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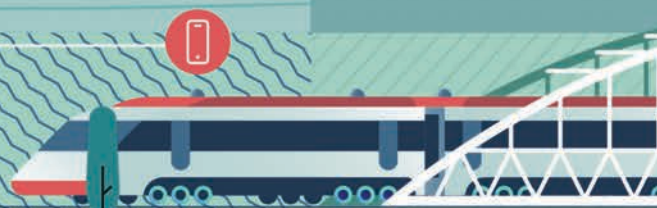
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Thailand 'smart airport' 5G ready

The Thai government has commissioned Chinese giant Huawei to bring 5G networking and services as a part of the nation's 'smart airport' initiative, starting with Krabi airport as a pilot project.

The National Broadcasting and Telecommunication Commission (NBTC) and the Department of Airports (DOA) signed a 5G Smart Airport memorandum of understanding (MoU) for technical cooperation and services. Under the terms of the agreement, 5G technology solutions will be developed and applied to Krabi airport first, before expanding to the 28 other airports overseen by the DoA throughout the kingdom.

In addition, the Thai subsidiary of Huawei, known as Huawei Technologies Thailand, is also in line to sign another MoU to provide free 5G tech support, solutions, and equipment that is worth 10m (approximately US$322,800) to enable the smart airport project.

NBTC secretary-general, Takorn Tanthasit, said that the installation of 5G infrastructure by Huawei and the telcos is expected to start within a month.

"Huawei will provide additional innovations and services at the airport for free to ensure passengers' safety in the new normal era after the Covid-19 outbreak, such as robots that

Under the terms of the agreement, 5G technology solutions will be developed and applied to Krabi airport first, before expanding to the 28 other airports overseen by the DoA throughout the kingdom

can detect passenger density in airport areas, thermal scanners and UV treatment equipment for passengers' luggage," he added.

The developments mark the first 5G smart airport project undertaken on a national scale in Southeast Asia. Before the coronavirus pandemic broke out across the globe, GlobalData was forecasting the Asia Pacific (APAC)

region to be the global leader in 5G applications and usage by 2024, estimating 1.14 billion APAC users would account for around 65% of worldwide 5G subscriptions within the next four years.

Tanthasit added that once Huawei has completed the installation, Thai mobile phone operators will have to install additional equipment in the

airport to fully utilise the 5G infrastructure and integrate with their existing network. "This MoU aims to improve the quality of telecommunication services and safety standards in Thai airports and NBTC is hopeful that it will help promote the travel of foreign investors and tourists to Thailand when all the government's lockdown orders are lifted, " he told the media.

Internet back to normal in Vietnam

Vietnam said its internet speed is back to normal after international partners fixed the Asia Pacific Gateway cable.

Repairs to the S9 and S1.7 branches of the cable connecting Vietnam with Singapore and Hong Kong were completed June 27, two days ahead of schedule, having initially suffered disruptions April 30 and May 23.

The APG cable runs 10,400 kilometres (6,460 miles) under the Pacific Ocean, linking Japan with Hong Kong, mainland China, Malaysia, Singapore, South Korea, Taiwan, Thailand and Vietnam.

Earlier the disaster-prone Asia Africa Europe (AAE-1) and Asia America Gateway (AAG) cables also

broke down and were repaired in the first week of June.

AAE-1 is a 25,000-km submarine communications cable system running from Southeast Asia to Europe through Egypt.

The US$560-million AAG, which handles more than 60% of Vietnam's international internet traffic, runs more

than 20,000km (12,420 miles) from Southeast Asia to the US via Brunei, Hong Kong, Malaysia, the Philippines, Singapore, Thailand and Vietnam.

The latter, where more than 64% of the population is online, is linked by six submarine cable systems plus a 120 gigabit channel that runs overland through China.

Telkomsel expands LTE coverage in Indonesia

Indonesian mobile operator Telkomsel said it is extending its 4G LTE coverage to more areas of the country.

The new areas covered include East Flores Regency and East Nusa Tenggara Province, including remote areas such as Adonara Barat District

and Woloklibang Village, which is on Adonara Island.

Telkomsel said it deployed no fewer than 1,279 base transceiver stations (BTS), serving more than 90% of the population of East Nusa Tenggara Province.

The operator surpassed its 4G deployment goals during 2019, deploying around 23,000 4G BTS across the country. Furthermore, Telkomsel's 4G LTE coverage now serves more than 95% of the population and local reports indicated that the operator saw

its mobile data traffic soar during the Eid al-Fitr holiday in May, as customers connected with family and friends over the Muslim holiday during lockdown.

Telkomsel is 65% owned by the country's dominant fixed line services provider Telkom.

Huawei and UnionPay team up

Huawei Mobile Services has joined forces with China-based financial services business, UnionPay, to launch its new mobile payment service – Huawei Pay, in Thailand.

The tool provides a contactless and cashless payment service for Huawei device users, with Industrial and Commercial Bank of China (Thai) the first bank to support the payment service. In addition, the payment solution is one of the key services under the company's Wallet app that supports near field communication (NFC) payments in retail stores.

The company's Wallet app comes pre-installed in the newly-launched Huawei P40 series. For the existing smartphone models, the app can be downloaded from the company's official app marketplace. In Thailand, the local merchandisers support Huawei Pay including Boots, Emporium, Jaymart, Major Cineplex, Mr. D.I.Y, Sushi Hiro, Swarovski, Tesco Lotus, The Face Shop and others.

Afghan and Uzbek state operators expand 4G

Major 4G updates are underway in neighbouring countries Afghanistan and Uzbekistan via their respective state-owned operators.

Afghan Telecom's mobile brand Salaam is now delivering 4G to 15 sites in Kabul, with plans to invest an additional US$20m into new internet services.

The operator's deputy chief Sharif Sharifi said that the deployment was currently limited to a few locations in the capital but confirmed this would change over time, stating: "We need some time to develop our system and to improve our services," he added.

Sharifi also noted that the operator planned to deliver 4G coverage to all of Afghanistan's provinces and that it would come "slowly".

Salaam is the third of Afghanistan's five operators to launch commercial 4G. Afghan Wireless Communications Company (AWCC) pioneered the technology in the market in May 2017, with Etisalat following in February 2019. MTN Afghanistan and Roshan have confirmed that they will launch 4G but are not wedded to a date.

Uzbekistan's capital of Tashkent is also receiving expanded LTE coverage via state-owned Uzbektelecom's mobile arm, Uzmobile. The operator noted that data speeds would improve considerably as it was boosting the bandwidth of the LTE frequency through which it delivers coverage in the city.

All 2G and 3G base stations in Tashkent were included in the upgrade, which will also see the operator expand the technology into other regions of the country. Uzmobile confirmed that the country's current Covid-19 quarantine was not impacting the scheduled expansion of its network.

DITO to miss launch deadline

DITO Telecommunity, the Philippines' third major operator, is likely to miss the deadline for its "technical launch" set on July 8 this year.

The company's chief administrative officer Adel Tamano said during a hearing led by senator Grace Poe that the company had so far completed less than a quarter of the required number of cell sites to meet its first year commitments to the Philippine government.

A week before its technical launch, Tamano said there were 300 operational cell sites out of the 1,300 sites currently being built by DITO, which is backed by Davao-based businessman Dennis A. Uy and China Telecom.

Maldives to replace outdated submarine cable

The submarine communication cable linking Maldives and India will be renewed by the end of 2020.

Maldives minister of communications, science and technology Mohamed Maleeh Jamal had previously said that the connection had become outdated and would be renewed by the end of 2020.

According to a tweet by the minister, the upgraded cable connection would greatly benefit the country and its telecommunication sector.

Local media reported that the cable length at 840 kilometres will be laid at a depth of 3,700 metres underwater.

Earlier this year, telecom giants Dhiraagu and Ooredoo Maldives signed an agreement to lay a second submarine cable. The companies inked a multiparty deal to lay an international fibre optic submarine cable system between Maldives and Sri Lanka. The project was handed over to Huawei.

New fibre optic submarine cables are expected to significantly improve bandwidth locally and internationally, strengthening network connectivity across Maldives.

The two companies commenced their first submarine cable projects in 2011 and 2016 respectively.

Earlier this year, telecom giants Dhiraagu and Ooredoo Maldives signed an agreement to lay a second submarine cable

Digital payment boom boosts Philippine telecom carriers

A boom in mobile digital payments during the Covid-19 pandemic is reviving investor interest in the Philippines' two telecom carriers.

Forced to stay at home since president Rodrigo Duterte ordered a lockdown in mid-March, millions of Filipinos are now using their smartphones to pay for items from bread to vegetables and meat, increasingly shunning cash transactions. A number of employers are also paying salaries using phone apps.

While PLDT Inc and Globe Telecom Inc introduced their platforms as far back as 2000, their apps started tasting success only after handsets and wireless data became more affordable.

"The days of people wanting to hand cash over as their main means may be numbered," Globe president Ernest Cu said, citing concerns that the coronavirus can stay on bills for a long period of time.

The central bank said, only 9% of the population use credit cards. PLDT and Globe have about 160 million in combined wireless subscribers, exceeding the nation's population of 108.7 million.

This move towards use of wireless data for payments is among initiatives pursued by the carriers as widespread use of data and social media combined with price wars have dented revenues from calls and texts.

Building another source of revenue has also become more urgent as PLDT and Globe face the entry of a third major player.

Singtel in consortium building submarine data cable

Singapore Telecommunications (Singtel) is part of a consortium of companies that is building a high-performance submarine cable connecting the Lion City, the Philippines, Thailand, Vietnam, Japan and China (Hong Kong and Guangdong province).

The 9,400-kilometre cable will feature multiple pairs of optical fibres and is designed to carry more than 140 terabits per second of traffic, enabling high-capacity transmission of data across east and south-east Asia.

It will be constructed by NEC Corporation and is expected to be completed by the fourth quarter of 2022.

Other members of the Asia Direct Cable Consortium - which is building the cable - include China Telecom, SoftBank, Tata Communications and Viettel.

The 9,400-kilometre cable will feature multiple pairs of optical fibres and is designed to carry more than 140 Terabits per second of traffic, enabling high-capacity transmission of data across east and south-east Asia

The Singtel vice-president of carrier services, OTT, satellites and group enterprise Ooi Seng Keat said the cable will help the telco meet rapidly growing demand for high-speed connectivity to support advanced technologies such as 5G, Internet of Things-related services, and high-definition video.

"The new cable will enhance our infrastructure and also our ability to harness new technologies for future growth," he added. "Together with the Southeast Asia-Japan Cable 2 system to be completed next year, the Asia Direct Cable will boost diversity and resilience of our global network."

'India could ban Chinese firms'

Chinese tech giant Huawei could be banned from participating in India's 5G network rollout, just months after it was given permission, as border tension continues between the two neighbours.

It comes after the Indian government said it would block 59 Chinese apps such as TikTok and WeChat, claiming they were a threat to national security.

The government has already responded with a ban on the use of Chinese equipment by state-run telcos BSNL and MTNL.

As part of those discussions, Indian government ministers discussed the country's 5G rollout plans and whether Chinese telecommunications equipment giants Huawei and ZTE should be allowed to participate, according to reports.

Should either or both Chinese firms be banned from India, the stand-off will represent an opportunity for homegrown Indian firms. Companies including Sterlite Technologies, Vihaan Networks, VVDN and HFCL are among those that could also gain from the recent events.

ZTE helps Thai's True with 5G

Thai telecom operator True said it has handed its 5G IPRAN network project to ZTE, following an "outstanding performance" in POC testing by the Chinese telecom giant.

With its Flexhaul solution, ZTE will help True "build an intelligent", ultra-broadband and evolvable 5G IPRAN network to achieve unified transport of 2G/3G/4G/5G mobile services, FTTx, WLAN access, and enterprise private line services to enhance True's leading advantages.

True is a full-licensed operator in Thailand with over three million fixed-line users and 30% of the Thai mobile market share. In February this year, the company managed to acquire a 5G license and formally announced the commercial use of its 5G network.

By the end of May 2020 – during the peak of the coronavirus pandemic in some countries – ZTE had shipped over 60,000 5G transport network devices worldwide.

Smart Axiata to integrate authentication

Cambodian mobile operator Smart Axiata is implementing a network-based authentication solution for service providers from Benefit Vantage.

Named IPification, the solution integrates GMID Box technology into Smart Axiata's network capabilities, allowing service providers access to products including Secure DCB, Passwordless Authentication, Phone Verification and SIM Swap detection.

This enables frictionless user registration and login, as well as verification with minimal user interaction into their apps. Authentication using IPification can be activated with a single tap, or run completely in the background, enabling zero-tap verification.

"We are able to offer service providers in Cambodia a new way to protect their users seamlessly," said Stefan Kostic, CEO, IPification. "Most Apps, payment providers and others can integrate IPification to improve login and verification user experience, while protecting their users from frauds such as SIM swap attacks."

Stjepan Udovicic, chief marketing officer, Smart Axiata, added: "With IPification, we are taking a big step towards enabling smooth logins to our own and third-party apps in the Kingdom, and to do it in a secure way that protects user privacy."

"We are able to offer service providers in Cambodia a new way to protect their users seamlessly," says Stefan Kostic, CEO, IPification

Malaysia 'changes mind' on 5G spectrum allocation order

Malaysia will not allocate 5G spectrum directly to operators in lieu of an open tender.

In May this year, Malaysia's Minister for Communications and Multimedia Saifuddin Abdullah ordered the country's regulator MCMC (Malaysian Communications and Multimedia Commission) to allocate blocks of 700MHz spectrum to five selected operators. They were to be Altel Communications, Celcom Axiata, Digi, Maxis, and Telekom Malaysia. However, Saifuddin has confirmed that he has ordered this directive to be dropped and will review the move, in a bid to enable a more transparent spectrum allocation process.

In January 2020, MCMC stated in a report that it expected to issue both 700MHz and 3.5GHz spectrum via an open tender to a single-entity consortium comprised of multiple licensees.

The move to directly assign the spectrum blocks to the five mentioned operators raised eyebrows among many industry watchers and players. It also came as a surprise to one federal lawmaker and Malaysia's former communications and multimedia minister.

Furthermore, there are also questions over why Altel was awarded the 700MHz spectrum, given that it did not use the 4G spectrum it was awarded to build its own infrastructure in 2012. Instead, the company continued to lease its spectrum and remain an MVNO.

Saifuddin's order in May represented a significant diversion from this strategy and with the directive only surfacing recently. News wire Bloomberg noted that the move appeared to have shocked the market – which has evidently resulted in it being swiftly abandoned.

Free Wi-Fi at Base Camp

Nepal Telecommunications Authority (NTA) is providing free Wi-Fi at Mount Everest Base Camp (EBC) through Everest Link Pvt.

The NTA took the step amid growing complaints from the mountaineers that the internet service in the region is too expensive and of low quality.

It is investing Rs69.9m in the project and will also offer free internet services in Lobuche, Monjo, Namche Bazaar, Phakding, Feriche and Tengboche, among others, according to the officials of the NTA.

Currently, trekkers have been paying, for one time use, up to US$10 for the internet service offered by the lodges and restaurants. Alternatively, they can also use the mobile internet data connection of the telecommunications companies like Nepal Telecom and Ncell or buy the Everest Link Card, a wireless prepaid broadband internet service. However, the network of these companies stops working with the increase in elevation, according to the trekkers.

