

For communications professionals in the southern Asian region

SOUTHERN ASIAN WIRELESS COMMUNICATIONS

Q3 2019

Volume 12 Number 3

- Towers: why are we still using diesel in 2019?
- Find out why 'satellite is the answer'
- Sim Lim Square provides customers with free Wi-Fi



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DAMM provides comms solution to key Indian rail project

India's Maha Metro Rail Corporation has deployed a DAMM TetraFlex radio solution for its flagship rapid transit system in the city of Nagpur, Maharashtra.

The company said the main benefit of the solution is its decentralised architecture, which "ensures that there is no dependency on central switching equipment for section-wise commissioning, and operation of the radio system." The solution will operate across 37 stations, two depots, as well as onboard 23 three-car trains.

"Nagpur Metro is a really exciting project for us. With the work provided by [regional TETRA system integrator] Consort Digital, we have also demonstrated the strength of our system's partner network, which is core to our business," said regional director at DAMM Carsten Laursen. "Because the DAMM TetraFlex solution is based on an open ETSI standard, Maha Metro Rail Corporation is free to choose



The solution will operate across 37 stations, two depots, as well as onboard 23 three-car trains

the devices that best suit its needs rather than being limited to particular brands and models. Through DAMM's flexible 'application programming interface' it is easy to integrate

to other telecom systems such as telephony, external radio network and central voice recording systems."

Phase one of the US\$1.18bn Nagpur Metro rapid transit system takes

in the "north-south" and "east-west" corridors, totalling 37 kilometres. The first section, which spans 13.5 kilometres from Khapri to Sitabuldi stations, is already operational.

Pakistan watchdog calls for restoration of Twitter accounts

The Pakistan Telecom Authority (PTA) is embroiled in a row with Twitter after the social media network blocked pro-Pakistan accounts for tweeting in favour of Kashmiris and against India.

Over 200 Twitter accounts were suspended by the site for spreading

rumours and fake news in the wake of India revoking the special status of Jammu and Kashmir.

The PTA has approached Twitter and lodged a protest over the suspension of accounts. It has also demanded restoration of social media handles

that post in support of Kashmiris.

Using the microblogging site to voice its concerns, the PTA tweeted, "prima facie, this action is in violation of the policy and community standards of Twitter, and an attempt to stifle freedom of expression".

The Pakistani Twitter handles were suspended after India reported them to Twitter and Facebook, accusing the users of sharing propaganda videos and images which claim to portray the current situation of Jammu and Kashmir.

Maxis on course for 5G readiness with AI network

Malaysia's communications service provider Maxis has been building a network dubbed the A.I. Network and it is ready to support 5G.

The company's A.I. Network self-optimises data traffic and is built on next-generation IP network architecture plus software defined networking technology.

"At this exciting juncture for Malaysia, where demands for digital services, content and connectivity is at unprecedented levels, we are once again staying ahead to ensure that we are ready for the future,"

said Morten Bangsgaard, chief technology officer at Maxis. "A highly resilient, agile and ready-

to-scale network is particularly important for our growing suite of enterprise solutions that address



The new network, dubbed the A.I. Network, is ready to support 5G

the mission-critical requirements of our customers. And with 5G and fibre expected to be at the heart of our evolving digital lifestyles, a highly intelligent network will work hard for us so that we can focus on providing the best possible customer experience."

The company also said that Maxis' mobile and fibre network is now an integrated next-gen IP network superhighway with traffic control systems that can anticipate potential usage spikes, and can open up more bandwidth in preparation for it.

Taliban fires warning to Afghan firm over 'intelligence activities'

The Taliban has threatened to target employees and installations of the state-owned Salaam Telecommunication Company for not taking seriously the warnings of the group and conducting "intelligence activities".

Known as a Sunni Islamic fundamentalist political movement, the Taliban said in a statement that

installations, offices and vehicles of the company will be treated as military targets and that the group will destroy the optic fibre lines. The group also claimed customers will face the consequences of using the services of Salaam telecom company.

The Taliban said that Salaam is conducting intelligence activities and provides the ground for Afghan

and foreign forces operations against the group.

Acting minister of telecommunication and information technology Mohammad Fahim Hashimi said the activities of the company will continue and that the security of its employees will be ensured.

"The Salaam company will continue its services to the people of Afghani-

stan. No threat will prevent the activities of this company. Urgent measures will be taken for the security of the company's employees," he added.

Salaam operates in all provinces of the country and has more than 2.4 million subscribers.

The optical fibre it uses is used by all telecommunication companies in the country.

Vietnam lagging behind on internet speed

Vietnam ranked 89th out of 207 countries and territories for internet speed and is far behind some of its neighbours, according to the *cable.co.uk* Worldwide broadband speed league 2019.

With download speed of 7.02 megabytes per second, Vietnam's internet speed ranking has plummeted 14 places from 2018.

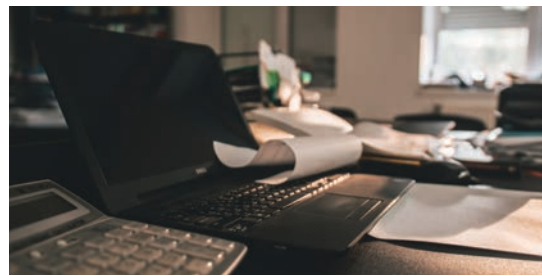
The ranking was based on data collected over 12 months from May last year, analysing over 267 million speed tests across the globe.

Vietnam's average broadband

speed was recorded as 10 times slower than Singapore at 70.86 Mbps, more than three times lower than Malaysia (23.86Mbps) and more than two times slower than Thailand (18.21Mbps).

However, it is ahead of Indonesia, the Philippines, Myanmar, Brunei, Cambodia, Laos and Timor Leste.

Around 64 million people in Vietnam, or over half of the country's population, are online. It currently has six submarine cable systems, plus a 120-gigabit channel that runs overland through China. However,



The ranking was based on data collected over 12 months, analysing over 267 million speed tests across the globe

frequent undersea cable ruptures have given Vietnam a reputation for unstable internet connections.

Meanwhile, Singapore has been pushed down into second place by

Taiwan, which tops the world with an average broadband speed of 85.02Mbps. British dependency Jersey is third with 67.46Mbps, followed by Sweden with 55.18Mbps.

Maldives welcomes 5G service to 'selected' areas

Dhiraagu, the first Maldivian telecom company, has commercially launched its 5G service.

It will initially be available in selected areas of three regions that have major populations: the area around the capital Male and

nearby Velana International Airport; Addu City and Hithadhoo, plus Haa Dhaalu Atoll and Kulhudhuffushi.

Customers in these locations with 5G compatible devices will be able to access the service with no additional data charges and without having the need to

replace their current Dhiraagu SIM.

Currently, there are only very few devices in the market that are compatible with 5G service. Dhiraagu said it is working with Huawei and major mobile manufacturers to bring the latest 5G devices to the Maldivian

market at the earliest possible. 5G is readily available for Huawei Mate 20X (5G) phones on Dhiraagu Network.

In reaching this technological milestone, Dhiraagu is the first company in southern Asia to launch the 5G service.

Myanmar's Mytel conducts 5G technical trials

Myanmar's Mytel has carried out 5G technical trials on the 3.5GHz band as part of preparations to launch commercial service after deploying sufficient network infrastructure.

The country's fourth largest operator, a joint venture between a consortium of local companies in Myanmar and the Vietnam-headquartered, military-run Viettel said the tests achieved peak download speeds of 1.6Gbps and were the first



5G technology trials in the nation.

Mytel started out in June 2018 once it was awarded Myanmar's fourth mobile licence in January of the year before.

It had 4.3 million 2G and 4G subscribers at end-June, securing it nearly a 7% market share, according to GSMA Intelligence data.

Viettel said the tests achieved peak download speeds of 1.6Gbps

Viettel also conducted 5G tests in Vietnam and Cambodia.

Metfone, its unit in Cambodia, signed an agreement with the country's state-owned operator to share IT infrastructure and start 5G trials in July 2019.

After receiving a trial licence in January to use the 3.8GHz and 28GHz bands for tests in Hanoi and Ho Chi Minh City, Viettel said it made the first 5G call in Vietnam in May.

Philippines: Smart and Red Cross test Nokia Saving Lives service

Philippines operator Smart Communications has partnered with The Philippine Red Cross (PRC) and Nokia to conduct a series of test flights for drones in areas recently hit by calamities.

A team of engineers and volunteers performed trial flights in areas recently affected. The drones are part of Nokia Saving Lives (NSL), a non-profit initiative designed to provide communications technology and technical-expert assistance to emergency response teams such as the PRC.

The NSL service includes a portable LTE network, which connects to drones equipped with cameras and sensors, as well as a server and an analytics applications.

In the Philippines, it uses the LTE frequency assigned to Smart.

Trial flights were performed in Sagnay, Camarines Sur. The province was placed under a state of calamity last year following the massive flooding and landslide brought about by Tropical Depression "Usman". Another trial was carried out in Porac, Pampanga, an area severely affected by the magnitude 6.1 earthquake that hit Luzon in April.

Leveraging Smart's LTE network, the drone with cameras connected in real-time to the PRC control centre, allowing volunteers to assess remote and inaccessible areas, including those too dangerous for responders to reach. Aerial insights and data analytics generated by the NSL drones

are expected to help assess the situation as well as support disaster response groups in prioritizing the deployment of resources.

Information collected by the NSL platform will be used by PRC for rehabilitation and risk reduction plans, in coordination with the local government and municipal disaster risk reduction and management offices.

Smart and Nokia initially launched drones and network services to boost the disaster response efforts of the Philippine Red Cross (PRC) at the close of 2018. The partnership was announced in March last year, when Smart said it would provide connectivity for a drone system designed to boost the disaster response efforts of the PRC.

Bangladesh tells firms to stop serving Rohingya refugees

Bangladesh ordered telecom companies to stop selling SIM cards and shut down mobile phone services to almost one million Rohingya Muslims living in refugee camps.

The order resonated has threatened to disconnect Rohingya from several settlements that stretch for kilometres in the border district of Cox's Bazar. It will also isolate Rohingya from family still in Myanmar from where they fled a brutal military crackdown.

Telecom operators were given seven days to submit reports to the government on the actions they took to shut down networks in the camps, said Zakir Hossain Khan, spokesman for the Bangladesh Telecommunication Regulatory Commission.

"Many refugees are using mobile phones in the camps. We've asked the operators to take action to stop it," said Khan, who added that the decision was made on "security grounds".

While Bangladesh officially banned mobile phones in the camps in 2017, the measure was never wholly enforced and so mobile devices and SIM cards remained easily available in the camps. Refugees used the technology, along with radio broadcasts, to disseminate information and connect with family.

Bangladesh to simplify licence process

The Bangladesh Telecom Regulatory Commission (BTRC) has circulated draft guidelines on unifying the country's mobile operator licences.

Currently, there are separate licences for 2G, 3G and 4G services, but Bangladesh wants to introduce a unified, generic mobile operator

licence to make things easier.

The switch is expected to facilitate the further roll-out of mobile broadband services. Prior permission will still be required for launching any services beyond 4G and operators will still need to renew their spectrum licences separately. They also remain subject to coverage requirements

under the former LTE licences.

BTRC said the initial operator licences will be valid until February 2033 and will carry an annual fee of BDT100m plus a 5.5% share of annual gross revenue, in addition to spectrum fees. In addition, operators also must pay 1% of revenue to the Social Obligation Fund.

Indian prime minister inaugurates 'ground earth station' in Bhutan

India's prime minister Narendra Modi inaugurated a "ground earth station" of the Indian Space Research Organization (ISRO) in Thimphu as he began a two-day visit to Bhutan in August.

Modi was joined by Bhutanese counterpart Lotay Tshering to inaugurate the "ground earth station", which the ISRO built at the cost of INR7 crore to help Bhutan take advantage of the South Asia Satellite launched by India in 2017.

The two premiers witnessed

the signing of a memorandum of understanding (MoU) between the ISRO and the Bhutanese government's department of information technology and telecom on establishment of SATCOM network for utilisation of the satellite.

The meeting between Modi and Tshering was followed by the signing of 10 pacts.

Modi also launched RuPay card in Bhutan, which became the second foreign country – after Singapore – where the card was

rolled out. "This (ISRO's "Ground Earth Station") will increase coverage of communication, public broad-casting and disaster management in Bhutan," Modi said to the media. He added that India would provide Bhutan with additional bandwidth and transponders so that it could take advantage of the South Asia Satellite. "Both countries will also cooperate in the construction of small satellites and the use of space technology," he said.



Bangladesh officially banned mobile phones in the camps in 2017

'Indonesian telecom firms reliant on broadband and 4G'

Broadband and 4G networks are playing a pivotal role in keeping the Indonesian telecom industry afloat as we head toward the next decade, according to research firm GlobalData.

It found that customers were largely abandoning traditional voice and pay-TV bundles in favour of plans that gave them better access to mobile data and fixed broadband services.

Indonesia, which has the third largest population in Asia and the fourth largest in the world, is now an emerging digital market because of increasingly cheaper smartphone options and a large number of young people.

"Mobile revenue will account for 81.9% of total telecom revenue in 2023, driven by increasing adoption of high-speed mobile Internet services," GlobalData wrote in its Indonesia Country Intelligence Report. "3G

will continue to be the most adopted mobile technology throughout the forecast period. While rising demand for high-speed data services and LTE network investments from operators will drive 4G subscription growth over the forecast period."

The report also predicts that by 2023, revenue made from voice plans will fall by a marginal compound annual growth rate of nearly 4%.

"Monthly mobile voice usage is also expected to gradually drop from 65 minutes in 2018 to 45 minutes in 2023 due to rising substitution of traditional mobile voice service with over-the-top (OTT) communication services supported by growing availability of 4G services," the study said.

Elsewhere, the research found swift declines in Indonesia's pay-TV market and forecast it to wane until

2023 as more consumers turned to different broadband options.

"Monthly mobile data usage will grow from 1.5GB in 2018 to 6.8GB by 2023, in line with the rising consumption of online video and social media content over smartphones," it said. "Mobile data's share of total revenues is expected to increase from 49.1% in 2018 to 54.0% by the year-end 2023, rising adoption of high-speed mobile data services supported by operators' investments on the expansion of 3G/4G networks."

Furthermore, GlobalData said it expects fixed broadband revenue to expand at a CAGR of 3.7% through 2023, due in no small part to government efforts aimed at improving fixed broadband penetration and investing in fibre-to-the-home networks.

Just three mobile operators —

Telkomsel, Indosat Ooredoo and 3 Indonesia — control nearly 85 per cent of the mobile subscriptions market and GlobalData said that most companies will shift to "offering data-centric services and invest in network expansions and next-generation technologies such as LTE-A and 5G".

According to GlobalData telecom analyst Deepa Dhingra, despite 3G being the leading mobile technology in Indonesia during the forecast period, 4G will be the fastest growing technology, recording a CAGR of 23.5% over the period as operators continue to expand their 4G networks.

"For instance, Indosat Ooredoo is aiming to extend 4G coverage to 87% of the population by 2019. 4G will account for 44.2% share of the total mobile subscriptions in 2023, compared to 47.9% of 3G subscriptions," Dhingra said.

Telecom fraud suspects sent back to China

Cambodia has sent a total of 150 Chinese suspects involved in telecom fraud cases back to their homeland.

In April, police in southwest China's Chongqing Municipality were alerted by victims who were tricked by users on a dating site to gamble on websites based in southeast Asia.

Victims said they transferred money to those websites before being locked out of their accounts.

Chongqing police launched an investigation and found the telecom fraud ring was in Sihanoukville, Cambodia. More than 10,000 victims from 28 Chinese provincial regions and cities were involved in the case.

In mid-August, Chinese and Cambodian police launched an operation in Sihanoukville, identifying the fraud ring in four locations and arresting 127 suspects. Close to 1,000 computers and mobile phones were also seized during the raid.

Police said the case involved nearly ¥100m (around US\$14m).

Bhutan Telecom and Ericsson partner for disaster resilient emergency network

Bhutan Telecom and Ericsson have deployed a disaster resilient, emergency telecom core network in Bhutan as a Japan International Cooperation Agency (JICA) grant project.

The network includes evolved packet core, mobile switching, OSS and BS has been built with the objective of providing users with an uninterrupted experience in day-to-day operations and during natural calamities.

"Bhutan being located within one of the most seismically active zones in the world, we are working with Ericsson to put in place a backup telecom core network that enables a seamless and uninterrupted connectivity experience for our users across the country," said Jichen Thinley, general manager, corporate planning & strategy, Bhutan Telecom.

Under the JICA grant project, Ericsson has implemented disaster recovery solutions from its digital services portfolio to build this network in the southern Asian nation.

