- Protecting NGO staff with tracking and communicatons
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Already having 2642 sites under contracts with Orange in Cameroon and DRC and MTN in South Sudan and Namibia, NuRAN Wireless is ready to continue to connect the unconnected.

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NU RAN WIRELESS

KADIUM

'Legacy networks play crucial role in the transition to 5G' says Ericsson exec

Africa's 3G networks could be phased out in the next couple of years as part of plans to increase the capacity of the continent's 4G and 5G coverage, according to a senior Ericsson executive.

Speaking exclusively to *Southern African Wireless Communications,* Todd Ashton, vice president and head of Ericsson south and east Africa, said 2G and sometimes 3G will remain important technologies during the roll out of 5G due to their role in mobile money and to serve the old feature phones still prevalent on the continent, but the continuous global build-out of 4G and 5G networks, and the corresponding increase in capabilities, have become an enabler for phasing out current technologies. This facilitates further enhancements of the networks by releasing more, important parts of the spectrum for 4G and 5G.

Ashton assures that "while 2G and in rare cases 3G are still important to provide mobile money services for some years to come, we expect 3G and in some cases 2G to reach sunset closer to 2030". In fact, "the data experience on 3G is poorer than the one provided by 4G," Ashton added. "In comparison with 3G, one of 4G's key advantages is also its lower data production cost."

"Today, 5G is expected to be the fastest-deployed mobile communication technology in history, but older generations such as 2G are still key to support mobile money in Africa considering the widespread accessibility of 2G feature phones," he said.

Ashton added that the Covid-19 pandemic "has accelerated mobile money usage as a result of the new measures". According to Ericsson's Network Coverage Outlook report, the number of mobile money users has tripled and even quadrupled in certain parts of Africa. In fact, around half of consumers across the surveyed countries now use their phones for this purpose.

Over the last few years, mobile money services have had an instrumental role in accelerating financial inclusion in Africa and boosting the continent's overall economy. This could be credited to its speed, cost effectiveness and accessibility compared to traditional banking services. Even in more remote regions, mobile money has managed to make cross-border transactions far easier than traditional banks. Moreover, by providing access to safe and secure financial services and creating employment opportunities, it has become a life-changing tool across the continent as limited financial infrastructure is a major obstacle for entrepreneurs.

Financial inclusion is an important driver for enabling both commercial and social benefits. As millions of people enter the formal economy and benefit from services and mobile financial services, it will give rise to employment opportunities in the continent and bring us a step closer to support the growth of SMEs through access to financial services.

The link between ICT and e-commerce innovation is clear: ICT offers a cost-effective way to overcome the existing lack of banking infrastructure. It can be rapidly scaled, offers significant efficiency gains, and entails low barriers to entry for individual users.

Mobile money growth 'hugely evident' in sub-Saharan Africa, says GSMA report

Mobile money adoption and use saw continued growth in 2021, processing a record US$1tn annually, according to a new report from the GSMA.

The annual State of the Industry Report on Mobile Money says the industry enjoyed a substantial increase in the number of registered accounts, up 18% since 2020 reaching 1.35 billion globally. The volume of person-to-person transactions were up to more than 1.5 million every hour.

Furthermore, the report reveals that one of the most significant drivers of growth was merchant payments, which almost doubled year on year. Other highlights include how mobile money continues to act as a core pillar of financial and economic inclusion, particularly for women.

Globally, mobile money growth was hugely evident in sub-Saharan Africa in 2021, the mobile money industry had 316 live services, 1.35bn registered accounts, 346 million active accounts, US$53.9bn in transaction volume and US$1tn in transaction value.

"Regionally, Africa contributed the following to the overall 2021 mobile money figures: 173 live services, 621 million registered accounts, 184 million active accounts, $36.7bn in transaction volume and US$701.4-bn in transaction value," GSMA said.

- **Eastern Africa contributed 59 live services, 296 million registered accounts, 102 million active accounts, US$24bn in transaction volume and US$403.4bn in transaction value.**
- **Western Africa contributed 69 live services, 237 million registered accounts, 58 million active accounts, US$9.3bn in transaction volume and US$239.3-billion in transaction value.**
- **Central Africa contributed 19 live services, 60 million registered accounts, 19 million active accounts, US$2.9-bn in transaction volume and US$50.1-billon in transaction value.**

Orange tests AST SpaceMobile technology to improve network coverage in Africa

Orange signed a non-binding memorandum of understanding (MoU) with AST SpaceMobile to test its space-based cellular broadband network in one of its African markets.

AST SpaceMobile's service, which will be deployed via the BlueWalker 3 satellite, will allow people to connect directly to the network on their cell phones via standard 3GPP frequencies, without the need for additional equipment on the ground.

Chris Ivory, AST SpaceMobile's chief commercial officer, says that through this directly applicable solution, the company is "looking to not only fill the gaps in cellular broadband coverage for millions of existing subscribers, but also to extend mobile service to areas that currently have little or no coverage."

French telecom group Orange, like many mobile network operators, is currently expanding its solutions to meet the growing demand for quality telecom services in Africa. Satellite is an option that is already being implemented. But it has its limitations in that the ground equipment on which the signal is retransmitted does not always allow for effective coverage of populations in remote areas.

AST SpaceMobile's space technology will help Orange bring the signal everywhere it is needed. The consumer will be able to connect directly to the network. The MoU between Orange and AST SpaceMobile paves the way for discussions on a potential agreement for the telecom operator to use the BlueBird satellite network that the space-based telecom service provider is preparing.

Disruptive satellite player to service Africa by 2028

Rivada Space Networks (RSN) a disruptive new company with a licence for 4,000MHz of spectrum, will this year launch constellations of 600-low-earth-orbit (LEO) satellites, which will eventually connect to telecoms operators and enterprises across Africa.

The Germany-based company is aiming to start launches in 2024 and complete the constellation in 2028. It plans to put the satellites 1,000km above the Earth, in polar orbits with 25 satellites in each orbital plane.

Rivada Space Networks says it will use Ka-band spectrum awarded to Liechtenstein by the International Telecommunication Union (ITU). Ka band is in the 27-40GHz range.

That will mean the company is "capable of securely connecting any two points on the globe at gigabit speeds". All 600 planned satellites will be in a single optical mesh network.

A spokesman for the operator told Southern African Wireless Communications that when fully deployed (in 2028), the service will cover the entire globe.

"Rivada Space Networks' global networked satellite constellation will facilitate internet access to remote and underserved parts of the world," he said. "Thanks to our system's unique architecture, it can serve as backhaul in parts of the world where there currently is no backhaul or inadequate backhaul available."

He added that while the company does not plan to sell internet access directly, at least as its main business, it does "intend to work with others to expand internet access to the underserved and keep costs down to a bare minimum in those areas.

MTN invests US$51.1m to upgrade Western Cape infrastructure

MTN South Africa will invest R749m (US$51.1m) to upgrade its network infrastructure and deploy new ones in the Western Cape. The telecom operator wants to spend the money on improving network availability, increasing data speeds and expanding its 5G footprint.

The move is part of the company's program to upgrade its entire South African network (MONZA), which is already 68 percent complete, with another 1,350 sites to be finalized by the end of the year. Some of the money will be spent on building 179 5G telecom sites in the Western Cape. Paul Newman, MTN's managing director for Western Cape operations, says R10.5 million will be spent on repairing damage caused by vandalism in the province and R64 million on installing new batteries.

MTN South Africa's investment in the Western Cape comes about two weeks after the company announced a similar investment of $56.4 million in Limpopo and Mpumalanga provinces. In mid-March, the KwaZulu-Natal province benefited from a $46.4 million investment to upgrade its infrastructure. These various investments are in line with MTN's rural connectivity rollout objectives, which aim to bring telecom services to people in the most remote areas of South Africa.

MTN's investments are expected to not only improve network coverage, but also enhance the quality of its services in South Africa. "With improved access to data transforming lives, our goal is to make significant strides to close the existing data gaps in South Africa. We are making great strides and our network upgrade in the Western Cape is already nearly 72 percent complete," Newman said.

PCCW doubles capacity on PEACE cable system

PCCW Global has completed a major and significant upgrade on the PEACE cable system between Marseille, Cyprus and Abu Talat using Infinera's ICE technology.

The company now offers network operators the ability to significantly increase capacity per fiber pair on these critical Middle East and Mediterranean fibre routes.

Leveraging Infinera's ICE technology on the GX Series Compact Modular Platform, PCCW Global is able to reach individual wavelength speeds of 650 Gbps resulting in more capacity, with less hardware, and providing up to 25 terabits per fibre pair.

"The PEACE cable system is the highest-performing open cable system connecting Asia, Europe and Africa," said Haitham Zahran, vice president of EMEA subsea cable systems, PCCW Global. "By collaborating with Infinera to upgrade our network segment to increase fiber capacity, we are able to offer customers industry-leading innovation that provides the most reliability and highest capacity fiber pair available."

Nick Walden, senior vice president of worldwide sales, Infinera, added: "Infinera's subsea solutions have historically provided network operators the greatest amount of value from their fiber assets using innovative, industry-leading technology. Infinera's ICE solution enables PCCW Global to offer network operators open, scalable and flexible services to meet the region's growing bandwidth demands."

SES orders satellite from Thales Alenia

Satellite operator SES ordered a software-defined geostationary satellite from Thales Alenia Space to extend its connectivity services across Europe, Asia and Africa.

SES-26 is the third and final satellite the company has ordered from Thales Alenia – a joint venture between Thales and Leonardo – based on their three-satellite contract. It will carry a reprogrammable communications payload capable of adapting to changing mission needs while in orbit. The satellite will provide Ku-band and C-band frequencies from 57 degrees east, the company said. SES-26 is set to replace the firm's NSS-12 satellite launched in 2009.

The other two satellites under the contract are ASTRA 1Q, a software-defined satellite, and ASTRA 1P, a classic wide-beam spacecraft. Both are scheduled for launch in 2024 to 19.2 degrees East to replace four broadcast spacecraft.

Luxembourg-based SES will deploy a total of 14 satellites in the near future, of which seven already have their launch dates set. Five of these are GEO satellites in the C-band spectrum and nine are satellites for its medium Earth orbit O3b mPower constellation. SES-26 is expected to launch in 2024 or 2025, SES said.

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NuRAN Wireless and MTN finalise agreement to deploy 150 new telecom sites in Namibia

MTN Namibia and Canadian telecom infrastructure provider NuRAN Wireless finalised an agreement signed in February for the deployment of a minimum of 150 telecom sites (2G, 4G and 2G/4G combined) in Namibia.

The 10-year agreement aims to provide mobile connectivity solutions through NuRAN's Network-as-a-Service (NaaS) model, in a bid to expand the operator's network presence in rural and suburban areas of the country.

The agreement is estimated to represent approximately US$60m in revenue over the life of the contract, assuming the 150 sites are completed. Under the terms of the agreement, the number of sites may be increased and will fluctuate as the project progresses. This will depend on factors such as penetration rate, average revenue per user (ARPU) and network charges that will be refined.

"We continue to make progress toward our goal of 10,000 contracted sites and the addition of these significant revenues to our projections will reinforce the growing core value and help solidify NuRAN as the leading provider of mobile connectivity for rural and remote areas in Africa and ultimately around the world," said Francis Letourneau, president and CEO of NuRAN Wireless.

At the signing of the memorandum of understanding (MoU) in February, MTN Namibia chief executive officer Elia Tsouros said: "This is the beginning of an even greater infrastructure rollout in the country, offering unprecedented communication services in Namibia. These projects will also create opportunities for small local businesses to partner with MTN as we continue to expand our footprint."

New e-platform saves the lives of mothers

Tanzania has launched a system dubbed "M-Mama" that uses a mobile platform to connect pregnant women in rural areas to emergency transport in a bid to reduce maternal deaths.

The country's president Samia Suluhu Hassan introduced the system dubbed "M-Mama" that uses a mobile platform to connect pregnant women in rural areas to emergency transport in a bid to protect pregnant and postpartum women.

Funded by Vodacom Tanzania in collaboration with the Ministry of Health, the platform was introduced as a pilot in Shinyanga and Sengerema in 2017 where it helped a total of 12,000 mothers and children and reduced deaths caused by lack of emergency transport.

Speaking during the launch in Dodoma, Hassan said the platform was complimenting a 2017 government campaign known as "Jiongeze Tuwavushe Salama" which focused on a similar issue of reducing maternal deaths.

"The comfort I have today is to see this system we are launching today has gone to pilot and has produced positive results to save the lives of pregnant women and their babies, but also I heard processes are underway under the cooperation of the Ministry of Health and Vodacom to design a system that will track drugs from the manufacturer to the end users," she said.

This service will be rolled out in 14 regions under Vodacom funding, while the government has bought 233 ordinary ambulances that are expected to be deployed across Tanzania while another 25 with referral status are also expected to arrive.

"The pilot phase of the M-Mama programme, we managed to serve almost 10,500 women and 2,300 new-borns," added Sitholizwe Mdlalose, managing director, Vodacom Tanzania. "We registered 200 drivers and gave entrepreneurial training to 100 in the Sengerema District in Mwanza and Shinyanga. Childbirth is a joyous occasion as per many African traditions. It is a cause for celebration. No woman should have to give up her life to bring in the next generation. We can do better."

Mauritius Telecom partners with petrol body for cashless payment service

Mauritius Telecom has joined forces with the Petroleum Retailers Association to enable cashless fuel payment in filling stations via the my.t money service, free of charge for both customers and petroleum retailers.

Sherry Singh, chief executive officer at the telco said that as a commercial enterprise, Mauritius Telecom had to earn profits so that it could provide further innovative products and services. However, he averred that the best interest of the population was the basis of the partnership with the Petroleum Retailers Association.

Singh also affirmed that in line with its social responsibility and its role as catalyst for the economy, Mauritius Telecom had taken on this partnership and would enable the use of my.t money cashless service in filling stations without any commission levied. He recalled that my.t money was a mobile wallet that facilitated cashless payment and management of money through a mobile app and a payment card.

