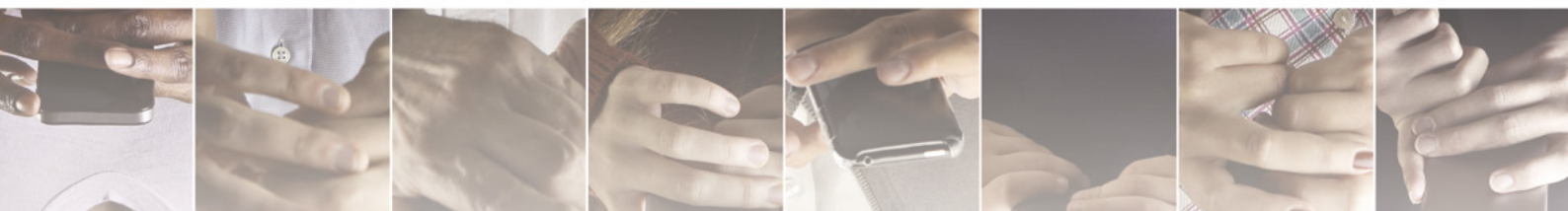- Are smart cities the answer to growing urbanisation?
- A close look at the best networking monitoring solutions
- The powerful pull of a home number on the road



## telenity enkudo
## Your Partners For Digital Growth

**Telenity** is an industry-leading provider of cutting-edge solutions for communications service providers around the globe. We empower more than 40 network operators, service, and application providers in over 30 countries.

As an established and reliable technology player with 20+ years of know-how, we offer products and solutions to address our customers' needs and help them stay ahead of the competition in the new era of 5G.

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**Enkudo,** a recently announced brand of Telenity, provides a reliable telco-grade platform bundled with a rich pool of premium content as a master aggregator. We deliver more control over third party digital merchants and aim to increase the variety and quality of the operators' digital offering.

Enkudo business model is based on revenue sharing, which eliminates an upfront investment. We work closely with all departments covering every aspect of the digital services business, be it marketing, revenue growth, customer experience, technical support or compliance.

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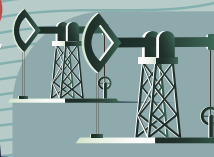
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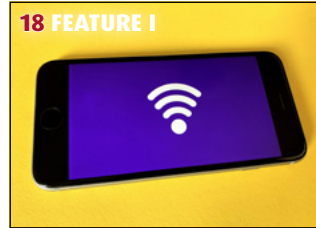
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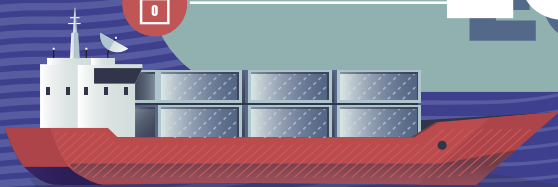
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# Bollywood star loses plea against 5G implementation

The High Court in Delhi dismissed Bollywood actress-turned activist Juhi Chawla's lawsuit challenging the 5G networks rollout in India.

Judges cited that the plaint was "not based on any special damage" suffered by the plaintiff by electromagnetic radiation or by cellular technology and imposed a fine of Rs20 lakh, because it held that the petition was filed for publicity.

Chawla filed a suit against the implementation of 5G in India alleging harmful effects of radio frequency radiation.

In a plea filed with the Delhi High Court, she claimed that 5G will lead to RF exposure to all the living beings on earth which will be 100 times more than the current level and lead to serious, irreversible effects on humans.

Chawla said 5G should not be rolled out in India until it is certified safe after a thorough research

finding on the subject.

Her plea in the court cited clinical and experimental evidence of damage to DNA, cells and organ systems in plants and animals and human diseases like cancer and diabetes being caused by electromagnetic pollution which is generated by wireless mobile phone technology.

The case was filed to get the government to certify to the public that 5G technology is safe to humankind, animals and every type of organisms, from flora, to fauna. Juhi also wants the government to conduct an efficient research, without participation of private interest, and furnish the report and declare whether or not the implementation of 5G in India would be safe.

"We are not against the implementation of technological advancements," Chawla said. "On the contrary, we enjoy using the latest products that the world of

**India has witnessed a lot of opposition to 5G on health grounds**

technology has to offer, including in the field of wireless communications. However, whilst using the latter kind of devices, we are in a constant dilemma, because after doing our own research and studies regarding the RF radiation from wire-free gadgets and network cell towers, we have sufficient reason to believe that the radiation is extremely harmful and injurious to the health and safety of the people."

The case was heard June 2.

# Afghanistan set for new 4G auctions

The Afghanistan Telecom Regulatory Authority (ATRA) has published an Invitation To Apply (ITA) to participate in the auction of three 2×5MHz lots in the 1800MHz range, two 2×5MHz lots in the 2100MHz range and three 2×10MHz blocks in the 2600MHz range.

Winners will not be able to control more than 2×10MHz from the 1800MHz and 2100MHz ranges, or 2×20MHz across all of the 1800, 2100 and 2600

ranges. They can then consolidate their holdings into contiguous blocks with, it is promised, limited intervention from ATRA. There will also be coverage obligations: 4G data services need to reach five of the largest cities in Afghanistan within 18 months and the next 13 largest cities within two years.

In addition, winners need to be able to offer at least five operational base stations in each of the remaining provinces within one year, and ten base stations

in each within two years. Some measure of infrastructure sharing or at least the potential for sharing is also required as part of the 15-year allocations.

As of yet there has been no comment on the reserve prices of (US$17.2m for each 1800MHz lot, US$12m per 2100MHz lot and US$11m for each 2600MHz lot). However, it will become clearer as to how reasonable the pricing has been come June 23, by when applications must be submitted.

# Telkomsel switches on 5G in three Indonesian cities

Indonesia's Telkomsel has switched on 5G networks in three cities and said there will be further roll-outs in the not too distant future.

Customers in Balikpapan, Medan and Surakarta can now access the operator's 5G network. While coverage is currently only available in certain districts, Telkomsel said this would be "gradually expanded."

The scope of the launch falls well short of the list of cities named in late May by communication and information minister Johnny G Plate. He stated that the network would be accessible in six residential areas of Jakarta and areas of Denpasar, Batam, Surabaya, Makassar and Bandung, in addition to Balikpapan, Medan and Surakarta.

The operator's president director Hendri Mulya Syam said that as the first 5G operator in Indonesia, "Telkomsel continues to make gradual and measurable efforts in expanding the availability of Telkomsel 5G services in Indonesia so that in the future anyone can experience the best 5G experience with the support of a reliable 5G network".

# Cambodian minister attacks telcos

Disruptions to telephone and internet services reported across Cambodia June 2 were a result of poor infrastructure development in the telecommunications sector, according to the country's minister of posts and telecommunications.

Chea Vandeth blamed internet and mobile service providers for not investing enough in antenna masts and other infrastructure to meet growing consumer demand.

"The companies would build a single tower to serve an area of 3,000 people, which would've since grown to 10,000 people," Vandeth said. "Thus many customers experience disrupted services, and towers are far apart from each other, with companies not installing more. Companies are merely looking to turn a profit and line their own pockets with money without bothering to deploy additional equipment."

Growing urbanisation and a rising number of high-rises dotting the skylines of the capital Phnom Penh and provincial towns create new market opportunities for the sector. However, even though telecoms firms churn out copious amounts of promotional packages to capitalise on the growing momentum in the industry, a sizeable portion provide substandard services, Vandeth argued.

Nevertheless, the minister said telcos were not solely to blame. "Some borey [gated communities] allow exclusive internet service providers to increase prices and provide inadequate services, and others do not have land for building telecoms poles," he added.

Vandeth has since tasked a ministerial team with gauging the quality of services provided at all borey, and the ministry ordered millions of dollars' worth of equipment to measure services throughout the country.

Meanwhile, Malaysian-owned telecoms service provider Smart Axiata said it would inject another US$90m into the kingdom's mobile network infrastructure this year to expand and improve its network and ensure stable and fast mobile broadband connectivity for subscribers nationwide.

# Pandemic threat to Thai telcos' recovery, says agency

Revenue momentum for Thai telecom operators is likely to slow amid a protracted economic recovery from the third wave of the Covid-19 outbreak, according to Fitch Ratings.

As a result, the US agency expects muted sector growth in 2021 and high 5G investment to weigh on financial profiles.

Fitch now expects flat service revenue for the Thai mobile sector in 2021, weaker than our previous low-single-digit growth forecast, following a 2.9% decline in 2020.

Mobile sector revenue started to stabilise in the first quarter of 2021 after four quarters of consecutive decline, but the resurgence of Covid in April could result in another contraction in the second quarter in light of slower economic activity and consumption.

Fitch believes local operators will refrain from raising tariffs until macroeconomic conditions improve, due to fear of losing subscribers. The pace of recovery in the second half of 2021 will depend on the speed and effectiveness of vaccine rollouts.

Thailand's economic recovery from



**Fitch claims the Covid-19 pandemic will harm telcos' recovery in Thailand**

the pandemic this year and next is likely to underperform that of other emerging markets in Asia Pacific. Fitch forecasts GDP growth of only 2.9% in 2021 and 4.5% in 2022, after a 6.1% contraction in 2020.

The Thai economy will continue to be weighed down by high reliance on tourism, which could take time to recover. This suggests a challenging operating environment will persist for local telecom operators in the next one to two years.

Fitch expects the industry's free cash flow (FCF) to remain negative in 2021, underscoring a worsening outlook for the sector. Capex intensity (including spectrum payments) will remain high at around 45% of revenue, the same as in 2020, mainly to support 5G rollouts.

Meanwhile, a lack of compelling applications that differentiate 5G value from 4G services suggests that any near-term uplift from 5G revenue is unlikely to be significant.

# Philippines hands 25-year franchise to Dito

Philippine president Rodrigo Duterte signed into law the bill granting Dito Telecommunity the country's third major telecommunication service provider, a new 25-year franchise.

He signed Republic Act No. 11537, renewing for a quarter of a century the franchise granted to DITO, previously known as Mindanao Islamic Telephone Company.

The renewed franchise will allow Dito to operate its telecom network until 2046. Its current congressional franchise expires in April 2023. Furthermore, this extension will help

the operator to compete even better with the two dominant networks, Globe Telecom and PLDT.

Partly-owned by Davao businessman and telecoms luminary, Dennis Uy, Dito was made the country's third telco player during the president's administration.

In addition, the law allows Dito to "construct, install, establish, operate and maintain for commercial purposes and in the public interest, radio and/or television broadcasting stations" in the Philippines for another 25 years.

However, the law says Dito shall

not use any frequency in the radio spectrum without authorization from the NTC. The National Telecommunications Commission (NTC), however, shall not unreasonably withhold or delay the grant of such authority, permit, or licence.

Meanwhile, Dito achieved the milestone of 500,000 subscribers on its network, around two months after it launched services in the country.

Company chairman and chief executive officer Uy said: "Our current subscribers are half a million Filipinos."

# Skylo partners with Inmarsat to deliver IoT solution in India via BSNL

Multinational satellite-based narrow-band IoT (NB-IoT) solution company Skylo has partnered with Inmarsat to use its satellite capacity backbone to deliver IoT solutions for machines and sensors.

Under the terms of the agreement, the solution will be delivered in India through the state-run telco Bharat Sanchar Nigam Limited (BSNL), while further expansion plans will be

announced later this year.

UK-based Inmarsat said it will pair its global satellite network with Skylo's IoT solution that will provide remotely located application users with real-time actionable insights.

# Jazz CEO says Starlink is 'healthy competition'

The chief executive officer of Pakistani mobile operator Jazz said Elon Musk's satellite network Starlink providing low-cost internet to remote locations in Pakistan is good for the sector.

Speaking at the 'Internet for All' webinar hosted by the Pakistan Institute of Development Economics, Aamir Ibrahim, welcomed the arrival of Starlink to his part of the world and said it is something to be embraced.

"Projects like Starlink are game-changers and I admire people like Elon Musk who think differently and are not afraid to challenge every aspect of our knowledge," he said. "Maybe Starlink coming to Pakistan will cause some disruptions, but it will also give us the opportunity to watch, learn and grow with the competition."

The webinar was a forum in which industry leaders discussed the challenges and solutions for the seamless provision of digital connectivity in Pakistan.

Further, talking about the 5G evolution in Pakistan Aamir said: "We need to press pause on the 5G dream while half of Pakistan's population is still offline, and we are still struggling with the technology we currently have. Instead of comparing our technological landscape with our neighbours, we need to prioritize policies that are relevant to our country. We can leapfrog towards 5G if we are deliberate in our intent to sunset older technologies like 2G. However, we can't dream about next-generation technologies when almost half of the cellular subscribers use 2G-only phones."



**Musk's Starlink 'welcome' in Pakistan**

# Fake and illegal handsets in Bangladesh to be blocked

Bangladesh's telecom watchdog is using the country's first National Equipment Identity Register (NEIR) system to disconnect all the unregistered and fake phones from the mobile networks, according to local media reports.

The Bangladesh Telecommunication Regulatory Commission (BTRC) will use the technology to identify the phones which were either imported illegally or have a fake International Mobile Equipment Identity (IMEI) number.

It has already prepared a database of legal devices and hopes to complete the installation work of the NEIR by June 9. The trial of the technology will begin on July 1.

Furthermore, the NEIR registration program will pave the way for the authorised importers of mobile handsets by restricting the use of illegal handsets. It will help prevent cloning and theft and boost revenue collection.

Most people buy SIM cards from local top-up shops where 'traders' use someone's NID to provide SIM cards for others.

Anyone will be able to check the legality of the imported handsets using the database simply by sending an SMS. The NEIR system will work for a provisional period of 15 days and the trial run will continue from July to September.

Later on, necessary changes can be made based on user experience, if needed, to ensure that the technology remains friendly for the users even in the remote areas.

Whenever any SIM card is inserted into a handset, it will send a signal to the BTRC database where the IMEI numbers of the authorized handsets are stored. The SIM card will only be functional if the handset's IMEI matches with the database.

A person will be able to use multiple handsets using a single SIM card, but the BTRC is yet to release more details in this regard.

If a handset is not found in the BTRC database after an active SIM card is inserted, the BTRC will keep the handset's IMEI on its white list for seven days to let the user register the phone using legal documents of import or purchase.
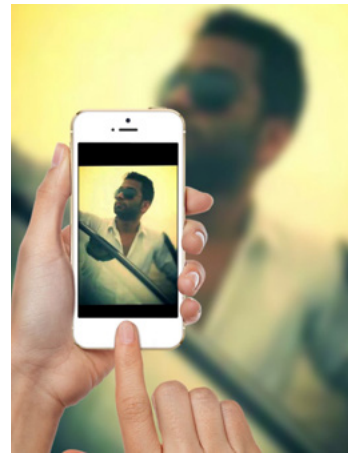

**Bangladesh is clamping down on fake and illegal phones**

Those using handsets purchased from abroad can register them by submitting valid documents to the BTRC.

If a user wants to sell his handset, he will have to unregister it via the specific website so that the new user can re-register it under their name in the database.

However, corporates will enjoy some exceptions as their SIM cards get frequently changed.

# No slowdown due to second wave, says Ericsson India boss

The second wave of Covid-19 has not impacted telecom decision-making and operators are focused on managing network capacities predicated on a spike in data demand, with safety protocols in place, said a top Ericsson India official.

Instead, Nitin Bansal, managing director of Ericsson India and head of network solutions Ericsson south east Asia, Oceania and India said the Swedish telecom equipment giant vendor said it is "fully prepared" for 5G deployment in India as and when rollouts happen, but it is for the government and policymakers to decide on the actual timelines.

"Data consumption continues, I have not seen a reduction in anything," he said. "Operators are working hard to manage capacities

based on the demand. Everyone is responsible for own employees, everyone is working in a very responsible way, and whenever there is need for increased capacity, managing capacity, that is happening," Bansal said.

Bansal added that Ericsson is fully prepared for 5G deployments in India, backed by confidence arising from its global commercial agreements, and various live networks. 5G would bring a slew of opportunities for consumers and enterprise applications.

"We have worked across the globe in various countries, both with different kind of traffic profiles and different kind of spectrum. And we are ready with what is required for rolling out 5G in India," Bansal said.

A recent report by Ericsson has

estimated that India can potentially have 40 million 5G users in the first year when the next-generation service is made available to them. According to Ericsson ConsumerLab report, consumers have shown willingness to pay 50% more for 5G plans bundled with digital services, while they want to pay 10% more for just 5G connectivity.