The EBC Trek has been recognised as one of the world's best adventurous treks. A number of surveys have shown that the visitors use the internet in the EBC Trek mainly for posting their photos on social media like WhatsApp, Instagram, Facebook and Viber, among others. A number of trekkers use WIFI to connect with their families and friends.

India wants to attract gear-makers

India wants to lure equipment manufacturers to its telecom market with the promise of financial incentives for companies prepared to commit to investments.

Under a so-called "productivity-linked incentive" (or PLI) scheme, the Department of Telecommunications will offer financial incentives worth between 4% and 6% of sales over a five-year period.

To qualify, a firm must invest more than Rs6bn (US$79m) in the country over a four-year period and export goods worth between INR10 billion ($132 million) and INR30 billion ($396 million) annually.

The plans have already been cleared by the Digital Communications Commission but still require the approval of the cabinet before they come into force.

Authorities hope the scheme will attract manufacturers previously discouraged by the cost drawbacks of doing business in India.

The country has lost out to lower-cost markets such as China and Vietnam in the manufacturing sector. While global firms including Ericsson, Huawei and Nokia all have facilities in India, the percentage of locally sourced material and components remains very small.

The latest initiative comes a few years after the government launched a similar scheme for mobile device makers. That helped attract global device companies such as Apple and Samsung.

More broadly, India has been trying to establish itself as a

Authorities hope the scheme will attract manufacturers previously discouraged by the cost drawbacks of doing business in India

manufacturing destination for years. And the government has announced several incentives for foreign firms as part of its ambitious "Make in India" initiative. Those have included a reduction in corporate tax for the first time in three decades, of significant benefit to the manufacturing sector.

Security is another reason for India to promote local manufacturing. Several countries have banned Chinese gear makers such as Huawei and ZTE from participating in the 5G market because of security concerns. In India, authorities have yet to clarify if service providers can use Chinese equipment.

Ritesh Kumar Singh, chief economist of Indonomics Consulting and a former assistant director of the Finance Commission of India, wrote in Nikkei Asia Review that "India needs to change" if it is to lure manufacturing from China.

"Now, not for the first time, India is trying to lure global manufacturers to set up shop there so they can spread their risk and cut their exposure to China," he wrote. "India has cheap labour, a large and growing domestic market and globally competitive corporate tax rates, and is planning to approach companies specializing in electronics, automobiles and health care. But this will all remain wishful thinking unless New Delhi becomes serious about fixing its unattractive and unpredictable regulatory regime. Changeable rules and difficulties in enforcing contracts are going to deter investors. Now is India's moment to change."

The role of satellite backhaul in connecting rural southeast Asia

Access to mobile coverage is expanding across Southeast Asia. With roughly 670 million people, the region comprises over 9 percent of the world's population, with Indonesia and Philippines comprising half of that number. Although over 93 percent of the region's population is covered by at least 3G, Singapore is the only country with 100 percent 3G and 4G coverage. There are still over 40 million people living in areas without access to any mobile broadband coverage, which is often the only means of connecting to the internet. It's no surprise, since nearly half of the region's population (~ 330 million people) live in rural and hard-to-reach areas where deploying mobile coverage using terrestrial backhaul has proven economically and, in some cases, geographically unfeasible. It's for these reasons that satellite backhaul makes sense for expanding voice and data services to uncovered communities.

The connectivity gap

While most of the population live in areas with access to 3G or 4G mobile coverage, not all are connecting, usually because they cannot afford devices and service plans, there's not enough digital content and applications in their local languages, or because use of these tools is irrelevant to them. Aside from that, there are over 40 million people who cannot connect because the cellular telecommunications infrastructure that enables mobile broadband coverage does not exist. For example, in Indonesia, roughly 5 percent of the population (14 million) live in areas without access to basic 3G coverage (and likely without access to the internet). In the Philippines, the story is similar. Only 7 percent of the population (nearly 8 million Filipinos) live in areas without access. Malaysia is another example whereas 5 percent of the population (1.5 million) live in areas without access to basic 3G services. Most of these uncovered populations live in rural and remote areas where the business case for building out mobile broadband infrastructure using terrestrial backhaul becomes difficult for mobile network operators (MNOs) to justify.

Why so many remain unconnected

Many are neglected when it comes to accessing mobile broadband coverage, so millions of people across rural and remote Southeast Asia communities remain unable to take advantage of the benefits of a connected society. Better healthcare, improved financial inclusion, access to critical government services, local economic development, and achievement of Sustainable Development Goals (SDGs), are the blueprint to achieve a better and more sustainable future for all. Their absence of mobile broadband coverage is mostly due to low population densities, low income, and even topographical challenges, such as dense forests and mountains. This makes investments in support infrastructure too costly for MNOs, especially when relying on terrestrial backhaul such as fiber and microwave. If the costs to install fiber backhaul in Indonesia, for example, is like that of the United States, then deploying just 16 kilometers of fiber to a rural cell site can cost over 2.6 million Indonesian Rupiah (IDR) and can take up to a year or more to deploy. Relying on microwave backhaul also has challenges; line of site and distance limitations require multiple hops that include costs of towers, relays, power, and spectrum to reach just one remote cell site. Using Indonesia and U.S. as examples, it can cost an MNO up to 2 million IDR for just two complete

microwave hops. For an MNO to expand mobile broadband coverage to 14 million Indonesians living in uncovered areas, they will need to install hundreds of kilometers of fiber with a mix of multiple microwave stations to connect a large number of rural and remote cell sites. This makes it extremely costly and time-consuming and is the main reason why millions remain without access.

How to solve the connectivity gap

To quickly and economically expand this type of coverage, there is only one viable solution: satellite. Advancements in technology, including high-throughput-satellites, dynamic bandwidth allocation capabilities, along with the ubiquitous coverage provided by geostationary satellite networks enable MNOs to quickly and cost-effectively backhaul hundreds even thousands of rural and remote cell sites. With this comes access to life-changing mobile broadband coverage to communities across rural Southeast Asia. Utilizing satellites for backhaul, MNOs can maximize capacity by connecting multiple cell sites anywhere using a single pool of dynamically allocated bandwidth. As a result, the cost of capacity is also dynamically distributed based on demand, making it an equally (or more) economical backhaul solution when compared to fiber or microwave in the same scenarios. And, using satellite backhaul, cell sites can be connected to an MNO's

core network in days or weeks, instead of months or years. Finally, advancements in satellite technologies, such as signal acceleration and optimization, also ensure fiber-like backhaul connectivity to cell sites, providing end users with an optimal voice and data experience.

Conclusion

There is growing government pressure for MNOs to expand mobile broadband coverage to uncovered rural populated areas, but cost is still a factor and rural and remote communities are challenged with low income and poverty making low return on investment a barrier for MNOs. Limited skills and knowledge, along with lack of relevant digital applications and content within this population, also mean MNOs have a finite number of target subscribers. That is why governments, MNOs, non-governmental organizations, and even multinational corporations must partner together to solve the problem with satellite backhaul as a part of the solution. Only satellite backhaul, when compared to terrestrial, makes sense for quickly and cost-effectively expanding high quality mobile broadband coverage to rural and remote parts of Southeast Asia. It's time to take a new look at the advantages.

For more information on how satellite backhaul can benefit your organization, visit www.intelsat.com/asia-sawc.

Rakuten opens new Singapore HQ

Japan's Rakuten Mobile has officially established its new global headquarters in Singapore.

It will serve as the central hub from which the mobility and wireless networking subsidiary of Japanese e-commerce giant Rakuten will unveil its fully virtualised, cloud-native mobile communications platform, the Rakuten Communications Platform (RCP), to overseas markets beyond Japan.

Last April, Rakuten Mobile became the first new mobile network operator in Japan in over 10 years, two years after securing bandwidth approval from the country's Ministry of Internal Affairs and Communications. Rakuten Mobile has grown to become the biggest mobile virtual network operator in Japan, leveraging the infrastructure of the major Japanese network carriers to deliver its mobility services, which has proven particularly successful among younger subscribers, thanks to its low fees and rewards-based loyalty system.

"We are developing the Rakuten Communications Platform offering to be made available to telecom companies, government organizations and other enterprise customers around the world," said CTO Tareq Amin. "RCP offers a speedy and cost-efficient deployment of fully virtualised cloud-native network services and I'm very excited to welcome Rabih Dabboussi onboard as Rakuten Mobile's global head of sales and marketing to lead our global expansion."

In Japan, Rakuten Mobile has secured a raft of 5G partnerships with the likes of Nokia, Altiostar, Cisco, Qualcomm, and NEC, and its CTO Amin said that the virtual network operator's lack of outdated legacy infrastructure will give its Rakuten Communications Platform a distinct advantage over offerings from traditional telecom networks when it comes to 5G rollout.

Rakuten – which had to delay its Japanese 5G network launch in May – has partnered with NEC to develop an open, secure, and scalable 4G and 5G cloud-native converged core, which will be a key feature of services offered to global customers through the RCP.

UNHCR tells Myanmar to restore internet in Rohingya areas

The United Nations High Commissioner for Refugees (UNHCR), has asked Myanmar to restore internet access in the mainly Rohingya populated provinces of Rakhine and Chin.

In a statement from its Bangkok office, the UNHCR asked Myanmar to end the internet shutdown that has been imposed for a year in Rakhine and Chin.

The UN agency warned the unprecedented internet blackout is now also endangering the lives of vulnerable civilians facing the COVID-19 pandemic.

In addition, Myanmar's Ministry of Transport and Telecommunications had ordered companies to sever internet data services in nine townships on June 20, 2019, claiming the "move was a national security measure," the statement said.

Fighting between the military and the Arakan Army, a predominantly Buddhist ethnic rebel group, has killed hundreds of civilians and displaced thousands more since last year, it added.

"Disruption of internet services disproportionately impacts those who rely on timely, credible information to protect their lives and access humanitarian assistance," said James Rodehaver, a senior UN human rights official in the southeast Asia regional office.

The volatile region is also home to several other minority communities, including the Rohingya who have suffered systematic persecution for decades at the hands of Buddhist-majority authorities in Myanmar.

"All communities have suffered as a result of the current violence and the internet shutdown," the UN agency said.

"If the intention of the shutdown was to increase security, it does not seem to have had that effect for the civilian population," said Rodehaver.

The UN Human Rights Agency also urged Myanmar military forces and the Arakan Army to heed the UN Secretary-General Antonio Guterres's call for a global cease-fire and to ensure the protection of civilians.

"Restrictions imposed by authorities on humanitarian access in conflict-affected areas since at least January 2019 should be lifted as well," the statement added.

"Vulnerable communities are being deprived of potentially life-saving public health information during an unprecedented global pandemic and intensifying violence," Rodehaver added. "It is critical to restore online access now."

Fighting between the military and the Arakan Army, a predominantly Buddhist ethnic rebel group, has killed hundreds of civilians and displaced thousands more since last year

Samsung to relocate Chinese display production to Vietnam

Samsung Electronics is planning to shift much of its display production from China to its plant in southern Vietnam this year, according to state media.

The South Korean company is the single largest foreign investor in Vietnam, with investments totalling US$17bn.

"Samsung sees Vietnam as an important gateway to other southeast Asian countries and a link in its global supply chain," state-run newspaper Tuoi Tre reported. "The move will make Vietnam become the world's leading supplier of Samsung screens."

The news comes as more companies look to diversify supply chains beyond China, after widespread disruption globally when the coronavirus pandemic first hit global manufacturing. Samsung was also hit hard.

The firm already produces displays in Vietnam, where it has six factories in addition to two research and development centres.

Now, the screens will be produced in the Samsung Electronics Complex in Ho Chi Minh City, Vietnam's business hub, Tuoi Tre said.

Samsung made no comment on the report before *Southern Asian Wireless Communications* went to press.

TIP and edotco boost network connectivity in underserved areas

Telecom Infra Project (TIP) and edotco said they are on track to unlock new network efficiencies that will improve connectivity at underserved areas in southeast and south Asia, beginning with Malaysia.

In a statement, the infrastructure services company edotco said this latest advancement is a further example of a deepening strength through TIP's ecosystem, a global community of companies and organisations that are driving infrastructure solutions to advance global connectivity.

"With the initial phase of the collaboration on the OpenRAN trials progressing well, we are moving to the next phase focusing on the development of end-to-end urban solutions for 4G and 5G," it said. "The next phase will focus on the development of a deployment blueprint which will be tested in a TIP Community Lab together with System Integrators, with the goal of simplifying the process of network coverage extension and modernisation."

Once the blueprints have been validated, they will be shared with the broader TIP community and products will be listed on TIP Exchange, the group added.

"With new network demand on the rise and the critical need to connect the underserved

Both edotco and TIP will conduct proof of concepts for 4G OpenRAN across 15 locations within the Klang Valley

communities, we must accelerate the adoption of next-generation solutions," said edotco's interim chief executive officer Datuk Izzaddin Idris. "These new solutions, based on a vendor-neutral hardware and software-defined technology, will present a technological revolution for seamless connectivity in underserved communities, while providing cost-effective options to network operators."

Both edotco and TIP will also soon conduct proof of concepts for 4G OpenRAN across 15 locations within the Klang Valley, according to the statement.

Mobicast enters Vietnam's MVNO market

Mobicast has become Vietnam's second active MVNO after a launch of its Reddi service covering Hanoi.

It is offered via Vinaphone's network and Mobicast aims to expand coverage to industrial zones across nine cities and provinces in the southeast Asian country.

Mobifone was granted its MVNO licence in 2019 by the country's Ministry of Information and Communications. It enters the market alongside Indochina Telecom, which began offering services in April after receiving Vietnam's first MVNO licence.

Indochina Telecom's services also use infrastructure operated by Vinaphone, which is a subsidiary of state-run VNPT. A further four operators are active in the Vietnamese market: Gtel, Mobifone, Vietnamobile and military-run Viettel.

Myanmar government diverts special telecom fund to biometrics database

Myanmar government said it will use a special telecom fund to set up a biometrics database for mobile phone users despite the obvious lack of privacy protection.

Its decision to access the Universal Service Fund – intended by law to expand telecom access – has seen objections by civil society activists who say it runs counter to the policy of the country's Ministry of Transport and Communication.

Under new rules, customers buying a SIM card must be fingerprinted and have their identity card scanned. However, the system has alarmed privacy and rights groups as Myanmar has no data protection law or regulation in place.

The move is a controversial one as the fund is intended for developing infrastructure and digital literacy training programmes, as well as connecting people in what are described as "commercially non-viable areas". It is also meant for implementing projects for minorities, persons with disabilities and impoverished people.

GSMA creates Asia and Africa digital inclusion fund

Mobile industry group GSMA has launched the Innovation Fund for Mobile Internet Adoption and Digital Inclusion, designed to increase mobile internet adoption and usage among those who have coverage but are not using it in Asia and Africa.

It is supported by the UK Department for International Development (DFID), the Federal Ministry for Economic Cooperation and Development (BMZ) in Germany, the GSMA and its members.

The rationale behind the creation of the fund is to find innovative ways to solve the usage gap for the digitally excluded in the world's two largest continents. Mobile operators have invested almost $USD1tn in network infrastructure over the past five years, bringing mobile internet coverage to 91% of the world's population, but 3.3 billion of the 7.1 billion people covered are not currently using mobile internet services, said the GSMA.