The announcement was made, this afternoon, at the Telecom Tower in Port Louis, in a joint press conference, by Singh and the President of the Petroleum Retailers Association, Bhimraj Sunnassee.

Telecom Egypt and AMS-IX launch EG-IX, the first Open Access Internet Exchange in Cairo, Egypt

Cairo, 1st April 2022: Telecom Egypt, Egypt's first integrated telecom operator and one of the largest subsea cables operators in the region, announces that EG-IX, the first open access internet exchange in Egypt, is live and available for customers as of today. The new Internet Exchange, powered by AMS-IX, is intended to enhance the digital experience of internet users in Egypt, Africa, and the Middle East.

EG-IX is hosted inside Telecom Egypt's largest certified tier III data center located in Smart Village in West Cairo and named Regional Data Hub (RDH). RDH is connected with advanced fully meshed network securing the access to 14 submarine cable systems, to be increased to 18 cable systems by 2025.

EG-IX is based on the IX-as-a-Service (IXaaS) solution offered by AMS-IX, the world leading interconnection platform service provider, and will act as an open access Internet Exchange Platform for large content delivery network, application and cloud providers and telecom carriers who are looking to enhance the digital experience of end customers in MEA region.

IXaaS solution supports Telecom Egypt to set up and run a state-of-the-art internet exchange point in Egypt capitalizing on more than 25 years of AMS-IX's experience in such field.

EG-IX Platform will support Telecom Egypt in its efforts to improve the quality of internet services in Egypt. Moreover, this exchange point will strengthen Egypt's position as an international connectivity hub, further highlighting the potential of the growing digital sector in the region.

Adel Hamed, Managing Director and Chief Executive Officer, commented:
"We are pleased to announce that EG-IX, which is hosted within the RDH, the largest tier III certified data center in Egypt is going live now in partnership with AMS-IX. The launch of the EG-IX platform will support Egypt's digital transformation plans. This step will not only enhance the country's internet ecosystem, but also support the ongoing regional efforts to establish a regional digital ecosystem that aggregates internet traffic from Africa and the Middle East."

Peter van Burgel, AMS-IX CEO, said:
"The launch of EG-IX is a great milestone for AMS-IX, Telecom Egypt and the Internet community. This new Internet Exchange will enable networks from all over the world to directly connect and exchange traffic, which will lower the cost of peering, reduce latency, and enhance the quality of the Internet for countless end users."

About AMS-IX

AMS-IX (Amsterdam Internet Exchange) is a neutral member-based association that operates multiple interconnection platforms around the world. Our leading platform in Amsterdam has been playing a crucial role at the core of the internet for more than 25 years and is one of the largest hubs for internet traffic in the world with over 10 Terabit per second (Tbps) of peak traffic. Connecting to AMS-IX ensures customers such as internet service providers, telecom companies and cloud providers that their global IP traffic is routed in an efficient, fast, secure, stable and cost-effective way. This allows them to offer low latency and engaging online experiences for end-users. AMS-IX interconnects more than 1000 IP-networks in the world. AMS-IX also manages the world's first mobile peering points: the Global Roaming Exchange (GRX), the Mobile Data Exchange (MDX) and the Internetwork Packet Exchange (I-IPX) interconnection points.

For more information, contact:
The Public relations team
Email: **bram.semeijn@ams-ix.net**

About Telecom Egypt

Telecom Egypt is the first integrated telecom operator in Egypt providing all telecom services to its customers including fixed and mobile voice and data services. Telecom Egypt has a long history serving Egyptian customers for over 160 years maintaining a leadership position in the Egyptian telecom market by offering its enterprise and consumer customers the most advanced technology, reliable infrastructure solutions and the widest network of submarine cables. Aside from its mobile operation "WE", the company owns a 45% stake in Vodafone Egypt. Telecom Egypt's shares and GDRs (Ticker: ETEL.CA; TEEG.LN) are traded on The Egyptian Exchange and the London Stock Exchange. Please refer to Telecom Egypt's full financial disclosure on ir.te.eg

For more information, contact:
The investor relations team
Email: **investor.relations@te.eg**

Airtel Tanzania invests in 4G network expansion

Mobile network operator Airtel Tanzania wants to expand its upgraded 4G network coverage across the nation to provide people with better services.

The company said it has completed the upgrade of more than 80% of its 4G sites in major regions of Tanzania and wants to continue investing to roll out the high-speed data network throughout the country.

"We have also significantly increased our coverage by increasing the number of sites in rural areas, in line with our commitment to provide affordable mobile services to all Tanzanians," said Dinesh Balsingh, managing director of Airtel Tanzania.

The company also unveiled investments in improving its data network capacity to provide faster download and upload speeds.

This move is part of the operator's two-year effort to improve the quality of service on the 4G network in response to strong consumer demand for broadband. The company initiated its "Supa 4G" project in February 2021, enabling it to offer people much better quality services, with Internet speeds of over 40 Mb/s. "Fast and reliable Internet will unlock great digital opportunities for our customers," Balsingh added.

The telco said that by improving the quality of service on the 4G network, it aims to build customer loyalty and attract new consumers who will increase its market share

and enable it to take over the top spot from Vodacom.

According to the latest data from the Tanzania Communications Regulatory Authority (TCRA), the

subsidiary of Indian telecom group Bharti Airtel is the second largest player in the national market with a 27.2% share compared to Vodacom's 29.4%.

Namibia: frequency bands allocated to operators will be reviewed every four years

The Communications Regulatory Authority of Namibia (CRAN) will review its frequency bands every four years, in accordance with the new guidelines of the International Telecommunication Union (ITU).

These guidelines promote cross-border interoperability and new technologies.

CRAN'S director general, Emilia Nghikembua (pictured), said the regulator "will amend frequency band allocations and regulations as necessary, following the appropriate regulatory processs". For example, spectrum licensees would be required to migrate to new frequencies

following the implementation of a new frequency band plan. The authority will deal with each migration on a case-by-case basis.

This initiative is part of one of the missions of the Communications Regulatory Authority, which is the management of spectrum designed to "facilitate the availability of spectrum to be used as a tool for the development of communication services and access to infrastructure of information technology and communication (ICT).

It comes just weeks after the regulator announced that it will suspend the award of new telecoms

licenses between October 1, 2022 and September 30, 2023, so it can assess the level of competition in the Namibian mobile market and determine the level of saturation.

With this initiative, the communications regulator wants to keep up with the latest regulatory trends and technological developments to ensure the efficient use of the limited telecom spectrum resource. "It is essential to ensure interoperability between systems and networks, to facilitate frequency coordination between countries and to establish international systems," said Nghikembua.

This initiative is also expected to help develop Namibia's ICT sector. It will contribute to social and economic development and enable governments and people to take advantage of the digital transformation and opportunities presented by the fourth industrial revolution.

Number of new cables connecting Africa growing massively, says report

Africa gained new undersea cables with a combined construction cost of U$12bn from 2016- 2021, with the continent continuing to benefit from new investment for years to come, according to a report.

TeleGeography, a global telecommunications market research and consulting firm, has published its new *Submarine Cable Map and Africa Telecom Map for 2022* and projects that subsea cable spending will strengthen as hyperscalers shift their position from generating demand to

generating supply.

"Our research has shown constant advancement year-on-year, as pressure for bandwidth continues to grow," says Alan Mauldin, research director at TeleGeography. "Content providers' international bandwidth growth has accelerated as of late. Companies like Meta, Microsoft, and Netflix have millions of users who are driving up demand every day."

TeleGeography's regional *Africa Telecom Map* highlights 71 cable systems connected to Africa that are currently active or under

construction. The map covers used bandwidth, internet capacity, pricing trends, and content provider investment in both cable systems and cloud data centres. Broadband and mobile penetration rates for each of the 54 countries in Africa are also included in the main projection.

Notable cables featured in the new design include the African submarine cable consortium project 2Africa, which will extend 45,000 kilometres and link 33 countries in Africa, the Middle East, and Europe. This new cable could enter service

as soon as 2023. Also included is Google's private cable Equiano – initially linking Portugal, Nigeria, Namibia, South Africa, Togo and St. Helena, but could expand to many other countries.

Intelsat picks Gilat for DRC rollout

Integrated terrestrial and satellite network operator Intelsat has selected Israel's Gilat in a "multi-million dollar deal" to deploy satellite cellular backhaul for an unnamed telecom company in the Democratic Republic of Congo (DRC).

Although the names financial details of the deal remain undisclosed, the country has four main telcos — Africell, Airtel, Orange and Vodacom.

The implementation brings mobile services to deep rural sites in the DRC, the companies said.

Intelsat said it deployed its CellBackhaul service with Gilat's SkyEdge II-c platform and Capricorn VSATs (very small aperture terminals), connecting with a Ku-band satellite to bring mobile communications to nearly 1,000 previously underserved and unserved remote sites.

"Intelsat values its ongoing partnership with Gilat, working together to bridge the gaps that other technologies and solutions can't address," said Brian Jakins, GM, and VP of networks, Intelsat.

With Gilat hubs and VSATs, Intelsat's CellBackhaul satellite cellular backhaul solution combines the extended reach and resiliency of Intelsat's global network with network design, installation, and operation services, making it possible for mobile network operators to deploy services in areas where traditional terrestrial backhaul services are unavailable.

"We are proud to have been selected by Intelsat to participate in this project to enhance and upgrade rural communication services," said Amir Yafe, VP of mobility & global accounts at Gilat. "When viewed alongside implementations in other regions, it's easy to appreciate the growing strength of Gilat's technology and leading satellite backhaul solution, ideally suited to the specific needs of all mobile networks, including future deployments for 5G."

DRC is geographically the second-largest nation in Africa, with a growing population of more than 90 million people.

Talking satellite

Martin Jarrold, chief of international programme development, GVF

25 years… and counting

As I sit to write this column more than one-twelfth of 2022 has already become history. The year is a significant one for GVF as it is the organisation's Silver Anniversary, and we are celebrating a quarter century as the only global trade association representing the entire satellite ecosystem. We have tweaked our logo design to point-out this anniversary milestone, launched a new version of our membership newsletter – now called GVF FOCUS – and resumed our acclaimed Webinar Series, as well as launching an industry-wide marketing group called #GenSpace.

#GenSpace is all about increasing awareness of satellite industry innovation and correcting misperceptions about satellite connectivity. This is being achieved through leveraging the combined marketing power of GVF member organisations – rather than promoting specific company proprietary messages – fostering greater understanding of common and pan-industry trends. Example topic areas include developments in software designed satellites in the space segment, multi-orbit antennas/modems in the ground segment, Cloud-based partnerships in delivering applications, and standards-based networks in enabling infrastructure deployments.

GVF member companies will share facts and stories showcasing the power of satellite innovations that help meet the ever-increasing global demand for connectivity and you can follow this information and knowledge trail under the hashtag "#GenSpaceGVF" on GVF's Twitter and LinkedIn accounts.

Of course, fulfilling the mission to explain and inform has been what has driven the GVF Webinar Series. Since its inception in May of 2020 the Series was the GVF response to the travel limitations of Covid-19, and despite relaxations of such restrictions the global popularity of the Series mandates that we continue with it. The first of the 2022 Webinar Series covered the difficult subject of spectrum regulation – but from an unusual angle.

During 'Spectrum Regulation and Business' an audience from 52 countries had the opportunity to interact with an expert line-up comprising Jennifer Manner of EchoStar, Alex Epshteyn of Amazon, Mohaned Juwad of Intelsat, and Daniel Mah of SES, on how decisions made on global satellite spectrum matters impact satellite businesses everywhere. Starting with an appraisal of how the decisions coming out of WRC-15 and WRC-19 impacted the panellists' companies and the wider industry's bottom line, the dialogue went on to cover how spectrum experts in satellite companies work with colleagues on the business side to develop strategies to secure new spectrum or preserve existing spectrum rights. The global audience posed numerous questions, many answered during the webinar (which you can watch at https://gvf.org/webinar/spectrum-regulation-and-business/ and others answered in writing, post-webinar, which also can be seen using the above link.

An upcoming topic in the Webinar Series (webcast on 24 February 2022) is 'NGSOs: Not Just for New Entrants'. This event will look at how much of the traditional GEO operator community (e.g., Echostar/Hughes, Eutelsat, Inmarsat, Intelsat, SES, Telesat, Viasat) is looking to NGSO to bring an extended range of connectivity options, to offer new services, and to ensure that their market offerings more clearly mirror the demands of an increasingly broadband, increasingly mobile-centric world where the terrestrial and non-terrestrial meet. The discussion will examine the NGSO strategies of traditional GEO operators, understand the respective rationales, and explore the evolving characteristics of a space segment in flux.

Over the almost two-year history of the GVF Webinar Series we have covered issues directly, or indirectly, related to Humanitarian Assistance and Disaster Response, a topic of prime importance in the satellite world. Though not a GVF Series webinar, I will in mid-February have the pleasure of moderating a webinar – 'Advancing Disaster Resilience through Game-Changing Emergency Telecommunications' – in the REDCON Asia Webinar Series which is leading up to the 'Resilience on Emergency and Disaster Conference', taking place 7-9 December 2022 at the United Nations Conference Centre, Bangkok.

Although this webinar and the Conference are Asia-Pacific-centric, the subject matter and principles to be covered are universal issues for all regional geographies – particularly those most likely to be affected by natural disasters but also those affected by human-made disaster – where the imperatives of rapid deployment of emergency and restorative satellite communications apply. The webinar's wide reaching dialogue will feature as panellists Simon Gray, Senior Vice President, Civil Government with Eutelsat; Yasir Hassan, Director of Transmission Operations with Arabsat; and Vaibhav Magow, Associate Vice President with Hughes Network Systems.

