

For communications professionals in the southern Asian region

SOUTHERN ASIAN **WIRELESS** COMMUNICATIONS

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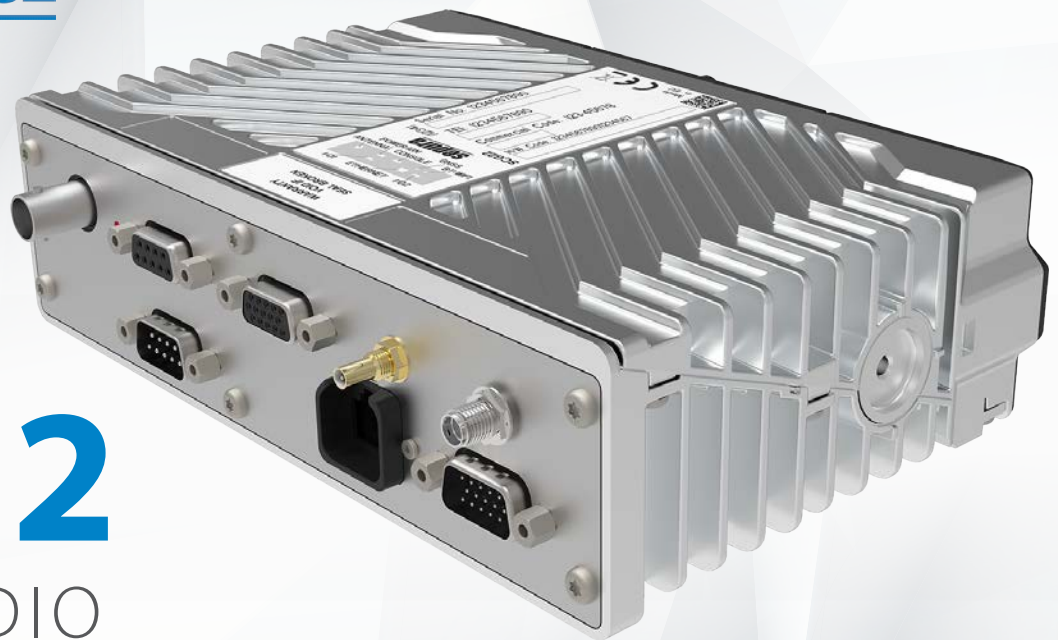
- 5G: going back to the hot topic a year after coronavirus
- Mobile data: opportunities and challenges to be addressed
- Transport: using technology for people and food

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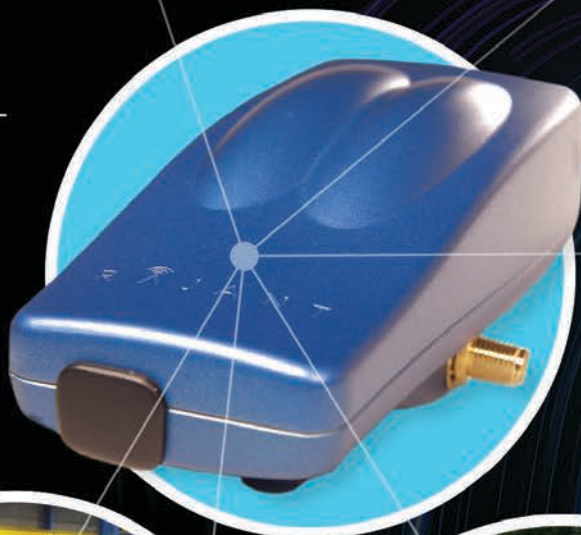
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Grameenphone gets 500 towers from edotco

Grameenphone in Bangladesh is set to get 500 towers across the country from mobile infrastructure service provider edotco, to support the mobile operator's growing customer base and the demands on its network following the coronavirus outbreak.

Mobile operators in Bangladesh were left with no new towers since October 2018 after the government separated the network business from telecom services with the view to rationalising the number of towers in the country and to give smaller operators more of a chance.

Since the awarding of tower licences to edotco Bangladesh, Summit Towers, Kirtonkhola Tower Bangladesh and AB Hightech Consortium, the mobile operators were forbidden from setting up any new towers. Maintenance and relocation of their existing towers were also prohibited.

The four companies were poised to take over the towers from the mobile operators and also build new ones.

Except for edotco, none of the tower licence holders was able to start their operations within the deadline of May 1, 2019. That meant virtually no new towers were set up in the country in the past two years amidst a fast-growing demand, leaving mobile operators in a dire state.

Then the global coronavirus pandemic, which compelled people to do most of their activities over the internet and the phone, put a strain on the operators' limited networks.



Mobile operators in Bangladesh were left with no new towers since October 2018 after the government separated the network business from telecom services with the view to rationalising the number of towers in the country and to give smaller operators more of a chance

As a result, call drops, slow internet speed and low signal bars became all too common in recent months.

In November, Summit Towers handed over the first of the 259 towers it agreed to provide Banglalink, the country's number three carrier. Now edotco and Grameenphone have struck a deal.

"This is a positive start to the towerco regime in Bangladesh – it was much needed for quality customer service," said Jahurul Haque, chairman of the Bangladesh Telecommunication Regulatory Commission.

With the 500 new towers,

Grameenphone would be able to fill in the gaps and improve the customer experience, said Yasir Azman, its chief executive officer. "edotco has a global reputation for its service quality, and so we are confident with our promise to deliver with a remarkable output, which will eventually feed the Digital Bangladesh dream," added Ricky Steyn, its managing director.

Grameenphone currently has about 16,000 sites in number, of which 13,000 are 4G-enabled.

At the end of October, it had Rs. 7.8 crore subscribers, which is 46.5% of the market share, according to data from the BTRC.

Telcos voice concerns over 'backdoor entry' of operators

India's telecoms have written to the Department of Space flagging their concerns over the "backdoor entry" of satellite communications (Satcom) operators in the country, according to a report.

This follows South African-born billionaire businessman Elon Musk's announcement on Twitter that his Starlink internet services would launch in India once it receives regulatory approvals in 2021.

The Cellular Operators Association of India (COAI), responding to the draft Spacecom Policy released last month, said that non-government private entities (NGPE) that have been permitted to establish their own space systems for providing communication services should be objected to the same licensing regulations as telecom service providers (TSPs) in order to ensure a "level playing field."

According to the Business Standard report, the COAI has further demanded that NGPEs obtain spectrum through auctions, like how operators do and not just through authorization by the Department of Telecommunications (DoT), as suggested in the draft policy.

The operators have further warned the telecom department that a license should be made necessary as the "international satellite lobby" may establish NGPEs in order to come up with a number of paper satellite filings to claim protection from the terrestrial use of mmWave bands earmarked for IMT services.

The COAI letter also states that this "abnormal protection" may drive up costs for the deployment of next-generation network technology, consequently depriving Indians of 5G services.

"Stringent criterion and control on private satellite filings and the protection criterion must be considered after these NGPEs acquire spectrum through auction", the COAI said in its letter.

Mount Everest welcomes 5G infrastructure

Huawei has partnered with wireless network operators China Mobile, China Unicom and China Telecom to roll out advanced 5G infrastructure on Mount Everest.

The deployment of 5G base stations on the famous Himalayan landmark, the world's highest mountain above sea level with an elevation of 8,848 metres, has extended the reach of the next-generation mobile technology, which has been held up as "the connective tissue" for

the Internet of Things, autonomous cars, smart cities and other new applications – providing the backbone for the industrial internet.

China Mobile, the world's largest wireless network operator, said its 5G project on Mount Everest marked "not only another extreme challenge in a human life exclusion zone, but also laid a solid foundation for the later development of 5G smart tourism and 5G communications for scientific research".

The international border between China and Nepal is 1,414 kilometres in length and runs across that summit.

Delivering 5G network connectivity to Mount Everest bolsters the three telecom carriers commitment to push ahead with the nationwide roll-out of 5G mobile services amid the Covid-19 pandemic. Their efforts come after concerns were raised that the outbreak had prompted delays in the installation of 5G base stations across the country.

NT urged to up its game

Nepal Telecom has been urged to commit to providing quality service to its customers, by the country's minister for communications and information technology.

"Ministry is ready to extend necessary assistance," he said. "But Nepal Telecom needs to evaluate whether it has been able to serve the people in remote area." The minister also asked the telco to keep its image intact and move ahead with necessary strategy.

In addition, the minister stressed the need of reviewing its activities. "There are criticisms on 4G service," he continued. "The reason behind the criticism should be discussed and problems sorted out." Gurung also said better commitment is required to establish the information super-highway.

Furthermore, the minister directed telecom to fully implement the performance contract which has also mentioned the efforts as reaching broadband to each local level and school, expanding 4G and establishing satellite. "If internet is reached every local level, it would be huge achievement," Gurung said, adding that new work plan was needed for the holistic development of telecom sector.

Gilat carries 5G traffic over Thaicom satellite

Gilat Satellite Networks successfully demonstrated carrying 5G traffic over Thaicom's Geostationary Orbit (GEO) High-Throughput Satellite (HTS), the company said.

The Israeli firm's cellular backhaul solution is now declared operational and ready for 5G implementation.

The tests were done with both Standalone (SA) and Non-Standalone (NSA) 5G architecture options, using Gilat's Capricorn PLUS. The tests reached speeds of 400 Mbps download and 100 Mbps upload, and at faster times than the terrestrial connections.

Additionally, Gilat's Capricorn PLUS very small aperture terminal (VSAT) was used to conduct live demonstrations in September with two Mobile Network Operators (MNOs) over Thaicom's IPSTAR GEO satellite.

The demonstrations involved a 5G handset, using a large number of applications, including: browsing, speed test, YouTube 4K, Voice Over LTE (VoLTE), Video Over LTE (ViLTE), Virtual Reality (VR), Augmented Reality (AR), and communication with a drone providing a live video stream.

"We are excited with the results of the close work with our partners



The Israeli firm's cellular backhaul solution is now declared operational and ready for 5G implementation

in demonstrating the extraordinary capabilities of our flagship VSAT, Capricorn PLUS. We believe that these recorded results of 400/100 Mbps to/from the 5G handset are unique in the industry," said Alik Shimelmits, chief technology and product officer at Gilat. "This was successfully demonstrated using Gilat's Capricorn PLUS over Thaicom's GEO satellite and MNOs are invited to go ahead and deploy Gi-

lat's solution for their 5G services."

Separately, Gilat revealed that its subsidiary Wavestream received multi-million-dollar orders from the US Department of Defense (DoD) for high-power 50W Ka-band military Block Upconverter (BUC). Wavestream's 50W Ka-band BUC is the most widely deployed solid state amplifier built at this power level and will power the DoD's military communications program.

Pakistani government approves spectrum strategy

Pakistan's federal government has approved the three-year "Rolling Spectrum Strategy 2020-2023" to ensure faster telecom network speed, it announced.

The Spectrum Master Plan has been developed by incorporating

international best practices that are applicable to Pakistan. It provides a future roadmap for spectrum allocation as well as spectrum-related policy reviews that are anticipated to take place between 2020 and 2023.

The report has helped Ministry

of IT & Telecom (MoIT&T), Pakistan Telecommunication Authority (PTA) and Frequency Allocation Board (FAB) in formulating the three-year rolling spectrum strategy – a key area highlighted in the Telecommunications Policy 2015.

In addition, publication of the spectrum roadmap helps commercial operators with their network planning investments. However, there is a need to review the plan every three years to ensure that the plan continues to be relevant.

Enea and Matrixx partner to accelerate 5G monetisation

Enea, a global supplier of software components for telecoms has partnered with monetisation solution specialist Matrixx Software, to develop a core billing system that is interoperable between 4G and 5G.

The combination of the former's policy manager and Matrixx Software's 5G converged charging system gives operators a turnkey, cloud-native policy and charging

solution for 4G and 5G networks which can be deployed on public, private and hybrid clouds.

"5G introduces fundamental changes to the way policy and charging work for evolving services," said Marc Price, chief technology officer, Matrixx Software. "It's more important than ever for operators to embrace cloud native principles that empower distributed networks.

Enea's microservices-based, API-first design complements Matrixx's solution to provide a competitive edge for operators supporting new revenue models, including edge-based applications and services delivered with network slicing."

Roland Steiner, senior vice president, telecom business unit at Enea, said the partnership with Matrixx "is a very natural fit for Enea", because

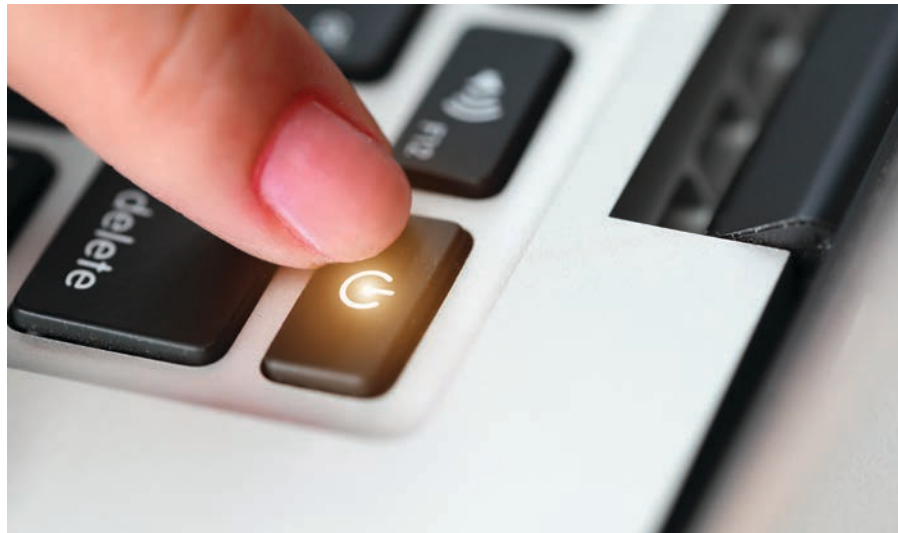
the companies share a common ethos and vision for the development and future of cloud-based architecture "Just as importantly, we both recognize that operators cannot afford for 4G and 5G networks to operate in silos, which is why our policy manager encompasses the Policy and Charging Rules Function (PCRF) for 4G and Policy Control Function (PCF) for 5G," he added.

Myanmar: civil society groups warn of internet shutdown impact

The government's move to extend the internet shutdown in west Myanmar will negatively impact more than a million people during the general election period, four civil society groups said in a joint statement.

Myanmar Centre for Responsible Business, the Free Expression Myanmar, Myanmar ICT for Development and Phandeeyar, released a statement November 4 in which they warned of the consequences posed by the shutdown, which were extended beyond the November 8 elections.

The groups said the decision will affect the lives of up to 1.4 million citizens in Rakhine and Chin states and pleaded for access to be restored soon. In the statement, the four groups also said they are concerned over the government's latest order, which is on back of an internet blackout launched in June 2019. The 2G internet restriction did not expire until October 2020.



The groups said Myanmar's government must acknowledge the clear and obvious effect of the internet restrictions on its citizens and demanded the immediate reopening of 3G and 4G internet

The groups said Myanmar's government must acknowledge the clear and obvious effect of the internet restrictions on its citizens and demanded the immediate reopening of 3G and 4G internet, as well as the avoidance of further network

interruptions and restrictions.