**Business as usual for Ericsson**

# People wanting to thwart India's progress linking 5G with Covid-19, says telco

People with intent to halt India's progress are actively spreading rumours and misinformation, linking 5G with the Covid-19 pandemic, a Delhi-based telco lobby group said.

The body called Cellular Operators Association of India (COAI) represents Reliance Jio, Bharti Airtel and Vodafone Idea, which are all companies that are likely to start field trials with their preferred technology vendors following a recent go-ahead by the Department of Telecommunications (DoT).

"A few people with dangerous motives and intent to derail India's progress by actively spreading rumours and misinformation, linking 5G and Covid-19," said SP Kochhar, director-general of COAI. "We have apprised the DoT and the Ministry of Electronics and IT (MeitY) of the situation and urged them to take strict action against those instigating people to damage India's telecom infrastructure."

The comments come on the back of several telecom towers and base transceiver stations (BTS) being vandalised following widespread rumours linking 5G radiations to severe acute respiratory syndrome (SARS) caused by Covid-19 that was first reported in China's Wuhan in late 2019.

COAI also rubbished radiation concerns saying the permitted limit in India remained one-tenth of the levels prescribed worldwide.

"India's telecom infrastructure contributes towards the economy and keeps us connected. As responsible citizens we need to ensure that it does not fall prey to damage by unscrupulous people," Kochhar added.

# Your Partners for Digital Growth

## Let's Start with Telenity

We are an industry-leading provider of cutting-edge solutions for communications service providers around the globe. Our offices are in Monroe, Istanbul, New Delhi and Dubai.

We work with our customers to transform their telco ecosystem and help them harness the true power of their network. We modernize value-added services, creating operation efficiency and reducing OpEx. We offer BSS for digital services to generate new revenue streams and provide innovative digital services that enrich the subscribers' mobile experience by leveraging the capabilities of 5G to the fullest.

As an established technology player in the telco ecosystem with 20+ years of know-how, we offer solutions to address our customers' needs, enhance their business and help them stay ahead of the competition in the new era of 5G.

Telenity's products and solutions empower more than 40 network operators, service, and application providers in over 30 countries, serving over one billion subscribers.

## Tell me more about Telenity solutions...

We provide a suite of field-proven products, including VAS Consolidation Platform, Digital Services Platform and Location Based Solutions, with a perfect track record of delivering fully integrated modular products on the global scale.

Telenity VAS Consolidation Platform (VCP) consolidates all the basic messaging and voice services of the mobile VAS world on a single robust platform. Telenity's VCP improves the operating performance of the legacy systems and paves the way for migration to all-IP core networks, resulting in significant operational cost savings.

The Telenity Digital Services Platform (DSP) meets the Business Support System (BSS) requirements of the ever-growing Digital Services and Content playground. It essentially allows CSPs to claim their rightful share along with the OTT players. The Telenity DSP manages the end-to-end value chain, with its powerful tools for direct carrier billing, service subscription management, bundling, campaign management and service fraud prevention. It covers the complete digital services journey, starting from the onboarding of partners up to revenue sharing, reconciliation, and settlement. The platform provides innovative service bundling, nano-crediting and down-selling functionalities that further boost revenues.

We offer Business Messaging on Rich Communication Services (RCS), which enhances SMS with rich media capabilities, enabling operators to benefit from the growing mobile marketing business, and provide their enterprise customers with higher digital experience solutions.

Our Location Based Solutions generate Location-as-a-Service (LaaS) revenue for the operator by utilizing its network infrastructure. The solutions encompass the whole spectrum of modern geolocation and analytics capabilities, including both active and passive geolocation query mechanisms.

In line with the ongoing 5G transition, our existing cloud-native product portfolio supports service-based architecture on container deployments. We have enabled all our products as ETSI compliant Virtual Network Functions (VNFs) for network function virtualization (NFV) based deployments. Telenity solutions can run on any hyperscaler and can be deployed on any on/off premise telco cloud environment. Our Digital Services Platform utilizes service-based network slicing and supports rich digital content & services, together with their business models, for the new consumers of the 5G world.

## How about Enkudo's Digital Services?

As a master aggregator, Enkudo provides a reliable telco-grade platform bundled with content from a rich pool of premium content partners. We do not only deliver more control over third party providers, but also aim to increase the variety and quality of the operators' digital portfolio offering.

Enkudo business model is entirely based on revenue sharing, which eliminates the budget requirement on the mobile operator. We work closely with all departments covering every aspect of the digital services business, be it marketing, revenue growth, customer experience, technical support or compliance.

We enable access to a wide range of content including games, mega promotions, streaming audio, subscription-based video-on-demand (sVoD), edutainment, wellbeing, and many others. We help you target the right segment for your marketing campaigns. Narrowing down your audience improves conversion rates and Customer Lifetime Value while optimizing your marketing spending.

Delivering to the needs of the market is the main pillar of any successful business. We develop localized landing pages in line with language, social preferences of each targeted market. We work with local partners, to identify the proper product mix, localize user experience and increase the efficiency of business operations.

Think of Enkudo not as another cloud-based service provider, but as a local provider delivering value to the operator, the service provider, and the consumer.

## What are Enkudo's major benefits to Mobile Operators?

By integrating with Enkudo, mobile operators can adapt to current user habits by connecting them with digital merchants worldwide. The best part is, you only pay when you generate new revenues. Thanks to its local partner network, Enkudo eliminates any challenge that mobile operators might face and analyzes your target audience for you to help you deliver exactly what the end users ask for.

Through a single integration with Enkudo, Digital Merchants can benefit from white-labeling, co-marketing, service bundling with mobile operator offers, advanced reporting capabilities, easy integration and onboarding with operators, contract lifecycle management, reconciliation and settlement.
**www.enkudo.com/mobile-operators**

## Why should Digital Merchants partner with Enkudo?

Enkudo has a broad coverage of leading mobile operators and payment providers. Our expertise takes digital services into flourishing new markets. Digital merchants can reach millions of new potential users and convert them into paying customers through Direct Carrier Billing. As your service user base grows locally in each market, we expand your global footprint through a wide network of connections.
**www.enkudo.com/digital-merchants**

## Does Enkudo offer any solution for Payment Providers?

Digital content and services present an attractive business opportunity for payment providers. Engaging with digital merchants through a connection with Enkudo, payment providers can create sustainable new revenue streams through upsell and cross sell opportunities via bundling.

With Enkudo, payment providers grab opportunities by accepting payments locally for global digital services and utilize local payment options for global digital content sales or service subscriptions.
**www.enkudo.com/payment-providers**

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# Mavenir powers first smart city in Thailand

Mavenir, the US-based software firm, is powering Thailand's first smart city using 5G Open Ran, in partnership with Cisco, smart city experts 5GCT and local state-owned telco NT.

The smart city is located in Ban Chang, a city near U-Tapao International Airport that's connected to a motorway which links Thailand's two largest cities: Bangkok and Pattaya.

Mavenir is supplying a cloud-native private network solution that uses Open RAN technology to avoid vendor lock-in and provide flexibility as the smart city expands.

"At 5GTC, we are driven to strengthen the potential of Thailand through high-speed 5G," said Shannon Kalayanamitr, chief executive officer at 5GCT. "The partnership with Mavenir as an infrastructure provider enables us to deliver robust, secure and reliable 5G Private Network infrastructure across enterprises, including smart city applications, industry 4.0 applications – automated industry and modern medicine."

Mavenir is using its 5G mmWave radios and 5G Core with open API technology standards for the deployment. These will work in tandem with the cloud-native solutions to deliver smart city applications such as real-time diagnostics of traffic, public safety, digital signage, and environmental conditions.

"We are proud to be part of this ambitious 5G project which sees a whole city connected on a series of 5G applications running in parallel," added Aniruddho Basu, general manager of emerging business at Mavenir, added: "Connectivity is at the heart of this deployment – connecting people, communities, government services, and private sector services through local government data combined with new data acquired through Internet of Things (IoT), sensors, drones, and external collected data, to fully analyse it for proper city management and citizen knowledge."

Cisco is providing its switching hardware and application services to the project.

Taweewat Chantaraseno, managing director of the Thailand & Indochina region at Cisco, added: "We are delighted to be part of the first 5G smart city in Thailand. With the partnership with Mavenir and Cisco Connected Communities Infrastructure (CCI), the host of smart city can create a single, secure communications network to support all needs that are simpler to deploy and manage from end-to-end visibility, ranging from smart kiosks and outdoor Wi-Fi, to smart street lighting, parking, waste and more.

Smart city infrastructure is enabling efficiency, cost reduction and improved living for city occupants and network infrastructure platform helps create these efficiencies."

The Ban Chang smart city operates on mmWave spectrum to deliver the fast data speeds to the core required for rapidly transporting data from IoT devices across the city such as environmental sensors, drones, traffic lights, and smart poles.

## Nokia to power AirFiber in India

Nokia said AirFiber Networks, an internet service provider (ISP) operating Bangalore and Tamil Nadu in South India, is using its broadband solution to launch high-speed data services and expand its network to better serve its subscribers.

The Finnish tech firm's Gigabit Passive Optical Networking (GPON) solution will enable the ISP to provide high-speed broadband services in Bangalore and underpenetrated areas across the state of Tamil Nadu, aiming to reach over 100,000 subscribers in a year. The deployment started in April and will be completed before the end of the year.

Once deployed, AirFiber Networks' subscribers will be able to access network for remote working, and other services over broadband connection such as remote education and healthcare.

Nokia's GPON solution includes both network and customer premise equipment. Nokia will also provide network management services to ensure timely and efficient execution of the project. Its fibre access network will help AirFiber Networks establish a strong foundation to easily upgrade to next-generation PON technologies, which allow service providers to rapidly boost capacity and provide superior speeds.

"Robust and fast broadband has become our lifeline as learning and businesses have moved online. We are committed to providing resilient and world-class broadband services to our subscribers," said Sasidev MG, director, AirFiber Networks. "Nokia is a global technology leader, and we are confident that its solution and expertise will help us address the growing and evolving needs of our subscribers."

Vinish Bawa, head of emerging business, Nokia India, added: "We are excited to work with AirFiber Networks. Our industry-leading GPON solution will allow AirFiber Networks to launch new premium and innovative services and enhance its services' overall quality, thereby helping them attract new subscribers."

# Replies sought in Pakistan's 'poor telecom service' case

The Peshawar High Court in Pakistan directed the country's telecoms watchdog and six internet and cellular companies to respond to a petition seeking orders for the provision of uninterrupted and quality services to consumers in the province.

A team of judges issued notices to the respondents, including the Pakistan Telecommunication Authority (PTA) and the companies providing internet and telecom facilities. This followed a preliminary hearing into the petition of Mohammad Tahir and five other consumers of cellular companies over poor internet and telecom services.

Petitioners also drew the court's attention to the abrupt suspension of internet and telecom services by the companies on the PTI's orders, especially for many days during the sit-in staged by a proscribed organisation in many cities in April this year.

They also requested the court to take appropriate measures for the protection of their rights and those of other consumers in the province.

The respondents in the petition are the PTA through its chairman, Peshawar PTA director (enforcement), four cellular companies, and two leading internet service providers.

Lawyer Noor Alam Khan appeared for the petitioners before the court and contended that it was the prime responsibility of the respondents to provide quality and uninterrupted modern telecom and internet facilities to their consumers.

He said that it was the responsibility of the PTA as a telecom regulator to ensure



**Pakistan's telecom services are 'poor', says court**

that the companies had been providing quality facilities to their subscribers.

The counsel said presently, the number of broadband subscribers had exceeded 100 million mark but those companies had failed in fulfilling their responsibilities towards their subscribers.

The next hearing was fixed for July 22 with the court asking the respondents to file comments about the petition before that date.

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# Bangladesh boosts national security

Bangladesh's cabinet has approved the purchase of a US$8m device to listen in on mobile-phone conversations and read text messages.

Country officials said it was needed for national security although activists warn it could violate people's privacy.

Bangladesh's government is buying the so-called mobile interceptor from a Swiss company called Toru Group Limited, according to Harun-Or-Rashif Biswas, a home ministry official.

"The purpose of procuring this vehicle-mounted mobile interceptor is to enhance the capacity of the NTMC (a government agency)," Biswas said. "This device would enable law enforcers to deter crimes."

Bangladesh bought a similar interceptor in 2017, a year after pro-Islamic State militants massacred hostages during an overnight siege at the Holey Artisan Bakery, a Dhaka café, in the nation's deadliest terrorist attack to date.

At the time, the government said it would use the device to identify and track militants.

Biswas, the home ministry official, declined to elaborate on how exactly the NTMC would use the new device.

Rights activists, meanwhile, worry that the mobile interceptor's use could violate citizens' constitutional right to privacy, and that the technology could be used to spy on the opposition and ordinary citizens.



**Dhaka was the target in Bangladesh's worst terror attack**

## Talking satellite

Martin Jarrold, chief of international programme development, GVF

## 10,000 viewers & counting

Pandemic… It is with us still, affecting everyday activities, impacting everyday decisions, circumscribing the scope of our endeavours. It has changed us; what we choose to do, what we can do, and what we are permitted to do.

Like many people since March last year, I have been doing a lot of work-related "Zooming". Virtual space has replaced aerospace and I have come to appreciate that webinars do have certain advantages. Of course, whilst there is something of an urge to return to real events, and to having human interaction with satellite industry colleagues and partners again, this will not be a return to "normal". We cannot yet grasp what the climb out of successive lockdowns might be like; the progress of global vaccines distribution and availability is far from equitable; and, the world won't be "normal".

The GVF-Satellite Evolution Group (SEG) webinar series actually began in May 2020. Pandemic lockdowns and travel restrictions had come to necessitate that the satellite industry, just like other communities of interest, gather only virtually. Meeting had to be online, and in response GVF and SEG forged this new, regular and frequent series of connections in the Zoom ecosphere.

The advantage of webinars is that with them being saved to the Cloud, their content has longevity, extending their potential audience over distance and over time for as long as the themes of their dialogues have continuing relevance, and an interested audience. As I've noted here before, the GVF-SEG series has proven to be a noteworthy success.

After the 25 March 2021 webinar in the series, 'Satellite Networks Solutions: Development & Evolution of Capability & Performance', which attracted 328 registrations from 70 countries, we received the following comment from an audience member in the Czech Republic, "Thanks to GVF for this unique webinar series." This was just one of many complimentary responses received since the series started. In another example of responses to the series we have people dialling-in all around the clock. Over the Zoom Chat function at the start of 'Satellite Networks Solutions' (3PM in London) we received this message – "Hello, this is Timor-Leste. It is 12AM here."

That webinar brought the total of our series viewers to well over 10,000 located in at least 141 countries, and we greatly appreciate the support of the diverse range of global audience members who have been joining us on Zoom since May last year. During this period the series has featured 28 broadcasts, including programmes for third party virtual conference organisers and in association with satellite industry companies. A visit to https://gvf.org/webinars/ will reveal the complete video archive as well as details of future online events which will build on the success achieved so far.

Reflecting the demand for coverage of more current satellite industry topics, and requests for further opportunities to sponsor events, the webinar series will continue for the forseeable future, and as at the time of writing we have just completed a short series produced in partnership with Intelsat. Like the rest of the GVF-SEG series, the below noted events have been recorded so you can catch up at https://gvf.org/webinars/.

Boosting Africa's communications network infrastructure requires a new roadmap to affordable and reliable connectivity, supporting the continent's digital transformation and enabling greater economic growth and meeting the growing need for shared prosperity. Broadband, fully integrated hybrid networks, smart device penetration, new business models and creative partnerships are the priority foundation to radical socio-economic advance, and it is the solutions to meet this objective that were examined in 'Connecting Africa to Broadband – Where You Need It, When You Need It' on 20 April.

On 22 April the focus was on how to 'Enable High-performance Network Coverage in Europe & MENA'. Driving the next wave of enterprise services innovation and transformation is the adoption of hybrid cloud and connectivity models to optimise the performance and resilience of current services at lower-cost. The transformation of satellite solutions for enterprises, and supporting applications in a secure, reliable, and cost-effective manner across EMENA comprised the foundation to this online dialogue.