Innovations include those designed to improve the accessibility, usability and affordability of handsets and mobile internet services for citizens who are unable to access them as well as those focusing on improving basic digital skills and confidence to access and use mobile internet. The safety and security of individuals regarding the use of mobile internet is another prime objective.

The GSMA added that the fund will support startups or small to medium enterprises (SMEs) with innovative new products, services or business models which can address key barriers to mobile internet adoption and use, driving digital inclusion for those currently digitally excluded, including women.

The safety and security of individuals regarding the use of mobile internet is another prime objective

# Singapore government arm backs tech start-up

A Singapore government arm has invested in Transcelestial, a local start-up that's building a space laser network to deliver high-speed internet connectivity.

The company is developing devices that use laser technology to send data to each other, rather than fibre optic cables. Founded in 2016, the firm also said the devices, mounted on poles or cell towers, are easier to set up and more affordable than laying fibre in a city.

Rolling out 5G infrastructure network comes at a major cost for operators and requires a dense network of base stations, because it uses radio waves that do not travel as far as 4G. Rohit Jha, Transcelestial co-founder and CEO, said its product could make it up to 90% cheaper per kilometre for telecom operators to deploy fibre in the 5G network.

Transcelestial has conducted trials with carriers in neighbouring countries, as well as South Korea's SK Telecom. However, inclement weather conditions have been a key bottleneck in the adoption of laser technology, but the company said its devices work under heavy rain and thick haze.

The US$9.6m funding was led by Singapore's EDBI, the investment arm of the government's Economic Development Board and venture
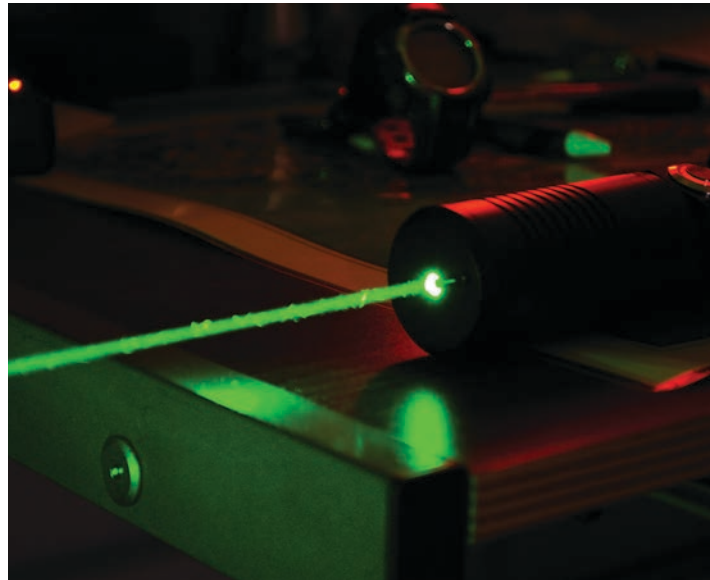
The company is developing devices that use laser technology to send data to each other, rather than fibre optic cables

capital firm Wavemaker Partners. Airbus Ventures, the venture capital arm of European aircraft maker Airbus, also participated, along with other new and existing investors. Transcelestial said it will use the proceeds to ramp up production of its devices.

"As the front runner in laser communications technology, Transcelestial's CENTAURI platform will help catalyse the adoption of 5G communications, a key enabler for the next wave of growth in the digital economy, including areas such as smart cities, industry 4.0 and urban mobility," said Chu Swee Yeok, chief executive and president of EDBI.

The deal also signals Singapore's ambitions to encourage homegrown technology at a time when there are much-publicised political concerns over Chinese firm Huawei's ongoing trade war with the US.

High-speed CANI submarine cable project gets green light

A Chennai-Andaman & Nicobar Islands (CANI) submarine cable system project has finally received clearance by the National Board for Wildlife (NBWL).

Permission from NBWL, under the environment ministry, is mandatory for projects, which in any way, pass through or involve protected areas.

The project will connect eight islands of Andaman & Nicobar with the Indian mainland at Chennai through submarine optic fibre cable systems. It would provide A&N Islands with sufficient bandwidth for supporting voice and data connectivity, an important tool for

governance and strategic operations.

In addition, the CANI cable system will have speed of 100 gigabit per second (gbps). The eight islands to be connected with Chennai include Port Blair, Little Andaman (Hut bay), Car Nicobar, Kamorta, Great Nicobar (Campbell bay), Havelock, Long and Rangat Islands.

The project got its final clearance in the 58th meeting of the NBWL's standing committee, chaired by environment minister Prakash Javadekar, courtesy of a recent video conference.

Meanwhile, Bharat Sanchar Nigam Limited (BSNL) Andaman

and Nicobar circle announced the revamp of the broadband and fibre-to-the-home. The revamped plans are offered at identical price points as with the previous plans but the operator now provides high speeds and high data allowance to users. BSNL has also eliminated the data overage charges on its FTTH plans. It has also introduced the 50 Mbps and 100 Mbps speeds as part of its revamped FTTH plans. Unlike the mainland, BSNL had earlier restricted the speeds on its FTTH plans to 10 Mbps across all price points in its Andaman and Nicobar circle.

Over 1,000 phones found

Over 1,000 mobile phones have been recovered from a number of prisons in Sri Lanka over the past few weeks. In a statement, the country's prisons department said that the devices were recovered during raids carried out on 28 prisons. Among the phones recovered were mobile phones found in the prison cell of notorious drug dealer ''Kanjipani Imran'' in Boosa.The Prisons Department said that 688 SIM cards had also been seized during the raids. A number of mobile phone chargers and mobile phone batteries had also been recovered.

Facebook buys stake in India's Jio

Facebook has pumped US$5.7bn in Jio Platforms, the digital services arm of India's largest private sector company, Reliance Industries. The deal gives the US tech giant a 9.99% stake and a chance to promote the usage of its apps in Jio's 388 million wireless subscribers. Both companies said the focus of their collaboration will be empowering India's small businesses in the digital economy.

Cambodia in China plea

Cambodia's newly-appointed minister of posts and telecommunications Chea Vandeth urged Chinese telecom giants China Communication Construction Co (CCCC) and Huawei to further invest in the kingdom's 5G digital technology rollout. The appeal comes as the Ministry of Information is set to release the 700MHz frequency band to the telecom ministry in the coming years to help it develop the 5G network.

📡 Talking satellite

Martin Jarrold, chief of international programme development, GVF

COVID-19: A new challenge for global HAD

In my previous column for this publication, written on 13 March, I began with this sentence: "As I write this column more than 120 of the world's nations are experiencing the spread of the Coronavirus. To state the obvious, this public health emergency is impacting on all facets of life as well, of course, as very sadly causing so many deaths." So much has changed since I wrote these words.

COVID-19 – the disease resulting from the zoonotic, interspecies, jump of the novel coronavirus (SARS-CoV-2) from an animal species to human, and declared pandemic by the UN World Health Organization (WHO) on 12 March – has affected the entire world to a degree that, in significant measure, and on the broadest scale, is unlikely to be reversed. (Indeed, it may be argued that there are some changes that we may not really want reversed. However, this discussion is for another time, in another place.) From its almost certain origin in a Wuhan wet market, and then impacting most of the world's most advanced and wealthy nations, the epidemiology of COVID-19 is illustrating that the worst of the consequences of the disease spread are now happening for the poorer countries of the less-developed world.

Such developments, since mid-March, have put into better perspective certain of my remarks of the time; remarks concerning the impact of the pandemic on the satellite industry's international events schedule – a combination of postponements and cancellations – which pale in the context of the 460,000 deaths worldwide (as of 20 June 2020). There is, however, something of an irony that this catastrophic global public health crisis – necessitating the activation of humanitarian assistance and disaster response (HADR) resources and capabilities – has now also disrupted a major international event in the field of HADR, not as postponement or cancellation, but in transitioning into the virtual. This event is known as Pacific Endeavor and its 2020 iteration will now happen in cyberspace. So, what is Pacific Endeavor?

Since 2012 GVF has collaborated with the United States Department of Defense IndoPacific Command (INDOPACOM, formerly Pacific Command, PACOM) Multinational Communications Interoperability Program (MCIP) in HADR – for the annual Pacific Endeavor event. In an approximately triennial cycle, the focus of Pacific Endeavor alternates between, "Wireless Endeavor", "Cyber Endeavor", and "Satcom Endeavor". This year was to feature a Satcom Endeavor programme, the content being organised by GVF, and led by GVF's Lead on HADR, Riaz Lamak (riaz.lamak@gvf.org).

In the context of the entirely natural preoccupation with the current pandemic – and of collectively looking forward to a global mass vaccination programme when the efforts of the world's virologists and pharmacologists succeed in combatting the coronavirus – it is important not to lose sight of other disasters, those arising from the forces of nature, and those resulting from human action, sometimes mistakes, sometimes malign.

Of course, natural disasters take many forms: earthquakes, tsunamis, cyclones/hurricanes/typhoons, volcanic eruptions, floods, droughts, and famine. Parts of Africa, the Middle East and south Asia have recently been facing a "plague" of locusts consuming its way westwards. Super-Cyclone Amphan has wreaked havoc in Bangladesh and north-eastern India. The Pacific Ocean islands were hit by Typhoon Harold. It is usually these, and also human-made disasters such as war (too numerous to list, and which are both immediately disastrous and consequently disastrous in the form of displaced and refugee populations), which usually grab the headlines as requiring the kinds of solutions for immediate response logistics operations and longer-term recovery programmes that only satellite can provide. In the context of pandemic the recurrence of these other disasters exacerbates both the instance and effects of the coronavirus, as infection takes hold in lower-income countries, affecting communities with weak health systems, affected by conflict, comprising displaced peoples, or spreading through permanent, high-population density, slums.

With reference to the entire sweep of disaster situations, and beyond the specifics of just Pacific Endeavor, GVF's pedigree in the sphere of HADR extends to working with the United Nations. GVF is the only globally-based representative body for the satellite industry that is – along with a number of its member companies – signatory to the UN Crisis Connectivity Charter, and is the only private sector representative entity in the World Food Program administered Emergency Telecommunications Cluster (ETC). As I prepare this column, I note that the ETC Annual Report 2019 has recently been published, featuring Cluster response operations for emergencies in Africa: Central African Republic, Libya, Mozambique, and Nigeria; and South Asia: Bangladesh. (Plus, The Bahamas and in the Pacific.) The Report can be read by clicking on the following link: *https://www.etcluster.org/document/etc-annual-report-2019.*

Pacific Endeavor 2020 in cyberspace will be different, a move away from the usual person-to-person and hands-on experience. Since 2012 we have variously conducted presentation sessions, and hands-on practical training workshops to certify J6 military officials – of the approximately 25 participating nations – in the installation and maintenance of satellite terminals to ensure that during crisis or disaster GVF-certified first responders are on the ground.

Communications capacity building for these militaries and their civilian partners – advancing reliable and interoperable communications and cyber operations – will still be the goal. However, whereas the non-pandemic norm provides GVF member companies and others with the opportunity to showcase new solution innovations, equipment and systems, and share case studies, and best practices (as well as GVF providing hands-on practical training) on a face-to-face basis, cyberspace will instead provide the platform for GVF-managed remote technical sessions with mentored online training modules with voice calling support. Of course, Pacific Endeavor's cyberspace participants will contribute to the programme from their own respective time zones, from the Maldives in the Indian Ocean at 73 degrees East longitude to Hawaii in the Pacific Ocean at approximately 158 degrees West longitude – that's almost nine time zones spanning the International Date Line. This will be a new endeavour for all involved.

'Sterlite nearly back to pre-pandemic levels' – company CEO

Indian data network solutions provider Sterlite Technologies said manufacturing capacities have accelerated to near pre-coronavirus levels.

Group chief executive officer (CEO) Anand Agarwal said government spending on digital infrastructure needs to go up significantly in tandem with other economies of similar size, and that digital networks need to be seen more as enablers for healthcare, education, smart cities, business and governance.

"Consider our spending on roads and railways, power, ports and how we spend on infrastructure for critical movement of goods," he said. "Now, there is digital infrastructure on which information pertaining to healthcare, education, governance, business, is flowing…So, government investments into the digital infrastructure have to be viewed in the context of spurring GDP (gross domestic product) growth."

Agarwal said a shift in mindset "has to happen" with regard to differentiating between conventional telecom and futuristic digital networks, "which will be the nerve centre" for all economic activities.

"We are thinking licence fee, spectrum, adjusted gross revenue… but it's no longer just a telecom play, it is more digital," he continued, adding that digital cannot be thought of in the same manner as telecom, on the lines of revenue earning potential.

On the operations side, Sterlite said manufacturing capacities are reaching near pre-coronavirus levels in terms of unit production.

The first phase of 'Unlock India' has now started with significant easing of nationwide curbs aimed at reopening businesses and fuelling India's economy.

BSNL orders ex-employee and activist to vacate official quarters

India's BSNL has directed its former employee and activist Rehana Fathima to vacate its official residential quarters in Kochi, citing the police raid at her house post the registration of a case under the Protection of Children from Sexual Offences (POCSO) Act.

According to local reports, the police raided her house, an official accommodation of state-run BSNL, after a case was registered under POCSO for making her minor children paint on her naked body and posting the video of the same on social media.

Citing the raid on the house, the notice by BSNL said: "The above image tarnished the image of BSNL. Hence, you are instructed to vacate the quarter within 30 days from the date of receipt of this notice, failing which further proceedings will be initiated for eviction."

In addition, the notice dated June 27 also said that Fathima was given compulsory retirement with effect from May 11, 2020 as a part of "disciplinary proceedings". It added that as she was not an employee with the PSU anymore, she was ineligible to occupy the accommodation with effect from May 11.

Fathima recently approached the Kerala High Court seeking anticipatory bail post the registration of the case under POCSO.

Before her dismissal, Fathima was under suspension from service for 18 months following her arrest in November 2018 for allegedly hurting religious sentiments through her social media posts.

Nepal Telecom revives over 1.5m inactive SIM cards

Nepal Telecom (NT) said it has revived more than 1.5 million inactive SIM cards.

The state-owned operator has 'recycled' the old SIM cards after the completion of SIM cards it could distribute under the numbering scheme,

"SIM cards that have not been used for a long time have been recycled for reuse," said Dilli Adhikari, managing director at the Nepal Telecom.

NT has received operator codes 984 and 986 from Nepal Telecommunication Authority. The numbers begin from these codes.

The operator has created 20 million SIM card numbers that begin with 984 and 986. After exceeding 20 million prepaid numbers last December, the NT has been recycling and providing SIM cards in the market.

Comviva introduce mobile recharge app

Comviva, the Indian mobility and digital solutions vendor, has launched a mobile application that enables subscribers to recharge the prepaid mobile connections of other subscribers and earn incentives or cashbacks.

The Direct Selling Agent application is the latest feature of PreTUPS, one of the world's largest electronic recharge and voucher management platforms, which has been deployed by over 60 telecom operators in more than 45 countries. The app is a white labelled offering that can be provided by the telecom operators worldwide to their subscribers allowing community recharge.

