For communications professionals in north, west, east & central Africa

NORTHERN AFRICAN WIRELESS COMMUNICATIONS

JUNE/JULY/AUGUST 2021 Volume 20 Number 2

- Why is broadband penetration still a problem?
- How satellite is making a big difference
- Opinion: Africa's journey to a digital future

'Fulfilling the promise of connecting people in North and West Africa'

– Mounir El Aichaoui, Head for Mobile Networks for North and West Africa, Nokia

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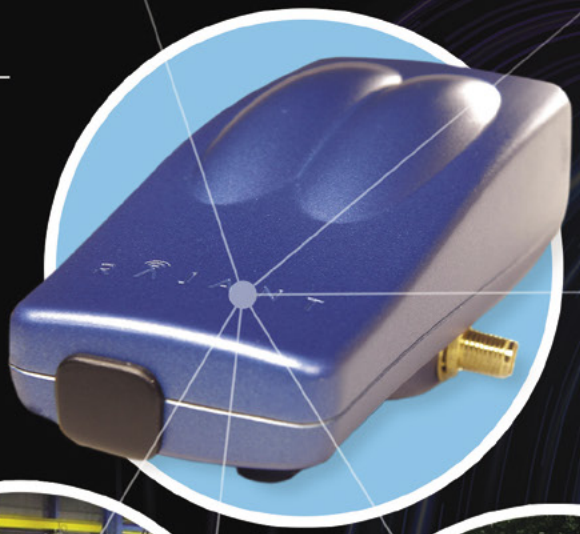

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ACE subsea cable is now live

The Africa Coast to Europe (ACE) submarine cable is live and available for interconnection at all three of Teraco's data centres across South Africa.

This comes after the ACE cable put the last segment of the cable linking Europe, West Africa and South Africa into commercial service at the start of June.

Teraco said that ACE spans approximately 17,000km along the West Coast of Africa and connects to 19 countries before backhauling via landing partner MTN South Africa to its data centres.

ACE is the eighth submarine cable system to connect at Teraco.

"Our POP-to-POP connection (Paris – Lisbon – Cape Town) gives access to major European and African cities, allowing better connectivity to the worldwide internet," ACE said.

Michelle McCann, the head of interconnection and peering at Teraco, added: "Data centres like ours act as the perfect neutral hub for interconnection and data exchange. It's here that onramps and switching points from many different cloud providers and network operators meet."

Egyptian regulator approves operation of 173 mobile towers

The National Telecom Regulatory Authority (NTRA) of Egypt approved the establishment and operation of 173 new mobile towers in five governorates, as part of a move to boost service quality in the affected areas.

It carried out a series of "judicial seizures" in the Delta region, as well as the Alexandria and Cairo governorates, to control the non-conforming network boosters impacting the quality of communication services. More than 300 non-conforming antenna boosters were seized, the NTRA said. This led to an improvement in the quality of voice services by 40% and data transmission services by 70% in the affected areas after removing these devices from them.

Meanwhile, the National Center for Quality Control of Communications Services at the NTRA issued its report for the second quarter of 2021.

The report presents indicators of the quality of voice and Internet services provided by telecom companies operating in the Egyptian market. Tests were conducted to measure the quality of mobile phone services for 81 regions for each operator.

The improvement in service quality was monitored in three areas at the end of June 2021 compared to March of the same year, as a result of continuous coordination with operators to solve service quality problems. Furthermore, work is underway with them to improve the quality of services provided in the rest of the affected areas by accelerating the mechanisms for building towers and preparing networks to work at new frequencies.

According to the report, Vodafone Egypt's network was tested in 81 regions, and a total of 17 regions were monitored suffering from poor quality of voice and data services, especially the Delta, Suez Canal and Alexandria.

Mauritania to tighten internet control

Freedom of expression is expected to be more restricted in Mauritania, where the country's leader says he wants to fight hate messages on the internet.

President Mohamed Ould Cheikh El-Ghazouani revealed his intention to strengthen control over online content. He said the various state departments are already looking at updating legal texts to more effectively regulate the use of the web in the country.

He said this renewed attention to the internet stems from the resurgence of cases of use of the network "to undermine public stability, spread false rumours or spread hatred and incite social groups against others". This "is unacceptable", the president added.

The legal review announced by El-Ghazouani comes despite Human Rights Watch's criticism of the Mauritanian government for its repression of freedom of expression. In its 2020 world report, the international organisation criticizes the state for its use of the cybercrime law to imprison bloggers, political activists and leaders of opposition parties.