More recently still, on 18 May, we presented Enable High-performance Network Coverage in Africa in partnership with both Intelsat and Liquid Intelligent Technologies Satellite. This programme featured, mbora, a customer end-user and wealth creation platform that establishes market gardens with groups of women smallholder farmers, and follows up by building a satellite connected Wi-Fi Hotspot hub with each cluster of market gardens to enable low-cost convenient access to financial services, a clinic, and digital channels for content and education, using internet connections. It is a prime example of what is being achieved through partnerships for connectivity.

For readers in south Asia this information may not seem of direct interest, but there are parallels in, for example, India, where 5,000 remote villages across 15 states get internet connectivity at speeds of 2-20Mbps from a partnership of Hughes India (a subsidiary of Hughes Network Systems) and ISRO. The Organisation's communications satellites, GSAT-19 and GSAT-11, and Hughes' Jupiter system, were contracted by Bharat Broadband Nigam Ltd (BBNL) – a special purpose vehicle created to implement the government of India's BharatNet network project – to provide affordable high-speed broadband access to rural citizens and institutions.

Our next significant, and geographically broader, Asia focus will be what is now called Asia Tech X 2021 (the virtual incarnation of what has in recent years been known as ConnecTechAsia 2021), which is scheduled for 14-16 July 2021… prevailing Covid-19 circumstances permitting. GVF will be providing virtual conference content in the form of a short series of webinars to explore the themes of 'Planes, Trains, Automobiles & Ships: Satcoms-on-the-Move'; 'Bridging the Divide: Enabling Affordable Business & Community Digital Connectivity'; and, 'Natural Disasters: Preparation & Response via Satellite'. A final thought. Wherever you are whilst reading these words… Keep well, stay safe.

# '5G smartphone share 7% in India', research finds

The share of 5G smartphone sales in the India market is close to 7% in the January-March period and is expected to reach 21% for the full year 2021, according to a joint report by phone brand Realme and Counterpoint Research.

It found that even without a commercial network, India's appetite for 5G is growing.

"The biggest drivers of entry-to-mid tier segments are likely to come from Asia with India launching 5G in 2022 and Indonesia entering its growth phase," it added. "With a combined population of over 1.6 billion these markets - in particular India - will drive 5G sales growth through the long term."

5G phone sales have already crossed the 50% mark in key developed markets like Korea, China, North America, with Europe and Japan following closely.

In Q1 2021, these advanced markets accounted for the bulk of 5G devices being sold globally (86% share) despite having a significantly smaller share of sales across all technologies (53%).

"Every generation of cellular technology has seen a different mix of players taking the lead," said Peter Richardson, vice president (VP) and research director, Counterpoint Research. "In 3G it was Nokia, with Samsung taking over in 4G. As we look ahead, the list of players is growing more diverse. Realme is one of the fastest growing brands in the 5G era, thanks to its appeal to younger users who are bound to form a core part of the 5G market."

Madhav Sheth, VP, Realme and chief executive officer, Realme India and Europe, added. "We will also expand our product portfolio to offer affordable devices without compromising on quality and premium flagship products leading on technological innovation."

# Globe Telecom secures US$100m loan to finance capex

Globe Telecom of the Philippines secured US$100m in debt financing to help fund its 2021 spending.

The Ayala-led telco told the local bourse it signed the loan facility with Bank of China (Hong Kong).

For the first three months of 2021, the telco player already spent ₱19.1 billion in capital expenditures.

This year, Globe expects to shell out a record-high ₱70bn to finance its massive network upgrades.

"The loan shall be used to finance the company's capital expenditures," Globe said in a disclosure. The company's network roll-out strategy includes aggressive cell site builds, upgrade of all its sites to Fourth Generation/Long Term Evolution technology (4G LTE), and fast-tracking the fiberisation of Filipino homes nationwide."

Earnings in the first quarter reached ₱7.3bn, 11% higher than the ₱6.59bn a year ago, as it benefited from the tax cuts imposed under the newly-enacted Corporate Recovery and Tax Incentives for Enterprises (CREATE) law.

The group's consolidated service revenues, meanwhile, hit ₱37.8bn, up 3% than the ₱36.9bn posted in the same period last year.

# Celcom and Digi to merge but continue as different brands

Malaysia's Axiata and Telenor Asia are now in advanced talks to merge their telco operations, Celcom and Digi into one entity, but will continue to be two different telco brands in the market.

However, there will be no effect on existing MVNOs arrangements for both companies.

The current chief executive officer (CEO) of Celcom, Idham Nawawi has been nominated as the CEO for the newly-merged company while Digi's CEO, Albern Murty will become its deputy CEO.

Axiata and Telenor will each own 33.1% of the new entity which means that they will control the Celcom Digi Berhad together. The rest of the shares will be owned by other local institutional funds such as EPF, PNB and KWAP as well as the public.

Axiata and Telenor have also guaranteed that there is no plan to cut jobs or perform forced retrenchments on the existing staff at Celcom and Digi. However, those that have overlapping positions will be offered new roles or retraining and upskilling opportunities which are related to the establishment of the new Innovation Centre that was revealed in today's announcement.

Nevertheless, Axiata and Telenor also didn't discount the possibility of a Voluntary Separation Scheme being offered to the employees of both telcos.

Izzadin Idris, president and group CEO of Axiata, said the announcement does not involve a binding agreement and there is still a lot of work to be done in order to finalise the merger. Additionally, the merger is also still subject to approvals from the regulators and shareholders of respective companies.

However, the definitive agreement is expected to be ready within this quarter.

# Converge ICT acquires brace of PLDT cable landing stations in Philippines

Fibre broadband provider Converge ICT Solutions is acquiring the stake of PLDT unit Digital Telecommunications Philippines (Digitel) in two firms involved in cable landing stations in the Philippines.

The telecommunication service provider said that it has acquired shares of Digital Telecommunications Phils. in Digitel Crossing and Asia Netcom Philippines for a total of US$7.5m (P358.47m) to gain "strategic imperative to expand its capabilities in telecommunications".

Converge said the transaction has been completed as of Wednesday, June 2 and this means that the fibre provider now owns a 60% controlling stake in ANPC and a 40% stake in DCI. ANPC has a 20% share in DCI.

Digitel, whose other major shareholder is Pacnet Network of Australian telecom giant Telstra, maintains and operates cable landing stations in the Philippines connected to the EAC and C2C cable systems.

Together the two submarine cable systems have eight landing points in Singapore, Hong Kong, China, Taiwan, South Korea, Japan, and the Philippines, spanning 19,800km with a design capacity of 2.56Tbps.

International cable systems are the unseen backbone of internet services used by billions of people around the world and make landfall in facilities called landing stations.

The deal was also expected to bring cost benefits for Converge, which is increasing its presence in the international cable segment amid an aggressive expansion program, it said. Converge aims to cover 55% of Filipino households by 2025.

# Telenor Myanmar faces bleak future

Telenor Myanmar faces a very bleak future after it reported a Q1 loss of US$783m.

The Norway-based operator said the poor state of the unit, impacted by the military coup that began in February, means it is now fully impaired.

"Due to the worsening of economic and business environment outlook and a deteriorating security and human rights situation, we see limited prospects of improvement going forward," the group said.

As a result of the write down, group net earnings fell to a loss of US$469m in the first quarter from a year-ago profit of U$84m.

However, the coup in Myanmar is not the only challenge in Asia, which accounts for more than half of the group's top line. Sales have been squeezed largely by pandemic-induced drops in international roaming.

In early February, Myanmar's military cut off much of the nation's connectivity after rounding up civilian leaders and announcing a state of emergency.

The new regime imposed network restrictions for all operators, and on March 15 ordered a nationwide shutdown of mobile data networks. The effect on Telenor, which provides mobile services in Myanmar, has been immediate and severe.

Sigve Brekke, president and CEO of Telenor, described the situation in Myanmar as "irregular, uncertain, and deeply concerning."

In the first quarter of 2021, Telenor said revenue development in Asia remained challenging, "despite the increase in subscriber base in all markets except Malaysia. However, month on month improvements are generally seen in the revenue trends, supported by a strong subscriber intake."

However, Telenor was still able to increase group mobile subscriptions by five million to 187 million, which it said was fully attributed to its operations in Asia.

It even managed to add two million subscribers in Myanmar, while Grameenphone in Bangladesh and Telenor Pakistan reported respective increases of 1.7 million and 1.3 million subscriptions.

# NTC to give 22% share to its customers

Nepal Telecom (NT) will allocate a 22% share to the customers in the next fiscal year, the state-owned operator said.

This means all customers will receive some stocks from the company before the end of 2021.

Nepal's finance minister Bishnu Prasad Poudel made the announcement on his FY 2078/79 budget speech from Singh Durbar on Jestha 15.

The telco currently has a 91.50% share owned by the government while the general public has 8.47% and Citizen Investment Trust funds claims 0.03% of shares.

Now, the Nepalese government is disinvesting its shares by selling offering 22% to the stakeholders. By doing this, it will be drawing a hefty amount of capital and allow wider public participation in the country's largest telecom operator.

However, only NTC customers will be eligible

to apply for a share in NTC. To apply, one must be either a SIM card user, Landline, or ADSL/FTTH subscriber of the company. If you are neither of them, the easiest workaround would be, getting an NTC SIM soon.

NT's current paid-up value is NRs15bn. The government owns 13 crores, 72 lakhs, 50 thousand shares. The 22% of it will equate to 3 crores, 1 lakh, and 95 thousand units of shares.

Currently, the firm has only 66 lakhs and 60 thousand actives shares. Due to the low amount of shares, its price has remained high. Last time NTC's share was traded for NRs1,356.

However, after the disinvestment, the number of shares will amount to 4 crore, 27 lakhs, 69 thousand, and 500 units. This may contribute to a lower price for each unit of share. The telco will undergo some work before the price is finalised for its share.

# Indosat Ooredoo books profit

Indosat Ooredoo closed the first quarter (Q1) of 2021 with a strong performance, maintaining the company's momentum for growth from last year.

In a virtual performance update, the operator booked revenue growth of 12.6% year-on-year (yoy) to Rp7.3tn. Cellular revenue increased by 12.5% yoy to Rp6tn, while fixed data revenue showed strong growth 15.8% to Rp1.16tn.

At the same time, the enterprise sector has shown signs of recovery, with Indosat Ooreedoo's enterprise revenue growing by 17.1 percent yoy to Rp1.3tn.

The company's earnings before interest, taxes, depreciation and amortization (EBITDA) increased by 42.5% yoy to Rp3.4tn. The report attributed the rise to the combination of top-line growth and cost efficiency, contributing to growth in the EBITDA margin of 9.7% yoy to 46.2% in Q1 2021, the highest point in the past seven quarters.

Indosat president director and CEO Ahmad Al-Neama said in a statement that despite the operational challenges caused by Covid-19, the company had given a satisfactory performance to open 2021. "Our growth momentum is continuing to take shape, reflected in our double-digit revenue growth, a solid EBITDA performance, as well as booking a net profit. This performance for the first quarter of 2021 is our new benchmark for our future financial performance," he said. Al-Neama explained that Indosat Ooreedoo's strategy of providing simple and relevant products alongside maintaining its network excellence had boosted the company's strong rebound and position in the cellular market. "I would like to thank our loyal customers and stakeholders for their support, as this has motivated us to book this amazing result," he continued. "We are committed to ensuring connectivity and availability for our products and digital services that Indonesia needs during these tough times, and to accelerate Indonesia's transformation into a digital nation."

Overall, Indosat Ooreedoo booked a net profit of Rp172bn in Q1 2021, an increase of Rp778bn compared with the same period last year. It also grew its customer base by 7% yoy to 60 million, with its average revenue per user (ARPU) increasing by 11% yoy to Rp32,700 thanks to a strong 46% growth in data traffic compared with the same period in 2020.

# SLT-Mobitel emerges amongst Sri Lanka's top 10 brands

SLT-Mobitel, Sri Lanka's national ICT and telecommunication service provider, is one of the country's top 10 most valuable brands, according to an annual index.

The operator has been ranked at ninth place in a ranking based on the 18th annual review of Sri Lanka's

Most Valuable Brands conducted by brand valuation and strategy firm Brand Finance Lanka.

"We are extremely pleased to have been selected amongst the top ten most valuable brands in the country," said Rohan Fernando, chairman, Sri Lanka Telecom Group. "Our recent

brand unification sets SLT-Mobitel as a formidable force, signalling to our consumers the strength of our offering as the undisputed leader in telecommunication services in Sri Lanka and pioneer in the digital landscape. While this unification is an impetus to the government's

effort to create a technology driven economy and a technology-based society, we are also now able, through our synergized brand, to provide all citizens innovative and unparalleled customer-centric services and world class digital experiences."

# Ncell hikes international call tariff

Nepalese operator Ncell has bumped up its international call costs by six times, after the Nepal Telecommunications Authority (NTA) approved the proposal to hike call rates to 19 countries.

Prior to the increase, regular outgoing calls from Ncell to the 19 countries cost approximately Rs.5. Now, with the revised rates the call tariff will amount to Rs.30.

The countries on the list are: Belgium, Bulgaria, Croatia, Cyprus, Estonia, Finland, Germany, Italy, Jordan, Latvia, Lebanon, Lithuania, Malta, Maldives, Netherlands, Slovenia, Syria, Tajikistan and Thailand.

"NTC and Smart Cell have set about the same calling charges for their customers and Ncell's hiked prices will bring uniformity in charges for foreign calls among the telecom operators in Nepal," said NTA chairman Purushottam Khanal.

He added that Ncell wanted to raise its foreign call charges because it was providing the service far more cheaply than other operators.

# Singtel begins review following big losses

Singapore Telecommunications (Singtel), southeast Asia's biggest telecom operator, has begun a strategic review of some businesses after saying it will book a charge of S$1.21bn in its annual results.

Yuen Kuan Moon, the operator's chief executive officer (CEO), said at a media briefing.

Some of the digital businesses have taken longer than expected to scale up, he added.

Singtel has written down impairment charges against its investments in advertising platform Amobee and cybersecurity company Trustwave and sees both companies needing a longer cycle to achieve their goals, it said in a statement issued before the briefing.

The company's Australian unit, Optus, has also undertaken a review and will book similar charges.

Furthermore, this review also marks the first major overhaul at the company since Yuen took over as CEO in January. It also comes at a time when the coronavirus pandemic has crimped mobile service revenue for some firms, while accelerating the use of technology and data globally as millions of people working online from their homes.

"This review could involve the restructuring of product or business segments, a full or partial divestment or business combinations with other industry players," Yuen said in the statement. "We are open to all types of strategic partnerships and deals."

Arthur Lang, Singtel's group chief financial officer, said at the briefing that more than 90% of the charges taken by the telecom operator won't erode cash holdings and the company will hire financial advisers for the review.

# TM posts strong Q1 in face of pandemic

Telekom Malaysia recorded a net profit of RM325.47m for the first quarter ended March 31, 2021, marking an increase of 113.4% year-on-year (YoY) from RM152.52m profit it made in the same period last year.

Revenue increased by 9.9% YoY to RM2.81 billion, driven by an increase in revenue across all business lines — unifi, TM One and TM Wholesale — the telecommunications company noted in a filing to Bursa Malaysia.

Coupled with continuous cost- efficiency initiatives, TM managing director and group chief executive officer Imri Mokhtar said earnings before interest and tax (Ebit) significantly improved 80.8% YoY to RM589.7m and profit after tax and minority interests doubled to RM325.5m compared to the same period last year.

"We began 2021 with a positive momentum and a strong start to our 'New TM' 2021-2023 Transformation Programme. We are pleased to report a solid year-on-year performance despite these unprecedented times," he said in a statement.

Ongoing cost-improvement initiatives continue to show results with total operating cost ratios (% cost-to-revenue) improving from 88.1% last year to 79.7%, supporting both revenue growth while optimising cost efficiency across direct costs, manpower, other operating costs, depreciation and amortisation.

In the first quarter of 2021, TM invested 8.8% of revenue in capital expenditure (capex) amounting to RM247m as it continued to modernise its network and technology platforms towards delivering current and future solutions for customers.

"Of the amount invested, 69% was for network access including National Digital Infrastructure Plan (Jendela) (fibre broadband expansion), 12% for core network and the balance 19% for support systems. TM expects to meet the 2021 market guidance announced in February with revenue growth to be flat or single-digit, Ebit to be more than RM1.6 billion and capex guidance to be between 14% and 18% of revenue," TM said.

# Wateen Telecom and Huawei ink Pakistan deal

Wateen Telecom, Pakistan's largest fibre optic network, has signed an agreement with Huawei Pakistan to modernise its countrywide data transmission network.