"The solutions that we have deployed as part of this project will



Bhutan is located within one of the most seismically active zones in the world

help Bhutan Telecom in day-to-day network management and will enhance their overall preparedness

against natural disasters," added Nunzio Mirtillo, head of Ericsson southeast Asia, Oceania and India.

NST loses licence over unpaid tax

Nepal Telecommunications Authority (NTA) has revoked the licence of Nepal Satellite Telecom (NST) for not clearing its tax dues.

Also known as Hello Nepal and owned by controversial businessman Ajeya Sumargi, NST was directed by the country's Inland Revenue to pay NPR4.31bn capital gains tax out of what the company made when transferring 75% of its share to TeliaSonera eight years ago.

"The NTA board had earlier directed NST to deposit the first tranche of its dues by August 18 and clear the remainder of the outstanding dues within three months of depositing the first tranche," said Purshottam Khanal, chairperson of NTA. "In the event of NST failing to comply with this provision, the board's decision states that NST's licence will be automatically scrapped." Khanal added that NST's

licence was scrapped automatically as the telecom service provider failed to deposit the first tranche of its tax dues by August 18th.

According to the regulator, NST has failed to clear almost NPR1bn (royalty fee, licence renewal fee, frequency fee, service expansion fee and Rural Telecommunication Development Fund) to the government despite repeated calls from the authority.

Khanal also said though NTA was not in favour of scrapping licences of telecom service providers, the body was obliged to do so amid increasing tendency of telecom companies holding on to licences and not expanding telecom services accordingly and not clearing applicable tax dues to the government on time.

NTA had issued a telecom service licence to NST in 2007.

Metfone commits to Huawei tech

Cambodian telecom firm Metfone confirmed that it plans to use Huawei's 5G network technology, despite its parent firm refusing to work with the Chinese tech giant in Vietnam.

Metfone is a subsidiary of Viettel Group, Vietnam's largest mobile carrier which is wholly-owned by the country's Ministry of Defence.

Speaking to Bloomberg at the company's headquarters in Hanoi, Viettel chief executive officer Le Dang Dung said the firm will not work with Huawei for its 5G network in Vietnam. Dung said it will deploy Ericsson AB's equipment in Hanoi and Nokia Oyj's technology in Ho Chi Minh City and added that Viettel will use 5G chipsets from Qualcomm and another US company.

"We are not going to work with Huawei right now, Dung said. "It's a bit sensitive with Huawei now. There were reports that it's not safe to use Huawei. So Viettel's stance is that, given all this information, we should just go with the safer ones. So, we choose Nokia and Ericsson from Europe."

The move comes as Vietnam aims to be the first Asean nation to provide a 5G network – without Huawei's assistance.



Metfone plans to use Huawei's 5G network technology

Thai trio in spectrum auction U-turn

Thailand's AIS, dtac and True Move have all registered to bid in the country's much-delayed 700MHz spectrum auction.

Applications by the private operators appear to be a change of mind, with all three baulking at the THB17.6bn (US\$562m) reserve price. As a result, regulator NBTC (National Broadcasting and Telecommunications Commission) postponed the auction several times. The change of heart is likely a result of all three operators choosing to extend the terms of the licence repayments for their 900MHz spectrum. When offered this option in May, all three accepted without committing to bid in the 700MHz auction – despite this being a condition of the extension.

The auction will see two 10MHz blocks available for bidding, with the



The auction will see two 10MHz blocks available for bidding, with the 15-year licences valid from October 1st, 2020

15-year licences valid from October 1st, 2020. True Move said that it decided to bid in order to "maintain a leading position in mobile business service and restructure the payment schedule for the 900MHz frequency spectrum licences".

Dtac chief executive officer Alexandra Reich said that acquiring more spectrum would increase the operator's "total bandwidth up to 130MHz (including 2300MHz in partnership with TOT)." She

added that the "investment will provide significant benefits to all stakeholders as the 700MHz spectrum can be used for 5G".

However, Reich also said: "Thailand is moving towards a full digital society, in which the readiness of 5G is a key element. Therefore, a clear spectrum roadmap is critical to the industry because it helps us create effective long-term investment plans to build infrastructure that can help boost the country's economy."

Indian regulator in talks to reduce international roaming charges

Telecom Regulatory Authority of India (Trai) has opened talks with its international counterparts to reduce roaming charges for subscribers going abroad.

The watchdog has started talks with South Asian Association for Regional Cooperation (SAARC) countries, apart from neighbouring Pakistan, to lower roaming tariffs charged by carriers in the countries.

"We have sounded out regulators... we will hold an internal review this month," said a senior Trai official.

Trai said that if it can convince its neighbouring countries to lower

tariffs through bilateral talks, then the discussions with other countries — such as those in Europe, Africa and Latin America where tariffs are far higher than what India charges — can be undertaken with more ease. Officials said that discussions with the remaining SAARC countries — Afghanistan, Bangladesh, Bhutan, Maldives, Nepal and Sri Lanka have been positive so far and added that a consultation on the issue is also being deliberated upon. However, its progress will depend on the outcome of the discussions.

Some of India's neighbours

have higher roaming charges compared to some of the world's richest nations, such as the US, UK and Canada. Trai's move is also aimed at encouraging travellers to pick roaming packs from Indian operators as opposed to SIMs from foreign operators or depending on Wi-Fi hotspots, which impact telecom firms' revenues.

However, lowering the high roaming charges for making calls and sending messages will directly impact revenue for smaller countries like Nepal, which gets more tourists from India than vice-versa.

TM offers Thailand bonus mins

Telenor Myanmar has introduced a service known as "Talk 5, Get 5 free to call Thailand", which offer bonus minutes for calls to its neighbour.

Prepay users will receive a bonus of five minutes for voice calls within the same day to any mobile or fixed number in Thailand after making a five-minute call on that day.

Once the daily target has been reached, customers will receive a confirmation SMS for the five-minute bonus. No opt-in action or subscription is required to access the service for prepay customers of both IDD pack taker and Paygo services. However, the service does not apply to satellite and premium numbers.

According to data from the latest Myanmar Population Census of 2014, more than two million of the country's citizens migrated abroad. Among them, 70.2% of all migrants currently reside in Thailand. IDD rates for Thailand currently stand at K45 per minute for IDD pack users and K250 per minute for Paygo users.

Taiwanese arrested in Thailand for telecom fraud

A group of 13 Taiwanese men have been arrested in Thailand on suspicion of telecom fraud, according to Taiwan's criminal investigation bureau (CIB)

One man with the surname Wu along with 12 accomplices were recently detained by the Thai authorities with the assistance of their CIB counterparts in a villa in the southern suburbs of Bangkok on information provided by victims after a six month investigation. The CIB also said that Wu, who is reportedly a senior figure in the criminal ring, was found to have set up telecom equipment in the villa to conduct fraud schemes when investigative officers raided the premises.

An initial investigation found that the Taiwanese fraud ring allegedly swindled NT\$30m (US\$955,261) from 20 people in Taiwan by posing as law enforcement and national health officials.

The 13 will be taken back to Taiwan



An initial investigation found that the fraud ring allegedly swindled NT\$30m (US\$955,261) from 20 people in Taiwan by posing as law enforcement and national health officials

by CIB investigators and be referred to the Taoyuan District Prosecutors' Office for further investigation.

CIB statistics show that from May 2016 to August 14th, 2019 Taiwanese were convicted of cross-

border fraud crimes in foreign countries and are currently serving their sentences in those countries.

A total of 770 fraud suspects have been deported to Taiwan, while 652 have been sent to China.

Philippines hands 25-year franchise to Ignite

The Philippines has introduced a measure granting a 25-year franchise to Ignite Telecommunications.

It covers the construction, installation, establishment, operation and maintenance for commercial purposes of wire and wireless telecom systems including mobile, copper, fibre optics, satellite, transmit and receive

systems, switches and their value-added services, among others.

Ignite will also secure from the National Telecommunications Commission (NTC) a Certificate of Public Convenience and Necessity or the appropriate permits of its telecommunications systems or facilities.

Furthermore, the charges and

rates for its telecom services shall be subject to the approval of the NTC or its legal successor.

The 25-year franchise can be deemed revoked if Ignite fails to comply with specific conditions.

These include beginning operations within one year from the approval of its operating permit by

the NTC, commencing operations within three years from the moment the act becomes effective and operating continuously for two years.

Ignite will also file a bond with the NTC in the amount that it shall determine to guarantee compliance with and fulfilment of the conditions under which the franchise is granted.

Growing mobile usage in Myanmar boosts fintech sector

Financial technology services in Myanmar have surged thanks to the increasing number of mobile users.

A report by Fitch Solutions Macro Research, a subsidiary of New York-based Fitch Group, found that the rise in mobile subscribers began after the government opened up the telecom sector in 2014. However, enforced supportive regulations and point-of-sale (POS) payment solutions still lag behind.

Fitch published an analysis on

Myanmar fintech industry trends highlighting that money transfer and microfinance sectors would spark the most interest from the private sector.

It said the microfinance sector will be flourishing as more start-ups introduce solutions making loan approval process more efficient. There are numerous fintech companies focusing on peer-to-peer (P2P) money transfers, but the development in POS payment solutions has trailed off.

In 2016, the Central Bank

of Myanmar rolled out the Mobile Financial Services (MFS) regulation, allowing licensees to offer kyat-dominated cash-in and cash-out services, money transfers and domestic payments.

Applicants for the MFS require a minimum capital of K3bn (US\$2.m) and an application fee of 0.1% of the minimum amount. Fintech firms can apply for mobile banking licences, which were first issued in 2013 with the support of the Mobile Banking

Directive. These licences are handed to traditional banks, but fintech firms must operate under a bank licence.



There are numerous fintech companies focusing on P2P money transfers, but the development in POS payment solutions has trailed off

Myanmar sticks with Huawei



Myanmar will continue using Chinese tech giant Huawei as the southeast Asian country prepares for the deployment of the next generation of high-speed mobile communications. The move comes despite concerns by other countries, namely the US, that Huawei's technology could be used to spy for China's ruling Communist Party. However, Myanmar, which depends on China for its infrastructure development, has stayed loyal. Huawei has secured nearly 30% of the global telecom equipment market and is the world leader in 5G mobile networks.

India will not compromise



India will not compromise on security of its telecom networks and accords high priority to data sovereignty, said minister of state for communications Sanjay Dhotre. The comments against a backdrop of the US's concerns over deployment of Huawei telecom gear in new and upcoming networks. The Chinese tech giant has been under scrutiny in some markets for its alleged links to the Chinese government and the Donald Trump administration has consistently warned that Huawei products could be used to spy on or harm networks. The company has strongly denied all allegations.

TOT and CAT 'to merge'



Thailand's digital economy and society ministry is said to be putting forward a proposal to merge the country's two state-run operators, CAT and TOT, by the middle of 2020. According to a report in The Bangkok Post, the merger has been approved by the state enterprise policy office, meaning the digital ministry can put it to the Thai cabinet before October.



Talking satellite

Martin Jarrold, chief of international programme development, GVF



Satcoms for disaster response

Southern Asia & the Pacific Endeavor Connection

Having, over a number of years, worked with Kadium in contributing to the African Wireless Communications Yearbook, and more recently to the Northern African Wireless Communications and Southern African Wireless Communications magazines, this is my first column for Southern Asian Wireless Communications. It is a pleasure to be able to add this additional platform to the GVF's various communications channels into the southern Asian region. It is also a pleasure to begin this relationship with a major "story", one that very clearly encompasses and engages with vital southern Asian interests.

In August this year I was part of a GVF mission to the Indo-Pacific region, to Papua New Guinea (PNG). There, I, as Vice President for International Programme Development for GVF, and Riaz Lamak, GVF's Lead in Benchmarking, Validation and Humanitarian Assistance & Disaster Response (HADR) initiatives, were hosted by both the United States Department of Defence Indo-Pacific Command, based out of Hawaii, and the PNG Defence Force, under the 'Multinational Communications Interoperability Program' (MCIP). This programme is dedicated to Indo-Pacific regional preparations for deployment of integrated communications infrastructures to support disaster recovery operations within which national militaries function as first responders (along with United Nations Agencies and NGOs). Port Moresby, PNG's capital, was the latest location to hold this annual MCIP event, Pacific Endeavor.

The role of satellite communications in HADR is not limited nor confined to news reporting, or to broadcasting appeals for monetary aid. It is an integral and mission-critical foundation to the work of organizing and delivering humanitarian aid and resources, whether in the first 24-48 hour period of a response – supporting supply logistics, providing urgent medical care and coordination of relief efforts – or over the longer-term period of post-disaster recovery and re-building.

Satellite communications are key to the success of assistance programmes in bringing communications to remote areas – which are so often the most badly affected by disasters

– or bringing effective functional communications to replace other communications technologies and platforms that have been rendered ineffective or even destroyed.

Port Moresby 2019, as the most recent in the cycle of annual Pacific Endeavor programmes, will be followed, in August 2020, with Colombo, Sri Lanka. Whilst the PNG programme included inputs from Riaz Lamak and myself which served to define and explain – for the various national military "Senior Communicators", typically colonels and above from the army (and equivalent ranks from other service branches), and MCIP Board Members – the nature of the operational contributions and body of applicable resources of the GVF – as the only globally representative association of the satellite industry ecosystem – the Sri Lanka programme will go further.

In Colombo in 2020, as in previous programmes in the annual cycle – for example, at Pacific Endeavor 2017, held in San Jose, California – the MCIP programme will feature a highly detailed "information sharing" track called Satcom Endeavor.

Satcom Endeavor tracks are dedicated to extending the understanding of, and broadening the experience of directly using, the latest satellite communications systems and solutions, amongst the military first responders of the 27 nations of MCIP.

Previous Satcom Endeavor tracks have been highly successful in facilitating extended collaboration between key decision-makers amongst military first responders – typically communications and signals divisions personnel, and other officials – and leading providers of satellite communication systems and services. Participating nations have had the opportunity to experience the latest technological solutions and familiarize themselves with systems, products, and services offered by the satellite industry – specifically Member organizations of the GVF – thereby enhancing their knowledge and building their organizational capacities, strengthening their disaster preparedness through the use of space-based broadband solutions.

Pacific Endeavor 2020 will be the next opportunity for GVF Member organizations to bring their solutions, and present their best practice example case studies, before the MCIP audience. Precise details of the programme for Sri Lanka is subject to MCIP decisions at future preparatory

meetings prior to the Colombo gathering.

However, the activities which may be proposed by GVF will potentially include a combination of:

- Hands-on practical sessions & presentation of new technologies along with selected unique solutions which are key to HADR preparedness; and,
- A field-training exercise; together with,
- Mentored online training; and,
- Classroom-based training

As a result of previous Satcom Endeavor programmes, there is now a rich resource of GVF Training-certified officials in each of the MCIP countries (see more details about GVF Training at www.gvf.org), and MCIP has created a registry of these skilled human resources. This database is available to each of the nations for augmenting their disaster response resources and to facilitate quick deployment of disaster relief initiatives.

The mechanism of Pacific Endeavor is just one example of how the GVF's training resource portfolio and capacity building is addressing the needs of the humanitarian assistance and disaster response community. GVF Training is developing a range of disaster preparedness training courses to enhance its already highly developed catalogue of essential satcoms training certification. These training resources are recognized as the de facto global standard for the humanitarian assistance and disaster response programmes of all the United Nations agencies that deliver recovery efforts into the field. Students undertaking these courses learn, practice, and are evaluated on their knowledge and skills with online, self-paced, interactive, simulator driven training modules.

Providing augmented capacity building to the training content – the interactive simulations which are created and administered online by SatProf, Inc. for GVF Training – are classroom sessions with students working on the online courses and mentored on-site by GVF member organization Mahdi Bagh Computers Private Limited (MBC) under the supervision of an instructor or facilitator who can assist with the learning process, and also provide the Hands-on-Skills-Tests (HOST) required for final trainee certification. Further classroom sessions – managed by Riaz Lamak of MBC – provide Advanced Satcoms System Engineering Mentored Classroom Training.

Nepal's Tribhuvan International Airport, Kathmandu, Deploys First National TETRA Communications Solution

Tribhuvan International Airport, Kathmandu, has broken new ground in Nepal by deploying the country's first TETRA network, providing airport users and security teams with a comprehensive critical communications solution.

The airport serves as an international hub for over 30 domestic and international airlines and saw over 7 million passengers passing through in 2018, a number which has been steadily increasing year on year.

Situated in Kathmandu Valley, the airport features a passenger terminal, plus extensive outdoor maintenance facilities, parking areas and other on site buildings. The site as a whole is covered by the new TETRA network, ensuring that airport workers and security personnel are in constant communication with the control rooms.

Airport Operators Seek to Upgrade Communications Solution

The expiry of the warranty period on the airport's existing analogue radio system triggered the process of sourcing a successor solution. The need was identified early on to adopt higher security standards whilst accepting that the solution would need to be scalable to cater for additional users and integrate advanced technologies.

