

For communications professionals in the southern Asian region

SOUTHERN ASIAN WIRELESS COMMUNICATIONS

Q1 2021

Volume 14 Number 1

- Satellite: a thing of the past or a thing of the future?
- The growing importance of FWA and Wi-Fi on the move
- Southern Asian mobile fraud, according to Evina

Experts in RF over Fiber



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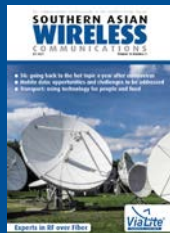


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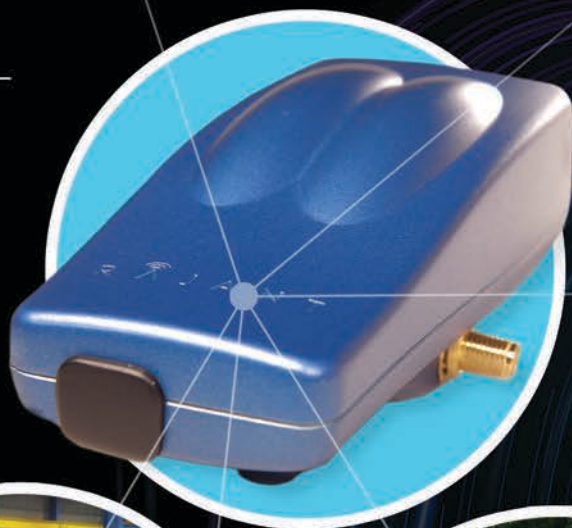
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RAJANT

Cambodia's NIG going ahead in face of criticism

Cambodia is to press ahead with heavily-criticised plans to establish a National Internet Gateway (NIG) to direct, manage and facilitate all of the country's internet traffic. According to a report in the Phnom Penh Post, the country's prime minister Hun Sen signed a sub-decree on in February outlining the gateway's proposed role in routing local and international internet traffic, enabling "effective and efficient" revenue collection and management, and safeguarding national security and social order.

The NIG will incorporate and oversee both the Domestic Internet Exchange (DIX) and the International Internet Gateway (IIG). It is understood that these will be situated in the capital Phnom Penh, Sihanoukville, Poipet, Bavet and other locations based on demand. They will also be subject to approval from the Ministry of Posts and Telecommunications Cambodia (MPTC).

Cambodia's decision to create NIG was first proposed in July 2020, but was criticised by the Asia Internet Coalition (AIC), which claimed that gateway could be used to restrict internet access for civilians, posing a threat to businesses and internet platforms as well as freedom of expression and user privacy.

Reports also claimed the government has not appointed an operator for the NIG, with interested parties invited to apply to for a



The operator must "manage and facilitate connections and the use of infrastructure, network and internet services at all instances of the NIG, as well as terrestrial cross-border network infrastructure"

licence from the Telecommunication Regulator of Cambodia (TRC).

According to the authorities, the operator must "manage and facilitate connections and the use of infrastructure, network and internet services at all instances of the NIG, as well as terrestrial cross-border network infrastructure. It will have to install and configure the routers, switches and other network equipment to ensure the quality and security of

network connections or peering facilities for NIG and operators of international gateways".

It must "take immediate action to block or disconnect any network connection that affects national revenue, security [or] social order" in collaboration with the country's authorities including the MPTC and TRC.

Meanwhile, the MPTC again called for the kingdom's operators to improve the quality of mobile and internet services available to users.

Nokia chosen for 5G rollout

Nokia has been selected by Globe Telecom in a three-year deal to upgrade its existing 4G network and expand the geographical reach of its 5G network at over 1,000 sites in the Philippines.

The deployment will cover the second and third largest islands of Mindanao and Visayas and will begin in Q2 2021 with completion expected in 2023. Under the terms of the deal, Nokia will provide equipment and services from its comprehensive 5G AirScale portfolio to build out the Radio Access Network (RAN), including base stations and other radio access products.

Globe will also use Nokia's high-capacity AirScale massive MIMO Adaptive Antenna solution, which utilises the latest 64TR radios to boost coverage and performance.

Utilising the new 3.5GHz spectrum band for dense urban coverage, Globe will be able to provide end-users with high peak speeds typical on 5G network. Furthermore, the deal will also see the expansion of the existing FDD/TDD LTE network infrastructure. These solutions will enable Globe to roll out 5G services across the two major islands of the Philippines and offer customers superior speeds, capacity and lower latencies while reducing complexity.

Finnish gear-maker Nokia will provide its NetAct solution for network management and seamless daily network operations as well as deliver digital design and deployment and optimization and technical support services.

Nokia is an existing partner of Globe Telecom and provides a wide range of solutions including wireless, IP, optical, and fixed network products and services.

"It's exciting to be part of this project to deliver 5G services to citizens across the Philippines and see our industry-leading 5G RAN solutions underpin the network," said Tommi Uitto, president of mobile networks, Nokia. "The expanded and upgraded 5G network will deliver exciting new solutions to even more people and businesses and our technology will play a fundamental role in delivering these compelling connectivity experiences."

Pakistan's internet disrupted after undersea cable develops fault

Internet services were hampered in Pakistan in mid-February as the country's telecom watchdog said one of its six international undersea cables developed a fault.

The Pakistan Telecommunication Authority (PTA) said the international submarine cable system near Abu Talat, Egypt, developed the glitch February 17.

It also acknowledged lower internet speeds and frequent outages and said the fault

developed at SEA-ME-WE 5 (South East Asia-Middle East-Western Europe 5), which is operated by the Trans World Associates (TWA).

The TWA and the Pakistan Telecommunication Company Ltd (PTCL) are the two licence holders for international landing stations of submarine cables. While the TWA operates SEA-ME-WE 5 and and TW-1 (Transworld), the PTCL submarine cable network comprises SMW-3, SMW-4, I-ME-WE and AAE-1.

It is understood that the TWA systems cater to about 40% of internet traffic in Pakistan and the company executive acknowledged that the internet users across the country will experience downgraded speeds until the users are shifted.

The fault has occurred in the cable system coming from France and the TWA executive said ISPs were in the process of shifting the load to other submarine systems coming from Singapore.

Globe sees traffic spike

Globe Telecom in the Philippines has experienced 24 times increase in traffic to 416.76 TB in February 2021 from September 2020 as it continued to expand its 5G network across the country.

The operator was the first in south-east Asia to commercially launch 5G AirFiber for home use in 2019. Subsequently, Globe Telecom launched its 5G for mobile in 2020. Globe Telecom's 5G network is now covering approximately 82% of Metro Manila.

Since February 19 this year, Globe's 5G coverage is present in 960 locations in the National Capital Region and 240 areas in Visayas and Mindanao. The Philippines led the rest of the world in improvements in 5G technology compared to 4G, when it comes to video experience with a 40% score, according to a report from international analytics firm Opensignal. The country ranked ahead of Thailand, which came second with a 29% boost.

Moreover, the Philippines has overtaken countries like Australia and Hong Kong, ranking second in 5G Download Speed Improvement with 10.1 times increase versus 4G at 117.2 Mbps.

Maldives to Sri Lanka subsea cable goes live

The Maldives Sri Lanka Cable (MSC) is now ready for service, 12 months after the project was first announced.

This consortium 840km fibre optic submarine cable will provide connectivity between Hulhumale in the Maldives and Mount Lavinia in Sri Lanka. A joint project between Dialog Axiata, Ooredoo and Dhiraagu, the cable was delivered in partnership with HMN Tech. "We are pleased to have completed this project with our international consortium partners Ooredoo and Dhiraagu together with HMN in record time amidst the challenges of the pandemic," said Supun Weerasinghe, group chief executive of Dialog Axiata.

Ismail Rasheed, CEO and managing director of Dhiraagu added: "The MSC system will facilitate the growing demand for internet in the Maldives, while increasing our submarine cable network reliability by providing route diversity. The system also caters for additional capacity required to enhance the digital ecosystem and provide modern digital services."



This consortium 840km fibre optic submarine cable will provide connectivity between Hulhumale in the Maldives and Mount Lavinia in Sri Lanka

Ma Yanfeng, executive vice president, HMN Tech the company was "honoured to be supported by our customers" to deliver this important regional network. "Our innovative products and network solutions con-

tinues to provide commercial value to our customers, HMN Tech is committed to supporting worldwide digital transformation through leading technologies and effective system engineering and deployment."

Myanmar telecom operators restore internet service

Internet access in Myanmar was restored February 7, after authorities ordered the country's operators to turn off data service the day before, following widespread anti-government protests.

Telenor Myanmar issued a short statement saying its data network

started operating from 2pm.

Less than 24 hours before, the company said the Ministry of Transport and Communications (MoTC) directed all mobile operators to temporarily shut down data networks, noting voice and SMS services remained open.

Norwegian majority state-owned Telenor Group said in a separate statement it complied with the directive, as required by its licence, but added it "views this development with deep concern. We have emphasised to the authorities that access to telecom services should be main-

tained at all times, especially during times of conflict, to ensure people's basic right to freedom of expression and access to information".

Myanmar's military declared a state of emergency February 1 after a coup ousted Aung San Suu Kyi's elected government.

Nepal targets 5G mobile internet roll-out by mid-July

Nepal said it is ready to roll-out 5G mobile internet by mid-July as it endeavours to become the first country in southern Asia to offer super-fast connectivity.

Fifth generation wireless mobile networks will be set up in the capital Kathmandu and three other major cities under a pilot project by the end of this fiscal year.

Min Prasad Aryal, director of the Nepal Telecommunications Authority,

said it had submitted a proposal on February 1 to the National Frequency Determining Committee under the Ministry of Information, Communication and Technology to issue a separate frequency for 5G operation.

According to Nepal, 5G will be tested using different bands and suitable ones will be selected. Once the frequency for 5G operation is separated, state-owned telecom giant Nepal Telecom will start trial

operation. The government will work to expand the 5G network under the Digital Nepal Framework 2018.

For commercial operation, the telecom regulator has started doing homework to fix the frequency band, spectrum, distribution process, pricing and other possibilities, Aryal said.

The frequency band needs to be separated for trial operation and commercial use, he added.

Nepal currently has 4G networks

that were established in January 2017. According to Nepal Telecom, 4G service has reached all 77 districts in the country, covering 654 local units, or 85 percent of the population. The authority said that 75 percent of the population used devices that are 4G supportive.

The fifth generation 5G technology for cellular broadband networks offers faster connections, higher throughput and more capacity than 4G.



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Going further in critical communications



NBTC considers payment relief for 5G licences

Thailand's National Broadcasting and Telecommunications Commission (NBTC) was asked to provide mobile operators extra time to pay for 5G licences along with other potential relief, to account for a hit to their finances caused by Covid-19.

A report in the Bangkok Post said a national 5G committee chaired by prime minister Prayut Chan-o-cha ordered the NBTC to consider delaying the payments alongside other potential aid packages for the sector.

The watchdog is tasked with making recommendations at the committee's next meeting in April, according to the report. In February 2020, AIS, True Move, dtac, CAT Telecom and TOT ring-fenced THB100.5bn on 2,805MHz of spectrum in the 700MHz, 2600MHz and 26GHz bands.

The operators are required to pay for the 700MHz and 2600MHz licences over 10 years. The winning bidders of the 26GHz spectrum need to pay the full amount within a year of the licences being issued.

However, operators recorded declines in Q4 2020, with AIS' mobile revenue dropping, True Move recording a loss and dtac's also seeing its profit drop.

In 2018 the NBTC recommended relaxing the payment terms of 4G licences awarded to AIS and True Move in 2015, but later dropped

SES supplies broadband to Indonesian villages

Luxembourg's SES Networks has signed a new broadband deal with Dwi Tunggal Putra (DTP), to enable residents of 158 villages in remote parts of Indonesia's West Java Province.

The move will offer access to crucial online resources such as educational content, as well as unlocking the potential of the region's digital economy.

DTP will be using high-throughput capacity on the SES-12 satellite to support the Ministry of Communication and Information Technology's Smart Village project and fulfil the government's universal service obligation (USO).

SES is already serving Indonesia's telecommunication and information accessibility agency Badan Aksesibilitas Telekomunikasi dan Informasi's (BAKTI) Leased Capacity Project using the SES-12 ground station in Indonesia. The Smart Village project, spearheaded by BAKTI, aims to bridge the digital divide and bring much-needed e-government and other essential



The move will offer access to crucial online resources such as educational content, as well as unlocking the potential of the region's digital economy

services to underserved rural communities of Indonesia.

"Satellite connectivity plays a critical role in providing internet access to many of Indonesia's villages and small towns located in remote areas," said Edi Sugianto, chief

commercial officer of DTP. "At DTP, we strive to bridge the digital divide by providing high-quality internet to these far-flung, remote communities and thereby allowing access to essential e-government, e-health and e-learning services, among others."

Etisalat launches 4G LTE service

Etisalat Afghanistan, a subsidiary of Abu Dhabi's Etisalat Group, has launched 4G LTE services in the country's northern Balkh province.

The introduction of the fourth-generation technology means customers in Mazar-i-Sharif can now enjoy up to 10 times high-speed internet at the same price as their 3G plans.

In a statement, the operator said the launch would also enable customers to choose from a wide range of 4G LTE data plans.

"We are pleased to witness the launch of our 4G network in the beautiful city of Mazar-i-Sharif," said outgoing Etisalat Afghanistan CEO, Matthew Willsher. "With

Etisalat 4G, businesses and individuals will benefit from faster and more reliable internet."

Etisalat said it plans to expand its coverage after the 4G LTE launch in Mazar-i-Sharif and has published a list available on its website and Facebook page to show the exact locations where its 4G LTE service is available.

SLT-Mobitel helps 'Gamata Sanniwedanaya' Project

SLT-Mobitel reached an historic milestone by facilitating the Telecommunications Regulatory Commission of Sri Lanka's (TRCSL) 'Gamata Sanniwedanaya' Project which aims to empower rural areas with supreme connectivity solutions.

The 'Gamata Sanniwedanaya' initiative champions the TRCSL's prime objective of powering Sri Lanka with 100% 4G/broadband coverage. Understanding this national vision, SLT-Mobi-

tel as the National Telecommunication Service Provider came forward to facilitate this project as it also falls in line with the company's commitment to bridging the digital divide and leading the nation towards an info com and knowledge-rich society.

"SLT-Mobitel strives to maintain a strong commitment towards integrating our expertise in the info com and technology sphere and enable the development of

the nation's progress when it comes to telecom infrastructure and connectivity," said Lalith Seneviratne, TRCSL, SLT-Mobitel group CEO. "As the National ICT and Telecommunication Service Provider, we commend the efforts taken by the Director-General Oshada Senanayake and will continue to support TRCSL to lead Sri Lanka towards the next phase of the digital revolution."

A ceremony took place at the

hilltop village of Ihalagalagama in Ratnapura and was attended by several distinguished dignitaries from the TRCSL, SLT-Mobitel and other relevant government authorities such as the Central Environment Authority, Urban Development Authority, the Imbulpe Divisional Secretariat, the National Building Research Organization (NBRO) - Ratnapura District Office and the Ceylon Electricity Board, Ratnapura.

Wireless Logic expands global footprint LPWAN Asia coverage

Wireless Logic, the IoT connectivity platform provider, has further strengthened its global presence and market position with the expansion of low power wide area network (LPWAN) services across Asia, Europe and North America.

The enlargement comes as a direct result of new mobile operator partnerships and the recent acquisition of international businesses, including Arkessa, Com4, New Line IoT and Datamobile AG.

“When it comes to IoT connectivity, NB IoT and LTE-M services represent low cost, low power solutions that are highly reliable and can stay in the field for multiple years,” said Matthew Tate, CCO at Wireless Logic. “As a result of recent expansion, we are in a strong position to offer customers the local LPWAN services that they are asking for with direct access to 75 cellular LPWAN networks in 45 countries across three continents through SIMPro, our operator and technology agnostic platform.”

As part of its LPWAN offering,



The enlargement comes as a direct result of new mobile operator partnerships and the recent acquisition of international businesses, including Arkessa, Com4, New Line IoT and Datamobile AG

Wireless Logic will provide both LTE-M and NB IoT services for IoT applications across the globe. LTE-M is optimised for higher bandwidth

and mobile applications, delivering latency and speeds broadly equivalent to 3G, therefore making it suitable for telematics. NB IoT is instead

more suitable for static, lower-data, high-density and passive sensor applications, making it ideal for use cases such as smart metering.

Service provider Thaicom searches for LEO partner

Satellite service provider Thaicom is looking to serve as a partner for any operators offering low Earth orbit (LEO) satellite broadband services as the firm specialises in the regional market.

The move comes after the LEO satellite Starlink project under billionaire entrepreneur Elon Musk's SpaceX has allowed interested people to pre-order the service through its website with a refundable

US\$99 deposit, putting them on a priority list to purchase the Starlink kit when it becomes available.

The latter is targeting service coverage for Bangkok in 2022, according to its website. Interested customers in Thailand can pre-order the service, which will be allotted on a first-come first-serve basis.

“For a close satellite service society, we have been in the industry for long and we know all the

operators, including Starlink,” said Patompob Suwansiri, deputy chief executive and chief commercial officer of Thaicom. “We are looking to open for partnership with any LEO satellite providers. We have more knowledge about the regional market than global players do so we can support their businesses.”

LEO satellites operate 500-2,000km from Earth's surface, versus traditional communication

satellites, also known as geostationary satellites, that orbit at around 36,000km. The lower orbit means lower latency in signal transmission.