The former will deploy a state-of-the-art optical transmission network from Huawei to revolutionise the digital landscape of the country, it said.

Wateen will have enhanced capacities and higher speeds on its nationwide optical fibre network after completion of the project.

As demand for superior network performance continues to grow, both domestically and internationally, Wateen's network is designed to facilitate growth to meet the exponential increase in internet capacity demand.

The new network capacity holds the potential to perform at 100G to 400G rates to future bandwidth requirements, Wateen said.

Wateen is fully geared for 4G growth and 5G era with its futuristic network architecture, resilient fibre footprint, high-capacity transmission infrastructure, and nationwide field services organisation.

The network modernisation will give the required impetus to offer new opportunities to benefit small, medium and large enterprises, financial institutions, cellular mobile operators, education sector, internet resellers across Pakistan and international customers, it added.

Adil Rashid, chief executive officer (CEO) of Wateen Telecom, along with Mark Meng, CEO of Huawei Pakistan, signed the agreement in Lahore at the Wateen Telecom head office.

## Trio targets MSMEs

India's Reliance Jio, Bharti Airtel, Vodafone Idea and others, including Tata Teleservices are focussing on the medium and small-scale enterprises (MSME) as these businesses get digitised and become better revenue options than the larger established corporates with fixed network service providers. "JioBusiness is bridging this gap by providing enterprise-grade voice and data services, digital solutions and devices to small businesses which would make them efficient, competitive…," said the company in the report. There are approximately 58 million MSMEs in India.

## Housebound Nepalis buy devices in droves

Nepalis confined to their homes went on a mobile and laptop buying spree to stay connected as the pandemic confined them to their homes, pushing up imports to an all-time high. The increase in online classes and working from home became the norm for students and office employees after the government imposed lockdown, so they had to invest in personal devices. According to the Customs Department, Nepal imported nearly Rs40bn worth of cell phones and laptops in the first 10 months of the current fiscal year.

## Vietnamobile launches mobile ID service

Vietnamobile has introduced a mobile ID service– the optimal authentication solution for all smartphone transactions, completely free of charge for its subscribers in Vietnam. Instead of undergoing complicated and risky traditional authentication steps such as providing the phone number and authenticating via SMS OTP, customers only need to authorise Vietnamobile to generate their mobile ID. The mobile ID service relies on IPification, the zero-tap compatible, passwordless mobile authentication, user verification and fraud prevention solution.

## Talking critical

Kevin Graham, director, Australasian Critical Communications Forum-ACCF

### Helping to shape the future of critical communications

Last quarter, the TCCA chairman stressed the importance of continuing global efforts in evolving open standards in both the mission critical capability on broadband networks (private and carrier) and also enhancing the existing digital narrowband standards (TETRA, P25, DMR) to ensure seamless interoperation can be achieved across networks, between devices and with critical control centres.

As populations grow, cities swell and man-made and natural disasters become more frequent, so also is the demand for critical services and therefore critical communications capability that supports service delivery. This includes public protection and disaster response and vital utility services including public access communications, transportation, healthcare, education and other government/industry services that underpin the general economy of nations. The advancement of critical networks is essential to address the increasing demands coming from end users for voice and data functionalities in resilient, secure and more interoperable ways.

An array of multivendor solutions and devices based on TETRA, P25, Tetrapol (and recently DMR and Chinese equivalent, PDT) have evolved. Significant and ongoing investment and deployment of these technologies occurred as older analogue deployments were replaced from the mid 1990s/2000s across APAC.

In government agencies and public safety we have seen major cities, provinces and several national shared government Radio Networks (GRN) deployed using these standards. South Korea, Hong Kong, Singapore, Malaysia and Australian states are all longstanding examples where shared GRNs replaced individual agency analogue networks and improved levels of intra and inter-agency critical communications across their respective populations. A similar situation has prevailed in many high-density cities in India, China, Philippines and Indonesia. Digital land mobile radio has also enjoyed widespread adoption in the public and private transport sector where Singapore, Hong Kong, India, Thailand, Malaysia, China, South Korea, and Australia have extensive deployments. The utility sector, municipal governments, and shared public access networks servicing needs of general industry and local government are significant too. Mining, resources, oil and gas (including LNG) are another major vertical market along with hospitals, education, casinos, conference venues and stadiums. Events such as F1 and Moto Grand Prix, Olympics, and International government forums have relied on these digital LMR technologies for event management, security and operations. These existing users continue to enhance and refresh networks and devices and new deployments continue. Beyond the core individual, broadcast and group voice call facilities there has been increased use of inherent data functionalities such as messaging, short-data applications, location-based reporting, geo-stamping of data, geo-fencing applications, man-down / lone worker, image transfer, SCADA and telemetry data transmission.

Many in these sectors have commenced or are interested in complimenting their LMR networks with wireless broadband to enable data transfer requiring higher speed data (video, imaging, push/pull information, and internet access). The mining sector has commenced some deployments of private LTE to support autonomous mining vehicle operations amongst other applications. Within government, transport and general industry and enterprise sectors there is clearly growth occurring for proprietary "over the top" voice and data applications using existing LTE carrier networks in the absence of availability of 3GPP compliant mission critical MCx (MCPTT, MCData and MCVideo) on most carrier networks.

South Korea completed the first three phases of a nationwide public-safety network, SafeNet, that commenced in 2018 after several years of planning, preliminary design and spectrum allocation. In March 2021 full systems acceptance was commemorated allowing the commencement of active service including 3GPP compliant Release 13 MCPTT functionality. The network core and operation centers are fully redundant meeting the specific needs of agencies.

New Zealand's emergency services currently use voice-centric, mostly analogue government-owned and operated networks. A Next Generation Critical Communications (NGCC) Public Safety Network is now under tender evaluation stage. NGCC-PSN will replace existing disparate radio networks with a single nationwide secure digital radio service, and prioritised commercial cellular broadband capability in urban, highway and rural areas commonly accessed by Emergency Services. Secure digital radio will provide voice and messaging services in many areas where cellular services are not available.

In Australia, the New South Wales government, on behalf of all state and territory governments and the Australian Government have committed to work with Nokia, TPG Telecom and SingTel-Optus, to develop and test technology in a "proof of concept" trial until mid-2022. This trial will help shape the design of the national platform for emergency service communications that is contemplated to rollout in phases from 2023.

Clearly, MC LTE is gaining momentum in APAC and pathfinding projects here and in Europe and USA provide valuable lessons to others in this region. Regulatory and spectrum access policy have a major bearing on options for delivering MC broadband to government and industry users while supporting existing extensive investments in LMR. The strategies to reach implementation, require significant advance planning including determination of the solution delivery models be that dedicated network v's hybrid or carrier MNO/MVNO approaches.

One thing certain is that advancing and commercializing open standards based eco-systems will be crucial for competitive and economic availability of multi-vendor mission critical LMR and LTE capability. Critical responders deserve modern communication tools to improve their effectiveness in protecting and serving all citizens.

TCCA/ACCF welcomes new member organizations from APAC to participate in shaping our regional future.

# The powerful pull of a home number

Telecoms solutions, such as a digital MVNO, that tap into that connection by offering the chance for users to have a 'home' number wherever they are in the world, will create new opportunities that will have cross-border reach and global impact. Shanks Kulam, co-founder of digital first telecoms enabler x-Mobility, explains more

As an industry, we have solved many problems for our customers and created some amazing technology that we can offer them, from the device hardware, the app software or the network infrastructure.

However, now is the time for us to work harder to tap into their emotional needs with solutions such as a digital MVNO we can both connect people and help them to maintain their emotional connections.

As a species we like to move, to travel and to explore new opportunities. Most cultures celebrate the intrepid explorer and most families have a member that got 'out'. For some, travel is a luxury that is afforded to them, while for others they travel to find new employment or lifestyle opportunities elsewhere, as a necessity.

We move around the globe for both personal and professional reasons, we are a world of diaspora communities. In fact, one of the biggest changes in our global behaviour that the pandemic has caused has been the massive reduction in travel and the opening up of travel opportunities will be the barometer to how well nations and regions are coping with Covid-19.

As the world hopefully recovers from the pandemic, we'll soon start to go back to a globally mobile workforce and population, we will return to having people from Thailand that work in Texas and people from Benin that choose to live in Berlin.

What that means for us in the telecoms sector is that those diaspora communities represent an opportunity. They are a distinct niche and can be treated as such by both providers from their 'home' location and their new 'local' location.

The question is, how do we reach them and service them properly? How do we as industry support migrant workers in Australia, the Nigerian diaspora community in the UK or the travel industry as it returns to Thailand?

Because as well as travel, we also find comfort and safety at home. We like having the familiar around us and many of us feel a pride and a sense of belonging in where we come from.

Even as we travel around the world, there is a part that never leaves 'home', that always feel a pull back to the place we are from. And for that reason, we often try to take a piece of home with us when we travel. We maintain a keepsake of home when we are either next door or on the other side of the globe.

One of the reasons that people tend to group together with other members of their diaspora is to create that reminder of home. To recreate the language, the food, the shared jokes and cultural references. To have a home away from home.

In this global world it can be telecoms that brings us back 'home' – the jolt of recognition of a call coming in prefixed by the international dialling code from your home country. While telecoms can provide a piece of home that can be kept with us, in our pocket all day, by having a 'home' number on our phone we can be thousands of miles away, but at the same time only a local call away from our family.

As we travel around the world our 'home' phone numbers, whether that is a +84 dialing code, or even a +61, offer us a technical and emotional connection to home. And in many cases they can offer a literal connection with home as we can use that number to make or receive calls with friends and family back home.

We know that people both love to travel and be away from home and yet love to keep a piece of home with them. We know that for many people a 'home' phone number creates a powerful sense of connection. We also know that if people are 'away' they will almost certainly have friends and family back home to connect with. They therefore present an opportunity to any service provider that can effectively target them.

The rise of the MVNO market was in part a response to some of these issues. MVNOs were established to help target a niche audience that MNOs couldn't or wouldn't. Many of the initial niche audiences were diaspora audiences that wanted to be both still 'home' and 'local' at the same time and so didn't automatically fit in either market. They needed something new to work for them and so MVNOs were created to target them.
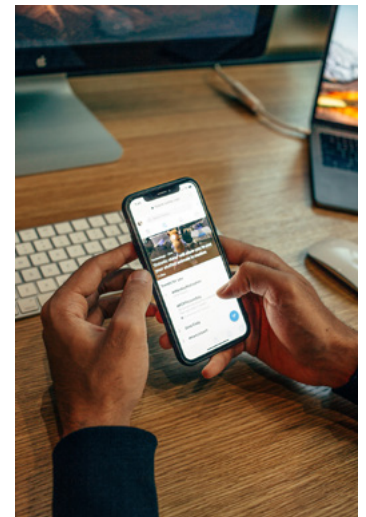
But the physical requirements of an MVNO, with a SIM card, mean that not everyone can easily be sold to. To buy something physical, people need to buy it in person, or be able to receive a delivery, which puts another barrier to entry in their way, but for some people and communities the logistics can be almost insurmountable. So communities that most need a niche solution created for them are further excluded.

Yet, the majority of activity on our phones nowadays is with the apps we download. The MVNOs of the future will be an app that can be downloaded and not a physical SIM that needs to be bought, collected or delivered.

But they will, and already do, offer calling and messaging services on the user's existing handset. But because they are digital, they can offer so much more and so much more that will appeal to the mobile global audience.

A digital MVNO allows a user to keep their 'local' number, to be able to be a part of the local community, but to also keep a 'home' number and stay emotionally and technologically connected to friends and family.

So for example, someone who emigrates from Nairobi to Toronto will be able to get a contract with a Canadian MNO, but by downloading a digital MVNO onto their handset, they will also be able to add a Kenyan number to that handset. They can then make and receive calls to any friends and family they have left behind. On many of the digital MVNOs, those calls and messages would be free if their friends and family had downloaded the same app.

While a migrant worker from Vietnam that was working in Australia could keep both an Australian and Vietnamese number on the same handset. Wherever they were, they could make and receive calls to friends, family or for work to and from either location.

As an industry the telecoms sector must remember that, even with all the available technology, consumers, our users, still buy for emotional reasons. And one of the most emotive reasons that we can tap into is the desire for our global population to feel connected to home, to have a link back to the friends, family and experiences of home even when they are on the other side of the world.

Providing an easy to use, simple to download and cheap 'home' number that can be accessed from anywhere in the world on any handset is one way the industry can answer the emotional requirements of our users. ■

# Testing the network

The increased usage of IoT, streaming and other services mean operators are faced with commercial and technical pressures to continually protect and enhance their network. Robert Shepherd looks at some network optimising tools at their disposal

Depending on what you read, the number of mobile devices operating across the globe is expected to reach an incredible 17.7 billion by 2024. To put that into context, it marks an increase of 3.7 billion devices compared to 2020.

Another thing that's increasing at speed is our dependence on these gadgets to carry out functions and activities, be they for business or pleasure. The use cases for mobile devices increasingly demand faster connection speeds and lower latency. This means the much-heralded 5G network will be critical to fulfilling those demands, operating at significantly faster rates than 4G and other predecessors.

Globally, it is expected that up to 20.1% of all connections will be made over the 5G standard by 2025.

Of course, any advancements in technology can only be a good thing for the end user, the bottom line of the mobile operators and the tech companies behind the kit. That said, it does bring network operators challenges not least making sure their networks can withstand the surge when numerous users go online.

Indeed, the requirement for high-performance increases by the day, courtesy of IoT streaming and other demands and so must the rate of network optimisation.

As far as operators are concerned, monitoring user activity (no, not snooping) and experience along with sending alerts immediately upon detecting network and service instabilities can drastically reduce the negative effect that network problems have on end-user applications.

When voice, data, video and messaging services fail to deliver the expected quality levels, network and service operations centres need to be notified instantly to take prompt action. This is particularly important in critical hotspots such as shopping malls, airports,

**NetAlly's network tester in action**

commercial centres, train stations, highly populated areas, key commuting routes and public transport.

Network optimisation consists of two key parts: initial and continuous optimisation. The former occurs during network implementation to prepare it for the launch. The aim is to ensure that the agreed objectives for coverage, quality and service performance are met. These objectives are often defined as target values for sets of key performance indicators (KPI) that measure network performance and the quality of end-to-end services.

Continuous optimisation is also an integral part of network operations, particularly in a world where networks are constantly changing. The network capacity must continuously increase due to an ever-growing traffic demand; new network elements are regularly put into operation and new services are introduced and coverage is extended.

To keep service providers on their toes, regulators are charged with ensuring that mobile operators adhere to terms of their licences, which means the latter run their services with military precision if they are to avoid financial penalties, or worse.

Generally, regulators need current monitoring tools that require running field-tests by specialised personnel and equipment or relying on operators' data and reports.

For example, mobile operators provide regulators with simulations of their coverage throughout the relevant country and basic quality parameters, by frequencies and cellular technologies such as 2G, 3G and 4G.

Now, let's look at some solutions. Sticking with regulators for a moment, a company called RantCell has come up with Crowdsourcing platform with crowdsourcing mobile testing, where watchdogs can enhance their supervision and monitoring capabilities. Among other things, they can introduce an application that can be installed on end users' cellular handsets/ end devices and collect more reliable information regarding the quality of the service and network coverage map while keeping the user's privacy.

With regard to what's available to the operators themselves, we kick off with the Viavi CellAdvisor 5G, the company claims, "is the industry's most easy-to-use, innovative, and comprehensive base station analyser". It is a field-portable solution to validate and deploy 5G radio access networks. Furthermore, its combination of real-time spectrum analysis and 5G beam analysis, as well as the ability to test fibre, coax, and air interfaces, makes it a versatile cell site test solution. Whether the operator is performing signal analysis, interference analysis, or just inspecting fibre connections, Viavi claims this one instrument "can do it all". Its easy-to-use interface, complemented by cloud enabled Viavi StrataSync, makes it simple to create reports and close projects fast.