Finally, I mentioned above our re-branded newsletter (sent to Members and other subscribers), GVF FOCUS. A feature of GVF's anniversary celebrations included in the fortnightly issues are recollections from satellite industry executives who have been instrumental to the foundation, development and growth of the association and you may be interested to read the perspectives of Jack Buechler of Talia, who first had the idea for a global satellite industry association ("As I recall…" - https://gvf.org/news/as-i-recall-jack-buechler/) and of David Hartshorn, now with Geeks Without Frontiers, who was GVF's first Secretary General ("Happy Birthday, GVF" - https://gvf.org/news/happy-birthday-gvf-david-hartshorn/).

Until next time, stay well and stay safe!

Cameroon suspends unregistered SIMs

Cameroon's mobile operators recently suspended 891,082 phone numbers deemed non-compliant, the country's telecom regulator ART said.

The suspended numbers represent about 3.34% of the 26,623,923 registered phone numbers in the ART's identification database. However, 94,882 other non-compliant numbers are active pending the regularisation of their situation.

ART said those numbers deemed non-compliant are usually registered under fake names using fake identification documents or even documents lost by their real owners. When numbers are registered under fake names, it becomes difficult to trace the user when crimes are committed using them.

To protect citizens against the sheer number of crimes committed using phone numbers (thefts, blackmail, defamation, cybercrime,

etc.), the government introduced regulations governing communication. On December 21, 2010, a law was adopted governing electronic communications and on September 3, 2015, a decree was issued making it compulsory to identify mobile subscribers.

The introduction of those regulatory frameworks means security services can find the user of a SIM card when need be and catch criminals who use phones for illegal activities. It also helps operators know who their subscribers are, identify them during emergency calls, facilitate access to roaming and even prevent the use of SIM cards for acts that undermine public security.

Airtel Kenya pays US$17.6m to renew licence

Airtel Kenya has agreed to pay the US$17.6m demanded by the Communications Authority of Kenya (CAK) to renew the company's telecom licence, marking the end of a seven-year legal battle.

When its licence expired nearly seven years ago, the subsidiary of the Indian group Bharti Airtel had switched to the license of YuMobile, a telecom operator it bought from Essar Telecom and whose license expires in 2025. The move was denounced by CAK, which opened legal proceedings against Airtel's Kenyan unit.

"We have had this long-standing dispute with Airtel over the Essar transaction," CA managing director Ezra Chiloba told local media. "The dispute has been there for seven years. But I am glad to report that we struck a deal and this is a major achievement for us."

Airtel Kenya made its first payment so that the telecom regulator ends the legal proceedings. The second payment is expected to be made before 2024, the deadline by which Airtel Kenya must complete the divestment of 30% of its equity to local investors per the new telecoms

licensing requirements unveiled in April 2021 by Joe Mucheru, the cabinet secretary for the ICT Ministry.

Prior to the new regulations, telecom operators were required to open 20% of their capital to local investors. Airtel Kenya, which had enjoyed an exemption since 2013, is now included.

Meanwhile, Airtel Kenya and Telkom Kenya have been fined a total of Sh37.7m for failing in service quality in the last financial year.

The former parted with Sh26.3m while Telkom Kenya was hit with a Sh11.4m charge for failing to meet the standards pass mark stipulated by the Communications Authority of Kenya (CAK).

"The threshold for compliance is 80% and operators that do not attain this mark will be subject to a penalty of 0.1% of turnover," said the regulator.

Mobile network operators are evaluated on quality of voice, speech, network coverage, quality of data and SMS, among others.

Safaricom's average performance stood at 95.3%, while Airtel and Telkom stood at 67.4% and 67.2% respectively.

MTN Uganda reports jump in pre-tax profit

MTN Uganda reported a 6.6% jump in pre-tax profit for 2021, compared with the previous period, helped by higher data sales and faster uptake of its fintech services.

The operator said it earned USh490.9bn (US$136.93m) in 2021 and attributed the profit growth to a jump in data sales of 21.9%. That figure was underpinned by improvements in broadband coverage and growth in active data users.

"We undertook an aggressive deployment of 3G and 4G sites," the company said in its results statement.

Elsewhere, there was also strong growth in the firm's financial technology services, especially in mobile money services. The company added 1.5 million subscribers in 2021.

Meanwhile, MTN Uganda reinforced its partnership with connected asset financing platform M-KOPA, to avail smartphones at installment payment terms as a way of making them accessible to people who may not be able to pay upfront.

The introduction of "Pay MpolaMpola" will avail people of 4G devices from a wide range of 11 assorted Samsung and Nokia devices.

Court ends dispute in case of THC chairmanship

The North Tripoli Court has rejected a judicial appeal by the former chairman of the board of directors of the Telecom Holding Company, regarding the invalidity of the decision to remove him from the chairmanship of the holding company's board of directors.

Faisal Qarqab was also told to pay the expenses, to end the legal dispute that arose after the government re-formed the board of directors of the company that monopolises the telecommunications sector in the country. Mohammed bin Ayyad is the new chairman of the THC.

The Libyan Deterrence Apparatus arrested Qarqab after he, accompanied by an armed group, stormed the office of the THC's board of directors.

Nigeria's Pan African Towers issues bonds

Pan African Towers, the Lagos-headquartered telecommunications infrastructure operator, has established a bonds programme worth ₦50bn (US$120m) and made a first issuance of ₦10bn (US$24m) in fixed rate infrastructure bonds.

The company provides infrastructure and wireless services for broadband and mobile telephony among others.

Due 2032, the bonds were guaranteed by Infrastructure Credit Guarantee Company (InfraCredit) and oversubscribed by 127%. Funds raised will go towards new telecoms towers built in a more environmentally friendly fashion, aimed at reducing emissions.

"PAT's ambition is to be the number 1 indigenous wholly-owned digital telecommunications infrastructure and wireless service facilitator in Nigeria," chairman of Pan African Towers, Wole Adeleke, said in a statement. "In the last three years that we commenced business, we have demonstrated capacity to achieve faster growth in the number of our rental assets, with solid top and bottom-line performance supported by long-term contracts with leading market leaders in mobile telecommunication and internet service in Nigeria."

Chief executive officer, InfraCredit, Chinua Azubike added:

"The need for digital connectivity is more essential than ever as Nigeria accounts for over 27% of all internet usage in Africa, and much of this internet access are powered by telecommunication infrastructure service providers like PAT. This transaction strongly demonstrates the especially important role of the local pension funds in the allocation of long-term domestic credit to the private sector for sustainable development."

Kenya: Everstrong bids for majority stake in SealTowers

US investment fund Everstrong Capital signed undisclosed deal with Kenyan telecom tower operator SealTowers to secure a majority stake in the company.

Channelled through the Everstrong Kenya Infrastructure Fund, this latest investment will form part of Everstrong Capital's US$12.5mn financing package to roll out an additional 200 telecom towers in rural and urban Kenya between now and 2024.

"We believe that the partnership with Everstrong Capital will enable us to tap clinto massive opportunities in the telecommunications sector in both urban and rural locations," said Tony Monda, founder and chief executive, SealTowers. "The expansion of 4G and 5G networks will require many more infill tower sites to support networks. In addition, large buildings, malls, commercial and educational institutions provide an opportunity for in-door network solutions and provide expansion opportunities for SealTowers."

The agreement also aligns with the trend of outsourcing telecom infrastructure, which has accelerated since 2019, when many telecom operators prefer to focus more on their core business and offer innovative telecom services.

As part of its partnership with SealTowers, Everstrong will provide its experience and skills in structuring, capitalising, and managing businesses. In return, it will benefit from SealTowers' expertise in telecommunications, design, engineering, deployment, and tower management.

'Ethio missed financial targets in H1 2021 over security challenges'

Ethio Telecom (ET) announced it missed its financial targets for the first half of 2021 by 13.6%, mainly due to security issues, according to the company's chief executive officer, Frehiwot Tamiru.

She revealed the news January 31 during the presentation of the company's financial results for the period from July to December 2021.

Revenue over the period amounts to Br28bn (US$565m), up 6.7% compared to the same period in 2020.

ET says it has missed its expected financial performance due to security challenges in Ethiopia, particularly the Tigray region.

"Due to crises, 3,473 base stations were out of operation resulting in a revenue loss of Br3.67bn (US$74m)," the company said. "The restoration in those areas where recovery was possible cost us Br328.9m, but there are still many woredas [districts] remaining, including the Tigray region where we cannot provide our services and the conditions and status of our telecom infrastructures are not known."

The company further said that it has reached 60.8 million users, which is 100% of the expected target and an increase of 20% compared to the same period in 2020. Mobile voice subscribers have reached 58.7 million, Internet subscribers 23.8 million, fixed services have recorded 923,000 subscribers and there are 443,000 fixed broadband subscribers. This represents a telecom density of 58.5%.

'Airtel Uganda plans IPO by 2022', says MD

Airtel Uganda, the east African country's second largest telecoms company and a unit of India's Bharti Airtel, plans to list a part of its equity by the end of this year, according to its managing director.

The company renewed its operating licence in 2020, with one of the conditions for the new licence being Airtel Uganda to list at least 20% of equity on the local bourse.

"We will be listing in Uganda stock exchange most probably by December of 2022," Airtel Uganda Managing Director Manoj Murali, told local NTV Uganda.

The firm has about 10 million subscribers and is the second biggest operator after a unit of South Africa's MTN Group, which boasts circa 15 million subscribers.

WIRELESS BUSINESS

Tanzania: French firm launches Sh64bn investment in speedy internet

Konnect Broadband Tanzania, a subsidiary of Global Eutelsat Group,is planning to invest €25 million (Sh64bn) in high-speed satellite broadband over the next 15 years.

Tanzania is among countries in sub-Saharan Africa that will benefit from the new satellite broadband with speeds of up 100 megabits per second, as a result of the investment.

"We are investing €250m in 40 countries in Africa whereby 10 % of the capacity of the satellite is in Tanzania," said the company's general manager in Africa, Philippe Baudrier.

As a direct result of rolling out their service, which is meant to up the internet penetration in the country, he said, some 100 jobs are expected to be created though partner sales, service and installation.

As of January this year, statistics from Tanzania Communications Regulatory Authority (TCRA) shows that the internet penetration reached 50% with 30 million people currently using the internet.

"We are not here to compete, but compliment what others are doing," Baudrier added. "Based on our research there is a need for high-speed internet everywhere."

He revealed that Konnect internet services are designed to bolster the development of various economic sectors such as farming, tourism, education and healthcare.

MTN invests $46.4 million in new infrastructure in KwaZulu-Natal

MTN South Africa has announced a new investment of R700m (US$46.4m) to upgrade its existing network infrastructure and deploy new ones in the province of KwaZulu-Natal.

This will include 4G and 5G expansion and restoration of vandalised network infrastructure.

"MTN's investment in KwaZulu-Natal is part of MTN's overall network modernization plans, of which 68 percent has already been completed nationwide, with an additional 1,350 sites to be finalized, and approximately 200 peak areas covered across the country, by the end of 2022," said Matthew Khumalo, MTN's managing director for KwaZulu-Natal operations.

This latest in KwaZulu-Natal is in addition to the R270m and R500m the telco is investing in the region in 2020 and 2021 respectively. These various investments are in line with MTN's rural connectivity rollout objectives to bring telecoms services to people in the most remote areas of South Africa.

"We currently have over 900 active 5G sites across the country," said Khumalo. "In an effort to close the digital access gap in South Africa, our goal is to cover 20% of the population by the end of 2022."

Botswana launches a US$12.7m project to get 500 villages online

The government of Botswana has unveiled plans to connect a total of 500 villages to the internet at a cost of US$12.7m

The SmartBots project will be implemented in phases as villages with a lower than 5,000 population will be connected through the User-Activated Soft Fork (UASF). For that purpose, the government will provide subsidies to mobile operators.

Villages with a population of 5,000 or more will be upgraded to 4G and beyond through regulatory interventions by the Botswana Communications Regulatory Authority (BOCRA). In its first phase, the project will provide internet access in 61 villages with minimal access to back-haul infrastructure electricity for broadband internet.

The SmartBots project is in line with the National Broadband Strategy (NBS) launched in 2018 by the Botswana government as part of its digital transformation process. It is expected to enable approximately 1.2 million Botswanans to access broadband internet and digital services through Wi-Fi hotspots available in public places. According to the government, the project will enable citizens to actively participate in the development of the digital economy. SmartBots will also provide many employment opportunities and allow the youth to compete globally.

Liquid Telecom unveils new LIT identity in Tanzania

RAHA Liquid Telecom has officially unveiled its new identity in Tanzania – Liquid Intelligent Technologies (LIT).

The rebrand is part of the extensive business transformation from being just a telecommunications service provider to a full one-stop-shop technology group for local businesses.

A subsidiary of Cassava Technologies, Liquid has over the last 20 years established itself as a leading pan-African digital infrastructure provider with an extensive network spanning over 100,000 kilometres.

RAHA's rebrand to LIT highlights the organisation's commitment to digitally transform the continent through its cloud business, cybersecurity services in addition to its existing telecoms and connectivity capability.

"The evolution of the RAHA Liquid Telecom brand to Liquid Intelligent Technologies opens up numerous opportunities and is a step towards the creation of a digitally-led economy," said Denny Marandure, chief executive officer (CEO), LIT Tanzania. "Liquid has always believed that public-private partnerships are critical for economic development, and our organisation has successfully partnered with governments across the continent. We are looking forward to partnering with the Government to help reach the ambitious goals set that are the foundation of Tanzania's long-term success."

Adil Youssefi, regional CEO, LIT east African Markets, added that "the rebrand is our reaffirmation to all our customers in Tanzania that we are a one-stop-shop technology service provider" bringing intelligent services such as cloud computing, managed services, cybersecurity. "We have brought intelligent technologies to the rest of the continent, and we are confident that our presence in Tanzania will ensure a digitally connected future for all Tanzanians," he said.

Zain South Sudan selects Tecnotree for digital BSS transformation

Zain South Sudan has selected Finnish firm Tecnotree's BSS suite for a major digital transformation initiative.