Furthermore, LEO satellites are projected by some to have strong business potential because they can beam the internet all over the globe, including deep into forests, high in the mountains or even across oceans, without relying on terrestrial telecom cell sites.

Unregistered SIMs ‘facilitate crimes and terrorist activities’

The Telecom Regulatory Authority of Afghanistan said telecom companies have been fined for selling unregistered SIM cards, while 70% of these SIM cards were blocked.

Noor Saeed Shinwari, a spokesman for the ATRA office, told BBC Persian all telecom firms in the country were warned that all the active and existing

SIM cards must be registered by the end of 1400 (Solar Hijri Calendar).

Shinwari said the government took this step to ensure security, because many terrorist activities, blasts, and various other crimes are being carried out using unregistered mobile SIM cards.

Out of 34 million SIM cards sold

in the market, approximately 22 million of them are active.

Previously, Kabul police warned all of the involved bodies in telecoms, not to sell unregistered SIM cards, as MoI recognizes many of the organized crimes carried by unregistered mobile numbers.

Afghan first vice president, Am-

rullah Saleh indicated that security agencies in the country have gathered thousands of unregistered SIM cards.

It has been reported that unregistered wireless telecom services in the country had facilitated the insurgency or terrorist attacks, IED blasts, different criminal activities and supported many organised crimes.

Nepal Gautam Buddha airport deploys Sepura SC20 TETRA radios

Gautam Buddha International Airport has become the second airport in Nepal to deploy a TETRA communication solution, following on from Tribhuvan International Airport.

The solution will be led by Sepura SC20 hand-held radios, providing the airport's security and operations team with the standard of secure, robust, reliable communications devices required to safely manage operations.

This mission critical communications solution, built on Teltronic's TETRA infrastructure, is part of the airport's wider infrastructure upgrade. When complete the airport should ease the burden on Tribhuvan.

The TETRA network will allow the airport to respond to the pressure of moving passengers, luggage and cargo at the airport site, improving both efficiency and safety. It will also enable co-ordination between the airport's security and operational teams for everyday operations and, where necessary, emergency response.

Sepura's regional partner in Nepal, Mahavir Shree International Pvt, delivered the solution to the airport's operational and security teams.



This mission critical communications solution, built on Teltronic's TETRA infrastructure, is part of the airport's wider infrastructure upgrade. When complete the airport should ease the burden on Tribhuvan

"By adopting Sepura's SC20 radios, airport staff will benefit from the robust design, crystal clear audio and class-leading coverage capability, making the radio suitable for those working across the airport in security roles and those working

in noisy airside locations," said Shiv Prakash Khemka, director of Mahavir Shree International Pvt.

Sepura said that having seen the performance of Sepura's solutions around the world, the purchasing team at Gautam Buddha were

convinced of the need to deploy a TETRA network to ensure that coverage was achieved throughout the entire airport site, including runways, covered walkways, passenger areas, cargo areas, hangars, underground areas and parking.

Myanmar blocks internet following 'bloodiest night'

Myanmar blocked mobile internet March 15, a day after 70 people were killed in what has been described as the "bloodiest" crackdown since the military coup at the start of Febru-

ary. A report on Radio Free Asia said the country is experiencing recurring nightly internet blackouts since February 15, according to monitoring service NetBlocks. Although internet

connectivity was restored in the early hours of March 15, NetBlocks tweeted that the mobile network remains disabled nationwide.

Social media platforms, including

Facebook, Instagram, WhatsApp, and Twitter remain banned in Myanmar "until further notice," according to a statement issued by telecom firm Telenor in early February.

Bangladeshi players fork out in latest 4G auction

Bangladesh's latest round of 4G spectrum auctions has generated US\$898.2m as operators seek to steal a march on their competitors by increasing their holdings amid surging demand for data services.

National watchdog the Bangladesh Telecommunications Regulatory Commission (BTRC) listed four 5MHz blocks in the band and 7.4MHz of 1800MHz spectrum up for sale. The concessions last 15 years and victorious bidders must

pay 25% of the total cost before March 23rd with the remainder to be paid across the next five years.

Data from BTRC showed that market leader Grameenphone paid out the most, spending US\$391.8m to obtain 10MHz of 2100MHz and 0.4MHz of 1800MHz airwaves. Its total holding now stands at 47.4MHz, including 20MHz in the 2100MHz band.

Grameenphone's acting CEO and CFO Jens Becker said that the operator was now "well-positioned to fur-

ther contribute to the digitalisation of Bangladesh and meet people's growing need for high-speed internet in rural as well as urban areas". The operator plans to use the spectrum to increase the reach of its coverage.

Meanwhile, second placed Robi Axiata spent US\$225.6m to purchase 5MHz in the 2100MHz band and 2.6MHz in the 1800MHz band. Banglalink obtained the same amount of 2100MHz spectrum and 4.4MHz

of 1800MHz spectrum for US\$281.4m, bringing its 2100MHz holding level with Robi Axiata's at 15MHz. Grameenphone, Robi Axiata and Banglalink now hold 20MHz of 1800MHz spectrum.

In March last year, Bangladesh saw internet traffic spike by 15% as a result of the pandemic. The following month saw operators petition the regulator to release extra spectrum in the 2100MHz band to help them cope with demand.

Pakistani phone users to pay lower advance tax

Tax imposed on mobile phone users in Pakistan will gradually reduce after the country's federal cabinet approved granting the telecom sector the status of an "industry".

The approval came on the recommendations of the Ministry of IT and Telecommunication, according to a tweet from the government body.

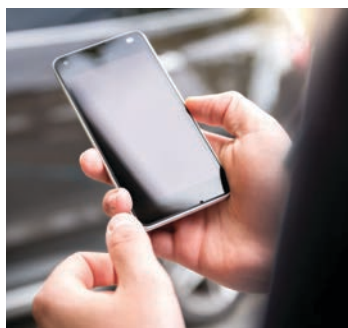
Moreover, the ministry said there would be a gradual reduction of taxes imposed on the telecom sector and mobile phone users.

"This is a major achievement that will directly benefit not only mobile phone users but will also help spread the spirit of digital Pakistan (connectivity) to remote areas of the country," federal minister for information technology and telecommunication Syed Amin ul Haque told a press conference.

From the next financial year (2021-22), advance income tax on mobile phone users will be reduced from 12.5% to 10% and in the financial year 2022-23, it will go further down to 8%, Haque added.

Similarly, the federal excise duty (FED) on telecommunication services has been reduced from 17% to 16%, the minister noted.

Furthermore, Haque said the government is planning on reducing 6% excise duty along with tax reduction on various services, according to reports. "Rs250 charges on sim purchase have been withdrawn, and this will be beneficial for the public," the minister was quoted as saying.



The approval came on the recommendations of the Ministry of IT and Telecommunication, according to a tweet from the government body



Talking satellite

Martin Jarrold, chief of international programme development, GVF



'Zoom'ing in on a Global Digital Ecosystem

In my last column published here I began with the words "The Digital Divide remains despite years of debate about solutions to bridge it." I was reflecting on the opening statement of the pre-event description for a dialogue in the GVF Webinar Series, organised in association with the Satellite Evolution Group (<https://www.satellite-evolution.com/>).

In this contribution I would like to draw attention to a discussion facilitated by another of GVF's webinars to consider the problem of a variation, or rather an extension, of that divide... A divide with consequences and implications far beyond those encompassed within the usual framework of discussion about inadequate access to the technologies and services of modern digital communications... This is what I describe as the digitisation divide.

What is the digitisation divide? The GVF webinar Global Transitions: Digital Economy, Digital Infrastructure, Connected Communities, Digital Planet set out to explore this with the help of representatives of two GVF members, Isotropic Networks and Telstra, joined by the Coordinator of the Digital Transformation Task Force of the United Nations Environment Programme (UNEP), with moderation by the Chief Technology Officer of the Satellite Applications Catapult in the UK.

Whilst the early train of thought leading to this theme originated out of the social distancing and travel restriction imperatives of pandemic lockdown, over time the initial thoughts, influenced by ideas from the UNEP, evolved into the concept of "Digital Planet".

The importance of the digital communications technologies behind our now having been forced to realise the full potential of virtual business meetings/events has been boldly underscored. Lockdown necessitated digital ways of working to allow people still to do their jobs. Extending digitisation will help recovery from the economic recession engendered by pandemic. Notions about, and gearing-up for, Digital Economy and Digital Infrastructure, are not new but a global socio-economic crisis has elevated

debate about the necessity, and advantages, of far greater change than previously conceived. Though a necessary consequence of the (hopefully) limited phenomenon that is the SARS-Cov2 virus, we have undergone a profound change in the human experience, one which gives small illustration of the importance of a much more deeply rooted and strategic phenomenon: our ability to gather, analyse and disseminate that which can be digitised.

We have the potential to increasingly and more accurately understand the complexities of the world around us – natural disaster causes and consequences, manifestations and effects of climate change, monitoring environmental degradation throughout the biosphere, human action and inaction with consequences including conflict and refugee population migrations.

Communities and economies will be more deeply and widely enabled by the growing digital infrastructure. There is a much greater significance now attaching to the integration of 5G and satellite technologies into a single network of networks. Industries, businesses, people and governments worldwide, facing unprecedented challenge, will accelerate in their adoption of digitisation to both adjust to the new normal and to improve preparedness to minimise the impact of the next crisis – an impact that may again be equally as serious for, and equally intertwining of, people's economic well-being and their health.

Digitisation is not itself the end point. Whilst data gathered from a massively expanded – 5G + satellite enabled – communications infrastructure will be the vital raw material of a digitised economy and society, what matters is the mechanism and processes by which it is turned into what is today commonly called "Actionable Intelligence", often represented in the form of dashboards.

Data in the Zettabyte Age will flow in vast volumes from the tap of the Internet of Things (IoT), including devices from our own personal wireless communications (i.e., smartphones with social media, plus increasing biometrics-based data generation) to our Wi-Fi-enabled domestic appliances. All this data will only be of use when it is determined exactly what it is for. Data may be just measurement, quanta, of things,

but when data is analysed it becomes information, and information is the building block of the knowledge that facilitates effective decisions and enables positive and productive action.

Data maintains financial liquidity in markets, improves creativity in maintaining and evolving supply chains, makes production of "things" more efficient using latest manufacturing technology advances, takes ideas and develops them, and builds more robust cyber security to sit alongside machine learning and artificial intelligence (AI).

5G Enhanced Mobile Broadband (eMBB), Ultra Reliable Low Latency Communications (URLLC), and Massive Machine Type Communications (mMTC), may be expanded into not just a global digital ecosystem, but a global digital ecosystem. Data will be gathered from all conceivable sources by all available technologies and processed by all available tools: satellites, drones & sensors; artificial & virtual reality; smartphone apps; open source software; blockchain & distributed databases; social media feeds; IoT; AI & machine learning; cloud & edge computing; and, other!

The "product" of this global digital ecosystem will enable more than just the formulation of Actionable Intelligence, but foster a culture of Sustainable Decision-Making that, in the context of trying to meet the Sustainable Development Goals (SDGs) and of trying to stem climate change, will be the indispensable currency of the future Digital Planet.

The webinar panellists were asked what they thought still needs to be done to guarantee a level of digitised connectivity – in developed and developing economies alike – to enable gathering of data for the World Economic Forum Stakeholder Capitalism Metrics which are designed to show how companies are doing on climate change action, biodiversity, etc., and track contributions towards the UN Sustainable Development Goals. If you want to hear their perspectives, this video recording is not to be missed.

If you want to grow your understanding of what the future of the digital Earth may be, how satellites contribute now and might be contributing 10 years from now, and understand the steps needed now to create a pathway to this future visit <https://gvf.org/webinars/>.



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Vyke and x-Mobility sign two new deals for APAC expansion

Vyke and x-Mobility have penned two new deals to provide them with new number ranges in the Asia-Pacific region. The deals will see the further global expansion of x-Mobility's AppVNO service for digital MVNOs through the offering of local numbers for both Vietnam and Australia.

Digital MVNO service Vyke will now be able to expand its offering to users wanting to have a Vietnamese or Australian number, in addition to their current number or numbers, on their existing device.

This will appeal in particular to people who will be travelling in and out of the Asia-Pac region once the global Covid-19 restrictions are lifted, or to ex-pats who want to be able to have a local number for calling back 'home'.

In addition, the x-Mobility, which offers a white-labelled digital MVNO service that brands can launch to their own target audience, will also now increase to brands and challenger MNOs that want to target users in the region, or that want to reach the large international diaspora from both Vietnam and Australia.

"AppVNO has always been a global offering, allowing anyone to connect with friends, family and business contacts all over the world," said Iqbal Marica, VP Asia-Pac at x-Mobility. "We've now made that connection even easier and closer for people from Australia and Vietnam, or those wanting to get in touch with people there," said Iqbal Marica, VP Asia-Pac at x-Mobility.

The new number ranges will help Vyke's con-

tinued growth of subscriber numbers. Within less than three months it has increased its average new net additions by over 50% to 75,000 per quarter. Vyke has seen huge recent growth in markets such as Nigeria, Pakistan and India and now expects similar growth from Australia and Vietnam.

"Users are flocking to Vyke and brands and MNOs are turning to x-Mobility to help them launch AppVNO services," added Marica. "Our further expansion into Asia-Pac will only accelerate that."

Vyke is downloaded as an app and can be used to subscribe to multiple mobile numbers, in addition to sharing credit and making free calls and texts to other Vyke subscribers. The service prides itself on the fact it has grown globally with almost zero marketing spend or activity and has seen word of mouth drive the download growth.



"We've now made that connection even easier and closer for people from Australia and Vietnam, or those wanting to get in touch with people there," said Iqbal Marica, VP Asia-Pac at x-Mobility

Malaysia's telecom board invites firms to join satellite scheme

The Malaysian Communications and Multimedia Commission (MCMC), the country's main regulatory body for telecom sector, has issued an invitation for the installation and provisioning of broadband access services via satellite at 839 locations throughout the country.

According to a statement from the watchdog, this will be implemented under the

JENDELA (Jalinan Digital Negara) plan and it would cover states such as Johor, Kelantan, Negeri Sembilan, Pahang, Perak, Selangor, Sabah and Sarawak. The majority of these locations are in remote areas where provisioning of public cellular services and mobile broadband will take a lot of time to deploy. Satellite broadband is regarded as a quick and interim solution to the problem as high-speed broadband can be deployed in just a matter of days with immediate results. MCMC said 178 (21%) will be deployed in Peninsular Malaysia, 138 (17%) are in Sabah and 523 (62%) are in Sarawak.

Furthermore, the MCMC aims to deploy all sites successfully by October 2021 and

residents at the 839 locations will enjoy free Wi-Fi access with an average speed of 35Mbps.

According to the RFP document, the designed Universal Service Provider will be entitled to claim the CAPEX and OPEX cost from the Universal Service Provision (USP) fund. In 2019, the fund gained RM1.53bn in contributions from operators and RM0.34bn in interest.

MEASAT's ConnectMe has been deployed at over 1,000 sites in rural Malaysia. Targeted at areas without fibre and 4G access, the service can provide 100% nationwide coverage with speeds of up to 30Mbps.

Under the ConnectMe initiative, satellite broadband can be deployed at remote areas with zero cost upfront, with a Wi-Fi service via prepaid vouchers for RM10 per 1GB or RM40 for 5GB.

MCMC said that all eligible and interested licensees can register their interest and submit draft universal service plans under Regulation 5 of the Communications and Multimedia (Universal Service Provision) Regulations 2002.

India's JioFiber achieves highest broadband speeds

India's Reliance JioFiber achieved the highest average speeds on wired broadband in the country, while whereas Vodafone Idea leads the mobile internet speeds chart, according to new data.

A report network performance measuring firm by Ookla, also found India to have seen strong internet speed increases during the whole of 2020. The research further found that Indian telcos and broadband operators continue to invest in network upgradation and expansion, resulting in better and faster speeds. This has led to India having the best mean fixed broadband speeds among the South Asian Association for Regional Cooperation (SAARC) countries, whereas the Maldives leads the mobile internet speeds.

The Speedtest Consumer Sentiment data gathered by Ookla found that JioFiber had the fastest mean download speed over fixed broadband among other top providers during Q4 2020. Jio also had the highest rating at 3.7 stars and the only positive Net Promoter Score (NPS). The report coincides with Reliance JioFiber introducing Rs1,000 in installation charges for its Rs2,500 free 30-day trial plan.

ACT Fibernet was second on the list, followed by Airtel Xstream Fiber and Excitel. Ookla said ACT Fibernet and Excitel had the same star rating, while the former had a higher NPS.

BSNL had the slowest mean download speed during the same period. Hathway had the lowest rating and the lowest NPS. The graph posted by Ookla shows JioFiber has mean download speed of around 80 Mbps, whereas ACT Fibernet achieved 75 Mbps speed.

Moreover, Vodafone Idea achieved the fastest average mobile download speed during Q4 2020. Ookla also said that Vi increased its download speed performance lead over Airtel which was the leader in Q3 2020. The graph shows Vi achieved a mean download speed of over 15 Mbps. Airtel is second on the list with around 14 Mbps average speed, while Jio ranked third with a 10 Mbps average speed.

In Consumer Sentiment Ratings, Vi tied with Bharti Airtel, whereas Jio came in third place across all the three parameters- performance, ratings and NPS. Vi led Airtel and Jio on NPS, but none of the providers' scores were positive, indicating that customers were not likely to recommend any of the providers, added Ookla in its latest report.