Telenor, one of the leading telcos in the country, said the government's instructions on October 28 tells the operators to maintain the 3G and 4G internet restrictions in the eight townships located in west Myanmar,

made up of circa one million people.

Fellow players like MPT, Ooredoo and MyTel have received the Ministry of Transport and Communications' instructions to extend the internet blackout, but the ministry has yet to make it official.

Reliance Jio calls for periodic spectrum auctions

Reliance Jio Infocomm has urged the Telecom Regulatory Authority of India (TRAI) to work out a mandatory schedule for periodic spectrum auctions to ensure that telecom operators need not wait long for radio waves to meet network requirements.

SpaceX, led by South African-born billionaire Elon Musk, has also expressed interest in promoting broadband in India and pushed for the use of satellites for better connectivity and enhancing the efficiency of scarce spectrum

available in the country.

Jio, in its comments on a consultation paper floated by the TRAI on promoting broadband connectivity and enhancing broadband speed, said the four-year gap in spectrum auction by the government is inexplicable and huge amount of spectrum remains unutilised and unproductive. The Mukesh Ambani-led firm had in September too written to the telecom secretary Anshu Prakash, questioning the Department of Telecom's rationale

to pause the policy of annual spectrum auctions. The letter also said that the sale of airwaves should be held at the earliest to meet the demand for data services.

"We submit that mobile broadband is now ubiquitous, however, the exponential growth of demand has now started to impact broadband speeds. The only way to avoid this and ensure that the mobile broadband speeds are comparable to equally large or comparable economies is by putting more spectrum

in the hands of the operators," Jio commented on TRAI's paper.

SpaceX, in its suggestion to TRAI, flagged the issue of taxes and other administrative burdens on companies hindering affordable broadband. "The unintended fees, taxes and other administrative burdens that, when passed on to end-users, can make broadband unaffordable to many," said Patricia Cooper, vice president for satellite government affairs at SpaceX.

Meanwhile, SpaceX has since sent a Sirius XM satellite into orbit.

MCI award spare spectrum to boost digital transformation

The Indonesia Ministry of Communication and Information (MCI) began the process to award spare spectrum in the 2.3GHz band to operators, in a bid to boost operator capacity and encourage digital transformation.

Head of public relations for the government division, Ferdinandus

Setu, told local publication IndoTelko: 'The selection is part of the [MCI's] efforts to support digital transformation in the economic, social and governmental sectors because there are still radio frequency blocks which currently have not been assigned radio frequency band users.'

MCI, known locally as Kementerian Komunikasi dan Informatika (KemKominfo), formally awarded 30MHz of spectrum in the 2.3GHz band.

KemKominfo also intends to award a further 10MHz blocks of spectrum, with operators already holding licenses able to participate

in a potential auction.

IndoTelko noted Telkom subsidiary Telkomsel invested IDR1tn (US\$70.6m) for an additional 30MHz block of spectrum at 2.3GHz.

For a further 30MHz block, Telkomsel may have to 'pay twice the upfront fee and frequency BHP' from the price it paid in 2017.

Firms partner for 5G-ready transport network

Indosat Ooredoo and Huawei Indonesia will build a state-of-the-art, programmable, 5G-ready transport network powered by segment routing IPv6 (SRv6).

Huawei will deploy the network in the key areas of Jabodetabek, Surabaya and the rest of East Java and Bali. It said this will be the first commercial deployment of its kind in Asia Pacific. The company said it would enable a simple, scalable, agile and reliable network available on demand to enterprises and consumers alike.

Indosat Ooredoo is Indonesia's leading mobile operator, serving a growing subscriber base. The growing demand for mobile data consumption, and the emergence of newer technologies like cloud computing and network slicing, are driving what is referred to as this paradigm shift from Indosat Ooredoo, through a partnership that aims to ensure on-demand network services for its customers.

This new technology, along with Indosat Ooredoo's fibre optic network expansion, will enable the cloud computing-supported faster data connectivity with which Indosat Ooredoo looks to serve digital communities.

In preparing for these future-ready services in Indonesia, Indosat Ooredoo has undergone various steps of digital development and this transport network transformation is described as a key element of the journey.

'Mobile malware activity sees dramatic rise in Q3'

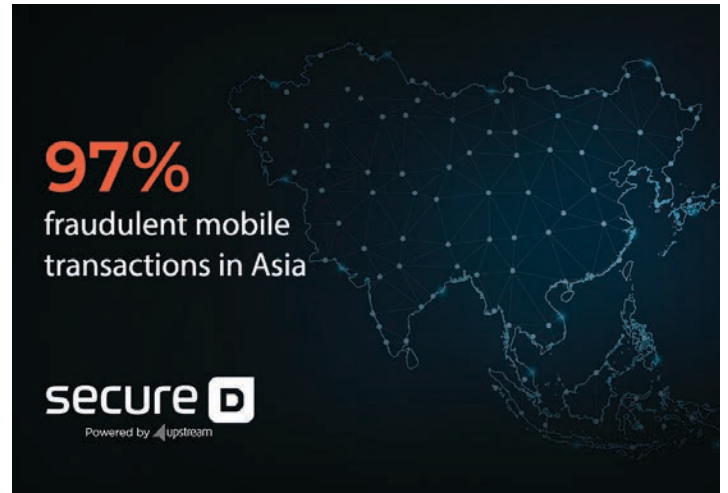
The third quarter of 2020 saw a consistent and significant increase in mobile malware activity with Asia at the epicentre, according to new research.

A report published by Secure-D, Upstream's full-stack anti-fraud platform, which currently covers 30 operators in 20 countries, shows that 97% of all mobile transactions in the region have been flagged and blocked as fraudulent.

More than half of the activity blocked was found in worst hit Indonesia, where malicious app activity is skyrocketing. The top ten worst offending apps worldwide for the quarter appear to either have a direct link with the official Android app store or a specific handset manufacturer.

In Asia, where mobile malware soared during the third quarter of 2020, Indonesia saw 98% fraudulent transactions from a total of 164 million transactions processed. This represents 64% of all transactions Secure-D blocked around the world during Q3 2020. That's five times the number the anti-fraud platform blocked in the country during the same period last year and three times bigger than the previous quarter of 2020.

In total, 310,000 users in Indonesia were found carrying malware infected devices, equating to one fifth of all infected users Secure-D detected globally, and one third of those across Asia. The number of suspicious mobile apps in the country has doubled compared to Q3 2019, jumping from 3,129 to 6,288. This adds yet



A report published by Secure-D, Upstream's full-stack anti-fraud platform shows that 97% of all mobile transactions in the region have been flagged and blocked as fraudulent

further evidence to the theory that bad actors are using the pandemic to take advantage of a relatively captive mobile userbase.

Upstream's full-stack anti-fraud platform is deployed with 11 operators across eight countries. Data for the penultimate quarter of 2020 shows that Thailand and Malaysia have also experienced an increase in fraudulent malware activity. The number of suspicious transactions stopped due to fraud in Thailand stood at 7.2 million, out of eight million transactions processed. This is double versus the same quarter last year. Malaysia saw a 30% increase in the number of transactions blocked.

This rise in fraudulent activity isn't simply down to the same users and apps pushing through

more transactions. In Thailand, the number of infected users has increased by 700% from 23,275 in Q3 2019 to 178,857 in Q3 2020. The number of blocked apps has also increased from 157 in Q3 2019 to 1,459 in Q3 2020.

"An increasing number of people are opting to stay at home due to the pandemic, and many have become dependent on their mobile phones for entertainment, news and socializing," said Geoffrey Cleaves, head of Secure-D at Upstream. "At Secure-D, we are noticing a sharp increase in malicious activity from bad actors publishing apps, even on the Google Play Store, that blindsides users, purchasing subscriptions and premium content without their consent."

Vietnam to end 2G services in 2022

Vietnam plans to bring the number of 2G subscribers to under 5% by 2022, so it can instead invest in and push the development of higher-technology cellular networks.

There are currently around 24 million 2G subscribers in the country and the ministry of information and communications aims to bring the figure down to five-seven million, or around 5% by the year after next, it said.

Closing 2G will leave more band-

width for 3G, 4G as well as the upcoming 5G network and help accelerate the establishment of a digital economy, the ministry added in a statement.

The department is now working to boost the sales of low-cost smartphones so more people will be familiar with 3G and higher networks.

Hoang Minh Cuong, head of the Southeast Asia nation's telecommunications department under the ministry, said the 24 million 2G users are

the ones that telecom operators need to help transition to smartphones.

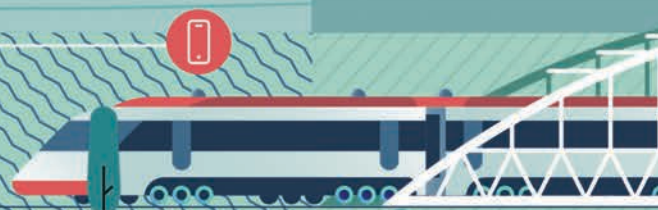
The number of 2G subscribers has dropped by six million since 2019, showing that the goal to bring the ratio to under 5% is achievable, he added.

Meanwhile, Taiwanese electronics manufacturer Foxconn is relocating some of its Apple work from China to Vietnam at the request of the US giant. According to reports, the

company behind the iPhone series is said to be nervous about the ongoing trade war between China and the US. The row erupted when the outgoing Donald Trump administration accused Chinese tech giant Huawei of using its devices to spy on behalf of the Chinese government. Vietnam has long been considered a reliable country when it comes to manufacturing and a viable alternative to China and India.



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Summit Towers to build 259 telecom towers for Banglalink

Summit Towers has been awarded the contract to build 259 telecom towers for mobile operator Banglalink.

Both companies aim to complete the project of building these 259 towers by January 2021 with a view to adding more towers in the coming years.

Posts and telecommunications minister Mustafa Jabbar said that the deal marks the beginning of

initiative taken in 2018 through the signing of the tower sharing agreement with four companies. "This agreement has made it easier for the mobile network operators in this capital-intensive telecom sector to expand the network as well as improve quality mobile services offered by the operators," said Jabbar. "To improve the quality of service,

spectrum will soon be auctioned."

Banglalink chairman and Veon group co-chief executive officer Sergi Herrero said that considering Bangladesh's potential in digital services, it had been investing heavily in Banglalink's network and digital platforms and had witnessed good performances in recent times.

Banglalink CEO Erik Aas added: "I would like to thank Summit

for being our partner in the endeavour to expand Banglalink's strong network across the country. We always appreciate and welcome the regulatory initiatives that bring positive changes in the industry and benefit the customers." The meeting was also attended by posts and telecommunications secretary Md Afzal Hossain, among others.

SIM re-registration hits Telenor subs figures

Telenor Myanmar has lost over six million customers in the third quarter of this year, which for parent company Telenor of Norway is related to SIM deactivation.

However, the Myanmar unit did not lose money. Figures released by Telenor suggest that total third-quarter revenues of kr1.62bn were up from kr1.39bn a year earlier. Subscription and traffic revenues amounted to kr1.43bn, up from kr1.20bn. Mobile ARPU and EBITDA were also up.

The number of subscriptions decreased by 6.3 million as Telenor Myanmar deactivated SIMs following the SIM re-registration process to comply with new directives from the authorities. There was an underlying increase of more than four million subscribers but the overall effect was a 2.1 million reduction in the group's subscriber base.

The inherent demand for telecoms services, however, is growing. In fact the increase in subscription and traffic revenues was apparently driven by strong growth in data usage, more than offsetting the impact of price pressure.

The report also noted that operations in Asia and roaming revenues remained impacted by the Covid-19 situation. Lockdowns have eased in some places, but the report says, the number of new daily Covid-19 cases has been increasing in Myanmar.

Globe rolls out 5G in Philippines cities

Globe Telecom of the Philippines has expanded its 5G network to 17 key cities in populous areas of the National Capital Region (also known as Metro Manila), Visayas and Mindanao as part of its operator large connectivity upgrade campaign.

In Metro Manila, specifically, the operator added more 5G sites to put it on track for its target to cover around 80% of the area by the end of 2020.

"We have a very active 5G development in Metro Manila and we hope to cover 80% of that soon," said Gil Genio, Globe's chief technology and information officer, in a press release. "We are probably in the two-thirds range right now. To complement this, we have also begun to roll out in six key cities in Visayas and Mindanao as part of the overall change we are making to bring 5G to more places and customers in the country."

Globe described its 5G rollout as "aggressive," adding that this approach is part of its 3-pronged strategy for network upgrades and expansion. "Aggressive" cell site builds, upgrading its cell sites to 4G/LTE using many different frequencies and fast-tracking the fiberisation of Filipino homes nationwide are all priorities for the operator.

In September, Globe Telecom promised to invest PHP50.3bn (US\$1m) on large scale network upgrades to meet connectivity demands that resulted from Covid-19 lockdown measures.

In a statement, Globe president and chief executive officer Ernest Cu said that the company is "in a much better position now to fulfil



In Metro Manila, specifically, the operator added more 5G sites to put it on track for its target to cover around 80% of the area by the end of 2020

the demands of its customers," adding that it will focus on providing improved network performance and quality of service for users.

As further evidence of Globe's network efforts, the operator in October upgraded customers to fibre broadband free of charge and in November revealed that it has

rolled out 700 towers in 10 months.

"A good, stable and reliable internet connection is a critical need under the new normal," said Darius Delgado, Globe Telecom vice president and head of its broadband business.

Globe first received the go ahead to deploy 5G small cells in the country's capital city of Manila in 2018.

Vodafone India and Nokia deploy smart agriculture solution

Vodafone Idea's (Vi) CSR arm, Vodafone India Foundation, has partnered with Finnish gear-maker Nokia to deploy a smart agriculture solution in the states of Madhya Pradesh and Maharashtra that aims to increase the productivity of farmers.

A pilot project is currently being implemented across 100 cities in the states and will benefit over 50,000 farmers in the region.

The SmartAgri project aims to enhance the lives of small-scale farmers through sustainable farming practices, deployment of IoT solutions and improving their access to information using technology.

This project assumes significance as climate change, land scarcity, among others remain a hurdle in the way of enhancing farmers' productivity.

However, technology can play a key role in enhancing farm yield and easing these challenges of the agriculture sector by delivering relevant information and advice to farmers such as weather forecast, soil quality, and plant growing cycles.

"Vi CSR is committed to leveraging technology strengths to create social impact through sustainable



The SmartAgri project aims to enhance the lives of small-scale farmers through sustainable farming practices, deployment of IoT solutions and improving their access to information using technology

solutions. Our SmartAgri project is unique as it brings an entire ecosystem of stakeholders such as Nokia for its innovative technology, Solidaridad for project management, and also green experts and researchers from University - all under one roof, to positively impact the lives of farmers in India," said P. Balaji, chief regulatory and corporate affairs officer, Vodafone Idea.

As part of this project, over 400 sensors have been deployed over 100,000 hectares of farmland to collect various data points which are then analysed by a localized, cloud-based Smart Agriculture app. The app provides local language support as well as weather forecast and irrigation management information.