The latter will implement its complete range of BSS Suite products and services, providing Zain with a new set of capabilities such as advance customer experience, quick time to market with new unified product catalogue, convergent billing and charging solutions, as well as other key solutions. The deal expands on an existing agreement between the companies signed last year.

This deployment will help drive the digital transformation of Zain's current legacy products and BSS infrastructure, making them 5G-ready. Tecnotree said it will be involved in delivering licences, implementation services, and support services. The firm's solutions and experience will enable the operator to improve operational efficiency, sustain rapid growth and redefine their customer experience.

"This partnership with Tecnotree… will help us update our BSS infrastructure in order to unlock our digital transformation strategy," said Khalid Abdalla, chief executive officer (CEO), Zain South Sudan. This implementation will be a first step towards facilitating our business processes efficiently, and achieving our goals to provide innovative services to our customers."

Padma Ravichander, CEO Tecnotree added: "It is a testament to Tecnotree's growth and expansion as well as our commitment to using our market-proven framework of products and services to provide premium digital experiences. This is yet another chapter in our success story and gives us the motivation to continue providing our clients with state-of-the-art products and solutions."

Talking critical

Hauke Holm, VP solutions & product management, DAMM Cellular Systems A/S

Time to re-think network PMR/LMR? A new approach

For many generations the design of PMR networks have been built in the same way, continuing to this day. Network coverage is achieved with traditional indoor base stations consisting of an antenna system (including cables), transceiver, base station controller, power supply and a battery backup system (UPS). All components are typically doubled to provide maximum availability for mission and business critical users.

The drawback of such a solution is that the complexity of different components in a base station requires a lot of space and therefore a shelter is a requisite to host all the equipment. In most cases also an air conditioning unit is required to create a comfortable environment for the electronic equipment. Along with such a solution, spare part management becomes a challenge as every single component must be locally available so in case of a failure the component can be replaced immediately. With component scarcity in mind an operator needs to have enough spare parts at hand to maintain the availability of the radio network – a difficult and expensive exercise.

But not only is it expensive it is also not the ideal solution. Users are expecting the network to be available at all times. If a component fails, the redundant part is expected to take over to provide the same service. Users expect seamless operation, however in reality, this is not provided. In most cases a failover will cause down time and therefore service interruption. If for example, a base station controller fails, the system will need time to detect the failure. A typical value for detecting this kind of failure is 30 seconds. After this period the second base station controller will take over which usually requires keying down the carriers. Radio users will therefore lose the connection and have no service for quite a while.

With that in mind how could this be improved?

If we compare commercial networks developed over time, starting with 1G (analog) and 2G (GSM) to today's 4G and 5G networks, we find that up to 3G (partially) they were built in a very similar way to PMR networks. Depending on the operator the requirements for battery backup systems and redundancy in general were different but otherwise we find the same kind of shelters, air conditioning etc. required to build a site. But with 3G a significant change is noticeable. The amount and size of equipment were significantly reduced. First to a size where much smaller and simpler outdoor shelters were useable and later to outdoor base stations, to a point where they replaced indoor base stations completely.

Obviously, the requirements for commercial networks are quite different from private networks. But on the other hand, also a commercial operator wants to provide 24/7 operation and service to their customers. So, in some way the requirements are overlapping as availability is key for both.

But how can that be achieved?

First the radio cell can be reduced to the bare minimum of components, basically to a single box and an antenna. As the Mean Time Between Failure (MTBF) is degraded the more components are put in series, reducing the number of components therefore improves the MTBF and so the overall availability.

Second, the complex indoor base stations with all those extra components have a much more inferior MTBF compared to outdoor base stations. In short, less complexity means higher MTBF. On top of that the quality of the parts used and today's manufacturing provides a much higher accuracy and control over the manufacturing process which further improves the quality and so the MTBF.

With all this we can see the MTBF of a modern outdoor site is superior to the classical way of building radio coverage with indoor base stations.

Now you might say that in case of a failure there will be no coverage. But it is not as simple as that. In modern commercial networks all services are IP based and the throughput achievable depends mainly on the signal quality or in other words the distance between base station and radio user.

Commercial networks are built with cell overlap. In case of a cell failure, coverage will remain and data throughput will be slightly reduced, most of the time not even noticeable for the users. However, for the operator there are great savings on maintenance and operation:

- no batteries
- no air conditioning
- very small spare parts stock
- much less energy cost

Most PMR (/LMR) vendors have outdoor base stations but they are not as commonly used as indoor base stations and often only used to fill coverage gaps.

But how can PMR networks leverage from the developments happening in commercial networks? How can this approach be used in a narrowband network?

Very simple: Build your network with outdoor base stations.

Seriously, with a decent cell overlap the requirement for local redundancy becomes redundant. And even better you will get a georedundant system with a much higher availability compared to the traditional approach and lower cost at the same time.

Furthermore, a georedundant system will perform better in case of transmission failure since there is also implicit redundancy on the transmission path. And last but not least, cell overlapping will provide significantly better protection against complete base station outage e.g. due to natural disasters, terrorist attacks or any other force majeure incidents.

Unfortunately, public tenders for PMR networks are often explicitly demanding indoor base stations and redundancy at the component level. It would be much better to change this requirement into something that is relevant for the users – AVAILABILITY.

All those redundancy requirements have been designed more than 20 years ago, at a time when outdoor base stations did not exist. But a lot has changed since then. A variety of different outdoor base stations (single carrier, multicarrier, high TX power, radio head only, all in one etc.) have been developed by different vendors and they have been successfully proven under various conditions in hot, in cold, under salt spray etc. to name but a few.

So next time you are planning a PMR network you might want to consider this approach and benefit from the advantages this brings. It is the right time to re-think network design.

NURAN WIRELESS

MAKING WAVES TO RURAL'S BENEFIT

"You need a service that only costs the user a few dollars a month and is functional where there is no electrical infrastructure in most cases."

- *Francis Létourneau*, CEO NuRAN Wireless

For over two decades, many have tried bringing connectivity to the rural communities, and many promises remain unfulfilled. The digital status quo remains, and there's little to no progress in this area. Until now! NuRAN Wireless, the new kid in town is making waves, radio waves, to change the face of rural connectivity and here's the story of how they started succeeding.

From its inception, NuRAN set out to connect the unconnected with a particular focus on rural areas. Many organizations diagnosed the problem, few understood how to solve it, and even less had the grit to remedy it. NuRAN embarked on the rural connectivity journey many years ago, a long and winding road with many obstacles. NuRAN overcame these, each time growing wiser and more experienced. NuRAN is here now, stronger than ever, to help all interested parties bridge the Digital Divide.

Over many years and projects, NuRAN learned the connectivity challenges that plagued rural areas. More importantly, NuRAN realized RAN is the common denominator to set the minimum requirements of all network site infrastructure, equipment, and services. Hence, the design and development of purposely built radio access equipment for rural remains at the company's heart.

"*Our solution makes it possible to cover low-income regions while ensuring a profitable model. You need a service that only costs the user a few dollars a month and is functional where there is no electrical infrastructure in most cases. Phones must be able to operate for several days on a single charge,*" explains Francis Létourneau, NuRAN's president and CEO.

NuRAN approached MNOs far and wide to provide the much-coveted RAN equipment to unlock their ability to cover rural areas, or at least that was the belief. The interest was there, but sadly the desire to provide rural connectivity did not outweigh the financial burden. Although MNOs are best poised to provide rural coverage, it does not mean it is easy for them and, to a large extent, is incompatible with their

business and operating structure. Contrary to belief, MNOs are not solely responsible for covering rural areas. Nevertheless, pressure is building.

NuRAN realized financing was the missing piece of the puzzle to the connectivity conundrum. Behind NuRAN are unsung heroes in the form of investment organizations and individual investors who have carefully evaluated NuRAN's solution and supported its mission to bridge the digital divide. NuRAN offers its customers the possibility to finance their projects and, in return, share the profits. Typically, assets are gradually transferred to the customer over ten years, but NuRAN Wireless continues to manage them.

"*It all started when I proposed a NaaS model (Network-as-a-Service) during a pitch. One where we would finance and operate the rural networks. It had always been a project, so I decided to test this idea out with the client. Compared to other larger equipment manufacturers, this is what [had tipped the scales in our favour] and now defines our entire business!*" explains Francis Létourneau.

Regional development and reconstruction banks financially support NuRAN Wireless. These allow the Quebec equipment manufacturer to assume the costs of deploying its networks. For suppliers, amortizing these projects over several years without massive capital investment at the start is a plus. "*This is where we add value since it is also financially advantageous,*" says Mr. Létourneau.

NuRAN has not only found a way to make a difference in rural communities, but its solutions meet many of the Sustainable Development Goals (SDGs) proposed by the UN to reduce world poverty and inequality.

"*Our company qualifies as an ESG solution [considers environmental, social, and economic criteria, Ed]. It is not a coincidence. We are achieving 11 of the 17 UN Sustainable Development Goals. We are telecom hippies,*" exclaims Mr. Létourneau.

"*It is gratifying to go to bed at night and feel you are changing things,*" adds its vice-president responsible for business development, Denis Lambert.

NuRAN Wireless is currently present with ORANGE in the Democratic Republic of the Congo and Cameroon. The project has already commenced, and the deployed towers are providing essential and promising data and penetration rates exceeding all expectations, proving that rural connectivity is crucial. The Quebec company also holds contracts in South Sudan and Namibia with MTN, for a total of 2642 towers under contract with both major MNOs. NuRAN targeted a significant project of 10,000 antennas covering up to 21 countries. "*We are currently covering 480,000 people. We hope to cover 55 million people within five years,*" says Denis Lambert.

Digital communication is no longer a luxury but an indispensable tool for our way of life. In fact, some countries treat it as a fundamental human right. There's a new kid in town making waves, radio waves, but not to be taken lightly. Bridging the digital divide is not child's play and not for the faint-hearted. It takes courage and determination, great technical and financial partners, and innovative technologies and business models. NuRAN has set out to change the face of communication in rural areas. Come and join the movement!

www.nuranwireless.com

Mobile broadband for all: what we've learned over the past two years

The Covid-19 pandemic that began in 2020 was a destructive force that irrevocably changed the way we live and work. However, it was also a catalyst for something we didn't expect for a few more years, writes Nora Wahby vice president and head of Ericsson west Africa & Morocco

It was an almost surreal experience visiting the Mobile World Congress in person for the first time since 2019. That's because things have developed in a way that we could not anticipate. When we look down the line two-years-ago, we did not expect a pandemic to occur in the way it did and the incredible impact it has had on our day-to-day.

So, technically we have seen a substantial growth with regards to mobile broadband demand throughout the last two years. The reliance on connectivity was a business continuity fall back plan for many businesses. A high demand was put on the mobile network quality and capacity to cater for remote working.

We've seen a lot of governments taking decisions of opting into online education, this has put additional speed and bandwidth requirement on the network.

The decision of going online has accelerated the digital transformation that many industries have been struggling to take for few years before. We can comfortably say that the pandemic has been one of the biggest catalysts for digital transformation in this era.

The pandemic has also put an additional requirement for a quicker development of the mobile broadband networks because everything that used to happen in certain defined geographical locations has transited into the home. As a result, there is an additional requirement in terms of readiness and capacity on the CSP networks, obviously, so the uptake of broadband has been unprecedented.

While the pandemic has caused some major problems for countries all over the world, I can say it has been a catalyst. The transformation, as in where we are today, would have

taken a lot longer had the pandemic not happened. So, whether it's good or bad, the transformation is one we expected over a much longer period – instead, it has accelerated.

I cover West Africa and Morocco, where fixed networks are underserved, mobile broadband has been the substitute big time. For example, we've seen an increased offering of fixed wireless access (FWA). People want to be connected at home and there's a lot of innovation around FWA to substitute the absence of fibre. That is providing a similar – sometimes better quality – and at a lower cost and a quicker time to market.

The growth in west Africa has been very important – by that I mean sub-Saharan Africa – where CSPs had the ability to quickly deploy, they have seen enormous growth and a good return.

So, do I think Africa will achieve universal internet access by 2030?

Judging by what we've experienced over the last two years, I don't see why not. There is a will, but let's not forget the pandemic has posed major economic challenges, which are translated into the operator's income.

It's also about how the African continent is going to survive after the pandemic, how quickly it will return to growth and how the entire global community is going to support Africa with vaccines. Africa also needs to recover from this as quickly as the rest of the world is and so progress in this space is down to a combination of a lot of different things.

The obvious diversity in Africa – different terrain, politics, economics, and demographics – also combine to make mobile broadband roll-out faster in some countries and slower in others. It also comes down to policy; how the regulators are
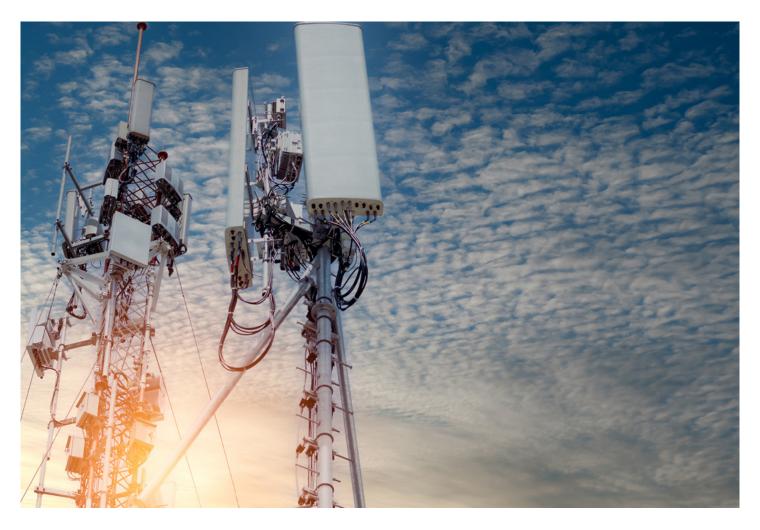
technically supporting the CSPs to have access to the right frequencies at the right cost and speed up the enabling of this broadband.