The report also indicates the performance of broadband and telecom operators in SAARC countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka). India leads the wired broadband internet speeds but falls short in the mobile internet speeds section. Maldives, which already has 5G services, tops the mobile speeds category.

1.2 million new smartphones manufactured in first months of 2021

Pakistan's mobile phone manufacturing industry saw the production of 1.21 million mobile phones in the first two months of 2021.

Manufactured at the 33 local mobile devices assembly plants, the number of smartphones assembled and produced in January and February this year indicate a significant increase as compared to the last two years. The country produced 2.1 million smartphone devices in 2020 and 119,639 in 2019, according to figures released by Pakistan Telecommunication Authority (PTA).

The country has produced over 25 million mobile devices including 4G smartphones following the successful implementation of PTA's Device Identification, Registration and Blocking System (DIRBS). "With the successful ex-

ecution of DIRBS, the local assembly industry has evolved from infancy to well-growing stage, with significant growth seen in the local assembly of smartphones," PTA said.

In 2020, Pakistan approved its first mobile device manufacturing policy to attract investment and encourage manufacturers of major cell phone brands to set up plants in the country.

Smartphone brand Infinix currently has the largest mobile phone production and assembly plant in Pakistan where three million units are produced each year. Vivo, Airlink and Advance Telecom are the three new companies that will soon establish their manufacturing units in Faisalabad, Karachi and Lahore.

Smartphone giants Samsung and Oppo could start local assembly of their devices in Pakistan soon, following a change in tax laws.

PTCL gets further 25-year licence renewal

State operator Pakistan Telecommunication Company Limited (PTCL) has had its licence renewed by the government for a further 25 years.

The terms of the licence renewal state that PTCL must adhere to "enhanced quality of service (QoS) parameters" and will be obliged to deliver a 5% year-on-year rise in Next Generation Access Network (NGAN) connections.

The new validity period began at the start of the year and the Pakistan Telecommunication Authority (PTA) confirmed that the integrated licence is technology-neutral and permits the company to deliver all telecom services nationwide, except mobile services.

PTCL must pay 2% of its annual gross revenues into Pakistan's Universal Service Fund (USF) and Research and Development Fund.

The appointed as the new officer (CEO).

Etisalat Afghani-succeeds Rashid who was appointed as the February 12, 2019.

Meanwhile, PTCL has teamed up with NdcTech, a regional partner of Temenos, to offer banking services on cloud on the local market. Under the terms of the deal, NdcTech and PTCL will provide cloud-based digital banking and core banking services across Pakistan.

operator recently Matthew Willsher chief executive Previously CEO of stan, Willsher Naseer Khan, CEO of PTCL on

India's telecom revenues back to pre-Jio levels

India's telecom sector revenues have rebounded to levels seen in the years prior to disruptor Reliance Jio Infocomm entrance in September 2016 that forced fellow operators to drastically cut prices. According to data issued by the Telecom Regulatory Authority of India (Trai), net mobile revenues rose 4.5% sequentially to US\$25bn in the December 2020 quarter. The last time the sector earned US\$25bn was in the June quarter of 2016.

The arrival of Jio almost five-years-ago led to widespread disruptions with nearly-free voice and data offers. Established players were then forced to review their own business models.

Telecom sector revenues in Asia's second most populous nation fell to the lowest point of US\$18bn in the fiscal year 2018-19, forcing some to exit their businesses and others to merge with bigger companies. Vodafone

India and Idea Cellular completed their merger in August 2018 to continue their operations amid mounting debt and shrinking revenues. The average revenue per user (Arpu) of Bharti Airtel plummeted to Rs100 per month in Q2FY19, from Rs196 in the first quarter of fiscal 2017. Prior to the merger, Idea's Arpu stood at Rs181, which fell to a record low of Rs88, for the combined entity in the September quarter of 2019.

"Trai's latest report shows that net mobile revenues in India rose 4.5% quarter-on-quarter to an annualised US\$25bn in Q3FY21. This is in line with the peak levels seen before Jio's entry," Jefferies Equity Research said in a report. Although sector revenues have risen by 40% from the lows experienced in Q4FY19, they are still marginally lower, at around 1% less than the historical high reported in the June quarter of FY17, according to global brokerage CLSA. However, analysts have warned that recovery in sectoral revenues, could dampen the chances of a floor set for tariffs as the pressure of shrinking revenues was the main reason cited by struggling telecom operators that had urged Trai to fix the minimum prices for services.

Despite Jio's huge popularity after it broke the dominance of the aforementioned operators, the company has had its critics. In December 2020, farmers across multiple states in northern part of India boycotted and vandalised Jio's towers owing to allegations of parent company Reliance Industries's alleged support of controversial farm laws in India. In January this year, social media posts started circulating linking bird deaths to Jio's 5G network trials.

Afghanistan receives US\$60m in telecom tax income in 2020

Afghanistan received up to 4.6 billion afghani (US\$59.7m) in telecom tax income in 2020, according to local media reports. Online local business news agency Wadsam revealed that "The Afghanistan Telecommunication Regulatory Authority (ATRA) has collected 4.6bn afghani from the 10% tax on telecom services last year".

The income for 2020 is 300m afghani more than the past year, the report said.

According to the statement, 12.8 million out of Afghanistan's 32 million population have access to internet in the country, located at the crossroads of central and south Asia.

Meanwhile, Afghanistan's Telecom Development Company, Roshan, said it has selected NetNumber to help it revamp its signalling and routing systems for its mobile network across the landlocked country.

TOT, CAT Telecom complete merger

Thailand's state-owned operators TOT and CAT Telecom completed a long-delayed merger to become National Telecom, which was made necessary by growing private-sector competition.

The new company will consolidate overlapping administrative staff, initially in the financial, human resources and legal departments. National Telecom said this approach will streamline operations and reduce costs, with no staff cuts planned.

Somsak Khaosuan, the former acting chairman of TOT, initially will serve as acting CEO of the new company, which plans to boost earnings in the short term by capturing demand from public-sector agencies to introduce 5G networks.

TOT and CAT long-enjoyed and controlled monopolies over domestic and international telephone services, respectively. However, that changed post 2000 when Thailand opened the telecom market for competition from privately-owned businesses. That resulted in loss of earnings at both companies, while their combined share of the kingdom's mobile communications market is around 2% to 3%.

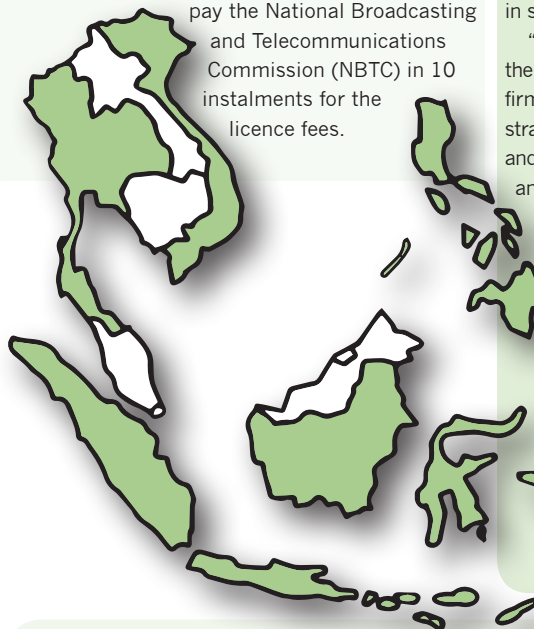
There was talk of a merger a decade or so before new entrants were allowed in, but the deal was postponed repeatedly.

The completion was scheduled for July last year, but was stalled by the arrival of Covid-19.

Meanwhile, National Telecom (NT) paid for the first instalment of the 700-megahertz spectrum licence fee, ending speculation that the merged unit of CAT Telecom and TOT may ditch the frequency over concerns about the viability of the 5G business plan.

In last year's 5G spectrum auction, CAT Telecom shocked the telecom industry as it won two slots on the 700MHz range at a total cost of $\square$ 34.3bn, while Advanced Wireless Network (AWN) secured another slot on the frequency for $\square$ 17.1bn.

Winning bidders of the 700MHz licence must pay the National Broadcasting and Telecommunications Commission (NBTC) in 10 instalments for the licence fees.



CK Hutchison and Ooredoo talk Indonesia merger

Qatar-based Ooredoo QPSC and CK Hutchison Holdings have entered talks to merge their Indonesian wireless phone businesses in a bid to fight growing competition in the country.

A deal would require the merger of Jakarta-listed PT Indosat, in which Ooredoo owns about 65% and CK Hutchison's PT Hutchison 3 Indonesia unit, the companies said in a statement.

The negotiations will be exclusive until April 30, as both firms try to compete against state-owned PT Telkom Indonesia, the nation's largest operator and Axiata Group Bhd.'s local arm PT XL Axiata, in southeast Asia's biggest market by subscribers.

"Ooredoo is in the early stages of assessing the merits of such a potential transaction," the firm said in a statement. "As part of our corporate strategy, we regularly review our strategic priorities and market position across all of our operations, and their contribution to the Ooredoo Group."

Ooredoo which operates across the Middle East, north Africa and southeast Asia and CK Hutchison, a conglomerate founded by Hong Kong's richest man Li Ka-shing, said in a separate statement the potential transaction is subject to due diligence, agreement on terms, signing of definitive agreements and obtaining all required corporate and regulatory approvals.

Indonesia accounted for HK\$3.95bn (US\$510m), or 87% of subsidiary Hutchison Asia Telecom Group's total revenue in the first six months of 2020.

TM post net profit of RM1.01bn

Telekom Malaysia posted net profit of RM1.01bn in the financial year ended Dec 31, 2020, up 60.6% from RM632.67m year-on-year due to lower tax charges and improved performance of subsidiaries.

Revenue decreased by 5.2% or RM593.9m to RM10.84bn from RM11.43bn in FY19 due to lower revenue from all lines of products.

Elsewhere, revenue from internet had been affected by the Streamyx price adjustments introduced from September 2019 onwards.

TM said voice and other telecommunication related services were impacted from lower volume and restricted economic activities from the Movement Control Order (MCO) in general, affecting revenues from customer projects under the enterprise segments.

Despite the drop in revenue, the group's operating profit before finance cost increased by 23.9% (RM311.2m) to RM1.61bn compared to RM1.29bn in 2019. Factors for higher operating profit were lower direct and operating costs amidst continuing cost initiatives which were well underway even from previous financial years.

Meanwhile, Telekom Malaysia Berhad (TM) has partnered with San Francisco-based, AI-enabled customer engagement platform - MoEngage to drive the digital customer marketing strategy of unifi.

"We look forward to serving Malaysians better and helping them make informed decisions about our products and services," said Safiyya Rusli, head of digital, unifi.

CVC Capital's purchase of Irrawaddy Green Towers put on hold

A US\$390m loan backing Luxembourg-based private equity firm CVC Capital Partners' purchase of Myanmar's largest telecom tower company, Irrawaddy Green Towers, has reportedly been put on hold as a direct result of the Asian nation's military coup.

The proposed deal, thought to be valued at about US\$700m, marks the global buy-out firm's first venture into the south-east Asian country and sees it absorb 4,000 towers across Myanmar.

According to reports, CVC was given exclusivity after it was shortlisted from potential buyers, including regional telecoms groups and other companies. Potential bidders - yet unnamed suitors - hired local consultants and technical advisers to conduct site visits and due diligence during the sale process that took just over a year to be completed. Law firms Freshfields Bruckhaus Deringer and SCM

Legal acted as legal counsel to the selling shareholders. "This landmark transaction was the largest mergers and acquisitions deal in Myanmar in 2020 and another example of the attraction of the Asian digital infrastructure sector, including data centre and fibre optic asset portfolios, for private equity investment" said Freshfields major projects partner Don Stokes in a statement at the time. However, the recent military coup in Myanmar has stalled the deal, with fears that it could be called off altogether as violence escalates in the streets.

Standard Chartered Bank (Singapore) was the lead financial adviser, while UBS was the joint financial adviser to Irrawaddy on the deal, according to reports. Irrawaddy serves all major mobile network operators in Myanmar, including Norwegian telecom giant Telenor, Qatar-based Ooredoo and local firm Mytel.

BSNL's IoT network



India's state-run BSNL has launched a pan-India satellite-based narrowband IoT network in partnership with Skylotech India in line with the prime minister Narendra Modi vision of 'Digital India'. The 'Made in India' solution, which is indigenously developed by Skylo, will connect with BSNL's land satellite ground infrastructure and will provide pan-India coverage, including at seas. This solution has been successfully tested in core sectors of India such as Indian Railways, fishing vessels, and connected vehicles across India.

Thailand: 5G 2025 claim



A report by data and analytics firm Omdia found that 5G subscriptions will account for more than 55% of total mobile subscriptions by 2025 in Thailand, as demand for high-speed data and low latency network gathers steam in the country. The need for digital solutions in sectors such as healthcare, education, retail, and tourism will drive the development of 5G in the kingdom, combined with the new normal of the post-pandemic world, it added.

AIC raises concerns



The Asia Internet Coalition (AIC) expressed concern over the plan to establish the National Internet Gateway (NIG), urging the Cambodian government to assess the impact on the end-users in the country. In a letter addressed to prime minister Hun Sen and the minister of post and telecommunications Chea Vandeth, the AIC said the draft of the sub-decree on the establishment of NIG poses serious risks to businesses and internet platforms. "Having a single national internet gateway creates concerns in terms of failure, as there is no alternative to the country's connection to the global internet," the letter said.



Talking critical

Mladen Vratonjic, chair,
The Critical Communications Association (TCCA)



Introducing the critical comms column

How would you define critical communications? There are many instances where needing to communicate is important. But truly mission critical communications can mean the difference between life or death.

This is the first in a series of articles where we will take a look at the critical communications landscape around the world, how it is evolving to meet the changing needs of the end-users, and the huge amount of work that goes on behind the scenes – largely carried out by volunteers – to ensure that critical communications networks are robust, reliable, resilient and secure. It is those networks that support, amongst others, our first responders – the police, medical and fire and rescue services that we rely on to help us in a crisis and keep us safe.

Until very recently, the networks that supported critical users were specific to that sector, designed from inception to meet the unique needs of mission critical users. The technologies – TETRA, P25, DMR, Tetrapol – have resilience and security built in from the very beginning, both in the infrastructure and the devices, in hardware and in software, in order to deliver trusted, reliable and resilient communications support. However, they are all narrowband technologies and as such are limited in the type of data applications they can support.

As any of us who use a smartphone will know, in the consumer mobile communications market, the focus is firmly on data applications. Although the past year has seen a resurgence in the use of voice calls due to the pandemic, overall the mobile networks are supporting mostly data-centric applications, and the same evolution is coming to the critical communications world.

While voice will always remain an essential – and the most immediate – form of communications between first responders in a crisis, there is a need for broadband networks to have the capability to be mission-critical bearers for mission-critical data – to have a similar level of reliability, resilience and security as the dedicated narrowband critical

communications technologies.

This is the challenge that is being addressed around the world, as governments look to ensure their first responders have the best possible communications tools with which to carry out their critical work. The way forward however is very much dependent on the availability of spectrum and of course the level of investment that each country or region is able to commit.

Two examples: In the US, FirstNet is the new nationwide broadband communications platform for data, built for the country's first responders and extended public safety community. It is based on a public-private partnership with telecoms operator AT&T, and uses spectrum set aside by the US government specifically for FirstNet. The existing narrowband networks that carry critical voice services continued to be used for the meantime. In the UK, the Emergency Services Network (ESN) is being created using the network and spectrum owned by commercial mobile network operator EE. An ambitious roll-out schedule needed to be revised more than once to ensure that the ESN will be as trusted as the existing TETRA-based Airwave service before that network is switched off and ESN becomes the first responders' communication platform for both voice and data.

The US and the UK are two of the countries that are the most advanced in terms of delivering critical broadband. Other countries are at various stages from consultation through to procurement.

It is not just the networks that need to be 100% trusted. The services – voice, data, video – and the devices all need to work seamlessly. To achieve seamless services, the Third Generation Partnership Project (3GPP) has been developing a set of standards for mission-critical functions for broadband networks. Currently, these are Mission Critical Push-to-Talk (MCPTT), mission critical data (MC Data) and mission critical video (MC Video). This time these are not specialised, dedicated standards for mission critical systems but rather parts of the mainstream standards of cellular telephony, for 4G and 5G networks, developed and included on the basis of requirements and with the support of the critical communications community. When services are created to those

3GPP standards specifications are they considered to be mission critical.

For devices, work is ongoing with the Global Certification Forum (GCF) to develop a testing and certification process to ensure user devices can also be termed mission critical whilst conforming to the 3GPP standards and being interoperable with networks and other devices built to the same 3GPP standards.

Against the backdrop of all the work going into developing mission critical broadband, the trusted narrowband networks remain in full use, new networks are being implemented and existing networks upgraded and refreshed. TCCA works closely with standards development organisation ETSI to ensure the TETRA standard is enhanced to support users to 2035 and beyond.

It is estimated that the transition from narrowband to broadband mission critical networks will take perhaps more than ten years. It is anticipated that in the meantime, many organisations will use hybrid mission critical networks and that it is necessary to enable interoperability and collaboration of narrowband and broadband networks and devices. Therefore, 3GPP on the one hand and ETSI on the other are working rapidly to develop a standardised interface for their interconnection.

