports that ten operators responded to a government call to provide information on planned deployments in rural areas, with these ten firms – Elta, KTV Dravograd, KTV Ravne, RUNE-SI, Sanmix, Dostop Komunikacije, Studio Proteus, Telekom Slovenije, Telemach and Milan Trnovec – expecting to reach 46,000 premises which currently have little or no broadband access within the

next three years. Another unnamed telco responded to a second call, saying it would pass around 1,500 homes. The state plans to bankroll rollouts to all remaining areas without broadband access, with around EUR38 million (USD42 million) of funding available under a wider EUR200 million EC-backed scheme which aims to improve connectivity in unserved and underserved regions. A tender to find a contractor to roll out networks to an initial 25,000 premises in white areas is expected to get underway in the coming months.

(August 22, 2019) telegeography.com



Taiwan

The National Communications Commission (NCC) has defended a cap on the amount of bandwidth that operators will be able to acquire in its forthcoming auction of 5G-suitable spectrum. According to the Taipei Times a discussion regarding the upcoming frequency sale was held yesterday (6 August) involving representatives of the country's telecoms providers, the NCC's Acting Chairman Chen Yao-hsiang and other NCC commissioners. At this meeting the NCC is reported to have said that its plans for a per-operator cap of 100MHz in the 3.5GHz band is designed to ensure fair competition. However, Taiwan Star representative Wang Chun-yi was said to have told the hearing that the bandwidth cap for the 3.5GHz band should be lowered – to between 70MHz and 80MHz – arguing that this would be the only way to guarantee there being four operators in the market. The executive suggested that, even though network and spectrum sharing is encouraged by the NCC, none of the larger

providers are likely to consider working with a smaller operator if it has less than 40MHz of 5G-suitable spectrum. With the Taiwanese authorities expected to offer up a total of 2,790MHz in the auction, across the 1800MHz (20MHz), 3.5GHz (270MHz) and 28GHz (2,500MHz) bands, the meeting also explored a number of other key areas. Among these, Hsiao Ching-teng, the representative for Far EasTone Telecommunications (FET), was said to have expressed an interest in the NCC limiting the funds raised through the auction of the blocks in the 28GHz frequency band to a 'reasonable' amount, due to the fact that technology and equipment for this band has yet to mature. Meanwhile, it was also reported that NCC spokesperson Hsiao Chihung had confirmed the commission had agreed to consider lowering the frequency usage fees to facilitate partnerships between the telecoms and 5G vertical application developers.

(August 7, 2019) telegeography.com



Thailand

The government will be asked to set up a national 5G strategy committee, chaired by the prime minister, to accelerate 5G adoption in the country, says the National Broadcasting and Telecommunications Commission (NBTC). Takorn Tantasith, the NBTC's secretary-general, said such a committee could help drive quicker 5G adoption in the country. The NBTC has faced various problems in the past, including bringing back frequencies held by state agencies or the armed forces that have not yet used the spectra's full capacity. "If this committee is established, such problems can be tackled much easier," said Mr. Takorn. He said the auction value for the 2600-megahertz band, meant to be used for 5G technology, will be appraised by the end of this month. The NBTC assigned Thammasat and Chiang Mai universities and the Thailand Development Research Institute to complete the appraisal. The spectrum auction is likely to be carried out early next

year at the earliest, said Mr. Takorn. The 2600MHz spectrum has been held by state-owned broadcaster MCOT, which has to return 190MHz of unused bandwidth to the NBTC in exchange for compensation. He is aware Vietnam, Singapore and Malaysia will commercially launch 5G service in June 2020 as Asean telecom regulators held a conference last week in Bangkok. "This raised our concerns about investors possibly relocating to these countries, making Thailand lose an opportunity to push the economy forward," said Mr. Takorn. Last month the NBTC indicated there are two sets of multi-band ranges meant to cater to 5G technology that would be put on auction. The first batch consists of 700MHz, 2600MHz and 26-28 gigahertz spectrum. The other comprises the 3400-3600MHz and 1800MHz ranges.

(August 28, 2019) bangkokpost.com



Ukraine

The National Commission for State Regulation of Communications & Informatization (NCCIR/NKRZI) reported on its website that the country's GSM 900MHz operators – Kyivstar, VF Ukraine (Vodafone Ukraine) and Lifecell – have reached a 'basic agreement on the redistribution of radio frequency resources' in the 900MHz range 'in order to ensure maximum coverage of the territory of Ukraine by modern mobile networks, to provide broadband internet access within the framework of the implementation of Presidential Decree of 8 July 2019 No. 497/2019.' The decree in question called for the 'release' of the 880MHz-915MHz/925MHz-960MHz band for 3G/4G LTE usage

by 1 October 2019. The agreement defined 'dimensions for maximum and efficient use of radio frequency resource' for each operator, although details were not made public. The NCCIR added that the next essential step is 'eliminating the fragmentation' of the 900MHz band, involving agreements on regional distribution and finding 'a compromise solution to establish ... special [licensing] conditions for the coverage of settlements and roads'. Once the final arrangements have been reached, the relevant draft decisions will be forwarded for government approval.