In a few cases where we have seen regulators adopting a policy that underlines the fact connectivity is an economic growth engine and it's not only a way to sell spectrum, but Mobile broadband has also been looked at as an engine to accelerate economic growth, to create more business opportunities and to use innovation to resolve local challenges.

A concrete example is Mobile Financial Services where mobile money is helping to bank the unbanked, increasing the reach of banking services beyond the normal reach of the traditional banking system but also create opportunities to bridge the digital divide and contribute to the welfare of the people.

When you have a clear strategy and market commitment, which is aligned with the country policy, the recipe is way more successful. ■

The long road to going green

Energy, climate change and the environment continue to make headlines and the telecom sector is one of the biggest offenders when it comes to pollution. Robert Shepherd finds out what African telcos and towers are doing about going green

The environment is always – pardon the pun – a hot topic. From climate change and the filth that we continue to pump into the air, to tenacious campaigners gluing themselves to trains, there's always something to furrow the global brow.

Now that COP26 is behind us, countries around the world start to make promises about how they are going to meet various net - zero deadlines. You know COP? It's that event to which world leaders and other people in authority burn fuel by the gallons on private jets in order to tell the rest of us how the problem is going to be addressed.

While the aviation industry quite rightly takes one for the team when it comes to the biggest recidivists in the world, the telecommunications sector certainly has a lot to answer to in this space.

Mobile operators and the GSMA are taking collaborative action to be fully transparent about the industry's carbon emissions and have developed an industry-wide climate action roadmap to achieve net-zero greenhouse gas (GHG) emissions by 2050, in line with the Paris Agreement. The GSMA says that globally, more than 50 mobile operators now disclose their climate impacts and GHG emissions via the internationally recognised CDP global disclosure system. The mobile sector has also

been credited by the UN for achieving a critical breakthrough towards its mission of combatting climate change.

If we take sub-Saharan Africa as an example, the use of diesel generators to power mobile towers in off-grid locations and for back-up power in urban areas where public power supply can be irregular is a notable source of GHG emissions.

However, as far as the world's second largest continent is concerned, one opinion is that we shouldn't be too hasty to harbour expectations or indeed judge, as there are lots of variables at play.

"Making generalisations about a continent as diverse as Africa is difficult," argues Rami Reshef,

chief executive officer, GenCell. "Attitudes towards green power (and its deployment in telecommunications) vary greatly across the region. Oil rich nations such as Nigeria are still very much dependent on diesel while Morocco, for example, has made huge strides towards solar and wind energy."

Indeed, Reshef points to the fact that "some countries that have hydropower are leapfrogging from fossil fuel-based grids" to clean power. "Certainly, the enormous capacity of sun and wind over the continent create for Africa enormous potential for production of renewable energy, supporting much discussion about enabling export of renewable energy from Africa to Europe," he adds. "But, in general, the transition to renewable technology in Africa is slow – the adoption cost and skills required to build and use clean power can be a limiting factor."

Although, as Reshef puts it, migration to renewable energy in Africa is "slow", Alessandro Ravagnolo, partner, Analysys Mason, says "there are many examples as most towercos - at least those that manage power – are moving to hybrid solutions to reduce their dependency on diesel and reduce costs". He adds: "It is not just a matter of reducing diesel consumption, but also reducing the truck rolls required to re-fuel tanks. This is particularly important in emerging markets where power grids are not ubiquitous and/or do not offer a reliable service."

However, Alistair Munro, founder and chief executive officer at renewable energy firm Ryse Energy, says that Africa operates with a significant number of towers in bad-grid or no-grid areas so it really is essential that diesel is displaced from the energy mix on the basis of cost and for sustainability. "In terms of natural resources Africa has excellent solar and in many areas wind resources for in terms of available resources yes Africa is well positioned," he adds. "Logistics are a challenge but that is also a positive for moving from diesel as the frequency of refuelling can be significantly reduced also improving network resilience and reducing operating costs."

Alistair Munro,
Ryse Energy

"Logistics are a challenge but that is also a positive for moving from diesel as the frequency of refuelling can be significantly reduced also improving network resilience and reducing operating costs"

So, which operators and/or tower companies are leading the way with migration to renewables? Munro says, "almost all of the public tower companies have made a commitment to migrate to renewables" and cites IHS, Helios, ATC as having made statements on their sustainability targets.

Although there is evidence to suggest, even prove, that the African telecom sector is making inroads when it comes to using renewable energy, solar, wind and wave power are hardly new – they've been around since the dawn of time. With that in mind, why in 2022 are operators and towercos still not further down the road?

"We are seeing this change but with such a growth in the sector in terms of new towers the operators are more focused on expanding capacity than displacement of diesel," says Munro.

So, would it be fair to say that any reluctance or slow move to green energy is a political or business decision? "Any decision to move to green/renewable energy has to be a business-driven decision," argues Munro. "These are businesses so there has to be a positive effect to the bottom line and the environmental and sustainability benefits are secondary. There is a limited regulatory framework in these markets unlike in Europe and other countries so there is limited 'political' involvement in the decision-making process from our view."

One of the most recognisable players in this space is NEC XON, which has a strong track record of doing in terms of renewable energy with regards to base stations.

Rami Reshef, GenCell

"Oil rich nations such as Nigeria are still very much dependent on diesel while Morocco, for example, has made huge strides towards solar and wind energy"

Example commitments and actions by operators in sub-Saharan Africa to reduce environmental impact of operations and reach net-zero carbon emissions

orange™	• **Orange** has unveiled a sustainability strategy that includes a target to be using 100% renewable energy in its operations in West Africa by 2040. Orange intends to increase the use of renewable energy in its operations to 50% by 2025 from the current 24%, through its subsidiaries in Côte d'Ivoire, Liberia and Burkina Faso. • In the Democratic Republic of the Congo, **Orange** has partnered with NuRAN Wireless to build 2,000 solar-powered mobile towers, which will cover at least 10 million people in rural areas.
MTN	• **MTN** has set science-based targets to achieve a 47% average reduction in absolute emissions (tCO2e) for scope 1, 2 and 3 by 2030. GHG emission-reduction target-setting is in line with an ICT sectoral target-setting approach developed through collaboration between the Global Enabling Sustainability Initiative (GeSI), GSMA, the International Telecommunication Union (ITU) and the Science Based Targets Initiative (SBTi). • To realise its targets, **MTN** has launched its Project Zero programme to leverage the latest technologies and service partners to enable business sustainability through greater energy efficiencies, low carbon emissions, risk reduction and cost control. The programme prioritises renewable solutions, efficient emerging technologies and energy storage.
Safaricom	• **Safaricom** has partnered with the Carbon Trust to take a strategic approach to managing its environmental impacts, with the aim of reaching net zero by 2050. • **Safaricom** has committed to a series of emission-reduction targets, including a 43% reduction by 2030 and a 74% reduction by 2050 from a 2017 base year. The targets have been approved by the SBTi.
vodacom	• **Vodacom** has set a target to reduce its environmental impact by 50% by 2025, against a 2017 baseline. Vodacom's plans to reduce carbon emissions focus on four key areas: energy efficiency (including IoT solutions), renewable energy, independent power producers and renewable energy certificates.

The Mobile Economy Sub-Saharan Africa 2021 (GSMA)

FEATURE: RENEWABLE ENERGY

Gregg Sanders, NEC XON

"They reduced human error and greatly improved process adherence through process automation. They gained significant operations, maintenance and workforce efficiencies and performance improvements."

The company's modular energy storage and IoT-based remote monitoring and management solution with managed services helps tower companies, mobile network operators and many other types of businesses improve uptime and profitability, often in remote and difficult to reach locations, cut operating costs and maximise profitability.

"We helped one of the tower companies which manages tens of thousands of towers," says Gregg Sanders, head of digital X at NEC XON.

"They cut mean time to repair (MTTR) from more than five hours to just one-and-a-half hours. They achieved up to 95% failure prediction accuracy on key equipment. They slashed mean-time-to-detect (MTTD) from hours to sub-second. They reduced diesel theft by between 12% to 15%. They reduced NOC staff reliance to less than half. They reduced human error and greatly improved process adherence through process automation. They gained significant operations, maintenance and workforce efficiencies and performance improvements."

The Hybrid Storage Solution (HSS) from NEC XON provides battery storage, control system, solar panels, diesel generators, and IoT-enabled sensors for data collection. It is combined with AI data analyses and historical weather data. That enables operators to reliably power base stations for communications networks and other uses in regions with under-developed infrastructure.

NEC XON says the HSS solution, which includes sizing and planning, is currently used in South Africa, Kenya, Nigeria, Tanzania, Ethiopia and Democratic Republic of the Congo (DRC).

The good news is we have a lot of options when it comes to renewable energies – but is one source better than the rest?

Munro argues that they are technologies that should be viewed as complementary toward each other, rather than competitors. "The combination of wind and solar in combination with energy storage harvests the maximum amount of renewable energy," he says. "Solar as a stand alone technology only generates for a maximum of 8 hours per day therefore capital expense, energy storage capacity and land space needs to be significantly increased if this is the only source of renewable energy. The addition of wind into the energy generation mix maximises the generation from the available natural resources and optimizes energy storage capacity. In this way the combination of wind and solar gives the best performance considering all the parameters in telecom and critical infrastructure applications."

Reshef holds the view that every form of renewable energy has pros and cons and all are needed to achieve our ambitious global targets. He says the "best" power solution varies greatly depending on factors such as location, weather patterns, availability of resources etc. "Hybrid projects can integrate the benefits of different types of renewable energy together such as intermittent solar or wind resources reinforced by reliable long duration fuel cells powered by hydrogen," Reshef continues. "Green technology is constantly evolving to make all forms of renewable energy cheaper, easier to deploy and more widely available. With any luck, these factors will help renewable energy sources to achieve progressively faster growth over time as

they become a more obvious choice over fossil fuel alternatives."

Nevertheless, Reshef is keen to highlight the fact that reliable, resilient and efficient hydrogen power driving fuel cells is a key part of a sustainable future. He then explains why hydrogen has some key advantages over other forms of renewable energy.

"Hydrogen is the most abundant element in the universe and thus presents an almost unlimited amount of fuel on which to draw," he adds. "It has an energy efficiency comparable to that of fossil fuels and its availability is not dependent on local meteorological and geographical conditions. It also produces no emissions at the point of use, making it an incredible green power source. Its primary challenges are around the cost and complexity of production, transportation and storage."

Swedish firm Ericsson also has a list of case studies as long as your arm when it comes to helping operators in Africa reduce emissions and use more renewable energy. For example, the Ericsson Radio 6626 combines two frequencies and six ports in one unit to power all three antennas on the tower. It adds dual-band support for FDD in the 1800MHz and 2100MHz frequency ranges in a triple-sector radio form-factor to reduce the number of radios on the tower from six down to one.

Rival Nokia recently announced the commercial availability of its Liquid Cooling AirScale portfolio. Its "first-of-its-kind" solution is designed to make radio networks more sustainable and cost-efficient by reducing the energy required to cool a base station.

"5G networks and technologies will play a critical role in making other industries more sustainable and we must all play our part to minimize our footprint and accelerate the use of green electricity," says Tommi Uitto, president of mobile networks, Nokia.

Daryl Schoolar, research director at IDC, says that controlling total cost of network ownership remains an important priority for mobile operators." A significant portion of that total cost of ownership comes from operating expenses," he adds. "Network solutions that can lower those operating expenses, which includes cost of energy, are certainly welcomed by mobile operators. Also, if those solutions can help an operator achieve its green energy goals, that is just another added plus."

Whatever the will of governments, operators, towercos or just people, Reshef says the transition to renewable energy is challenging for any country. "There are a number of political and social factors involved, as governments need to marshal political capital and resources to encourage the sector and promote acceptance in the wider public," he adds. "Similar challenges exist within the private sector, where the decision to transition to renewables often comes down to the short-term reliability and availability of conventional power versus the long-term sustainability and cost-effectiveness of green

power. It is a difficult debate, but one that is very much worth having."

On the plus side, GSMA says that nearly half of all towers in sub-Saharan Africa are still categorised as either off-grid or bad-grid, and more than 80% of these continue to run on diesel power. Furthermore, the seven million metric tonnes of CO_2e emitted from mobile towers' diesel generators was estimated to account for approximately 3% of the industry's total emissions in 2020.

Renewable energy will be essential to the mobile industry meeting its climate targets. Nearly 70,000 towers worldwide are powered by renewable energy – a 45% increase since 2014.

"Africa is abundant in natural resources that make it an ideal environment for the growth of renewable energy," says Reshef. "The continent has an expanding population and vast economic potential, driven by the innovation and growth of many African businesses and communities. As mentioned above, with both internal and international support, it is probable that Africa will become an important exporter of clean energy. This has been evidenced in north Africa, where Morocco has made tangible steps to export renewable and sustainably produced hydrogen and ammonia to Europe."

However, it's not just the north that's making significant progress. GSMA says that despite having only about 3% of the world's towers, sub-Saharan Africa now accounts for 14% of global green sites. This reflects the investment by operators and tower companies in innovative green energy solutions to reduce CO_2e and the operating cost of mobile towers. For example, Africa Mobile Networks (AMN), which provides a network-as-a-service solution to operators, is building small cell networks at scale in Africa. These sites are optimised for – and powered exclusively by – solar photovoltaic battery systems, with no diesel generator backup.

Reshef concludes by saying that there is a greater impetus to deploy small solar and wind installations in places where the population is sparse or terrain is prohibitive - for instance, in remote mountainous regions with limited infrastructure. "In these areas, renewable energy can actually be easier to deploy and more effective than traditional fossil fuel-based energy sources," he says. "As with many other areas across the globe, there is emerging grassroots support for green power in Africa. Development banks and other commercial organisations are recognising the opportunity that developing green energy infrastructure for many use cases including telecoms represents. If these moves are successful, this will spur the market on to greater change and investments."