One of the core priorities for any airport operators is to keep passengers moving quickly and efficiently. This is achieved in part by enabling co-operation between different work groups – including maintenance units, cleaning teams, airline staff, airside crews, security and emergency responders. An efficient communication system is a key component in this process, enabling smoother operations to allow the airport to be run efficiently, enhancing the customer experience and

minimising unnecessary expenses of fines and compensation to passengers.

The airport authority had also assessed the varied needs of the worker groups within the Airport; this ranged from airside maintenance teams, requiring robust devices protected against hazardous weather conditions and capable of providing clear audio in noisy environments, right through to cleaners and airline representatives whose priority is quick and simple communication – often automated – with the control room.

Choosing A Solution

Following a thorough evaluation process and competitive tender, airport authorities choose Sepura TETRA radios supported by Teltronic's Nebula TETRA infrastructure. The chosen solution matched the airport's need for a scalable communications system, offering flexibility for varied work groups, with the highest level of encryption to ensure security, and robust radios with a long working life.

The SC20 radios provided by Sepura provide outstanding audio whilst also featuring powerful data capability, capable of streamlining essential processes by automating responses, for example providing GPS location to the control room. Using the SC20's second data bearer, the radios can be connected to the airport's Wi-Fi service, enabling integration with existing airport data and control systems.

Allied to Teltronic's infrastructure, the radios' high transmitter power extends coverage where lower power radios struggle. This is a key feature of the security capability for the airport, ensuring that users based in remote locations, underground facilities or within large building are kept in touch with the control room. ■

Protecting an organisation's workforce
Sepura's SC20 radios feature unique Lone Worker protection, which periodically checks the user's status and initiates an emergency call if the user becomes incapacitated. Workers' location is also tracked – whether indoors or outdoors – ensuring team leaders in the control room are aware of their status, location and requirements. This type of advanced capability is a key reason for the airport and other critical communication users choosing TETRA over other platforms.



TETRA Networks

TETRA is the globally accepted standard for critical communications worldwide, trusted by government and public safety organisations and critical national infrastructure sites around the world. With high capacity, robust network design and the highest level of encryption available over radio, the standard is expected to remain the backbone of global critical communications for the next twenty years. A recent global market study from IHS predicted 8% growth across commercial users until 2023, whilst the more mature public safety market was also predicted to continue to grow within this time.

Benefits of TETRA for Airport Communications

Mr. Manohar Rajbhandari, Dy. Director at the Tribhuvan International Airport Civil Aviation Office, explained how the deployment of a TETRA network allows the airport to co-ordinate the day-to-day operations of its various work teams and provides a higher level of service to both passengers and airlines. As an international airport which handles large numbers of tourists as well as visits from international dignitaries and VIPs, the ability to provide secure access in a timely fashion is a significant operational advantage.

The benefits of a reliable, high quality network using radios that connect everyone, everywhere, are evident throughout airport operations. Fleets of staff carrying out daily maintenance and cleaning can work in synchronisation with airline personnel, security and luggage handlers to keep the flow of passengers and flights moving. Workers in remote locations or

working in hazardous conditions remain in contact and can be reached in an emergency, reducing the threat to health posed by an inadequate communications solution.

Shiv Prakash Khemka, Director of Mahavir Shree International Pvt. Ltd. Is Sepura's distributor in Nepal and led the project to deploy the solution. "It was clear that TETRA was a perfect technology to support the airport's operations" he said. "Working directly with end users, we were able to demonstrate the excellent audio quality achieved through Sepura's SC20 radios, whilst also demonstrating how advanced safety features could support lone workers. The airport now has communications across the entire site, covering every worker, ensuring their safety."

As well as Tribhuvan, Sepura's TETRA solutions have been deployed in numerous airports worldwide, including Amsterdam's Schiphol Airport, London Heathrow and New York's John F Kennedy International Airport. Organisations in these airports are benefitting from advanced data features, class leading audio and a proven reliable product to support their critical communications requirements.

Terence Ledger, Sepura's Sales and Marketing Director commented: "TETRA is the only globally accepted, mission critical open standard technology and we are continuing to see it's growth in new markets, building upon its established advantages over other platforms. Our SC20 radios are proven around the world for users looking to maximise the potential of their networks through intelligent applications to support their everyday operations." ■



Ooredoo posts results for Myanmar and Indonesia

Ooredoo Myanmar's revenue declined in local currency by 14% (24% to QAR535million) in the first half of 2019 compared to the same period in 2018.

However, it was boosted by a customer base increase of 19% to 11.1 million.

EBITDA increased 3% to QAR134m in H1 2019 year-on-year, leading to an improvement in EBITDA margin to 25% for H1 compared to 18% for the same period in 2018.

Qatar-based parent company Ooredoo Group said revenue was "impacted by an industry-wide shift from voice services to data services", as well as macroeconomic and currency weakness in some of its markets.

"In Myanmar our customer base surged 19% despite increased competition from a fourth telecommunications operator," said Ooredoo Group chairman HE Sheikh Abdulla bin Mohamed bin Saud al-Thani.

He added that Myanmar remains a highly competitive market with the entrance of the fourth player putting pressure on revenues.

Elsewhere, growth in Indonesia continued

to accelerate with Indosat Ooredoo reporting revenues of QAR3.2bn in H1 2019, an increase of 8% compared to the same period last year.

The return to growth is a result of refreshed commercial strategies which attracted more than three million new customers in Q2 2019.

EBITDA grew faster than revenues reaching QAR1.3bn, an increase of 24% compared to the same period last year.

Ooredoo Group also has a presence in the Maldives through Indosat Ooredoo and Ooredoo Maldives respectively.



EBITDA increased 3% to QAR134m in H1 2019 year-on-year, leading to an improvement in EBITDA margin to 25% for H1 compared to 18% for the same period in 2018

Operators told to host press conferences on billing

Myanmar's mobile operators have been instructed to hold press conferences to educate customers about their billing systems.

The country's deputy minister of transport and communications U Kyaw made the comment during the session of the Pyidaungsu Hluttaw (assembly of the Union) in late August.

He warned that mobile phones users were accidentally signing up for promotions and website links via SMS, which has resulted in increasing bills.

Operators have been instructed to send Myanmar language messages for promotion plans and to ask customers for confirmation that they want to buy the plans.

Furthermore, operators that fail to follow the new guidelines will face legal action under a directive issued on August 19th.

"Another directive has been issued, as it was found that they still failed to carefully follow the instructions issued by the ministry," Kyaw said. "They will face action under the law."

LATEST COMPANY RESULTS

Date	Company	Country	Period	Currency	Sales (m)	EBITDA (m)	EPS (units)	Notes
8/8/19	Singapore Telecommunications	Singapore	Q1	S\$	541.1	N/A	N/A	Revenue decline intensified to 4.1%
28/8/19	Telekom Malaysia	Malaysia	H1	RM	5.55bn	777.9	N/A	Revenue decline intensified to 4.1%
30/7/19	Indosat Ooredoo	Indonesia	H1	QAR	3.2bn	1.3bn	N/A	Revenues up 8% year-on-year
30/7/19	Ooredoo Myanmar	Myanmar	H1	QAR	535	134	N/A	3% increase year-on-year
29/8/19	Axiata	Malaysia	Q2	MYR	6.2bn	2.3bn	N/A	Revenues rose 3.7% year-on-year
30/7/19	Huawei	China	H1	CNY	401.3bn	NA	N/A	Aggregate revenues up 23% year-on-year
2/8/19	Bharti Airtel	India	Q1	INR	20,737.9 crore	N/A	N/A	Relates to consolidated revenue

PEOPLE MOVES & CHANGES

Date	Name	New employer	New position	Previous employer	Previous position
17/9/19	Pete Bodharamik	N/A	N/A	Jasmine International/ Mono Technology	Chief Executive/ Chairman

Indian newbie rises to the top

India's newest telecom operator Reliance Jio topped Bharti Airtel and Vodafone Idea in April-June as top revenue earner with INR10,900 crore, according to the latest financial data released by telecom regulator Trai.

Led by businessmen Mukesh Ambani, it now has 31.7% market share, having entered the highly competitive telecom sector in September 2016 with its disruptive voice and data offerings. Bharti Airtel launched its services in 1995, while Vodafone Idea came into existence in August 2018 following the merger of Vodafone India and Idea.

Elsewhere, Bharti Airtel and Vodafone Idea recorded adjusted gross revenue (AGR), earned from the sale of telecom services, of INR10,701.5 crore and INR9,808.92 crore, respectively, during the quarter, according to data released by Trai.

Bharti Airtel has retained 30% market share while Vodafone Idea's share slipped to 28.1%, according to ICICI Securities.

"RJio AGR (incl NLD) rose 9% year-on-year to INR10,900 crore and finally became the No. 1 operator. The AGR growth is significantly higher than the reported revenue growth of 5.2% quarter-on-quarter due to reducing losses on interconnect usage charges which is reflected in terms of lower access and roaming charges," ICICI Securities said in its report.

Meanwhile, Emkay Global said that following a one-off quarter, Bharti Airtel reported a 20% jump QoQ in revenues with normalised revenue market share of 29.8%. "Revenue rebound was seen across telecom circles, while the top-seven revenue contributing circles recorded 26% quarter-on-quarter and 7% year-on-year growth," the report said.

In the same quarter, Reliance Jio became the country's largest telecom operator with a subscriber base of 33.13 crore, surpassing Vodafone Idea which on Friday reported a decline in its user base to 32 crore by June 2019.

Nepal Telecom hires South Korean firm to install network

State-run Nepal Telecom has hired South Korea's LS Cable & System to install optical fibre communication network in the eastern part of the mountainous country.

The order was placed as part of the Nepal government's NPR200bn (US\$16m) project for the next three years to improve the country's poor information and communication infrastructure.

Nepal has 1.5 times bigger land mass than South Korea, but is located at an average altitude of 1,000 metres, making it hard to establish the communication network.

The Korean firm won the project after beating out Chinese and Indian rivals, based on its tailored planning and product design to the environment, superior construction capability and price competitiveness, the LS C&S has to expand its cable business ramped up its cable production Vietnam recently and fibre-optic cables in Poland.

"We will focus on high value-added products tailored to each market and make efforts to become a communications network builder, not just a cable supplier," said Myung Roe-hyun, chief executive officer at LS C&S.

It has been reported that LS C&S will pocket tens of billions won.

Bangladesh welcomes five million

Bangladesh's mobile operators saw nearly five million new users in the first half of this year, taking the country's total subscribers base to more than 160 million users.

According to data from regulator the Bangladesh Telecommunication Regulatory Commission (BTRC), the country's four phone operators added 4.783 million new users from January-June.

Of the total, the BTRC data showed the companies added 943,000 new subscribers in June.

The number of subscribers to Grameenphone, Robi Axiata, Banglalink and Teletalk stood at 75.330 million, 47.939 million, 34.667 million and 3.836 million respectively at the end of June.

BTRC data also showed that the number of Bangladesh's mobile phone subscribers was 156.989 million at the end of December 2018.

Meanwhile, the BTRC data showed that there were 90.409 million mobile internet and 5.734 million broadband Internet users in the country.

BSNL to slash 80,000 positions

Indian operator BSNL has confirmed that it will look to slash up to 80,000 jobs as part of its voluntary redundancy scheme.

The cash-strapped, state-owned company's chairman, Pravin Kumar Purwar, told journalists that the scheme would see the company cut its Indian workforce by around 50%.

"We all know that BSNL's employee cost is 75% of the revenue," he said. "The number of persons in the organisation are far higher than the competitors. One of the proposals under discussion is the VRS. We are looking forward to 70,000 to 80,000 employees, and make it attractive for the employees, so that they can see value in the VRS."

BSNL's financial problems have been well documented in recent months, as Nokia went public over unpaid fees. BSNL owes Nokia unpaid dues of approximately US\$112.9 million for various network equipment related to 2G and 3G mobile network services.

India, the second most populous country in the world with nearly a fifth of the world's population, remains one of the most hyper competitive telecom markets in the world, with operators forced to work with ARPU's of just US\$1.50.

Ncell Axiata claims victory after Supreme Court ruling

Ncell Axiata, the second largest mobile operator in Nepal, won an appeal at the country's Supreme Court in its legal challenge to a NPR63bn (US\$542m) capital gains tax bill for its buy-out by Malaysia-based Axiata.

The ruling means Ncell's total capital gains tax is NPR45bn and since Ncell already paid NPR23bn, it is required to pay an additional NPR22bn.

Earlier this year, the operator, with a 42% market share by subscribers, filed a petition with the country's Supreme Court against the Large Taxpayers Office, which ordered it to pay the fine by April 22nd. Ncell claimed the tax authority calculated the amount incorrectly.

Meanwhile, after Ncell paid NPR4bn, the first annual instalment of a NPR20bn mobile licence fee, regulator, the Nepal Telecommunications Authority, renewed its licence for five years.

Axiata acquired an 80% stake in the Nepali operator in 2016.

Foreign investors targeting Vietnam's telecom market, says MIC

Vietnam's telecom market has become more attractive to foreign investors as it has returned to the growth path in the first half of 2019 after a long period of saturation, according to the country's ministry of information and communications (MIC).

The department said in a press release that international investors have big opportunities in Vietnam's growing telecom sector, because the government considers it a key driver for the country's digital economy and will step up the divestment from state-owned telecom corporations.

Experts have claimed that the government's plans for the Fourth Industrial Revolution, smart cities, start-ups, and the National Innovation Network Program, enabled by state-of-the-art 4G and 5G, IoT and mobile telecom

networks, are helping the ICT sector continue to record strong revenue growth.

One unnamed expert said there is room to grow for foreign investors in Vietnam's telecom industry. They said the number of households with internet access at home is only 27% per 100 households while only 9.3% of Vietnamese households have a fixed-line telephone.

However, the number of mobile subscribers with a 3G data connection is still below the world average (39 subscribers per 100 people) while the number of subscribers with a 4G data connection is much lower and the 5G network has only been deployed on a trial basis in the country.

The MIC also said data demand is on the rise in the country and will keep increasing in the near future.



Singaporean and Chinese telecom businesses pen 13 new deals

Singapore and Chinese businesses signed 13 deals to cooperate on using digital technologies in telecommunications, education and manufacturing at the annual Smart China Expo in the southwestern city of Chongqing.

Singapore's Singtel and StarHub signed respective memorandums of understanding (MoUs) with the three main Chinese mobile network operators – China Mobile, China Unicom and China Telecom – to cement their cooperation.

"The MOUs will pave the way for improving data connectivity between the two cities, and position both Singapore and Chongqing as strategic hubs for enterprises to expand into the Asia Pacific region and western China respectively," said the Infocomm Media Development Authority (IMDA) in a statement. "Singtel will also provide its capabilities in cloud, internet of things (IoT) and smart city solutions to help enterprises accelerate their digitalisation."

Nearly 70 Singaporean companies took part in the Smart China Expo this year, up almost 50% from the previous year's showing of 40 companies. This event, which takes place in August each year, welcomed a raft of new participants such as Singtel and IoT data logistic solutions provider SkyLab, as well as firms such as ST Engineering Electronics, veriTAG, Handshakes and Fooyo, who attended the event for a second time.

Singtel profits fall 35% to S\$541.1m in first quarter

Singapore Telecommunications, better known as Singtel, saw its profits slide 35% year-on-year to S\$541.1m from S\$831.5m in Q1.

The figures were not helped by Airtel's losses and higher depreciation and amortisation costs in network and spectrum across the group.

Singtel's overall pre-tax earnings contributions also fell 14% year-on-year to S\$722.2m from S\$1.06bn over the same period. Losses in Airtel operations was blamed on higher network costs, depreciation and finance charges from its 4G network expansion. Profit declines were offset by Telkomsel in Indonesia, which posted an 18% climb in earnings on robust growth in data and digital services.

Meanwhile, Singtel's operating revenue rose 2% to \$4.11bn from \$4.13bn, supported by growth in its consumer segment in Australia as well as its digital businesses.

Telekom Malaysia takes revenue hit in H1, but profits still up 75%

Telekom Malaysia (TM) saw its revenue decline intensify to 4.1% in the first half of 2019 to RM5.55bn as the company faces challenging market conditions and price pressure. EBITDA was still up 75% to RM777.9m thanks to cost cutting, while net profit was up 63% (RM422.5m).

Elsewhere, capital expenditure was in line with expectation at 8.1% of revenue (RM450m). TM said it completed its broadband upgrade programme in April and finished the period with 2.16 million broadband customers, down slightly from almost 2.19 million in March.