(August 12, 2019) telegeography.com



United Kingdom

The UK Government has launched a consultation on proposals to relax planning rules to improve rural mobile coverage. The proposals include

- changing the permitted height of new masts with the aim of promoting mast-sharing and minimizing the need to build more infrastructure;
- allowing existing ground-based masts to be strengthened without prior approval to enable sites to be upgraded for 5G and mast-sharing;
- deploying radio equipment cabinets on protected and unprotected land without prior approval, excluding sites of special scientific interest; and
- allowing building-based masts nearer to roads to support 5G and increase mobile coverage.

The Government is also seeking views on what measures industry could offer to mitigate the impact of any new infrastructure, including assurances of greater use of existing sites and the removal of redundant masts. Research earlier this year from which found that 4G coverage from all four mobile operators in the UK only reaches 67% of the country's geographical area, while 8% of the UK has no 4G mobile coverage at all. The

Government has pledged to extend geographical 4G mobile coverage to 95%. Minister of State for Housing and Planning, Rt Hon Esther McVey MP, commented, "We're committed to delivering the homes people across the country need, and that includes delivering the right infrastructure such as broadband connectivity and good mobile coverage. There is nothing more frustrating than moving into your new home to find signal is poor. That's why we are proposing to simplify planning rules for installing the latest mobile technology – helping to extend coverage and banish more of those signal blackspots, particularly for those living in rural areas." Hamish MacLeod, Director at Mobile UK, said, "The current planning system does not support the fast, efficient rollout of 5G technology that is vital for the UK's digital economy. We welcome the Government looking at simplifying planning processes to deliver better connectivity, and we stand ready to work in partnership to ensure these much-needed reforms happen as quickly as possible." The consultation closes on 5 November, 2019.

(August 27, 2019) mobileeurope.co.uk



United States

The FCC has just approved nearly five billion dollars in subsidies for rural broadband operators to be paid out over the next 10 years. Recipients of this windfall will have to "maintain, improve, and expand" their broadband infrastructure, especially in underserved areas. Carriers in 39 states, American Samoa and many tribal lands will receive varying amounts of funding depending on the number of people they serve, the cost of providing that service and so on. Naturally states with more people in rural areas receive more cash – you can see how your state made out in the chart below. To be clear, this isn't some spontaneous cash drop by the FCC; it has to decide how to distribute the funds it receives from fees and such, and one of the major efforts underway these days is improving rural broadband. But the specifics of how to disburse billions over a decade, who qualifies, how to verify their qualification and compliance with the terms – it's a complex process and must be negotiated and approved, as this program eventually was. It's different, by the way, than CAF II and other funds, which are also directed at rural broadband but different methods, for example working directly with municipalities or contractors. I've asked the FCC for a bit more detail and will update if I hear back. Rural carriers often have higher costs for deployment and maintenance, and have to pass that cost on to their subscribers. Considering rural broadband often has lower speed and reliability than urban connections, these poor folks end up paying more for less. The fund is meant to defray those costs, both for carrier and subscriber. If Uncle Sam is paying half the bill to roll out new fiber, that means the bottom

line for Joe Six-Megabit goes down a bit too (ideally). Sure, it's kind of trickle-down economics, but it doesn't have to trickle far. North and South Dakota are getting the lion's share of the fund, with a combined \$1.3 billion headed their way, and some 96,000 homes and businesses to be served. That's an average of about \$13,000 per site over 10 years, or \$114 per month per site. Sounds reasonable when you work it out that way – this isn't just a subsidy, but an investment. Iowa, Minnesota and Texas all are getting quite a bit as well, but don't be jealous if you're in, say, California, which is only getting \$13 million over a decade to serve 1,300 new sites. There's plenty of internet money swirling around California – its places that have more land than cash that the FCC needs to help out.

(August 23, 2019) techcrunch.com

The US Federal Communications Commission (FCC) has discontinued a pair of regulatory obligations relating to local loop unbundling (LLU), dismissing the 1996-era rules as 'outdated, burdensome phone industry regulations.' One requires price cap incumbent local exchange carriers (ILECs) to unbundle two-wire and four-wire analogue voice-grade copper loops, including the attached TDM equipment ('UNE Analogue Loop Requirements'). The second rule requires price cap ILECs to offer for resale at wholesale rates telecoms services that the ILEC offers at retail to non-carrier customers ('Avoided-Cost Resale Requirements'). The FCC defends its position by saying: 'Given the sweeping changes in the communications marketplace since the passage of the 1996 Act, including the increasing

migration of consumers of all sorts and sizes away from TDM technology, copper loops and local telephone service toward newer, any-distance voice services over next-generation wireline and wireless networks and the wide range of competitors offering facilities-based voice service alongside over-the-top VoIP services, we find that the public interest is no longer served by maintaining these legacy regulatory obligations and

their associated costs. Rather than a foothold for new entrants into the marketplace, they have become a vice, trapping ILECs into preserving outdated technologies and services at the cost of a slower transition to next-generation networks and services that benefit American consumers and businesses.'