Nevertheless, even with all the right kit made available, Reshef says the decision to 'go green' can be a difficult one for governments and businesses to make. "The crucial fact to remember however, is that moving to renewable energy is in the interest of everyone, most obviously because we know it is necessary for our continued survival on this planet," he adds. "In addition, we also know that a continued dependence on fossil fuels is an unsustainable strategy that is leading us to irreparable climate disaster if we don't drastically reduce emissions as soon as possible. If businesses do not transition in the short term, the long-term consequences will be catastrophic."

The mobile telecommunications industry in Africa is in a transitional phase with changing industry structure and dynamics. Africa currently has over 800 million mobile connections and nearly 450 million unique subscribers. The coverage of mobile network has varying range from 10% to 99% across countries in Africa with an average of 70% mobile coverage. Using renewable is high on the agenda, as evidenced above. It just takes time. ∎

Protecting NGO staff with tracking and communications

By James Trevelyan, senior vice president, enterprise and emerging markets at Speedcast

Working for non-governmental organisations (NGOs) can be dangerous. Charities operating across Africa dedicate themselves to saving lives and supporting communities, often amidst conflict zones, famines and epidemics. Despite travel restrictions brought about by the pandemic, 484 aid workers were victims of major attacks in 2020, according to a 2021 Humanitarian Outcomes report.

For volunteers to do their jobs effectively and safely, they need access to a reliable communications infrastructure. However, this is not always easy when charities are working in locations that are often beyond the reach of terrestrial networks. From satellite phones and cellular connections to emergency vehicle and personnel tracking, staying connected is critical for the safety of personnel. A satellite connection that enables communications and real-time Internet of Things (IoT) data transfer when in a rural or disaster-stricken area is key to making sure staff and people on the ground remain informed.

Satellite for safety of communications and crew

NGOs providing support across Africa deploy thousands of trucks every year to deliver humanitarian relief to those who are most in need. However, drivers are often targeted for their precious cargo of supplies and equipment. While some NGOs will provide communication devices, such as a satphone or a VHF radio, more can be done to ensure the secure communication of teams on the ground.

One global NGO, with operations in Africa, had long relied upon communications as a primary way of protecting drivers and crew, but the existing technology aboard its fleet of more than 3,500 trucks became outdated. To increase the safety of its drivers, the NGO upgraded the existing technology and improved it with advanced software and cloud services, resulting in enhanced tracking and real-time alert capabilities. Dual-mode satellite and cellular terminals were installed, transmitting GPS and key telematics

data, to ensure that all crew members and cargo are monitored at all times. The software defaults to the cellular connection when service is available and switches to satellite service when it is not.

Owing to the highly sensitive information being transmitted, such as locations of staff and cargo, the NGO needed a secure line of communication between all IoT devices and the monitoring centre, which transfers all information to the operation's headquarters. Communications are not just one way; a panic button allows the driver to alert headquarters without the knowledge of anyone else in the vehicle. Even in the most remote or dangerous areas of the world, drivers and crew are never alone and this could ultimately save lives.

For another international NGO operating across 35 sites in Africa, reliable connectivity was essential for the safety, welfare and quick communication between sites. Moreover, a dedicated network was needed to ensure complete control of the traffic, allowing them to prioritise certain communication applications for the effective transmission of information while on-the-job. IT crews were then able to monitor the network performance and re-delegate priority traffic to suit their ever-changing needs. Some members of the NGO were also trained to install VSAT, allowing them to install the systems across Sierra Leone during the Ebola outbreak.

Technology developments for saving lives

The adoption of IoT via satellite technology helps to further develop the safety and operational efficiency of NGO workers in urgent situations across remote and disaster-stricken areas. IoT allows for the monitoring of speed and heading, with geofencing features that trigger alarms if trucks depart from their assigned routes. They can monitor oil levels and water temperatures within vehicles and equipment, which are then relayed back to the central hub. IoT can deploy real-time warning signs, urging drivers to turn around if needed or ensure that their vehicle is repaired or replenished at the earliest opportunity. Without this technology, drivers could be left stranded, with invaluable cargo, in hostile environments.

The delivery of this information needs to be completely secure, as any leak of information or data breach could be detrimental to the lives of NGO staff. Many NGOs have also embraced cloud technologies to improve agility, speed up deployment and reduce hardware, server, IT labor and maintenance costs. Also, many cloud service providers are giving not-for-profit organizations free or discounted services as part of their Corporate Social Responsibility efforts. When a base camp needs to be set up or first responders need to be deployed, the teams need to be able to access critical information in real-time. Leveraging cloud-based services enable NGO workers to respond to situations more easily. However, fundamentally, the ability to use cloud services relies on highly available and secure connection. Therefore, when migrating to the cloud, NGOs must ensure that remote users have secure and reliable cloud access over any connectivity path.

Protection as technology develops

Satellite will continue to play an important role in providing connectivity, but development in technologies that can optimise satellite connectivity will also have a huge role to play. The use of IoT is already showing great benefits and as it is utilised further, it will continue to present more opportunities for safety and protection measures. Additionally, developments in remote network management, i.e. using cellular connectivity when available and automatically switching to satellite when necessary, will help to ensure a reliable connection while also maximising cost and bandwidth efficiencies. These systems will continue to require reliable, secure connectivity every step of the journey for NGOs and disaster relief efforts in the most rural areas of the world. Satellite will remain a vital lifeline for brave NGO workers, ensuring that they help as many people as possible. ∎

Namibia's telcos go for network sharing

Sébastien de Rosbo,
research manager, BuddeComm

Namibia's telecom market has developed strongly since the second mobile network operator was licenced in 2006, thereby introducing effective competition between MTC Telecom Namibia and Paratus Telecom.

The government's Broadband Policy aims to provide 95% population coverage by 2024, supported by the efforts of telcos including Paratus Telecom which continue to invest in their own extensive network objectives.
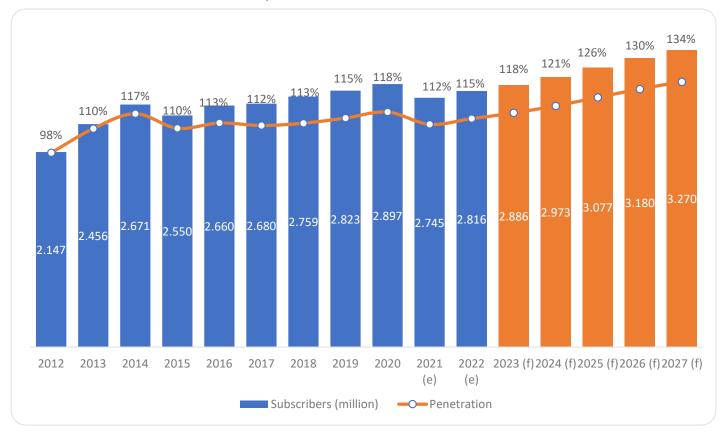
Mobile network coverage has increased sharply in recent years. By the beginning of 2021, 3G infrastructure provided 89% population coverage while LTE infrastructure provided 79% coverage (compared to only 40% a year earlier). Developments with 5G have been delayed, partly due to unsubstantiated public concerns over health implications of the technology which caused the government to order an environmental assessment of 5G in mid-2020. Nevertheless, the government has requested the regulator to speed up its 5G development strategy.

The country's flagging economy since 2016 was exacerbated by the difficulties resulting from the pandemic. These issues encouraged the government to pursue its plans to sell its stakes in Telecom Namibia and MTC, as well as in a number of other enterprises.

Although Namibia's internet and broadband sector is reasonably competitive, its development was for many years held back by high prices for international bandwidth caused by the lack of a direct connection to international submarine cables. This market situation improved after operators invested in diversifying terrestrial access routes to adjacent countries. By the end of 2022 Namibia is expected to be connected by a 1,050km branch line of Google's Equiano cable running between Portugal and South Africa.

COUNTRY BY COUNTRY: NAMIBIA

Chart 1 – Growth in the number of mobile subscribers and penetration – 2012 – 2027

Source: BuddeComm based on regulator data

Table 1 – Growth in the number of mobile subscribers and penetration – 2012 – 2027

Year	Subscribers (million)	Penetration
2011	2.194	101.7%
2012	2.147	97.8%
2013	2.456	110.0%
2014	2.671	117.5%
2015	2.550	110.2%
2016	2.660	112.8%
2017	2.680	111.5%
2018	2.759	112.7%
2019	2.823	115.3%
2020	2.897	118.3%
2021 (e)	2.745	112.1%
2022 (f)	2.816	115.0%
2023 (f)	2.886	117.9%
2024 (f)	2.973	121.4%
2025 (f)	3.077	125.7%
2026 (f)	3.180	129.9%
2027 (f)	3.270	133.6%

Source: BuddeComm based on ITU and regulator data

Key developments:

- Paratus and MTN Namibia sign national roaming agreement aimed at quickening the pace of LTE rollouts;
- Namibia to be connected to Google's Equiano cable system;
- New SIM card registration rules are put in place;
- MTC completes its IPO;
- Telecom Namibia upgrades its VSAT hub to provide more reliable connectivity for users in remote areas;
- Government calls for the regulator to speed up 5G development strategy;
- Government launches the National Broadband Policy and Implementation Action Plan, aiming to provide a universal 2Mb/s services by 2024;
- MTC nears completion of Phase 2 of its N$1 billion 081Every1 network expansion project;
- Report update includes the regulator's market report for 2020, market data to June 2021, operator data for fiscal 2021, updated Telecom Maturity Index charts and analyses, assessment of the global impact of the pandemic on the telecoms sector, recent market developments.

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PNC360S PoC Radio

Hytera PNC360S Push-to-Talk over Cellular (PoC) radio "simplifies the way to communicate with your teammate", the company says. What's more, this radio can be operated on the widely available public network to deliver instant communications at the push of a button. Hytera claims it's the best choice for those engaged in supermarkets, hotels, logistics, industrial parks, urban and property management, and more.

"However, compared with two-way radios, traditional PoC radios suffer from a number of challenges, including unclear audio in very noisy environments, intermittent voice call issues in areas with a weak signal, a short battery life, and unstable performance in humid and dusty conditions," Hytera adds. "The Hytera PNC360S has been optimised to meet these challenges, making it the ideal solution for delivering easy and reliable PTT communications."

The PNC360S features a built-in 3-watt speaker with a 36mm diameter to ensure loud audio. The implementation of noise cancellation and patented distortion suppression technologies ensures voice clarity is retained. In addition, Hytera says it has overcome the problem of feedback howling when radios are too close together, thanks to a new feedback suppression algorithm.

Moreover, the PNC360S is designed with a rugged structure and constructed out of waterproof materials. *hytera.com*

Firebird - a fleet of radios for 5G wide area coverage

STL, formerly Sterlite Technologies, introduces Firebird, "a path-breaking line of ORAN-based macro radios for dense, wide area 5G coverage". The STL Firebird is a portfolio of multi-band 4G/5G macro O-RAN compliant radio units (O-RUs), initially available in Band 1, 40, 41, and 78 among others. These software-defined radios are based on a platform architecture and fulfill varying 5G coverage and capacity requirements of global carriers. Earlier this year, STL announced its collaboration with Meta Connectivity to design and develop dual RAT (Radio Access Technologies) 4G and 5G radio products, specifically in the Band 40 and 78. Through the Evenstar program, STL is working with Meta Connectivity to accelerate the adoption of Open RAN solutions.

"Firebird is a critical addition to our line of open networking programmable access solutions for 5G-ready networks," says Chris Rice, CEO, access solutions, STL. "Built on industry-standard open interfaces, Firebird allows seamless integration with compliant O-RAN vendor RAN (CU/DU) products, to enable quick deployment and ensure proper wide-area 5G coverage. It is a key step towards delivering on our purpose to transform billions of lives with digital networks." *stl.tech*

Inmarsat's IsatPhone 2

Inmarsat's IsatPhone 2 is described as "a tough phone for a tough world". The company boasts how "operating on the most reliable satellite communications network in the world, IsatPhone 2 offers you unrivalled battery life as well as email, SMS and GPS capabilities to make sure you stay connected". This robust handset, Immarsat adds, "has been engineered to cope with anything that nature can throw at it – from searing heat to icy blasts, desert sandstorms or monsoon rain." What's more, it offers a battery life of eight hours for talk time and up to 160 hours on standby. "Together, IsatPhone 2's design and capabilities – including safety features – make it ideal for the most demanding of users in sectors such as civil government, oil and gas, NGOs, and media," Inmarsat says. *inmarsat.com*

New phased array flat panel antenna (FPA) technology

Intellian Technologies has developed its new phased array flat panel antenna (FPA) technology. These electronically steered antennas (ESA) are optimized for high performance on Ku- and Ka-band LEO and MEO satellite networks and harness Intellian's experience in innovative antenna design, manufacturing and NGSO satellite connectivity. Its phased array chipset, structure and software "are at the heart of this industry-first fully integrated ESA modular design, production and global distribution", the company claims.

The three terminals unveiled will include a high data rate fixed enterprise solution, a highly portable, rugged and quickly deployable manpack terminal and a low-profile mobile communications on the move (COTM) solution. Combined with future terminals that will also include maritime and aviation, these products form a complete phased array portfolio to provide high-speed satellite internet connectivity to businesses, governments, and communities worldwide and in remote locations starting in 2023.

"Our goal is to provide our customers and partners with more value and innovation. Intellian phased array engineers are among the most exceptionally talented and innovative in the industry and what we've been working on is an exciting game-changer," says Eric Sung, CEO, Intellian. "These user terminals are a continuation of our mission of empowering connectivity, allowing end users in remote and difficult environments to access a cost-effective and enhanced user experience that would otherwise be unavailable to them." *intelliantech.com*

Enterprise-class edge 5G routers

Perle Systems brings to market the IRG7440 5G Router & Gateway - "the only 5G router that does not require an annual subscription or license fees to access features, maintain operation, or download software updates". All features and functionality are included in the base price of the product without additional costs or fees.