TCCA, on behalf of its members – end users, government and commercial network operators, industry and more – represents all standard mobile critical communications technologies and complementary applications. Our members design, manufacture, build, implement, utilise, analyse, promote, develop and deploy critical communications worldwide. We believe in and promote the principle of open and competitive markets through the use of open standards and harmonised spectrum, working with stakeholders in the critical communications ecosystem to achieve this.

Behind the scenes, there are many, many organisations and individuals committed to ensuring that critical communications networks and services are the best they can be. We will endeavour through this column to showcase some of the initiatives, to discuss the challenges and the expectations, and to hopefully encourage more people to become involved in shaping the future of critical communications.

Five ways MNOs can use digital sales to boost revenue

During a most challenging year, mobile network operators in Asia went to great lengths to keep economies and people connected in trying circumstances, writes Fernando Bortman, chief business officer at Upstream

With an eye toward improving customer experience and engagement it has been part and parcel of the digital transformation taking place in mobile networks around the world. It's all being driven by increased competition – especially from over-the-top (OTT) players – and massive investments for network rollouts meaning that mobile network operators (MNOs) are feeling the pressure to boost revenue per user (ARPU), while also reducing churn.

At a time when the global economy has been weakened and strained, Covid-19 has forced MNOs to scale up to meet the unprecedented demand for connectivity. Moreover, the pandemic has forced MNOs to close physical stores and reduce call-centre capacity.

With their sales channels severely disrupted, MNOs say in-store sales are down 90%, and many believe physical commerce will not return to previous levels when the pandemic is over. Yet prior to the pandemic, many MNOs – especially those in emerging markets – were heavily relying on physical stores and call centres to both sign up new customers and upsell packages and services to existing subscribers.

It's long been known that this approach is both expensive for MNOs and time-consuming for customers; however, the pandemic has forced operators to reprioritize their digital transformation goals, with an eye toward answering questions like:

- Where are we with digital outreach?
- Do we have the technical infrastructure to precisely target and convert customers using digital channels?
- Do we have the in-house skills to create strong digital campaigns?
- How can we implement a digital campaign when we have such tight budget constraints?

The tools to make it possible for MNOs to sell online are readily



With their sales channels severely disrupted, MNOs say in-store sales are down 90%, and many believe physical commerce will not return to previous levels when the pandemic is over

available. They support targeting and converting prepaid users to post-paid accounts using a variety of digital channels, eliminating the need for store visits or call centre conversations. Yet many operators still depend heavily on physical stores and call centres to manage most processes – including post-paid sales and prepaid upgrades.

While the human touch has some advantages, the truth is that digital sales help customers complete faster. In fact, there are five key ways that MNOs can use digital sales to boost revenue:

- Give consumers what they want – Reports and industry analysts alike say customers prefer to help themselves. According to Forrester, “Customers increasingly leverage self-service and agent-assisted digital communication channels for customer service, as these channels have the least amount of friction.”
- Deploy an array of digital channels – Websites, apps and SMS push can be used to target new customers and upsell existing subscribers. But there are less obvious options – for instance, the balance check menu, where prepaid customers are directed to assess their credit – that can be used to upsell

customers to post-paid contracts.

- Create proactive and customized campaigns – Call centres and physical stores traditionally rely on customers to make the first move. But in a digital environment, MNOs can precisely target individual customers with personalized offers.
- Continually analyse and improve your digital journey – The digital journey is easier to monitor than in stores or call centres. MNOs can scrutinize performance analytics and run tests to assess copywriting, form layout, button placement and more.
- Apply digital selling across the entire portfolio – MNOs can sell a plethora of offerings via digital channels, including post-paid contracts, prepaid to post-paid upgrades, mobile money products such as micro-loans and other digital products and services.

If digital is so effective, why aren't more operators using it?

Building 3G, 4G and now 5G networks are some of the most expensive technology upgrades that operators have ever faced, depleting almost all of their Capex budgets for

the foreseeable future. Meanwhile there's no question that it can be costly to build a digital strategy that embraces all channels and links back to existing customer relationship management (CRM) systems.

With so many other investment priorities, the digital sales process is often overlooked. Moreover, there's a skills gap, and it's expensive to recruit and train digital sales personnel.

But MNOs have a tremendous opportunity to overcome those barriers to entry by partnering with a company that specializes in building digital systems. Such partners should have solutions that enable MNOs to migrate to digital sales quickly – in weeks vs. months. Such solutions shouldn't require operators to pay set-up or running costs. Instead, operators should partner with a company that provides a revenue-share model on completed conversions with a lower cost to acquire than traditional channels.

By embracing the digital sales model and identifying the right partner to create and manage the digital sales initiative, mobile operators can replace the expensive, ineffective retail store/call centre model with a new model that cost-effectively attracts both new smartphone users and existing prepaid users. ■



Shaping the future of satcoms

Satellite has played vital role for decades, whether it's for communication or entertainment - but is it in danger of being left behind? Robert Shepherd asks the experts

Satellite has attracted many favourable column inches of late. From Starlink, SpaceX's much-hyped satellite internet service to China's mission to dominate space internet, you'd be forgiven for thinking that the technology is going through a renaissance. Indeed, the opportunities afforded by this method of communication is moving at speed in military and defence applications and broadband IP services, to name a few. However, the challenge has been that these advancements have coincided with performance gains enjoyed by other telecommunications systems.

So, with satellite having long been viewed as a technology belonging to a different era, is it going to be playing catch up for a long time?

Sharyn Nerenberg, senior director,

corporate marketing communications at Hughes, the broadband satellite networks and services provider, is the first to admit that "unfortunately, satellite has a PR problem", primarily as a result of two misconceptions.

"The first misconception is that satellite is slow – which is a holdover from the early days of the technology and not a reflection of today's satellite capabilities," she says. "Today's satellite technology is much more sophisticated, fast and dependable, able to support speeds of 25 Mbps (the FCC's definition of "broadband") and higher for consumer plans and capable of handling thousands of simultaneous sessions (16,000 in the case of the Hughes Jupiter System)."

Another key player in Asia is Yahsat, a satellite communications company based in Abu Dhabi. Its

chief commercial officer Farhan Khan, says satellites "might seem outdated, after all, it's close to 70 years since the first satellite launched into space.

"The Sputnik was a surprising accomplishment for many during the late 1950's and as a result of that success, we have plenty of satellites orbiting the earth's atmosphere enabling humanity to live safer and more connected lives," Khan says. "With rapid development over the past few years in the satellite technology industry, it would be unfair to say that satellites have the same limited functionalities as those launched during the mid-20th century. Like several small and large-scale devices used in the past, scientists and engineers have always found ways to significantly overhaul the functionalities of satellites to make them more efficient, easily

deployable as well as maximising their capabilities.”

Khan further argues that “with indispensable functions and a growing range of services”, satellites will support disruption on ground, furthering movements like the advancement of autonomous vehicles and other interoperable devices as such which will use satellite connectivity to transfer data, communicate and make decisions. “Private enterprise is investing heavily in R&D and the likes of SpaceX are accelerating the volume of satellites to be deployed. We do not expect the trajectory to change anytime soon, as the future is dependent on better connectivity that is not necessarily dependent on terrestrial networks,” he says.

Intelsat I was the first commercial communications satellite to be placed in geosynchronous orbit in April 1965. Terry Bleakley, the current Intelsat regional vice president of Asia Pacific sales, says it wasn’t long afterward that satellite moved beyond sending transmissions covering the Apollo 11 moon landing in 1969 over local news stations, to transmitting news and entertainment from around the world directly into homes (mostly rural) via very large, clunky satellite dishes in the backyards along with complicated tuning hardware.

“Eventually the large clunky home satellite systems were made smaller and easier to use, but as time went on and as more people moved from rural areas to urban and suburban areas where cable television was available, people began to view satellite as limited to government and science projects as well as global news feeds by media companies,” Bleakley continues. “And since the launch of high-speed internet and the various access technologies, including mobile broadband, high quality transmission of news and entertainment is available anytime, anywhere, even on the move. Quickly, satellite became something viewed as outdated, limited largely to home internet and entertainment in places without access to cable networks.” Indeed, satellite technology has clearly come a long way over the decades and Nerenberg cites HughesNet, its flagship satellite internet service, as an example.

“When it first launched, HughesNet enabled service at speeds of around 5 Mbps down,” she continues. “HughesNet Gen4 offered download speeds of 15 Mbps. HughesNet Gen5, our current service, offers download speeds of 25 Mbps. Our next satellite, JUPITER 3, will enable service plans with speeds of up to 100 Mbps down.”

She says that comparing today’s satellite with the satellite service of the past “is like comparing dial-up internet access (remember 56 Kbps service?) with fibre-optic cable services”, which are now capable of gigabit speeds. Both are wired services to the home or business, but the technology is drastically different.

“The second misconception about satellite is that it’s a substitute for wired technologies like cable and fibre. That is simply not the case,” adds Nerenberg. “Where terrestrial connectivity is available, it is always going to be the faster form of connectivity. However, where terrestrial services are not available, satellite offers the best



Song Lee Meng,
director of FSS product
and marketing,
Singtel

“Fibre is subject to terrestrial disruptions and cuts, where satellite has just three potential points of failure: the satellite, the hub and the satellite terminal, each of which has built-in redundancy in case of failure”

solution for high-speed, reliable connectivity.”

Now, we’re in 2021 and newer technologies are always on the horizon. One of those is 5G, which has been lauded as the step towards a fully interconnected society. Nerenberg argues that satellite is perhaps more relevant than ever in 2021. That’s because, she says, the demand for internet access has never been higher and will only continue to grow. “No single transport can meet all of the need for connectivity, and satellite is an essential service in the network mix, enabling access in places where other technologies do not reach,” Nerenberg says. “Aeronautical and maritime applications, which wired technology cannot serve, are the most obvious instances. Remote and rural places are also ripe for satellite connectivity. In fact, the GSMA predicts that 5G will cover one-third of the world’s population by 2025, leaving two-thirds of the world unserved by 5G.”

Khan adds the need for satellite services is not eliminated with the introduction of 5G, “as both can work in a symbiotic relationship”, serving the same and different purposes. The next generation of satellites will be equipped to cater to 5G platforms that enhance mobile broadband, better mission critical services, and enable the greater deployment of IoT systems across numerous sectors.

“Our satellites come with the flexibility of catering to 5G platforms and our most recent agreement with Airbus on the Thuraya 4-NGS satellite, will be best suited for a GEO mission, maximising capabilities, cost-effectiveness, security and reliability,” he adds. “Reducing costs and increasing benefit to rural communities and non-urban communities which have limited access to 5G connectivity. Working to serve the unserved who might not be able to migrate easily to 5G. This flexibility still exists with satellites. While the industry has anticipated this transition, we have taken action to ensure that 5G was considered seriously with the evolution of our services.” He adds that when the Thuraya 4-NGS satellite goes live in 2023, it will be able to cater to enterprise and government clients who have made the transition to 5G networks.

It may also come as a surprise that while 5G is a wireless service, unlike satellite, it doesn’t function entirely without wires. That’s because the fifth-generation technology depends on cell towers, which connect to the network core.

“In urban and suburban areas, that connection comes through fibre or cable,” says Nerenberg. “In rural and hard-to-reach places (e.g., islands, mountains, forests, jungles), cell towers are connected by satellite for backhaul to the network core. According to NSR, more than 70,000 wireless towers are backhauled by geostationary satellite today, and that figure is expected to grow as wireless providers extend their networks to serve more people in hard-to-reach places.” She says this is why companies like Hughes are working with standards bodies to ensure that satellite technology fits seamlessly into the multi-transport networks that make up what we call “5G” service.

Another satellite provider with a large Asian footprint is Singtel Satellite, a unit of Singapore Telecommunications (Singtel). Song Lee Meng, its director of FSS product and marketing, explains what technology the satellite sector is introducing in order to improve its performance and make it more affordable to compete with small cells towers. “Satellite communications technologies have achieved remarkable breakthrough efficiencies and increases in performance in nearly a half century,” he says. “High Throughput Satellite (HTS) can enable high performance and cost-effective links. In addition, the LEO satellites will offer low latency and higher throughput in future which will introduce new capabilities for satcom services. One key technology that will improve satcom capabilities is flat-panel antennas which will be ‘a game changer’ for expanding the role satellites play in connecting devices to the internet-of-things, assuming the price is right.”

For Nerenberg, “our aim is not to compete with small cell towers”, but rather to deliver value as part of the networking ecosystem. “To that end, our equipment is in use around the world backhauling more than 12,000 cellular sites across Africa, Asia and Latin America, powering satellite internet services for millions of people and enabling more than 40,000 community Wi-Fi hotspots across the same regions,” she continues. “In fact, our JUPITER System is the leading satellite ground system in the world, with more than 50% market share. As the de facto standard for satellite implementations, the JUPITER System powers broadband solutions on more than 40 conventional and high-throughput satellites globally.”

Nerenberg argues how continuous innovation has kept the JUPITER System “at the forefront of the industry”, from DVB-S2 and DVB-S2X to more recent innovations like return channel adaptive coding and modulation (ACM) to yield up to 30% bandwidth savings, and support of Layer 2 transport – essential for cellular backhaul implementations.

“On the horizon, we are innovating enhancements to the system such as software-defined networking, mobile edge computing, and virtualization with a private cloud to support



Continuous innovation has kept the JUPITER System at the forefront of the industry, from DVB-S2 and DVB-S2X to more recent innovations like return channel adaptive coding and modulation (ACM) to yield up to 30% bandwidth savings, and support of Layer 2 transport – essential for cellular backhaul implementations

scalability and efficiencies,” she continues. “This kind of innovation is essential to support the new class of software-defined and flexible satellites.”

It’s often said that fibre is cheaper, faster, more reliable and carries far lower latency than satellite. It sounds like a no-brainer when it’s put like that, but Lee Meng finds holes in the argument.

“Fibre is subject to terrestrial disruptions and cuts, where satellite has just three potential points of failure: the satellite, the hub and the satellite terminal, each of which has built-in redundancy in case of failure,” he says. “It is also difficult to lay the last mile fibre due to challenges on the ground.

Most enterprise applications are not time sensitive. Therefore, satellite can be a good alternative as the main or backup connectivity but when companies are located in remote places, satellite communications can be the only option in providing ubiquitous and instant coverage in these zones.”

In fact, there are those who are of the opinion that not only is satellite a viable alternative, to fibre, but it’s actually more reliable. Nerenberg says that is most certainly the case when it comes to manmade and natural disasters, to which fibre is vulnerable. “This is why satellite makes the ideal transport for disaster response and recovery as well as critical back-up to enterprise and government fibre networks,” she adds. “Then, I would say that we do not intend for our satellite services to compete with fibre. They are different – just the same way that a pick-up truck and a sedan serve different needs. Both forms of transportation have their own specific benefits and trade-offs. You probably wouldn’t use the sedan to haul construction debris or landscaping

equipment, or to traverse a mountainous dirt road or through a jungle. And the pick-up truck would be unwieldy and uncomfortable (not to mention inelegant!) in a city centre. Satellite-based internet goes where fibre providers do not.

It’s a view shared by Martin Jarrold, chief of international programme development at satellite body, GVF. “Copper or fibre lines are most applicable for urban areas and not economically viable for rural areas due to distance and terrain,” he says. “For microwave transmission, line of sight and flat terrain needed to be cost-effective, with limited rural/remote application. Satellite is increasingly the backhaul of choice and only solution for rural/remote deployments.”

Looking ahead, data consumption is only going to grow and it’s no secret that satellite faces challenges in this space.

However, Khan says that while there are limitations, network infrastructure and capabilities continue to mature and develop at such an incredible rate. Yahsat, for example, is developing ways to overcome the obstacles that are posed by satellite data limits. “We remain committed to R&D in the field of satellite communication, and the development of new features and functionalities that meet the requirements of today’s users,” he adds. “With new emerging data requirements, at Yahsat, we have been developing next generation systems that will have a wide spectrum of data services catering to throughout requirements ranging from low (20 kbps) to high (more than 1 Mbps) for various verticals and applications. To this end, our next generation satellite system has nearly

doubled throughput of data products as the MSS/L-Band design offers optimised data rates.”

Nerenberg agrees that the challenge “and the opportunity” for satellite providers is to serve the growing demand for bandwidth with a finite resource. She warns that serving more customers is not as easy as running a connection to new customers’ homes – it requires building and launching a new satellite. “That said, Hughes has been in the business of supplying satellite internet longer than any other provider, and we have learned a lot along the way,” she says. “We are constantly improving and advancing our offerings to better serve our HughesNet customers, who have been largely overlooked by other providers. This is why we continue to innovate and implement network optimizations, such as automatically saving data when streaming video or using artificial intelligence to detect and triage potential network issues.”

Yahsat’s Thuraya 4 – NGS is an example of how the operator is overcoming data limit challenges, as the satellite is designed to be highly flexible and agile. “This is so that we can integrate new technologies on the ground, which provide considerable edge, given the challenges and dynamics in the industry which includes a wide spectrum of data service,” says Khan.