(August 8, 2019) telegeography.com



Vietnam

The Ministry of Information and Communications (MIC) has announced it is preparing procedures to auction off mobile spectrum in the 2600MHz band. The frequencies are expected to be used to enhance LTE coverage and capacity across the country. Under the proposed conditions, winning bidders will be required to begin network deployment within 24 months of receiving their spectrum license, with existing mobile operators required to roll out at least 5,000 base stations within that timeframe. New market entrants will only be allowed to begin providing services once they have met 50% of either of the following two conditions: provide 4G population coverage of at least 75% in all districts, towns and cities within 24 months; or roll out 8,500 base stations to supply 4G in all districts, towns and cities. Interested parties have been given until 29 August 2019 to submit comments to the Authority of Radio Frequency Management (RFD).

(August 20, 2019) telegeography.com

The Vietnamese state announced plans to sell large stakes in Mobifone and Vietnam Posts and Telecommunications Group (VPTG) by the end of 2020, alongside a number of other interests. In the past, Vietnam has struggled to garner investment into the many state-owned businesses operating in the country. Only 35 of the 127 companies earmarked for share sales in 2017 have completed the process. Reports state the government plans to sell "up to" 49 per cent of its shareholding in both Mobifone and VPTG, which owns mobile operator Vinaphone. The operators are two of the three dominant players in the Vietnamese mobile market. Figures from GSMA Intelligence for Q2 placed Vinaphone as the third-largest player by connections (including cellular IoT), with a share of 22 per cent. Mobifone ranked second on 34 per cent share, while market leader Viettel had 41 per cent. Vietnam's latest sale will see the government dispose of a range of stakes in 93 companies, in sectors ranging from energy to banking and manufacturing.

(August 16, 2019) Bloomberg



Zimbabwe


The Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) has invited bids for the construction of 100 mobile network base stations targeting unserved areas so as to expand network coverage in the country. In a tender statement at the weekend, Potraz said qualified firms should submit their expressions of interest by September 20, 2019 for designing, construction and commissioning of shared telecommunications towers and related infrastructure. The projects would be funded using resources from the Universal Services Fund (USF), a pool of funds contributed by companies in the telecommunications sector and meant for the development and provision of telecommunications in under-served areas. "In pursuit of its mandate under the Universal Services Fund, Potraz intends to extend rural coverage by constructing 100 base stations in uncovered rural and remote areas in Zimbabwe. "The base station passive infrastructure should accommodate the existing three mobile network operators and provide spare capacity for additional operators," said Potraz. "The project is planned to be implemented as a turnkey vendor financed Build and Transfer joint venture agreement.

The supplier undertakes the financing and construction of the project and after its completion hands it over to Potraz. Potraz reimburses the total project investment on the basis of an agreed schedule." The regulator said a formal request for proposal will be issued following a review of the Expressions of Interest received and that qualifying interested parties will be notified to submit proposals for the project. The successful implementation of the projects is expected to help improve access to telecommunication services and enhance overall development in the outlying communities. In determining which areas benefit from the USF, Potraz liaises with relevant Government ministries, Members of Parliament and other stakeholders in the postal and telecommunications sectors to identify least served areas in each province excluding Harare and Bulawayo. Targeted areas are then surveyed with the assistance of licensed operators before funds are disbursed for any project that is meant to bring universal access to the public living in un-served areas. Other purposes of the USF include assisting in the training of personnel in the provision of postal and telecommunication services

and contributing towards research and development in the same field.

(August 28, 2019) chronicle.co.zw

The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) has approved a sharp rise in tariffs for mobile telephony services in the country. The voice tariffs are being hiked by over 180%, from ZWL0.17 per minute to ZWL0.48. The move is designed to help the three local mobile network operators (MNOs) – Econet Wireless, NetOne and Telecel – amid an ongoing economic crisis where the value of the local currency has plummeted against the dollar, leading to vastly increased costs for operators

who must pay for international bandwidth and network equipment in foreign currency. Furthermore, the country is suffering chronic power shortages which means cellcos must keep their infrastructure running using expensive diesel-run backup generators. The report cites an unnamed Zimbabwean telecoms executive as saying: 'The adjustment in voice tariffs is welcome as it moves MNOs closer to cost effective tariffs and is a direct response to the rise in service delivery costs across the industry. This will go a long way in allowing us to continue to deliver quality service, and for the industry to remain viable.' 

(August 16, 2019) [Bulawayo24 News](http://Bulawayo24.com)

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