Using the app, telecom operators can enrol subscribers as direct agents. After the enrollment, which is a quick and simple self-registration process, subscribers are on-boarded as direct agents and can act as full-fledged retailers and begin transacting. The direct agents can purchase stock from the telecom operator online and pay via digital channels, such as cards or digital wallets. Once the stock is purchased, the direct agents will receive incentives or cashback. Once the stock is available with them, the direct agents can recharge the mobile connection of their family, friends and acquaintances. The app also offers gift recharges, electronic vouchers and value added services (VAS) recharge.

"The PreTUPS Direct Selling Agent application benefits all stakeholders," said Srinivas Nidugondi, COO and EVP, mobile financial solutions, Comviva. "First, it will help telecom operators to increase their distribution reach, especially during the on-going COVID-19 pandemic when the availability of recharge retailers and related services have been curtailed due to lockdown and restriction on people's movement. Also, the mobile application will help mobile subscribers earn incentives or cashbacks for recharging the prepaid mobile connection of other subscribers. This can provide additional income to many consumers, including students, cab drivers, insurance agents et al. Lastly, people who are unable to visit retailer after their mobile balance or validity has ended, will be able to instantly get recharge and remain connected to their family and friends in these challenging times."

Over the past few months, PreTUPS has added multiple features to ensure that telecom operators can offer e-recharge services smoothly and all customers are able to recharge their prepaid mobile connections, particularly during the Covid-19 pandemic. One such service is Find My Retailer, where telecom operators can SMS customers a list of their favourite retailers (a maximum of five) and their mobile numbers.

Bukalapak founder poached by Telekom to head digital business

The founder and president of Indonesian e-commerce startup Bukalapak, Fajrin Rasyid, has stepped down to become the head of digital business at state-owned PT Telekomunikasi Indonesia Tbk, (Telkom).

Requested by state-owned enterprises minister Erick Thohir, the hire is part of the former businessman's strategy to make the country's telecom giant more profitable and reduce its dependence on mobile services.

"Within 10 years with Bukalapak, we have inspired Indonesian youth to continuously dream big and work hard to make it a reality," said outgoing president Rasyid. "Now is the time to make a greater contribution to the advancement of Indonesia and focus on developing Indonesia's telecom industry, with Telkom. I hope my experience in developing a startup business as it is today, could contribute to the development of Telkom.

Rasyid's appointment followed Telkom's general shareholders' meeting June 19. At 34, he is the youngest director at the company.

Telkom CEO Ririek Adriansyah added: "In the near future, we want to develop digital platforms and services, not just focusing on our connectivity business. Therefore, we needed to bring a person who has the competencies to realise those dreams and shareholders agreed to appoint Fajrin as digital director."

Rasyid is the third Bukalapak executive to exit the company, following the depature of the other two co-founders Achmad Zaky (former CEO), who quit in December 2019 and Nugroho Herucahyono (former CTO). They went on to set up a VC fund, called Init 6, to invest in startups in Indonesia.
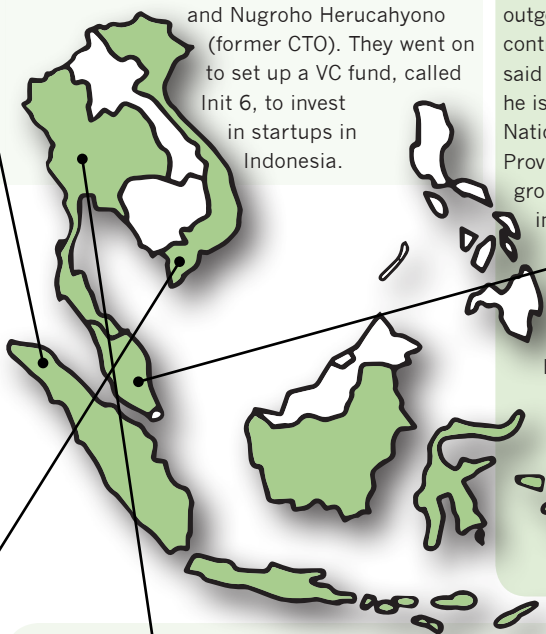
VinSmart produces first 5G smartphones

VinSmart, a subsidiary of Vietnam's Vingroup, has produced its first 5G smartphones in cooperation with US giant Qualcomm.

The Vsmart Aris 5G model is equipped with a Snapdragon 765G 5G module platform and a quantum security chip, the company stated, adding it also features a Super Amoled 6.39" display, 8GB RAM and a 4,000 mAh battery.

Nguyen Phi Tuyen, director of the measurement center of the Department of Telecommunications under the Ministry of Information and Communications, said the unit has repeatedly tested Vsmart's Aris 5G, showing the network speed was eight times higher than 4G.

VinSmart has yet to reveal the official price of the Aris 5G, when it would be available, or how many units it intended to produce.

No 5G smartphone has been manufactured or officially distributed in Vietnam so far, instead they are hand carried on overseas flights.

VinSmart's move came as local telecom firms compete in the 5G race. Telecom giant Viettel for the first time broadcast from its network of 5G base transceiver stations in Ho Chi Minh City last September while competitor VNPT has announced similar plans.

VinSmart, which launched its first products at the end of 2018, is currently focusing on the low-end segment of the market, with 12 Vsmart phones all priced at below (US$212).

Thaicom team up with Cat Telecom for joint LEO venture

Thaicom and CAT Telecom have forged a joint satellite business venture to help strengthen Thailand's telecom infrastructure and support the growth of the digital economy industry and satellite industry.

The latter said the joint venture company, called Nation Space and Technology Company, would lead to the development of telecom services via Low-Earth Orbit (LEO) satellite systems serving the country.

It has a registered capital of approximately US$323,625. Thaicom holds a 75%, whereas CAT holds a 25% in the new company.

"The announcement of a new joint venture company, Nation Space and Technology will enhance a strategic partnership between the two companies. Thaicom has long experience and expertise in the satellite industry," said Anant Kaewruamvongs, chief executive officer, Thaicom. "Together with CAT's extensive know-

how in providing digital solutions, the two companies will leverage advanced solutions and advanced satellite services for various applications and digital industries. We believe this strategic alliance between Thaicom and CAT will lay the foundation for a long-term partnership and a sustainable growth of the country's telecommunication services."

The new company would lead to the development of telecom services via LEO satellite systems serving the country

Telekom Malaysia names Bakke Salleh as new chairman

Telekom Malaysia Bhd (TM) announced the resignation of Rosli Man as chairman and replaced him with Mohd Bakke Salleh.

On behalf of TM Group, company directors expressed their highest gratitude to Man for his leadership and contribution to the TM Group during his tenure. "The entire board, management and Warga TM would like to thank and convey our appreciation to our outgoing chairman, Rosli Man for his valuable contribution to TM during his tenure," they said in a statement. "During his chairmanship, he is instrumental in positioning TM to be the National Telecommunication Infrastructure Provider or InfraCo towards preparing the group at the forefront of the nation's 5G infrastructure roll-out."

Man was appointed as Chairman of TM Board in December 2018.

Commenting on the new chairman's appointment, TM's board said, "We are happy to welcome Mohd Bakke Salleh as the new chairman. Mohd Bakke is a highly respected corporate figure with extensive experience, known for upholding governance and integrity. He brings a wealth of industry and commercial insights, which will broaden and enrich the board's overall expertise."

The rise and rise of OTT – and satellite

With OTT and other online services growing in popularity across southern Asia, Hans Massart from ST Engineering iDirect explains why satellite can play a critical role in their delivery

With many people spending more time at home than ever before due to the global coronavirus pandemic, streaming services have seen a sudden surge in demand as audiences search for the latest news and entertainment. As friends and family catch up on video calls, programmes on streaming services such as Netflix and Amazon Prime are among the most discussed topics with no one wanting to miss out on the most recent and most talked-about shows.

Netflix in particular has never been more popular. Figures from the Global Web Index's Coronavirus Research Report show there have been 16 million new subscribers since the turn of the year, doubling the sign-ups it received in the final months of 2019, as governments introduced lockdown measures around the world. This increased streaming demand led to Netflix reducing the quality of its videos across Europe for 30 days to reduce the strain on internet service providers.

There is no doubt the world's current plight is speeding up the global popularity of streaming services, with restrictions placed on movement away from the home to reduce the spread of COVID-19. But the recent increase in viewers is in addition to the millions of subscribers who already indulge in streaming sites; Over the Top (OTT) services are expected to replace traditional viewing behaviours to cope with short- and long-term demand. Before the virus outbreak, experts predicted the number of users streaming services in Asia was expected to reach 693 million by 2024. This number was boosted by the launch and growing popularity of Malaysian streaming service iflix, which has firmly established Southeast Asia on the global streaming map.

So how does the industry adapt to an unprecedented number of households demanding access to different applications at their full potential on different devices at the same time? That is the question many service providers are asking as they seek to satisfy an ever-growing audience – and central to that discussion is satellite.

Responding to the trends

Satellite, once thought of as not compatible with OTT services, is now seen to have a critical role to play as we move towards the future of video delivery in the OTT era.

Nearly half of the world's population currently accessing the internet are using it to stream movies or TV shows, according to the same Global Web Index report. The same research details that 68% of internet users have been searching for COVID-19 related updates and 58% are listening to music. These figures show that home-based internet activities are increasing during quarantine, with

There is no doubt the world's current plight is speeding up the global popularity of streaming services, with restrictions placed on movement away from the home to reduce the spread of COVID-19

pastimes old and new varying between different age groups. For example, 35% of Gen Y / Millennials (people aged between 24 and 37) use the internet every day to search for cooking recipes.

The trends are similar in Asia. The combined weekly online video streaming consumption of four major Southeast Asia markets - Indonesia, Philippines, Singapore and Thailand - reached more than 58 billion minutes, according to research by Media Partners Asia.

At the same time as OTT viewership is increasing, there is also a growing trend – increased by the current lockdown measures – of video consumption on second screens such as smartphones, tablets, laptops and PCs. Meanwhile, consumers, in addition to being able to stream content on a range of devices, expect a high standard of service, including content on-demand, when and where they want and of the best image quality.

The audience's experience and overall cost are at the forefront of service providers' thoughts as it looks to deliver on the promise of OTT, meaning it must evolve and look beyond the traditional methods of connectivity.

Satellite as a solution

This is where the benefits of using satellite come to the fore. Its ability to multicast is unrivalled and is integral to successful content distribution, making satellite an ideal solution for keeping costs under control.

Possibly the standout feature to major Southeast Asia markets is that satellite technology – constant-

ly developing and evolving – can deliver content efficiently over a vast geographical area. It can do this while maintaining a cost-effective scale to a growing population of receivers and easily scale the volume of content. The unicasting of content across a distribution backbone does not scale. Therefore, content is transmitted in multicast format using a private network such as satellite to the edge of the network, where it is converted back to unicast to be compatible with smart devices.

A partnership between ST Engineering iDirect and DVB has resulted in an ongoing initiative set up to develop technical standards for delivering television services over IP. Using our Newtec MCX7000 Multi-Carrier Satellite Gateway as a receiver, DVB unveiled its single hybrid offering known as DVB-I at IBC 2019 to demonstrate the future of universal OTT television services – and reinforce satellite's role as an enabler of OTT delivery.

The future of broadcasting

The global impact of COVID-19 has seen many facets of life slow down, however, it has served to speed up other areas – including the worldwide demand for content online. The sudden spike in online users has been unlike anything the streaming services industry has seen before – and one few could have predicted – and it is one which underlines the need for a solution in the age of OTT.

Service providers need a technology which optimizes bandwidth efficiency and minimizes traffic and that solution is satellite. ■

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Is LEO taking off?

Low Earth Orbit networks are grabbing the headlines, thanks to firms like SpaceX. Should you consider them above geosynchronous satcoms? Jon Howell and Smita Sarkar explain

Cellular networks might appear ubiquitous these days but they have their limitations. No matter how good the coverage statistics are, they never cover 100 percent of the land, and very little of the sea. So if you need genuinely global communications then you need to look at satellite solutions.

There are many vendors who offer satellite connectivity and even plenty of firms with satellites in orbit, but before you worry about that, you have a choice to make – GEO or LEO.

What are GEO and LEO?

GEO is short for Geosynchronous Equatorial Orbit. GEO satellites orbit along a path parallel to Earth's rotation at a height of around 35,000km (22,000 miles) above the Earth's surface. Also known as geostationary satellites, they stay located above the same physical point on the Earth at all times, thereby providing coverage to an area surrounding that location. Typically used for weather forecasting, satellite radio, television, data connectivity in remote locations.

LEO stands for Low Earth Orbit. LEO satellites revolve around the earth at an altitude between 160 to 2,000 km (99 to 1,200 miles). Unlike GEO they don't necessarily stay above the same point on the surface of the Earth, for example an Iridium satellite flies at approximately 17,000 mph and completes an orbit every 100 minutes. The orbits also don't have to be around the equator, again for example Iridium has six rotational planes that are all longitudinal and pass over both poles of the planet (see PIC 1). Typically used for communications or imaging applications.

Interest has piqued in LEO constellations recently, where a network of low-Earth orbit satellites provide a cross-linked network around the whole globe, but the history of both technologies goes back many decades. In fact it was Telstar 1, launched into a low orbit on 10 July 1962, that was the first satellite to transmit live television images between Europe and North America. Whereas the first geostationary communications satellite didn't launch until 19 August 1964, the Syncom 3 was used to telecast the 1964 Summer Olympics from Tokyo over to the United States.

Location, location, location

"Fundamentally, GEO has the advantage of being a highly cost efficient and the most robust way of providing communications links from space," says Kyle Whitehill, CEO, Avanti Communications.

He goes on to point out that the GEO communications market has successfully grown on the basis of its unique capability to cover a huge region of the earth, one third, from a single location. This coverage only takes a single launch and a single satellite with a lifespan of more than 15 years.

It's not all plain sailing though. "Due to the fixed nature of GEO satellites, signal blockages between a user and satellite can easily occur," says Iridium, which owns and operates a LEO network. "Since LEO satellites are always moving, the chances of a long or persistent signal blockage are greatly reduced."

There's also the subject of latency. The times it takes for a signal to transmit up to a satellite and bounce back down to Earth will rely on how far away the satellite is. A higher orbit will necessitate a longer round trip, a larger latency.

Globalstar has a LEO constellation of 48

Gavan Murphy,
director,
marketing EMEA,
Globalstar

"Our LEO constellation and L-and S-band are perfect for IoT applications"

satellites and sees low Earth orbit as the ideal location for their purposes. "Assuming similar ground processing delays, LEO satellites such as Globalstar's demonstrate about 10 times less propagation time, in other words, less latency," says Gavan Murphy, Director of Marketing EMEA, Globalstar.

Whitehill doesn't see this as a problem. "To date, the round trip time of a GEO signal of half a second has clearly not been an inhibitor to the development of the GEO market," he says. "The requirement for low latency satellite connectivity is limited and niche given that in most cases demand for low latency is concentrated in areas where there is or will be fibre and cellular wireless networks."

However, Murphy believes that there's more to be gained than just a reduced latency. He believes that service reliability is improved by using low earth orbit. "It's simple physics," he says". "With LEO, because the satellites are moving relative to the planet, there are fewer handoffs for calls or transmissions. When a LEO satellite picks up a signal, it 'hand

Iridium's 66 satellites orbit in six individual planes

iridium

delivers' it directly to a gateway."