Other benefits include the ability to validate



**The Spirent C2 Appliance is a Layer 2-7 router, switch, Wi-Fi, application and security test solution in a portable form factor**

**High Bandwidth | Faster Networks | Lower Latency**

Quality of Experince
On-demand Scale
Multi-layer Security

Internet

Enterprise Backbone
(Headquarter)

Unified Management
Monitoring and Visibility
Multi-layer Security

Superior Throughput
Performance and Scale
Zero-touch Automation

Enterprise Site
(Branch Offices)

Enterprise
Data Center

High Speed Networks
Data Center Interconnect
Converged Infrastructure

Integrated Applications
Dynamic Workloads
Multi-layer security

Multi-
Clouds
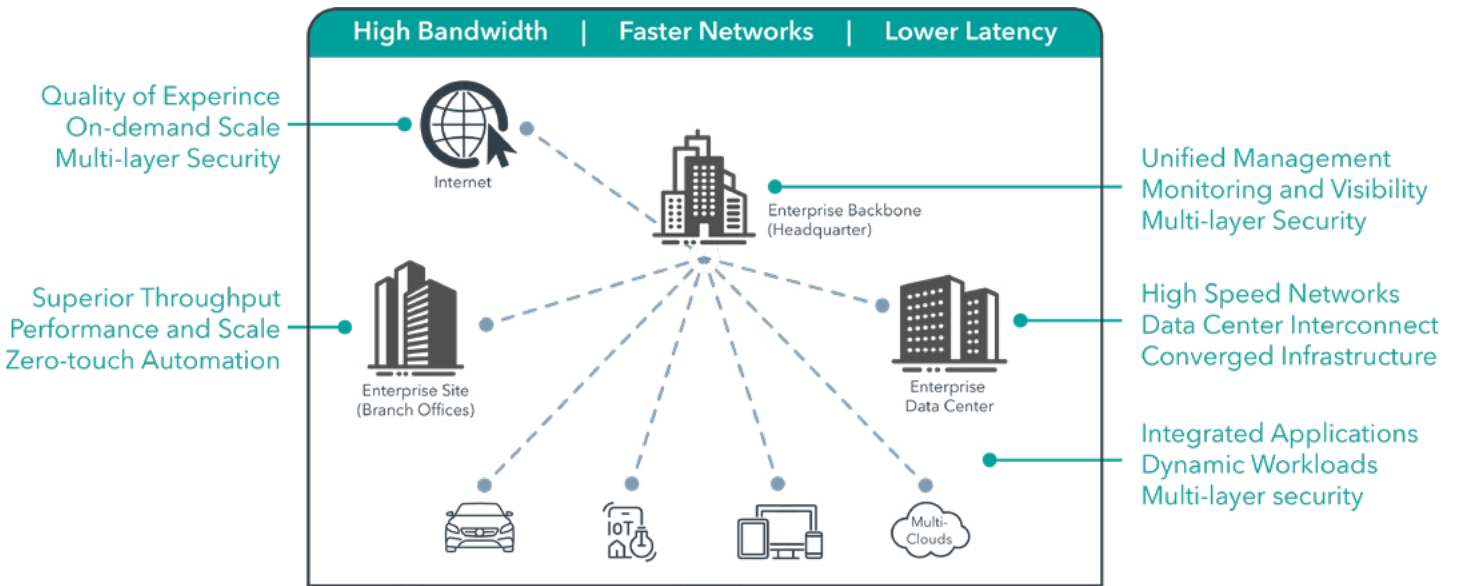
**Spirent's C2 in action**

and deploy all physical interfaces, such as fibre, coax and RF, as well as the option to upgrade to new features and technology with software licenses, perform PIM detection plus interference analysis and hunting with the same solution. With regards to applications, there is Interference analysis and PIM detection over CPRI, comprehensive RF signal analysis and antenna analysis with optional RF source.

Rohde & Schwarz offers Qualipoc, SmartMonitor and SmartAnalytics, which combine to form a solution for QoE-centric (quality of experience) network monitoring.

The smartphone-based network probes QualiPoc, for data collection, which can operate as static probes distributed over several network hotspots (e.g., shopping malls, event venues etc., moving probes in a fleet setup, e.g., installed in taxis, public transportation and a combination of the above. It also has web-based controlling software "SmartMonitor" for test configuration and real-time dashboard.

It's replete with remote real-time control of network probes and remote test configuration. Additionally, there is web-based analytics software "SmartAnalytics" for data analytics: a software suite to implement comprehensive data analytics based on measurements from network problems.

Next up is GL Communications, which offers its PacketScan – All-IP Analyzer. The solution can capture and analyse high volumes of phone calls over a wide range of protocols on IP and Wireless (2G, 3G, 4G, IMS, and 5G) networks. It can capture, analyse

and monitor large-scale networks for surveillance and troubleshooting.

The PacketScan is a high-density multi-protocol 2U rack mounted network monitoring appliance that can capture and process packets over IP on high-speed Ethernet links of 1 Gbps and 10 Gbps links.

Packet Data Analysis (PDA) is a tool for live monitoring of signalling and traffic over IP. It is distributed with GL's Packet Analyzers, allowing users to monitor live IP networks including capture, analysis, and reporting of every call in detail.

Hot off the press, NetAlly has just launched EtherScope nXG v1.5 software with Bluetooth and BLE (Bluetooth Low Energy) site survey capability as part of its AirMapper Site Survey Ecosystem of products. Bluetooth is the second most popular wireless technology in the world, used for many applications from indoor location services to IoT device connectivity. However, until now, there were no solutions in the market to perform location-based surveying and visual heatmapping of Bluetooth beacons. NetAlly spotted the gap in the market and so produced the first bluetooth and BLE site survey solution on the market.

NetAlly says the new functionality will allow EtherScope nXG users to perform a passive bluetooth or BLE site survey using the AirMapper app and internal radio, thus providing full visibility into bluetooth network coverage and performance through the company's Link-Live Cloud Service. It will also allow users to perform both Wi-Fi

(active and passive) and bluetooth surveys on the same walkthrough, making it quick and easy to validate Wi-Fi network performance while at the same time validating indoor location services or IoT deployments, as well as possible 2.4GHz Wi-Fi interference caused by bluetooth co-existence in the same band.

"It's surprising how many bluetooth devices are already present in most environments, and with the expansion of location-based services such as way finding and asset tracking, it's only going to increase," says James Kahkoska, chief technology officer at NetAlly. "But deployment is a very manual process, prone to configuration errors."

Infovista TEMS offers a portfolio of eight network testing tools used to optimise mobile network quality and application performance by measuring end user experience.

As far as network operators are concerned, TEMS delivers the ability to walk test, drive test, and dynamically analyse service performance under real-life conditions indoors, outdoors, and during travel. For industries leveraging connected mobile applications for automation, remote control and Industrial IoT, TEMS delivers the ability to measure and track connectivity and provides visibility into factors that affect application performance. Through close cooperation with equipment vendors, chipset manufactures and device vendors, Infovista TEMS quickly provide in-depth subscriber (QoE) and network (QoS) insights to make better network investment choices TEMS resides within a portfolio of Infovista network lifecycle automation solutions used by more than 1,700 customers, including 350 mobile network operators.

The Spirent C2 Appliance is a Layer 2-7 router, switch, Wi-Fi, application and security test solution in a portable form factor. With Ethernet line-rates at 10GE, 5GE, 2.5GE, 1GE and 100M test ports, C2 support the complete suite of Spirent test solutions for other interfaces such as



**Viavi CellAdvisor 5G**

Wi-Fi and automotive. The appliance is the ideal tool throughout the test lifecycle for performing functional, performance and benchmark testing of data centre, highspeed routers, access points, service provider network infrastructure, and evolving SDN and NFV technologies across different configurations required for in-lab and live/operational networking testing. Unique C2 features include the ability to accommodate up to three interface cards (NICs) with fully synchronised hardware timing crossing NICs and ports. In addition, C2 offers a single clocking source for all test ports in one appliance for synchronized TX and RX clocking across NICs as well as additional port count for time-sensitive tests.

# Private wireless networks

In April this year, Nornickel, one of the world's largest producers of palladium and high-grade nickel and a major producer of platinum and copper, joined forces with Finnish tech giant, Nokia, to successfully complete testing of a private LTE/5G-ready wireless network deployed in one of the mines of the Skalysty mining enterprise at a depth of 875m – Eurasia's deepest mine. Other partners in this project were the telecom operator, Tele2, Qualcomm and SPBEK-Mining.

So, what happened? Nornickel's private wireless network was piloted simultaneously in 5G and LTE bands to support mission-critical and business-critical functions, such as reliable and secure voice and data communications, video surveillance, remote management of machinery through video channels, communications between production sites and the control centre, plus many others.

The pilot network was deployed at the Skalysty mine on the Nokia industrial-grade private wireless connected digital mine solution, including 4.9G/LTE and 5G core hardware and software, Flexi Zone Micro LTE and Nokia AirScale 5G base stations plus a special solution for mission-critical group communications.

This test confirmed that Nokia's private LTE/5G-ready technologies can reliably support wireless broadband communication in a real-life underground mining environment. The results proved the feasibility and efficiency of a dedicated 4.9G/5G network operating as a unified data transfer environment for existing Nornickel platforms, as well as new digital products with different traffic profiles.

In addition, Compal 5G laptop and Motorola edge+ smartphone, both based on Qualcomm Snapdragon 8cx 5G with Qualcomm Snapdragon X55 5G Modem-RF System, were used to demonstrate 5G mmWave technologies.

5G supporting Compal laptop based on the Qualcomm Snapdragon 8cx 5G computing

platform and Qualcomm Snapdragon X55 5G Modem-RF System, as well as a Motorola edge+ smartphone based on the Qualcomm Snapdragon 865 5G Mobile Platform were used for the tests.

Deployment of industrial-grade LTE and 5G private wireless networks opens new opportunities in the future for Nornickel in the areas of robotics, remote and autonomous operations, end-to-end transport automation, analytics and security to enable a revolutionary breakthrough in digital transformation for the mining industry.

If you've made it this far, it might interest you to know.

Although 5G is flying commercially, researchers and engineers have for some time been experimenting with 6G. As a result, not only will the number of mobile devices continue to

rise exponentially, but cellular internet-of-things (IoT) devices are set to permeate more industrial sectors in the coming years, saving human beings from some of the most unpleasant jobs. It also means a solution will eventually be required for network congestion and data transfer speeds.

Furthermore, experts have said that 6G ought to be capable of solving those problems before they arise, potentially enabling a network connection density ten times greater than that of 5G, and peak data rates up to fifty times faster than the rate of 5G. The Federal Communications Commission in the US has opened spectrum for experimentation, and China have already launched what is described as a 6G satellite, so that actual potential of 6G should be revealed in the next 10 years. The way things are going, we will be talking about 7G before 6G has made its mark. ■

## Shaping the future of Asia's untapped connectivity market with satellite

The internet's involvement in an increasingly wide palette of functions in our everyday lives, the tools of governments, and day-to-day operations of businesses, a significant portion of the world still isn't connected to it.

According to this report, the countries with the highest number of unconnected people are concentrated in Asia. For example, India has the highest number of disconnected people - 50% of the country's population - despite having the second largest online market in the world. China, in second place, has 582 million people not connected to the internet. In 2019, 39% of the country's population was living in rural areas, explaining in part the high number of unconnected people. The urban-rural divide is an issue for many countries, and causes issues such as disproportionate access to education, health services and more.

Other countries in the top 10 include Pakistan, Bangladesh and Indonesia. We might assume that high ranking of these countries owes their large populations until we consider the portion of their populations that unconnected people account for: 65% for Pakistan; 59% for Bangladesh; and 36% for Indonesia. The figures are even starker when compared to the relatively small percentage of unconnected peoples in countries like the United States (14%).

## Tapping into the market

Internet penetration is crucial in today's world to stimulate economic, social, and organizational growth. Making broadband services affordable and accessible, low deployment costs and ease of access are key considerations in increasing penetration. Many terrestrial connectivity options can't provide

this –satellite, however, offers numerous benefits to markets like those in Asia where internet penetration is lacking.

It is easy to deploy and scalable and has proven its value as a provider of immediate infrastructure for commercial, government and emergency relief communications whereas terrestrial networks can be costly to deploy, especially in remote regions.

For teleport operators entering into new markets like those in Asia, SatADSL, through our neXat platform, offers a Service (PaaS) that opens new markets for teleport, hub, and satellite operators to sell unused satellite capacity and offers monetizable customised satellite services and extended hub capabilities. neXat is a complete OSS/BSS in the cloud acting as an intermediary between teleport and hub operators and the marketplace.

### SatADSL in Asia

To expand our reach in the Asian market, Rajeev Nair is SatADSL's new Senior Vice President APAC and will be leading our drive in the region to connect the unconnected and provide teleport operators with a platform to reach new markets, expand their coverage and grow their revenue.

Rajeev has considerable experience in the satellite industry having worked as a Sales Director covering diverse international regions such as India, Middle East, South Asia, Europe, Australia and Africa. He is an Engineer in Electronics & Telecom with a MBA in Marketing. In the last 17 years, Rajeev worked in the satellite industry while working with Measat, Intelsat and Bharti Airtel, and also worked with Tata Sky and Reliance Infocom. Rajeev aims to replicate his successful track record in developing new markets to expand the neXat services into Asia Pacific.

"SatADSL's neXat platform is

truly an original and uncontested concept. I see neXat as a raw diamond in the sense that the operators are yet to understand and see the potential of this service. What excites me is that neXat can redefine the hub services that can be offered and overcomes certain limitations without any CAPEX. It empowers ISPs to simplify their business by offering a one stop solution for customer & service management. It is a unique platform and the first aggregator of its type," said Rajeev. "neXat will develop to the benefit of operators as a marketplace for capacity as it grows and more operators connect to it. By enabling them to enter new markets for the first time more efficiently and without CAPEX, operators looking to expand their reach into new geographies need look no further than neXat. It will be a matter of time before more teleport operators realise the benefit of being a part of this platform and join hands with us."

"This is also a very exciting time for the company, and I look forward to SatADSL widen the influence of it's platform in a relatively untapped Asia Pacific market. The company is proving itself in the African, European and South American markets, so expanding the reach further into Asia where there's so much opportunity is a logical approach which will mean even more growth," Rajeev added.

Rajeev's first move will be building relationships with satellite operators, teleport operators & ISPs and making them aware of what value SatADSL and neXat can offer them. neXat allows satellite, teleport and hub operators to offer the full range of SatADSL value-added services to their own clients. It offers classical and packaged satellite connectivity services, with customer management, monitoring, billing, and online payments. ■

SatADSL

# What a difference a year makes

## Lessons learned from the global pandemic by Dan Losada, vice president, Hughes Network Systems

It is hard to believe that one year ago, we were at the start of the pandemic. It was around the annual satellite industry conference in Washington, D.C. last March that we started to hear rumors of a highly contagious virus that was spreading from one continent to another. Most of us didn't know anything about "social distancing" or "herd immunity." By the time the satellite show shut down early in March 2020, global travel drew to a halt and stay-at-home orders became commonplace everywhere around the world.

In some ways, the global pandemic brought people together like never before, thanks to a singular, shared experience. No matter where you lived or worked, there was no escaping the need to stay away from people outside your household, work and study from home and wear a protective mask. Zoom meetings across continents looked eerily monotonous thanks to commonly used digital backgrounds.

Yet, even as citizens from the Seychelles to Southern Asia to San Francisco shared the experience of staying at home, hand-washing and social-distancing, the vast differences in digital access grew more pronounced. Never has it been more apparent that those with Internet access have distinct advantages over those without.

Now, 12 months into the pandemic, as vaccine programs expand and stay-at-home orders lift, one thing is certain: Internet access is no longer a "nice to have," it is a necessity, enabling telehealth, supporting education and delivering social services.

## New drivers of connectivity

The pandemic accelerated the need for connectivity around certain drivers. With COVID, there was suddenly a more pressing need to scale up

telehealth services. Mild COVID cases would be treated remotely so they wouldn't overwhelm medical facilities or further spread the illness. Elderly patients or those with pre-existing conditions were also better served by receiving care from the safety of their homes. Of course, all of this demands connectivity, as do the many pop-up sites and processes supporting testing and vaccine distribution.

The disparity between the connected and the unconnected was perhaps most glaring after the sudden shift to remote learning. School systems and communities, along with families and students without access at home, faced added stress and strain. There is simply no remote learning without connectivity. Even the bulk of today's in-class education throughout developed regions relies on connectivity.

In an environment where remote work is recommended and in-person services are rare, citizens in communities around the world still need access to basic health information and government services at the local, state, and national levels. They need to be able to find updates on infection rates in their area, review World Health Organization guidelines or learn about quarantine related rules and restrictions. Connectivity is the public's best way to secure information and services.