Hughes is equally optimistic about what lies ahead. “Looking to the future, we see many opportunities to continue enhancing our service – from the launch of our JUPITER 3 satellite... to implementing multi-transport solutions combining a low-latency transport such as LEO or wireless as a complement to the high-capacity/low-cost GEO service,” concludes Nerenberg. ■

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PLAY
LEARN
BUILD
DESIGN
TRANSACTION
COMPETE
CREATE
DEVISE
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DREAM
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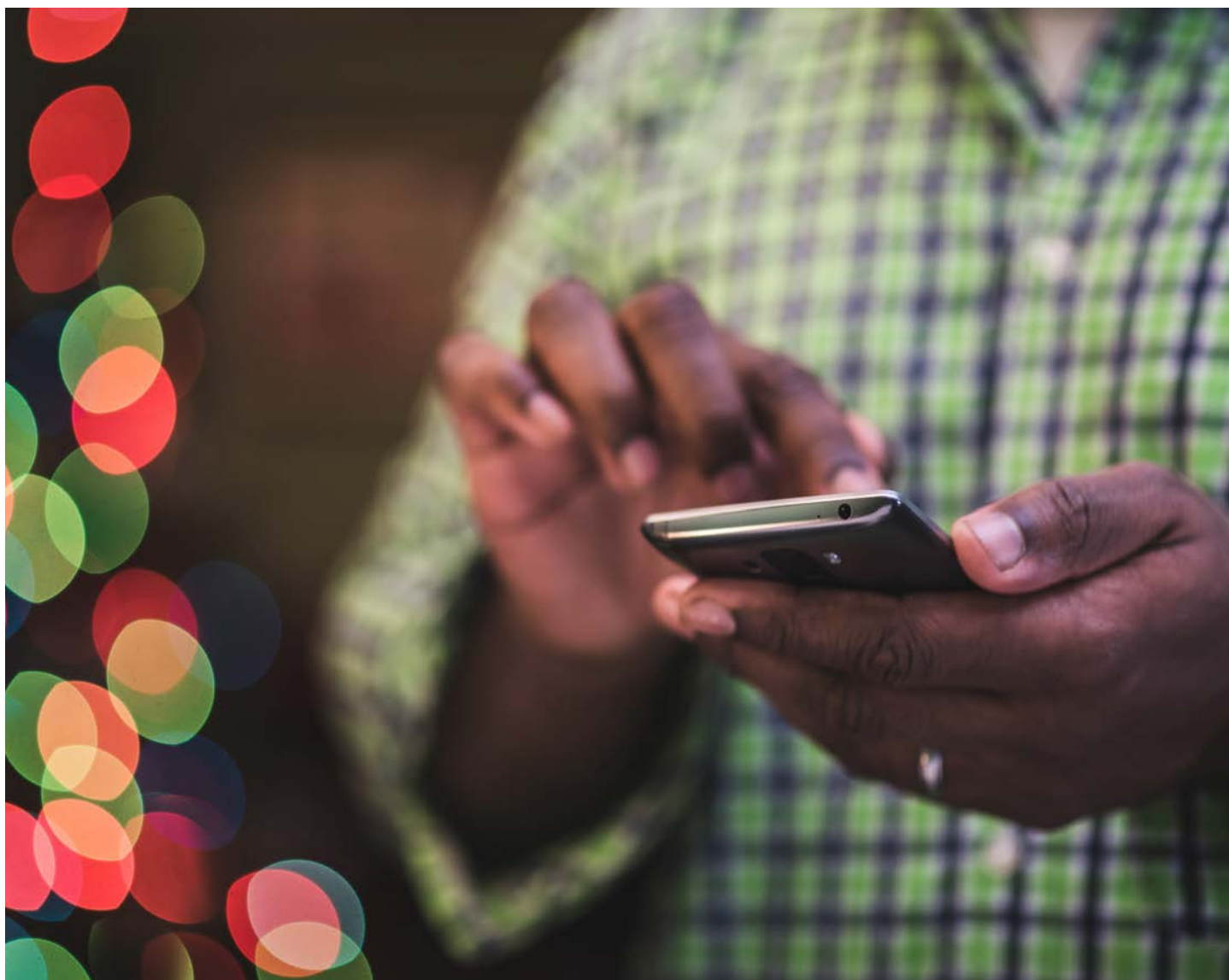


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The silver lining of combating mobile fraud

The glory days for mobile payments are just around the corner, yet we face a knowledge gap and fraudulent attempts that prevent southern Asia from reaching its full potential. David Lotfi, founder and CEO at cybersecurity firm Evina, shares his advice with Asian mobile operators on how the combat against fraud can be used as a lever to assure business growth in a particularly vast and diverse region

A lot is happening in mobile in southern Asia's mobile ecosystem: the e-commerce market is growing, the digital divide is still all too present, and an invisible menace is lingering.

Southern Asia has huge potential in the mobile payment market. By 2025, the overall e-commerce market in southeast Asia is expected to reach US\$300bn according to the e-Conomy SEA 2020 report by Google. This is the result of an increasing number of overall internet users, with 70% of the SEA population online, and a high mobile internet penetration rate.

Yet from India to Singapore and Thailand, the mobile phone penetration rate is all too heterogeneous. In some countries, mobile has neared its full-peak, giving users access to high-speed internet, exclusive mobile services, and payments by phone. These countries are noticeable as big tech giants have approached them with targeted offers. Companies offering Over-The-Top platforms have been the first to seize the mobile opportunity. Last year, Netflix released a mobile-only subscription plan in India, followed by Amazon also launching its mobile-only subscription plan to its OTT platform this month. The entertainment vertical is proof of the success mobile services can experience in this region.

While in other countries, the mobile disparity remains strong. Among the 1.3 billion population in India, more than half of the 48% women population is unaware of the existence of mobile internet according to GSMA Intelligence. While other countries such as Singapore recorded a mobile internet penetration rate of 83.2% in 2020. This gives mobile operators a window of opportunity to launch payments through mobile in only a few selected regions. Due to this digital divide, the southern Asian region represents today a patchwork of mobile payment adoption that might one day reach harmony if the challenges are correctly approached.

Although southern Asia faces a much bigger obstacle that truly hinders mobile payment's

growth in the region: fraud. Thanks to our cutting-edge technology, we at Evina, have been monitoring fraudulent activity worldwide for the past several years and can testify that fraudsters don't show sympathy for this region. In fact, 2021 started off with the arrest of fraudsters in India that were implanting malware in malicious mobile apps to collect personal identification and user's money. According to Evina, southeast Asia also recorded high fraud rates, with Indonesia at 13% and Malaysia at 24%. Why should you care? Mobile fraud doesn't just steal money from mobile operators, it hinders business growth and it's currently dividing by five the number of legitimate transactions that would bring you cleaner traffic and more revenue.

All the players involved in the mobile payment process, from merchants to payment gateways and most importantly mobile operators, orchestrators of mobile payment through Direct Carrier Billing (DCB), need to acknowledge these two major challenges and find the right approach adapted to each individual southern Asian country.

Foolproof business growth: a must-have in 2021

To the regional challenges southern Asia faces, the year 2020 adds up issues that have converted into new obstacles for the year to come. No industry was left untouched by the Covid-19 pandemic, the lockdowns and their repercussions, except for the digital industry that served as a safe boat for many businesses. This caused a sharp increase in overall internet traffic and even more so on mobile, giving a safety net to many businesses where they could keep on growing and making money. Fraudsters also had to find a way to re-adapt, which brought them to also target the digital ecosystem. More money flowing is synonymous with more fraud attempts in digital payment. We also aren't dealing with individual fraudsters anymore, but with a larger

group that silently operates: organised crime. With the increase in traffic and money on mobile, organised criminals have also decided the digital world holds many opportunities for them. They have set their intentions to heavily invest in digital monetisation, meaning fraud rates will continue to rise if they are not stopped.

The much-awaited, fast and effective - yet young - 5G network, is the second bump on the road to reaching the full potentiality of mobile payment. Much like its sibling networks 3G and 4G, the new generation presents the same weaknesses in the face of fraud, evermore so considering 5G is still at its infancy stage. This first stage of life means many functions still have to be tested and the network is open to more vulnerabilities as protocols are not 100% foolproof. And fraudsters aren't thinking of sparing the 5G networks from their tricks. Southeast Asia represents the same disparities in regards to the roll out of 5G, with some countries ready to deploy new infrastructures while others will continue to depend on 4G for the time being. Singapore is leading the 5G way followed by Vietnam, the Philippines, Malaysia, and Thailand. Mobile operators need to keep this in mind and increase security in countries where users are expected to soon connect to a still vulnerable 5G network.

Both the increase in fraud operated by organised crime and the vulnerabilities presented by the 5G's infancy stage could be prevented and their consequences attenuated if companies in the mobile payment industry make the right security investments. In 2020 many companies didn't make security their priority, while fraudsters did make cyberattacks theirs.

In addition to the regional challenges MNOs face, when confronting mobile fraud, players must insert themselves into a wider global optic to overcome these challenges correctly.

The global increase in mobile traffic, organised crime investing in digital monetisation, and a vulnerable 5G network at its infant stage make for



Example of fraudulent apps in South Asia - Q1 2021

 CAMERA DOC SCANNER	 EASY PDF SCANNER	 PUZZLES
DESCRIPTION Scan documents with your Smartphone has never been so easy, with the scanner app you can scan color documents, photos, images and text.	DESCRIPTION Easy Pdf Scanner - Scan documents, photos, ID, passport.	DESCRIPTION More than 25,000 beautiful high-definition puzzles-explore and play all puzzles freely!
ESTIMATED DOWNLOADS 50 000+	ESTIMATED DOWNLOADS 50 000+	ESTIMATED DOWNLOADS 100+
RATING 4.8	RATING -	RATING -

a gloomy future ahead for this industry, but the situation is brighter than it seems.

The silver-lining of combating mobile fraud in southern Asia

The mobile payment adoption gap between and within countries in southern Asia needs to be mended and resolved and the mobile fraud challenges confronted, for Asian mobile operators to experience the prosperity that derives from a healthy mobile payment ecosystem. But how? We can start by admitting fraud is a problem in southern Asia's mobile payment. This goes hand

in hand with educating the market about fraud, what it looks like, and how to protect businesses.

Mobile fraud education involves the user, the merchants, the payment gateways, and the mobile operators. The importance of protecting mobile users is currently underrated, as fraudsters continuously attack the vulnerable in order to steal their precious data and money. The players of the mobile payment ecosystem need to fully comprehend that users behold the success of businesses as they decide whether complaint rates decrease or rise, and if a business is even worth their attention.

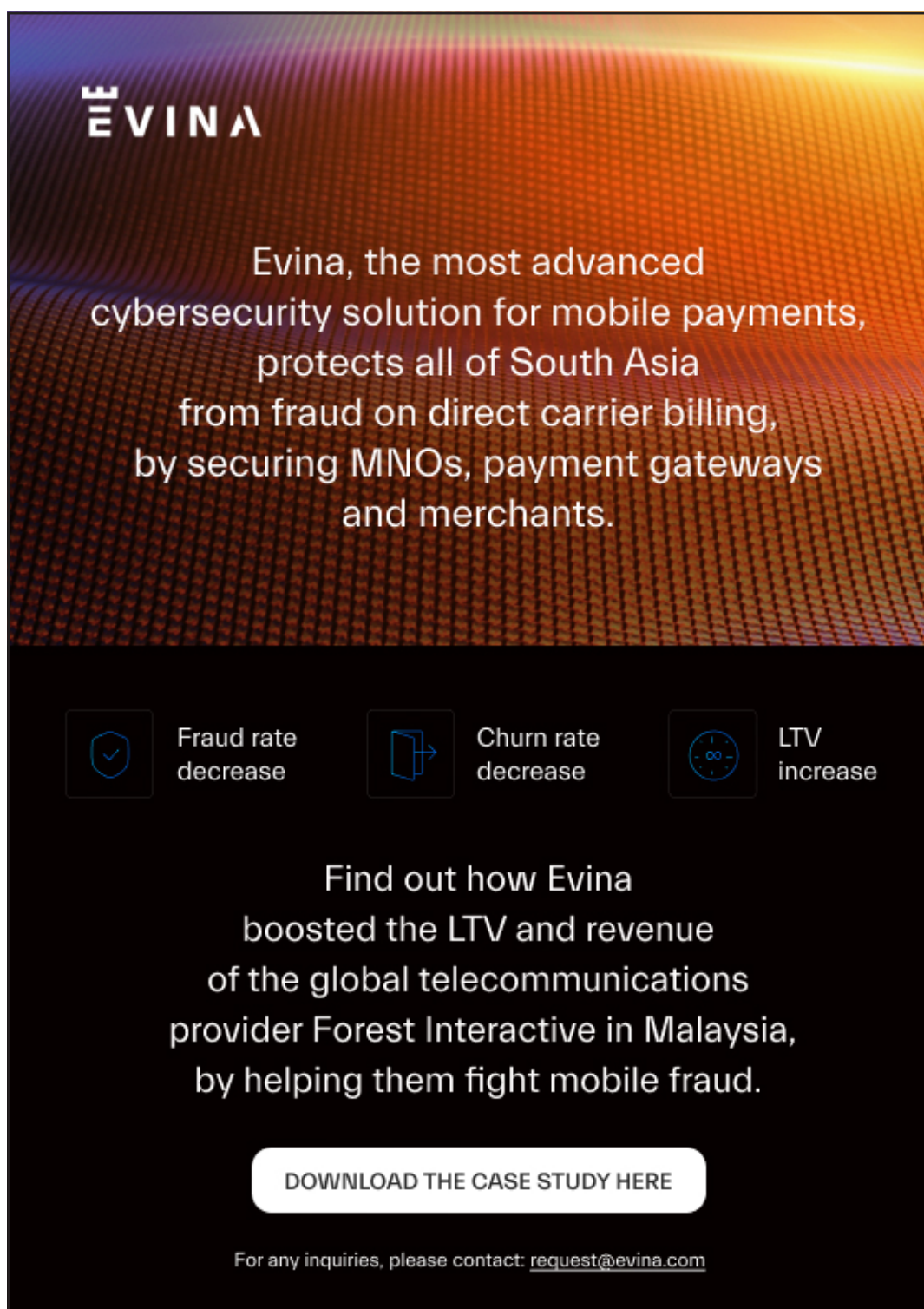
Once educated, mobile operators will realise

that they have accumulated a heavy cybersecurity debt, which are the repercussions of not having correctly invested in security. This debt has a great toll on business as it presents itself in the form of increased fraud rates, customer complaint rates and the churn rates. To avoid the risk of inducing a crisis, mobile operators will need to repay these debts by investing in the cybersecurity tools needed to fight fraud.

The choice of the right cybersecurity partner though is crucial. Oftentimes when companies decide to deal with fraud, they resort to counter-productive measures that complexify their billing process by adding security steps that reduce the

number of illegitimate transactions yet scare customers away. Too many MNOs deal with their fraud rates by adding security layers such as pin codes, then by restricting media buyers, and in the end almost decide to cut off mobile payment entirely as complaint rates are still on the rise. After integrating our anti-fraud solution, mobile operators who work with us see their complaint rates decrease along with their fraud rate that can drop as low as 1%. More importantly their traffic is clean and they're able to simplify their billing flow, so that they can now focus on their business.

When the cybersecurity debt will be repaid and when market players will resort to the right partner, mobile players will realise that cybersecurity tools don't just fend off fraudsters, they reduce complaints, increase happy users, and boost business growth. Results will show faster than you know it. For this to happen, we insist that mobile operators, the influencers of the mobile payment, are the first that need to partner up with an independent, expert, and solid anti-fraud solution company. The benefits of such a solution are that you are able to optimise your subscription instead of managing complaints, and deploy frictionless payment while restoring trust with your partners and users. This solution has a rippling effect, protecting the end user and pressuring the mobile players to unite in protecting this industry. Confronting mobile fraud is a chance for market players to assess the situation, understand that fraud is not only a nuisance but a barrier for business growth, and that tools exist to fight it off the right way. These actions will naturally lead to a more unified mobile ecosystem in southern Asia, where mobile gaps are mended and mobile fraud reduced for a more prosperous regional growth. ■



EVINA

Evina, the most advanced cybersecurity solution for mobile payments, protects all of South Asia from fraud on direct carrier billing, by securing MNOs, payment gateways and merchants.

	Fraud rate decrease		Churn rate decrease		LTV increase
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Find out how Evina boosted the LTV and revenue of the global telecommunications provider Forest Interactive in Malaysia, by helping them fight mobile fraud.

[DOWNLOAD THE CASE STUDY HERE](#)

For any inquiries, please contact: request@evina.com



Fixed wireless access and Wi-Fi on the move

FWA, an invaluable tool for internet connectivity in remote and built-up areas? Robert Shepherd connects with the industry to find out if this is so and how

Wherever you live, the average broadband speed requirement continues to rise and fibre access is arguably still the go-to option. It makes complete sense, when one considers its high bandwidth performance, low latency and maintenance, as well as durability.

Of course, copper and fibre deployment for better broadband service is not always an upgrade option. Reasons include the fact that municipal regulations can make fibre trenching

prohibitive, lower population densities in rural markets often harm the fibre business case return on investment (ROI), while buildings or things of natural beauty may prevent the installation of fibre regardless of how much money has been made available.

That said, fibre is not always available, either, which means other technologies and methods of communication have to fill the void. Enter fixed wireless access (FWA), which is known to offer high-capacity solutions for parts of southern

Asia, indeed the world, in need of enhanced quality and speeds. Now, in early 2021, as the dust begins to settle following the worst pandemic any of us will (hopefully) ever have to endure, the demands for speedy internet access on the move is becoming more important than ever before. Does FWA really offer the best way to meet the last mile challenge that wired networks have been unable to solve? If so, how?