The idea is that the fewer the handoffs, the better the reliably. "And while geostationary players argue about the effects of weather, smaller LEO satellites just get on with the job," finishes Murphy.

The cost equation

A key factor for any business is the cost. "A priority for Globalstar since our inception is the delivery of services that are competitively priced and consumer-friendly", says Globalstar's Murphy. However he acknowledges that in order to provide coverage it's necessary to have many more satellites than the comparable GEO setup.

"But the spacecraft are smaller and are less complex, with fewer components, so they are less expensive to build. They are also lighter, making them more economical to launch and to replace," he says. It's these factors that he

believes help keep operational costs for the LEO fleets lower than for GEO. Consequently, service prices for end users can be lower.

Both technologies use the 'bent pipe' principal, where a signal from Earth is transmitted to the satellite only to be amplified and sent back on a different frequency. This avoids the satellite having to decode and re-encode the signal, leading to simpler systems required in orbit. The consequence of this is that most of the 'intellgence' can reside on the ground which helps reduce costs.

Murphy thinks that LEO has another cost benefit. "LEO requires less switching, therefore requires less on-the-ground investment, but provides the high reliability and flexibility to add bandwidth as needed. The system benefits from easily upgradable ground infrastructure," he says.

This could be a vital factor for LEO because the satellites could well be its downfall. "It

Kyle Whitehill,
CEO,
Avanti
Communications

"The business heritage for GEO satcoms is over 40 years in the making"

wasn't until the 1980s that engineers began to challenge the effectiveness of GEO satellites," says Iridium. "That's when the idea for a LEO satellite constellation first occurred. A small group of engineers at Motorola began researching and designing a LEO satellite system
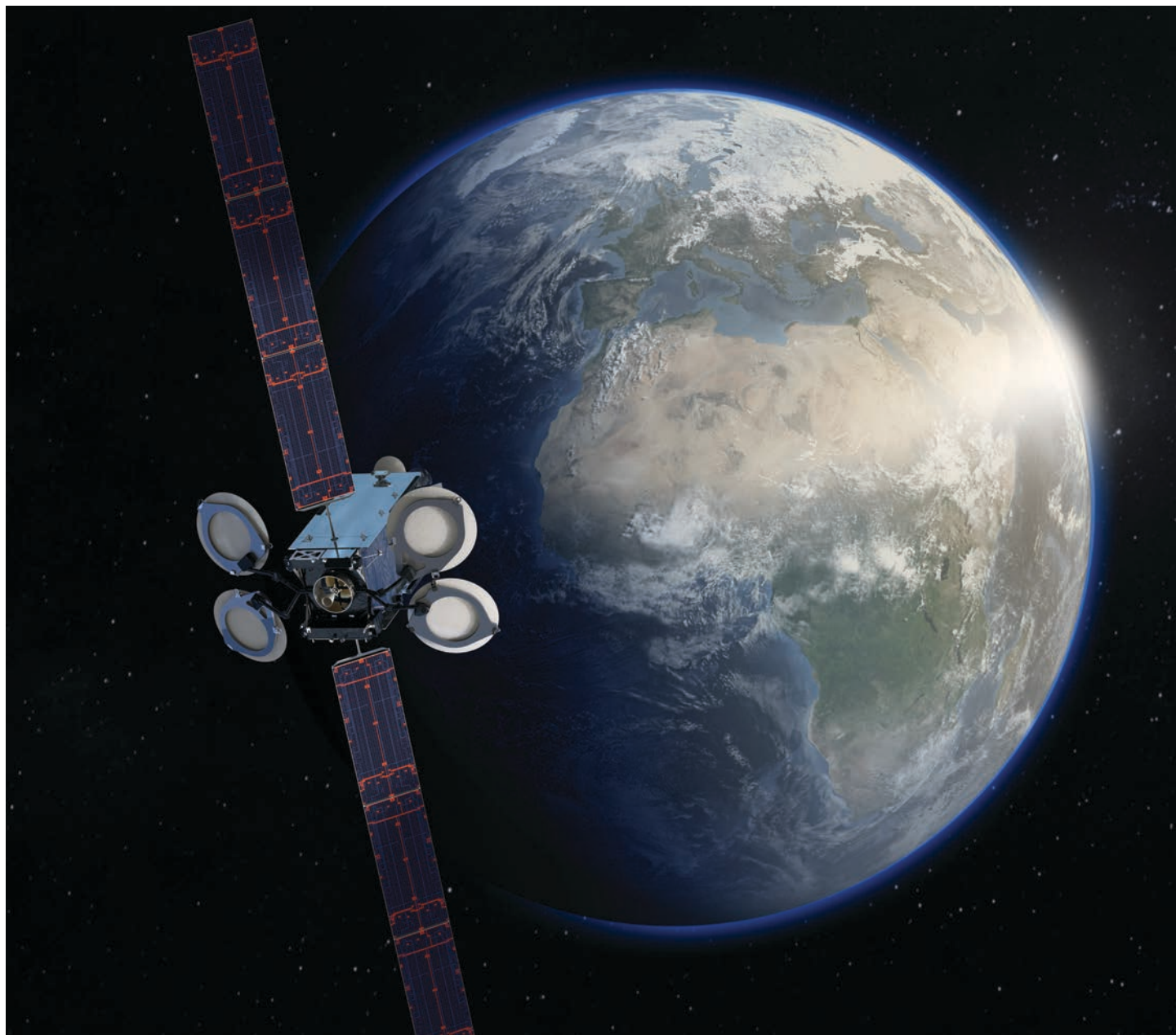
Spacecom's Amos-17 geostationary satellite has C-band spot beams covering a large proportion of Africa, some Ka-band steerable beams centered on Nigeria and South Africa, and Ku-band beams covering Western Africa and Southern Africa

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that allowed the satellites to communicate with each other through cross-links."

This cross-linked architecture can provide the additional advantage that communications can be "grounded" near their desired destinations, but it requires many satellites to make this work. Iridium, for example, has a network of 66. This is something that Whitehill sees as a big problem.

"The expected lifespan of a LEO satellite is 5 years and although launch costs have reduced and multiple satellites can be launched together it is difficult to comprehend how the business case for LEO is sustainable," he warns. "Other factors include the complexity and therefore cost of operations of LEO constellations in some cases 1000s of satellites compared to the operation of singular GEO units."

He additionally thinks that the cost of tracking and switching modems is still very high and unlikely to reach mass market production for many years.

The technology battle?

Neither camp is resting on its laurels though. For example, Whitehill points to the advent of phase array antennas which have reduced the terminal size for GEO to now being portable.

Another big problem for geostationary satellites is the time taken to get them from the drawing board and into the air. "One downside of GEO's which is progressively being addressed by advances in technology and production techniques, is the time from design to launch which can typically be 5 years," he says. He believes this will give GEO the edge over LEO which he says suffers from the cost of continuously having to build and launch the short lived LEO spacecraft which are highly susceptible to failure and collision, despite how much cheaper those satellites are to build and launch.

Iridium, however, doesn't see this as being a battle. Geostationary satellites often offer C-, Ka-, and Ku-bands (for example, see PIC 2 & PIC3). "C-, Ka-, and Ku-band systems are used for satellite TV and VSAT networks," says Iridium. "LEO networks, like ours, are traditionally L-band systems, which operate in the lower part of the radio spectrum, around the same frequencies as mobile phones." The benefit of this is that L-band is renowned for its ability to send and receive transmissions even in adverse weather conditions because lower frequencies are less susceptible to interference from atmospheric and weather conditions.

The topology of a cross-connected web of satellites with a much lower latency also offers improved voice calling, claims Iridium. "Regardless of where a user is, anywhere on Earth, from the North Pole to South Pole, our LEO constellation ensures dependable communications with a quality user experience." This is particularly true for users at high latitudes who might not be able to get GEO coverage at all.

Murphy, much like Whitehill for GEO, believes that progress is being made to make small consumer devices available for LEO too. He

also thinks that LEO doesn't have to fight GEO because it has niches that it is ideal for. "For example, our LEO constellation and L-and S-band are perfect for IoT applications," he says.

So perhaps it's not an 'either/or' situation. Maybe it's down to your use case and whether can you make the numbers add up.

The business case

"The business heritage for GEO satcoms is over 40 years in the making and, as in any business sector, it has adapted with the changing demands and evolving technology," says Whitehill. "It has proven to be highly successful for sectors such as broadcasting, defence, mobility, and backhaul to remote regions."

He says that Avanti Communications intends to make further investments in GEO. "We will adapt our service capabilities and adopt the latest and best technology development based upon a solid GEO strategy. We are actively investigating the latest in software defined satellites, digital on-board processing and smallsat technology." The company's focus is on the Defence, Industry, and Carrier sectors and high value customers that require the reliability and flexibility of GEO systems and are "prepared to pay for it".

However, there has been a recent buzz about LEO networks. Three big-name entrepreneurs are all involved in trying to launch networks: Elon Musk (SpaceX's Starlink which has almost 300 satellites operational), Sir Richard Branson (OneWeb with 74 out of 648 satellites launched), and Jeff Bezos (Amazon's Project Kuiper still at the R&D phase).

Globarstar's Murphy certainly sees LEO as a sensible business choice. "The services and capabilities our network provides are designed for low power, small, low-cost devices for mass-market, with low airtime charges," he says. "GEO satellites tend to use high Mbps. With their large payloads, the economics, scope and scale of the GEO operations and user base are of a different order."

So much like with the technology, it isn't so much of a battle, more a case of choosing the right tool for the job.

Making your mind up

"Being able to offer businesses, organisations, and consumers reliable, ubiquitous satellite communications equipment that is economical, and airtime that is competitively priced, is a core priority for Globalstar. But it is particularly important for the fast-developing countries in Africa," says Murphy.

Whereas Whitehill says, "we provide wholesale MHz and Mbps on fixed HTS networks across the EMEA region and we provide highly agile and secure steerable beams to relocate high performance and high throughput where and when the customer needs it. This is a different market requirement to that of the LEO market." However, he

does concede that if Avanti Communications encounters specific demands from its customers then it would partner with a LEO constellation operator.

His final mantra for choosing a solution,"at the end of the day, the deciding factors are simple to summarise as cost, cost & cost!" But he offers one final warning, "whereas the key USPs of a LEO system are low latency and smaller terminals, the demand has yet to be proven both on paper and in service and as low latency is only achievable with a sizeable constellation of several hundreds of LEO satellites, the business case is questionably risky."

This is particularly poignant as OneWeb filed for bankruptcy in March 2020, blaming the Covid-19 crisis as the reason it failed to secure any new investment but subsequently was bought by a consortium of Bharti Global and the UK Government. It's looking like Whitehill's warnings about the business stability of LEO networks might have some foundation, but then it has always been a case of finding a reliable partner to provide you with the services you require.

If you absolutely need low latency then a LEO network is undoubtedly the best option, but if not then perhaps you're better off finding a provider than can offer you both solutions and a degree of protection against individual networks going bankrupt. ∎

Globalstar allowing the tracking of horses for farmers in Central Asia

Banking on satellite

Caroline De Vos, chief operations officer and co-founder at SatADSL, explains how satellite-based cloud services offer opportunities that rural economies can rely on

Research has shown a direct link between the expansion of rural banking and the reduction in poverty, as well as the positive affect on economic growth in both agricultural and non-agricultural sectors.

Yet barriers face banks, microfinance organisations and rural communities as they attempt to establish these essential economic tools such as rural ATMs and access to mobile banking. A major issue stalling the rollout of ATMs is the availability of affordable, reliable and secured data communications to ensure this crucial financial inclusion.

Satellite – a deliverer of low-cost, easily deployable and readily available connectivity – could be a vital enabler of the communication needed in rural areas of southern Asia with otherwise limited or no terrestrial connectivity infrastructure.

Financial empowerment

Investment in banking, microfinance and money transferring services has been identified by global financial institutions such as the IMF, the World Bank, and others of having a stimulating effect on rural communities. Jim Yong Kim, former World Bank Group president, said that "having access to financial services is a critical step towards reducing both poverty and inequality, and new data on mobile phone ownership and internet access show unprecedented opportunities to use technology to achieve universal financial inclusion."

Access to basic banking services like savings accounts, credit, and bill paying are key enablers for people pursuing education, living healthier,

Caroline De Vos,
chief operations
officer & co-founder,
SatADSL

financing homes and starting businesses. Banking services are especially important in developing regions with large agricultural economies. For example, credit and secure savings accounts help farmers prepare for the changing season and ride out bad weather and soft markets.

Access to banking amenities that might be considered basic elsewhere – such as ATMs and online banking – can radically empower citizens and businesses via financial inclusion, allowing local economies to thrive and granting individuals added financial freedom. The main goal of financial inclusion is to improve the range, quality and availability of financial services and products to the unserved, under-served and financially excluded.

Focused on meeting the financial needs of the most vulnerable citizens in society, financial inclusion is recognised across the globe as a critical component to economic development and advancement. For this reason, many governments and banks in Africa have set goals that aim to increase access to financial services.

For countries and regions in Asia with either a lack of or restricted access to banking services, the situation is symptomatic of the digital divide. This means some challenges faced in the effort towards connecting the unconnected to internet access are faced in the effort towards connecting rural banking services, yet with the added complexity of the rural banking's specific requirements, such as sensitive nature of financial services and the criticality of day-to-day reliable connectivity.

Overcoming barriers

Access to banking services is an important issue in southern Asia. However, finding an optimal trade-off between bringing financial services as close as possible to the end users in remote locations on the one hand and keeping implementation and operational costs under control, on the other hand, is a difficult challenge.

One of the most obvious gaps in developing banking services for rural Africa, for example, is poor infrastructure, impeding effective outreach to customers. A major issue affecting the rollout of ATMs is the availability of affordable, reliable and secured data communications outside large cities and in particular in remote areas, where the connectivity is limited or non-existent.

Satellite communications are playing an increasingly important role in extending banking services to developing areas of Asia and overcoming these challenges. For example, individuals and small businesses are increasingly using cellular phones to make payments and access bank accounts, with satellite providers providing much of the cellular backhaul traffic. In some Asian countries, like India, governments are establishing partnerships with key sections of the banking sector to build out and connect rural banking networks through satellite networks.

According to the Global Findex Database 2017, there has been a significant increase in the use of mobile phones and the internet to conduct

Satellite communications are playing an increasingly important role in extending banking services to developing areas of Asia, the Middle East, and North Africa
PHOTO: SATADSL.NET

financial transactions. Yet, globally, over a billion adults remain unbanked. And although Africa is the world's fastest growing mobile phone market, many residents still lack access to the Internet required to connect them to vital financial services.

With the availability of high-throughput beams in various satellite bands to provide backhauling options, mobile operators will be able to give customers fibre-like experience using satellites, boosting market expansion and increasing data use per customer.

You don't need to break the bank to make a bank

The benefits of utilising satellite-powered connectivity, especially in the context of rural banking, are manifold. With satellites positioned around the world capable of beaming data to users via a base station, the possibility of delivering high speed internet to rural areas and remote start-ups alike is now a reality. Satellites are making possible the spread of banking in Africa and banks are opening more and more branches outside of urban areas and using VSAT platforms to connect the banks and their ATMs to central processing centres.

Satellite, which has played a proven role in bringing affordable and easy-to-deploy connectivity solutions to hard-to-reach, rural and underserved communities and locations worldwide, is a smart choice for those delivering rural banking. The advances in this technology, coupled with innovative cloud-based platforms, have the potential to offer unparalleled connectivity services.