## Bridging the digital divide

Disparities in access don't have to span continents to be profound. For instance, in Indonesia, many citizens have direct-to-home Internet access and yet, many do not. Across the island nation, there are places where cable or fiber are simply impossible to connect, making satellite the broadband of choice for many. To help connect the unconnected in Indonesia, both private industry and the government deliver satellite solutions. Pasifik Satelit Nusantara (PSN), the oldest private telecommunication and information service provider in Indonesia, provisioned the Hughes JUPITER™ System for broadband services over the PSN VI High-Throughput Satellite (HTS) and also implemented more than 5,000 Community Wi-Fi Hotspots to help connect even more. On the government side, BAKTI, a division of the Indonesian Ministry of Communications and Information, launched an initiative to help close the digital divide by deploying satellite connectivity across 8,000 cellular and Internet access sites.

Internet service providers (ISPs) and mobile network operators (MNOs) face two challenges in bridging the digital divide. The first is justifying the investment to extend service to reach these unconnected populations, many in rural and hard-to-access areas. The second is offering service at a price point the market can afford. When average per capita income is $315, as in sub-Saharan Africa, a monthly service fee of $40 dollars for Internet access is out of the question. To overcome both of these hurdles, satellite connectivity presents an ideal solution with three applications.

## Direct-to-home service

Many people live in areas where there is no terrestrial broadband access, like hard-to-reach mountainous or desert regions or exurban communities where fiber or cable to the last mile was deemed too costly. Very Small Aperture Terminals (VSATs) have helped solve this problem by enabling delivery of satellite broadband services almost anywhere. VSATs comprise an antenna (the "dish"), an outdoor and an indoor unit. As convenient, two-way ground stations, they make it possible to transmit and receive satellite data practically anywhere. That means, ISPs can provide reliable, convenient, and affordable satellite connectivity services to consumers, as YahClick, the joint venture between YahSat and Hughes, is doing, for example, for thousands of subscribers in South Africa using Hughes JUPITER terminals.

## Satellite backhaul

Satellite backhaul of cellular traffic has been used for decades, supporting no less than 70,000 sites today with 200,000 sites projected by 2029, according to NSR. For cellular operators, a major barrier to expanding service in low density and rural areas has been the prohibitive cost of backhauling traffic over terrestrial facilities, whether using microwave, fiber or cable. The cost of terrestrial backhaul, such as fiber or cable, is directly proportional to distance, making it increasingly unjustifiable the further the reach from urban centers. What's more, not everyone can afford direct-to-home Internet service but nearly half the world's population has a smart phone and roughly half of all global internet access is by mobile device.

Providing cost-effective backhaul is now at the top of the priority list in justifying business cases to meet this growth. Next generation HTS and associated ground networking solutions such as the Hughes JUPITER System being deployed throughout Africa and worldwide present operators with a viable path to profitable expansion and the ability to connect more people who otherwise would not have access.

## Community Wi-Fi hotspots

Satellite-enabled Community Wi-Fi Hotspot services successfully bring Internet to places where it is either not available or unaffordable for locals. Deploying Wi-Fi access points makes the last mile affordable for the consumer, who can access the service with any Wi-Fi enabled device. However, this kind of shared access still requires a broadband backbone to carry traffic to and from the Internet connection point.

In this model, a shared, high capacity VSAT can be configured readily to support traffic requirements of local users. The service enables providers to expand their networks cost-effectively and to make Internet available and affordable to unserved and often ignored market segments, while still attaining profitability. By sharing

service costs among dozens of users, the price-per-user decreases substantially to align better with market rates.

For implementation, Community Wi-Fi is especially attractive to governments striving to provide Internet access to entire towns on short timelines and without massive cost implications. A shared VSAT model is also ideal for local service providers hoping to expand services to areas with smaller populations that may have lower per capita income.

As ISPs and MNOs around the world seek to serve growing broadband demands in their markets while expanding their wireless footprints, satellite Internet, satellite backhaul and Community Wi-Fi Hotspot services will continue to be an important part of the infrastructure. Simply put, satellite broadband connects the unconnected by enabling service providers to improve their offerings, deliver better throughputs, and support education, economic development and social connection.

## The way forward: connectivity everywhere

Now, as we look to post-pandemic life, governments across Africa and Asia are exploring ways to ensure all citizens have the connectivity they so desperately need, with satellite offering the fastest and most efficient solution for hard-to-reach and remote locations. Governments are best positioned to implement effective connectivity. Certainly, that includes cable and fiber broadband where available and affordable. Yet, across large swaths of Africa and Southern Asia, satellite continues to proliferate as the technology of choice for connectivity, with good reason.

The BAKTI program and others underscore the rising trend of governments taking a more active role in bridging the digital divide. In Botswana, Botswana Telecommunications Corporation uses satellite (and the Hughes JUPITER System) to expand its high-speed business broadband service across the country with hundreds of remote terminals connecting businesses and homes.

One of the largest telecommunications companies in East Africa uses satellite broadband to deliver video and Internet access to schools. In the Philippines, Cignal TV Inc., the premier direct-to-home satellite provider, offers Internet service to two million subscribers using the same JUPITER terminals and network management system that Hughes employs to power HughesNet®, the company's flagship satellite Internet service with more than 1.5 million subscribers.

Around the globe, governments and communities, ISPs and MNOs alike were overwhelmed by all that the pandemic wrought. But today, the focus has shifted from managing dramatic spikes in network traffic, to understanding how to better serve existing customers and apply innovative ways to expand services and connect everyone. Because pandemic or not, the lesson we've learned above all others is that we need connectivity everywhere. ■

# Smart thinking

Approximately 60% of the world's population lives in Asia, putting strain on the continent's cities. But are smart cities the answer to sprawling urbanisation? Robert Shepherd investigates

The creation of smart cities has been captivating the sector for more than a decade. As technology continues to advance at speed and humans no longer need to carry out jobs that robots can now do with aplomb, countries on every continent are planning for a very different future to the one they envisaged just 15-20 years ago.

Although this is happening on every continent, to varying degrees, it is particularly true in the Asia-Pacific (APAC) region. Countries like China (including Hong Kong), Japan, Singapore and South Korea have long been synonymous with advanced technology and the highest standards or more, but southern Asian countries have been working harder to keep up with their northern neighbours by investing heavily in key cities.

When you think about it, the introduction of smart cities makes sense. After all, the idea is simple - embed smart technology everywhere to make a city better and its citizens healthier, safer and more prosperous.

While adoption has been slower in some regions, such as Africa, that has not been the case in APAC. Furthermore, with recent shifts such as wider availability of low-cost internet of things (IoT) sensors, artificial intelligence (AI) and distributed hybrid multi-cloud IT architectures, smart city innovation in APAC continues to accelerate at a speed not experienced anywhere else on the planet. So, why has APAC embraced smart city technologies so quickly? There's more than one answer to this question and to list them all would be soporific.

However, the main one is, well, people. Asia's cities are synonymous with both large populations and high population density. Put it this way: 16 of the world's 28 megacities (cities with population exceeding 10m) are in

Asia. In fact, the United Nations forecasts that the urban population of Asia's megacities will double by 2030 from 2010. Similarly, eight of the world's largest cities with highest population density are located in Asia. Rapid urban growth translates to rising income growth and lifestyle changes, which are stretching the infrastructure and resources of cities, particularly in emerging southern Asian countries.

India alone has a population that's bigger than the whole of Africa's, which is a very sobering thought. Nations like India and many of its neighbouring (mostly developing) countries, there are so many other fundamental issues to be addressed, so why should smart cities take precedence over, let's say, social deprivation and inequality?

Steve Hwang government and cities program lead Asia-Pacific and Japan region at Finnish tech giant Nokia says smart city solutions will be transformative for emerging markets due to their ability, if properly implemented, to help cities become more efficient and productive, which can lead to reductions in time and cost for operations.

"For instance, let us consider smart transformation in a city's public healthcare system," he says. "Typically, it takes a high school student around seven or eight years to become a professional doctor. However, as shown by the rapid rate of urban growth cities in Asia have been witnessing, the region's emerging cities cannot wait for a new generation of medical professionals as demand would outpace supply. In many countries across Asia's developing markets, this has led to the growth of the private healthcare sector while the public sector struggles to catch up. However, such a gap would only emphasize growing income inequalities (and access to paid, for-profit services) in emerging markets."

Nokia has been working with a raft of smart cities across southern Asia, but for legal reasons the locations cannot be listed at this stage.

Nokia's smart city solutions, which have been presented as "City-as-a-Platform" offerings based on the Nokia Bell Labs Future X architecture, are designed to comprehensively address smart urban infrastructure efforts based on the work the company have already been doing in European and North American markets.

Nevertheless, Hwang argues that with smart city solutions geared towards healthcare, more applications around mobile healthcare can be realised especially with greater use of 4th Industrial Revolution technologies such as the internet of things (IoT), big data, industry-grade private wireless networks and even 5G. Hence, smart city applications can help overcome shortages in human personnel, not only in terms of healthcare delivery but also for other essential public services.

It's true that smart city applications like smart grids and buildings, air and water monitoring, smart transportation, smart waste collection, disaster response and more are helping APAC

"In many countries across Asia's developing markets, this has led to the growth of the private healthcare sector while the public sector struggles to catch up"


Steve Hwang, head of government and cities program Asia-Pacific and Japan region at Nokia

cities manage their growth more efficiently, sustainably and resiliently. Sensors paired with AI algorithms provide a real-time view of conditions and usage patterns, enabling city systems to intelligently adapt to demand and respond to issues. Fast and reliable network speeds with minimal latency are key to solutions like this that need to collect, filter and analyse vast amounts of data from thousands of sensors and other data sources in real-time.

Now, let's see how smart city infrastructure has made a difference in southern Asia.

In 2012, the now Motorola-owned IndigoVision rolled out its IP video solution to be used as part of a surveillance system with more than 3,700 cameras in the new terminal three at Delhi International Airport (DIAL). At the time, the project was believed to be the largest single installation of an IP video system in Asia. The new terminal was built as part of the massive infrastructure development for Delhi ahead of the 2010 Commonwealth Games. Delhi is India's second largest airport and with the recent expansion can handle north of 34 million passengers per year.

Then, in 2017, India's STL (formerly Sterlite Technologies) helped Gandhinagar to become the country's first smart city. The company was enlisted to deliver the end-to-end smart city solution for Gandhinagar, made up of Wi-Fi, smart lighting, environmental sensors, smart help desk/call centre and a control room.

While India's smart city plan is still in its infancy, the Narendra Modi government is encouraging cities to forge public-private partnerships to accelerate the pace of project implementation. What's more, the Modi administration has also started to rank the smart cities under an Ease of Living Index, using certain minimum standards for cities to compare and evaluate their progress. Under the program, India's Ministry of Housing and Urban Affairs has developed a set of Ease of Living Standards. A total of 78 indicators, 56 core indicators and 22 supporting indicators are covered. These have been grouped under 15 thematic categories, which in turn form the four pillars of urban development: institutional, social, economic and physical.

More recently, this year in fact, American network software provider Mavenir joined forces with Thai state-owned telecommunications company National Telecom, 5GCT, a local business specialised in delivering end-to-end 5G smart cities and Cisco Systems (Thailand), a networking company, to launch the first 5G Open

RAN Smart City in Ban Chang, Thailand.

The launch of the 5G smart creates synergies between public and private sectors for a fully functional smart city. Ban Chang is connected to a motorway linking Thailand's two largest cities: Pattaya and Bangkok. What's more, the Ban Chang Smart City 5G Private Network operates on Millimeter wave (mmWave) spectrum, spectrum which is ideally suited for a network operating Internet of Things (IoT) sensors, drones and smart poles, all applications which require fast data uplink to the core for real-time analysis and city management.

Mavenir's Aniruddho Basu, general manager of Mavenir's emerging business Unit, says the company is particularly proud to be part of an "ambitious 5G project" which sees a whole city connected on a series of 5G applications running in parallel. "Connectivity is at the heart of this deployment connecting people, communities, government services, and private sector services through local government data combined with new data acquired through Internet of Things (IOT), sensors, drones, and external collected data, to fully analyse it for proper city management and citizen knowledge," he adds.

Smart cities have become such big business that IDC, the global market intelligence specialists, runs the Smart City Asia-Pacific Awards (SCAPA), now a staple event.

At the 2020 (virtual) awards, a total of 19 smart city projects across APAC, excluding Japan were recognised across 14 functional e-service categories.

In case you missed it, among the winners were Malacca City in Malaysia (Economic development, tourism, arts, libraries, culture and open spaces), New Delhi in India (Sustainable infrastructure) and Sentosa in Singapore (Transportation – connected and autonomous vehicles, public transit, ride-hailing/ride-sharing).

Talking about the dominant themes, Gerald Wang, head of public sector at IDC APAC, notes that further automation of city operations, creating better accessibility to digital ecosystems and tools for residents, and enhanced government services, all dominate the "transformation themes" of smart city projects in SCAPA 2020.

He adds: "This year, many Asia Pacific smart city projects focused on agile public policies and initiatives for social inclusivity, intuitive and innovative city services, sustainable critical infrastructure revolutions and global engagements."

Nevertheless, IDC notes that the current global Covid-19 pandemic further strengthened cities' resolve to create cutting edge "live, learn, work and play" digital ecosystems.

"With the direct impact of Covid-19 halting day-to-day activities to the bare essential services, the race to digital for socioeconomic resiliency and survivability is much more exigent than ever before," Wang continues. "City governments would do well to accelerate their digitalisation plans and learn swiftly from the investments and innovative projects of our SCAPA 2020 winners."

Indeed, governments are often cited as being key to the delivery of smart city projects. They are also criticised for not stumping up the required cash to take their country to the next level.

While that may be true, smart cities require leaders who can drive a vision forward through to implementation. Leaders do not have to necessarily come from local governments. More often than not, smart cities are a collaborative effort that brings together the public and private sectors and can be driven by individuals from any sector. Take the likes of Cisco, Google and Siemens, all of which have "smart city" initiatives to promote fibre networks, big data, and the "Internet of Things". IBM hosts the annual Smarter Cities Challenge, which rewards the most innovative cities in the world with grants.

There's more data if you can stomach it. In its 2019 report, "Smart Cities: Shifting Asia", Swiss multinational investment bank UBS projects that APAC will account for 40% of the global addressable market growth for smart city projects, or US$800bn by 2025. What's more, according to the second annual Global Interconnection Index (the GXI), APAC will be the second fastest growing region for interconnection bandwidth, with a projected 51% CAGR from 2017 to 2021, reaching 2,220 terabits (Tbps) by the end of this calendar year.

That said, smart cities mean something different to different regions and people, because each has different needs.

As far as Asia is concerned, the smart city generally, but not always, consists of six key areas: smart connectivity, smart governance, smart services, smart automation, smart health and smart mobility with varying levels of digitalisation. Of course, we mustn't forget cybersecurity, which underpins every smart city regardless of location.

As far as Hwang is concerned, how smart cities are defined and interpreted depends on the urban stakeholder in question, be they smart infrastructure players, application developers, device manufacturers, telecommunication operators, equipment manufacturers or cloud service providers. He also says there can also be variations depending on each country in southern Asia, or the rest of the world for that matter.



**The Malaysian city of Malacca won at the IDC's Smart City Asia-Pacific Awards (SCAPA) 2020**

"Yet, what smart cities as a whole can do is more commonly understood it is to bring improvement to the lives of the city's citizens and businesses via innovation," adds Hwang. "Such improvements can be measured in different ways, whether it is the ability for people and organizations in a city to access key public services, improved safety or a cleaner urban environment. Although the understanding of smart city aims is clearer, there remains no set, comprehensive definition of what they encompass; however, we feel such a definition will become clearer over time and with the emergence of more smart cities around the world."

Based on Nokia's own research and experience within this space, Hwang said it observed that many growing cities in emerging markets share several commonalities.

"Firstly, emerging cities have been seeing continuous economic growth," adds Hwang. "Many of these cities – especially across Asia are already leading contributors to their nation's economy, but they are also projected to take on greater roles as centres of education, technological development and innovation to attract more people to reside in urban centres."

Hwang also pointed to the fact urban populations are continuously rising. "In 1950, only around 17% of Asian populations lived in cities but that figure has since risen significantly to over 50%," he says. "By 2050, Asia's urban populations are projected to double but such growth will also entail demographic challenges. Finally, a seismic demographic shift is happening. Since 2000, due to advancements in healthcare and lower fertility rates, the average

life expectancy in the region's emerging nations rose by six years (as compared to four years in the region's more advanced countries)."