"FWA has several major benefits when compared to fixed line/fibre deployments,"

says David Sumi, VP of marketing at wireless gigabit solution provider Siklu. "Especially in a large area such as southern Asia where many communities are spread out. Fixed line deployments are almost always more expensive than FWA and take months to install versus FWA which can be up and running in weeks. It used to be that FWA was at a speed disadvantage to wireline, but with mmWave systems delivering up to 10Gbps full duplex, this is no longer the case. For regions that lack existing wireline infrastructure FWA is cheaper and faster."

Large swathes of southern Asia certainly lack the infrastructure Sumi mentions, which is unsurprising when one considers the topography across the bottom half of the world's largest continent by land mass.

The good news is "FWA is generally lower cost to deploy than wired networks such as fibre optic cable", especially outside of rural areas where the distances between buildings increase, making the cost of laying fibre higher, says William Webb, chief technology officer (CTO) at Cambridge Broadband Networks Group (CBNG). "Where broadband is not available due to cost then FWA can provide an excellent solution," he continues. "However, even with FWA there will be some regions so remote that only with government funding will it be economically viable to connect them."

For Simon Fletcher, CTO at independent advisory Real Wireless, FWA "has to be a part of the solution" along with options such as satellite that must also be considered. "However if tower infrastructure along with power and backhaul (which could be shared) are well placed, then FWA would give a good, scalable and robust capability for delivering the high per-user data rates that will inevitably be required and demanded by consumers and enterprises alike," he adds.

Eugina Jordan, VP, marketing at OpenRAN software firm Parallel Wireless, also explains how the cost of legacy high-speed broadband service through cable or fibre-to-the-x (FTTx) deployment, is a significant part of initial network deployment. "The average cost of laying fibre is US\$15,000 per mile," she says. "Also, in many areas the permits for related construction work will take months. This will be a huge burden for service providers because of initial costs that will not necessarily convert into revenue." However, Jordan says, a fixed wireless solution deployment "is simply based on a base station deployment" and no last mile delivery investment. "In this scenario, service providers will cover specific geographical areas and target customers without any specific investment for last mile delivery for that specific customer. "For rural area deployment; with lower population density, a cable or fibre solution will be even more costly and their ROI will not justify the initial investment or on-going investment due to low ARPU."

Of course, the availability, indeed quality of connectivity depends heavily on where one is located. When it comes to the last point of contact within a shopping centre, on a campus, on a train or bus, or even workers risking their lives in a mine, different technological options are

"There is, unfortunately, no single blanket solution that will meet the exact requirements in all scenarios"

needed, according to Kamal Mokrani, global vice president at broadband wireless development business Infinet Wireless. "There is, unfortunately, no single blanket solution that will meet the exact requirements in all scenarios," he says. Our experience has shown that the challenges we would need to overcome in a shopping centre, as an example, are totally different from those we encounter in a mining environment where signal propagation can be affected by many geological structures and man-made obstacles."

Mokrani says that when hundreds, if not thousands of retail customers, decide to go shopping at the same time, Infinet's solutions tend to focus more on relieving the well-known bottleneck related to backhauling capacity, thus offering sufficient capacity to ensure both "high quality" voice calls and Internet access.

"High-speed connectivity for passengers on a train, bus or metro present us with completely different challenges, but ones which we have already been resolved in many of our deployments around the world," he continues. All our wireless solutions are adaptable to the specific environment we are faced with, thanks to our approach in developing Software Defined Radio (SDR) platforms with all the flexibility they offer us and our customers. For example, when roaming between base stations deployed along the tracks for a train or a pre-defined route for other moving vehicles, seamless handover from one access point to another, whilst keeping latency of the data transmitted at its lowest level possible, is the biggest challenge for such high-speed mobility applications."

These contexts all have subtly different principle drivers of the demand, argues Fletcher. "A shopping centre will be primarily focussed on B2C, while a mine would be more B2B as the driving force," he says. "The nature of the data being transmitted wirelessly – B2B or B2C – will determine and push the economic principles that shape the network deployment principles. While FWA can provide a good group / shared connection on which to bolt a Wi-Fi access solution and would work for a shopping centre, mines are a well-understood scenario, often choosing to deploy a mobile micro BTS in lower spectrum bands to maximise coverage over wide expanses of land, and even into the tunnel system itself. Trains and buses are a different scenario altogether and don't really lend themselves to FWA solutions."

Webb says that the last point of connectivity must use a technology widely available in handsets, tablets, laptops and other devices. However, there are only two options - cellular and Wi-Fi. "Both are used in places like shopping centres where mobile operators are often keen to deploy

Kamal Mokrani,
global vice president,
Infinet Wireless



cellular solutions alongside the shopping centre owner providing Wi-Fi," he adds. "In locations where mobile operators are less interested in deployment then only Wi-Fi is used. Many trains and buses now have Wi-Fi deployed within them."

Historically, there was no ultra-high bandwidth alternative to fibre, but high performance FWA has emerged to fill the gigabit broadband desire when fibre is not an option. What's more, technically, there are no limitations to bands that can be used to deploy FWA. In the case of LTE network deployments, operators often favour 800MHz, 1.8GHz and 2.1GHz bands for rural and suburban areas while using 2.3 GHz and 2.6 GHz for urban areas. The same strategy could be applied for FWA, however, due to the possibility of mitigating the adverse effects of higher propagation loss, it is feasible to also consider high carrier frequencies such as those in the 3.5GHz range where large bandwidths are more readily available.

Clearly a good solution for connectivity in even the most unforgiving of environments, but will opportunities for FWA continue to open up as operators and service providers in the region realise the benefits of LTE-based FWA?

"It's just another, more cost-effective way to deliver coverage," says Jordan. "The coverage it delivers will enable not only many more opportunities, but also creates services like eLearning, eHealth and eCommerce that will help to move the region forward. However, she says that legacy LTE-based fixed wireless solution deployment relies on a complicated deployment and configuration process during site installation. "This requires a complicated preparation phase and expert technician presence at the time of any new site installation," Jordan adds.

Webb says opportunities for FWA already exist, citing every home and building without a broadband connection. Nevertheless, he says LTE is not the solution, because it is designed for mobile use and is too expensive and too low capacity for FWA. "To put it into perspective, a mobile user tends to have a monthly data consumption of about 5GByte/month, a home about 350GByte/month - 70 times more," says Webb. "Using LTE or even 5G mobile to provide home broadband is like trying to use a car to transport 50 people - a coach is far better suited."

In fact, Webb is rather blunt about LTE and 5G being used for FWA, calling it a waste of more costly infrastructure and due to densification and the transitory nature of mobile users coming in and out of the coverage area, the user's bandwidth experience is not predictable or guaranteed.

“FWA is static and so can be designed to provide predictable service which can be backed by service level agreements,” he argues. “There is a great deal of fibre deployed in places like Singapore, Korea, Japan and Malaysia making FWA more of a niche solution for urban residential/enterprise connectivity. However, FWA will always have a strong foothold in rural and suburban communities where the costs to lay fibre over dispersed dwellings remains largely prohibitive.”

The changes that have occurred in recent years with the introduction of LTE, 5G and more advanced FWA technologies have clearly been monumental across a plethora of industry sectors. Mokrani says “the heightened consumer adoption of mobile devices is due to the lack of adequate fixed infrastructures” in many Asian countries.

“This has leveraged broadband wireless technology providers to play a much bigger role than traditional fixed operators by relieving the pressure for backhauling data and voice traffic from the mobile operators’ base stations to the rest of their network,” Mokrani continues. “Network operators of all types naturally want to spread the cost of installation and maintenance of any new technology across as many services and applications as possible.”

He argues that the largest opportunity Infinet predicts for FWA, whether LTE-based or others, will be in emerging countries where fixed broadband via legacy fibre, cable or DSL is simply not available today. “In developed countries, we are seeing strong signs that FWA technologies are giving service providers a more competitive edge over more expensive and sometimes unreliable wired alternatives,” Mokrani adds. “The biggest opportunity we see for LTE-based FWA specifically will be for the residential market, especially fuelled by the current Covid-19 pandemic where more and more people are having to work from home and demanding broadband speeds so as to stay fully operational and productive.”

Let’s look to the future. While microwave links have long been the cheap and effective solution, some believe there is now a real danger of usurpation by mobile tech such as 5G, whilst others see this in bigger towns and cities only.

Jordan says the approach adopted by fixed wireless service providers to network deployment is based on coverage limited or capacity



The changes that have occurred in recent years with the introduction of LTE, 5G and more advanced FWA technologies have clearly been monumental across a plethora of industry sectors

limited scenarios. “In a coverage limited scenario, service providers main objective is providing acceptable coverage for a specific area considering targeted SLA for subscribers,” she explains. “In a capacity limited scenario, service provider addresses limited capacity in a geographical area by adding extra base stations in the specific geographical area already has coverage.”

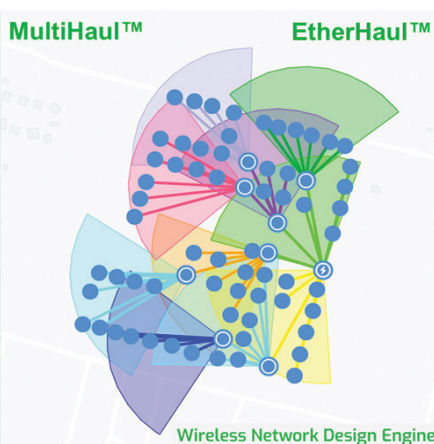
Jordan says that although “the classical deployment will start with a ‘search ring’ identification”, following site acquisition and deployment; in many rural deployments, ease of deployment is the main objective for providers.

Mokrani argues that “there is no doubt that all types of wireless technologies have a significant role to play in improving broadband access in all parts of Asia. “Some of these technologies may still have a long way to go before they become universally accepted, with political and regulatory policies being the biggest obstacles to ubiquitous connectivity, but their acceptance and deployment are certainly crucial for bridging the digital divide between urban and rural areas,” he continues. “There is noticeably more demand for broadband connectivity in cities and bigger

towns than rural areas simply because that’s where most companies and businesses are physically located. Mobile technologies such as 4G or 5G are not necessarily the most trusted platforms for a bank, as just one example, to establish connectivity between its branches and its headquarters as their managers value data security much more than anything else. They would most certainly deploy their own private networks, such as one based on FWA, and not want to share best-efforts network capacity from mobile networks with other users, ultimately exposing themselves to potential cyber threats and attacks. The same principle is also applicable to mission critical applications such as the fire brigade, the ambulance service and law enforcement agencies, all favouring a dedicated and private network for their own use only.”

As far as Webb is concerned, mobile technology is great....for mobiles. The problem, he says, is that “it is not designed” for providing broadband connection to buildings. “It is both very expensive as a solution to fixed broadband and lacks sufficient capacity, especially after providing service to mobile users,” Webb adds. “There are few examples of widespread FWA solutions using mobile technology and those that exist tend to require massive investment in a denser network of base stations. Better to use FWA - a technology designed for the purpose, with much more capacity and reliability.”

Lest we take it for granted, remember that incredible things happen when people connect to the internet or with each other. Whether the location is rural or urban, domestic, international, telco or cable, enterprise or residential, it sounds like optimised gigabit broadband solutions deliver the vision of global networking. FWA is addressing last mile deployment challenges timely, cost effectively and with increased speed and resilience. That can only be a good thing. ■



Sepura SC21

Small and light, the SC21 is the next-generation, smart TETRA hand-portable radio. With a wide range of functionality inherited from the SC20 hand-portable - yet 25% smaller - it offers all the benefits of a compact radio.

Reliable performance: With a best-in-class TETRA engine, the SC21 allows you to keep communicating where other small handsets fail. Class 3 high-power RF transmission, coupled with exceptional receive sensitivity, gives the SC21 extended operational range.

Powerful Audio: The SC21's best-in-class audio capability allows for rich, clear voice communication, however noisy the environment. The powerful, directional speaker projects audio to the user's ear, providing extra clarity, and unique Water Porting technology ensures that clarity is maintained, even in continuous, heavy rain.

Advanced Safety Features: The SC21's advanced worker safety features offer peace of mind for lone and remote workers at all times of the day or night, including automated Man-Down and Lone Worker protection, biometric user health monitoring and location tracking.

User Friendly: The SC21 has a 2.4" high resolution QVGA screen - the largest on any TETRA hand-portable - allowing for quick and easy viewing in all light conditions, including direct sunlight. sepura.com



Doodle Labs' Mesh Rider OS for the Smart Radio Platform

Doodle Labs is "pleased" to release Mesh Rider OS firmware version 2021-03 for the Smart Radio. This firmware update delivers significant new features and performance improvements, including improved link reliability, improved management tools and the customisation of smart radios. Starting with the former, a new link monitor constantly checks the status of the wireless link and triggers a rapid recovery in the event of a link loss. There is also a pre-flight link check tool that runs through a series of checks to test the integrity of RF link quality for each

antenna. In addition, the automatic channel selection (ACS) for interference mitigation means the Smart Radio will periodically monitor the medium and may switch over to a better operating channel. Elsewhere, the web GUI, Doodle Labs says, has been revamped to provide a simple



and clean interface for an enhanced user experience. By default, it provides commonly used settings, and click the "Advanced Settings" button reveals all of the original settings. Meanwhile, the Mesh Rider SDK will allow customers to write and compile their own software to run on the

Smart Radio. "We enhanced the Mesh Rider OS based on direct feedback from our customers to meet their operational requirements," says Aaron Do, manager of application engineering and customer support at Doodle Labs. doodlelabs.com

Ericsson launches 5G RAN slicing

Swedish gear-maker Ericsson's new 5G network slicing solution for radio access networks (RAN) enables communications service providers to deliver customised 5G services with guaranteed performance, the company says.

Now commercially available, Ericsson 5G RAN Slicing allocates

radio resources at one millisecond scheduling and supports multi-dimensional service differentiation handling across slices. This, the company reckons, strengthens end-to-end slicing capabilities for dynamic resource management and orchestration that ensure the high-quality end-user experience required by diverse use cases.

Network slicing supports multiple logical networks for different service types over one common infrastructure. It is a key enabler for unlocking 5G revenue opportunities such as enhanced video, and in-car

connectivity, and extended reality.

"Ericsson 5G RAN Slicing dynamically optimizes radio resources to deliver significantly more spectrum-efficient radio access network slicing," says Per Narvinger, head of product area networks, Ericsson. "What makes our solution distinct is that it boosts end-to-end management and orchestration support for fast and efficient service delivery. This gives service providers the differentiation and guaranteed performance needed to monetize 5G investments with diverse use cases. With 5G as innovation platform, we continue to drive value for our customers." ericsson.com



ThinkKom antenna design 'offers flexible installation'

ThinkKom Solutions has developed a new product variant of its VICTS aero satellite communication antennas, which, it claims, enables more flexible installation choices and allows for smaller distributed and embedded phased-array applications.

The new product variant, which targets government and military beyond-line-of-sight (BLOS) satellite communication markets, integrates the VICTS antenna, antenna control unit (ACU) and power-supply (PS) electronics into a single low-profile small-footprint package. This eliminates the need for a separate

line-replaceable unit (LRU) for the ACU/PS. Further, the unique high-efficiency and low-power characteristics of the VICTS phased array fully eliminate the need for other bulky and power-consuming LRUs, such as power-conditioning units, heat-exchanger units and external RF/power/cooling manifolds.

"This new design is part of our strategy to become the preferred satellite antenna choice for smaller volume-limited and power-limited platforms," says Bill Milroy, chair-

man and CTO of ThinkKom Solutions.

Another apparent plus is the incorporation of the ACU into the base of the antenna does not result in any increase in mounting footprint and maintains the antenna's highly favoured low-profile characteristics. The antenna

measures less than 9cm in total height, while retaining the flight-proven, high-reliability design and product features for which the VICTS antennas have become known.

ThinkKom says an added benefit of the new product variant is enabling the transmit and receive antennas to be co-located or alternatively mounted in remotely separated platform locations. This maximises application flexibility in terms of packaging, weight balance and other airframe and operational considerations. thinkkom.com



Introducing Siklu's new Terragraph-compliant series

With the Terragraph-compliant MultiHaul TG series, Siklu says it's lowering the cost of delivering services to homes, businesses and within smart city broadband IoT applications. The TG series consists of distribution nodes (DNs) and client nodes (TUs). Siklu's N366 is an integrated Terragraph compliant DN that provides 360-degree coverage,

is able to self-organise into a neighbourhood L2 SDN mesh and provides just under 16Gbps of total capacity. The MultiHaul TU265 acts as a client node with dynamic beam steering connecting to DNs and offers multiple ports for interface to



on premise networks via copper or fibre. With Siklu's N366 connecting to other N366 nodes, or to the TU series the MultiHaul TG product line offers, the company says, the greatest flexibility in delivering gigabit connections in dense environments. siklu.com

Teltronic presents the new MCBS

Teltronic presents the new MCBS, an outdoor TETRA base station which, through the use of SDR (Software defined radio) techniques, provides up to four carriers in a single compact unit, offering, it reckons, the highest level of performance in a single, lightweight and compact device.

The multi-carrier technology, the MCBS, with its 40W of RF Power, is apparently able to offer the features of an indoor fixed base station in a single compact device that is prepared to operate outdoors without requiring civil works for its installation, which means a significant



reduction in costs and deployment time in railway environments. In addition, it allows different configurations to adapt flexibly to any number of subscribers and system traffic load.

Furthermore, operation and maintenance tasks are apparently simplified as the MCBS is configured and monitored completely remotely from the NEBULA infrastructure Network Management System, which incorporates a set of tools that allow supervising its status in real time, monitoring the activity of the network users, having access to statistics and alarm

troubleshooting. All this, added to its low consumption, means significant savings in OPEX.