"Together with Vi CSR, our managed service offering will help

an initial 50,000 farmers and their families, with the aim of rolling out the solution across India," added Ankur Bhan, head of Nokia WING Business, at Nokia. "Smart Agriculture is a leading use case that India is exploring in the 5G era. The complete end-to-end solution from Nokia WING is supported by deep domain expertise and an agriculture partner ecosystem."

WiTricity licenses tech to Thailand's Delta

WiTricity, the US-based provider of wireless power transfer over distance, has licensed its wireless charging technology to Thailand's Delta Electronics, a provider of power and thermal management services.

Under the terms of the deal, Delta can build and sell wireless charging systems for industrial equipment, such as automatic guid-

ed vehicles (AGVs), mobile robots and electric forklift trucks.

The Thai firm said it currently serves global customers in various manufacturing and service industries such as automotive, telecom and IT, food and beverage, textiles, building systems, plastics and rubber, printing and packaging and machine tools.

The Massachusetts firm's wireless charging technology is designed to enable hands-free, and connector-free charging. It allows charging to occur automatically — without any human intervention or physical docking. Wireless charging stations can be deployed throughout a factory or warehouse, enabling "opportunity charging"

as mobile systems move through a facility. WiTricity claims wireless charging products based on its technology can be deployed in systems over a wide range of power levels, from a few hundred watts for small mobile robots, to tens of kilowatts for forklift trucks, even to hundreds of kilowatts for heavy machinery.

China's Vivo sets up manufacturing plant in Pakistan

Chinese smartphone company Vivo has decided to establish a manufacturing facility in Pakistan.

The announcement was made by the latter's federal minister for industries Hamad Azhar, who added that Vivo has also purchased land for setting up the facility.

"Deployment of DIRBS eliminated smuggled phones. It was followed up by Mobile Manufacturing Policy. Revenues already doubled and now local manufacturing taking off," Azhar tweeted.

The facility will be set up in Faisalabad with the agreement signed

between the Chinese company and the Punjab government last month.

In late November, Punjab minister for industries Mian Aslam Iqbal chaired a ceremony to sign an agreement for setting up a smartphone manufacturing plant in M-3 Industrial Estate Faisalabad.

Vivo Vice President Duam Tai Ping and Director Manufacturing Zhang Bin signed the agreement at the Faisalabad Industrial Estate Development & Management Company (FIEDMC) office with an initial investment of US\$10m. FIEDMC CEO Aamer Saleemi was also present.

Nokia starts production of next generation equipment in India

Nokia has started production of 5G equipment in India and the products are being shipped to countries in advanced stages of deploying the next generation technology.

The roll out of 5G services in India is dependent on spectrum auction as telecom operators need suitable wireless frequencies to start 5G in the country.

"From being the first to manu-

facture 5G NR in India to producing mMIMO, it demonstrates our innovative manufacturing capabilities and our belief in India's skill and talent to produce the best-in-class equipment," Nokia senior vice president and head of India market Sanjay Malik said in a statement. "This will enable us to support Indian Operators as they prepare to launch 5G."

Nokia was the first to

manufacture the 5G New Radio in India and it is now producing the Nokia AirScale massive Multiple Input Multiple Output (mMIMO) solution, the company said.

"Nokia Chennai factory is manufacturing the latest 5G massive MIMO equipment that is shipped to countries who are in advanced stages of 5G deployment," added Malik.

"Since 2008, the site has manufac-

tured over 5 million telecom network equipment units, exporting over 50% to more than 100 countries. Our Chennai factory has emerged as a benchmark of India's manufacturing capabilities, bringing an entire range of telecom technology to operators in India and the rest of the world."

The Finnish gear-maker claims to have invested over INR600 crore since 2008 to develop the facility.

Watchdog goes after 17 operators

Cambodia's Ministry of Post and Telecommunications (MPTC) has suspended or revoked the licences of 17 operators, in a dramatic response to apparently unacceptable business practices.

The move came after a number of operators (both ISPs and MNOs) failed to pay their revenue shares to the government. It appears that some were inactive and some had been reporting false revenue figures.

This was apparently revealed when the MPTC's inspection team was asked to monitor and audit some of the country's operators to gather information on, amongst other things, the status of their business operations, technical capacities and financial conditions.

A statement from the ministry said that inspection findings showed that the 17 operators were "operationally inactive, had no employees or were non-compliant regarding their revenue shares and other obligations as required in their licences or that they failed to provide the necessary technical documents".

CadComms, which had its licence and spectrum revoked in June, has been joined by another mobile operator, Emaxx Telecom. CN Xinyuan Interconnect, XNET, Saturn Holdings, ATA Telecom, PPIIN Internet, HT Networks, DG Communications, DTV Star and Cambodia Broadband Technologies have all lost their ISP licences.

Sri Lankan village gets 4G coverage

The village of Kelinkanda in the Kalutara District now has 4G coverage, as part of a project launched at the local school.

A group of children at Kelinkanda Primary School had posted some photos on social media of themselves engaging in online education from the sides of the road as they have no coverage at their homes.

The Telecommunications Regulatory Commission reacted by taking steps to provide 4G communication facilities to the Kelinkanda area within two weeks.

Sri Lanka Telecom Mobitel and Dialog jointly set up communication towers under the supervision of the Telecommunications Regulatory Commission of Sri Lanka with the labor and support of the youth of the area.

The government is implementing this initiative under the 'Village Communication' project, which is included in the 'Vision of Prosperity' policy statement. Its aim is to provide communication facilities with 4G technology covering all provinces of the island.



Now with 4G, the new facilities are expected to improve the education of children as well as the economic and social life of the people in the area

The majority of the people in the village of Kelinkanda depend on agriculture crops and small-scale industries for their livelihood. Moreover, this area is prone to natural disasters from time to time. Lack of communication facilities was a serious impediment to providing relief to the people in such cases.

Now with 4G, the new commu-

nication facilities are expected to improve the education of children as well as the economic and social life of the people in the area.

Operators Dialog and Mobitel have since donated computers to Kelinkanda Primary School and the Telecommunications Regulatory Commission laid the foundation stone for a computer lab.

Timor-Leste: regulator opens applications for additional spectrum

The regulator of Timor-Leste has released additional spectrum in the 1800MHz, 2300MHz and 2600MHz bands, with operators now able to apply for allocations.

In September this year, the country's Ministry of Transport and

Communications released new policy recommendations aimed at maximizing spectrum efficiency in the market.

The move prompted the ANC to seek feedback from the country's operators, including Timor Telecom, Telin Timor-Leste, and Viettel Timor

Leste, through a consultation.

This release of additional spectrum is intended to align with the government's policy guidelines by allowing operators access to additional spectrum to improve data services, particularly in densely populated areas.


BSNL's IoT network

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

Thailand: 5G 2025 claim

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

AIC raises concerns

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



Talking satellite

Martin Jarrold, chief of international programme development, GVF



'Zoom'ing in on a Global Digital Ecosystem

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Ooredoo Maldives introduces SuperNet broadband services

Ooredoo Maldives launched SuperNet fixed broadband services in the island of Hoarafushi in Haa Alif Atoll. According to Ooredoo, the newly introduced services will offer a wide range of fixed broadband packages with speeds up to 100 mbps.

"As the dependability on internet has increased due to the current global circumstances, we have been working with highest priority to provide high speed fixed broadband internet services to all corners of the country", said acting chief commercial officer at Ooredoo Maldives, Hussain Niyaz. "So far this year, we have provided SuperNet fixed broadband services to six new islands and today, we have launched SuperNet services to Hoarafushi, connecting its people to new opportunities and allowing its people to truly enjoy the internet.

We will remain committed in our journey to connect our customers from all corners of Maldives and will continue to expand our services".

Ooredoo recently revamped its SuperNet plans, providing up to five times the internet speeds, and up to 68% larger allowances, including SuperNet add-ons with faster speeds.

SuperNet services are also optimised for popular applications such as Facebook, YouTube, and Netflix.

Meanwhile, Ooredoo Maldives opened pre-orders for the new iPhone 12 line-up iPhone 12 Pro Max and iPhone 12 mini. Pre-orders can be placed via the company's e-commerce platform Moolee. Ooredoo said that the, the iPhone 12 has an unparalleled new camera system, edge-to-edge Super

Retina XDR displays for a more immersive viewing experience.

Apple's A14 Bionic chip is said to be the fastest chip in a smartphone to date.

BSNL's new postpaid plans for India

BSNL has announced the launch of new postpaid plans in India, available at Rs.199, Rs.798, and Rs.999. The Rs. 199 plan provides unlimited calls on the same network, while the telecom operator is providing 300 minutes on the other networks, 25GB data per month, and 100 messages.

This plan also comes with a data rollover facility of up to 75GB data. Then, there is a plan of Rs. 798 that comes with 50GB data and 100 messages per day. It includes a data rollover facility of up to 150GB data. This plan is also offering two add on connection to family. These add on connections will get a similar offer as a primary user is getting.

Furthermore, the company has announced that Rs. 999 pack is providing unlimited local and STD calls. Additionally, customers will get 250 minutes for calling per day along with 100

messages ly, this plan is data rollover fa-on connections

Meanwhile, extended the work until December 8, 2020. The company has also extended the plan of Rs.499 Bharat Fiber broadband packs.

This is a promotional offer and limited for a few days in circles, however, users will not get this plan in Andaman and Nicobar circle. The work from home pack ships 5GB data per day with 10 Mbps speed.

every day. Similar-offering a 225GB cility and three add to families.

BSNL has home plans The company

'India to have 350 million 5G subs by 2026'

India is estimated to have 350 million 5G subscriptions by 2026, accounting for 27% of the total mobile connections in the country, according to the Ericsson Mobility Report of November 2020.

Subscriptions in the world's second most populous country, currently estimated at 1.13 billion in 2020, are tipped to reach 1.29 billion in the next six years, the report said.

The Swedish gear-maker has forecast global 5G subscriptions by the end of 2020 at 220 million as telecom service providers continue to build and develop their networks.

Such adoption of 5G in subscriptions and population coverage also indicates that the technology has had the fastest deployment versus other generations of mobile connectivity. Come 2026, the world is estimated to have 3.5 billion 5G connections, the report said.

"By the end of 2020, more than 1 billion people—15% of the world's population—will live in an area that has 5G coverage rolled out. In 2026, 60% of the world's population will have access to 5G coverage, with 5G subscriptions forecast to reach 3.5 billion," it said.

In India, the three largest telecom players have diverging views as far as the implementation of 5G is concerned. While Reliance Jio Infocomm claims to have built an indigenous 5G solution that is ready to be rolled out as soon as spectrum is available, rival Bharti Airtel maintains that the ecosystem is underdeveloped and the airwaves are unaffordable.

Ericsson also said average monthly mobile data consumption per smartphone is on the rise in India driven by rapid adoption of 4G and remote working amid the covid-19 pandemic, resulting into the highest average monthly data traffic in the world.

"The reliance of people on their mobile networks to stay connected as well as work from home has contributed to the average traffic per smartphone user increasing from 13.5GB per month in 2019 to 15.7GB per month in 2020," the report said.

Low prices for mobile broadband services, affordable smartphones and increased time spent by customers online contributed to average monthly mobile data traffic growth, which is estimated to rise to 37GB per smartphone by 2026, it said.

Recently, Jio and Airtel launched cheaper broadband plans as customers look at improving internet connectivity due to remote working. Jio's plans start at ₹399 per month, while Airtel's lowest offer is of ₹499.

India is also among the largest smartphone users in the world, with 760 million subscriptions as of 2020 due to high growth in the number of users from urban and rural areas.

SLT posts solid figures for Q3

Sri Lanka Telecom (SLT) reported stronger top and bottom-line results for the three months ended in September (3Q20), as demand for telecommunication services surged as the pandemic changed how customers work and live.

The parent company of fully-owned mobile services provider, Mobitel (Pvt), recorded revenues of Rs.23.07bn for the three months to September, up 8.4% from the same period last year. Mobitel brought in the bulk of the revenues as people used mobile data and voice services than fixed services.

In addition, the group reported earnings of

Rs1.20 a share or Rs.2.2bn for the July-September period compared to 83 cents a share or Rs.1.5 billion in the comparable period last year.

"Adverse impact to the macro economy due to the COVID-19 pandemic and restrictions for business operations of many companies during the early stages of the pandemic have caused pressure on revenues, growth plans and scheduled investments of SLT," SLT said.

The segmental information for the nine months financial results showed fixed ICT operations of the group logging a revenue of Rs.38.1bn.

TM's 26% increase in 3Q net profit

Telekom Malaysia Bhd (TM) reported a 26% increase in net profit for the third financial quarter ended September 30, 2020 (3QFY20), partly due to Malaysians working from home amid the Covid-19 pandemic.

The operator recorded RM329.4m, up from RM261.3m a year earlier. Revenue for the quarter fell 5.7% to RM2.69bn from RM2.85bn for the previous year's corresponding quarter.

On a quarter-on-quarter basis, its net profit increased 20% from RM274.7m, while revenue grew 3.8% from RM2.59bn.

The sequential increase in revenue was attributed to higher revenue from voice, Internet and data services. Lower operating cost, as a result of cost optimisation programmes, contributed to the increase in net profit.

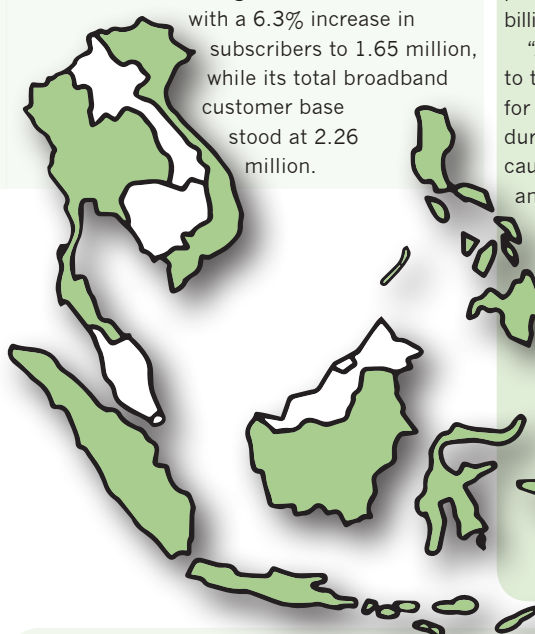
TM said it invested 15% of its revenue in capital expenditure (capex), amounting to RM400m, on network optimisation. It said 50% of the amount was invested in network access, 17% for its core network and the balance 33% on its support system.

For the cumulative first nine months ended

Sept 30, 2020 (9MFY20), TM's net profit stood at RM756.67m, 11% higher year-on-year from RM683.77m. Cumulative revenue was down 6.7% at RM7.84bn versus RM8.4bn a year ago.