Satellite internet delivers a high-quality con-nection to more places than nearly any other type of service. Satellite is also resilient compared to other connectivity means. Because satellite inter-net has less equipment on the ground compared to terrestrial internet providers, the network is less likely to take damage during extreme weather and other emergencies. Also, when compared to mobile hotspots and other connectivity options for people who live in rural areas, satellite internet often delivers a better price mark-up per gigabit of data – especially given the high CAPEX of other means such as fibre, which would incur high costs of connecting rural areas with physical cables.

Satellite-powered banking in action

In a display of the potential of satellite's role in improving financial inclusion in sub-Saharan Africa, SatADSL designed a cost-effective ATM solution to enable financial institutions to rollout their networks in urban, suburban or rural areas in the region. The solution enables the secured execution on a real time basis of every transaction from a large and scattered network of ATM. Ecobank, the largest bank in Africa, was one customer that chose to pilot SatADSL's solution and to roll-out its ATMs that are too isolated.

Testing for the project involved secured communications to be carried out from an ATM terminal located in a gas station in Accra to the headquarters in Accra, then further on to the bank headquarters in Paris and finally to the clearing server located in Cairo in Egypt. The global transmission route was the following: Accra to Luxemburg over the ASTRA 4A satellite link, then from Luxemburg to Accra via optical fibre, then from Accra to Paris over a C-band NSS10 satellite link and finally from Paris to Cairo also over a C-band NSS10 satellite link.

To ensure the highest level of security, transactions are performed securely through an IPSec VPN. Other VPN options or secured networks are also possible. SatADSL service for ATM has proved to seamlessly cope with end-to-end VPN set up including, in this case, several satellite hops.

Also, SatADSL offered the prioritisation of ATM transactions. A predefined amount of bandwidth can be marked as high priority, which guarantees that these transactions will always go through whatever congestion the network experiences at any given moment, regardless of the number of terminals, and therefore the costs – which are related to the use of the satellite – are particularly low.

Satellite holds the power

Satellite has the power to radically improve the access of sub-Saharan Africa's rural communities to banking services, driving financial inclusion and independence. This in turn has the ability, as described by think tanks and analysts, to make significant economic changes. ∎
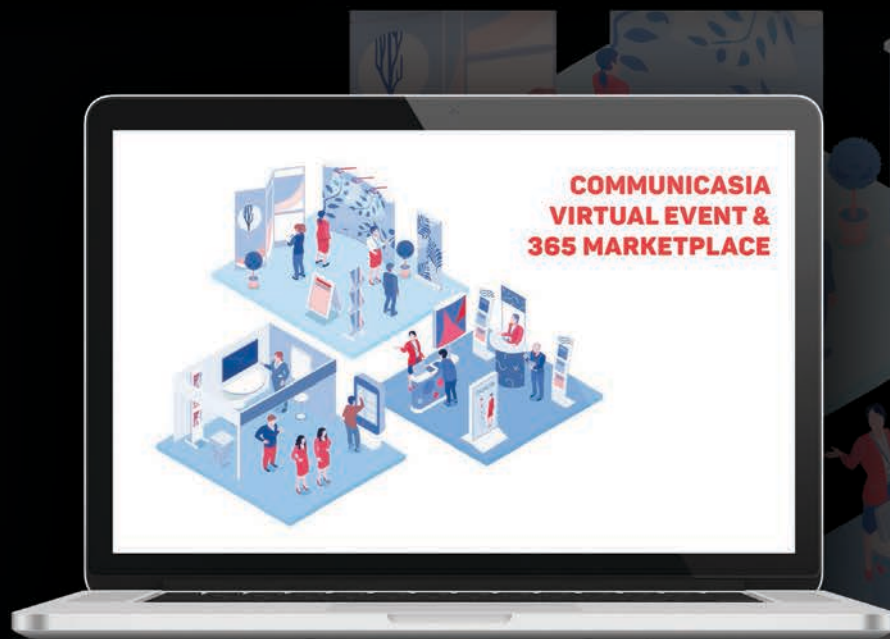
Advantech's new line of WAAS satellite converters

Advantech Wireless Technologies boasts its new class of wide area augmentation system (WAAS) satellite frequency converters is designed to provide accurate GPS timing and position for critical applications, such as air traffic control and aircraft precision landing. These products are compatible with the European Geostationary Navigation Overlay System (EGNOS).
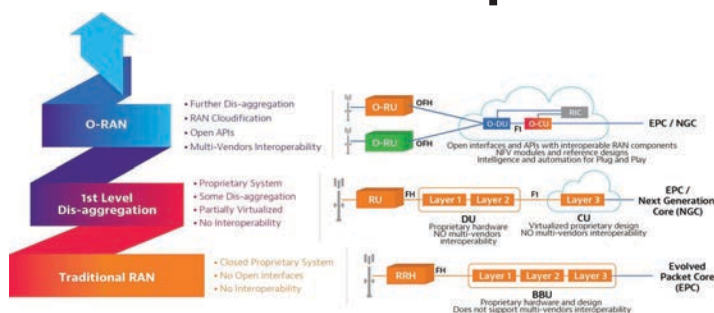
Furthermore, this new line of products will extend the range of Advantech Wireless Technologies' WAAS and EGNOS satellite frequency converters to cover higher C-Band, from 6.6 GHz and up to 7.075 GHz. They are projected to up convert and down convert L1 and L5 GPS signals to/from C-band GEO satellites, in order to provide higher precision landing and timing for aircrafts, and other critical applications. These frequency converters are, supposedly, designed to meet very stringent frequency stability requirements, exhibit very low phase noise and experience no parametric drifting over time.

"Without EGNOS and WAAS systems, precision aircraft landing at our airports is basically impossible," says Cristi Damian, VP business development. "This is a critical service carried out by GEO satellites to augment the GPS satellites' constellations."

Viavi extends O-RAN spec

Viavi Solutions says its TeraVM 5G virtualised testing solution now supports load testing of the Open Central Unit (O-CU) according to O-RAN specifications. This capability follows the March 2020 launch of the industry-first Test Suite for O-RAN Specifications, which is already being deployed by Tier-1 operators and network equipment manufacturers.

The TeraVM F1 Load Generator is compliant with the 3GPP F1 application protocol and capable of emulating hundreds of Gbps per hour, thousands of DUs and millions of devices for meaningful functional and load testing of the O-CU. Based on one of the first mobile network test platforms to harness the benefits of virtualization, Viavi says, the F1 Load Generator is a software-based test tool housed on x86 hardware. To increase flexibility and cover a wider set of customer use cases, additional optional elements of the test suite are available, including 5G standalone/non-standalone core emulator for use cases where a real core network is absent, or X2 core tester for 5G NSA test use cases.

TeraVM, Viavi says, also enables network equipment manufacturers and service providers to efficiently test mobile RAN and core elements, validating that the equipment works according to 3GPP standards, interoperates with other 5G elements, and performs optimally when fully loaded with complex mobile traffic profiles. TeraVM is part of Viavi's Lab To Field network testing and assurance portfolio as well as its Test Suite for O-RAN Specifications.

"The industry roadmap to 5G open RAN has been accelerated, and manufacturers and service providers alike need standards-compliant testing capabilities now to ensure interoperability and performance," says Ian Langley, vice president and general manager, wireless business, Viavi.

GL's MAPS LTE conformance test suite

GL says its MAPS LTE conformance test suite has 50+ test cases, as per 3GPP TS 36.413 (LTE S1) and TS 36.423 (LTE X2) specifications. It includes inbuilt conformance scripts for eNodeB conformance in S1 interface, and multiple eNodeB's in X2 interface as per 3GPP standards.

Test cases include general evolved universal terrestrial radio access network (E-UTRAN); S1 Application Protocol (S1AP) and X2 Application Protocol (X2AP) messaging and call flow scenarios over LTE network. Logging, pass/fail results are reported. Test cases verify conformance of actions such as UE attach/detach, periodic updating, E-RAB setup, X2 setup, Handover procedure, UE context release, and error indication.
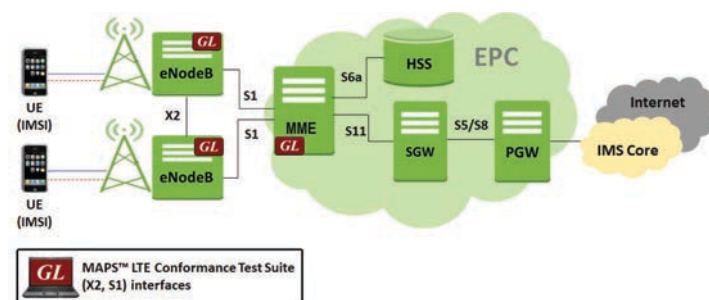
Hytera's smart, new PoC radio with integrated DMR

Hytera claims its "intelligent" PDC550 PoC (Push-to-Talk over Cellular) radio device combines broadband and narrowband communication in one device. This radio enables seamless communication via public and private broadband radio networks (3G/4G/Wi-Fi) as well as DMR networks.

It therefore offers a long range, diverse PMR functions and the use of customer-specific applications.

What's more, Hytera says its PDC550 is characterised by convenient and simple operation and its handy and robust design. In addition, the new PoC radio from Hytera has two powerful HD cameras on the front and back for image and video transmission. It's a rugged device, too. The IP68 protection and complies with MIL-STD 810G, "making it ideal" for harsh environments. With its anti-slip coating on the side, the PDC550 rests comfortably and securely in your hand. The radio also weighs just 375 grams including the battery, antenna and belt clip, making the PDC550 a very lightweight in its class.

The 5-inch HD multi-touch screen is equipped with Gorilla glass, making it particularly resistant to falls, while the display remains legible even in strong light, Hytera says. The touch screen can be easily operated with gloves and even in adverse weather (e.g. rain).

Nokia commercialises next-generation 5G cloud RAN

Nokia says its next-generation 5G AirScale Cloud RAN solution based on vRAN2.0 will be commercially available this year with general availability expected in 2021, following a series of successful trials. The Finnish firm's first-generation 5G AirScale Cloud RAN based on vRAN1.0, which has a virtualised Central Unit (vCU), has been in commercial operation on a mmWave network in the US since early 2019. Its new vRAN2.0 solution introduces a virtualised

distributed unit (vDU) as well as a Fronthaul Gateway. The result is what Nokia describes as a fully-cloudified and disaggregated 5G base station that provides scalability, low latency, high performance and capacity, as well as several network architecture options, to meet ever-increasing market demands. Furthermore, the solution helps operators to generate revenue from new 5G services as well as to enable flexible end-to-end network slicing, meet IoT

requirements and bring the overall benefits of cloud computing to Radio Access Networks (RAN).

Ed Gubbins, principal analyst at GlobalData, says: "Cloud RAN has the potential to fundamentally transform mobile networks, making them more agile and dynamic and allowing operators to be more nimble in activating new services and revenue streams." He added that "Nokia has been more proactive and consistent in driving Cloud RAN technology than its peers".

Mobile Mark's antenna for mining in vehicle control and fleet tracking

Mining takes place in very difficult and remote environments and so Mobile Mark offers several private network infrastructure and vibration resistant vehicle antenna solutions that are ideal for such environments.

The antennas are available in many different styles including: rugged mobile, foam filled omni-directional, and GNSS multiband surface mount antennas. All of

these antennas are designed for mining applications for vehicle control and fleet management.

The rugged, amplified tactical mesh (TMA-24A-3.2CT) antenna model covers the 2400-2500 frequency band with a gain of 2 dBi and is designed for use in rugged and mobile wireless networking applications. TMA construction is highly durable and water resistant. Mobile Mark says the small footprint

and low profile design makes it an ideal solution for mounting on vehicles or in other space constrained applications. This antenna is notable for its overall size. Measuring at just 5.5" (14mm) in height with a diameter of 2.2" (112mm).

Huber+Suhner's 'smallest outdoor fibre optic connector for harsh environments'

Huber+Suhner's brings to market its smallest ever outdoor fibre optic connector – the Q-ODC-2 Mini – "to enable more cost-effective, flexible and higher capacity deployments of new wireless infrastructure in industrial and communication applications."

The company further boasts that this compact design and size-optimised connector reduces dimensions by 50% and weight by 40% when compared to its Q-ODC-2 outdoor connector. These smaller proportions allow wireless

infrastructure providers to access new locations and add more capacity to the network, reducing the cost per bit, the firm claims.

The Q-ODC-2 Mini also overcomes the challenge of high system sensitivity and increases reliability. This, the firm says, opens up new areas of application for fibre optics in a number of industries, such as wind energy, railway and shipbuilding.

The connector is waterproof, dust-proof and corrosion resistant and provides the maximum safety for outdoor installations. It features a robust push-pull coupling mechanism and an extension connector for cable chaining, making

the solution fast and easy to install.

"As our smallest outdoor fibre optic connector to date, the Q-ODC-2 Mini addresses critical challenges in the planning, building and operation of new wireless infrastructure deployments by providing an affordable solution that is simple to install and takes up the minimum amount of physical space," says Carsten Dieckmann, product manager at Huber+Suhner. "The product adds to our portfolio of fibre optic solutions that are suitable for complex applications with high data rates as network providers look to meet the demand for more capacity at a lower cost per bit."

Elevating the student experience

Top Malaysian institution has smart idea to build reliable Wi-Fi network at its state-of-the-art campus

One of Malaysia's premier and award-winning private education institutions, the Asia Pacific University of Technology & Innovation (APU) blends technology, innovation and creativity towards preparing professional graduates for significant roles in business and society globally. APU boasts an international community of more than 12,000 students from more than 120 countries in its Malaysian campus and an iconic modern campus opened in 2017.

While the quality of degrees offered by higher-education institutions is a key element in attracting a diverse student population, there is also an increasing role for network services in attracting and retaining students to a high- quality connected experience that employs the latest in mobile learning techniques, engagement and digital access to campus resources and teaching methodologies, and the widespread use of smart devices preferred by today's students and faculty. As

Universities strive to deliver better student outcomes and achievements in the classroom, campus technology infrastructure must meet or exceed the needs of student bodies while enabling faculty and university administration to deliver the best digital experiences on campus. To that end, APU's network team faced the challenge to enable service- level satisfaction to all stakeholders across the two campuses of the APIIT Education Group – APIIT (Asia Pacific Institute of IT) and APU (Asia Pacific

University of Technology & Innovation), which are located approximately 1.5km apart within the Technology Park Malaysia grounds.

To enable both students and faculty access to the best learning and teaching experience possible, having a reliable and high-performance Wi-Fi network was essential. Ensuring seamless connectivity and the ability to roam across APs within buildings and throughout the APU campus was a key requirement for faculty, staff and students, especially when moving between buildings on campus. A distinctive and iconic feature of the new State-of-the-Art campus

is its long central "Spine" stretching from the main entrance all the way to the far end of the Campus, which provides connectivity to the teaching centres, the courtyards, central atrium and living spaces. This also provides shade and protection from the heat and rain as students and staff move between the various facilities within the campus. Therefore, providing seamless mobility for voice and data services is critical here.

Students also need to reliably connect their mobile devices and laptops to the university network to access their Virtual Labs via VDI, as well as all the server-side applications needed for their lessons and tutorials, whether on- campus or off-campus.