Similarly, the increase in the number of radio resources available in a TETRA zone is greatly simplified, as it does not require any hardware upgrade or a visit to the site, but only the incorporation of licenses to activate new carriers.

"With this development, Teltronic shows that we keep our commitment to TETRA technology and our NEBULA infrastructure, incorporating into our portfolio a new product that is the result of hours of intense work by our R&D engineers and offers unique performance and capabilities in the radio communications market," explains the company's CEO, Juan Ferro. teltronic.es

Viavi releases 2021 updates to the Test Suite for O-RAN Specifications

Viavi Solutions introduces updates to its industry-first Test Suite for O-RAN Specifications. The O-RAN ALLIANCE's specifications for open radio access networks are being adopted by operators and equipment manufacturers worldwide, to reduce infrastructure costs and lower the barrier to entry for new product innovation.

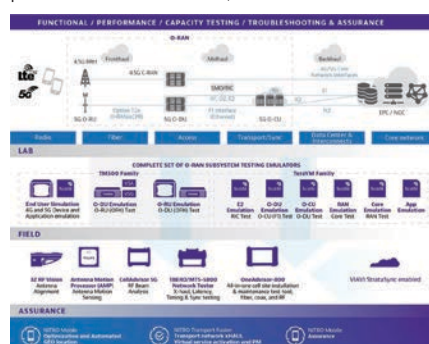
Viavi says the test suite has been augmented to include use cases of critical importance as O-RAN becomes adopted at scale, as well as learnings from customer engagements around the globe. Based on its position validating network products for operators and

manufacturers worldwide – including all Tier-1 network equipment manufacturers – Viavi boasts to have the most comprehensive O-RAN test platform on the market, with CUSM-

plane parameters used by more vendors than any other solution.

The company is also active in specifications development, as the editor of interoperability test specifications in the open fronthaul

(WG4) and open interfaces (WG5) working groups, and the co-chair of multiple working groups at the O-RAN ALLIANCE. "Viavi's active contributions have enabled it to develop partnerships with complementary solutions from best-of-breed vendors," the company argues. viavisolutions.com



Look out for...

China launches 'world's first 6G' test satellite

China launched what it claimed to be the first ever 6G experimental satellite to test communications from space using high-frequency terahertz spectrum.

The Chinese embassy in the US capital Washington, DC tweeted that the country's "6G" satellite was one of 13 aboard the Long March-6 rocket, which launched November 6 at the Taiyuan Satellite Launch Centre in Shanxi province.

The 70kg 6G test satellite aims to verify the performance of data transmission using terahertz spectrum and will test a number of smart city, environmental protection and disaster prevention applications, such as crop and forest fire monitoring, according to local media reports.

This sixth-generation mobile access technology has already started to gain momentum as major industry players back a launch as early as 2030.

South Korean giant Samsung expects the ITU-R to begin work on 6G in 2021, with the standard to be completed as early as 2028. This would open the door to the earliest deployments in 10 years.

The challenges to 6G are many, including requiring 100-times the data throughput of 5G and sub-millisecond latency, AT&T executive Mazin Gilbert said at the 6G Symposium last month.

Last year, US operators Verizon, AT&T, T-Mobile US and US Cellular joined other operators under the guise of the Next G Alliance, aiming to steer development of 6G and establish North America as a global leader in the technology.

Japanese mobile phone operator NTT Docomo made early moves to develop 6G technology in January with a goal of a commercial launch by 2030 and in May, China Unicom and ZTE signed a strategic agreement to develop 6G technologies.

Studies have also contributed to a lot of progress in the 6G arena. The University of California that claimed significant progress by building a device that can speed up the process of development and save substantial amounts of time during the design phase.

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Caribbean Express: next stop Jamaica



The Caribbean Express, a new multi-billion-dollar submarine cable system being rolled out by American telecom development firm, Ocean Networks, is making its way to Jamaica.

An 18-fibre pair subsea cable system linking the state of Florida to Panama, which is just being built out, is also being extended to the Caribbean island's capital, Kingston.

In the initial phase the Caribbean Express network will not only run between Palm Beach, Florida and Balboa, Panama, but with additional landing points in Cancún, Mexico and Cartagena, Colombia.

Ocean Networks disclosed plans to build more than a dozen landing points along the route in the coming years in cities such as Kingston (Jamaica), Havana (Cuba), George Town (Grand Cayman), Puerto Barrios (Guatemala), Puerto Lempira (Honduras), Bluefields (Nicaragua), and Limón (Costa Rica).

The firm also said that once launched, the submarine cable system will be the only system that can offer dedicated dark fibre pair indefeasible right of use (IRU) in the Caribbean market. An IRU permits customer to have exclusive use of fibres throughout the term of a contract.

Brazil regulator approves 5G spectrum auction rules



Brazilian telecom regulator Anatel approved rules for a spectrum auction for 5G networks this year and rejected calls to curb China's Huawei Technologies an equipment supplier.

The South American country's president Jair Bolsonaro last year criticised the Chinese company and considered banning the world's largest telecom equipment-maker from the country's fifth-generation technology market on security concerns.

Brazil's telecom companies insisted on a free market and complained that excluding Huawei would cost billions of dollars to replace the equipment of the tech

giant, which currently supplies 50% of the existing 3G and 4G networks.

Rules for the auction expected in a few months have costly conditions such as requiring telecom companies to migrate by next year to more advanced technology with stand-alone networks not based on their current technology. They will also have to cover the big northern Amazon region with broadband connectivity, largely using optic fibre cables laid in rivers, as well as build a separate secure network for the federal government.

Industry representatives said Huawei could not be excluded from Brazil's 5G market because, cost aside, it would set the country back

three to four years in technology.

Two of Brazil's main telecom companies, Telefônica Brasil and Claro are pressing for a five-year transition to the more advanced stand-alone networks.

"The stand-alone condition requires changing the core of today's networks and will set us back years," said Vivien Suruagy, head of Feninfra, a lobby representing 137,000 companies that build and maintain telecommunications networks.

The rules must be approved by Brazil's Federal Audit Court, the TCU, where the telecoms hope the government's onerous conditions can be changed, Suruagy added.

Russia's MTS launches pilot 5G network



Russian telecom MTS launched the country's first user pilot 5G network in the 4.9GHz band across 14 locations in Moscow, using Chinese Huawei's telecom equipment.

Subscribers using 5G-compatible smartphones will be able to connect to 5G Internet at speeds up to 1.5 Gbps, the firm said in a press release. However, users will not be able to independently connect to pilot zones,

the company said and added that the selection of participants in the pilot project using smartphones with support for the n79 range will be carried out on basis analysis of data in their movement, proximity to pilot locations, internet traffic, among others.

MTS also said the number of 5G zones and consequently, the coverage will increase over time. However, no further information was provided.

At the first stage, MTS and

Huawei will enable round-the-clock video surveillance over the 5G network while at the second stage, they will provide indoor 5G coverage.

In late February, MTS together with Skoltech, expanded the 5G coverage in Skolkovo, deploying a pilot network for the International Medical Cluster (MMC).

Russia adopted a roadmap last year intending to roll out 5G networks across 10 cities by 2024.

Orange hires NuRAN for connectivity push in DRC



Orange DRC has penned a 10-year deal with Canadian vendor NuRAN Wireless to help expand its rural coverage across the Democratic Republic of Congo (DRC).

The terms of the agreement focus on NuRAN's Network as a Service (NaaS) offering, with the latter constructing and running 2000 new towers across the next 40 months. The towers will allow French giant Orange to provide 2.75G services and meet pent-up demand, with a particular focus for rural communities with populations around 5,000.

The towers fall into one of four categories depending on population density and coverage requirements.

Nuran's technology uses a carrier-grade GSM base station powered by solar as part of a small-footprint (3 metres x 3 metres x 15 meters tall) remote tower. "This contract is in line with our strategy to expand the NaaS business model across Africa," said Francis Letourneau, CEO of NuRAN. "This is our second significant contract in Africa and with Orange after having already previously announced our agreement with Orange Cameroon SA.

The contract will run for a minimum term of 10 years for each site, including networking equipment as well as antennas, cabling, solar power systems, towers and related installation



services. This agreement features a revenue sharing structure including a minimum guaranteed monthly fee per site built for the first five years.

Meanwhile, Orange Cameroon has extended its NaaS contract with NuRAN Wireless to add a further 120 sites to its footprint in the market. Orange will now deploy a total of 242 sites under the agreement.

The towers fall into one of four categories depending on population density and coverage requirements. Nuran's technology uses a carrier-grade GSM base station powered by solar as part of a small-footprint (3 metres x 3 metres x 15 meters tall) remote tower

Liquid Intelligent Technologies deploys first overland network

 Liquid Intelligent Technologies has deployed its world-class fibre network in the Democratic Republic of Congo (DRC), an expansion connecting citizens and thousands of businesses to the 'One Africa' broadband network totalling more than 73,000 kms across the continent. Furthermore, Kinshasa and most major cities in the DRC are now connected directly to the world, linking to such cities as London, San Francisco, and Singapore, and many other global economic hubs.

The terrestrial fibre network connects Muanda, a town lying on the west Atlantic coast of the country, to cities as far as Cape Town in South Africa, Dar es Salaam in Tanzania and Lubumbashi.

This is a first for the country, as no operator currently offers such a seamless link across the continent. The DRC route is part of the first-ever complete east to west network

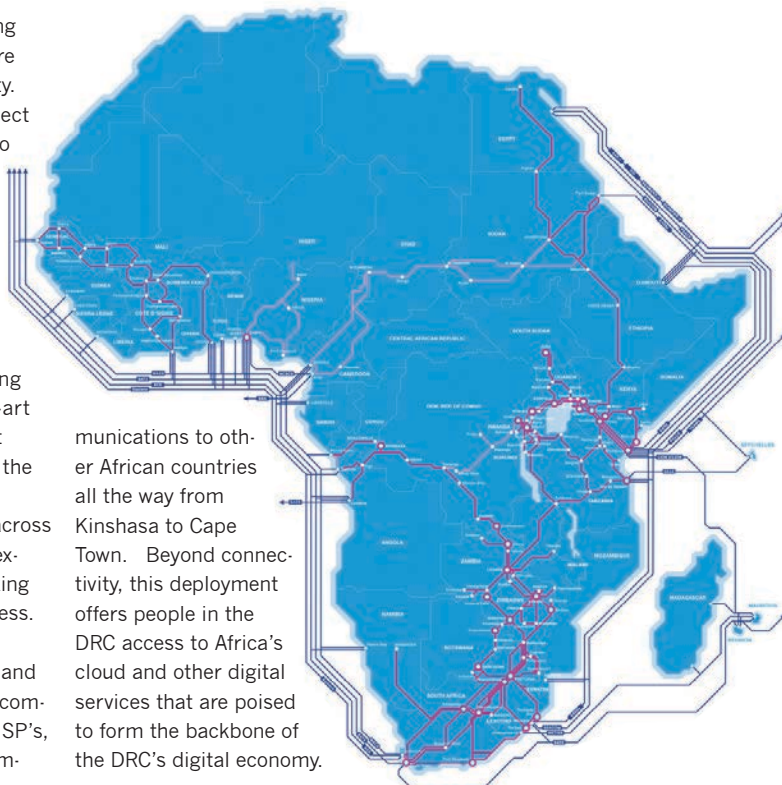
on the African continent, offering low latency, high bandwidth fibre connectivity and high availability.

"The completion of this project is part of the strategic vision to connect the African continent to the rest of the world," said Michel Hebert, CEO Liquid Intelligent Technologies DRC. "This fibre deployment not only has the potential to transform the economy of the country, but we are also bringing access to scalable state-of-the-art digital and cloud services that will enable them to connect to the global digital economy."

High-speed internet access across the DRC has been almost non-existent for the past decade, ranking 145th globally for internet access.

This fibre deployment is also expected to provide the fastest and lowest costs way for global telecommunications operators, OTT's, ISP's, and enterprises to link their com-

munications to other African countries all the way from Kinshasa to Cape Town. Beyond connectivity, this deployment offers people in the DRC access to Africa's cloud and other digital services that are poised to form the backbone of the DRC's digital economy.



Phoenix Tower and Monaco Telecom partner up

 Phoenix Tower International (PTI) and Monaco Telecom have joined forces to operate new towers sites across Mediterranean island nations Cyprus and Malta.

The two companies will purchase over 815 existing wireless towers as well as acquiring newly built wireless towers over six years via a build-to-suit programme.

"With this latest transaction, PTI continues to expand its presence

across Europe and will demonstrate the neutral host independent tower model in two new markets to facilitate increased coverage expansion for all of the wireless operators and ultimately increased connectivity for the population of Malta and Cyprus," said Dagan Kasavana, chief executive officer of Phoenix Tower International. "As the economies of the world continue to recover from the impacts of Covid-19, Phoenix is

proud to be working with the mobile network operators across the world to deploy more coverage solutions and is pleased to partner with Monaco Telecom on this transaction."

PTI and Monaco Telecom have also established a long-term tenancy agreement where the latter will occupy the sites for a minimum of 20 years. On completion, this transaction will position PTI as the largest tower infrastructure provider in

both markets, as well as significantly expanding its footprint in Europe.

"This transaction allows us to create a strategic partnership in Cyprus and Malta with a leading international firm, which allows us to accelerate our investment plans on 5G and fibre where we are present," added Martin Péronnet, CEO of Monaco Telecom.

The deal, for an undisclosed sum, is subject to standard closing conditions.

Nexign helps CSPs with unified billing system

 Nexign, the business support system (BSS) and Internet of Things (IoT) solutions provider, has completed the large-scale digital transformation project that addresses the challenges of CSPs globally, including the Middle Eastern and African regions.

The company claims that technologies and methodologies introduced in the Unified Billing project

help CSPs of any size reduce TTM for new digital services by up to five times, simplify cooperation with partners and optimise costs for support of billing systems.

Having completed the Unified Billing project for MegaFon – provider of digital opportunities that operates in Russia, Tajikistan, the Republic of Abkhazia and South Ossetia – Nexign said it has proven it can bring meas-

urable value to CSPs' business and help them facilitate transformation.

The need to go beyond classical telecom services pushed MegaFon to rebuild the billing core and develop a unified billing system for all its subsidiaries. The joint team of Nexign and MegaFon gradually moved eight operators' subsidiaries to a single BSS platform and ensured that migration of the subscriber base

did not impact customers.

"Since CSPs in the Middle East and Africa are looking for the way to streamline digital transformation processes, it is clear that unified and centralized product management, as well as technologies like microservices and methodologies like Fast Track are in huge demand in the market," said Hassen Hamza, business development manager of Nexign.

Nokia to supply Cibicom with mission-critical LTE network

 Nokia has partnered with Danish operator and internet service provider (ISP) Cibicom to implement a new 450MHz LTE (4G) network.

The project will ensure that key mission-critical services throughout the Nordic nation have access to highly reliable and secure connectivity as well as building preparedness for mass volume IoT adoption.

This deal means replacing the existing Cibicom radio networks and migrating them to a new frame-

work that will enable full 4G data coverage across Denmark, as well as mass-volume IoT connectivity. Building on the company's 450MHz license acquisition in June, the project will allow Cibicom to improve its offering to utility companies and ensures that the service provider is in a strong position to adapt to changing customer requirements and offer new opportunities and application support around 5G 3.5Ghz.

"Radio networks supplying waste, water, energy, and transportation ser-

vices must not only be foundationally sound and built to last but also prioritise security, quality, and reliability," said Lise Karstensen, head of Nordics at Nokia. "In addition, these sectors are also witnessing a growing need for IoT-powered remote monitoring and management solutions, increasing the focus on network and service quality, as well as uptime. This technology upgrade will make Cibicom's network ready for current and future demand."

Furthermore, this deployment will enhance Cibicom's credentials

as the supplier of critical and business-critical infrastructure, such as waste, water, energy, and transportation. Smart grids and remote managed petrol stations are just some of the areas where these systems will be needed, as well as "blue light" emergency services.

Currently, Cibicom covers 98% of Denmark and the deal will maintain that level of coverage, as well as provide improved connectivity for private households in neighbouring Greenland.

Greece's OTE Telecom targets growth

 OTE Telecom, Greece's biggest telecoms operator said that revenue would start growing from the second half of the year as coronavirus vaccinations gather pace and transport restrictions are lifted.

The firm, which is 46% owned and managed by Deutsche Telecom, said core earnings (EBITDA) were almost

flat at €1.22bn (US\$1.48bn) last year.

Revenues came in at €3.26bn, down 1.3% year-on-year, as global restrictions to slow down the spread of Covid-19 and a weak summer tourist season hit both roaming and its mobile business.

With vaccinations accelerating and tourism, a key growth driver

for the Mediterranean country, seen reopening later this year, OTE said it expected a "progressive but measured" return to better operating conditions and revenue growth from the second half.

The operator, which has launched 5G services, said it would continue to focus on growing data usage.

Zambia issues new spectrum invitation

 The Zambia Information and Communications Technology Authority (ZICTA) is inviting applications from eligible licensees for issuance of spectrum in the 800MHz band but has warned it is in very high demand.

ZICTA is offering a 2x10MHz block (801MHz-811MHz/842MHz-852MHz), with a reserve price of US\$12.5m. Eligibility to bid requires the holding of an Electronic Communication Network Licence for the International Market Segment. However, ZICTA plans to offer a restricted granting procedure, such is the demand.