Adopted in 2016, the law provides in articles 21, 22, 23 and 24 for maximum prison sentences of four years and maximum fines of US$2m for various actions deemed contrary to morality and the values of Islam, among others.

Greater government control of the Internet, as envisioned by the head of state, could lead to greater surveillance of people's communications. It would give the state more pretexts on the internet, websites and social media. The move could see the northwest African nation drop from 94th place out of 180 in the 2021 world press freedom ranking of Reporter Without Borders.

Cameroon and Gabon fibre interconnection now operational

Cameroon and Gabon have deployed and officially launched a 22km interconnected fibre optic network, which means telecommunication exchanges between the two countries will be direct and not via international sub-marine cables, thereby reducing cost.

The network infrastructure was launched July 15 in Meyo-Kye, Gabon by Cameroon's minister of posts and telecommunications, Minette Libom Li Likeng and Gabon's minister of state, minister of communication and digital economy, Edgard Anicet Mboumbou Miyakou.

Ngongeh Ayafor Clement, technical director at Cameroon Telecommunications (Camtel), explained the backbone of each country was connected via Kye-Ossi in Cameroon and Bitam in Gabon.

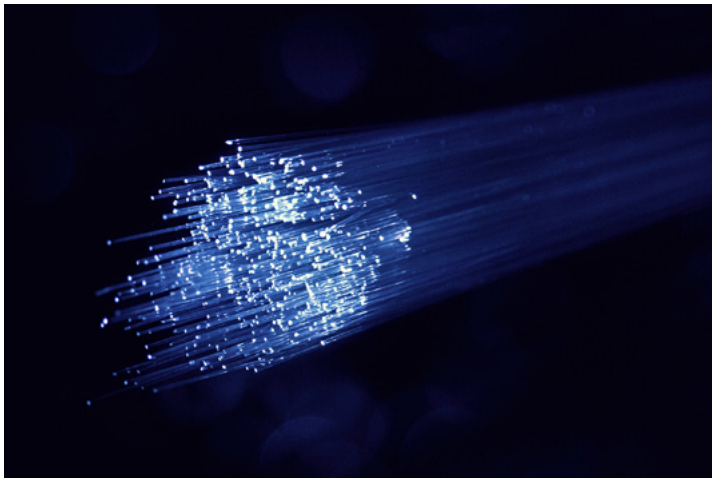
The deployed infrastructure consists of a 96-strand G652 type fibre optic laid underground, with a joint box located on the River Ntem Bridge separating both countries.

"Appropriate measures have been taken to secure this new, latest-generation infrastructure from vandalism," said Clement. "The interconnection has been tested and confirmed technically viable and the availability of service rate stands at nearly 100%, in accordance with ITU standards."

The latest interconnection offers a capacity of approximately 100 Tbps, facilitating e-learning, videoconferencing, e-commerce, telework, telemedicine, file transfer etc.

This development stems from an MoU signed November 2019 in Libreville between Gabon and Cameroon and forms part of the broader Central African Backbone (CAB) project.

"Optic fibre plays a vital role in sub-regional integration," Likeng added. "That is why we are investing in joint projects... their deployment [fibre optic] has grown, offering new opportunities in areas related to health, education, online banking and administration, social networking and internet telephony."



The Cameroon-Gabon fibre interneconnection is now live

The infrastructure is expected to increase ICT adoption and reduce the digital divide, improve quantitatively and qualitatively offer of digital services at reduced cost and foster sub-regional integration.

Huawei partners with Mondia Pay for digital payment options in Algeria and Tunisia

Huawei Mobile Services (HMS) had joined forces with digital payment provider Mondia Pay to provide Ooredoo Algeria and Orange Tunisia users with safe and convenient payment options.

Users of Huawei devices can now pay for their monthly services, latest games, as well as favourite applications seamlessly on HUAWEI AppGallery using Direct Carrier Billing services (DCB).

With over 2.1 billion global monthly transactions, Mondia Pay said it aims to provide users in north Africa with secure, convenient, and contactless payment options.

This integration is a result of a strategic partnership that was formalised in September 2020 and has since witnessed an increase of DCB coverage and IAP (In-App Purchase) kit capabilities for global developers.

"We are extremely proud of our continued partnership with Huawei Mobile Services and to bring Mondia Pay's fully integrated digital payment technology to serve the Africa region," said Simon Rahmann, chief executive officer, Mondia Pay. "We remain committed to delivering innovative digitalisation and payments solutions that enable the natural progression towards cashless societies throughout the rest of Africa."