"We are pleased to report another quarter of growth across all key financial metrics — revenue and profit — despite the challenging environment in the third quarter," said TM group chief executive officer (CEO) Imri Mokhtar in a statement. "Our efforts in cost optimisation continued to yield results with a healthy pre-tax profit and a strong net profit. "As we enter the ninth month of the Covid-19 pandemic, our priority continues to be the safety and health of our 'Warga TM', while continuously delivering connectivity and solution excellence to our broad customer base."

He added that unifi gained momentum, with a 6.3% increase in subscribers to 1.65 million, while its total broadband customer base stood at 2.26 million.



Telkom records Rp16.68tn profit

Telkom Indonesia, the country's state-run operator, posted a net profit of Rp16.68 trillion in the third quarter of 2020, up 1.3% year-on-year.

The company's net profit margin in the third quarter of 2020 also improved to 16.7% from 16% previously. "In the nine months of 2020, Telkom has been able to record good and healthy performance by continuing to focus on improving services and levels of profitability," said Telkom's president director, Ririek Adriansyah.

Telkom's consolidated income amounted to Rp99.94tn in the third quarter of 2020 and the company's EBITDA (earnings before interest, tax, depreciation, and amortization) increased by 7.1% to reach Rp53.59tn, with EBITDA margin increasing significantly to 53.6% from 4.9% a-year-ago.

"This achievement cannot be separated from IndiHome's contribution, which is one of the main engines for the company's revenue growth, in addition to the mobile data business, which continues to grow well," Adriansyah added.

"This is in line with the company's business focus on three digital business domains, namely digital connectivity, digital platform, and digital services."

Elsewhere, Telkomsel, a subsidiary of Telkom in the mobile business segment, recorded digital business growth of 10.6%, bringing it to Rp47.66tn, with its contribution to Telkomsel's total revenue increasing to 73.2%.

Meanwhile, the triple-play fixed broadband service, IndiHome, recorded a revenue of Rp16.1tn, up 17.1% from the same period last year.

SLT posts solid figures for Q3

Sri Lanka Telecom (SLT) reported stronger top and bottom-line results for the three months ended in September (3Q20), as demand for telecommunication services surged as the pandemic changed how customers work and live.

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In addition, the group reported earnings of Rs1.20 a share or Rs.2.2bn for the July-September period compared to 83 cents a share or Rs.1.5 billion in the comparable period last year.

"Adverse impact to the macro economy due to the COVID-19 pandemic and restrictions for business operations of many companies during the early stages of the pandemic have caused pressure on revenues, growth plans

and scheduled investments of SLT," SLT said in the interim results. "In the short run, the company experienced a positive impact in areas such as broadband, IPTV and career business services due to the surge in utilisation in the residential sector, as well as in the business sector with the shift towards work from home arrangements in continuing the businesses."

The segmental information for the nine months financial results showed fixed ICT operations of the group logging a revenue of Rs.38.1bn compared to Rs.37.4bn in the same period last year.

Ooredoo Myanmar launches paid apprenticeship program

Ooredoo Myanmar announced training opportunities in digital and telecom to final year students and fresh graduates from Myanmar technological universities through the Digital Apprenticeship Program.

The operator said the three-month paid apprenticeship program aims to provide the skills, knowledge and experience to local young talents for careers in digital and telecom sector in Myanmar.

Outstanding trainees from the program will be selected to join the two-year employment Graduate Training Program at Ooredoo Myanmar.

"The digital apprenticeship program is one of our efforts to develop the young generation by providing experience and knowledge in digital and telecommunications sector," said Jeremiah Ratadhi, chief human resources officer of Ooredoo Myanmar.

The first apprentices of this program are final

year students and fresh graduates from the University of Information Technology, Yangon Technology University (Insein), Technology University (HmawBi), West Yangon Technological University (Hlaing Thar Yar), and University of Computer Studies Yangon (Shwe Pyi Thar).

Based on the applications, the quality of selected students was measured by their academic achievements for example – GPA of 3.5 and above or aggregate 80 percent above score in subjects.

Applicants will also be required to take a language proficiency test, ahead of interviews with authorised persons from respective departments.

Meanwhile, Ooredoo Myanmar has entered into a corporate banking agreement with Myanmar Citizens Bank, which will see the latter provide various services to the former, including foreign exchange and credit lines. Both firms said they hoped the deal would boost the country's economy.

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Network automation: learnings from the Covid-19 pandemic

Since the onset of the Covid-19 pandemic, telecommunication networks have been a pillar that we all have heavily relied upon, keeping us connected to family and friends and allowing us to continue working and studying while maintaining social distance, writes Teresa Monteiro, director marketing, Infinera

The use of collaboration tools has increased dramatically. For instance, Microsoft alone saw an increase of 12 million new users on Teams as companies shifted to remote work during the pandemic. This change, together with the increased use of video streaming, gaming, and social media platforms, has driven bandwidth needs up abruptly.

Telia Carrier owns and operates one of the world's most extensive fiber backbones and recently reported that "every day of the week now looks like a Sunday" in terms of backbone network load, with Sunday evenings being the traditional traffic peak. Verizon has revealed that its overall data volume increased by 19% when compared to pre-COVID-19 levels, with peak web traffic increasing by 30%. Data demand spikes have been documented in India and in Malaysia as well.

Thailand's largest mobile operator, Advanced Info Service (AIS), is expanding its 5G network to cover hospitals treating COVID-19 patients – this is a good example of how digital transformation has accelerated, with home schooling and remote health care increasing the traffic pattern diversity in networks and generating new service reliability challenges.

While there is mounting pressure in their networks, most operators have continued to deliver the level of service customers have come to expect. But the challenge remains – how do we ensure that we are future-ready in the face of new demands and economic uncertainty? Now more than ever, network operators need to take full advantage of the networks they have and improve their efficiency at all levels – and improving efficiency is, as we will see, what network automation is about.



Most operators have continued to deliver the level of service customers have come to expect. But the challenge remains – how do we ensure that we are future-ready in the face of new demands and economic uncertainty

The Covid-19 network automation revelation

In a world affected by COVID-19, network software and automation solutions can be a tremendous competitive weapon.

With travel restrictions and limited access to network sites, software-driven functionality offers the ability to turn on new bandwidth and services remotely and instantaneously – satisfying customer demands more quickly and accelerating revenue.

Increased network resilience with service restoration, faster and more effective network troubleshooting, and predictive maintenance methods that leverage sophisticated network metrics and diagnostic tools help minimize field visits and enable them to be planned well ahead of time.

Optimized resource usage maximizes network investment and is particularly relevant at a time when network transformation activities have slowed down. Network automation software that dynamically optimizes resource allocation enables adaptive yet efficient networks that cope with changing needs and priorities.

During a pandemic, employees and their families should be protected, but business must go on.

Network automation offers a means to streamline network operations and define workflows that run autonomously, offering operational flexibility and minimizing the impact of a potential personnel shortage.

The power of automation in the real world

Although software-defined networking (SDN) adoption has not yet reached the heights predicted a few years ago, its momentum keeps growing, and we can already find many real-world deployments thriving with it. SDN technology, an enabler of network automation, is used by leading telecommunications providers today in production environments.

SDN is used to consolidate operations support system (OSS) integration and implement traffic engineering and automated service provisioning across multi-vendor, multi-layer networks. Multi-layer, multi-vendor-capable SDN solutions, using open interfaces and standard data models, such as those defined by the Internet Engineering Task Force (IETF) and Open Networking Foundation (ONF), can successfully orchestrate multi-do-

main Layer 0 to 3 services through controllers from various technologies in multi-vendor environments.

The move towards automated service provisioning is seen in operators in countries as varied as Colombia, South Africa, Singapore or Australia, and is as appealing to those deploying new infrastructure, as it is to those optimizing existing one. In addition to speeding up the creation of new services with a variety of requirements and constraints, SDN ensures unified operation across the entire network for efficiency and simplicity, and unveils the potential of disaggregated network solutions.

Other leading operators, with continent-wide networks stretching from buzzy urban areas to the most remote locations, have chosen to add a software-based dynamic service restoration layer to their infrastructure. This has increased the resilience of their networks with no additional hardware deployment or resource reservation. SDN-driven service rerouting upon transmission failure or degradation is an effective way to protect against multiple simultaneous failures and the need to cope with longer repair times. Regions known to experience high rates of fiber cuts can particularly benefit. ■



5G: where were we?

5G was the biggest technology topic a-year-ago, before it was relegated by coverage of the Covid-19 pandemic. Robert Shepherd gets back to the once hot talking point to see how things have progressed...or not



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Prior to the global pandemic that is Covid-19 indiscriminately pulled the rug from under the world's economies, we were heralding the arrival of 5G. Since then, governments in Asia and the rest of the world have, quite rightly, been more focused on keeping their populations alive than investing in a new technology.

Now, a year on from the first-known cases, vaccines have been developed and the future looks a lot less bleak. It's also time to get back to "normal" and find out how 5G has progressed...or not. Sanjeev Verma, chief executive officer at core network product vendor Squire Technologies, says "5G was well on its way in southeast Asia prior to Covid-19 taking a firm grip on proceedings and disrupting pretty much every industry on the planet", including telecoms and the burgeoning 5G market.

"While the pandemic has affected global supply chains and prevented workers from being able to install, thus curtailing 5G deployment plans, the downward trend is unlikely to last," he adds. "There's been little slowdown in terms of 5G investment in advancement towards 5G standalone core from tier one operators and network equipment manufacturers. Ultimately, it's the result of this sustained focus on technology and innovation over a generation which is why 5G is a reality in these countries and worth the investment."

Verma also says that with a huge portion of the world's internet users, most of which only use mobile devices, it's no surprise that there's quite the competition between states in terms of the speed of deployment of 5G networks.

"Governments in the region have shown their support for early adoption and enthusiasm to take advantage of 5G technology," he continues. "The advantages of high-speed connectivity, reduced latency and greater reliability that next generation connectivity promises provides huge potential for the industrial and manufacturing sectors in the region. Many countries in the region haven't let Covid-19 set their plans back, during the pandemic Thailand has supercharged its 5G rollout, kicking off with hospitals in major cities around the country, and with operators introducing networks in commercial areas such as shopping centres and financial districts."

Verma adds that although less concerned than the West towards Huawei, there has been a concerted move towards taking 5G rollout as an opportunity to push out the Chinese tech giant or be less reliant upon Chinese vendors bearing in mind the geopolitical climate. "India has moved to cut Huawei altogether from telecoms networks, with Reliance Jio developing its own in house 5G solutions," he continues. "Similarly Singapore has moved to push Huawei out of the national 5G equation following Singtel partnering with Ericsson and Nokia. Both nations have as yet stopped short of an official Huawei ban."

Hyla Mobile is a mobile device trade-in specialist with a big presence in Asia. Biju Nair, president and CEO of the firm, says outside of China, the volume of 5G handsets in southern



Vaibhav Magow,
assistant VP,
Hughes

"Terrestrial communications can never be a total solution, illustrated, to use just a single example, by the critical role of satellite for backhaul ever since the earliest days of 2G mobile network deployment"

Asia in 2020 and 2021 is expected to be low.

"When we look at Asia Pacific as a whole, China and South Korea will lead when it comes to demand for 5G devices," he says. "But emerging Asia Pac countries are also expected to drive a surge in demand. For example, Indian operators, as well as the government, have been discussing the importance of 5G networks and the necessity to roll them out to satisfy demands for higher capacity and consumptions of data."

Nair says "the number one demand" from consumers continues to be improved battery life and this is a particularly important consideration for 5G devices. "As 5G networks use a variety of available spectrum, searching for networks is one of the most battery intensive operations of a phone," he continues. "That's why the new iPhone12 deploys smart data mode to improve battery life so that when the phone is not using 5G, it can drop to LTE as required. Ensuring searching for networks is done smartly and optimally is critical for every 5G device." Nair adds that "aside from battery life", features like better camera, video and sensor capabilities are expected to take advantage of the higher resolution images and videos that can traverse faster through new speedy networks. "Given the better camera, more sensors and low latency network, we should expect more healthcare, medical and fitness applications to be available on 5G devices," he concludes.

Subin Paulose, Asia sales lead at Enea Openwave, a company that provides 5G ready products for telecom operator networks, says that over the course of 2020, some operators re-visited their plans for the year attributed to the restrictions during Covid and they have also seen an unexpected surge in traffic on their 4G infrastructure during this period.

"While some operators continued their 5G deployment plans, others deferred their plans to 2021 or later, he adds. "All the 5G-related live deployments we are seeing today are using new 5G radio infrastructure maintaining the existing 4G core in a non-standalone (NSA) architecture.

Whilst a number of operators in southern Asia postponed their 5G plans, they also turned to us to leverage their existing 4G infrastructure. All the operators faced a spike in traffic as lockdowns forced people to work from home and kids to study from online classrooms. Our engineers developed an innovative machine learning based traffic management system that increased 4G RAN capacity by 15% in congested locations."

Paulose adds that to gain the full benefits of 5G, operators must have a 5G standalone (SA) core as well. "We have been providing mindshare, on our cloud native 5G data management solutions for the 5G Core, as Enea provides a robust and open SDM solution for the 5G Core," he continues. "Also, our solutions were designed to have a smaller footprint to cater for private/enterprise 5G cases, as well as a distributed architecture for mobile edge."

Of course, Covid-19 has made 2020 a trying year for humanity as whole and Monojit Samaddar, country director at test and measurement vendor Viavi Solutions – India, says "we all have learnt to transform ourselves" during this time, but his company has not suffered as much as some.

"India and most of the countries in south Asia are still two-three years away from 5G rollout, hence the Covid impact has not been able to create any headwind on Viavi 5G strategy here," he continues. "Viavi in India is deeply engaged with all the leading 5G global equipment manufacturers, software companies, engineering enterprises and chipset developers who have their development centres and test beds here and we are supporting their performance, interoperability and service verification testing. The adoption of O-RAN architecture requires more testing which is driving the revenues in India. The RF test and PTP-SyncE solutions of Viavi are also in demand by these companies and the service providers in south Asia as they build out dense 5G networks."

According to the Ericsson Mobility Report for November, 2020, it is projected that 5G will represent around 27% of mobile subscriptions in India at the end of 2026 – that is an estimated 350 million subscriptions.

Nothing in recent memory has promised to be as much of a game-changer as this next-generation technology, such as offering up ridiculously faster speeds, more capacity for devices and better reliability. However, Vaibhav Magow, assistant vice president at broadband satellite services specialist Hughes, says there is "no single technology can make up the ubiquitous networks" on which people everywhere will depend.

"Instead, we are looking at a multi-transport future that requires both terrestrial fixed/wireless and satellite delivery systems to meet all of the demand for connectivity around the world," he says. "In southern Asia, this is a particularly important fact as more people use their mobile devices for Internet access than computers."

Magow points to the fact that already, with 2G, 3G and 4G/LTE networks, satellite plays a



In Indonesia, five service providers are using Hughes Jupiter System technology and equipment to provide satellite backhaul and internet access under a program with BAKTI, the telecommunications ministry, to connect 8,000 sites across the island nation

critical role in the region – enabling backhaul from remote and rural base stations to the network core. He argues that without satellite backhaul, many of these mobile networks would not be able to extend their services to customers who live beyond the reach of wired services. “For example, in Indonesia, five service providers are using Hughes Jupiter System technology and equipment to provide satellite backhaul and internet access under a program with BAKTI, the telecommunications ministry, to connect 8,000 sites across the island nation,” Magow continues. The Jupiter System incorporates layer two functionality to seamlessly integrate high traffic terrestrial and satellite traffic—supporting the acceleration of 16,000 TCP sessions—an essential feature for applications with many simultaneous users, such as cellular backhaul.”