That includes 1.34 million for its Unifi brand for bundled services, up from 1.32 million three months previous, as more customers signed up to triple-play plans. The migration to Unifi led to a drop in Streamyx subscribers to 823,000 from 871,000 reported in March. TM said a total of 56% of households were on a triple-play, up 9% year-on-year.

The company added that it will focus more on customers in a bid to restore revenues, underlined by its recent launch of new services and tariffs, while also continuing to work on optimising costs and stabilising margins. "We continued to face challenges in H1 2019," said Dato' Noor Kamarul Anuar Nuruddin, TM CEO.



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Filipino operator Mislattel rebrands to Dito after gaining licence

New Filipino operator Mislattel has been granted its mobile licence and has marked the occasion by rebranding to Dito Telecommunity.

President Rodrigo Duterte presented the operating licence to Dennis Uy, the highest-profile figure from the consortium that owns Dito, which is comprised of Uy's Udenna Corporation, its distribution subsidiary Chelsea Logistics Corporation and China Telecom.

The Certificate of Public Convenience and Necessity (CPCN), grants Dito permission to operate 4G services in the 700 MHz, 2100 MHz, 2.5 GHz, 3.3 GHz and 3.5 GHz bands.

Pilot tests are due to be carried out later this year with a view to launching commercial services in 2020. Under the terms of its licence, Dito has committed to delivering an average

speed of 27Mbps to just over 37% of the population within its first year of operation.

Duterte has called on Dito to mount a challenge to two dominant rivals in PLDT and Globe Telecom.

"Let me take this opportunity to pose this challenge to Mislattel: Break the prevailing duopoly in the telecommunications industry and fulfil your commitment to provide better telco services to our people," he said. "Let us take the entry of this (new) telco player as a breath of fresh air in our rapidly evolving information age, where no one should be left behind in our pursuit of an inclusive and sustainable progress for all Filipinos."

Duterte first announced his objective to introduce a new player in 2017 and Mislattel was chosen by the National Telecommunications Commission (NTC) in November 2018.

Thai magnate quits after fine

Thai telecom magnate Pete Bodharamik has resigned from two companies after regulators fined him for insider trading. He resigned from broadband provider Jasmine International and media firm Mono Technology, where he was chief executive and chairman of the board, respectively. Pete and another executive were penalised for buying shares of Jasmine Telecom Systems before its 2016 third quarter results were released, which showed a profit for the first time since 2014, according to the Securities Exchange Commission (SEC) of Thailand.

"Pete was in a position to have this information that would impact share prices," the SEC said.

He received THB58.7m (US\$1.92 million) in penalties, while the other executive involved was fined a lesser amount.

Telenor and Axiata Berhad end merger talks

Telecom giants Telenor and Axiata Group Berhad have ended talks about merging operations in Asia, a deal that would have created the region's biggest telecommunications operator with 300 million customers across nine countries.

Norwegian firm Telenor said that the talks, which had progressed four months, were halted "due to some complexities" but declined to elaborate further.

In a potential non-cash merger, Telenor was expected to hold a 56.5% stake and, while Malaysian group Axiata would have 43.5%. Both companies operate in Malaysia, Thailand, Myanmar, Bangladesh and Pakistan. The latter also has a presence in India, Sri Lanka, Nepal, Cambodia and Indonesia but its Bangladesh operation would have been excluded.

Telenor said in a statement that it did not rule out a future deal, but added that both parties "do not intend to provide further comments".

The combined company would have been the largest telecom operator in Asia and potentially one of the world's top five mobile infrastructure companies. In Malaysia, a union of Axiata's Celcom and Telenor's Digi in Malaysia would have been the largest mobile operator in the country.

Axiata had said the merged company would have been listed on the Malaysian stock exchange and later on an another international exchange.

Oslo-based Telenor also has operations in Norway, Sweden, Denmark and Finland, totalling about 182 million customers for annual sales of about \$13 billion. It is also involved in several joint venture operations.

Angola Cables and TM Global offer new route from South America to Asia

Angola Cables and TM Global, the wholesale arm of Telekom Malaysia Berhad, have unveiled a successful Proof of Concept (PoC) for a new cable route running from South America to Asia via Africa.

Early PoC results showed a reduction in the latency reading compared with existing northern hemisphere routings. If successful, it could lead to significant improvements in global internet routing quality, especially for data connectivity services to the southern hemisphere.

Both businesses have been exploring another alternative via a new express route connecting

the southern hemisphere subsea cables from Asia directly to South America. A PoC testing is being conducted by both parties using two cable systems, namely the South Africa Far East cable system (SAFE) connecting Malaysia to Angola, and the South Atlantic Cable System (SACS) connecting Angola to Brazil.

The new express route will provide a shorter path connecting Asia to South America while, delivering better customer service. The low latency routing would provide a catalyst to create more effective digital ecosystems that are developing within the southern hemisphere.

Telekom Indonesia reveals plans

Telekomunikasi Indonesia or Telkom is reviewing its plan to acquire the country's oldest e-commerce firm Bhinneka.com, a C-level executive told reporters in Jakarta.

Speaking at a public expose meeting at Indonesia Stock Exchange (IDX) in August, Telkom finance director Harry M Zen said: "We are yet to make a final decision [to acquire] Bhinneka.com. We are still reviewing this and finalising the plan."

Telekom also operates e-commerce firm Blanja.com, a joint venture with American e-commerce giant e-Bay. There was also talks about merging Bhinneka.com with Blanja.com previously, but Telkom said that it was still reviewing its plans. "Bhinneka business is indeed in line with Blanja's and we are still reviewing what to do for our next plan," Zen added.

Meanwhile, as Telkom reported second-quarter results July 31st and posted single-digit revenue growth and 60% higher earnings, despite a 6% smaller subscriber base.

The company, which publishes saw revenue rise in Q2 to US\$2.42bn, up 5.5% from US\$2.30bn year-on-year. Elsewhere, net income was up to US\$341m from \$US213m in the same period – a 60% increase.

Elsewhere in the business, the Telkomsel wireless phone service reported 167.8 million subscribers, 6% below the year-ago quarter's reading but roughly equal to the first quarter's 168.6 million subscriber lines. Sales of data services rose 24% year-over-year, contributing 58% of the company's total revenue for that period. At the same time, mobile data traffic increased by 56%.

OneWeb and Intellian in user terminal partnership



Communications firm One Web has partnered with Intellian to build user terminals designed specifically for remote enterprise networks, cellular backhaul expansion and remote connectivity needs.

The companies said the user terminals will be the units provided to customers to enable the high-speed, low latency service.

They further claim that the user terminals are "perfect" for a range of use cases including connecting businesses in rural areas, schools, hospitals, farms and community centres.

This partnership with Intellian represents a major step-forward in the development of One Web's system following the launch of its first satellites and its first customer announcements in February 2019. With six satellites now in orbit and a range of antennas now in place, One Web is aggressively looking to advance the development of its portfolio of user terminals, ranging from compact flat panels to highly-efficient dual parabolics.

"Our user terminals will always be designed with customer needs in-mind, ensuring we deliver a service they can trust," says Adrian Steckel, chief executive officer of One Web. "We're delighted to be partnering with Intellian and this agreement marks a major step forward in our efforts to bridge the global digital divide." www.oneweb.world

Comtech EF Data expands satellite modem product line

Comtech EF Data has expanded its satellite modem product line, introducing the SLM-5650C and SLM-5650C ODU CyberLynx software defined modems and enhanced performance options.

The company reckons the products feature "extremely compact form factors and software options" and can be integrated with a variety of platforms, while providing an upgrade path to support future requirements.

The SLM-5650C CyberLynx model is an indoor product that operates from -10°C to +55°C using conductive cooling. The heat is transferred from the electronics to the housing and



then to an external mounting surface, such as a trailer wall. The SLM-5650C ODU CyberLynx model is an IP67 rated outdoor unit that is designed to meet MIL-STD-810G and operates from -32°C to +65°C.

"Building on our expertise with the installed and proven SLM-5650A and SLM-5650B Satellite Modems, we reduced the form factor (volume) of the SLM-5650C & SLM-5650C ODU CyberLynx approximately 90%, doubled the processing resources,

reduced the maximum power consumption by 80% and increased the functionality compared to the SLM-5650A," claims Jeff Harig, senior vice president government systems for Comtech EF Data. "The proven performance of our offerings translates into reliability, scalability, and adaptability while optimising space segment for mission-critical communications for government, military and commercial applications."

The SLM-5650C and SLM-5650C ODU CyberLynx Software Defined Modems and the SLM-5650B Satellite Modem are all commercially available. For more information, visit www.comtechefdata.com

PTC680 combines TETRA functionality and broadband services in one device

Hytera claims this 325-gram device from its series of multi-mode advanced radios is a communication solution for all types of mission-critical operations as well as for daily business operations with special requirements.

The PTC680 combines TETRA wireless functionality, LTE technology and the benefits of an Android-based smartphone with flexible data transfer via Wi-Fi, NFC or Bluetooth in a single device. It is also said to be "sufficiently robust" (MIL-STD 810 G and IP68 certified) to withstand the harshest and most challenging environments.

Boasting two cameras – the front

one has five megapixels and the back one has 13 megapixels – they take pictures and videos in full HD. The data storage of the radio (32 GB) can be expanded via micro SD card slots and the PTC680 captures video in real-time and provides continuous communication with back-end systems, such as emergency response communications to their control centres.

The company claims this ability to quickly share information results in faster response times in application situations, making situation-based decisions easier. It also says using this feature in industry makes operations much

more efficient.

A 3.6-inch, high-resolution colour touchscreen user interface is supposedly "simple and intuitive" to use, even with gloves, for faster emergency response and quick access to information. It can be operated with just one hand via a rotary knob, a smart key, the PTT button and five programmable buttons. The most important information can be captured at a glance on the top display. www.hytera.com



Sepura announces update to SC21 TETRA hand-portable



Sepura has announced two significant updates to its SC21 TETRA hand portable, with the device now certified with an IP67 environmental protection rating, whilst also being made available for use in the UV band (403-470MHz).

The company claims that since its

launch, the SC21 has proven popular with organisations looking for a compact, robust TETRA hand-portable with outstanding audio and enhanced user functionality through data applications. Alongside its sister device, the larger SC20 hand-portable "with its additional high-speed data bearer", the SC2 Series of TETRA radios are deployed by public safety organisations.

Sepura claims that having the

SC21 available in the 403-470 MHz frequency band ensures that the device will now also be available to non-Airwave user organisations in many other global regions.

The firm also reckons the IP67 environmental protection rating ensures that the SC21 device has proven to remain operational even after the harshest of working conditions. For the user, this means

that Sepura's radios should last longer and more reliably, even when used in dirty and wet environments.

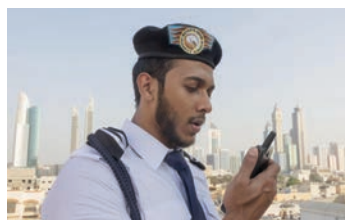
Combined with features such as "water porting", extended receive sensitivity and the ability to add intelligent data applications through its AppSPACE software environment, Sepura believes the SC21 is a key tool in critical voice and data communications. www.seapura.com

Airbus introduces Dabat Hybrid Roaming feature

Airbus has unveiled a new feature called Dabat Hybrid Roaming, which combines its Tactilon Dabat hybrid TETRA/LTE terminal and its Tactilon Agnet 800 solution to allow users of the terminal to “seamlessly roam” between their TETRA network and LTE coverage.

Tactilon Agnet 800 is an app for smart devices such as the Tactilon Dabat; it enables the

use of features such as push-to-talk, status notifications, text messaging, and emergency calls,



along with the ability to switch to LTE coverage (the Tactilon Dabat's primary mode of operation is to use the TETRA network). Airbus claims the security of the solution is preserved because all Tactilon Agnet traffic is securely protected via the secure client's VPN.

The new service was introduced at Critical Communications World in Kuala Lumpur. www.airbus.com

Huber+Suhner outdoor MIMO antennas to ease urban 5G deployments

Huber+Suhner has launched “compact” omnidirectional and directional outdoor antennas for use in 4G and 5G deployments. It says the products will help operators with the challenge of providing cost-effective 4G and 5G in urban areas.

The new Sencity Urban 100 and 200 outdoor MIMO antennas cover both 4G and 5G high frequency ranges and the company claims they are “as compact as possible” for discreet installation in different types of street furniture,

such as bus shelters, poles or walls, depending on the location, thanks to various bracket mounting options.

“Operators are under pressure to provide widespread, fast 4G and 5G coverage in urban areas where space is limited and existing infrastructure is condensed and our unique range of outdoor MIMO antennas can play a major role in overcoming these challenges in small cell deployment,” said Claudia Bartholdi, Product Manager at Huber+Suhner. “At the

moment there are no other antennas on the market that are as compact as the Sencity Urban 100 and 200 that cover 4G and 5G bands, so we are incredibly excited to be releasing the Sencity Urban series to the wider industry.” www.hubersuhner.com



Globalstar SPOT X two-way satellite tracker now available in Asia

Globalstar's SPOT X two-way satellite communications device is now available in Asia to safeguard personnel working in remote or dangerous locations where mobile communications are unreliable.

According to Globalstar, the latest generation of the SPOT family offers two-way SMS and email as well as GPS tracking and a one-touch SOS button. This instantly sends the user's GPS location to the GEOS International Emergency Response Coordination Centre (IERCC) over Globalstar's satellite network and the IERCC then transmits details including

the user's precise location to local first responders.

The company further claims that SPOT X is the only satellite messenger to give users a permanent phone number, easy check-in function and a full, backlit QWERTY keypad for intuitive typing. It also reckons the product has the industry's longest battery life in both tracking and SOS modes.

While SPOT is primarily known for providing SOS and tracking for adventurers, Globalstar says the product has been increasingly adopted by enterprises and organisations in different countries to safeguard employees in high risk and hazardous environments.

SPOT users now include businesses, military organisations,

NGOs, first responders and rescue agencies. Many use SPOT with third party applications that enhance worker safety with customised mapping and data management.

Globalstar says international wind technology provider, General Electric Wind Energy (GEWE) uses SPOT to track and protect workers as they install, operate and maintain onshore wind power installations across the continent. SPOT provides operations and security teams with a complete picture of each crew's location in almost real-time as they traverse remote terrain – sometimes with security escorts – to and from sites. *For more information, visit www.globalstar.com*

Look out for...

Unicom and Huawei team up for 5G pilot

GSMA's MWC19 Shanghai witnessed Beijing Unicom (China Unicom's Beijing branch) and Huawei complete an in-situ flow information telemetry (iFIT) pilot on the 5G transport network.

The iFIT service implements enhanced service recovery speeds to help Beijing Unicom build a visualised 5G transport network, through capabilities such as millisecond-level in-band flow measurement, real-time monitoring of network service quality to meet service level agreement (SLA) requirements and second-level silent fault locating.

Deployments are based on Huawei's 5G digital indoor system and extended 5G coverage to all of the seven exhibition halls.