Adam Xiao, managing director of Huawei Mobile Services in the Middle East and Africa, Huawei Consumer Business Group, added: "We are pleased to partner with Mondia Pay to provide Huawei AppGallery users in Algeria and Tunisia with seamless, safe, and secure payment options. This partnership further cements our commitment to enable technology around the world and to provide Huawei users in Algeria and Tunisia with convenient access to services by Huawei Mobile Services."

The service went live with multiple DCB services providers such as Ufone Pakistan, Vodafone Egypt and Etisalat UAE.

Hormuud Telecom to expand 4G network

Somalia's largest telecommunications services operator, Hormuud Telecom, is to extend its 4G phone network across the country, with a strategy to provide nationwide coverage by 2023.

The company began expanding its 4G network capacity in 2015 in partnership with the Somalia Ministry of Telecommunications, which estimates that across the Horn of Africa country, over 11.25 million people (representing 70% of Somalia's 15 million population), now have access to 4G internet.

However, Hormuud says 4G access is primarily limited to major cities and Somalis in rural areas often do not enjoy the same level of network access. Currently, 30% of Hormuud's 3.6 million customers still rely on its 2G network - the majority of which live in rural areas.

"We're delighted to today announce Hormuud's ambition to bring broadband speed, 4G data, to every Somali citizen over the next two years," Hormuud Telecom's CEO Ahmed Mohamud Yuusuf said. "We are proud to have long played a leading role in bringing Somalis online. Increasing access to 4G internet is critical to ensuring Somalia achieves its goal of becoming a cashless economy."

Hormuud's aim for total 4G expansion in two years is in line with current government commitments, as the Somalia government's National ICT Policy pledges to reach total 4G coverage between 2024 - 2025.

The company has quantified the consumer demand in the country and the average Hormuud data user consumes 5GB of data monthly, up from a national average of around 1-2GB a year ago.

According to Hormuud, Somali consumers enjoy the lowest data prices in Africa with 1GB starting at US$0.18. The same amount of data starts at US$1.05 and US$2.44 in neighbouring Kenya and Ethiopia.

"Access to high-speed data is now a human right. It's a foundational requirement to developing nations in order to provide vital services such as aid and international remittances, as well as underpinning day-to-day business activity," Yuusuf added.

South Sudan launches first domestically-owned MNO

South Sudanese president Salva Kiir Mayardit unveiled the country's first mobile operator in July.

With the launch of Digitel Telecommunications, he said it will be able to track quickly connections in areas where foreign telecommunications companies previously operating in the country were not serving.

"For those of us who live in remote areas who need mobile services, the government is determined to bring mobile services to your location," Kia said in the capital Juba as Digitel went live in South Sudan.

"The government will consider options such as tax exemptions to help import network equipment and communications tools, which will help improve digital literacy programs for the next generation of ICT-driven economies," he added.

Athiei De Chan Awuol, executive vice president of Digitel, added the company is committed to providing digital services nationwide.

"Our launch of telecommunications services and products 10 years after Independence Day shows that South Sudanese can contribute to a brighter future for ourselves, our children and the next generation," Awuol said.

He added that the launch of Digitel demonstrates the commitment of South Sudanese to develop the country, adding that the government has been working hard to attract foreign investors since 2011.

Digitel competes with South African-owned MTN and Zain Telecom in the South Sudan market.

Cameroon regulator's new model to become highly efficient by 2025

Cameroon's Telecommunications Regulatory Board (ART) is working on a new regulatory model "to become a robust, innovative and performing institution by 2025".

The ART indicated that with this fundamental transition, it would be able to optimally contribute to the achievement of president Paul Biya's ambitions for "the strategic sector of electronic communications" during the current presidential term.

This new regulatory model is being developed in a country that needs to prepare for the integration of the 5G technology, which is 10 to 100 times faster than the 4G, and efficiently anticipate the emergence of new technological innovations.

The ART said it has become apparent that there is a big gap between the current regulatory model and the innovation dynamic ongoing in the telecommunications sector. That gap can significantly impede the harmonious development of electronic communications in Cameroon, the ART concluded. This is what the new model is being developed to address.

‘Sub-Saharan Africa to reach 70m 5G subs by 2026’, says Ericsson report

Sub-Saharan Africa is on target to reach 70 million 5G subscriptions by 2026, according to a report by Swedish tech giant Ericsson.

The company recently unveiled two reports that, together, forecast the post-pandemic world and the future of 5G in Sub-Saharan Africa and around the world.

It projects that 5G mobile subscriptions will exceed 580 million by the end of 2021, driven by an estimated one million new 5G mobile subscriptions every day.

The forecast, which features in the latest Ericsson Mobility Report, confirms the expectation that 5G will become the fastest adopted mobile generation. 5G is expected to surpass a billion subscriptions two years ahead of the 4G LTE timeline for the same milestone.