The company claims the Perle IRG7440 5G Router provides fast, secure, and reliable 5G network connectivity where a user needs primary or backup 5G NR or CAT20 LTE coverage for business-critical equipment. It is also "ideal for IoT/

M2M network access applications such as IP camera surveillance systems, digital signage, or smart lockers, or processing IoT data at the edge by connecting industrial equipment, remote data loggers, or sensing devices".

Furthermore, Perle claims this piece of kit is designed to leverage the reliability and flexibility of cellular networking to minimise downtime, reduce service calls and bring branch office and temporary locations online faster than other solutions. However, Perle plans to be a disruptor in the industrial enterprise-class router space

by not charging annual subscription or licence fees.

"Perle's approach has always been to design reliable hardware, using high-end components from trusted chip manufacturers, that runs a complete and robust software feature set," claims John Feeney, COO, Perle Systems. "As we add new features and enhance functionality, we have always made it available to our customers at no additional cost. This has been our business model from day one." *perle.com*

ThinKom's ThinSat Ka500

ThinSat Ka500 from ThinKom Solutions is a new phased array satellite antenna for land mobile applications. The antenna is a Ka-band phased array antenna designed with beam agility to track Non-Geostationary (NGSO) satellites as they move across the sky, and to switch seamlessly between satellites. ThinKom says it's compatible with new Ka-band networks being deployed in both GEO and NGSO orbits. It's based on ThinKom's VICTS — variable inclination continuous transverse stub — technology used in its other products.

"The new antenna will enable government and enterprise users to maintain reliable 'always-on' mission-critical communications over the entire 3.5 GHz ITU Ka-band spectrum anywhere in the world, including the most remote and challenging environments," says Bill Milroy, CTO and chairman, ThinKom. The firm is planning for variants of the antenna to provide a simultaneous connection to two satellites for full-duplex "make before break" connections, as well as Ku- and Ka-band interoperability.

The BHT-M70 handheld terminal

New from DENSO is the BHT-M70, the Android mobile computer comes with the strongest decode engine from the company, which is part of the Toyota group. The new mobile computer was designed to meet the needs of a diversified workforce and contribute to operational efficiency. In retail, for instance, inventory times can be reduced significantly, and in logistics and warehouse management, the BHT-M70 is ideal to scan goods from a distance of up to 1.5 metres. The mobile computer is the latest addition to DENSO's BHT series and is equipped

with a large 4-inch touch screen and physical keys to accelerate processes by scanning a wide range of different codes, such as barcodes and QR codes. *denso.com*

Barrett's 4050 HF SDR

The Barrett 4050 Control Handset "is a further enhancement to the versatility of the Barrett 4050 HF SDR Transceiver", the company says. It combines smartphone-style ease-of-use with the touchscreen intuitiveness that users of the Barrett 4050 HF SDR Transceiver are familiar with. Barrett also argues that the streamlined design – including a built-in microphone and loudspeaker – makes the 4050 Control Handset the perfect substitution for the Barrett 4050's control head in mobile installations. Its unobtrusive size easily mounts to a vehicle dashboard or vessel helm. What's more, a quick release attachment makes removing the handset a simple and uncomplicated one-

hand operation. The 4050 HF SDR software has four separate theme modes for use in different ambient light conditions. The screen can also be turned into landscape format via the user interface, if required. *barrettcommunications.com*

Look out for...

World's first Pi-powered satellite shows resilience of Raspberry Pi
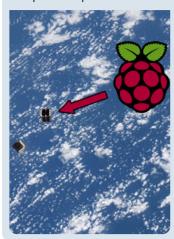
Undergraduate students at the Utah State University (USU) have successfully launched the first Pi-powered satellite into orbit. The GASPACS CubeSat, which was sponsored by NASA, features a Raspberry Pi Zero computer, a second-gen Pi Camera Module, and a DFRobot Beetle microcontroller to facilitate basic tasks at a low price.

Like other CubeSat devices, the GASPACS CubeSat is quite small — measuring a mere 10 centimetres wide. Its mission is to test an "aeroboom" stabilisation system, which successfully deployed 45 minutes after astronauts tossed GASPACS CubeSat off the ISS.

Naturally, the tiny satellite has several secondary missions. One such mission, is to test the resilience of relatively cheap hardware like the Raspberry Pi Zero. The GASPACS CubeSat has no radiation shielding, so it's vulnerable to any radiation that gets past Earth's magnetic field.

The Raspberry Pi computer hasn't died yet. And in case some solar wind manages to knock the Pi Zero unconscious, a DFRobot Beetle microcontroller will try to revive the computer … by turning it off and on.

Additionally, GASPACS CubeSat features a Pi Camera Module to take photos in space.

Nokia and Antofagasta Minerals deploy private wireless network in Chile

Nokia has deployed a private wireless network with Antofagasta Minerals for Minera Centinela, to support operations at its copper mine in Chile.

The Finnish tech firm has designed and deployed the private 4.9G/LTE solution, including Nokia AirScale radio equipment, mobile packet core, IP/MPLS service aggregation routers, and Wavence microwave transmission.

This network will allow the mining group to accelerate its digital transformation.

Nokia industrial-grade private wireless provides the high capacity and low latency required for enterprises, such as mining companies, to connect a variety of sensors, devices, equipment and vehicles, above and underground, the firm said.

The network, already in operation after being deployed in a record four months for Minera Centinela, will initially connect a fleet of autonomous trucks. Going forward it will support a wide array of operations as part of a five-year digitalisation plan which aims to transform the mining sector, while enabling safer and more efficient operations.

"We are transforming the way mining is done," said Gino Ivani, technology manager, Antofagasta Minerals. "We want to deliver excellence in everything we do, leveraging operational efficiencies to achieve the best results. We are committed to sustainable mining and to providing the safest and most efficient facilities. We are very pleased to leverage Nokia industrial-grade private wireless solutions and its experience in mining automation to support our efforts."

Hawaiian Telcom invested $100M for state-wide fibre deployment

Hawaiian Telcom set a new record in capital spending to expand fibre-to-the-premise availability and improve broadband connectivity across the archipelago in 2021.
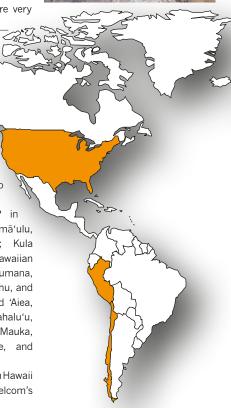
Last year, the operator invested more than US$100m to expand and support its next generation fibre network. As a result of this investment, an additional 30,000 locations throughout the state now have access to FTTP broadband service, enabling market-leading upload speeds and among the fastest download speeds available in Hawaii.

Five hundred megabits per second is the fastest upload speed in Hawaii and gigabit internet is one of the fastest download speeds available. These speeds enable multiple users to utilise the same secure, reliable connection with little to no disruption or latency.

"Our core purpose at Hawaiian Telcom is to connect and empower Hawaii, so we are accelerating our fibre expansion to bring the benefits of high-speed broadband access to more people in more places throughout our state than we've ever done before," said Su Shin, president and general manager. "Imagine the possibilities when there is true digital equity here in Hawaii and everyone from keiki to kūpuna, from Hilo to Hanalei, has access to the benefits of online education, e-commerce, telehealth opportunities and the countless benefits that broadband can offer. Our team is actively working to make this a reality."

Areas enabled with FTTP in 2021 include Kapaʻa, Hanamāʻulu, and Hanapēpē on Kauaʻi; Kula and Makawao on Maui; Hawaiian Paradise Park, Hilo, Kaumana, Keaʻau, Mountain View, Nāʻālehu, and Volcano on Hawaii island, and ʻAiea, ʻĀina Haina, ʻEwa Beach, Kahaluʻu, Kapolei, Mākaha, Mililani Mauka, Nānākuli, Waialua, Waiʻanae, and Waikiki on Oʻahu.

North of 215,000 locations in Hawaii have access to Hawaiian Telcom's ultra-fast FTTP services today.

Peru launches next phase of initiative to provide internet to jungle

Peru launched the third phase of the Conecta Selva (connect the jungle) program, which aims to digitally connect via satellite some 200,000 people in 1,034 localities.

The communications undersecretary at the transport and communications ministry, Fredy Tito Chura, along with Daniel Lizárraga López, the executive director of national telecommunications program Pronatel, launched the initiative in Amazonas, where 35 public institutions will be connected, including schools and medical posts.

"We are fulfilling our commitment to bridge the digital gap in areas where data service and digital interconnection will be accessed for the first time to be connected to the world," Tito Chura said.

Under the initiative, 21 locations in Amazonas have already been connected, benefiting 9,560 citizens. The public entities will be able to count on connection speeds of 10Mbps for download and 2Mbps for upload.

The objective, which targets the Loreto, Ucayali, Amazonas and Madre de Dios regions, involves a total of 1,316 public institutions (1,212 educational institutions and 104 health centres).

According to Pronatel, there are 952 schools and 81 health centres in 798 locations with the service already operational.

Argentina's Telespazio won the contract to operate the connections.

Cellnex plans 80% coverage for IoT network in Ireland

Cellnex Telecom is targeting 80% coverage of Ireland with the country's first national Internet of Things (IoT) network by the end of 2022.

Through its partnership with Everynet, Spanish firm Cellnex will bring a new nationwide low power wide area (LoRaWAN) network to all major cities by the end of December.

The initial investment in the network between Cellnex and Everynet is around €2m and the rollout of the LoRaWAN network will enable the former to work with both public bodies and private businesses across the country on their IoT requirements. This can include building and energy management, air and water quality monitoring, waste management, and parking validation.

This network will build on the successes of a pilot project launched in Edenderry, county

Offaly last year, during which the town became the first in Ireland to use LoRaWAN technology to help deliver solutions to monitor disabled parking bays, bin level sensors, air quality monitoring and tracking energy use in public buildings.

Cellnex Ireland has over 70 customers here including all the mobile operators, the broadcast and emergency services, and a range of local wireless operators.

The company said that as it expands its service offering the customer profile "is evolving to include public bodies, utility providers, leading players in the hospitality, retail, transport, manufacturing and construction sectors, all of whom are looking for connectivity solutions to address coverage issues."

Cellnex committed to delivering 600 new telecom sites by 2026 and 300 have been delivered to date.

Orange Spain Q1 revenue down

Orange Spain saw a 4.6% fall in revenues in the first quarter to €1.13bn billion, castig a shadow over its proposed merger with MásMóvil.

It means there is now a problem with regards to the balance of powers between the parties and the final financial value of the operation due to be completed by June this year.

French firm Orange said tough competition and low cost offers in the market led to losses across all business segments. It reported a 4% fall in consumer revenues, 8.2% in wholesale services and a 3% fall in mobile phone sales.

However, Nevertheless, the number of customers grew by 2.8 per cent on the same period last year to 20.5 million, out of which 16.48 million are mobile subscribers and 4 million broadband customers. FTTH already covers 16.3 million homes and businesses, with 800,000 new units in one year.

Elsewhere, ARPU went down 0.3% in the period versus a 1.8 per cent fall in the last quarter of 2021.

Meanwhile, Cellnex Telecom is talking to Deutsche Telekom about taking over its tower business, CEO Tobías Martínez confirmed at a meeting of investors and analysts. He said Germany is "a very attractive market". If a deal materialised, Cellnex stands to control 163,000 towers by the end of the decade.

According to reports in late 2021, Deutsche Telekom wants to spin off its tower operation, Deutsche Funkturm, which is believes is worth €20 billion.

EC clears Iliad acquisition of UPC Poland

The European Commission (EC) has cleared the acquisition of UPC Poland by French telecommunications group Iliad from Liberty Global, saying the purchase would not raise competition concerns.

Explaining its decision, the executive branch of the European Union said it will see only minor overlaps in the selling of mobile, broadband, audio-visual services and multi-play services.

The acquisition of Warsaw-based UPC is part of Iliad's plans to bolster its position in Poland.

Additionally, the acquisition will not stifle access to the wholesale mobile network market, says the EC.

Iliad and Liberty Global struck the purchase agreement in September 2021 for the sum of zł7bn (US$1.6 bn).

The French firm only entered the Polish market in 2020 when Iliad acquired the country's second-largest operator Play. UPC Poland will become a subsidiary of Play on completion of the acquisition.

MNO Veon finds 'alternative routes' to move cash amid Russia sanctions

Ukraine's largest mobile network operator (MNO) Veon has "alternative routes to move cash", after its boss warned that providing full-year guidance would be "irresponsible" in light of Russia's invasion of its neighbour.

Russia and Ukraine, where Veon operates the Beeline and Kyivstar mobile networks respectively, are the company's two biggest markets, followed by Pakistan and Kazakhstan.

The Bermuda-registered company, whose Ukrainian mobile network is "completely running" with 4,000 people on ground, according to its chief executive officer Kaan Terzioglu, said it was closely monitoring sanctions imposed on Russia.

The European Union, along with the United States and other Western partners, said on Saturday it would cut off a number of Russian banks from SWIFT, the secure messaging system which allows banks to connect for rapid cross-border payments.

"We have alternative routes to move cash in and out of countries," Veon's management said in a call, citing "multiple accounts in multiple banks" dealing with different currencies.

"We are in discussions with our relationship banks from different countries on how we can mitigate any kind of changes in the SWIFT regulation but so far, it is functioning."

A1 Bulgaria inks solar deal with Renalfa

Telecommunication service provider A1 Bulgaria has signed a deal with domestic clean energy investment group Renalfa for solar energy, as well as operations and maintenance services.

The long-term power purchase agreement (PPA) will see a photovoltaic plant in south Bulgaria with a peak capacity of 33 MW set to supply A1 Bulgaria with 20 GWh of electricity per year for the next decade.