In other words, Magow is adamant that the satellite industry is 5G ready, prepared to support the new “network of networks” in delivering connectivity everywhere. “Satellite will be a critical element of 5G globally because there will always be places where terrestrial fiber/microwave backhaul is not available and where satellite provides the most cost-effective – if not the only – backhaul connectivity path,” he adds. “Additionally, the promise of high availability of the 5G network demands that there be redundant connectivity paths employing alternate technologies: when the primary terrestrial link inevitably fails due to natural or manmade disasters, satellite backup

provides the necessary resiliency.”

Hughes currently works with Hughes works with mobile network operators in India, Indonesia, Malaysia and the Philippines in the 5G space.

Being the largest continent and – alongside Africa – the most diverse on the planet, it would make sense for some Asian countries to be further down the road than others.

Subin Paulose, Asian sales lead at Enea Openwave, which provides video traffic management and 5G core solutions to mobile operators, explains where this is evident. “Operators in countries like Singapore, Thailand, Philippines and Vietnam have progressed further in their 5G roadmaps than some peers in other countries,” he says. “This meant that they were able to manage the disruption better. Some operators in India, Bangladesh, Malaysia and Indonesia were at the early stages of their 5G journey and had trials underway in early 2020, so it was prudent for them to concentrate on strengthening their existing 4G networks to cope with Covid-19 disruption.”

Of those countries listed above, Paulose argues that the ones with some of the most advanced in 5G networks are Singapore and Thailand. “Notably in Singapore, operators have started on 5G core standalone buildouts,” he continues. “Singapore set out to be a technology hub a few years ago and had a number of trials in place for use cases such as drones and healthcare. The Singaporean regulators also simplified the process for telcos to obtain

5G spectrum, making trials and deployments faster. Thailand was one of the first countries to deploy a nationwide 5G network in the ASEAN region and have been using it in hospitals for telemedicine solutions and also trialled 5G robots to support medical staff.”

It’s a view shared by Simon Fletcher, chief technology officer at independent advisory firm Real Wireless. “For some time, Singapore has been at the forefront of 5G developments in the region and up until December 2019 was closely pursued by the likes of Cambodia, Vietnam and others,” he says. “It appears that all the frontrunners in 5G deployments in the region are coincidentally seeing low – single digit – numbers of new Covid cases, which suggests that their positions will remain relatively stable in comparison to each other.

We have had some interactions with Singapore this year and can see the ambition to lead in the region in terms of development and, given its somewhat unique 100% urban population, it would not be a surprise if the city state leads 5G adoption and mobile applications.”

Samaddar argues that as more businesses are shifting to digital due to Covid impact, the need for seamless connectivity and high-speed broadband infrastructure is rising. “5G is a paradigm shift in network architecture and complexity that will revolutionise connectivity,” he says. “Most of the countries in South Asia have dealt with Covid in a similar manner with various pre-cau-

tionary measures in place; however, Covid will accelerate 5G network roll outs as many industries and their applications need reliable connectivity. It is likely that service providers in many countries in South Asia will wait for applications and use cases to mature in big markets before rolling them out in their markets. Singapore would lead in 5G penetration in South Asia due to its small size, mature deployment processes and less government bureaucratic approach in spectrum allocation."

Indeed, a number of governments have been praised for the manner in which they have dealt with the pandemic. Fletcher says the different approaches in southeast Asia have seen great variation in case numbers and subsequently great variation in the economic impact and the stalling of connectivity deployments. "It's not our place to comment on individual countries responses to the pandemic, but those that have coped better and managed to minimise infections and cases, are likely to be among the first to recover and see a bounce back in their economies," he adds. "Any recovery will be followed by a return to investment in connectivity upgrades throughout the region. Those who responded most proactively will be the first to return, not just to a social normality, but a normal for the development and rollout of 5G services."

Nevertheless, Verma singles out Vietnam's "impressive response" to Covid-19 with one of the lowest number of cases and deaths worldwide has stood out in southeast Asia as has its 5G strategy. "The supportive government has made 5G a top priority. Following trials in 2019 the administration has granted licences to three operators, Vinaphone, Mobifone and the largest provider Viettel who are using entirely domestically-produced equipment," he says. "The government has made telecoms infrastructure a top priority and sees domestically-produced equipment including handsets as an important part of socio-economic development, lowering costs and driving adoption of 5G. Vietnam is also intent on being the first nation in the region to stop using Huawei technology, and see their 5G strategy with native equipment as a route to



Sanjeev Verma,
chief executive officer,
Squire Technologies

"It is often said that there are three 'Rs' of the greatest importance for any critical telecommunications network: resilience, reliability and recovery"

"In particular regions, such as those in Africa and south Asia, where pre-existing communication infrastructure may be lacking, the challenge is exacerbated"

strengthening their national security."

It's often said that poorer nations, such as those in Africa and parts of southern Asia should focus more on their social and economic issues as well as using 2G, 3G and 4G before investing in something so grand as 5G. However, Fletcher says it's easy to assume that areas that are less developed and more rural may not benefit as much from 5G in the short term, but in reality, this isn't the case. "We've seen countless times before, what starts in cities will rapidly roll out across rural areas too. In less developed countries, this can bring big leaps in connectivity where residents previously relied on ageing 2G/3G systems," he adds. "There are several factors that will determine the optimal time to move to 5G and some countries could be satisfied with a good quality 4G provision for a number of years. Deployment of new technology in high population centres should always eventually lead to improvements in rural connectivity and the associated benefits."

Fletcher says "a good example" will be the ability for those living in remote rural environments to have a high-definition video call with a health professional many miles away. Such a call that is reliant on ageing 2G/3G networks could lead to poor outcomes for the both the health professional and the patient. "Given this, it could be argued that connecting the unconnected is more important, or at least will have a greater impact, on areas that are lagging behind the curve in terms of existing connectivity infrastructure," he adds.

As far as Samaddar is concerned, service providers are struggling to maintain connectivity and manage the shift in bandwidth demands. "5G, being a paradigm shift in network architecture and with added complexity, presents challenges on interoperability and coverage, requiring network operators to validate, verify and optimize their 5G network before, during and after deployment," he continues. "This requires a huge spend; however, the relative increase in ARPU is not that significant at present. Hence, many service providers in south Asian countries are not yet willing to roll out 5G. Service providers can manage by upgrading the network in terms of bandwidth and reliable connectivity till 5G low latency high speed applications are in demand."

So, if 5G is a necessity for pretty much every country, regardless of what infrastructure is in place, it's useful to know which sectors will benefit most from it. Paulose says manufacturing, healthcare, agriculture and mining as key industries that can only gain from 5G. "As Asia is



Monojit Samaddar,
country director,
Viavi Solutions

a hub for a manufacturing, a number of operators in Southern Asia have already been inspired by Taiwan and Japan and are conducting a number of 5G smart factory trials," he says. "Healthcare operators have responded to the Covid-19 challenge by working with healthcare authorities to launch services such as video consultations. Malaysia set up a 5G base station to support a quarantine centre so frontline staff could share test results etc. at lightning-fast speeds. Agriculture and farming is another industry. Indonesia is using 5G drones to analyse crops, collect data on soil conditions and moisture levels. Asia is home to some of the largest mines, and most are located in remote areas with poor cellular coverage. Mining companies in southern Asia have been looking to deploy private 5G networks for staff connectivity and for industrial internet of things (IIoT) connectivity.

Samaddar agrees: "Industries benefitting from 5G would be running the applications around internet of things (IoT), machine learning, AR/ VR and artificial intelligence as the current 4G network will not be able to provide the huge demand brought in by the growth in machine-to-machine communications," he adds.

However, Fletcher says he doesn't need to list which sectors will benefit most because "it's hard to think of an industry that won't benefit from the improvements in connectivity" that will go hand in hand with access to the 5G spectrum. "Mobile operators will have incentives to sell newer handsets and leverage charges for data usage," he continues. "Road and rail operators will have access to improved data and smarter traffic monitoring and control systems and local authorities will be able to deliver smoother, more efficient services to residents wherever they live. The socio-economic needs in the healthcare and education sectors should be at the vanguard of any developments."

As economies open up again, hopefully soon, growth and economic and industrial recovery becomes the primary priority for many nations, connectivity will play a key role in developing new markets and growing existing ones, according to Fletcher. "While this pandemic has made some feel the necessity in the short term to 'buy local', I think for most sectors that are used to operating across borders and internationally, things will return to something resembling normality and our expertise will be as needed as ever," he says.

We are continuing to monitor the situation, and given recent developments in vaccines, we hope to be active in the area again very soon."

Let's hope that's true for all. ■

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Mobile data: the challenges ahead

Southern Asian telcos have experienced a phenomenal demand for data as millions were forced to rely on their internet connection at home for work and study. Enea's Indranil Chatterjee examines the potential implications

Southern Asian telecom operators, like their counterparts across the rest of the world, have been preparing for 5G for some time. After all the hype, 5G is here. Yet the impact of the COVID-19 pandemic and the upsurge in traffic usage might prove to be a valuable learning experience as operators ready themselves for 5G.

The most obvious difference for operators came about as countries in Southern Asia imposed strict lockdown measures limiting people's movement. From Bangalore to Bangkok and from Karachi to Kuala Lumpur, businesses switched almost overnight to remote working, leisure and social activities went online and school children in many countries in the region joined virtual lessons – or worse still, had their education put on hold altogether. Many workplaces and other institutions adapted well to the measures, however, any hopes of a pre-COVID return to work appear less and less likely as infection levels are rising globally and new measures appear inevitable. Indeed, many businesses and their employees found remote working productivity levels easily sustainable, and cost-efficient.

Operators felt the effects of traffic usage instantly. In the Asia Pacific region as a whole, over half of operators reported traffic increases of 60 - 80%. Globally, one in five experienced a 20-40% increase while 13% experienced a surge of 80-100%, according to a recent research report from the Technology Innovation Council (TIC). For operators, COVID-19 has been a scaled-down version of the traffic demands a 5G future might hold. The long-term consequences of this shift in work patterns carries implications for each and every operator.

Cloud gaming driving demand

Data demand was already on the rise before the pandemic; COVID-19 simply accelerated the underlying trend. The main drivers of this demand have been video, gaming and collaboration platforms. Video streaming revenues alone are expected to hit \$52 billion globally this year, according to Statista. Asia in particular is experiencing higher CAGR compared to the traditional high-growth markets for the likes of Netflix, Amazon etc. According to Statista, video on demand was given a boost by the pandemic, with Indonesia and India experiencing 18% and 17% increases in demand respectively.

As 5G networks grow over the coming years, growth will come from areas such as cloud gaming. Across Asia, revenues from cloud gaming are expected to top \$3 billion by 2023, with smartphone cloud gaming representing the biggest single opportunity in the region. As network operators continue to roll out their 5G networks, balancing higher traffic demands will prove a tough challenge for them. However, it is great news for gamers, who can finally look forward to playing PC and console games easily from their smartphone.

The traditional barriers to entry are lifted with cloud gaming, enabling eager gamers to enjoy the latest offerings without the need for

upfront investment in hardware. Even better, cloud gamers are no longer restricted to the limitations of their hardware, instead being able to take advantage of the limitless capacity in the cloud. All this is made possible when there is extremely low latency, which will be the case when 5G deployments are rolled out. Operators will, however, need to weigh up the differing demands in the highly-segmented cloud gaming market, which means understanding the usage trends of (for instance) the increasingly popular e-sports segment, which differ significantly from those of mobile gaming. In Asia, eSports is said to have generated over \$13 billion last year.

By 2024, vXchnge says 5G networks will cover 40% of the world. What's more, a study by the Mobile Video Industry Council found that cloud gaming could be 25% of 5G traffic by 2022. In other words, video and gaming use case are just the beginning. Perhaps the biggest changes will come in the form of the use cases 5G is uniquely primed to support. One such use case is IoT.

Powering the IoT

It's often repeated that 5G is not just a faster version of 4G, it is a fundamentally different proposition. This is true, and a case in point is the IoT. Unlike 4G, 5G networks are made up of greater numbers of towers with smaller cells that transmit data over a different part of the radio spectrum. Having an increased number of towers in any given area enable 5G networks to support far more IoT devices than on 4G networks. To put things in perspective, it is worth remembering that 4G networks can support a few thousand devices per square mile, while 5G networks can support millions of devices over that same geography. Within these new parameters, large scale industrial IoT networks and the sensor networks required for smart cities begin to look not just possible, but within reach in just a few years.

KPMG estimates that by 2025, investment in automation including AI and machine learning could reach \$232 billion. Combined with already existing strong investment in IoT solutions – estimated at \$6 trillion in the last five years – operators need to be prepared for an exponential growth in data traffic – several orders of magnitude above what they have experienced so far. The era of IoT and machine-to-machine (M2M) communications involves not millions but billions of devices connecting with each other online.

According to IDC, Asia will be a frontrunner this year for IoT deployments with over 8 billion IoT and device connections.

In industrial and manufacturing settings for IoT, fast response times with low latency connections are essential. Current 4G networks generally have latency rates between 50-100 milliseconds, but initial 5G rollouts have reduced that to less than 30 milliseconds. Similarly, autonomous cars rely on low latency for their GPS sensors and navigation systems to communicate with the car. 5G improves vehicle-to-vehicle (V2V) as

well as vehicle-to-everything (V2E) connectivity and will additionally enable a consistent internet connection for passengers accessing the internet.

However, operators face several hurdles before they can satisfy the global hunger for data with 5G. Firstly, the new radio rollout will initially only have limited coverage. The radio technology used to fully harness 5G speed and latency selling points (mmWave), introduces new challenges to operators, as it requires lower range towers, which in turn increases the cost of deployment. Operators will need to combine mmWave with alternative access technologies such as Sub-6 and LTE for ubiquitous coverage. This scenario will favor continuous access handovers, and will mean almost inevitable latency, bandwidth and congestion will affect 5G's early deployment phases.

Encryption – we're seeing the tip of the iceberg

Encrypted traffic has already become a thorn in the side of mobile networks operators. OTT players deploying encryption techniques make it harder to regulate traffic and maintain QoE, which in turn lead to subscriber dissatisfaction. Not only does 5G promise more data, operators are also facing the prospect of new encryption protocols such as eSNI (Encrypted SNI) and DNS obfuscation through DNS over HTTPS (DoH) and DNS over TLS (DoT), some which will become a reality as early as next year. Major OTT players have already signaled their intention to move to DoH and eSNI as soon as these standards are approved. These new techniques threaten the efficacy of traditional traffic management solutions, which won't be able to identify traffic based on the SNI/domain. It is hard to see a way for operators to manage network congestion in these circumstances, especially given early evidence of the recent news from China blocking any eSNI-based TLS 1.3 traffic in the country.