In December 2020, following a competitive process, ZICTA awarded Airtel Networks Zambia Limited radio spectrum in the 800 MHz frequency band, which was also priced at US\$12.5m.

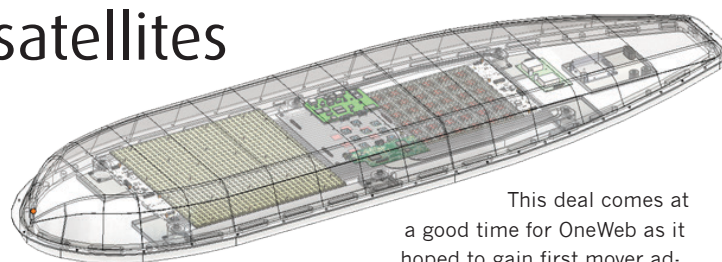
It has been reported that some of this spectrum will be used to enhance the spectrum management functions of the authority. This is expected to aid the quick introduction of 5G services in Zambia as well as enhanced QoE and services like VoLTE. active mobile subscriptions in Zambia increased 10.9% to 19.1m December 31, 2020, up from 17.2m year-on-year.

IFC terminal to deliver Wi-Fi on aircraft via LEO/GEO satellites

 OneWeb, the global communications network powered from Space and SatixFy UK, a multibeam antenna and terminal design specialist, are currently developing a new In-Flight Connectivity (IFC) terminal that will work over the OneWeb network as well as on Geostationary (GEO) satellite networks.

SatixFy UK has formed a Joint Venture with Singapore Technology Engineering Ltd (ST Engineering), called JetTalk, to exclusively commercialise the IFC terminal for the commercial aviation market.

OneWeb said it is confident of its suitability for all aviation applications - commercial, regional, business and government aviation use-cases. "OneWeb is creating IFC solutions which offer a significant increase in the whole passenger travelling experience," said Ben Griffin, VP mobility



at OneWeb. "This agreement with SatixFy represents a major milestone for OneWeb Aviation, as we plot our path to facilitating onboard connectivity, globally, on commercial airliner and corporate jets, large and small."

Yoel Gat, CEO at SatixFy, added: "The ability to deploy multi-beam, multi-satellite, multi-orbit in-flight connectivity terminals is key in SatixFy's offerings. Aggregating capacity from multiple satellites will give customers the grade of service they expect to get on flights. This great leap forward is made possible thanks to the continuous support by ESA and the UK Space Agency."

This deal comes at a good time for OneWeb as it hoped to gain first mover advantage in the satellite broadband space, believing the combination of its harmonised spectrum and LEO constellation design would give it technological supremacy. It secured more than US\$1bn in funding before filing bankruptcy protection last year. However, the business was rescued through a takeover by Indian telco Bharti Airtel and the Department for Business, Energy, and Industrial Strategy. The UK government now owns a third of the company after investing £400m in the satellite system. It allowed OneWeb to resume satellite launches and increase its constellation to 110.

'Most African operators lack a digital transformation strategy'

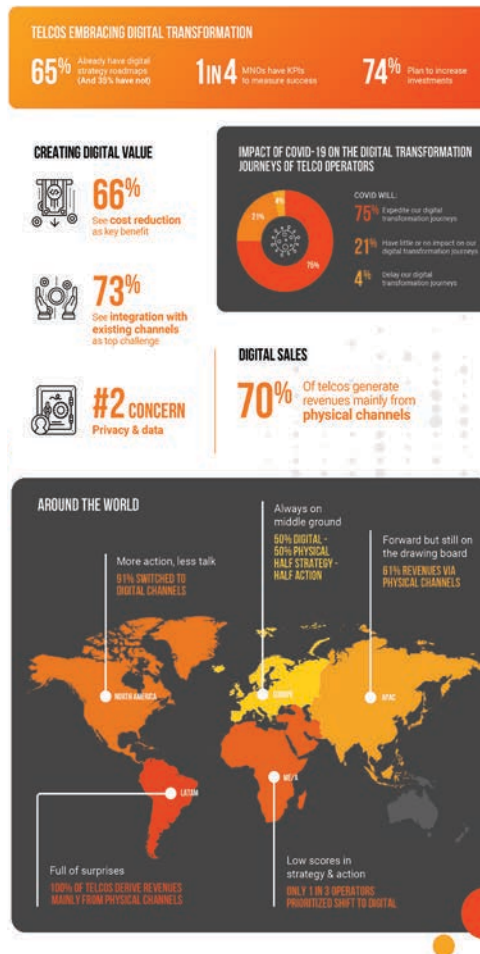


Fewer than three in 10 telecommunications operators in Africa and the Middle East have established a digital transformation roadmap, putting the region at a disadvantage compared to the rest of the world when it comes to monetising digital sales channels.

A new report from the Technology Innovation Council commissioned by mobile technology specialists, Upstream, called *The Road to Digital*, provides a look into how telco operators around the world are preparing for digitalisation during a global pandemic that has seen a dramatic increase in the demand for digital services.

Despite the huge precedent for digital sales, more than one-third of telcos in Africa Middle East are still at least 70% dependent on physical channels when it comes to engaging customers and facilitating sales.

This puts telcos in the region at a distinct disadvantage when compared to other markets that are already investing more in digital and selling online. For example, over 70% of telcos in Latin America - also an emerging market - have established actionable blueprints for digitalisa-



tion. That figure increases to more than 80% for the Asia-Pacific region.

The report, which delves into the telco digitalisation progress region-by-region, found that only 55% of telcos in Africa and the Middle East have carried out a technology needs assessment - one of the crucial steps in building a roadmap toward a digital-centric future.

"Telcos in emerging markets like the Middle East and Africa are least prepared for digital innovation, yet arguably the ones that could benefit most," said Dimitris Maniatis, CEO at Upstream. "Since the pandemic

began, telcos in the region have had to work overtime to ensure that communities stay connected, but being so dependent on physical sales channels has made engaging with customers more difficult than ever before. By accelerating their plans for digitalisation and, crucially, putting an achievable roadmap in place to hit their digitalisation goals, telcos in the region could dramatically enhance customer engagement and reduce their costs through automation and self-service."

Elsewhere, the report found that more than two-thirds of telco operators in Africa and the Middle East have no data management strategy in place. This suggests that even if they had the means and infrastructure to innovate digitally, they may inadvertently put their customers' data at risk and struggle to retain consumer trust.

The report, which went into great detail around the planning required for digitalisation, also concluded that only one in three telco operators in the Middle East and Africa have performed any kind of IT skills assessment. Telcos are therefore at a disadvantage when it comes to talent acquisition.

STC to list shares of internet services unit in IPO



Saudi Telecom Company (STC) will list the shares of its internet services unit in an initial public offering (IPO), it confirmed.

The move follows the completion of a feasibility study into the listing of the Arabian Internet and Communications Services Co.

STC said it was now in the process of submitting an application for the registration and offering of its shares to the Capital Market Authority and of an application for the listing of its shares to the Saudi Stock Exchange.

In February this year, STC topped the list of the most valuable tele-

coms brands in the Middle East and Africa, weeks after it reported its highest-ever annual revenue for eight years. STC's brand value increased 14% to US\$9.2bn, jumping five places to 13th on the annual Brand Finance Telecoms 150 2021 report.

This improved ranking comes

as it reported its highest annual revenue for eight years. Last year, total revenues reached SR58.94bn (US\$15.72bn), an increase of 8.43%.

The Communications and Information Technology Commission also announced that STC has the highest mobile download speed in Saudi.

SpaceX's Starlink arriving in Lebanon in 2022



SpaceX satellite internet constellation, Starlink, is expected to have active coverage in Lebanon next year. According to its website, pre-orders are available with a fully-refundable deposit of US\$99.

However, the deposit payment does not guarantee that the Starlink service and relevant kit will be

available, but does establish priority for the payer in his or her region for purchasing the it when available in the future.

Starlink has already launched its beta service and made it available to a limited number of users in parts of Canada and the USA.

SpaceX has launched more than

1,000 satellites into space in over 24 missions. The company, owned by South African-born American business magnate Elon Musk, aims to deploy thousands more.

The full Starlink Kit, which includes a small mountable dish antenna, a Wi-Fi router, and power supply, currently retails at

US\$499. This service also requires a monthly \$99 subscription.

Although Starlink is more expensive than most traditional internet services today, its ease of installation, high accessibility for remote areas, low latency, and impressive speeds (300 Mbps download speed), can make the

Q&A

Malcolm Chan managing director, Asia BICS



What was your big career break?

The year was 1999. It was the onset of the internet-era and technology companies were leading industry 3.0. Telecommunications was a key enabler of this trend, as mobile devices started to replace fixed lines, and global connectivity was being boosted as international roaming started to take off.

The telecommunications industry across Asia was being liberalised, with new mobile operators starting up. I had the opportunity to join StarHub who had just secured the third mobile license in Singapore to “Make the Change” - a motto which resonated with the rapidly evolving market. My specific goal was to bring new perspectives to an industry that was not synonymous with innovation.

Having spent almost 10 years in the financial services industry with no experience in telecommunications was daunting. I ensured success by keeping my focus on the customer experience, challenging time-established norms and delivering value through continuous innovation.

The past 20 years have been a phenomenal journey. Starting in the consumer space, followed by a period of bringing enterprise solutions to market, and then the last 7 years in wholesale - all of these opportunities were only possible because I took a leap of faith.

If you could work in a different industry, which would it be?

It's not so much about the industry, and more about the opportunity to make a difference.

My background in financial services, together with my experience in telecommunications, are the foundations behind fintech.

Like telecoms, fintech develops at a rapid pace and the level of innovation is high. From m-commerce and distributed ledgers to nanosecond trading, regulatory-driven change like know your customer (KYC) and

open banking - innovation is being driven at scale. It's both challenging to meet customer expectations, and exciting to find new ways to surprise them with new offerings and services. I am intrigued to see how both these industries - fintech and telecoms - will develop in the next few years and which of the many innovations will push them forward.

What would you do with \$1m?

Put simply, I would like to go to the darkest parts of the world and bring light through the use of technology. There is such a level of technological sophistication in many parts of the world but - at the same time - many places have fallen far behind. In today's world, there is still a great digital divide between the regions that ‘have’ and those that ‘have not’. This kind of investment could work towards addressing that.

Investing in these areas - whether it's a community or country - can help them to leapfrog intermediate generations of technology and deliver real benefits to quality of life. Take mobile money as an example. It has already revolutionised how Sub-Saharan Africa's communities can access financial services, and now we are seeing it grow at lightning speed in South Asia.

For larger scale projects like this, a million may sadly not be enough - could I have a billion, please?

What's the best advice you've been given?

One piece of advice really resonated with me as a much younger man and I say this every day to the people around me - you need to persevere. Give yourself the time to succeed. Telecoms is a challenging industry - of course, every industry is challenging this year - and results will not come overnight. You have to bring a certain amount of determination and resilience if you are to get through these trying periods.

And remember, when you do manage to make it through these challenges, the results can be deeply rewarding.

If you could live anywhere in the world, where would it be?

Well, I might surprise you here, given my industry. But I'd like to live somewhere that isn't so connected. I think there is great value in taking a step back from life and considering things, even if just for a moment. It can take some bravery - especially when we live in such an interconnected world - but putting things on pause can make all the difference.

That being said, one of the advantages of living in such an interconnected world is that we have greater freedom of movement and can take these opportunities to disconnect without fear of being out of touch. In the last year, we have seen how seamless mobility and connectivity are letting people be productive and in touch wherever they are - I hope to see more of this in the future.

What's the best thing about your job and industry?

Working in this industry you have to get used to constant reinvention and disruption - it's an extremely diverse job and things are always changing. The APAC region in particular has two defining characteristics that I thrive on - diversity and pace.

The rate of growth in APAC is unmatched and there is such great diversity in the innumerable challenges and opportunities that you come across daily that you simply get used to it. And in my role - where I handle markets in every stage of development from advanced to emerging, with populations ranging from a few million to a billion plus, multiple regulatory environments, languages, and cultures - things are always changing. And the scale, too, is so diverse. One day, we're talking to a small MVNO to help establish a global footprint, and another day we're discussing with a global enterprise how to embed seamless global connectivity on a fleet of millions of devices.

And while diversity is a charac-

teristic of our customer base, it is in my team too. We have 30 people working in APAC, made up of 17 different nationalities. That's one of the most enriching experiences that any leader can have.

This diversity and rapid acceleration are partly just the nature of working in the technology industry, but they also reflect much of what we do as a business; we connect people in every sector and market and allow them to communicate. After all, a homogenous market would be extremely boring - the fun comes in its diversity.

What do you plan on doing when you retire?

I don't believe we ever really retire, we just find a different purpose. The questions I ask myself are ‘what will I do next that is even more exciting’ and ‘what can I do that makes a real difference to those around us’.

Charity, social enterprise and pro bono work are often cited as retirement plans and I think people are right - we should never stop endeavouring to help others. I hope to help start-ups and communities benefit from technology and innovation, and to share my experience and expertise with people. Not just with young people but with older generations, too, who may need guidance just as much - even if they are more set in their ways.

I haven't fully charted out which avenue I'll take when I retire, but I hope to be agile in whatever it is I do.

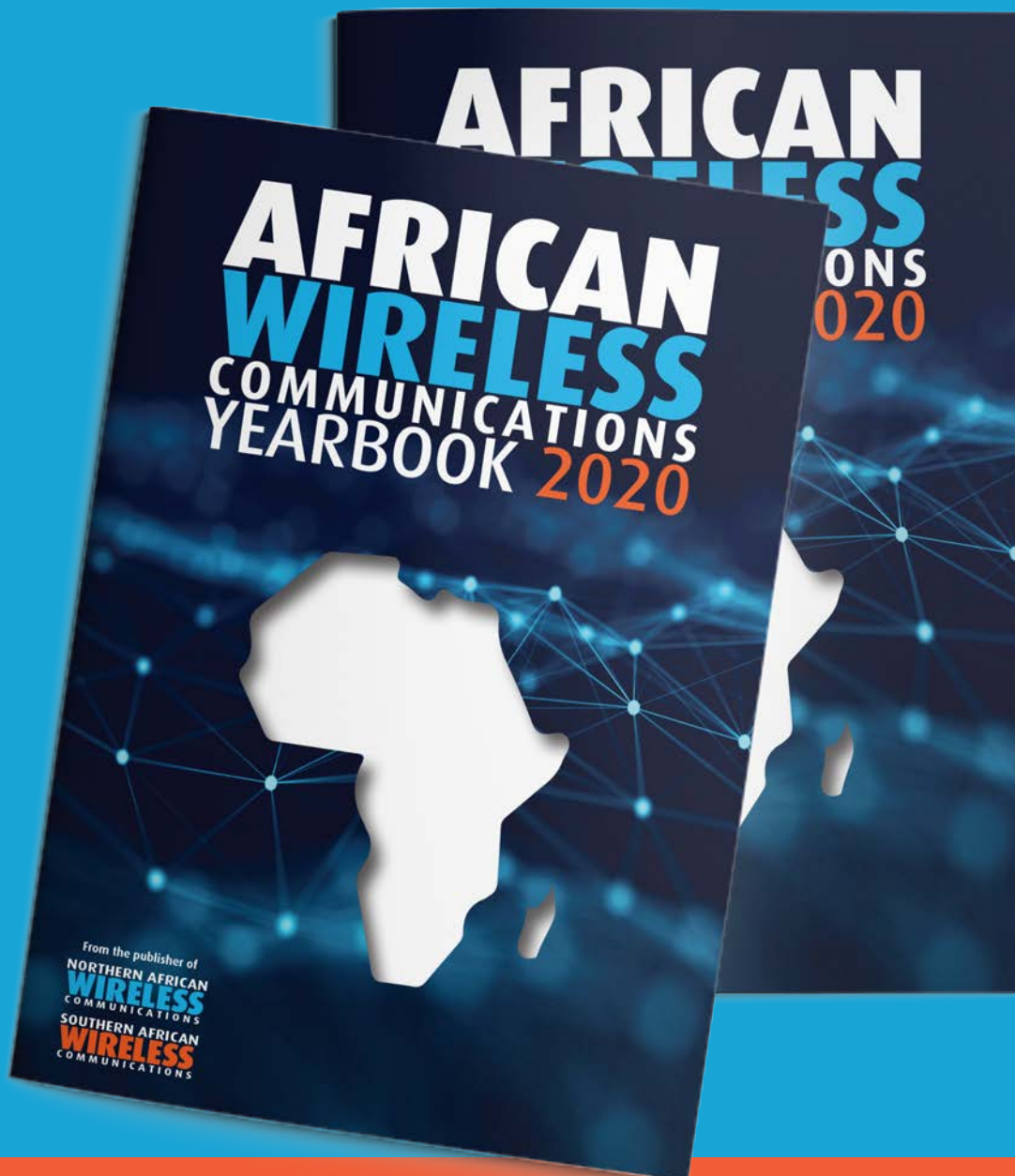
What's the best lesson you've learned?

You don't know what success means until you have failed. The reality is that we often can't get everything right and that is nothing to feel bad about or to beat yourself up over.

As a parent, I sometimes watch movies with my children and there's a quote from the Star Wars franchise - ‘The greatest teacher, failure is’. If we all accept failure as something that is part of life, rather than something that should be avoided at all costs, we will approach innovation differently. The most important thing is to understand what's not working, learn from that, and move forward. ■

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