The report also features breakout statistics from sub-Saharan African markets where around 15% of mobile subscriptions were for 4G at the end of 2020. Mobile broadband subscriptions in sub-Saharan Africa are predicted to increase, reaching 76 percent of mobile subscriptions by 2026. However, 5G volumes are not expected to grow in the region for 2021 but are likely to reach around 70 million 5G subscriptions in 2026.

“The recent reports have demonstrated the success of setting #AfricaInMotion. Sub-Saharan Africa is expected to see continued growth in mobile broadband thanks to the young population, increased coverage, and more affordable smartphones,” said Todd Ashton, vice president and head of Ericsson south and east Africa. “By 2025, we will be looking at a new normal with online activities becoming more common daily. 4G will become more pervasive and 5G will start to grow. As a result, we will definitely see increased economic growth and an acceleration in Africa’s digital inclusion.”

Todd Ashton, vice president and head of Ericsson south and east Africa

Ericsson further found that despite the uncertainty caused by Covid-19, service providers continue to switch on 5G, and more than 160 service providers have launched commercial 5G services.

Egypt helps Libya to rebuild telecoms services

The government of Egypt is coming to the aid of its neighbour, Libya, by helping to rebuild the telecommunications services due to the damage caused by the country’s civil wars of the past decade.

Amr Talaat, the country’s minister of communications and information technology (ICT), met Faisal Ahmed Qarqab, chairman of the Libyan Telecoms Holding Company, to discuss collaboration, according to media reports.

At their meeting, both officials agreed on the formation of a joint working team that will develop a collaboration plan as well as a schedule for the implementation of cooperation projects.

The government of Libya is seeking to revive the sector to keep the pace with global digital transformation.

Talaat said the initiative will help restore the Libyan telecom and ICT market. It will focus on various segments including the development of digital infrastructure, digital transformation, postal services, capacity building, development of digital skills of youth in various communication sciences and information technology, development of the legal framework of the ICT sector, and training of Libyan workers in cybersecurity.

As part of the agreement, Egypt said it will grant Libya its expertise to improve access to quality telecom services for the population and increase the financial contribution of the sector to the state’s finances.

It is hoped that it will foster the return of international financial exchanges via mobile and online as well as the attraction of new investors.

Connecting Nigeria’s unconnected

Satellite broadband service YahClick and its partner Hughes Network Systems have partnered with core telecommunications services provider Global Communications Extension Services (GCES) to provide satellite connectivity for 9mobile in Nigeria.

YahClick, a service offered by global operator Yahsat, said its partnership with GCES will bring satellite connectivity to hundreds of cellular backhauling sites, delivering 9mobile with what is described as a reliable and robust means of rural connectivity across its entire Nigerian operations.

The former’s satellite services now reach more than 60% of the population in Africa and the agreement with GCES extends the company’s reach to more regions within Nigeria.

YahClick says that the satellite backhauling option makes it feasible to offer cellular services in areas that are prohibitively expensive to reach using traditional terrestrial means.

Meanwhile, Nigerian ISP Fiam WiFi has expanded its use of Facebook Connectivity’s Express Wi-Fi platform to Ajegunle, a suburb of Lagos densely populated with lower-income earners.

Over the next three months, Fiam Wi-Fi plans to bring Express Wi-Fi services to some of the most deprived communities in Lagos, providing, as the company puts it, 1GB of data for N200 (just under US$0.49) without validity or expiration period.

Fiam Wi-Fi is one of Nigeria’s newest telecommunications companies, providing internet via hotspots to high-density, low-income communities.

Fulfilling the promise of connecting people in North and West Africa

As communications service providers (CSPs) across the globe race towards the goal of commercial 5G deployments, the picture in North and West Africa has been slightly different. The region accounts for only one 5G CSP and that is Togocom which at the end of 2020 launched the first and sole 5G network in North and West Africa. There has, however, been a lot of trials and requests relative to 5G from numerous CSPs. We expect 5G deployments to start gaining momentum towards early 2022 and into 2023.

There are several reasons for this delay in uptake, with many countries still prioritising 4G, 4.5G, and 4.9G to extract as much potential and value out of those network investments before making the shift to 5G. This coupled with the COVID-19 pandemic that rocked the world in 2020 and continues to cause uncertainties, has played a big role in delaying rollout.