Renalfa will also provide the so-called sleeving service to A1 via its subsidiary Toki.bg. Sleeving is the process of transforming the pay-as-produced PV profile of the generation project into the consumption schedule of the telecom through the electricity market. This is the first such agreement on the Bulgarian market.

With a sleeved PPA, the buyer gets electricity through an intermediary which handles the transfer of both energy and money, bears the wholesale price change risk and is responsible for buying balancing power.

"Climate change is arguably the biggest challenge of the 21st century," said Alexander Dimitrov, chairman of the management board and chief executive officer of A1 Bulgaria. "While digital technologies can support sustainable development, the unprecedented global data usage during the Covid-19 pandemic has caused our industry to consume more energy than ever before. He said that as part of A1 Telekom Austria Group, the company is aware of its responsibility towards the environment and has set an ambitious environmental target: reducing CO2 emissions to net zero by 2030. "This will be achieved by decreasing our own carbon footprint and gradually switching to energy from renewable sources," Dimitrov concluded.

A1 Bulgaria offers mobile and fixed services, high-speed broadband internet, satellite TV, own interactive TV platform, sports channels, financial services, ICT, cloud, and IoT solutions to more than 4.8 million customers.

Israel's Partner Communications Q4 profit jumps

Partner Communications, Israel's second-largest mobile operator, reported a sharp rise in fourth-quarter profit, boosted by revenue gains in its mobile and internet services while expenses declined.

The company said it earned ILS77m shekels (US$24m) in the October-December period, compared with ILS5m a year earlier.

Revenue rose 6% to 853 million shekels, helped by subscriber growth in its fibre optics network, TV and mobile offerings, as well as demand for its cellular roaming services from tourists after Israel reopened its borders to foreign tourists.

Its mobile subscriber base reached 3.02 million, up 187,000 customers in 2021, for a market share of 28%. The number of fibre-optics subscribers rose to 212,000 last year, while it had 374,000 internet customers and 226,000 subscribers to its TV service.

IP Telecom expands Portuguese fibre network

IP Telecom has commissioned Nokia to extend its fibre optic network around metro areas in Portugal, with a key emphasis on quantum security.

The Finnish tech firm will supply IP Telecom with networking equipment to build an encrypted optical data centre interconnect (DCI) solution. The network will use 100Gbps and 200Gbps data rates and will apparently be ready to deliver 400GE services in the future.

Nokia says there has been a rise in sophisticated data theft and the line encryption is supposed to protect against unauthorised data tapping in the fibre optic network.

Its kit will provide as part of the deal the 1830 Photonic Service Switch (PSS), 1830 Photonic Service Interconnect – Modular (PSI-M) optical transport platforms and the 1830 SMS secure management server.

The 1830 SMS platform is where the security number crunching happens. Running the encryption of the optical links from central location, Nokia says the solution gives 'immediate protection against highly sophisticated brute-force attacks, including threats from emerging quantum computers.'

IP Telecom has data centres in Lisbon, Porto and Viseu, and this network expansion will allow it to reach out to additional nodes throughout Portugal.

"Nokia's modular optical networking solution allows us to easily upgrade each customer's cloud DCI as needed and at the same time, ease any concerns about data protection," said Pedro Mendonça, IP and telcos director at IP Telecom. "The encryption capabilities are a differentiator for us."

NTC launches 4G at popular religious site

State-backed Nepal Telecom (NTC) has introduced a 4G service in Pathibhara, a popular religious site in the country's Taplejung district.

This enables the visitors to the precious heritage site to enjoy high-speed broadband connections on their devices.

Yogesh Bhattarai, a UML politician and former minister of culture, tourism and civil aviation published the news in a Facebook post.

He added that the 4G launch in the area will allow visitors to post their photos and videos online. The service launch has been the result of a long effort by the state-backed operator, Nepal Telecom (NTC), he said.

Pathibhara is one of Nepal's most popular religious heritage sites, located at 3,794 m elevation in

Taplejung, a district in eastern Nepal.

Thousands of devotees visit the site every year. However, the lack of mobile broadband had kept the people at a disservice for so long. Now, with NTC-backed 4G in the

area, the visitors will have reliable fast broadband. They can connect to the internet and communicate while they are at and around the site, the operator said.

TM deploys IP CORE network of the NGN

Telekom Malaysia Berhad (TM), the largest wireline operator in the country, has partnered with China's ZTE Corporation to deploy the service provisioning of its IP CORE network of the NGN (Next-Generation Network).

TM NGN is the first backbone transport network to deliver high-speed mobile services in Malaysia, including home broadband, voice, enterprise private line, network leasing, CDN, and wireless (4G/5G) backhaul.

A press release distributed by ZTE said, with rapid development and commercial use of 5G worldwide, Malaysia started large-scale transport

network construction in 2021.

"With strong product competitiveness, customised functions, and reliable delivery capabilities, ZTE won the entire IP CORE network bid and a 30% share of IPRAN bid in February 2021," the release said.

ZTE provides its 2T/slot multi-service router ZXR10 M6000-S to build NG CORE, HSE, and AGG sites in the NGN. It provides an innovative satellite router solution composed of ZXR10 M6000-S and ZXCTN 6120 H-A for AGG sites, providing a large quantity of GE interfaces to implement large-scale access to

home broadband and enterprise private lines. Meanwhile, ZTE employs the ZXCTN 6100H series supporting Tbit access to build CSR sites, offering flexible slicing for next-generation transport.

In addition, ZTE provides an advanced network design for the existing network interconnection and smooth service transition. Its management and control system can implement fast end-to-end service provisioning, flexible network tuning, simplified O&M, and differentiated SLA guarantee, to help TM build an intelligent large-scale full-service transport network.

Dialog becomes 'first in south Asia to trial 5G SA'

Dialog Axiata, Sri Lanka's largest mobile network operator (MNO), claimed it has become the first company in South Asia to successfully trial the most advanced 5G Standalone (5G SA) network.

The MNO said that with this successful 5G SA trial the island nation's connectivity provider further advanced the nation's 5G journey and would enable more advanced use cases that required 5G SA support.

According to a press release, 5G SA can bring more advanced features in 5G, which enable use cases such as autonomous driving and enhanced real-time immersive services. "It will open up innumerable next-generation opportunities for enterprises and bring forth the fourth industrial revolution (4IR) that will catalyse ground-breaking innovations," it said.

"The successful trial of the 5G Standalone network marks a key

milestone in the advancement of connectivity infrastructure, not just in the country, but also in the South Asian region," said Supun Weerasinghe, group chief executive of Dialog Axiata. "We at Dialog are proud to propel our nation amongst our global peers to achieve yet another region-first in technology, where the evolution of our 5G architecture will enable us to provide even better services to our customers".
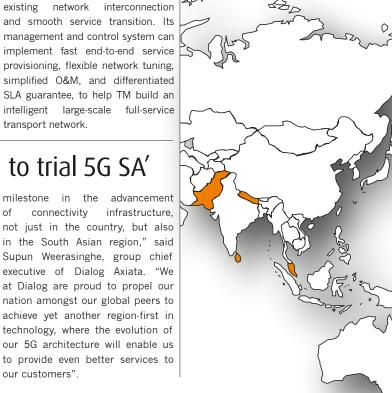
PTA renews Jazz licence for US$486m

Pakistan Telecommunication Authority (PTA) has renewed the licence of mobile network operator Jazz, which committed the highest-ever investment in the country's telecom sector.

According to a statement, Pakistan Mobile Communication Limited (PMCL) –known as Jazz – got its licence renewed for 15 years with a fee of US$486.2m, the watchdog said.

Out of the total fee, 50% (US$243.1 or Rs44.54bn) has been deposited by the telecom operator, while the remaining amount will be paid in five equal annual instalments along with the applicable markup.

However, the renewed licence has enhanced terms and conditions for coverage and quality of service, the statement said.

As per the policy directive, the renewal of Jazz's licence is expected to generate in the region of US$486.2m. In addition, the payment terms would be 100% upfront or 50% upfront with remaining 50% in five equal annual instalments on London Interbank Offered Rate (Libor) plus 3%.

Q&A

Richard Jacklin
director of sales
ViaLite

What was your big career break?

When I became a ghostbuster and I don't really believe in ghosts! My career was going along quite nicely; apprenticeship, degree, graduate engineering, engineering manager etc., probably similar path to many folks. One night I was watching television and a programme called "Most Haunted", an entertainment show where ghost hunters scare themselves stupid in a spooky house, and they showed these bright white sparks being captured on video. At that time I was working on a project for a very large US automobile company and I'd invented a simple device that measured negative ion fields from electric discharge – a spark. The available negative ion detector units on the market at the time were priced at approximately $1,000, but I could produce and sell a unit for $50. I phoned up a few ghost clubs and bingo, I had the start of my own business. I ran this business for about 3 years and covered all aspects of marketing, sales, production, new product development, logistics, shipping – basically everything. The business was totally bonkers and I became the number one supplier in the UK, supplying all the paranormal investigative clubs, presenting at conferences, appearing on ghost TV programmes. I then finished the business and licenced the products to a couple of contacts in the wireless business – one of them being a senior Director in T-Mobile. Anyway it taught me so much about what it takes to run a real business at grass roots level and it gave me the knowledge and confidence to leap across fully into the commercial side. I then took business development and sales management roles in companies including UL, Keysight and my current role heading up Vialite Communications. If you're serious about business, doing an MBA is perhaps one useful way, another way is to just start a business.

Who was your hero when you were growing up?

As a nerd and amateur inventor growing up in the early eighties, I was a Sinclair computer fan. Christmas 1981 I came down with chicken pox so I spent the holiday in bed with my brand new Sinclair ZX-81 complete with pressure sensitive keyboard trying to work out what a program was for the first time; best Christmas as a child ever. Sir Clive Sinclair was the man of the time with his ZX-81 and then Spectrum computers, but I never got my hands on the Sinclair C5 electric trike. He was so far ahead of the time as proven now by the proliferation of electric vehicles. If only we kept the faith in what he was doing; just look at Tesla!

Which law would you most like to change?

In the late nineties I was involved in radio equipment test and approval. In 1999, the Radio equipment and Telecommunications Terminal Equipment (R&TTE) directive was introduced across the European Union, basically ending national type approval. Harmonising approvals across nations is no bad thing, but the implementation dropped many performance and protocol requirements effectively lowering the bar to cheaper, more poorly designed and manufactured imports. In my opinion it massively harmed the technical manufacturing capability of Europe and we ended up with lower performing wireless products as a result. So I would support raising the bar again. Anyway, just after this regulatory change happened in 1999 we had the UK 3G mobile phone spectrum auctions, where the government raised over £20 billion from five licences. Then a little bit later Motorola closed their West Lothian flagship mobile phone factory; shame the auction monies couldn't have been used to support the UK wireless industry; just saying!

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

I was stood in front of a group of executives from AT&T in an office in Seattle and one of them asked "Do you realise what you've presented is possibly a career limiting move?" It was one of those bottom clenching moments that only happen fortunately a few times in your career. Basically this was in the early days of the development of 4G cellular. At that time Verizon had released its infrastructure rollout plan and the frequency bands it was going to occupy; AT&T had not released their plan yet. My presentation showed support for the Verizon frequency plan, and no frequency plan for AT&T. Perhaps the AT&T executive thought I was a mind reader about what they were planning to do, but it taught me an important lesson about how competitive information should be presented on product roadmaps!

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

During your career you meet some absolute gems and few years ago I was working with a Global Sales Director called Mr Pax Andersson. Pax was a loud, brightly dressed, gregarious, Swedish, demanding, funny gentleman who made a big impression on anyone he met. When he joined the company I had the job of training him about our product line up and how we go to market. Before I wheeled out my standard presentation spiel he just said to me "Look Richard, don't bulls**t me with a long slide-deck, I just want to know three things; (1) Why does the customer buy this type of product? (2) Why should the customer buy the product from this company? (3) Why should the customer buy it now?" He wanted these three simple questions covered off in every piece of communication to the customer, whether in a presentation, chat, exhibition stand, press release, basically everything that is communicated. It's a simple mantra, but crikey it really focusses your messaging. Sadly Pax passed away just as he retired, and he is missed a lot. Pax also had another interesting mantra, one given to him from his Swedish grandmother about eating fruit; "When you get a piece of fruit, wash it. Then wash it again. Then wash it again. Then wash one more time. Then put the fruit in the bin."

What would you do with US$1m?

Well obviously this starts with buying the Mrs Jacklin something nice, probably a cruise somewhere when the pandemic has been overcome. I suppose I would also put some money down for house deposits for the daughters. Getting your first property in the UK is becoming increasingly hard for first-time-buyers, so bank of mum and dad will probably be needed. Then I have a list of guilty pleasure purchases based mainly around my love of analogue synthesisers; Sequential Circuits Pro-One, Roland TR-707, Oberheim Matrix 12. Oh, and I almost forgot, a Sinclair C5 electric trike. Can't say at this stage in my career I would necessarily invest it or start a new business, I think I would rather enjoy spending it more frivolously.

If you could live anywhere, where would you choose?

I've been lucky to see a lot of places around the globe through work travel, and some of my favourite places include Austin Texas, Oulu Finland, actually most of Scandinavia is great. But really this is a weird question for me, I'm quite happy living where I am which is a modest sized village in Hampshire, England. One thing I've learnt is that it is not all about the buildings, history or how pretty a place can look; it's about the community in it. Friends that you can share good times with, and help each other out through good and bad times. It also helps to have some good pubs too!

Where must you visit before it's too late?

Although I've been close to the Arctic Circle many times, I still haven't seen the Northern Lights.

If you had to work in a different industry, which one would you choose?

Well it's getting a lot of attention now, but space launch vehicles and the aerospace industry still excites me. The physics of getting these huge pieces of metal into the air and also into space is fascinating. I still can't get my head around how a Boeing 747 can actually fly. Anyway I'm not quite ready for putting out to pasture yet, so there may still be time for me to get into it. ∎

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