In addition, APU administrators also required the network to support a fully wireless environment across multiple platforms including computers, telephones and projectors in lecture halls and university labs which allow lecturers to easily project teaching materials wirelessly.

The ability to scale according to current as well as future technology and infrastructure needs was another requirement, given the larger student population at the new campus, as well as expected student growth over the coming years.

Come the network revolution

At the old campus site, APU had already been using Ruckus to power their Wi-Fi networks. At APU's new campus, a completely new network was needed as the requirements are more demanding due to the larger student population. At the same time, the new infrastructure needed to be scalable and future-proof as capital projects are typically scheduled many years apart. After extensive vendor research, Ruckus was chosen as the vendor who could deliver the best performance, ease of configuration at an optimal cost, and a complete wired and wireless network infrastructure that was also built to scale for future expansion of the student population and growing number of device connections and thus bandwidth needs.

"During the planning stages of the new APU campus, we decided to implement a scalable network infrastructure. The campus was physically set up on December 2016, with the network planning process taking almost a year. Thanks to the impressive support throughout the process from the Ruckus team, our new network was deployed in under a week," says Rasodin Ramuddin Hamzah, technology infrastructure

and systems manager, APU. "Better yet,

our technology partner also worked with our Technical Assistants (TA) during the deployment phase. TA is a selected group of APU students that trained to be ICT Support Personnel for student community. On one hand, this gives students invaluable practical lab experience; on the other, it is a testament to the ease and convenience in which we could deploy Ruckus technology on campus," he added.

APU deployed Ruckus' access points across two different campuses, resulting in seamless wireless network roaming across the two. Combined, these access points provide seamless coverage across the entire campus. Managing these APs is the virtual SmartZone (vSZ) controller, which can scale up to 300,000 devices, enabling administrators to expand and adapt the network to the changing needs of the university. The institution also deployed Ruckus' ICX switches which simplified network set-up and management, enhanced security, minimised troubleshooting and made upgrades easy. In addition, the ICX switching architecture ensured excellent throughput for the most demanding video, Unified Communications, VDI, and mobile applications.

"With each user carrying multiple Wi-Fi connected devices such as laptops, smartphones and tablets, it was essential that our wireless infrastructure was able to perform satisfactorily, especially since more and more of our teaching syllabus includes media-rich content," notes Rasodin. ∎

Malaysia University builds Asia-Pacific region's first 100G smart campus network

Malaysia's largest — and most prestigious — university planned to improve its online learning and scientific research capabilities, but its legacy network made that impossible. Its original wired and wireless network equipment was obsolete, and Wi-Fi performance was poor. The University Putra Malaysia (UPM) has three campuses spread over 3,000 acres (12 square km), with 30,000 students and teachers — and it needed a "smart campus network" urgently.

UPM's legacy network architecture was rather complex. Wired and wireless network devices as well as servers were managed independently. As a result, network management and maintenance was difficult, and fault location was time-consuming.

To solve these issues, UPM looked to Huawei and its Agile Education Campus Network Solution.

Huawei's Agile Switches ensure non-blocking network connections using high-speed cards that provide 100G ports. The 100G backbone network designed by Huawei met network traffic requirements for interconnection between backbone campus networks and interconnection between switches and data centres. Over the next five years, as traffic grows, the campus network can be expanded by binding 100G ports on multiple 100G cards. So far, UPM's new campus network is the first 100G smart campus

network in the Asia-Pacific Region (APR). Huawei's Agile Switches provide:

- Unified authentication, accounting, and policies on the core network, ensuring high operational efficiency
- Time- and traffic-based network service operation packages based on Huawei's Destination Address Accounting technology
- Differentiated charging models for access to the internal campus network and the Internet
- Mobile Apps to provide services such as online learning and online course selection

In addition, the Agile Switches use the industry-leading, native terabit Access Controller (AC) to implement AC functions by using the full programmability of Huawei's Ethernet Network Processor chip. The native AC eliminates bottlenecks in wireless traffic forwarding and guarantees more efficient and ever-simpler network Operations and Maintenance (O&M) and management, while lowering O&M workload and costs.

Access Points (APs) are deployed for indoor and outdoor areas, implementing full wireless coverage without coverage "holes" on any UPM campus. Huawei also uses the latest 802.11ac technology that ensures up to 1.3 Gbit/s access bandwidth. What's more, Huawei's impending dual 5GLTE technology will enable a single AP to deliver up to 2.6 Gbit/s bandwidth. ∎
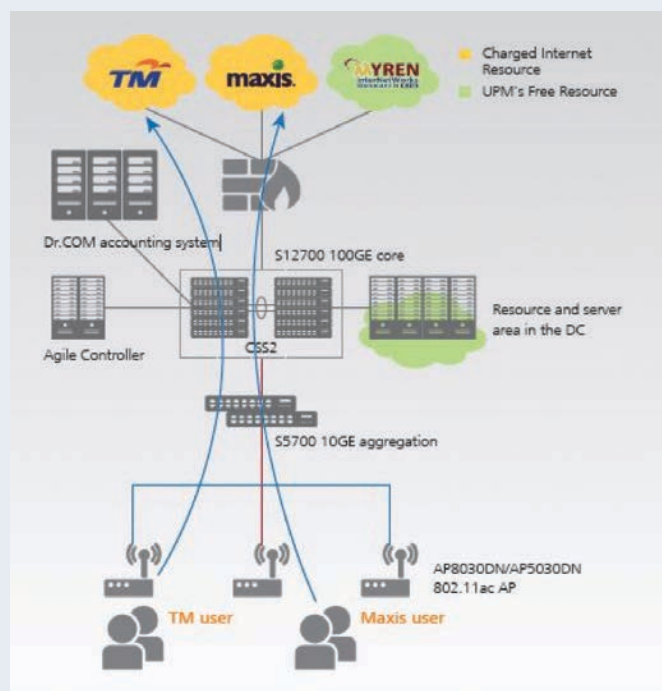
OneWeb saved from bankruptcy

The UK government and Indian telecoms group Bharti Airtel are the new proud owners of US satellite operator OneWeb.

According to media reports, the company, which declared bankruptcy in March, is expected to receive US$500m from each shareholder and pursue its ambition to offer Internet everywhere on earth.

According to AFP, a government spokesman said the country's investment in Oneweb "will help make the UK a pioneer in the research, development, manufacturing and exploitation of new technologies for the satellites".

The takeover of OneWeb has yet to be approved by US authorities. The buyout is expected to be completed by the end of 2020 if all goes well. It will then translate an exit from the crisis for OneWeb, whose setbacks began after the loss of new financing of 2 billion dollars expected from the Japanese Softbank.

The injected funds will enable OneWeb to launch a constellation of satellites in low orbit to provide broadband Internet worldwide.

Thuraya modernises network using Ericsson

UAE mobile satellite services operator Thuraya has hired Ericsson for a core network modernisation and upgrade to a 4G- and 5G-ready infrastructure.

The Swedish giant will modernise and optimise Thuraya's network to a virtualised core that supports existing and new features and services in the future.

Ericsson will also migrate the existing Thuraya users to the new platform and oversee its integration with existing systems. The operator's mobile-data users, especially those in remote locations or areas where traffic is dense, will benefit from higher availability and reliability.

As a result, Thuraya can provide consumers more flexible and easy-to-use communication services integrated with various terminals.

"By modernising Thuraya's core network, we are looking to build its resilience and enhance overall performance," Adnan Al Muhairi, deputy chief technical officer of Thuraya said. "This would also improve other key aspects like guaranteeing more flexible, reliable and effective services. Our strategy is to make optimum use of existing assets and invest in infrastructure upgrades so that the network is ready to accommodate Thuraya's Next Generation System. We have a longstanding partnership with Ericsson and acknowledge them as a leader in deploying new technologies to enable high-quality mobile broadband solutions."

By selecting Ericsson for the modernisation of its existing mobile-core, Thuraya extends its existing partnership, in which Ericsson has been the sole vendor for its circuit-switched core network.

Belgium grants temporary 5G licences

Belgian telecom regulator BIPT has offered temporary 5G licences to Proximus, Cegeka, Entropia, Telenet and Orange Belgium.

All received 40MHz of channel bandwidth each and the temporary 5G licences will remain valid until the 5G auction, delayed in Belgium due to a disagreement between regional governments over proceedings.

Proximus, 53.5% owned by the Belgian government, was the first mobile operator to launch 5G mobile network in the country, using spectrum in existing holdings.

The operator's chief executive officer (CEO) Guillaume Boutin said: "We are in close contact with all concerned municipalities, and with the Walloon region."

Boutin said the company is increasing efforts to demystify environmental and health aspects of 5G.

Singapore chooses Nokia, Ericsson over Huawei for 5G

Singapore's leading telecom providers selected Nordic firms Ericsson and Nokia to develop the city-state's main 5G network, joining a growing list of countries that have limited Huawei's role in building the next-generation wireless network.

Singapore Telecommunications, which is the country's largest telecom, chose to use equipment from Sweden's Ericsson after a "rigorous tender process," while the StarHub-M1 joint venture picked Finland's Nokia after Singapore gave the final green-light to telecoms for the city-state's 5G rollout. Huawei, meanwhile, will work with Australia's TPG Telecom, which is set to build a smaller network in Singapore.

The announcement comes after several countries including the UK and Canada reduced or eliminated Huawei's role in developing 5G

The announcement comes after several countries including the UK and Canada reduced or eliminated Huawei's role in developing 5G networks

networks amid pressure from the US to exclude the Chinese player on national security grounds.

However, Singapore's minister for communications and information S. Iswaran emphasised that Singapore Telecommunications didn't "exclude any vendor," in an interview with Bloomberg. "You have a diversity of vendors involved in different aspects of the world 5G system."

The US has long alleged that Huawei maintains a tight relationship with the Chinese government and that equipment from the company could be used to spy on other countries and companies. Huawei has repeatedly denied this.

Singapore is expected to roll out its 5G service early next year, with plans to cover the entire city-state by 2025 at the latest. 5G, the next generation of wireless networks that has been rolling out across the world, is live in a number of major US cities, as well as parts of China, South Korea and the UK, among other countries. The new technology will make downloads and uploads ultrafast, but it is also poised to power everything from self-driving cars to advanced augmented reality experiences.

Canada's Telus picks Samsung for 5G network

Samsung Electronics will be supplying equipment to build the 5G wireless network for Telus, a telecom provider in Canada.

The move comes as the tech giant is dominating the network equipment sector at a time when telecom companies in different countries are shunning Huawei, the top supplier of network equipment, over security concerns.

"Samsung is rapidly expanding its customer pool, signing four new 5G contracts in the last seven months, including with operators in Canada, the United States and New Zealand," it said in a statement.

Back in March, Samsung announced it will supply 5G new radio solutions, including Massive MIMO radios, to Spark New Zealand, the largest telecom provider in the country.

Samsung also acquired TeleWorld Solutions, a U.S.-based network service provider, in January, 2020.

Darren Entwistle, president and CEO at Telus, said that Samsung's technological state was the main reason for awarding it the deal.

"We are pleased to select Samsung as a 5G vendor for our mobile services, leveraging the enhanced network capability, exceptional connectivity and state-of-the-art technology inherent in their 5G solutions," the CEO said.

"As a longstanding innovator in the 5G space, Samsung is looking forward to supporting Telus, and in playing a key role in expanding new 5G horizons in Canada with unparalleled 5G network solutions," said Cheun Kyung-whoon, president and head of networks business at South Korean giant, Samsung Electronics.

Samsung recently announced it will supply 5G new radio solutions, including Massive MIMO radios, to Spark New Zealand, the largest telecom provider in the country

Bouygues adds users and boosts reach

French operator Bouygues Telecom inked an agreement to acquire MVNO Euro-Information Telecom from banking group Credit Mutuel for at least €530m, as part of a broader deal to boost subscriber numbers and its distribution strategy.

The company said the basic acquisition fee would be paid once the deal closes, which it expects to happen this year subject to French Competition Authority approval. It also agreed to pay an additional €140m to €325m over a number of years, subject to achieving "certain business performance criteria".

Euro-Information Telecom currently serves 2 million subscribers. In addition to bringing those to the Bouygues Telecom stable, CEO Richard Viel said a related distribution agreement with Credit Mutuel would strengthen the operator's "commercial footprint" by enabling it to sell "through the local bank branches" of the company across France.

Bouygues Telecoms was the fourth-largest operator by connections in Q1 with more than 12 million, GSMA Intelligence data showed.

France currently has four mobile networks: Orange, SFR, Bouygues Telecom and Free.

Claro Brasil launches 5G

Claro Brasil has launched its 5G network using a combination of 700MHz, 1800MHz and 2.5GHz spectrum.

Using a dynamic spectrum sharing model, the operator is able to deliver 5G services concurrently via the same spectrum used for its LTE-A network.

This approach was successfully trialled in February this year at Claro's offices in Sao Paulo, with the operator using equipment from Ericsson and Qualcomm to carry out a 5G New Radio data test.

Claro Brasil did not reveal the extent of its 5G network coverage, but its president Jose Felix said its intent is to provide its customers with "a gradual and transparent migration to 5G".

China Telecom makes push for US licence

China Telecom has become the latest Chinese operator to push US regulator the Federal Communications Commission (FCC) not to shut its operations in the country, arguing its subsidiary does not pose a threat to national security, according to Reuters.

In a filing, China Telecom (Americas) argued its conduct does not demonstrate any reasonable basis for a lack of US government trust, insisting a move to revoke its licence is "based solely on foreign policy concerns in the absence of any evidence whatsoever of specific misconduct", the report said,

The business previously argued any move to terminate an interconnection licence in the country would be unlawful, after various government departments pressed the FCC to do so.

China Unicom (Americas) recently made a filing arguing the FCC had no valid grounds to revoke long-standing authorisations to provide domestic and international services in the US.

It said it was deemed qualified to do so nearly 20-years-ago, has a record of complying with FCC regulations, and stated it would be improper to initiate proceedings to revoke its licence simply because of its ownership structure.

Pacific Networks and subsidiary ComNet (USA) also defended their record of providing services in the US.

In April, the FCC demanded the three companies explain why it should not cancel clearances to operate in the US, requesting they prove they are not influenced or controlled by the Chinese government and do not pose a threat to national security.

This followed a call by US President Donald Trump to establish a special committee to review telecoms licences and applications, to pinpoint potential security threats.

In May 2019, the FCC unanimously voted to block a China Mobile interconnection licence application.

Lebanon to manage networks ahead of new tender

The Lebanese government will take back management of the country's two state-owned mobile phone networks after the latest contracts expire, with plans to prepare a new tender within three months.

Lebanon's two service providers, Alfa and Touch, have been run respectively by Egypt's OTMT since 2009 and Kuwait's Zain Group since 2004, with the contracts repeatedly renewed.

However, a tender for new contracts to manage the mobile and data operators will be ready within three months, Telecom Minister Talal Hawat tweeted after a recent cabinet session. The ministry will run the networks in the meantime.

Lebanon's government came into power in January and has struggled with a financial and economic crisis on a scale the country has never seen in its history.

Telecom Italia cashes in on tower popularity

Telecom Italia has sold stakes in mobile tower group INWIT to French private equity firm Ardian and Canson Capital Partners to the tune of €1.6bn, in a move designed to reduce its debt load.