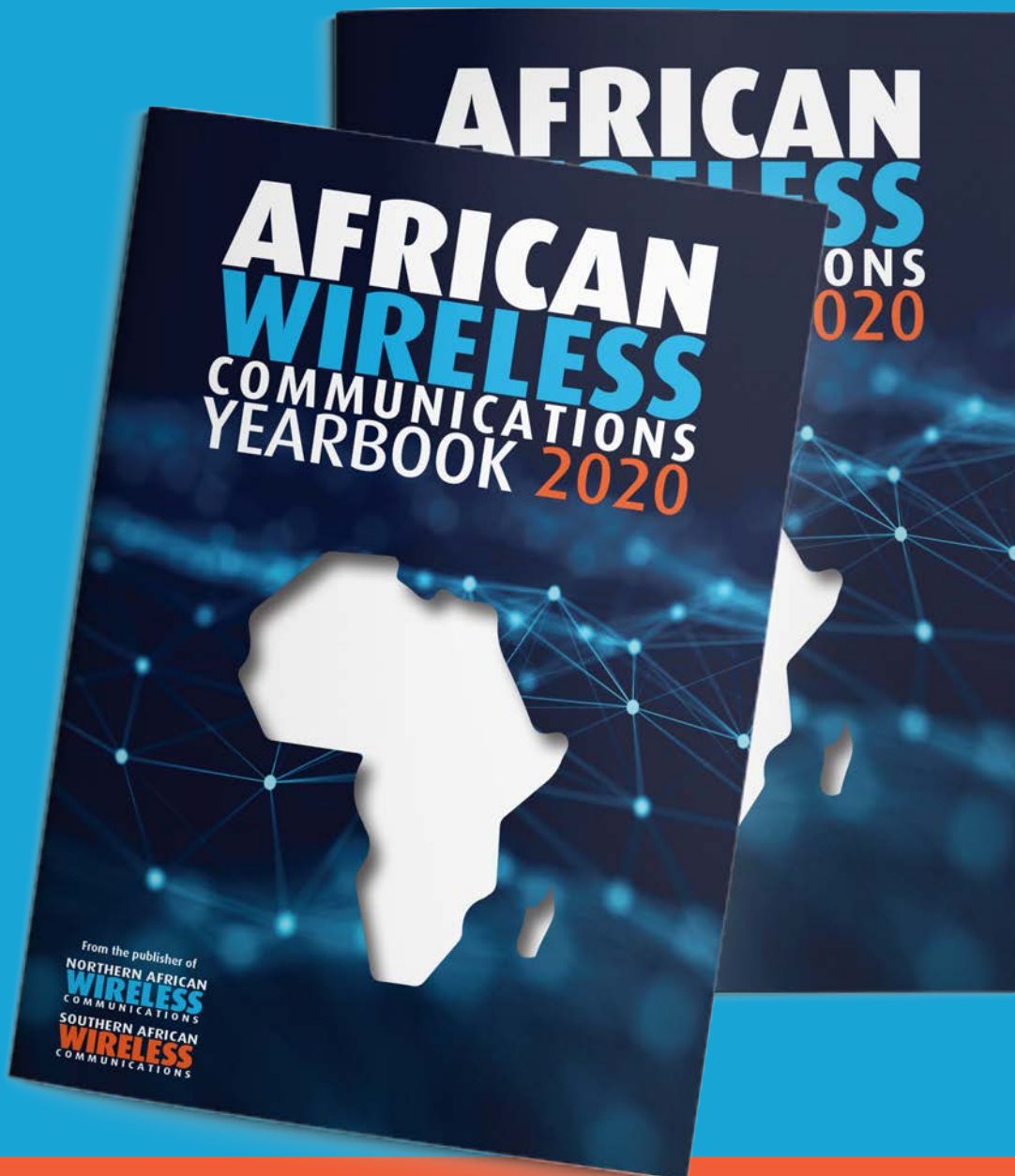
The future is changing

One way operators will be able get a handle on 5G network congestion is by integrating machine learning (ML) and AI technologies that can intelligently manage data delivery through the RAN to preserve QoE and use costly RAN resources efficiently. AI and ML will play an important part in increasing automation, speed, efficiency and event detecting anomalies, predicting faults and reducing site interventions. Today's networks lack the capability to dynamically manage RAN automatically, but in future AI will be able to handle capacity allocation at times of peak demand.

Managing – and monetizing – mobile networks has for a long time been a little like a rollercoaster ride for operators. Technical advances, changing usage trends and concerns around privacy mean that mobile operators have had to learn to move fast and be nimble in order to continue to keep customers happy. ■

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Last mile unit is easy to disguise

This new wireless device from Infinet Wireless is said to be ideal to supply a last mile service to businesses and homes and for CCTV.



The Quanta 5-18, the latest in the company's range, is claimed to deliver an industry-first throughput of up to 460 Mbit/s in just 40 MHz of spectrum with lower power consumption and easy installation. It uses Infinet's software defined radio (SDR) technology and is said to deliver stable connection in the most difficult weather, including extreme temperatures.

Infinet says it can be easily fitted to lampposts and buildings, including those of historical significance. It says that unlike other wireless products which often have curved details that are hard to paint and impossible to cover with film, Quanta Q5-18 can be painted over to easily blend with its surroundings. It measures 188x188x45mm and weighs 1.3kg. It has a claimed reach of 5km and can serve up to 10 CCTV cameras.

Infinet has 500,000 deployments from the plains of Siberia to the Sahara and is one of the largest privately owned broadband wireless access (BWA) development and manufacturing companies in the world. infinetwireless.com

TETRA radio does much more

Citing the increasing use of 4G by the emergency services, Motorola has introduced the MXP600 TETRA radio.

It features smartphone pairing via an embedded NFC chip alongside Bluetooth 5.0. And it includes a broadband app called M-RadioControl with which users can access talk groups.

The chip and the app, says the company, means the wireless connection between radio, smartphone and other devices remains secure.

The company says that instead of handling multiple devices simultaneously, users can activate other devices through the one which feels most intuitive in that situation.

If, for example, a police officer pressed the emergency button,

the radio would in future be able to automatically activate the body worn camera, without them needing to start the process separately.

The MXP600 uses microphone technology to suppress background noise and has a claimed maximum loudness around four times greater than a typical smartphone. When operating in windy conditions, the device automatically uses the loudspeaker as an additional microphone for optimal wind noise mitigation. When multiple radios are in close proximity, the MXP600 automatically eliminates acoustic feedback to allow for effective communication.

Motorola says over-the-air programming means radios can be updated in minutes, avoiding

the time, logistics and costs involved with traditional radio programming. It is said to be fast, secure and convenient to maximise the productivity of frontline workers and help to keep them in the field.

The MXP600 measures 120x54x25/30mm (depending on battery) and weighs 200g; 212g with 60mm antenna. It supports GPS and has a 2.4in display. motorolasolutions.com



Wireless products find the best connection

New Wi-Fi 6 devices from Nokia are said to be the first self-optimising mesh products. They use EasyMesh, as certified by the Wi-Fi Alliance.

The new products include fibre gateways, 5G fixed wireless access (FWA) gateways and mesh Wi-Fi beacons.

The company's Wi-Fi mesh middleware is embedded in their operating systems to automati-

cally and autonomously solves any issues with performance, including interference and congestion.

This ensures that the best channels and bands are selected to provide the fastest and most reliable connection for every user and every device.

There is a cloud controller designed to provide full visibility on all access points and allows optimization of Wi-Fi performance across neighbouring buildings.

The new range includes: ONT G-2426G-A

(pictured) and XS-2426G-A: dual-band, AX1800 capable ONTs (optical network terminals) with GPON (global passive optical networks) and XGS-PON (a passive optical networks standard) uplinks respectively; Beacon 2 and Beacon 6 are dual-band AX1800 and tri-band AX4200-capable mesh access points with ethernet and Wi-Fi uplink, to extend the mesh network; and FastMile 5G Gateway 3 and 5G Gateway 3.1 which are dual-band, AX3600-capable mesh access points with 5G uplink with high-gain and omni-directional antennas respectively. nokia.com



Get together when you're apart with Barco

Two companies have combined products to create all-in-one wireless video conferencing.

Barco's ClickShare Conference, its wireless conferencing product, has been combined with Logitech's Video Collaboration products for conference sizes ranging from huddle rooms to large meeting areas.

ClickShare Conference, the latest in Barco's range, features what the company calls BYOM (Bring Your Own Meeting) because attendees can join any type of video conference from their own devices.

It is said to work seamlessly

with video conferencing software, cameras, laptops and makes remote meetings as intuitive as face-to-face.

The Logitech Room Solutions for Barco ClickShare Conference are all-in-one packages which pair ClickShare Conference with Logitech MeetUp or Rally conference cameras and contain all the components needed for video conferencing. There are three variants: CX20 for small meeting rooms/huddle pods; CX-30 for standard rooms adds interactivity features; and CX-50 for large meetings, where premium AV is said to offer superior audio and video quality.

Barco says that by integrating the functionality of the camera and audio in meeting rooms, ClickShare Conference meets the need for agnostic unified communication and collaboration.

It says that, since launch in 2012, ClickShare has become the industry's leading wireless presentation product, having equipped more than 700,000 meeting rooms worldwide at the end of 2019.

Barco says that by integrating the functionality of the camera and audio in the meeting room, ClickShare Conference meets the market need for agnostic unified communication and

collaboration.

And Logitech said that, together, the companies were satisfying an important need for companies to simply start a high-quality video call with their own devices and also to use any cloud video service. barco.com



Lancom's new access point looks like a smoke detector

Styled to look like a smoke detector, Lancom's new entry-level Wi-Fi 6 access point is priced to appeal to small- to medium-sized organisations.

With aggregated data rates of up to 1,775 Mbps, the LW-600 is said to be ideal where small to medium numbers of users require high-throughput Wi-Fi.

Lancom says its inconspicuous smoke detector design blends harmoniously into hotels, offices, medical practices or small schools. It is managed automatically from Lancom's cloud service, with a web interface or by a WLAN controller.

The LW-600 is said to provide

fast access to clients in the 2.4- and 5-GHz frequency bands. In dual-concurrent mode, it achieves aggregate data rates of up to 1,775 Mbps (up to 1,200 Mbps with 5 GHz and up to 575 Mbps with 2.4 GHz in parallel).

And it says genuine 2x2 multi-user MIMO distributes all of the available downlink and uplink spatial streams to several clients

concurrently, rather than consecutively. The available bandwidth is exploited to the full and delays in the wireless network are reduced.

Power is supplied via PoE meaning that it can be installed independently of power sockets.

Alternatively, it can use the power adapter and country adapter supplied. It includes a number of security features and has a three-year warranty (five years optional). lancom-systems.com



Stay connected with or without wires

Designed for locations where wired connections are absent or limited, a new router from Netgear includes a 4G cellular modem.

It has combined its Orbi Tri-band Mesh Wi-Fi system with a 4G LTE Advanced cellular connection.

The Orbi 4G LTE Advanced Wi-Fi Router (LBR20) is said to be the industry's first tri-band mesh system with LTE-A Cat 18 modem technology.



Additionally, Netgear says the Orbi router can be used with a wired service to provide a fail over to ensure internet connectivity is consistent and uninterrupted.

With 1.2Gbps over 4G LTE Advanced and the high-performance tri-band AC2200 Wi-Fi, the router is said to be able to provide an uninterrupted network connection for small businesses.

Its integrated Cat 18 cellular modem will work with SIMs from all major 4G LTE Advanced cellular networks. Its high-gain internal antennas offer up to a claimed 2,000 sq. ft. of Wi-

Fi coverage and can be extended by pairing with any Orbi Tri-band Wi-Fi 5 (802.11ac) satellite to create a mesh Wi-Fi system.

Netgear says the router has a patented dedicated wireless backhaul between the router and satellites to provide a robust uninterrupted data connection to extend the reach by an additional 2,000 sq. feet for each satellite added. With a single Wi-Fi network name (SSID), uninterrupted seamless connectivity is supported while roaming.

It can also be paired with additional satellites such as Orbi Voice or Orbi Outdoor to gain greater coverage and additional features, like smart speakers. netgear.com

Wireless router is ready for the future

Targeted at businesses with branch networks, the E3000 range is said by Cradlepoint to be the first 5G-optimised, all-in-one wireless edge router for the market.

Customers, it says, can set up a wireless WAN today using LTE and Wi-Fi technology and seamlessly upgrade to 5G in the future.

Packaged as part of the company's NetCloud Enterprise Branch Service, E3000 products contain an



embedded gigabit-class LTE modem, integrated Wi-Fi 6, gigabit Ethernet ports for WAN/LAN connectivity, and expansion slots accommodate a secondary LTE modem module today with 5G modem and Bluetooth 5.0 modules due later this year.

Cradlepoint says it can run processor-intensive WAN edge features within the NetCloud service at gigabit speeds, including BGP routing and application-aware SD-WAN and security functions, such as firewall, analytics, IPS/IPS and content filtering. It also

supports customisable services like Wi-Fi guest portal and IoT edge computing capabilities.

It is said to be ideal for branch-oriented sectors such as retail stores, restaurants, healthcare clinics, financial services, construction sites, and field service offices.

Cradlepoint, now owned by Ericsson, claims to provide the most pathways from LTE to 5G in the industry. In February, it introduced the W-Series 5G Wideband Adapter, said to be the first 5G product purpose-built for the enterprise. cradlepoint.com

Look out for...

NGMN unveils plans for 6G

The Next Generation Mobile Networks (NGMN) board has launched a 6G project, while continuing its 5G efforts, it said.

NGMN published the first 5G White Paper in 2015, which helped pave the way for standardising 5G and its commercialisation. A second 5G White Paper (5GWP2) followed in July 2020.

The new 6G Vision and Drivers project is designed to provide early and timely direction for global activities around the next generation. NGMN will facilitate an information exchange within its internal partnership and with relevant external stakeholders.

With its new "6G Vision and Drivers" project, NGMN intends to provide early and timely direction for global 6G activities, which will develop the mobile network technology for operation in the future. In this context, NGMN will also facilitate an information exchange within its internal partnership and relevant external stakeholders. NGMN said it is "very excited" to be working on this future vision project and to set the footprint for generations to come.

"As we continue to implement and further develop 5G to maximize the benefit of its potential, our goal as NGMN is to remain at the forefront of next generation mobile networks," said

Arash Ashouriha, SVP group technology innovation, Deutsche Telekom and chairman of the board of NGMN said. "It is therefore essential that we start anticipating the future societal needs and elaborate the drivers for mobile communications in the future."

Anita Döhler, CEO of NGMN added: "The NGMN Board is committed to further drive the implementation of 5G. At the same time, we are looking at the future with our new work on 6G. Our organisation with its network operators, vendors and research associations has played such an important role for the requirements setting of 4G and 5G, and we will continue to provide guidance also for the next generation mobile networks beyond 5G. Interested parties are welcome to contribute to the "NGMN 6G Vision and Drivers" activity."