It's clear APAC is punching above its weight when smart cities are concerned. After all, the evidence is overwhelming.

However, it's been said that smart cities can only make sense if put in the broader picture of giving every citizen the right to basic services. Is that a fair comment?

Hwang says that "contentions to such comments boil down to the many different solutions geared for various urban applications – which tend to be grouped under the overarching, umbrella term of 'smart cities'". He adds: "As such, we believe that there is, if not should be, freedom in referring innovations in terms specific to their use case, i.e., 'smart mobility', 'smart factories, or 'smart buildings'. Understandably, this can cause confusion as any one of those specific use cases may not directly address contributions to the lives of daily citizens as a whole. However, even if certain applications are geared towards even a single section of the population, they must be viewed as working in concert with each other as components to drive holistic smart city developments. Essentially, even if certain applications are geared towards even a single population segment, they can stimulate snowball effects and build upon other applications to stimulate long-term innovation in smart cities."

Southern Asia has its challenges like any other part of the world, but the fact it's various smart cities projects are leading the way can only help. ∎

# The all-new CDM-650

Comtech's new CDM-650 Satellite Modem leverages the heritage and feature set by the company's SLM-5650B/C, CDM-625A and CDM-425 modems – the company says - which have been adopted and deployed globally to support government and commercial applications.

The CDM-650 was purpose-built for secure government and military networks, and is suited for fixed location, on-the-pause and communications on-the-move applications. Furthermore, the product features turbo product codes, three LDPC code families, VersaFEC-2 high performance LDPC short and long block forward error correction and a range of modulation, including BPSK, QPSK, OQPSK, 8PSK, 8-QAM and 16-QAM.

By employing the combination of what Comtech describes as "state-of-the-art forward error correction and modulation techniques", the CDM-650 can optimise satellite transponder bandwidth usage.

"We are pleased to introduce the new CDM-650 Satellite Modem to address the needs of foreign government and military entities," says Fred Kornberg, chairman of the board and chief executive officer of Comtech. "The advanced feature set available in the CDM-650 provides the performance, reliability and scalability needed for secure and mission-critical networks." *comtechtel.com*

# Introducing the Wearable Smart Radio by Doodle Labs

The Wearable Smart Radio by Doodle Labs is a compact, wireless mobile mesh router with an integrated Wi-Fi hotspot to allow internet-enabled devices (laptops, tablets, smartphones) to connect to the mesh network.

It apparently provides long-range, high-speed private wireless mesh connectivity for personnel in the field. The Wi-Fi hotspot capability allows field workers to seamlessly collaborate with other team members both in the field and offsite locations using the devices they already have. Field workers can use the company's productivity enhancement apps on an encrypted private wireless mesh network.

The Wearable Smart Radio supports many use cases in industry sectors like construction, agriculture, logistics and material handling, healthcare, public safety, disaster management, border patrol and defence deployments. *doodlelabs.com*

# Wittra takes IoT straight to 'proof of value'

Wittra says its 'IoT Network Kit' is redefining the IoT landscape by taking customers straight to 'proof of value'. The company claims its solution provides a simple, practical approach for tracking and monitoring assets. What's more, its 'ground-breaking' positioning technology enables total asset visibility in all environments never considered possible using narrow-band technology.

Reducing the complexities in any IoT project Wittra offers unique pre-integrated, pre-tested and pre-secure products for immediate deployment. Based on open standards to ensure interoperability and ease of integration users can collect, communicate, and control assets. Devices run on a 6lowpan IP-based true mesh radio network which uses the sub-GHz spectrum providing long range and good penetration of structures for robust and reliable data delivery in any setting.

The Network Kit contains the Wittra gateway, sensor tags, mesh routers and all the associated accessories ensuring your IoT project is up and running in hours; deploying the Wittra Solution via its cloud-based API "is simple and intuitive offering a true 'IoT Out Of The Box' experience for use across many market sectors".

Each tag contains several sensors which include temperature, accelerometer, gyroscope, magnetometer, and positioning. Additional sensors can be added via a plug on sensor approach covering humidity, ambient light, and air pressure. The mesh network is extended in range by the addition of Wittra's Mesh Routers creating a multi-hop self-forming and self-healing true mesh network.

"With the launch of the Wittra IoT Network Kit, I believe we position ourselves at the forefront of the IoT industry. It is a response to clear market needs to provide practical IoT solutions that bring value to customers quicker and with much less complexity", says Thomas Bennet, CEO of Wittra. *wittra.se*

# Evina's anti-fraud mission continues with TrafficScreener

Evina, the specialist in cybersecurity for mobile payments, has unveiled a new tool that it says extends the anti-fraud protection throughout the entire monetisation flow, starting from the source of traffic.

The Paris-headquartered firm with operations in Europe, the Middle East and 15 African countries says TrafficScreener helps merchants master mobile traffic monetization by detecting fake visits.

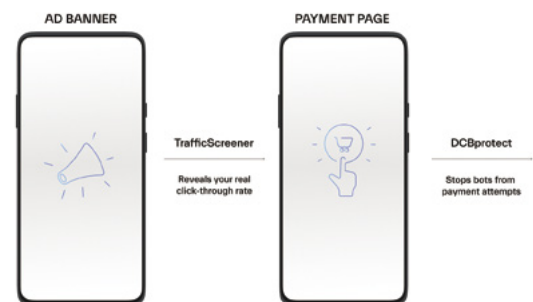After creating Evina DCBprotect, the anti-fraud solution that blocks bots at the time of payment, Evina now leverages the same cutting-edge technology to detect bots as they arrive on a merchant's page.

"When dealing with a CPC (cost per click) model, merchants need to know what type of click - fraudulent or authentic - is leading to their webpage, " say Farid Taha, chief customer officer at Evina. "This has long been a blind spot when dealing with ad traffic and it's why Evina created a tool that provides visibility on all visits following ad clicks."

This new product represents the flip-side of Evina DCBprotect which stops bots from making payment attempts. Now, traffic monetisation can be mastered while fraudulent payments by bots are similarly prevented. While DCBprotect protects the payment page from bots, Traffic Screener detects bots that derive directly from the banner ads. By revealing real traffic and real conversation rates, merchants can optimize their mobile monetisation activities. The aim is to reduce the 20% of budget merchants lose when they acquire fake traffic. Specifically, TrafficScreener enables merchants to receive real figures that reflect the quality of their traffic. *evina.com*

| AD BANNER | PAYMENT PAGE |
|---|---|
| TrafficScreener | DCBprotect |
| Reveals your real click-through rate | Stops bots from payment attempts |

# HD-EFI product series expands with thread-in configurations

Amphenol RF says it is "proud to announce the expansion" of its HD-EFI product line, "designed to satisfy" the need for a compact RF interconnect solution. The latest addition to the HD-EFI series consists of panel mount receptacle jacks, a common component in wireless infrastructure filters. These HD-EFI jacks feature thread-in mounting and post contacts for easy installation into wireless filters, amplifiers and distributed antenna systems.

HD-EFI thread-in connectors are engineered with white bronze plating to improve low PIM performance and set them apart from the existing options. These connectors are available as straight panel mounting receptacle jacks in both smooth bore and limited detent interfaces. These 50 ohm connectors are designed for crash-proof mating, achieved by using a conical interface and unique plug design, and offer excellent electrical performance through 6 GHz, along with all the existing benefits of this product line.

The HD-EFI product series is a micro-miniature interface which allows large board tolerance stack ups, blind mating and multiple RF lines. In addition to the thread-in connectors, various PCB and cable-mount connector configurations are available.  *amphenolrf.com*

## MOTOTRBO Ion: Making yourself heard

Motorola's MOTOTRBO Ion is a next generation business-ready smart radio with voice, broadband data and multimedia capabilities to connect teams, inform operations and keep businesses running smoothly.

The device brings real-time intelligent data to existing business workflows. Its fully open Android application ecosystem allows for seamless integration of the mobile data applications that commercial industries depend on, such as those used for enterprise-grade barcode scanning, as well as team communication platforms used for messaging, meetings and shared content.

The MOTOTRBO Ion smart radio is purpose-built for a variety of enterprise environments. The dual microphones, speaker size and audio engineering provide crystal clarity and noise suppression for powerful audio that outperforms smartphones, especially in loud environments. The device also features an integrated camera to send photos and videos, and can even stream video in real-time.

With an ultra-rugged design, it stands up to harsh conditions and exposure to dust, water and repeated drops. It features cloud-based programming and provisioning, remote updating and real-time device monitoring, allowing businesses to deploy and maintain their radio fleets with minimal touch and downtime.

To keep the roaming workforce connected anywhere you do business, the MOTOTRBO Ion enables seamless communication through voice and data, over both public and private networks. *motorolasolutions.com*

## 'Innovative v45C qualified for operation on Intelsat FlexMaritime network'

Intellian brings to market its v45C antenna, which has also been qualified for operation on the Intelsat FlexMaritime network. By combining Intellian's compact, antenna with Intelsat's FlexMaritime High Throughput Satellite (HTS) service, this approval will deliver global connectivity to customers in the smallest package available to date.

Until now, service providers have required antennas of 60cm or larger to deliver high throughput services owing to the higher power demanded by smaller units, but with the advent of HTS technology teamed with innovative antenna design, the use of more compact antennas has become possible. The v45C has been developed to bring VSAT to new markets where there is limited space available for communications equipment, such as workboats, leisure craft, fishing boats, small commercial and government vessels.

Intelsat is among the first to take advantage of this capability with the addition of a 45cm category to its FlexMaritime HTS service. VSAT delivery to small antennas has traditionally been restricted to localized regions in order to conserve power, but through the use of spot beam technology, HTS satellites can overcome this limitation. By providing high-power service to small, tightly-focused areas, frequencies can be reused across the satellite's coverage area, supporting global service while reducing the cost of delivery.  *intelliantech.com*



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# More Telecom acquires Powercom Pacific

Australia's More Telecom has acquired national internet and phone provider, Powercom Pacific, substantially increasing the company's SME customer base.

The purchaser is the land down under's most successful and longest-running NBN provider with a sister retail business, Tangerine Telecom.

Powercom Pacific owns several brands including Powercom, Montimedia and QTelecom and all customers will be migrating to More Telecom.

Under the terms of the acquisition, Powercom Pacific staff will be moving with the business and maintain ongoing employment with More.

More Telecom general manager, Andrew Branson, said the acquisition strengthens the More business which is expanding in both customer numbers and product offers.

"The More business consistently seeks exciting expansion opportunities and with Powercom, we identified a business with complementary cultural and business models," he added. "The Powercom customer base consists of long term, loyal,

**Under the terms of the acquisition, Powercom Pacific staff will be moving with the business and maintain ongoing employment with More**

small business owners who want excellent service and we are confident we can deliver on this front."

More Telecom has also expanded its SME reach via the launch of other business services such as More Payments and More Bookkeeping.

The More Telecom and Tangerine Telecom business model works on a B2B/B2C business model delivering more efficiency and faster speeds due to the balanced bandwidth loading between the business peak hours during the day and the consumer peak hours during the evening.

# Orange to lay off 485 employees

Orange Spain business will lay off up to 485 employees in the coming weeks, citing years of shrinking income amid Spain's hypercompetitive and increasingly low-cost telecommunications sector.

The France-headquartered operator had already signalled that competition in Spain - its second-largest market - was a long-term trend in the region after posting worse-than-expected results in the first quarter.

Orange, like a number of other players, has been facing growth issues separate from the pandemic's impact as the sector, which has spent extensively on infrastructure such as fibre-optic cabling, scrambles to fund its upgrade to next-generation 5G networks.

"The telecommunications sector has spent years enduring revenue loss as a consequence of the hypercompetitivity of the market and the multiplicity of low-cost actors," Orange Spain said in a statement. "This (context) is a huge challenge for the company, which has shouldered intensive investments in the past 20 years and needs to keep doing so amid the technological transition."

The statement added that adapting operations by reducing the workforce will be essential to ensuring Orange's competitiveness in the face of structural changes, noting that negotiations with labour unions would begin imminently.

# Deutsche Telekom upgrades telecom sites

Deutsche Telekom (DT) has built up 5G capacities at 75 locations across Germany, the operator said in a release.

The company added that it had implemented Dynamic Spectrum Sharing (DSS) to upgrade these LTE sites and has created additional LTE capacities at 173 locations.

DT also noted that its 5G network currently reaches around 80% of the German population, while LTE population coverage is now 98.6%. It had previously said that its technical teams have already upgraded a total of 45,000 antennas for 5G services during 2020. The German telco expects its 5G network to reach 90% of the country's population by the end of the year.

By the end of March, more than 66 million people in around 5,000 towns and cities across Germany will be able to use the telco's 5G network. Over 50,000 5G antennas are already transmitting with 5G across the country.

DT started the rollout of its 5G network in a limited number of cities across Germany at the beginning of July 2019.

In February, it installed the first 5G standalone antenna in Garching, near Munich, to carry out trials of this technology. Deutsche Telekom connected the antenna to a 5G standalone core network via cloud infrastructure.

The operator also noted that the infrastructure in the core network will also be fully upgraded to a new, cloud-based 5G architecture.

# WIOCC extends connectivity to new locations in SA

West Indian Ocean Cable Company (WIOCC) has extended its national hyperscale network in South Africa with 30 new points of presence (PoPs).

Part of a multi-billion-rand investment, the PoPs are along the country's southern coastline, on a new 1,700km terrestrial link between the cities of Durban and Cape Town.

WIOCC said it will also mean more affordable connectivity to coastal towns from Somerset West, Grabouw, Caledon and Swellendam in the Western Cape, through to Doonside, Kingsburgh and Isipingo in KwaZulu Natal.

Furthermore, WIOCC's policy of not imposing aggregation restrictions, will allow clients to serve multiple end-users over a single WIOCC connection.

"This latest addition enables internet service providers, mobile network operators, content providers and cloud operators to deliver their services more cost-effectively into a significant number of additional locations," the company said.

This capability has been integrated into WIOCC's, 16Tbps-



WIOCC
Africa's Hyperscale Infrastructure
WIOCC's hyperscale network infrastructure in South Africa

ready, optical transport network (OTN)-enabled hyperscale national backbone network and its wholly-owned metro networks. The flexible infrastructure is easily and quickly scalable, meaning clients benefit from rapid turn-up of capacity from 1Gbps up to multiples of 100Gbps.

Services available from WIOCC in South Africa include high-quality Carrier IP Transit (IPT), point-to-point national connectivity and high-performance Metro Connect, as well as open access colocation services in specific locations.

# Mexican president attacks telecoms firms over roadblocks to registry

Mexican president Andres Manuel Lopez Obrador attacked the country's telecoms companies for impeding an initiative to create a national biometric mobile phone user registry that is opposed both by industry and rights groups.

Backed in May as a measure to improve public safety by the Senate, the registry would require companies to pay for collection of their clients' biometric data, which would then be stored and managed by the telecoms regulator.

Telecoms sector groups argue it would cost the industry hundreds of millions of dollars to implement. Rights groups say it poses a human rights violation and could lead to wrongful convictions if people's identities are stolen.

The Latin American country's data protection body plans to challenge the registry before the Supreme Court. Judges have also



**Rights groups say it poses a human rights violation and could lead to wrongful convictions if people's identities are stolen**

suspended its implementation, according to local media.

However, Lopez Obrador said operators were impeding a law designed to protect people.

"These telephone companies… have a lot of power, in addition to acting with great hypocrisy, because they already request that data to contract a telephone

service," he said at a press conference. "Now as they also have lots of money to buy or rent media, they're running a campaign against us," he added, singling out Telmex, a unit of America Movil, the company controlled by the family of Mexican billionaire Carlos Slim.

Supporters of the measure say it will help crack down on criminals

who use unregistered pre-paid phones for kidnapping and extortion calls. The registry's information would be available by request from law enforcement officials.

While over 150 countries around the world maintain cellphone user registries, only about 8% of those also require biometrics, according to global telecoms industry lobby GSMA.

# Russia launches satellites for UK telecom

A Soyuz rocket took off from the Vostochny cosmodrome in Russia's Far East, carrying 36 UK telecommunications and internet satellites, the Roscosmos space agency said.

London-headquartered OneWeb is working to complete the construction of a constellation of low Earth orbit satellites providing enhanced broadband and other services to

countries around the world.

The company is competing against billionaires Elon Musk and Jeff Bezos in the race to provide fast internet via satellites for the world's remote areas. Images released by Russia's space agency Roscosmos showed the Soyuz rocket taking off against hazy skies Monday April 26 at 7:14 am local time.