5G comes with the promise of completely changing the way we do things. It allows us to communicate faster, as well as communicate and share bigger loads. It also allows for more automated machines and sensors that are self-reliant or self-dependent that will change the way we work, interact, and drive our businesses and communities, essentially automating industries. It will also allow for the virtualisation of communications, infrastructure, and industries. It paves the way for smart machines, for example. In the 3G and 4G era, we programmed machines to execute programmes.

In the era of 5G, we will see machines self-programming, by analysing their environments and what is happening around them, and then programming themselves for the different options to those scenarios. Examples of use cases include self-driving cars, container handling in harbours, and construction. That is one of the aspects that will change with 5G and the promise of lower latency.

The second use case is the Internet of Things (IoT), as 5G enables more and more objects around us to be connected. The third use case is about people and the way we communicate, or virtualisation. Virtualisation of not only the conversation but all our assets, removing the need for physical visits to sites. In Nokia's case, for example, we are required to send a team to check every installation to ensure that quality standards are adhered to, which often requires multiple visits. Through virtualisation, however, this can be done remotely. Imagine the savings on time and bandwidth if networks comprising five to six thousand units can be managed remotely, eliminating the need for travel. You could have everything at your fingertips in three-dimension and in real-time and you will not need to go and do a physical inspection. This could be a game-changer for CSPs.

On the African continent, 5G also delivers on the promise of making services more broadly available to citizens, particularly those in remote areas. From eliminating the need to visit a doctor in person, where citizens often have to travel vast distances to remote surgeries, it presents an opportunity to bring the services closer to the citizen. And that is very important for a continent like Africa, where there is still only a 50% penetration rate for mobile, compared to some continents where mobile penetration rates are sitting at 100 to 120%. In Africa, it is not just about making calls, but rather connecting them to essential services. It is about giving them access to education, health, and safety services, and connecting people with the administration of their respective countries.

New technologies often drive new industry standards and even new industries, and this, in turn, requires new skills sets. For the telecommunications industry, it is straight forward – the name of the game will be digitalisation and automation. So, the industry will require the skills needed around the creation, maintenance, and optimisation of this automation to move forward. From a societal perspective, one of the key buzzwords remains Big Data. We are already seeing jobs emerging that did not exist five years ago, and many of them focus on Big Data. Where in the past the most sought-after job titles included engineer, doctor, and teacher, today it is data scientist, data architect, database engineer, and security expert. And as the amount of data societies are exposed to increases exponentially with 5G and IoT, everything will become data-oriented, which means that data will have to be managed and used effectively to evolve industries and kept secure.

"At Nokia, we create the technology that helps the world act together. Connecting people provides us with a sense of fulfilment and enables us to add something to the world and our communities."

Nokia has a rich history of creating critical networks in Africa and connecting the unconnected. Our journey in building solid critical telecommunications networks – 1G to 5G -- for CSPs and enterprises with our comprehensive technology portfolio continues with many milestones to provide more inclusive access globally including in Africa. At Nokia, we create the technology that helps the world act together. Connecting people provides us with a sense of fulfilment and enables us to add something to the world and our communities. Currently, the 5G momentum continues to grow for Nokia globally and in Africa, marked with 230 + commercial 5G agreements and 68 live CSP 5G references, as on August 30 2021. At the same time, Nokia continues to cater to the demand for 3G and 4G, as the African market is a diversified telecoms market. And while we still have some way to go in the African context, we continue connecting communities, giving them access to valuable critical services that improve their lives. ■

Mounir El Aichaoui, Head for Mobile Networks for North and West Africa at Nokia

Avanti partners with Clear Blue in solar energy deal to expand telecoms coverage

UK-based satellite firm Avanti has partnered with Canadian solar energy specialist Clear Blue Technologies to roll out telecoms coverage in parts of Africa.

Under the terms of the deal, both companies will help enable mobile network operators and tower companies to deliver rural network coverage to areas across sub-Saharan Africa.

Within the next three to five years, the partnership is expected to deliver mobile network coverage to the 400 million people that currently cannot access mobile broadband services.

"We are thrilled to partner with Avanti to provide key telecom services to rural regions in sub-Saharan Africa, ultimately connecting the billions worldwide who lack telecom and internet access," said Miriam Tuerk, chief executive officer and co-founder of Clear Blue Technologies. "With only 26% of sub-Saharan Africa already connected through mobile internet, we're looking forward to bringing connectivity to areas where costs and lack of infrastructure make internet services prohibitive."

The partnership will accelerate the rural rollout of low-cost connectivity solutions in areas where network coverage and broadband services have been limited or non-existent. Avanti and Clear Blue have already successfully provided these connectivity solutions in significant deployments across Africa's largest economies.