Tracking temperature during transport

Thailand's largest GSM mobile phone operator, AIS, has developed a mobile IoT-based solution for monitoring the temperature of perishable goods during transportation

In Thailand, mobile operator AIS has developed a mobile IoT-based solution for monitoring the temperature of perishable goods during transportation. Fresh food, frozen food, medicine and some other goods need to be kept at a constant temperature during distribution to ensure they don't decay and that they reach end-customers in a pristine condition.

Connected "cold chain" solutions can be used to monitor the temperature of a cold storage container during transit and maintain the quality of goods, reducing the number of claims from customers that goods have decayed or been damaged during

transportation. These solutions can be configured to send a notification to the supplier if the temperature rises beyond a specific threshold.

To meet the demand for a low-cost solution that can be installed easily without impacting logistics companies' existing systems, AIS is using NB-IoT to connect on-board thermometers to its IoT platform, which can be used to record, analyse and display the resulting temperature data.

AIS says the compact battery-powered thermometer is cost-effective enough to be deployed at scale, while its small size and independent power supply means it can be quickly

and easily installed or moved to another location. The device can measure the temperature between -50 and 20 degree Celsius. It can be configured to transfer temperature data to AIS IoT platform every x interval such as every three minutes and alert when the temperature changes by more than x degree Celsius such as one degree Celsius.

AIS says it is also using NB-IoT to monitor the electrical supply of the cooling system, allowing it to ensure there is sufficient power to cool the goods being transported. If the power supply is not working properly, the system is designed to relay the relevant data to the AIS

IoT platform, thereby allowing the logistics company to proactively resolve the issues before any serious damage is caused.

“By installing the temperature-measuring devices in cold chain logistic systems, the quality of perishable goods can be assured - Mobile IoT connectivity can be used to notify the operating parties when issues arise and take necessary actions to prevent any damage to the goods,” explains Asnee Wipatawate, Head of Enterprise Product and International Service of AIS. “The quality of IoT solutions becomes critical to mitigate this problem and therefore yield competitive advantages.”

AIS has rolled out both NB-IoT, which uses the 900MHz band, and LTE-M, which uses the 1800MHz band, across 77 provinces in Thailand. AIS says the NB-IoT network can support up to 100,000 IoT devices per base station with an operating range exceeding 10km, while delivering strong signals inside buildings.

MSRTC deploys Wi-Fi access points for bus travellers

Maharashtra State Regional Transport Corporation (MSRTC) is one of India's largest bus operators, with a fleet of over 20,000 buses across the region. Established in 1950, the MSRTC now reaches far flung areas of the state through 50 depots. It also operates semi-luxury buses, sleeper and regular, on other routes. What's more, MSRTC serves north of 10 million users each month and generates Rs100m in annual revenue.

MSRTC was also facing intense competition from private bus operators who offered many value added services to lure the passengers to them. As a result, it was important for MSRTC to do likewise and improve the customer satisfaction so it could withstand the fierce competition thrown down by bus operators.

Having conducted its research, MSRTC found that most of its customers owned Wi-Fi-enabled smartphones and were looking for connectivity and entertainment while travelling long distances. Traditionally, the common medium of entertainment was a television set connected to a DVD player.

Staff would insert a film for the entertainment of the passengers, but soon faced complaints from them because they wanted more entertainment options on the move, such as that offered via in-flight entertainment.

MSRTC enquired about this but found that a per seat entertainment system was out of its budget. Instead, it wanted a system that was affordable yet provided multiple entertainment options to their patrons. What's more, it was looking for a solution that was scalable and didn't require internet connectivity, since the 3G/4G services were not reliable on the intercity and interstate routes. It soon became apparent that a Wi-Fi-based entertainment system was the answer.

To that end, MSRTC floated a request for proposal (RFP) for installing and operating a Wi-Fi-enabled entertainment system. Pune-based KPIT submitted a bid and was later commissioned to build the Wi-Fi router and hotspot

LTE-M, on the other hand, is well suited to supporting connected cars and asset tracking, voice/data connections, and any IoT solutions requiring larger data volumes, according to AIS.

The operator believes nationwide Mobile IoT connectivity will fuel economic development, improving the daily lives of Thais, supporting communities, and helping to protect the environment. It says the new mobile IoT technologies are enhancing the capabilities of businesses across multiple industries, as well as enabling IoT innovations that can be used by the public and academic sectors. Early use cases include smart city solutions, such as smart lighting, bike sharing and infrastructure monitoring. AIS' IoT partners include private and public organisations, universities and R&D departments, such as PTT, the state-owned energy company, Property Perfect, Krotron Group, Thammasat University, Khon Kaen

solution, but the company soon realised that it needed help. KPIT contacted Wifi-soft to offer the complete Wi-Fi solution for over 20,000 buses and to help MSRTC staff operate and manage the network centrally from a single console.

Wifi-soft built a special Wi-Fi router that was designed for this project. The first project was to accommodate concurrent Wi-Fi sessions for 25-30 passengers and provide a throughput of at least one Mbps to each user. This was essential to stream content from content from the router to the user's smartphone. Secondly, the router and antennas had to be compact enough to fit in the rugged enclosure yet offer coverage

University and Prince of Songkla University.

AIS has launched a motorbike tracker solution, which employs both GPS and NB-IoT technologies and teamed up with HIP Global Co., a producer and distributor of security solutions to support Thailand's Metropolitan Police Division 1 in increasing its operating efficiency by deploying this innovative solution. The tracker devices have been fitted to 360 police motorbikes, which can now relay the coordinates of police patrols in near real-time via the NB-IoT network. When emergencies occur, a command centre uses the system to identify the nearest police officers and ask them to provide care to those who need immediate help.

The NB-IoT Motor Tracker service is now available at the nine police stations under the supervision of the Metropolitan Police Division 1: Chana Songkhram, Phayathai, Din Daeng, Dusit, Nanglering, Bang Pho, Makkasan, Huai Kwang, and Samsen. ■

across the bus from the driver's seat. It also had to withstand vibrations, power fluctuations and harsh environments on the bus.

In addition, the router needed to support complete hotspot functionality, including captive portal, authentication, bandwidth management and policy control. All routers had to be managed and monitored centrally from a single dashboard. Wifisoft offered its WifilAN cloud platform along with an AP controller for managing the remote routers.

Now, the service that was once the preserve of air travellers is now available to the man and woman on the omnibus. ■



Having conducted its research, MSRTC found that most of its customers owned Wi-Fi-enabled smartphones and were looking for connectivity and entertainment while travelling long distances

SpaceX gets FCC funding



The Federal Communications

Commission (FCC) in the US has awarded Elon Musk's SpaceX US\$886m as part of a programme to help bring high-speed broadband Internet to the country's rural areas.

A total of 180 bidders won part of the auction support totalling US\$9.2bn to be distributed over the next 10 years. "I'm thrilled with the incredible success of this auction, which brings welcome news to millions of unconnected rural Americans who for too long have been on the wrong side of the digital divide," FCC chairman Ajit Pai said in a statement. "They now stand to gain access to high-speed, high-quality broadband service. We structured this innovative and ground-breaking auction to be technologically neutral and to prioritise bids for high-speed, low-latency offerings."

SpaceX said it aims to deliver high speed broadband internet to locations where access has been unreliable, expensive, or completely unavailable through its Starlink project.

The company launched its first batch of 60 Starlink communication satellites in May 2019.

These satellites are designed to fly at low altitudes around Earth, delivering high-speed internet on the ground below.

SCG22 mobile terminal deployed worldwide



The SCG22 mobile radio

from Sepura is being deployed by the emergency services around the world.

This latest model complements the SC20 and SC21 hand-held terminals already in use by critical communications users in public safety, transport and utilities markets.

Significant current users include the UK's Metropolitan Police, as well as forces in Norway, Sweden and Mexico. It is also being used by the Dutch ambulance services, as well as London's Heathrow airport.

The SCG22 has been designed for users looking for a TETRA mobile that can be deployed in cars, trucks, trains, boats, on motorcycles or in control rooms as part of a solutions that supports operations with automated features.

All radios in the SC Series can connect to additional devices such as health or environmental monitors or wireless audio accessories via bluetooth and to data sources via Wi-Fi, through bespoke applications. This solution

allows for changes in technology, practice and process without the need for replacement hardware.

All SC Series radios incorporate Sepura's AppSPACE technology, which enables applications to be delivered to the radio after purchase. These are primarily aimed at enhancing safety or increasing operational efficiency.

Furthermore, this radio can be used by public safety and emergency response users, or would equally apply to urban transport systems, with the ability to connect to data sources and

exchange mission critical data with control rooms and administrators.

The radio further benefits from the option to deploy Sepura's Over the Air Programming solution. This enables vehicles to have their radios upgraded as a fleet at a set time, reducing the need to physically connect to each radio, speeding up deployment and reducing downtime.

Its AppSPACE and wireless programming functions enable all radios in the Sepura SC Series to be updated or to have functions added to suit a user's current operations.



Bouygues launches commercial 5G in France



French operator Bouygues Telecom has launched its commercial 5G network and said that it expects to reach nationwide coverage with its 5G network within a year.

In a second stage, 5G will facilitate new services for B2C and especially for B2B customers, the telco said. To roll-out its 5G network, Bouygues Telecom has decided simultaneously to install new antennas, using the newly acquired 3.5 GHz frequency band, and to gradually migrate existing 4G frequency bands to 5G.

"Bouygues Telecom participated in the 5G auction in September 2020, acquiring a 70 MHz block of 3.5 GHz spectrum which doubled its



To roll-out its 5G network, Bouygues Telecom has decided simultaneously to install new antennas, using the newly acquired 3.5 GHz frequency band, and to gradually migrate existing 4G frequency bands to 5G

portfolio of frequencies for a price of €602m (currently US\$712m). As a result, Bouygues Telecom now has

nearly a quarter of the available spectrum in France," the telco said. "Bouygues Telecom will roll out its

5G network gradually in line with benefits to customers which will materialize in two main stages. In the first stage, the capacity will increase to maintain good service quality in very dense areas where data consumption is very intense."

The main auction for 3.4-3.8 GHz frequencies for the provision of 5G was completed in early October.

In this spectrum auction, local operators Orange, SFR, Bouygues Telecom and Iliad committed to pay a total of €2.8bn for a total of 11 blocks of 10 megahertz of spectrum.

Mobile carriers in Germany, the U.K., Spain and Italy have launched commercial 5G services in several cities last year.

Globalstar Satellite IoT device deployments double in a year



Globalstar Europe Satellite services said specialist reseller Traksat has deployed over 1,200 Globalstar-enabled safety and tracking devices for humanitarian organisations in Africa and worldwide.

Prominent NGO Humanity & Inclusion (HI) is deploying SPOT Gen3 satellite messengers and SmartOne Solar IoT tracking devices to protect relief workers and support operations in several African nations. International Rescue Committee, rescue.org, headquartered in New York, uses SPOT Gen3s in numerous African countries to safeguard and track relief workers. ACTED is similarly using SPOT Gen3s in Niger.

Traksat reports dramatic uptake of its NGO-centric solution with Globalstar technology as its backbone. The number of Traksat-provided Globalstar devices being used to support humanitarian efforts has doubled in the last 12 months.

In Traksat's longest-standing project, over 250 devices enabled by Globalstar satellite technology are providing staff security and supporting vehicle management for Humanity & Inclusion's humanitarian workers in DRC (Democratic Republic of Congo), CAR (Central African Republic), Chad, Mali, Burkina Faso and Niger.

"Globalstar technology and expert support from Traksat

together play a big part in helping us meet our security and fleet management challenges," said Emmanuel Bertolus, logistics manager at Humanity & Inclusion. "Our teams work in extremely varied and challenging contexts. Reliable, economical Globalstar technology, together with the wide-ranging expertise and responsiveness of Traksat, help us to consider geolocation as a key operational asset and never as a constraint."

H&I is equipping staff with

SPOT Gen3s so that they can stay connected with their colleagues while working in locations where alternative communications networks are inadequate. In an emergency, a simple press of SPOT's SOS button immediately raises an alert and instantly sends the user's GPS location to HI's central operations centre and local coordination sites, from where a rescue can be initiated.

Traksat has developed a specialist software platform with extensive options to meet the particular needs

of NGOs and government agencies. With the combination of Globalstar technology, enabled by its fleet of Low-Earth Orbit satellites, the Internet of Things (IoT), and the Traksat platform, NGOs can benefit from a wide range of capabilities to support worker safety and other operational requirements.

Over 10 different mapping options can be chosen with Traksat, along with specific map layers with additional live detail on traffic, wind, weather and occurrence of natural disasters.



Traksat reports dramatic uptake of its NGO-centric solution with Globalstar technology as its backbone. The number of Traksat-provided devices being used to support humanitarian efforts has doubled in the last 12 months

MTN officials visit Ghana for 'peace talks'



Senior MTN Group officials are on a "calming mission in Ghana", following tensions between the Ghanaian subsidiary and the telecom regulator.

Ralph Mupita, chairman and CEO of South African telecom group MTN and Mcebisi Jonas, chairman of the board, have been in the west African country since October 27, 2020. It is as part of a tour of priority markets.

In a statement, MTN Ghana said that during the two-day trip, representatives of MTN Group who have already met with Vice-president

Mahamudu Bawumia and former President John Kufuor, member of MTN Group's international advisory board, will also hold meetings with minister of communications, Ursula Owusu-Ekuful and minister of finance, Ken Ofori-Atta.

During these various exchanges, the MTN Group delegation said it wanted to "align itself with certain key stakeholders on important issues of common interest". The trip comes after some tensions between MTN Ghana and the government, following its designation as dominant operator

which induces certain restrictions on its competitive capacities.

MTN Ghana, which appealed to Ghanaian courts last June to overturn the decision of the state, represented by the Communications Authority (NCA), finally ended the action in mid-October. The company stressed its willingness to settle this dispute amicably.

MTN Ghana said progress had been made with the regulator and ministry of communication on settlement discussions, leading to the operator to withdraw its case lodged

to the Supreme Court in September.

"It is our expectation that this action will pave the way for further discussions and an amicable resolution, in the spirit of the renewed channels of engagement", the statement read.

The operator noted "collective goodwill and commitment" was needed, to aid the country's telecoms industry, and support government plans to enhance connectivity and communications services in Ghana. It added the decision to withdraw its court case was in the best interest of customers, shareholders and stakeholders.

Madagascar joins free Wi-Fi party

 Madagascar is the latest African country to join the trend towards offering free internet access to its people, with government-supported rollout of Wi-Fi terminals across the island nation.

Wireless internet access in the busiest places in the country is expected to be available by the close of 2020. Among the 22 regions of the country, the first to get access to the new hotspots was Vatovavy-Fitovinany, in the province of Fianarantsoa in south central Madagascar.

The nation's minister of posts, telecommunications and digital development Andriamanohisoa Ramaherijaona made the announcement of plans to deploy free Wi-Fi hotspots across the country in June.

Around 50 terminals should be operational by the end of the year, with a total of 130 expected by 2023, all providing free internet.