In a statement, Telecom Italia said the consortium will look to take a 30.2% stake of the unit, which will be transferred into a new holding company. Both groups first entered into talks about the possible deal in May.

Once the deal has been completed, the Ardian-led consortium will hold a 49% stake in the holding company. However, Telecom Italia will continue to control and manage Inwit, together with Vodafone Group.

Telecom Italia added it will sell its remaining 3 per cent stake directly to an investment vehicle managed by Canson Capital Partners.

Telecom Italia and Vodafone completed a tower merger in March to form Inwit, which gave them with a 37.5% stake each in the unit. They then went on to sell 4% of their respective holdings for a total of €800m.

Telecom Italia's latest move will see it use the proceeds cut its debt, which stood at €21.7bn at the end of March.

The operator added completion of the deal is subject to a number of conditions being met by September 30, 2020.

INWIT was founded in 2015 as an independent, but wholly owned, subsidiary of TIM to manage the mobile tower portfolio. Earlier this year, Vodafone Italia merged its own tower company into INWIT, creating a portfolio of more than 20,000 mobile sites.

Rajant and Velodyne Lidar join forces

Rajant Corporation and Velodyne Lidar will support DP World's new Autonomous Internal Terminal Vehicles (AITVs) with wireless connectivity and lidar sensor technology. A deal signed by DGWorld and DP World will equip DP World's Jebel Ali Port, the world's ninth busiest seaport, with a fleet of DGWorld's AITVs, including integration into the existing operational processes and infrastructures. This deployment supports DP World's visionary strategy for future-proofed, seaport digitalization setting a new global standard for port operations, supply chains, and trade. "We trialled other wireless technologies, including the latest 5G, before discovering Rajant," said Matthias Krause, General Manager at DGWorld. "They all had the same physical limitation, which is that wireless cannot go through large, metal container stacks."

Bolivia turns to satellites in Covid-19 battle

The Bolivian space agency (ABE) will provide satellite connectivity to 215 immobilised telehealth centres located in rural areas as part of the fight against the coronavirus pandemic.

Available free of charge to users in the areas in question, the service will continue as long as the country's health emergency is in place, the government said.

ABE also said that it would give a 30% discount to clients of its satellite internet service (SUBE), initially during the months of March and April.

Bolivia had 5,187 confirmed cases and 1,530 recorded deaths at the time *Southern Asian Wireless Communications* went to press.

The government has also suspended the national elections that were scheduled for May 3.

The new service will continue as long as the country's health emergency is in place, the government said

Liquid Telecom provides VSAT connectivity to new ISP

Pan-African telecom group Liquid Teleco is providing its managed VSAT connectivity services to mbora, a new social enterprise in Malawi.

The operator provides people living and working in rural areas with free connectivity at a community hub. It has also built a super app to help increase digital inclusion by providing access to useful and relevant information and services online including finance and healthcare. Content and service organisations are able to use the app as a marketplace to reach important food-producing farming and fishing communities in rural sub-Saharan Africa.

Liquid Telecom is providing mbora with its own VSAT network. Each mbora hub is serviced with broadband speeds of up to 36mbps, which in turn enables mbora and its content partners to digitally deliver their services to mbora users over a free internet connection. Liquid Telecom is using the latest High-Throughput-Satellite of its long-term partner Intelsat and providing an uncapped data service to mbora.

The first community hub is now live in a lake shore village near Mangochi, Malawi, a four-hour drive from the country's capital, Lilongwe.

Adrian Raisbeck, founder and CEO of mbora, said "Malawi is one of the world's least developed and poorest countries and yet it is blessed with great soils and the third largest body of water on the African continent. Rural communities in Malawi should be living wealthy and resilient livelihoods."

Silent 5G auction begins in the Netherlands

The auction of 5G telecom frequencies kicked off in the Netherlands but no-one knows how long the auction will take and the number of bidders is being kept secret. The previous auction, for 4G frequencies in 2012, raised €3.8bn and this auction is expected to raise far less than that – but the reserve price totals €900m. KPN, T-Mobile and VodafoneZiggo are among the bidders but whether or not any foreign telecoms firms are taking part is not being revealed, auction master Martijn Meijers said. Three frequencies are being auctioned: 700, 1,400 and 2,100 MHz. Once the auction is completed – a process which may take several weeks or even months – telecom providers will be able to activate their 5G services – if ready for launching. Vodafone's

5G network, which it is currently promoting, is using a frequency allocated for 4G. The roll-out of 5G in the Netherlands has been hit by

both concerns about the impact on public health and about the potential involvement of Chinese tech company Huawei.

Three frequencies are being auctioned: 700, 1,400 and 2,100 MHz

Telia Norway launches commercial 5G

Telia in Norway has switched on its 5G commercial network, offering subscribers high-speed services powered by Ericsson.

The 5G network has Lillestrøm and parts of Groruddalen in the greater Oslo region as the first areas to benefit from enhanced mobile broadband services. During the course of 2020 the 5G coverage will be expanded in Oslo, while the 5G network will also be extended to Trodheim and Bergen.

"This is an important day in Telia's and our customers' history," Stein-Erik Vellan, CEO, Telia Norway. "In a time when we really see the

importance of our digital infrastructure for keeping the wheels spinning, we are incredibly proud to be able to open our 5G network to customers with Lillestrøm as the first place out. Through the partnership with Ericsson we will enable new opportunities and we hope the Norwegian people will enjoy the new and pioneering mobile technology."

Jenny Lindqvist, head of Northern & Central Europe, Ericsson, added: "With 5G, technological boundaries are being moved forward to create the biggest innovation platform ever. New services for consumers and enterprises, as

well as new use cases for digitalization of industries and society, are creating unique business opportunities across all sectors and positive change for everyone."

Lindqvist added that industries and society "will get the support for massive amounts of connected things", for tracking, fleet management, smart metering, and other applications. "But probably the highest impacting implementation is the support to connect industries to drive automation, making us more efficient, more sustainable and opening up a new world of innovation," she said.

Assad's cousin facing legal action

Syria's telecom authority said a deadline for a cellular company owned by the cousin of president Bashar Assad to pay back its debts to the state has ended.

An announcement came hours after Assad's cousin, Rami Makhlouf, released a new video in which the businessman said he

was asked to step down from the leadership of Syriatel, the biggest telecom company in the country. However, the watchdog said legal measures will be taken against the company to recover the money.

The Syrian Telecommunications Regulatory Authority said in a statement carried by state news

agency SANA that Syriatel had refused to pay fees to the state, therefore "Syriatel will be responsible for all the legal repercussions" for refusing to give back the dues.

Makhlouf had previously been told to pay the equivalent of US$180m purportedly owed to the government by his telecom companies.

Airtel's 10th

Airtel Africa will complete 10 years of operations this month. Parent company Bharti Airtel set up its presence in Africa with the acquisition of Zain Telecom's Africa operations in June 2010. The company has reached more than 110 million customers, bridging the digital divide and increasing financial inclusion. It also provides telecommunications and mobile money services in 14 countries across sub-Saharan Africa. "In these challenging times, the Airtel Africa team along with our partners are working hard to provide our customers with reliable voice, data and mobile money services," Raghunath Mandava, CEO, Airtel Africa, said.

TA suspends capex rise

Telecom Argentina has decided to suspend a US$100mn increase in its 2020 capex because of the uncertainties caused by the Covid-19 crisis. Company CEO Carlos Alberto Montini said the business has total capex of US$500mn earmarked for this year, which was already less than half that for 2019, when the telecom operator invested more than 70bn pesos (US$1.12bn). "In February and the beginning of March we were planning to increase our capex by US$100mn to US$600mn, and that was because the quarter was going better than we were expecting," Montini said in an earnings call with analysts and investors.

Kenya MoMo extension

Kenya's central bank has extended a set of measures introduced to encourage the use of mobile payments during the Covid-19 pandemic. Some of the measures have been made permanent while others have been extended to the end of this year, the Central Bank of Kenya says in a statement published on June 24. The central bank introduced the measures to cut the usage of banknotes, which some authorities feared might help spread the virus.

THE LAST WORD

Q&A

Biju Nair
president & CEO
HYLA Mobile

What did you want to be when you were growing up?
I wanted to be a doctor, primarily because growing up in India it seemed a good way to make money and earn respect. Also, when I was at high school, I thought you can really make a difference in a profession like that.

What was your first job after leaving school?
I worked for a company called SAFCO Technology in the US as a soft-

sure the company is going in the right direction. When trying to do that, it is sometimes easy to take your eyes away from what is needed to ensure people have a successful growth plan – all while getting on with everyday business.

What has been your career low to date?
At one of my first start-ups, we were absolutely convinced we were building a product that could

> "I wanted to be a doctor, primarily because growing up in India it seemed a good way to make money and earn respect"

ware engineer, working on telecom test and measurement systems.

When was your big career break?
It was the opportunity to help build a start-up software business within SAFCO. It was a hardware company that was lacking superior software products.

What is the best thing about your job?
The team I work with and the customers I get to serve. The team is amazing, having turned around a company that five or six years ago was having survival problems. I rallied the team into going in a slightly different direction – that was risky – but had potential to redefine the business. The team responded well and when you go through a process like that together, it creates different bonds. The customers for obvious reasons – success. I learn from them, share ideas with them to make their business better.

What is the hardest thing about your job?
Ensuring that all the people in the company are well taken care of while continuing sustained growth. My first responsibility is to make

transform Wi-Fi routing. This was in around 2002 to 2003. The Wi-Fi routers we take for granted today were extremely expensive at the time – even corporations weren't putting up many Wi-Fi connections, just one per floor, causing issues for people that were far away.

However, Intel was developing a technology called Centrino, where it was embedding its Wi-Fi technology into laptops. Without Intel sharing licence for its products, we weren't going anywhere. It was pretty humbling for us to wind that down and pack that up – we learnt a lot of things from that.

What has been your career high to date?
Back in 2015, HYLA went through a difficult phase where we had lost our largest customer, the company was running out of money – an existential angst. That's when the board asked me to step up as CEO. Turning us around, diversifying the product base, getting new customers – that's been my highlight so far.

Who has been your biggest inspiration?
In my personal life, it has been my father. He was a self-made

man, a marketing guru and education was very important to him. I recall his older sister telling me stories about there being no electricity, and oil for the lamp was expensive. He'd turn the lamp off after dinner, then take his schoolbooks out to sit under the streetlight to study.

My father worked also for the World Health Organization and was part of the team working on eradication of smallpox by dispatching doctors and nurses to remote parts of India and other countries to vaccinate people.

Jeff Bezos is also a great inspiration – he's a stock seller, selling over the internet. But he's also been able to drive value for the company. While it seems he's just running an ecommerce website, he's actually built AWS which almost the whole internet is now running on.

Kindle has replaced the way people read. Amazon Prime has changed the way people shop, too.

What is your biggest regret?
In 2015, HYLA had to make many difficult decisions and we had to cut the company in half.

something that people like too, they will automatically consume it.

If you had to work in a different industry, what would it be?
Healthcare, because I feel passionately about it. Especially here in the US, the biggest economy in the world with one of the most challenging healthcare situations. There are 10 million people left here without healthcare, and you hear stories about life savings being wiped away from one health problem. If I ever went to another start up after HYLA, it would be in that sector.

What do you want to do when you retire?
I've been to every continent in the world, but I've never actually done touristy things – it's always meetings, in and out, then home. I want to learn the culture! I definitely plan to write a book about my business and my life.

What would you say has been the best technological advancement in your lifetime?
The smartphone. It's continuing to replace old cumbersome gadgets from our lives. Slowly, the newer generations of devices are

> "If I ever went to another start up after HYLA, it would be in that sector"

We had a business presence in Europe and we wound that operation down. Making some of those tough choices that were important for the business but not good for the rest of the company was tough. Looking back on it today, they were the right decisions because the company is roughly back to the same size as when we had to make them.

What is the best business lesson you have learned?
That's an easy one! Building a product should be something like air and water, easy to use and hard to live without. Build something people need for their survival, and if you can build

even overtaking simple healthcare tech, like blood pressure and heart rate monitors.
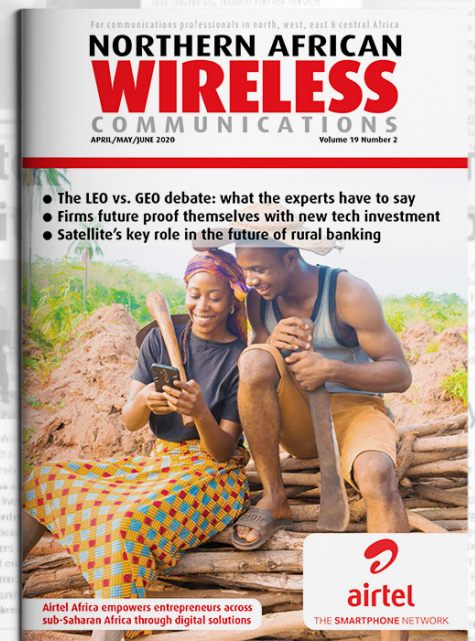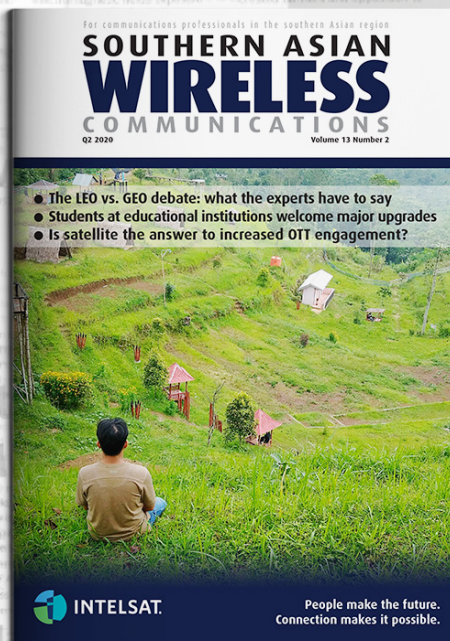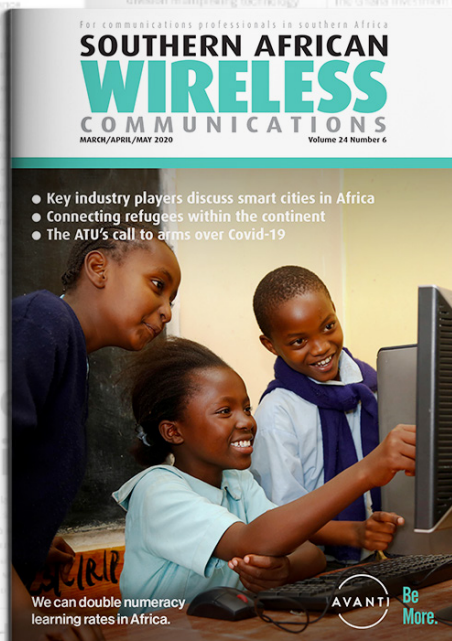
Which competitor do you most admire and why?
I respect every competitor we have because every company has its own strengths and weaknesses. I ruthlessly try and understand their weaknesses to try and get an advantage in that area. The moment you start to think a competitor is worthless, or weak, I make sure our team is continuously looking at where they are and what they are doing.

Everyone that thought HYLA was down and out at one point is now regretting it. ∎