Avanti's rural network coverage solution supports 2G, 3G, 4G and Wi-Fi connectivity across Africa. As part of this joint rural deployment effort, Avanti will provide critical, high throughput Ka-band satellite connectivity and VSAT equipment. At the same time, Clear Blue will deploy its smart off-grid solar-powered solutions with remote management and control.

"Our core belief is that everyone deserves the socioeconomic benefits of a more connected life and this partnership with Clear Blue will bring life-enhancing coverage to rural communities in remote areas," added Libby Barr, chief operating officer at Avanti. "Together with Clear Blue, we will be able to deploy thousands of sites across sub-Saharan Africa, connecting a population that is growing at 2.7% per year. We expect the remote telecom market to continue to take off and we are looking forward to being at the forefront of the rural network coverage expansion."

Sub-Saharan Africa is expected to become one of the largest telecom markets in the world. The region has a young population with a projected high population growth, at a rate of 2.7% per year, more than double the rate of growth in southern Asia and Latin America. As a result, operators are expected to invest US$52bn in infrastructure from 2019 – 2025, much of which will be in rural deployment.

Avanti and Clear Blue partner in Africa

ISAT and SES partner for 4G services in east Africa

UAE-headquartered ISAT Africa and Luxembourg's SES have penned a three-year agreement to provide 4G services in east Africa.

The new service will be available first via SES's O3b medium earth orbit (MEO) constellation to subsequently migrate and expanded to SES's next-generation MEO system, O3b mPOWER, in 2022.

Through SES's highly flexible and scalable O3b mPOWER system that can deliver low-latency high-speed connectivity services from tens of megabits to multiple gigabits per second to a single site, iSAT Africa can scale its network to meet anticipated extensive connectivity demands. The fibre-like connectivity will equip iSAT Africa to enable local mobile operators to deploy 4G services to close the digital divide.

iSAT Africa is among the first companies in Africa to sign up for O3b mPOWER.

John-Paul Hemingway, CEO of SES Networks, said: "We will be able to revolutionise the connectivity capabilities of mobile operators across Africa together through this agreement with iSAT Africa. The O3b and O3b mPOWER systems will easily enable the deployment of 4G services and high-performance networks for cloud applications regardless of where they are across the region."

According to the GSMA 2020 report, mobile coverage has been expanding in sub-Saharan Africa quickly. 3G coverage is expanded to 75% compared to 63% in 2017, while 4G doubled to nearly 50% compared to 2017. However, the coverage gap in the region remains the highest globally as it is home to 67% of the world's population not covered by mobile broadband. This is because attempts to deploy 4G networks in sparsely-populated rural and remote areas continue to be an economic challenge. Telcos and internet service providers increasingly seeking innovative, cost-effective yet reliable connectivity solutions, which means SES's MEO satellite-based MEF-certified service that can ensure seamless interconnectivity with any network is an ideal solution.

MTN walks away from Ethiopia

MTN Group has pulled the plug on its attempt to secure an operating licence in Ethiopia as it recorded a major drop in net profit for the first half of the year (H1).

The South Africa-based operator declared it would not participate in the Horn of Africa nation's latest tender to find a second new entrant, having had its initial bid rejected in May.

Following its initial failure to secure a licence, MTN chief executive officer Ralph Mupita indicated the company would consider another attempt if licence terms were tweaked to include mobile money.

However, despite Ethiopian authorities changing their mind on this point, MTN has now decided to turn its back on any deal. According to reports, the operator is concerned about the political situation in the country. MTN said it is also exiting Syria by "abandoning the operation, given regulatory actions and demands that make operating in the market untenable".

Furthermore, as a part of a wider strategy to exit markets in the Middle East, the firm said it was in the process of exploring its options to exit Yemen and Afghanistan "in an orderly manner".

MTN recorded a number of impairment charges and other one-off items, which hit its bottom line in H1.

These included a R4.7bn loss on its Syria exit, an impairment charge of R700m in Yemen and donations related to the pandemic (R500m).

However, the company highlighted solid operational growth in the period against the backdrop of what it described as "persistently challenging trading conditions".

Service revenue increased 19.7% year-on-year on an adjusted basis to exclude currency fluctuations, pointing to rude health in South Africa, Nigeria and Ghana. It also benefitted from continued growth in data usage and mobile money in other key markets, the operator said.

Libya uses Infinera to improve telecom sector

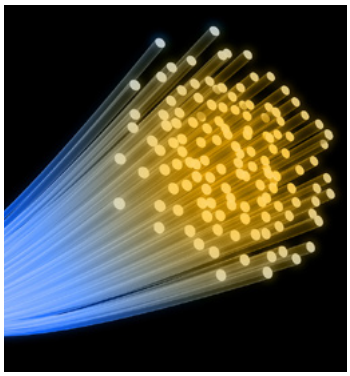
State-owned operator Hatif Libya, a subsidiary of the Libyan Telecommunication Holding Company (LPTIC), has inked a deal to improve its fibre-optic network with US-based company Infinera.