Complimentary Wi-Fi is often available in hotels and restaurants and there are internet cafes in major towns and cities, easy-to-access,

but cheap internet is not always available in Madagascar.

By improving access to the internet in the country, Madagascar aims

to reduce the digital divide and develop the digital economy to increase activity in areas such as e-commerce, online learning and digital health.


This year has seen an acceleration of the trend towards affordable Wi-Fi in Africa. Recently in Uganda, Roke Telkom and Facebook have launched a new internet service programme called Roke Express Wi-Fi. Tanzania and Kenya are among a number of other African countries that have signed up to Facebook's Express Wi-Fi service network.

In Nigeria, Fiam Wi-Fi, is now rolling out public outdoor hotspots to underserved communities in Lagos. In South Africa meanwhile, Project Isizwe, an award-winning, non-profit organisation, is working with the public and private sector to bring free public Wi-Fi internet access to low-income communities across South Africa.



Complimentary Wi-Fi is often available in hotels and restaurants and there are internet cafes in major towns and cities, easy-to-access, but cheap internet is not always available in Madagascar

Potraz boss criticises telecoms vandals

 Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) director-general Gift Machengete said that vandalism and theft of telecoms infrastructure have affected marginalised areas which already face network challenges.

He added that the country's ICT sector has come under siege from thieves and vandals, in the process affecting connectivity. He said the ICT sector has suffered rising theft of solar panels, batteries, copper cables and generators.

In addition, Machengete said it would be most disappointing to see communities such as Silonkwe going back to the misery of connectedness, all because a few individuals take advantage of the night to steal and vandalise that

which was built for the greater good of the community.

The Silonkwe area had gone for decades without network connectivity owing to lack of base stations. A new base station will provide coverage to five wards in the Matobo district.

SA: Vodacom invests nearly US\$20m to develop broadband connectivity in KwaZulu-Natal

 New telecom base and fibre optic stations will be deployed by Vodacom South Africa in the province of KwaZulu-Natal by 2021.

The operator announces an investment of US\$19.5m for these projects intended to improve access for populations broadband.

Vodacom announces an envelope of R320m (US\$19.5m) to finance the development of high-speed internet connectivity in urban and rural areas in KwaZulu-Natal. Investment in optical fibre is also planned.

More than 50 new telecom base stations will be deployed across this province and in south-eastern South Africa, by the mobile operator. 27 are already active and 19 are expected to be installed in deep rural areas

by the end of fiscal 2021.

The district municipalities likely to host telecom base stations are: eThekweni, Ugu, Umhlabuyalingana, Umkhanyakude, uThungulu and Zululand.

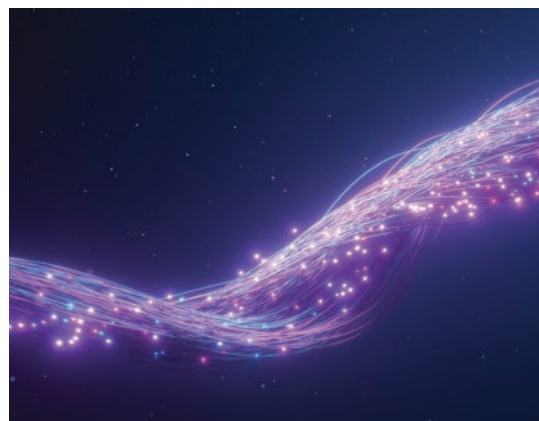
The 56km of fibre will be installed in Newcastle, then the operator will complete a loop that will connect Newcastle to Madadeni, Oswezwini and Blaauwbosch. The project is expected to be completed in December 2020. Note that the fiber network under construction - from Durban, passing through Scottsburg, Port Shepstone, Harding to Kokstad - will be completed by the end of fiscal 2021.

"We have always maintained that the key differentiator for us is the quality, strength and reliability of our network," said Ishmael Mathinya,

executive director of operations for Vodacom KwaZulu-Natal.

"At Vodacom, we believe that investing in our network ensures that we provide top-notch coverage and

customer service, not only to urban areas, but also to townspeople and deep rural areas, so that they are well positioned to reap the benefits of the digital revolution."



The 56km of fibre will be installed in Newcastle, then the operator will complete a loop that will connect Newcastle to Madadeni, Oswezwini and Blaauwbosch

Airtel and Ericsson strike deal to tackle e-waste in Zambia



Airtel Networks Zambia has teamed-up with Swedish gearmaker Ericsson on a 'Product Take-Back' program to minimise the potential environmental impact associated with the disposal of de-commissioned electrical equipment.

This is part of Ericsson's Sustainability efforts geared towards taking accountability for environmental impacts of all products and services during their lifecycle. The program ensures that end-of-life material is treated and recycled in an environmentally responsible manner.

"E-waste – discarded electrical or electronic equipment – is one of the fastest growing waste streams in the world in terms of volume," said Todd Ashton, vice president and head of Ericsson East and South Africa. He added that Africa is one of the more highly affected continents because large quantities of end of life materials from around the world end up at dumps in this region. "A lot of it has to do with education – people cannot dispose of their e-waste responsibly if they do not differentiate it from other forms of waste," Ashton added. "This project provides a sound platform for raising awareness and discussing these issues."

He added: "The Global Product



Ericsson's 'Product Take-Back' program ensures that end-of-life material is treated and recycled in an environmentally responsible manner

Take-Back Program enables us to support responsible waste management by taking a step further in our own recycling efforts, while simultaneously educating our consumers about e-waste, and the ways they can safely dispose of their unwanted devices. In fact, 21 tons of

e-waste was collected from Zambia – contributing towards preserving the beauty of Zambia and making a positive environmental impact."

Globally, Ericsson provides free product retrieval and safe disposal services for equipment that has reached its shelf life from the

collection point, as part of the company's extended producer responsibility. Ericsson offers the program to all customers, guaranteeing that this e-waste does not end up in trade-restricted areas, landfill, or in places where unethical business practices are taking place.

SA government plans own internet satellite



The South African government is supporting moves to build and launch its own satellite for broadband and internet.

This proposal comes from part of a report from the 'Africa in Focus 2020' study backed by the Brookings Institute and its Fourth

Industrial Commission (4IR). It has recommended that South Africa launch its own internet satellite to combat connectivity issues.

The government believes this will solve the issue of connectivity, or lack thereof, in these areas. The satellite service would essentially be

offered to the whole of the Southern African Development Community (SADC) region. This includes other countries, such as Botswana, Lesotho, Zimbabwe and Eswatini.

The 4IR diagnostics report was prepared by a 4IR commission constituted by the South African President,

Cyril Ramaphosa, towards enhancing development in the country.

However, there are as yet no tangible suggestions as to whether this would be a government-backed scheme or left to private enterprise.

South Africa is already served by a number of satellite operators.

Angola's ISPs talk broadband expansion with government



The Angolan Association of Internet Service Providers (AAPSI) has offered the government support to boost digital inclusion, while at the same time maintaining the sustainability of the business.

AAPSI members said in a meeting with government officials that the high prices for international connections were one of the main components of the price structure of services,

thus conditioning the expansion of broadband and digital inclusion.

According to AAPSI chairman Silvio Almada, the meeting with the government was an important milestone as it aimed, on the one

hand, to find a common platform to defend the interests of operators and, on the other hand, to jointly propose solutions that would enable digital inclusion and the expansion of broadband in the country.

Q&A

Mattias Tidebrink VP, video security & analytics Motorola Solutions, Asia Pacific



What was your big career break?

My big break came when I moved from engineering into sales. I saw this as an opportunity to expand upon my technical expertise by providing trusted advice and also by guiding customers on their future technology decisions. Having a strong technical background means I can get involved in deeper discussions with more stakeholders at different levels across our customers' organisations. I find it helps me to quickly understand their operational needs and to match those needs with the right solution.

Who was your hero when you were growing up?

My grandpa was always my greatest hero when I was a kid. He worked so hard to provide for his family and he always found the joy in life - even the small things that others sometimes take for granted. People loved him and everyone just enjoyed being around him. He had wonderful charisma, energy and a very kind heart.

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

Ever since I was a kid I have been fascinated by space exploration. I think it would be incredible to play a part in guiding the technology and innovations that are helping us to learn more about space. Ultimately, making progress on space exploration will enable us to make stronger connections internationally with other countries investing in the effort. I think making those connections and being untied by a common purpose also helps us to advance society as a whole.

What would you do with \$1m?

That's a great question. The majority of it would have to go towards putting my kids through university. If anything is left over after that I'd definitely make a donation to charity (and hopefully still have a little bit left for some retail therapy. Maybe I could get myself a nice pair of shoes!).

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

The phrases "listen more than you speak" and "you were given two ears and one mouth for a reason" hold great meaning for me. I have learned so many things from listening to people and being open minded, regardless of who is speaking or what 'level' they are considered to be at within an organisation or in the wider community. Some of the best ideas come from unexpected sources. I have always believed that bringing a fresh set of eyes to a challenge helps you to look at things in a different way and ultimately leads to providing stronger and more balanced solutions.

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

I will always have a soft spot in my heart for Sweden where I grew up. I have retained very strong connections to family and friends back in Sweden and I look forward to seeing them again when travel restrictions have eased. Today I call Australia home and consider myself very fortunate to live in sunny Queensland with my family. I am extremely happy here and I wouldn't want to live anywhere else in the world.

What's your favourite holiday destination?

For me, a beach holiday anywhere in the world is wonderful. I just love being near the water, walking on the sand and listening to the waves. There is no greater form of relaxation (and it's probably no coincidence that I chose to live in Queensland, Australia!).

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

I feel very fortunate to be providing technology solutions that make a true difference to the lives of public safety agencies and commercial organisations. Every day, our solutions are being used by first responders and essential service providers who use them to make our communities and industries safer and more

productive. As we look to the future, new innovations in video and software are coming on stream for these industries. These new and emerging technologies are building on the solid foundations

laid by the mission critical communications sector and that's why it's such an exciting time to be in the industry. Recently I started a new role in leading the development and delivery of our video solutions for customers throughout the Asia Pacific region. I'm genuinely excited about the new role and the difference these technologies can make to further improve our customers' daily operations.

What's your best memory from childhood?

I have very fond memories of our first pet cat, Oscar. After years of asking my parents if we could get a pet I finally took the matter into my own hands. He was a rescue kitten and I couldn't resist bringing him home to live with us. He was a much loved pet.

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

My children like to keep me on my toes with their curious and adventurous minds. Sometimes I'm stumped by the questions they come up with. (Fortunately they are always kind enough to let me take those questions on notice so we can look them up online later!).

Do you have a favourite film or book?

There are so many choices for both books and films it's hard to narrow down. I just finished reading *Can't Hurt Me: Master Your Mind and Defy the Odds* by David Goggins. It was a great read and highly motivating for all aspects of life and career. In the book, the author shares his astonishing life story and reveals that most of us only tap into around 40 percent of our capabilities. Goggins calls this "The 40% rule" and his story puts a spotlight on how anyone can put themselves out of their comfort zone, overcome fear and reach their full potential. It's all the more impressive knowing that Goggins overcame poverty,

prejudice, and physical abuse to eventually build an impressive career in the US military.

My favourite film has always been *The Matrix*. It was groundbreaking at the time it was released for its futuristic and psychological style and it still stands up well to re-watching today. I was so enamoured by the movie that I even named my youngest son Neo (after the film's central character played by Keanu Reeves).

What's your favourite style of music/band?

Rock music for sure!

What's your proudest life achievement so far?

That would have to be the birth of my children and becoming a father.

If your career took a different trajectory when you were younger, what might you be doing now?

I might have become an actor as I was doing a bit of that when I was growing up.

What do you plan on doing when you retire?

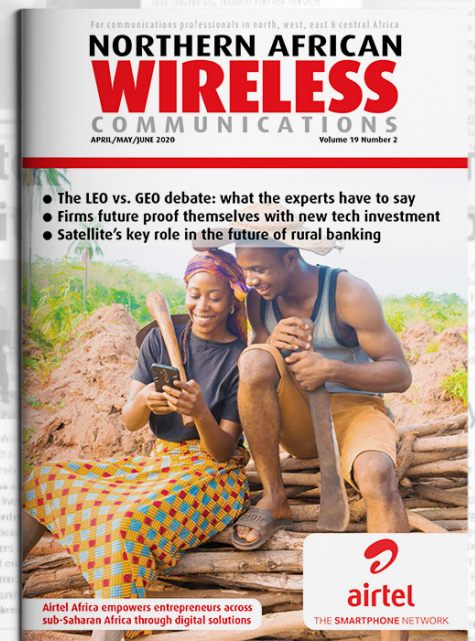
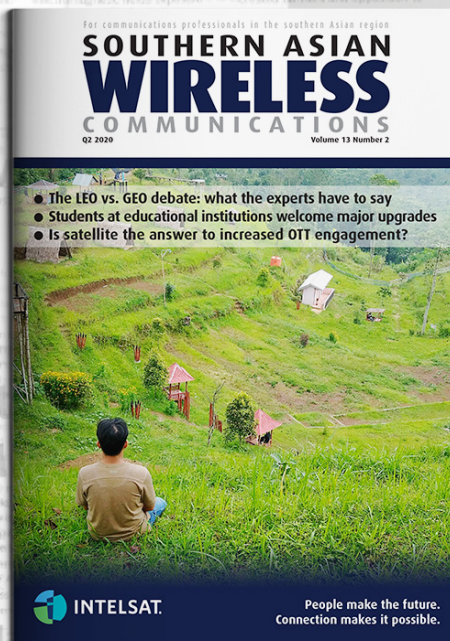
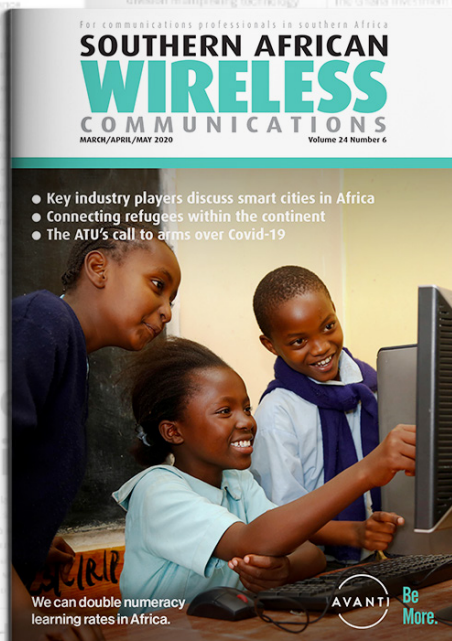
Although that feels like retirement is a long time in the future, I look forward to having more time to give back to the community. I'm passionate about helping people with disabilities so something in that area would be my first choice of activity to get involved in.

What's the best lesson you've learned?

I think the best lesson in life is to be kind, always. You never know what someone else is going through so you need to be gentle, understanding and have compassion and empathy for others. This year the pandemic has created some of the most challenging circumstances that people have ever felt. We have experienced countries moving in and out of lockdown, travel restrictions, job losses, work moving into virtual settings and many people having to deal with incredibly tough personal and professional situations. If we all provide a little more compassion and understanding we will get through this together and come out stronger on the other side. ■

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