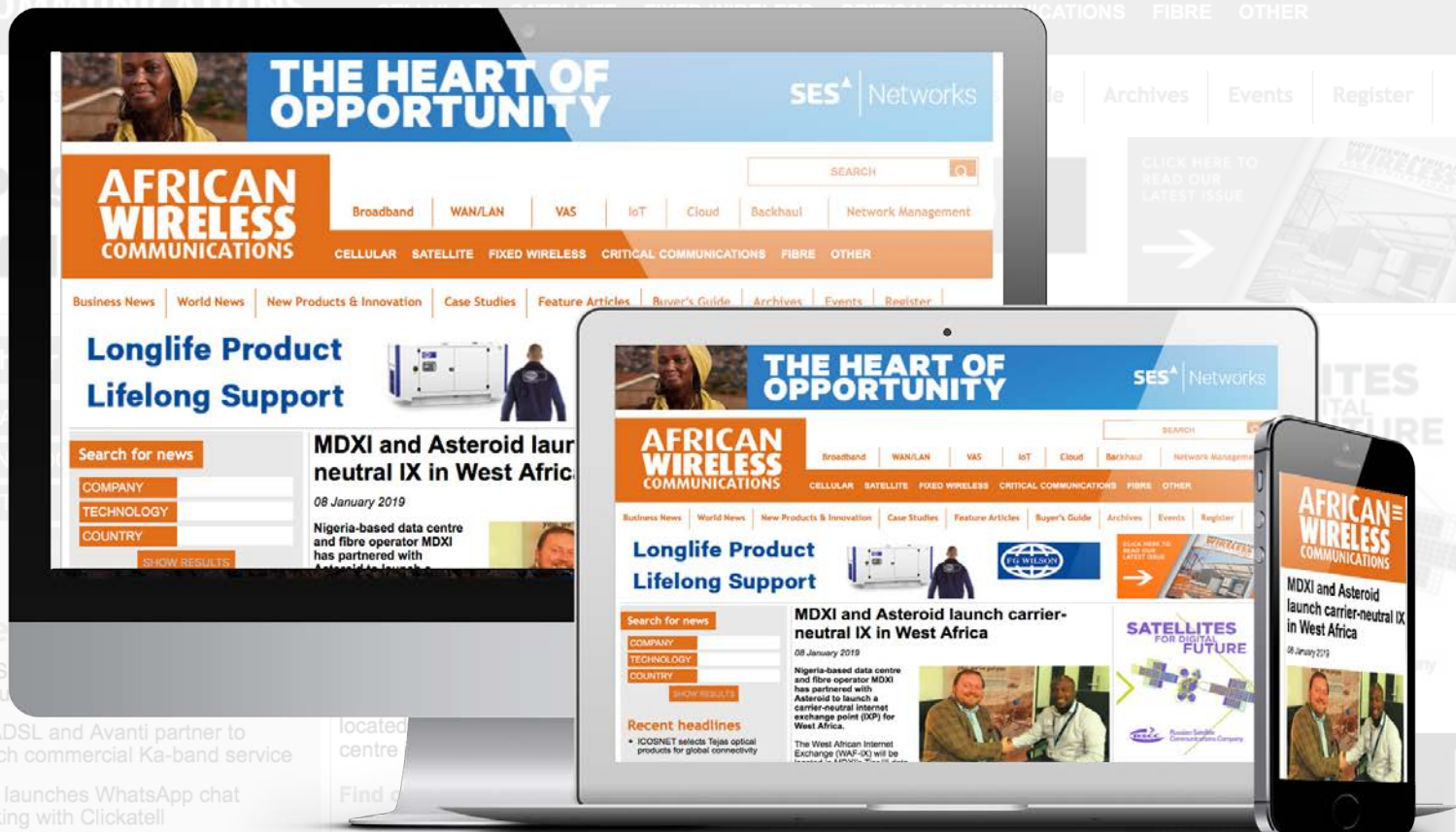
Huawei's iFIT solution takes a hardware approach, using per-packet detection to identify minor exceptions in real-time service network traffic. Instead of using test packets, iFIT directly measures information carried in packets to obtain information, including the delay and packet loss rate of each service. The precision of service packet loss detection can reach 10⁻⁶, a 1000-fold increase compared to conventional methods.

The iFIT solution can be used together with telemetry's millisecond-level data collection, to implement real-time service quality visualisation and minute-level fault demarcation and locating. This effectively meets SLA requirements for new 5G services, including VR/AR.

“iFIT does not require external probes,” said Mr. Zang, manager of Beijing Unicom Transport Center. “The service boards of routers can obtain the key performance indicators (KPIs) of real service flows, hop by hop, and the delay precision is high. This is a great breakthrough in the O&M technology of transport networks.”

Huang Xinyu, director of Huawei 5G transport solution added: “With the advent of 5G, diversified service types and differentiated SLAs will bring huge challenges to transport networks.”

AFRICAN WIRELESS COMMS.COM



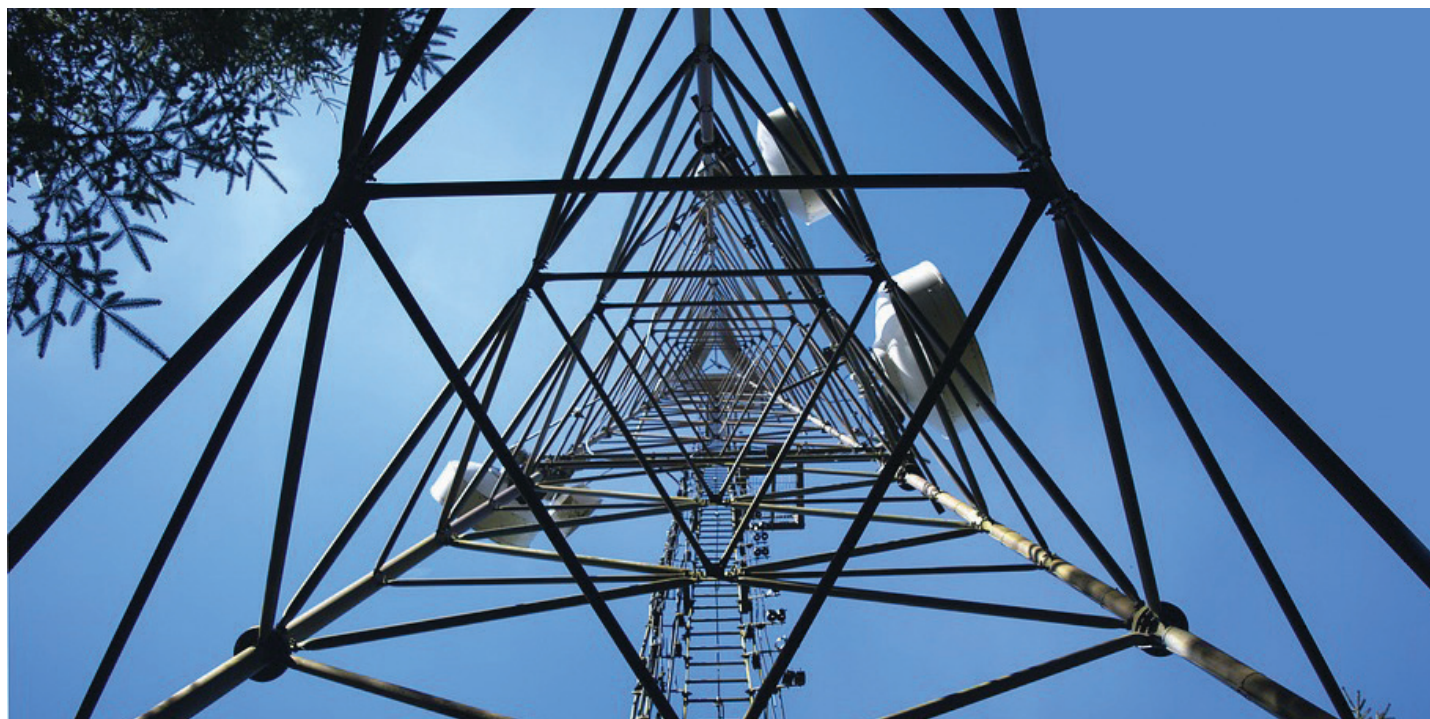
for African wireless communications, as it happens

www.africanwirelesscomms.com

Increased by 8.5 per cent to KES252.3bn (USD2.47bn) in the twelve months to June 2018, according to the country's Communications Authority (CA).

In its ICT sector statistics, Kenya is still the dominant revenue





Providing power to the towers

Solar, wind, batteries and fuel cells are all options when it comes to powering base stations. So why, in 2019, are we still using diesel generators? Robert Shepherd drills down to extract more information

Pollution, climate change and the environment have all, for want of a better expression, long been “hot topics”.

Whether it's the abundance of plastic in the oceans, the emission of greenhouse gases, melting icebergs or the way mobile network operators (MNO) continue to use diesel, governments and multinational corporations are coming under increasing pressure to do their bit before we all hoisted by our own petard and perish like the dinosaurs.

Yes, we can leave the global warming debate for another time, but when it comes to the harmful effects of diesel, the scientific evidence is overwhelming. There's also no doubt that some industries need to shoulder more responsibility than others – and there's also no hiding from the fact that the telecom sector

is complicit in this too, if only for the fact a vast number of base stations around the world are still powered – if not 100% – by diesel generators. In general, they have an outsized impact on pollution compared to other sources of power because they tend to be dirtier per unit of energy provided.

Yet, while the method of powering telecom towers and base stations might not be on the tip of world leaders' tongues when they imbibe at their summits, the industry is acutely aware that more needs to be done to migrate from diesel-powered generators to reusable and green energy sources.

Bladon Micro Turbine produces a generator that runs on diesel, kerosene, paraffin fuels or a blend (to prevent theft and reduce fuel costs). “Instead of having a piston based engine like all

other diesel generators we use a micro turbine engine (like a turbocharger) to generate efficient electricity for telecom towers,” says Stuart Kelly, the company's VP market development.

Conversely, some companies are the standard-bearers for re-usable and other alternative power sources. For example, Asia is considered one of if not the world leader in current renewable base stations and in growth potential. Indus Towers alone now has far north of 20,000 zero-diesel sites and Bharti Infratel rolled out a sizeable number of solar powered sites in recent years. It's also fair to mention that almost a decade ago, MTN Cameroon became a trailblazer in Africa when it went green with solar-powered base stations. Evidence then that the industry is going some way to ameliorate the damage caused to our environment.

Still, the rejection of diesel and take up of alternative power sources hasn't happened at the speed many would like. So, why hasn't there been a race to become completely green, take the moral high ground (and move ahead of the competition in the process)?

"Through their investments, MNOs are mainly seeking efficiency gains (cost reduction) but also improvements in the quality of service through reduction in the number of outages and downtime," says Alessandro Ravagnolo, a principal at Analysys Mason in London. "It is not necessarily a move against competition as other operators can be expected to do the same at some point in time."

According to MNO trade body GSMA's Green Power for Mobile report in 2014 (its last before it was absorbed into much broader research), when it came to global distribution of green and hybrid telecom tower sites, Asia's share was 87.5%. So, while that bodes well for the future, why in 2019 are we still using diesel at all?

Giuseppe Taranto, telecom business leader at Ausonia says even if everybody would like to dispense of diesel, today gensets are still the only energy source which can guarantee energy when necessary.

"Solar and wind cannot give operators the power continuity the generators can offer, so the best way is to understand how you can reduce the run hours, get efficiency and fuel savings," he says. "Following this requirement towards OPEX reduction, some gensets manufacturer has designed and deployed different capacities of DC generators worldwide, as (the Italian company) AUSONIA. The DC Gensets are used as back up to site and as a battery charger when Grid/Solar/Wind is not enough to power the sites and batteries are low with voltage. On off grid sites, the operators also can save the costs of rectifiers and ATS, as well to the issues connected to their potential failures."

If you are reading this with very little

knowledge of the wireless world, you would be forgiven for pointing the finger of blame at developing nations. However, Ravagnolo says both developed and developing nations are still using diesel and that the reason for this is due to the fact that being connected to the grid does not come with the guarantee of having a reliable power source.

"In emerging markets, the national grid may be powered for only few hours per day. In developed markets, this is rare but operators do not want to take the risk on specific strategic sites (e.g. exchanges) where they will have both backup batteries and generators," he adds. "Having diesel generators gives operators the certainty of the service provided tanks are adequately refuelled."

Stéphane Téral a technology fellow and an advisor for mobile infrastructure and carrier economics at IHS Markit Technology, says apart from India, a number of Asian countries are doing their bit for the environment, such as Bangladesh, Malaysia, Nepal and Pakistan. Nevertheless, he says the reason diesel is still so prevalent is because research needs to be conducted first – and as ever, that takes time and money. "Because due diligence and planning start with thorough analysis and review of solar radiation, sunlight intensity, and solar panel geolocation as key parameters; depending on the BS location, diesel might still be the best alternative," he says. "The location of a needed BS is dictated by the coverage and capacity demand and sometimes PV systems can't work."

Taranto is in agreement when it comes to operators in Asian nations looking after the future. "Several TowerCos and MNOs are studying and/or have deployed different configuration of solar solution, both in pure solar configuration or in combination with hybrid genset and batteries," he says.

In Kelly's opinion, "diesel is still the only



Giuseppe Taranto,
telecom business leader,
Ausonia

"Solar and wind cannot give operators the power continuity the generators can offer, so the best way is to understand how you can reduce the run hours, get efficiency and fuel savings"

prolific and available fuel for providing more reliable electricity to the telecom tower market". He says: "The Bladon Microturbine generator can also run on cheaper kerosene or a fuel blend too. Other fuels such as methanol still do not have a reliable enough supply, nor does gas for that matter to allow it to be used at scale."

Prima facie, the power of diesel cannot be disputed. However, there are cost implications, too. After all, it's no secret that diesel generators require regular maintenance and two need to be installed so one is operational while the other undergoes maintenance. Are the costs sustainable?

"That's part of the Opex and you also need periodic replacement," says Téral.

Ravagnolo says no business "will intentionally deploy a site that isn't sustainable" or has a negative business case. "A reduction in the cost to run a site would improve the business case for rural deployment, where a limited number of customers can connect to the cell site and generate revenue," he adds. "This implies that operators will be able to stretch their networks further."

Kelly disagrees. "In a word," he says, "no because 50% of operating expenses related to running a telecom tower is related to fuel and maintenance expenses for diesel generators. Bladon's proposition eliminates the need for monthly (or more) site visits related to generator maintenance and instead needs a two-hour service once a year."

The sales and marketing department at HIMOINSA, which designs and manufactures diesel and gas generator sets, hybrid generators, lighting towers and control panels, says numerous factors need to be taken into account. "When reliable power is required to guarantee the safety of mine workers, for example, then the cost is secondary to reliability," it says. "Total cost of ownership for the units needs to be taken into account. HIMOINSA is a vertical manufacturer so its units are designed and manufactured with efficiency and longevity as key factors.



The industry is acutely aware that more needs to be done to migrate from diesel-powered generators to reusable and green energy sources

With 500-600hrs service intervals, excellent fuel efficiency, OEM support and remote management of the units the units efficiencies can be monitored and costs can be managed.”

Monitoring and managing the generators is usually straightforward in cities and other built up areas. But how easy is it to do so within rural environments, particularly in developing nations?

Taranto says that gensets are monitored via Wi-Fi or LAN connection, even with 4G modem being available today. “All the operational data and performance indicators are often stored on a web-server (cloud) from which the authorized personnel can monitor and control the power system in any place in the world, editing also statistic and report for their better analysis and evaluation of the power solutions reliability and real operational costs.”

Téral says they are equipped with sensors and send information via the cellular network provided by the BS they power. “The base station itself is remotely monitored from a network operation centre (NOC) and therefore sends info about everything including power function,” he adds.

“Drones are increasingly used to monitor remote sites,” says Ravagnolo. “It is an effective measure to monitor the infrastructure for maintenance requirements but could also be used for security reasons.” The latter is a whole new topic in itself.

He adds that mobile networks are expanding into more rural areas in emerging markets and the chances of having grid connectivity is low there. “Electricity grids are not expanding at the same speed,” says Ravagnolo. “This means that MBO, or whoever is managing their energy infrastructure, will continue using diesel for a long time despite investments in solar and other energy sources.”

However, Taranto adds: “In many countries the traditional set up to power off-grid sites was by means of installing a dual Gensets system (1+1, master and slave), but today, whenever possible, MNOs and TowerCos are trying to eliminate at least 1 DG on site, to be replaced with batteries, and possibly by adding also solar, if the sites allows.”

So, what of hybrid solutions? After all they work in other industries, such as the automobile one.

“Operators are increasingly deploying hybrid solutions, which included solar panels, batteries and one genset,” says Ravagnolo. “No need for a second generator. The idea is that the site would be running on solar and the genset kicks in when more power is required



Giuseppe Taranto says even if everybody would like to dispense of diesel, today gensets are still the only energy source which can guarantee energy when necessary.

or there is something faulty. This reduces consumption and cost substantially compared to sites running exclusively on diesel.”

Taranto concurs and adds that not only is the hybrid model “definitively the solution today”, it’s already passed 10+ years of operation on site and it’s the one that had “really allowed” MNOs and TowerCos to reduce their OPEX and increase their savings. “However, even if many companies today offer hybrid solutions consisting into genset, battery and optional solar, only a few of them have the consolidated experience allowing to offer a debugged unit to the end user, so buyers should carefully take care of this when looking for potential partners,” he says.

Kelly argues that the hybrid solution “has been borne out of necessity” to avoid expensive service visits for the diesel generator. “Combining a diesel generator with a box full of batteries, control electronics and solar panels has been the common practice,” he adds. “However, if your baseline engine does not have a need for oil, service visits or require expensive (attractive to steal) batteries then there’s no need to build a hybrid. For off grid sites, we have found that having a Microturbine running 24 hours a day using diesel or kerosene as fuel is far more economical, scalable, and least attractive to theft.”

With regards to greenhouse emissions,

Ravagnolo says upgrading to more efficient energy solutions is not just a matter of cost savings but it also allow reducing emission, which is good for the environment. “In some countries there may be some taxation associated with carbon footprint (aka carbon taxes) providing an incentive to operators to become more efficient and greener,” he adds.

It’s also important to remember that there are other options too. Fuel cells have often been lauded as the next big thing in the energy space, but the talk, until now has been more about how good they will be and less about how good they are. So, how long until they become the norm?

“Fuel cells are still at the early stage and also the supply chain is not diffused yet to in many countries and regions, so I guess many years will be still needed to have this technology widely deployable,” says Taranto.

HIMOINSA adds: “As the market and technology develops this will naturally increase efficiency and reduce the currently high cost of fuel cells.”