"All satellites have been success-

fully placed in target orbits and have been taken under customer control," Roscosmos said in a statement.

"Mission success!" OneWeb posted on Twitter. The UK company plans for its global commercial internet service to be operational by 2022, supported by some 650 satellites.

Monday's launch was the third batch of its satellites placed into orbit from Russia, with earlier

launches from the Vostochny cosmodrome of 36 satellites each taking place in March and in December.

OneWeb's first six satellites were also launched by a Russian-made Soyuz rocket, taking off from the space centre in Kourou in French Guiana in February 2019.

The company launched 68 more from the Baikonur launch site in Kazakhstan in 2020.

# Iliad posts disappointing results but steps up 5G spending

French telecommunications group Iliad reported slightly weaker than expected first-quarter revenue growth and said it would revise a key cash flow target as it steps up spending on 5G networks.

The company, controlled by billionaire Xavier Niel, reported like-for-like revenue growth of almost 5% for the first three months of the year, helped by a rise in mobile and broadband subscribers.

However, Credit Suisse and JP Morgan analysts said the figures for its main French market and for Italy were slightly weaker than expected, while Poland was ahead of forecasts.

Iliad said it would review its 2021 cash flow target for France in order to speed up spending on 5G networks in the country, where it launched the cheapest offer of the four main operators late last year.

To help ramp up spending, the

Paris-based group said it would sell its 30% stake in On Tower France, which it values at a minimum of 600 million euros (US$731m).

Iliad, which had previously guided for a French operating free cash flow of around 900 million euros this year, said it would give a new target in September, also taking into account a global shortage in semiconductor components.

The company said it expected

to turn a profit from its Italian business this quarter, sooner than previously forecast, but delayed the launch of its broadband offer there until after the summer as a result of the Covid-19 pandemic.

In Poland, it said its integration of mobile operator Play, bought in late 2020, was proceeding ahead of schedule, with 8,000 new customers added over the first three months of 2021.

# China Mobile targets Shanghai Stock Exchange listing

China Mobile, the world's largest mobile operator in terms of subscriber numbers, has approved plans for a potential US$6.06bn listing on the Shanghai Stock Exchange.

As part of that plan, the Chinese state-owned company will issue up to 964.8 million shares or 4.5% of its total issued shares," the operator said in a statement.

According to a local media report, the funds raised from its listing in the A-share market will

be used in a series of projects. They include 5G boutique network rollout, artificial intelligence (AI), cloud computing, and next-generation mobile communication technologies such as 6G, involving a total of 56bn yuan (US$8.71bn).

Furthermore, the company said that if the actual funds raised fall short of the amount needed, the company will supply the rest from internal resources or money raised from other sources. The planned share sale in Shanghai may make the nation's largest wireless

telecom operator the first red-chip company to trade A-shares on the Chinese stock market's mainboard.

China Mobile's plan to enter the mainland A-share market follows a similar move by Hong Kong-traded rival China Telecom, which said in March that it plans a Shanghai main board offering that could raise US$4bn.

However, both companies are being ejected from the New York Stock Exchange (NYSE) after former US President Donald Trump issued a November executive order barring

American funds and investors from owning stock in companies believed by the government to have ties to the Chinese military. The Trump administration had strained relations with China, after the former accused the latter of spying through companies such as tech giant Huawei.

However, China Mobile did not say the Shanghai offering was linked to the US delisting. China Mobile will hold a meeting for shareholders in Hong Kong on June 9 to seek approval for the proposal.

## Bahamas considers mobile entrant

The Bahamas is assessing the viability of introducing a third operator to the archipelago's mobile market to compete with current incumbents ALIV and BTC (Bahamas Telecommunications Company).

Watchdog the Utilities Regulation and Competition Authority (URCA) is expected to undertake an evaluation before the end of June 2021.

The electronic communications sector policy in URCA's Draft Annual Plan 2021 states: "the government of the Bahamas will consider whether further liberalisation of the mobile telephone market should be undertaken in the form of a third mobile operator. The policy requires that URCA provide advice and recommendations to the government on this matter, including a feasibility and



*Only one licence was available at the time, with REV beatinf a rival bid from Virgin Mobile Bahamas. Latin American group Digicel dropped out of the race due to concerns over the steep concession requirements*

market analysis to support any recommendations made."

BTC's monopoly over the Bahamian market was finally broken in November 2016 by the launch of ALIV – the mobile unit of Cable Bahamas (REV) which won the country's sec-

ond licence at auction a year prior.

Only one licence was available at the time, with REV beatinf a rival bid from Virgin Mobile Bahamas. Latin American group Digicel dropped out of the race due to concerns over the steep concession requirements.

## Telecom Italia 'could drop Huawei'

Telecom Italia is considering cancelling a contract with Chinese tech giant Huawei for supplying equipment to build part of the telecom firm's 5G network in Italy.

According to reports, Telecom Italia sent a letter informing Huawei of its intention to withdraw from the deal due to nervousness surrounding security.

The USA has been pressuring countries to ban Huawei equipment, citing security risks. Although Huawei has continuously denied posing a security risk, as regards Europe only Britain and Sweden have banned the company's equipment.

Telecom Italia had initially planned to give the contract to Huawei and Ericsson, but later brought in Nokia to share the contract among the three companies.

Although Italy has not imposed an outright ban on Huawei, under current legislation it can impose strict conditions on 5G deals involving non-EU vendors.

Telecom Italia's move follows a review of its supply policy, including a cost and benefit analysis.

The company had already ruled out Huawei from the core of its 5G network, where sensitive data are processed, by not inviting the Chinese company to a tender last year.

## Qatar-based telecom giant Ooredoo appoints first female CEO in Oman

Qatar-based telecommunications giant Ooredoo has taken an unusual step and appointed Noor Al-Sulaiti as chief executive officer (CEO) of Ooredoo Oman, making her the first woman appointed to this position in one of the group's main markets.

Al-Sulaiti has been in the

telecoms industry for 17 years and recently held the position of CEO of Starlink, one of the group's companies. Prior to that, she was general manager at Phono and FASTtelco in Kuwait.

Noor's experience has equipped her with a deep understanding of the market, products and delivery

channels, the company said. As Ooredoo Oman embarks on a new era, Noor is anticipated to steer the next phase of its strategy.

This will be centred on driving the country's digital transformation, nurturing the development of its people and to help realise the goals of Oman's 2040 Vision.

# Türk Telekom and Nokia to deploy commercial private '5G-ready' network

Finnish tech giant Nokia and Türk Telekom will implement the first commercial private 4.9G/LTE network in Turkey for manufacturer Arçelik Global, the companies said.

The industrial-grade 5G-ready private wireless network will be deployed at Arçelik's Çayırova-based washing-machine factory and will provide the platform for Arcelik to accelerate its digital transformation and implementation of Industry 4.0 use cases.

Under the terms of the deal, Nokia will also provide solution design, deployment and on-going managed services, and deliver the private wireless infrastructure based on the Nokia Digital Automation Cloud (DAC) platform.

Türk Telekom will provide 4.9G/LTE spectrum and also will be responsible for project end-to-end

management and governance model.

"At Arçelik, we are committed to integrating new technologies into our business model and this deployment positions Arçelik at the forefront of manufacturing digitalisation," said Utku Barı Pazar, chief strategy and digital officer, Arçelik.

An initial application will see the network deliver pervasive, reliable low-latency coverage throughout the facility to enhance automated guided vehicle (AGV) performance.

With AGVs used throughout the manufacturing process for component logistics, improved connectivity will enhance AGV speed, control and operational efficiency. Nokia and Arcelik plan further collaboration in order to develop and implement additional use cases in the mid-term.

The network will support accurate



**Finland's Nokia is helping with '5G-ready' network**

indoor positioning for tracking assets in real-time and enable new video analytics-based applications for site safety and security.

"Arçelik has a highly progressive approach to introducing latest innovations into its manufacturing practices and workflows," added

Raghav Sahgal, president, Nokia cloud and network services. "Deployment of the first private 5G-ready network in Turkey for Arçelik is a major step forward in both its approach to manufacturing digitalization, and as an inspiring example of innovation in the region."

# Alaska's GCI announces 10 Gbps strategy

Alaskan operator GCI plans to take 10 Gbps service into the wild within the next five years, setting an interim target to deliver 2 Gbps to a majority of residents in the US state in 2022.

The company outlined a plan to serve 77% of Alaskans with 2 Gbps service in 2022, including those living in Anchorage, Fairbanks, Juneau, Petersburg, Sitka, Wrangell and Valdez. It said customers currently on its 1 Gbps rate plan

will be the first to get upgraded to 2 Gbps and will not be charged extra for the faster speeds.

"Alaska will lead the nation in 2 gig speeds," said GCI chief executive officer Ron Duncan in a statement. "And it will be our turn, once again, to wait for the rest of the country to catch up."

Duncan Whitney, chief product officer at the company, told media that in order to make the leap to 10 Gbps, GCI plans to use a combination

of DOCSIS and HFC advancements alongside ongoing fibre deployments.

The company launched its gigabit service in 2015. It noted approximately 77% of Alaskans now live within its 1 Gbps footprint but added it was working to expand that figure with planned 1 gig launches in Nome and Kotzebue in 2021 and a previously announced Aleutians Fiber Project designed to reach rural Western parts of the state. GCI president and chief

operating officer Greg Chapados said in a statement that the latter effort "should be substantially complete" by the end of 2022.

In May this year, Altice USA revealed it is pushing to deploy a 10 Gbps product by the end of 2022. Meanwhile, Circle Fiber announced in March it was deploying XGS-PON fibre technology in Missouri to deliver speeds up to 10 Gbps, and AT&T started its own XGS-PON rollout a year prior.

# Citymesh wants to be Belgium's fourth MNO

Citymesh is preparing to enter Belgium's mobile market after announcing its intention to apply for the spectrum package set aside by the country's regulator for a potential fourth national mobile operator.

In December 2020, Citymesh was acquired by IT service provider Cegeka, at which time the former said that the acquisition will enable the necessary capital and expertise required to achieve its long-held aspirations of becoming Belgium's

fourth mobile network operator.

Now, the company has announced that the new partnership it will enable it to secure the required investment of around €100 million in order to apply for reserved spectrum package.

"Citymesh has had the ambition for years to become the fourth telecom operator," said Citymesh CEO Mitch De Geest. "We have found the final pieces of the puzzle; we have national 4G and 5G spectrum, a clear vision and, together with Cegeka, a strong and complete offering to shake up the

telecoms market in Belgium."

The spectrum package will give Citymesh access to 700MHz, 900MHz, 1,400MHz, 1,800MHz, and 2,000MHz spectrum, which the company will add to the spectrum in the 2,600MHz and 3,500MHz bands which it already owns. This broad array of spectrum will not only allow Citymesh to provide improved B2B services, but also present a competitive consumer offering.

"We have the great advantage of being able to build our networks from

the ground up according to the latest standards," said De Geest. "Thanks to sufficient capacity in the 5G package, we can also use these state-of-the-art 5G networks to realise a unique offering on the consumer market."

Belgium has been seeking a fourth mobile operator since at least 2019, with the market being dominated by Proximus, followed by Orange Belgium and Telenet. A study by the regulator in 2018 had concluded that a fourth national operator could reduce prices.

# Q&A

## Simon Fletcher
## CTO
## Real Wireless

### What was your big career break?

I think in terms of establishing my career, my entry to the international technology arena came when I was thrust into the front line of creating the joint venture between NEC and Siemens to create the first global market platform for 3G. For a number of years, it was the market-leading platform for 3G products. It really shaped my philosophy for how projects of similar scale should be approached and how large corporations through strategic collaboration can effectively compete in an early adopters market.

The second break would be when I was invited to be the Chair of the Green Radio Programme, a UK-based research programme tasked with looking at energy efficiency of networks. Around the same time, I headed up the UK delegation to China on a number of occasions to talk to them about energy efficiencies for radio networks. This shaped my view on the importance of sustainability and energy efficiency and how ICT can contribute.

### Who was your hero growing up?

I'd have to say Bill Gates. I remember my first experiences with the early personal computers and recognising something that was going to change the way we lived and worked every day. Through my formative years I was always dabbling with computers and playing with programming and MS DOS and windows were emerging and I think that's when the initial spark, pardon the pun, of interest for electronic engineering was lit and, in many ways, that was the defining moment for my career direction. Given that, there's really no doubt that Bill Gates, who for me was the instigator of the personal computer revolution has to be named as my childhood hero.

### What's the best piece of advice you've been given?

That's a very hard question – I remember people through my ca-reer giving good advice, but I think truly good advice is so clear, so logical that it becomes part of your ethos, your whole ethic, rather than something a specific person shared. Many people like to give advice and I think that's a great thing. Giving advice is a way of sharing experience and shows our inherent human nature to want to help others. Advice is usually based on personal experience good or bad and giving advice is our way of trying to impart knowledge that we've gained though our lives either through success or failure and wanting others to benefit from it without the trial and error that we ourselves have experienced. My best piece of advice would be to listen to those who give it and consider what they've been through to get to that position of giving advice that tells you the true value of the wisdom they are trying to share.

If I was to single out an individual, I would have to name Walter Tuttlebee who really brought home to me the concept and importance of open innovation especially in terms of shaping outcomes of projects and initiatives.

### What's the strangest question you've ever been asked?

Apart from this question… I recall one of my early attendances of MWC and taking part in a technical panel session. During the Q&A after the discussion, I was asked by a journalist what impact the development and adoption of smart cities would have on television and the media, the sectors she was involved in. The discussion panel was focused on the much wider picture; the infrastructure, transportation, connectivity, energy systems and IoT, the broader impact of smart cities on the socio-economic activities, but she was hyper focused on her sector, her role, her industry. It was a bizarre moment when I was in front of an engaged and switched on audience, being quizzed by someone who effectively wanted to explain how this big, far-reaching topic, would impact her role. I think the rest of the panel was quite pleased that her question had been fielded by me and not themselves and wonder to this day if she had attended the session from the very start or just come in for the Q&A at the end.

### If you could live anywhere, where would it be?

I've been fortunate to travel a lot through my life and career, and two places have always resonated – Norway, where my wife has family, and Japan, where I have visited many times for work. While they are very different cultures on the surface, there are distinct similarities in terms of the friendliness and welcome that both give to visitors. They also both have strong records for their use of renewable energy, which is something that is close to my heart. In my career, I've always been aware that the communications and technology that are my work has the potential to help build a more sustainable energy future and this is something I'm keen to explore further in the years to come.

### What would you do with $1m?

Obviously and predictably, the first thing would be to pay off the mortgage, but after that I think I'd want to look at investing. The UK has a fantastic history of entrepreneurial inventors and small companies in the start-up space can go a long way with some initial seed investment. That type of Angel investment has always appealed and being able to play a role, however small in start-ups that could be the next big thing is something that appeals.

### Which law would you most like to change?

I think with reference to my work for Real Wireless, there is a need to simplify and update the planning restrictions on the height and location of masts and infrastructure. It's all moving in the right direction, but there's certainly more that can be done to assist deployment.

On the bigger picture side of things, I hold the sustainability and ESG agenda in the corporate space close to my heart. Establishing regulations around corporate entities to make ESG more than just an extended CSR policy would be something I would like to see. It would really help drive business and industry towards a more sustainable future. The sector is certainly ripe for more effective governance and incentivisation.

### If you had the oppourtunity to work in a different industry, which would you choose?

I would have to say financial services and investment banking. It may not be an obvious choice, but it's probably influenced by my father who worked as a banker loaning to new start and established businesses, so I was exposed to that sector from an early age. Looking back, I clearly decided to rebel against that direction and pursued my career interests in electronic engineering.

In an ideal world, maybe venture capital investment would be my alternative choice and maybe when I have that million dollars from the earlier question that could still be an option! While others may wish they'd pursued a career in medicine or politics, I think my alternative career may well have seen me following in my father's footsteps more closely.

### What's your career highlight?

As I mentioned earlier, I was part of the team working on the spec and integration management for the first jointly developed 3G base station. The pinnacle of that was being present in the lab for the switch on and testing of the first base station. It was jointly developed by NEC and Siemens, and the atmosphere in that lab as it was switched on was something I will never forget.

I'm also very much enjoying taking part in the UK5G Advisory Board working in a committee that is focussed on helping the UK benefit from 5G. Working as co-chair of the International working group gives a unique opportunity to consider the UK role on an international stage. ■