Under the terms of the deal, the multi-million US$ project will provide access to the internet and mobile services in areas not reached previously by the network and improve the quality and reliability of services for all customers.

"The project leverages universal switching and transport capabilities, enabling the national network to dynamically switch traffic over diverse paths to ensure the continuation of services in the case of interruptions caused by physical damage to cables or power outages," said the releases. "To do this, Infinera will deploy Automatically Switched Optical Network (ASON) technology."

The need for secure digital transport capacities has increased with the rapid development of the telecommunications sector in Libya and the growing demand for mobile phone services, internet, and digital transformation, it said.

On completion, the LPTIC said the network will deliver capacities and cyber protection for 60 sites throughout the north African territory using advanced optical equipment and technologies to reach an operational capacity of 600 GB on the coastal strip and 200 GB in the southern region. This can be expanded and developed to reach nine terabytes.



Talking satellite

Martin Jarrold, chief of international programme development, GVF

Bridging divides & disaster responses

Since I last wrote for this column referencing the GVF-SEG webinar production partnership, our global membership continues to be represented on various webinars featuring in both the main GVF-SEG online events series (live and on-demand) and in programmes featuring GVF-organised panel discussions as streamed embedded content within third-party conferences and exhibitions.

The digital divide, long characterised only as an issue for low and middle-income developing nations is, as a result of the impact of the Covid-19 pandemic, now recognised as being of wider concern even for developed nations. For developing nations the emphasis in bridging the divide must be on both the availability of connectivity and its affordability, whereas for developed countries the greater weight of concern relates to availability, less so on affordability. Developed nations have their remote region connectivity gaps too. Whilst satellite has long been correctly seen a means of solving the connectivity problem as it can be deployed anywhere, and its coverage is ubiquitous, there are many fundamental questions directed towards understanding the principal barriers to serving those on the wrong side of any digital divide, and if you want answers to such questions as these...

- What are the unique requirements of businesses on the other side of the divide as compared to the requirements of individuals?
- The complaint about satellite communications has long been its cost. Is that still a valid complaint from the perspective of businesses? From that of individual consumers?
- Do universal service funds and the like help bridge the divide?
- What would you ask of regulators who are charged with bridging the divide in their country?
- Is there a role for satellites to provide solutions to businesses and communities on the other side of the divide in urban settings?
- What developments in terms of services, products, and costs will we see in the next five years that will help bridge the divide?
- Will the roll out of 5G networks help bridge or widen the divide?
- LEO and MEO systems offer lower latencies compared to GEO systems. Is that an issue when providing connectivity to businesses and communities on the other side of the divide?
- Community Wi-Fi is one way to bring affordable connectivity to remote and often relatively poor communities. Please comment on this and about other services that similarly address the needs of such communities.

Additionally, you can read a write-up of the panel discussion in Via Satellite's 'Satellite Today' entitled Satellite Players Say Government USOs Key to Bridge Digital Divide.

The role played by satellite communications networks following disasters and in preparing for disasters is crucial. Satellite's ground and space segment capabilities in providing quickly available, quickly deployable, rugged, self-contained, in-field, user-friendly global communications links for disaster-affected regions is an imperative driven by the needs of first responders when terrestrial telecommunications infrastructure is destroyed or compromised by increased demand and traffic. Disaster response has taken on a new connotation since Covid-19. The pandemic has brought into even finer focus the critical role of satellite following disasters, highlighting the tragedy of how disasters often disproportionately impact the most vulnerable. This webinar answers such questions as, "The satellite industry has signed an agreement with the UN's World Food Programme, the Crisis Connectivity Charter. What does this agreement provide?" Tune in to the video on-demand using the link above to find the answers to this and other questions, such as:

- If Satellite networks are so well equipped to respond to disasters, should they only be used in case of emergency?
- Studies have shown that the return on investment for disaster preparedness is at least four times greater than the ROI for disaster response. When it comes to restoring communications, what should governments do to better prepare for disaster in terms of training, purchasing, and maintaining equipment, and other forms of preparedness?
- When a disaster destroys cell towers and satellite antennas, and cables are cut, the need to quickly deploy satellite terminals becomes critical. Given the wide range of competencies, easy to transport, operate and maintain terminals are vital. What advice would you give disaster responders which are looking to purchase such terminals for future operations?
- There are man-made disasters that impact communications such as cyber-attacks. Are satellite networks something governments should be concerned about when planning for, or responding to, such man-made disasters or are satellite networks resilient to such man-made disasters?