Téral is less sure. “I don’t know but one sure thing, with 5G requiring more cell sites, the demand for energy keeps going up so we need to find new alternatives,” he says.

The GSMA report In early 2014 also says that for the first time, the number of mobile phone subscriptions in the world exceeded the global population. Now, with over seven 7 billion active mobile phone connections in the world – a number that will only grow – there can be no room for complacency.

What’s more, GSMA indicates that future mobile subscriber growth will be concentrated in developing countries in Africa and Asia among populations that are currently ‘unconnected’ to mobile phone networks. In other words, developing nations.

Could 5G, as Téral points out, be the catalyst? ■



Alessandro Ravagnolo,
principal,
Analysys Mason

“A reduction in the cost to run a site would improve the business case for rural deployment, where a limited number of customers can connect to the cell site and generate revenue”



Singapore's famous Sim Lim Square provides customers with a free and speedy Wi-Fi network

Sim Lim Square is Singapore's largest IT and electronics shopping mall. A six-floor electronics plaza, it hosts a variety of merchants selling anything from home entertainment equipment to computer components. For that reason, Sim Lim Square attracts thousands of Singapore's amateur and veteran electronics enthusiasts daily, as well as visitors from Malaysia and other neighbouring southeast Asian countries.

However, due to a host of factors, including overwhelming Wi-Fi user size, signal noise from several Wi-Fi networks and management availability limitations, Sim Lim Square faced many barriers that prevented a single reliable network for their visitors.

With more than 500 retail outlets, most shop owners have private Wi-Fi hotspots, creating heavy wireless interference throughout the mall's six floors. Therefore, free public Wi-Fi solution has to be readily available without competing with or interrupting these private networks – and vice-versa.

Sean Chia, head of advertising and promotions

at Sim Lim Square explains that PoE functionality is essential because it allows the mall to expand its network through any environmental condition. "Obviously, it makes sense to power our APs, IP phones, and IP cameras with PoE so that we can install them in any hard-to-reach area where they are needed," he says. The mall's Wi-Fi network needs to be able to reliably run throughout the building solely with PoE.

"The six-floor shopping mall often hosts up to 10,000 visitors per day, with up to 1,000 shoppers at one time, making us the largest IT and electronics shopping mall in Singapore," adds Chia, "We hope to improve the shopping experience by providing free public Wi-Fi that covers the entire venue and provide uninterrupted internet access, especially in core public areas."

Of course, a free public Wi-Fi solution should be capable of supporting the mall's huge access demand and each shopper should be able to enjoy a variety of demanding applications, including video chatting and streaming.



Sim Lim Square hosts a variety of merchants selling anything from home entertainment equipment to computer components

However, even after the Wi-Fi network is fully deployed and ready for use, the mall does not have a large number of technical staff that can be dedicated to managing the public Wi-Fi network. For this reason, the network's management system must be able to be accessible and understood by an administrator with limited time, resources or experience with such a large-scale network.

Sim Lim Square chose the TP-Link Auranet Business Indoor Wi-Fi Solution over those offered by other vendors because it satisfied all of their requirements, while remaining significantly more cost-effective.

TP-Link's installation began with an included site survey service, providing a thorough analysis of the wireless environment, the existing IT infrastructure and the architectural structure of Sim Lim Square. The analysis confirmed the challenges, including the competing private networks throughout the building. The mall's staff also demanded that their new Wi-Fi network could be installed quickly and that it would be easy to manage. Considering these requirements, the report concluded that ceiling-mounted Auranet EAP220 access points and TL-SG3424P L2 Managed PoE+ Switches would provide an ideal solution.

To obtain a smooth business-class Wi-Fi experience in the mall's high-density user environment, 45 N600 Dual Band Auranet EAP220s were deployed, since dual band Wi-Fi avoids wireless interference.

"Now, our customers can enjoy free high-speed Wi-Fi in every store and public area," Chia notes. "When they are shopping, they can video chat with their friends to get useful advice, watch online reviews of the latest electronic devices, and share their shopping experience on social media. Originally, when we looked at other solutions, like that of Cisco or Aruba, they far exceeded our budget very quickly. We wanted a high-performance business-class Wi-Fi solution at an affordable cost, which also solved every issue that prevented reliable, free public Wi-Fi in our shopping centre."

The TP-Link JetStream L2 Managed PoE+ Switch TL-SG3424P features 24 PoE+ ports. With a total power supply of 320W, the switches are flexible for use with ceiling-mounted access points. This function results in an efficient and cost-effective choice that also eliminates the hassle of running new cables and power lines in a large, complex environment such as Sim Lim Square.

Network management for a business solution of this type is typically complicated, requiring specialized training. However, EAP controller software provided a simple, intuitive interface for unified network management without any training needed at all. The mall's network administrator expressed surprise by how easy it was to configure and manage their new Wi-Fi network.

"Since the software is completely free, it also saves us a lot of money, which we can now invest in other improvements that ensure a better overall shopping experience for our guests," says Chia.

The free public Wi-Fi has gone down well with customers visiting the mall. After the Auranet EAP Solution went live, most said that they were very happy to learn that the mall was

offering free Wi-Fi. The mall's management also noticed that just by offering free internet access, Sim Lim Square had expanded

its organic social media presence, where customers shared their positive shopping experiences in the mall in real-time. ■



The mall often hosts up to 10,000 visitors per day with around 1,000 shoppers at one time

Johor brings Wi-Fi to the locals and visitors

The Malaysian government set a target to increase its internet penetration from the current 65% to 95% by 2020, because it acknowledges the importance of digital connectivity to revolutionise the country's "economic activities".

In 2016, the municipal Johor state government launched the "Johor Wi-Fi" programme, in line with those plans. Quite simply, the goal was to provide free Wi-Fi for local residents and visitors, offered by the state government. Johor state called on Altai Technologies to help make it a reality. The company supplies carrier-grade Wi-Fi products and technologies with a distribution network in some 100 countries. What's more, the Altai Super Wi-Fi solution is made up of a portfolio of indoor and outdoor products for carriers, WISPs and enterprises to support various applications, including mobile data off load, public access, WLAN access and backhaul.

Using antenna technology, as well as the cloud-based management system AltaiCare, the solution is designed from the ground up to deliver Wi-Fi networks with good performance,

reliability, scalability and management.

The three-year project saw RM12.9m spent on the installation and maintenance of the Wi-Fi service across Johor state's 10 districts – and the Wi-Fi network is operated by an unnamed established local internet services provider in Malaysia.

In phase one, 135 hotspots were deployed in the major areas of Johor city to provide people with free Wi-Fi services. Phase two of the expansion started in 2017 and provided an additional 74 hotspots in both urban and rural areas of Johor.

A2-Ei's have been mounted on street poles and buildings in the larger areas of Johor city. C1n's were also used as access points to provide micro coverage in other areas. To make the Wi-Fi service more manageable, the network is managed and operated by Altai.

In 2019, a total of 135 hotspots are available in the in the major areas of Johor city, making life a lot easier for local residents and tourists alike. If you are in the area, either at leisure, working or on holiday, just search for the "Johor Free Wi-Fi" network using any Wi-Fi-enabled device and then register through the captive portal.

Since the introduction of Johor Wi-Fi, over 235,000 users have signed up to use the services for free. ■

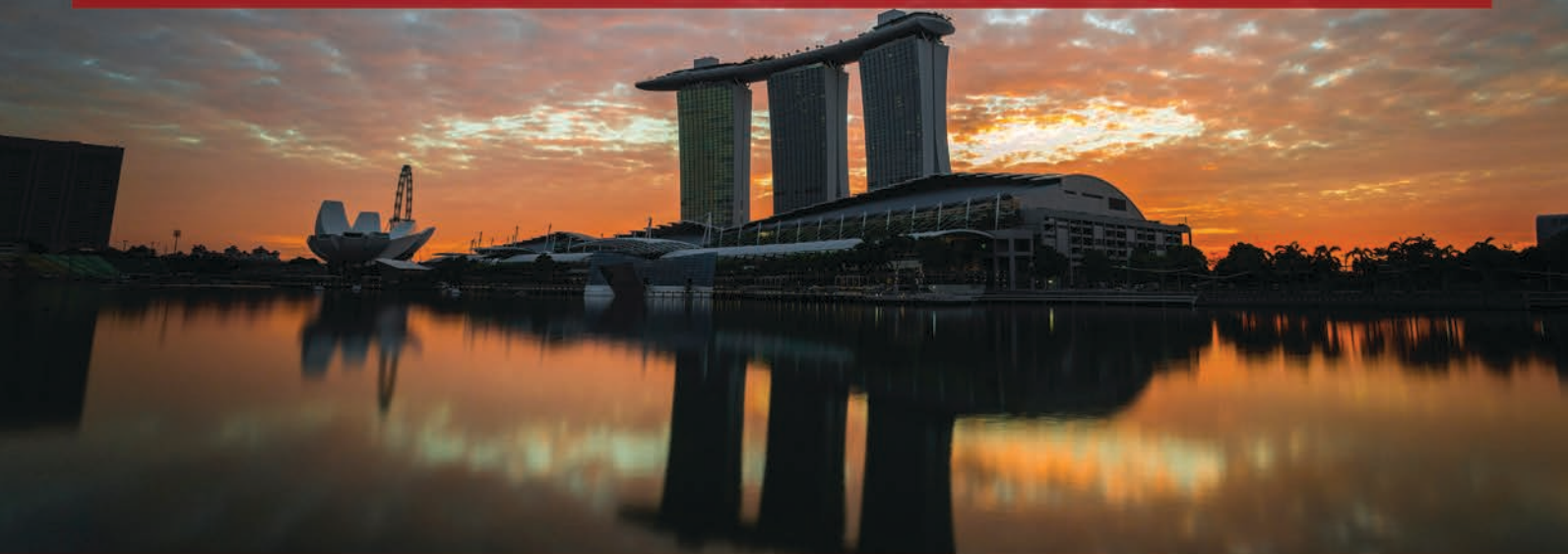


Johor Bahru, formerly known as Tanjung Puteri or Iskandar Puteri, is the capital of the state of Johor

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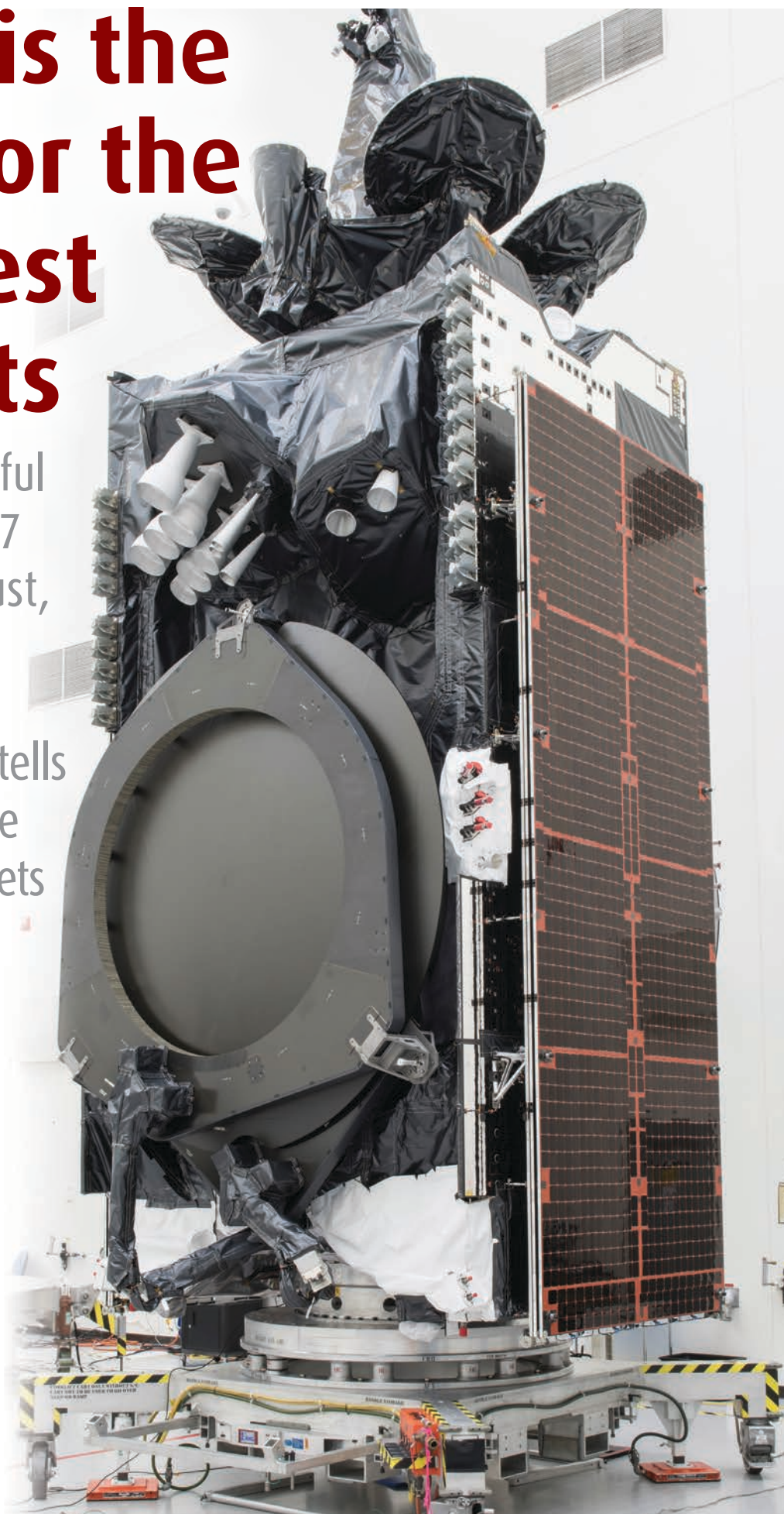
Satellite is the answer for the two largest continents

Following the successful launch of the AMOS-17 satellite in early August, Eran Shapiro, director, business technology ventures at Spacecom tells us how it will help the Asian and African markets

Soon broadcast, telecom, data and Internet broadband signals will be bouncing back and forth from a satellite located at the 17°E orbital position. The satellite, AMOS-17, is the newest member of Spacecom's multi-regional fleet providing services to Africa, Asia, Europe and the Middle East. For the fast-growing populations and economies of Asia and Africa this is an excellent sign as satellite communications represents the future.

On August 6, 2019, from Cape Canaveral in the U.S.A., Spacecom's AMOS-17 communication satellite soared upward towards its orbital position upon a SpaceX Falcon-9 launch vehicle. Some 30 minutes after launch, the satellite separated from the launcher's second stage and, as planned, began its contact with ground stations. By the end of August, the satellite's solar panels and antennas deployed as programmed. The company expects commercial operations to begin in a few months following extensive rounds of In Orbit Testing.

Satellites in geo-stationary orbit stay in one spot during their lifetime. For AMOS-17, this is



the 17°E orbital position. This position high above the African continent enables the satellite to provide services with its powerful beams to Africa and Southern Asia. In addition, these beams connect Africa, Europe, the Middle East, India, China and other areas in Asia, and as far west as Brazil. From 36,000 kilometers in the sky, the satellite will provide a plethora of services to help fuel and feed digital communications.

Around the globe, especially for residents of Asia and Africa, broadband internet and telecom on-demand are staples of life. If one thinks about it, people are coming to the realization that the Internet is so intertwined with their lives that they need it for their existence, not unlike bread and water.

It is this need, especially for residents in rural and outlying regions, or those from mountainous and geographically difficult areas to reach, that satellite communications is vital. Vast areas in Africa and Asia are either underserved or have intermittent connections to the outside world because they lack reliable ground-based communication infrastructure. Due to the many citizens living in low-density population areas such as in rural and outlying regions, straightforward economic justification for investing in ground telecom infrastructure projects by operators and governments is subdued. This means that even today, the digital

divide between urban and rural areas is growing. This growing chasm needs to be eradicated.

Africa is a huge continent with one of the world's fastest growing populations. Within a few years, the continent's population is forecast to reach 1.5 billion – and it will continue rising. The amount of young people under the age of 18 on the continent is close to half of its population. Asia, with a population of 4.463 billion, or 60% of global population is also seeing a growth in youth with close to 26% being under the age of 29. These younger populations are the largest and most savvy consumers of digital communications as they are the major users of applications and downloads, and as this population grows, it will consume more and more capacity. Yet, today, the regions where many of these young people live, suffer from a lack of easy and economically viable internet access infrastructure.

For governments, reaching its far-flung or hard to reach populations with digital services is a must. The easiest and most efficient method of long-distance services and communications is satellite. For corporations expanding their businesses into new regions, satellite again is the preferred method of providing services, Internet communication and data transfer.

Spacecom took this into account in planning the satellite, ensuring that it meets the different needs of various communication services providers in

Eran Shapiro,
director, business
technology ventures,
Spacecom



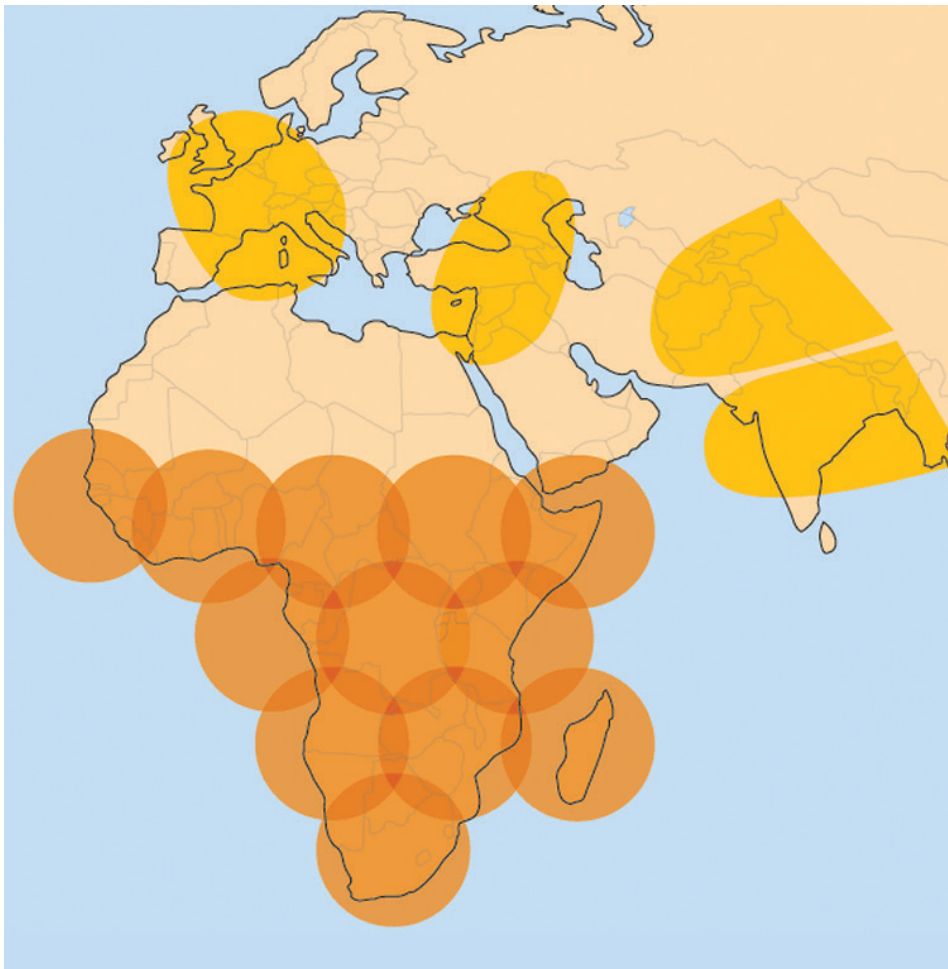
“For governments, reaching its far-flung or hard to reach populations with digital services is a must”

Sub-Saharan Africa and Asia. By tailoring the satellite specifically to assist businesses and governments overcome the digital divide, the company's AMOS-17's beams can efficiently reach outlying regions to provide services for the growing broadband, broadcast and communication needs of governments, communication operators, MNOs, broadcasters and cellular companies.

One new technology utilized on AMOS-17 is a “digital channelizer.” This element significantly enhances bandwidth efficiency by dividing uplink and downlink spectrum into independently routable sub-channels and providing a connection from any uplink coverage area to any downlink coverage area. It supports suppression of interferences, flexible capacity allocation, and other digital processing features for improved service while all command and control channels, as well as telemetry, are encrypted for maximum security.

AMOS-17's digital channelizer provides connectivity between all beams in all available bands in any combination. Thus, a client can use a combination of beams or can change its beam usage at any time to match all communication needs. It also enables a seamless combination of AMOS-17's fixed and steerable beams to a comprehensive integrated solution and ensures a fast response to customers' changing needs. For corporations operating in Asia and Africa, or considering expansion, this flexibility is a tremendous solution for multi-regional communications.

The opportunity is clear. By enabling service providers or governments the ability to offer an extensive array of services quickly, highly efficiently and at low cost to these populations, the satellite contributes to creating a new economic stimulus that excites corporate as well as government officials seeking to better serve their outlying populations. To get connectivity via AMOS-17, locals can set up a simple solar-powered terminal that functions in all types of weather, and requires very little maintenance, fueling, etc. It allows customers to minimize both their initial costs (CAPEX) and ongoing operational costs (OPEX). This is what really sets this satellite apart: it creates a clear and vital economic case that helps close the digital divide and generate an open path generating improved communication between people. ■



AMOS-17's C-Band HTS enables provision of internet broadband services on one beam to a specific country, rather than using multiple beams for regional or full country HTS coverage

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Israel holds 5G tender



Israel launched a tender for fifth-generation (5G) cellular frequencies in July, hoping discounts to struggling mobile phone operators facing fierce competition will entice bids.

Regulator, Ministry of Communications, said it expected the largest three groups – Cellcom, Partner Communications and Pelephone – to bid including a combination of operators to cut down on costs.

Furthermore, it said it expected to announce winners by the end of the year with a commercial launch to start in 2020 and continuing through to the end of 2023.

“We are aware of the companies’ current financial situation and the tender takes this into account,” said Israel’s communications minister David Amsalem.

The ministry has said 5G is necessary to develop health, agriculture and education, as well as smart cities and self-driving cars.

Israel’s three main telecom operators are struggling to stay profitable after a sector revamp back in 2012.

In the shake-up, a raft of new operators sparked a price war that led to steep drops in subscribers, revenue and profit at the three incumbents. All-inclusive calling, surfing and text packages are on offer at a price of US\$8 a month.

Hong Kong releases 5G spectrum auction details



Hong Kong’s Office of Communications Authority (OFCA) has released details of its forthcoming 5G spectrum auctions.

The autonomous territory in southeastern China is set to auction off 380MHz of spectrum in the 3.3GHz, 3.5GHz and 4.9GHz bands.

Its big three mobile network operators will compete for a share of the spectrum that will help them to launch their 5G services in early 2020.

OFCA will auction off 100MHz of 3.3GHz spectrum, 200MHz of 3.5GHz spectrum and 80MHz of 4.9GHz spectrum.

“The communication authority will hold auctions of the three frequency bands in succession, starting with the 3.5 GHz band auction to be held on October 14th, 2019, followed by the 4.9 GHz band auction and then the 3.3 GHz band auction,” a spokesperson for OFCA said.

“Parties interested in acquiring the 5G spectrum may have about two months to prepare their applications and submit them to OFCA on 12 and 13 September 2019. The Government has set the auction reserve prices for the use of spectrum in the 3.3 GHz, 3.5 GHz and 4.9 GHz bands

at HK\$2 million per MHz, HK\$4 million per MHz and HK\$3 million per MHz respectively. The actual amount of spectrum utilization fees payable will be determined in the respective auctions.”

To avoid “an unduly high concentration of spectrum being held in the hands of a single spectrum assignee”, the spokesperson added that a spectrum cap of 70 MHz will be imposed on any assignee in the 3.5 GHz band auction and a spectrum cap of 40 MHz “will be imposed on any assignee in each of the 3.3 GHz band and 4.9 GHz band auctions”.

US sanctions ‘put telecom firms off Cuba’ – government task force



US sanctions on Cuba are dissuading American companies from investing in its telecom sector even as Washington plans to expand internet access on the Caribbean island, according to the final report of a US government task force.

Companies from fellow communist country China dominate Cuba’s telecom sector, which is something “worth challenging

given concerns that the Cuban government potentially obtains its censorship equipment from Chinese Internet infrastructure providers,” the report said.

The Cuban government said the US state department’s creation of a Cuba internet task force in 2018 was “foreign interference”.

“US companies informed the subcommittees they are often

deterred from entering the market due to uncertainty caused by frequent changes to US regulations concerning Cuba,” the task force said.

Former US president Barack Obama created a loophole for US telecom companies to provide certain services to Cuba. Current incumbent Donald Trump maintained the loophole but tightened the broader sanctions.

Huawei to connect remote parts of Canada



Chinese tech giant Huawei is to deploy high-speed wireless internet to a number of underserved communities in Canada’s remote northern regions.

The move, mostly 4G deployments, comes with Huawei under sanctions in the US over national security concerns and amid a diplomatic crisis between Canada and China over the detention of a Huawei executive in Vancouver.

Huawei said it would partner with Ice Wireless and Iristel to help connect rural communities in the Arctic as well as remote areas of north-eastern Québec, plus Newfoundland and Labrador by 2025.

The embattled Chinese firm added that some 25 communities

in the largely Inuit areas of the Nunavut territory would also benefit from the deployment.

“We strongly believe that everyone should be connected to 4G LTE, no matter where they live in Canada – even in areas where

high-speed service may not be economically viable,” said Eric Li, president of Huawei Canada.

Most Canadians have access to high-speed internet, but connectivity remains unavailable across some sparsely populated

areas in the world’s second largest country by land mass.

Huawei officials said wireless internet that would operate in some of the coldest temperatures on earth.


“We need to use highly reliable, world-class equipment to minimize physical intervention and to avoid outages that risk making our communities isolated once again. That’s why we partner with Huawei Canada,” said Jean-François Dumoulin, vice-president at Ice Wireless and Iristel.

Washington has continued to pressure its allies to boycott Huawei for the deployment of 5G wireless, claiming the company’s ties to Beijing and its intelligence services could pose security risks.



St. John's in Newfoundland and Labrador, Canada

America Movil posts solid growth

 Mexican operator America Movil reported healthy profit growth in the second quarter, boosted by a strong mobile performance in its home market and Brazil, along with a decline in financial costs.

Controlled by tycoon Carlos Slim, the business posted net income of Mex\$14.1bn (US\$738.9m) up significantly from Mex\$435m year-on-year. However, revenue declined 2.7% to Mex\$250bn, which the company said was because of gains in the Mexican peso against other currencies, including those in Latin America.

Nevertheless, the strength of

the peso also helped America Movil lower overall financial costs by two-thirds to Mex\$11.9bn. Furthermore, it benefited from a Mex\$2.2bn foreign exchange profit, compared with a Mex\$30bn loss in the comparable quarter last year.

"The operating profits and foreign exchange gains were instrumental in our turning a Mex\$14.1 billion net profit in the

period," the company said in its earnings statement.

Elsewhere, mobile service revenue grew 5.6% in total, with an 8.3% rise in Mexico, 8.9%, rise in Brazil and a 6.9% increase in the Dominican Republic. There were declines in Peru and Chile, following a reduction in interconnection rates and strong competition. The company's fastest-growing business by revenue was

fixed-broadband, increasing 7.7%. However, this was offset by declines in pay-TV which slipped by 4.2%.

America Movil ended the period with 278 million subscribers, with its mobile post-paid base up 7.2% year on year, though its prepaid base dropped 3.4%

The company added 1.6 million post-paid subscribers in Q2, mainly from Brazil, Mexico and Austria.

Australia's broadband boom

 The Australian Department of Communications said the National Broadband Network (NBN) has reached a major milestone with more than 10 million Australian homes and businesses ready to connect to broadband services.

Australia's largest infrastructure project is on track for completion in mid-2020 and more than 85% of the network build is now complete. Some 5.6 million homes and businesses have already connected to NBN's broadband services. In the past 12 months, the company has connected an additional 2.9 million Australian premises to internet services.

NBN, the firm building and operating Australia's broadband access network, announced in July that it has exceeded its rollout and activation targets for FY19. In the three months to June 27th, it connected more than 1.1 million premises to its network, which brought the total number of ready to connect premises to 9.93 million by that date.

The company's FY19 forecast target was 9.7 million ready to connect premises.

Research conducted by NBN at the end of May found that 62% of homes and businesses were on a 50Mbps wholesale speed plan or higher, compared with 44% year-on-year.

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Government launches Chad digital review

 The Chadian government has launched its first digital forum “Chad digital” themed “20 years after restructuring of the postal and telecommunications sectors: assessment, challenges and prospects”.

Launched July 11th, telecom minister Idriss Saleh Bachar, said: “Remarkable progress has been made in reducing Chad’s digital gap and consequently setting a new era for the sector.”

Following the restructuring of the Chadian telecommunications sector by the law of August 17th, 1998, the government opened the markets to private investments and Chad welcomed two major private mobile operators as well 18 Internet service providers (ISPs). Between 2014 and 2015, a total of nine laws relating to the postal and electronic communications sector were adopted.

Furthermore, the government implemented a programme to set up community multimedia centres in the country’s 23 provinces. The first three have already been built in Mongo, Abéché and Amdjarass.

As a result, the Chadian telecom sector recorded growth in the mobile phone penetration rate, which is now 48%. However, access to the internet – the foundation of the digital transformation in which Chad has invested so much – has been disrupted for more than a year.

Brazil starts 5G testing

 Telecom Italia’s Brazilian subsidiary TIM has started the first 5G tests in South America’s largest nation ahead of commercial launch of the technology forecast for 2021.

Trials on the 3.5 GHz frequency in Florianópolis, the capital of southern Brazil’s Santa Catarina state, are being executed with Chinese tech giant Huawei and CERTI foundation, a public research and development body.

The firm said it planned to develop a reference centre for 5G, with activity including trials related to smart cities, healthcare and agriculture.

“TIM wants to be a 5G pioneer and leader, both in Brazil and Italy,” said Pietro Labriola, chief executive at TIM Brasil. “Our goal is to repeat the path of success of 4G and generate new



Trials on the 3.5 GHz frequency are being executed with Chinese tech giant Huawei and public research and development body, CERTI foundation

solutions that improve the lives of our customers and boost the technological development in the country.”

He also said that government investment, combined with the simplification of procedures for the installation of antennas and fibre,

would be “enabling elements” that could position 5G as a vehicle to drive competitiveness and growth in the country.

The Brazilian government plans to auction the 5G spectrum in March 2020.

Mauritania needs ‘stronger regulation’ to boost mobile - report

 Mauritania’s telecom sector faces a number of hurdles, though efforts continue to be made to address them with financial support from the government as well as the World Bank and European Investment Bank.

The report by market research and data house Research & Markets said efforts have been focused on implementing appropriate regulatory measures and promoting the further penetration of fixed-line broadband services, by improving the national backbone network. That

ensures connectivity to international telecom cables and facilitates operator access to infrastructure.


However, despite these efforts, it found that Mauritel has maintained “a virtual monopoly” in the fixed-line sector and there is little stimulus for new market entrants. Penetration of fixed telephony and broadband penetration is very low and is expected to remain so in coming years.

Most voice and data services are carried over the mobile networks maintained by Mauritel, Mattel and Chinguittel and the report said

population penetration of 3G is relatively high. However, as yet there are few developments in LTE and as a consequence mobile broadband access speeds are low, placing a break on the potential for mobile commerce and related applications.

The report further found that the regulator, l’Autorité de Régulation, has struggled to enforce good quality of service among these operators, despite fines being imposed. This represents a significant challenge, given the importance of mobile networks for basic telecom services.

Ericsson and Tele2 launch Russia’s first 5G zone

 Rival operators Eir and Three are expected to launch commercial 5G services in Ireland before the end of the year, according to previous reports.

In related 5G news, Ericsson and Tele2 have recently launched what the companies say is Russia’s first 5G zone, in central Moscow on Tele2’s commercial network.

The vendor said that the outdoor 5G coverage is live in Tverskaya Street, the busiest part of the Russian capital.

Ericsson highlighted that the 5G area is ready for demos exploring

the opportunities of 5G, including immersive VR entertainment, smart buildings and other consumer and industrial use cases.

The 5G pilot zone is deployed in the 28 GHz band in non-Standalone (NSA) mode, the frequency band for anchor LTE band is Band 7 (2600 MHz), and the 5G pocket routers supporting 28 GHz are used as end-user devices for mobile broadband services with ultra-high speeds.

Sergey Emdin, Tele2 Russia CEO, said: “The 5G era in Russia has already come – from tests and

laboratory trials, we are moving to operating the technology on a commercial network. In the near future, Muscovites will be able to see for themselves what 5G will bring to the daily life, entertainment and development of smart city.”

Tele2 and Ericsson signed an agreement to deploy 5G technologies in Russia at the Mobile World Congress in Barcelona earlier this year. Under the terms of the agreement, more than 50,000 base stations will be deployed across the country

as part of a five-year network modernization deal. The partners also signed a memorandum of agreement to launch a joint 5G trial zone in Moscow at the St. Petersburg International Economic Forum held last June.

At a global level, the Swedish vendor has already publicly announced 24 wins in the 5G segment. Some key customers include AT&T, Sprint, T-Mobile US, US Cellular, Verizon, Swisscom, TDC, Telenor, Vodafone UK, Wind, Etisalat, Optus, Ooredoo, STC, KT, SK Telecom and Telstra.

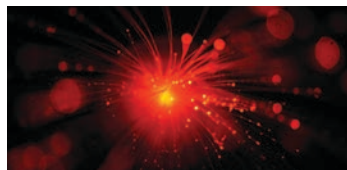
Liquid connects South Sudan to the rest of the world



Pan-African business Liquid Telecom will implement and operate South Sudan's first fibre broadband network, connecting the country to the "One Africa" broadband network, which is approaching 70,000km across 13 African countries and to the rest of the world.

Phase one of the agreement, signed between National Communication Authority and Liquid Telecom, will include a 300km fibre backbone operating from the border of Uganda, through South Sudan, to Juba. Multiple metro clusters will also support the capital city. This first phase is scheduled to go live in the last quarter of this year. The network will be expanded to other cities in subsequent phases.

South Sudan will link to Liquid's network across the region which covers the East African Community, a regional intergovernmental organisation of six partner states; Burundi, Kenya, Rwanda, South Sudan, Tanzania, and



Liquid say phase one is due to be completed by the end of 2019

Uganda. It is thought the network will connect up to 300 million people.

"The implementation of this critical fibre infrastructure is a landmark step in the delivery of affordable communications access to the people of South Sudan, the business community, government and civil society," said Salva Kiir Mayardit, president of South Sudan. "By connecting South Sudan to the global internet, this important infrastructure development will help improve social mobility, enable economic diversification and drive inclusive private sector-led growth and productive employment." He said the agreement was also ideally timed, coinciding with the

signing of the Revitalised Agreement on the Resolution of Conflict in the Republic of South Sudan.

Strive Masiyiwa, executive chairman of Econet Global and Liquid Telecom added: "This modern ICT infrastructure will help address the most pressing challenges within South Sudan, including the urgent need for peace and state building, job creation and improved livelihoods. South Sudan's 13 million citizens will be connected to 300 million people across the East African Community. Connecting South Sudan to the 'One Africa' broadband network will also champion pan-Africa trade and help build Africa's digital future."

With phase one due to be completed before the end of 2019, Liquid's network will eventually provide reliable and affordable internet connectivity for nearly 13 million citizens of South Sudan, as well as for businesses, government institutions and non-governmental organisations.

Telekom Albania sold



Bulgaria's Albania Telecom Invest has completed the acquisition of Telekom Albania from Greece's OTE Group, for a total gross equity consideration of €50m (\$57.2m). Albania Telecom Invest, which acquired OTE Group's entire 99.757% stake, is owned by Bulgarian businessman Spas Roussev and Albanian-Bulgarian investor Elvin Guri. "It is a strategic decision, in the context of OTE Group's redefined priorities and growth plans, in order to create value for all shareholders and support sustainable development," OTE chairman and chief executive officer Michael Tsamaz said when the group agreed to sell its stake in Telekom Albania back in January this year.

Frequency up for sale



Romania said it plans to start selling the frequency spectrum needed for 5G wireless networks in Q4 2019. The bidding will be open to all, including companies using equipment from Huawei, said communications minister Alexandru Petrescu. Finance minister Eugen Teodorovici added that the 5G auction could contribute to public finances this year or next, depending on how fast the process is completed.

Telecom Argentina opens new store



Telecom Argentina (Telecom) announced the opening of a new store in the city of Venado Tuerto, Santa Fe.

The "convergent" outlet offers services from all its brands – personal, fibertel, cablevision and telecom.

It is the second convergent shop to spring up in the Sante Fe province, after a first outlet was

opened in June in Rosario.

Sales and after-sales services are available for fixed, mobile, internet and cable television services.

Telecom said this is part of a wider investment in Venado Tuerto and the company plans to spend over \$USD9.7m in the city in expanding its network for internet access, mobile data and fixed and cable services.

Meanwhile, Telecom reported first-half revenues down 11.5% year-on-year to ARS\$

94.8bn after adjusting for inflation. The company said it managed to increase billing at a faster rate than inflation late in the period, due to customer demand for higher value services and despite the challenging economic climate.

Venezuela targets 4G development



Venezuelan president Nicolás Maduro has invited Russian telecom companies, along with Chinese tech giants Huawei and ZTE, to develop a nationwide 4G telecommunication network in the Bolivarian Republic.

Development of the 4G network system will become a part of the socialist corporation of the telecommunications and postal services sector of Venezuela, he said. However, Maduro did not specify the range of potential

investments into the project.

During the president's most recent trip to Russia, Moscow and Caracas reached a preliminary agreement on launching Russia's Global Navigation Satellite System in Venezuela.

"I have ordered to make an investment and, together with China's technologies, Huawei and ZTE technologies and the technologies of Russian companies, bring telecommunications to a new level and make a nationwide 4G network a reality in Venezuela

to ensure Venezuela has fast communications, internet, and telephony," President Maduro said in the speech during the country's first Innovation, Development, Science and Technology Fair.

However, the political and economic situation in Venezuela has since deteriorated as the US introduced new sanctions against the Latin American state. Most recently, Washington imposed a strict ban on Venezuela's oil exports, the country's key source of income.

Huawei sales nosedive



Huawei founder Ren Zhengfei said international sales of the Chinese telecom firm's handsets have dropped 40% in the past month as a US-led backlash against the embattled firm intensifies. Speaking at the firm's headquarters, he also said the company would slash production by \$30bn (£23.9bn). In May, the Trump administration put Huawei on a list of companies that American firms cannot trade with unless they have a licence. It argued that the world's largest maker of telecoms equipment and the second biggest smartphone maker poses a security risk.

Q&A

Anshoo Gaur CEO STL – Network Software



When was your big career break?

For me, a career is an evolving and continuous process. I don't believe in big career breaks.

What is the best thing about your job?

Primarily, I consider the ability to lead and define the future solution for arguably the most dynamic industry in the world today – telecommunications – as the best thing. Secondly, my job allows me to unleash the talent of the youth and channelize it in the direction that can help change the world.

What is the hardest thing about your job?

Getting customers to acknowledge that the changed operating context requires them to adopt a different set of platforms, practices, partners and mindsets is the hardest thing. The customers know that something has got to change but are not able to figure out what it is. The challenge for them is identifying the best way to offload legacy platforms, practices and mindsets.

"My paternal grandfather has been a big inspiration for me... he rejected many offers from the British to trade prison time for giving up the freedom struggle."

Who has been your biggest inspiration?

My paternal grandfather has been a big inspiration for me. He was a Gandhian who spent his life in prison during the freedom movement. He rejected many offers from the British to trade prison time for giving up the freedom struggle. His humility, integrity, hard work and patriotism were unlike anything I have ever seen. He passed away when I was relatively young, but he remains as an inspiration to look up to and emulate.

What has been your career high to date?

I am not clear about how highs and lows are quantified in a career. My career so far has given me a lot of

learning opportunities and this continues to be the case. I look at highs and lows from the point of view of alignment with the defined purpose of my life. Good alignment with purpose means high and low alignment means low. And on this scale, the career and personal decision we made to come back to India 13 years ago for multiple reasons was a high. The 'career' might have been 'better' if we did not relocate, but the alignment with purpose would be missing and hence this was the right choice and we have never regretted the decision.

What has been your career low to date?

Again, the time at which we do things that are not completely aligned with the purpose is a low. Similar to the urgent-important conundrum, I sometimes find myself dealing with things that I am just not able to assess for purpose alignment. I just go with the flow and later realise that

there was no alignment. I consider staying longer than I should have in my earlier job as a low. I was clearly very busy and had a lot to do but in hindsight, my alignment with purpose had taken a hit. The 'important' part is to be aware and not allow this to become the norm and the good news is that I did not let that go on for too long.

What is your biggest regret to date?

I don't want to sound clichéd but I do not have regrets on the professional front at all. I'm a strong believer in 'everything has a reason' and I do not spend time looking back. Personally, not spending enough time with the

kids is a constant regret. I have tried to make up in different ways, but it is not enough.

What would you say is the best technological advancement in your lifetime?

We are in the age of technology disruption. Technology is at the core of the digital wave. As per Singularity University, the technology change is exponential. In the next 100 years, we will experience progress equivalent to 20,000 years. If I look back,

"I am not clear about how highs and lows are quantified in a career. My career so far has given me a lot of learning opportunities and this continues to be the case."

just when I have seen the greatest technological advancement, I get surprised by something amazing that comes along.

What is the best business lesson you have learned?

The harder you work the luckier you get. In the end, there are no short-cuts.

If you had to work in a different industry, what would it be?

I would remain in the technology industry since it is at the heart of what is changing the world, something that fascinates me, and more importantly, a big catalyst to help me be aligned with my purpose. I would consider spending more time investing and mentoring companies that solve complex unaddressed problems in the world. Healthcare and education are of special interest to me as those are probably the two industries that will look very different in the next decade than they are today.

What is the biggest challenge the industry faces at the moment?

The biggest challenge is letting go of the technology – products and practices – that got us here. These were good for the past but not good for the future. We are in a most dynamic industry and legacy is a burden.

Which competitor you admire the most and why?

I find that a few of them have important attributes to admire and learn from them. Further, in today's converging world, I admire and learn from other industries as well. I make it a point to attend at least one conference every year from an industry completely unrelated to me. Interestingly, these are the places of the greatest learnings that I have had. Closer to our industry, without naming any, I admire the delivery capability of one of our competition. It has a legacy to defend. So, it thrives

on driving FUD (Fear, Uncertainty, and Doubt) created in the minds of customers. It does not necessarily put the customer first but they do get things done, which is important when we deal with mission-critical systems. From another competitor, I learned the importance of design and anecdotally I learnt a very important concept of WIDIWIG (What I Design Is What I Get) from them. When you apply it to any business challenge you usually realise that the problem was inevitably how things were designed. Design plays a critical aspect of the success of the product.

What is the best thing about working in this industry?

The pace of change is breath-taking. In 2018 we had bots & assistants, video streaming and IoT in home automation. In 2019 we are closer to 5G and all the hyper-data applications it will support.

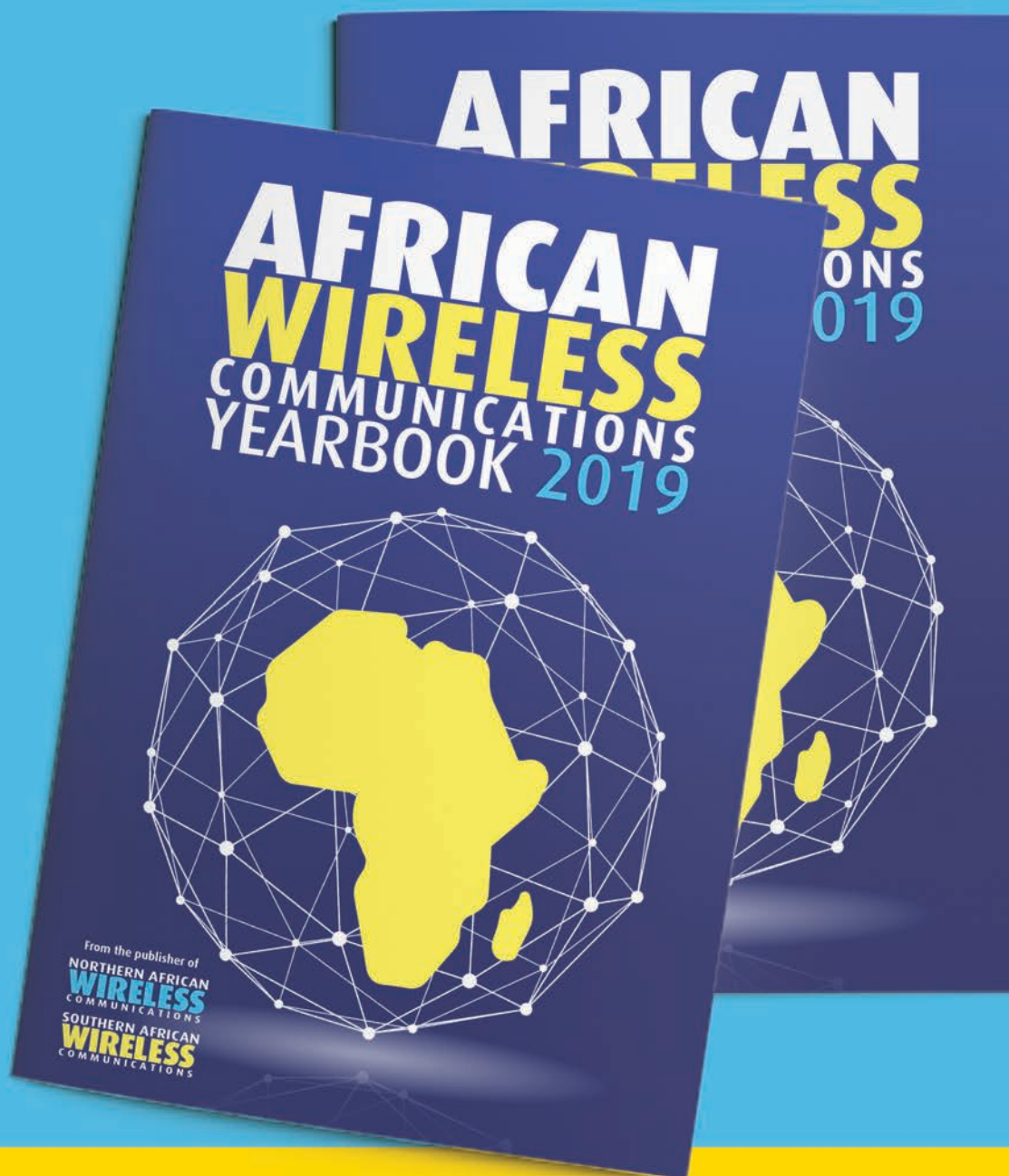
What do you want to do when you retire?

I love work, I am sure the nature of work that I do will evolve but I do not intend to retire. I believe in the power of youth and what they can do to change the world. I will continue to help in unleashing this talent to help solve the complex problems that the developing world faces. ■

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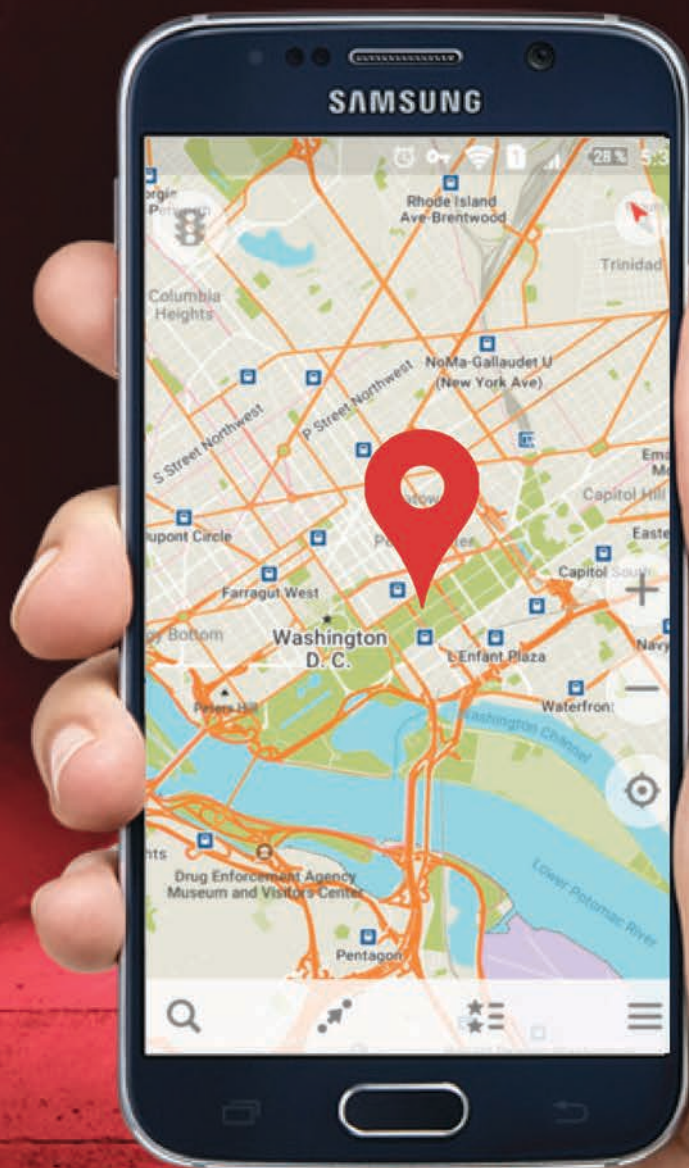
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