Finally, until the next time, wherever you are whilst reading these words... Keep well, stay safe.

Africa looks up for connectivity

Japanese telecommunications services and technology giant SoftBank has partnered with the Smart Africa Secretariat to use the skies to connect remote or underserved regions of the continent.

An alliance of 32 African countries, international organisations and global private sector players, the Smart Africa Secretariat is tasked with Africa's digital agenda.

A memorandum of understanding between the partners highlights plans for a collaboration on what are called innovative solutions towards achieving the vision of providing affordable broadband. The aim is to unite a number of existing approaches to satellite and high-altitude communications with an investment plan called the Bulk Capacity Purchase Project.

Smart Africa Scretariat's strategy is double broadband penetration to 51% across the continent by 2025. It is working to implement the Bulk Capacity Purchase Project, an initiative that aims to deliver affordable internet connectivity for African citizens through the large-scale joint procurement efforts of Smart Africa member countries.

To contribute to the project, SoftBank will deploy its non-terrestrial network (NTN) solutions to reduce internet costs and build affordable internet infrastructure.

It will utilise the connectivity services of satellite internet firm OneWeb, satellite IoT business Skylo and HAPSMobile, an operator of high altitude platform station (HAPS) networks to provide connectivity from space and the stratosphere. SoftBank will deploy NTN solutions in African markets by collaborating with Smart Africa and working closely with its member countries.

Five African countries have already expressed interest in the Bulk Capacity Purchase Project: Djibouti, Egypt, Kenya, Morocco and Rwanda.

Connectivity from high altitude could overcome the technical problem of traversing remote terrain and serving low population areas – if it can be done affordably.

However, one such initiative has already failed. Earlier this year, Alphabet pulled support from its internet-beaming balloon subsidiary Loon, after the company failed to find a financially stable business model.

LIT appoints new CEO for South Sudan

Liquid Intelligent Technologies (Liquid), a pan African technology group, has named Martin Mushambadope as the new chief executive officer for its operations in South Sudan. He brings over 20 years of experience, having worked for various industries such as telecommunications, health insurance, banking, and audit practice. He previously worked in Singapore and the UK, as well as Ghana, Kenya and Zimbabwe.

GPE names Soussa MD

An international consortium named the Global Partnership for Ethiopia, comprising Safaricom, Vodacom Group, Vodafone Group, Sumitomo Corporation and CDC Group, has appointed Anwar Soussa as the managing director (MD) of the operating company in Ethiopia.

He currently serves as managing director of Vodacom DRC and the chairperson of Vodacash (M-PESA), Vodafone's African mobile money service.

The special-purpose acquisition company (SPAC) was formed to operate telecom services in Ethiopia and was awarded the licence to do so in May 2021.

Safaricom is the biggest shareholder in the company with a 55.7% share, followed by Sumitomo Corporation (27.2%), CDC Group (10.9%) and Vodacom (6.2%).

Effective as July 1, Soussa will report to the board of GPE as well as Safaricom's CEO, Peter Ndegwa.

During his tenure, Soussa has cemented Vodacom DRC as the largest Vodacom operation outside of South Africa by passing US$500m in service revenue in 2020.

As MD of the GPE Soussa will lead the Ethiopian operating company on behalf of the GPE consortium.

In the role he will be responsible for executing the consortium's vision of bringing about transformational economic and social changes in Ethiopia and to positively enhance the lives of its over 112 million population. Soussa will develop strategies and plans to ensure the delivery of quality and affordable mobile and internet connectivity for Ethiopians.

Prior to joining Vodacom, Soussa served as the chief executive officer of Airtel in Uganda and Chad. He has also worked in various senior leadership capacities at MTN and Digicel, among others.

HE appointed president of Huawei northern Africa

Chinese tech giant Huawei has announced the appointment of Terry HE as president of Huawei northern Africa. In this role, he will be responsible for coordinating the group's overall operations in the 28 African countries in the region.

Prior to this role, HE had 15 years of experience in the Middle East, where he successively served as chief operating officer of Huawei Pakistan, chief executive officer (CEO) of Huawei Kuwait, president of Huawei Middle East Enterprise Business Group and CEO of Huawei Saudi Arabia.

"I am very grateful for the trust placed in me," HE said. "I am delighted to be able to help consolidate Huawei's commitment to the continent. Our priority will be to accompany governments, our customers, and our partners to accelerate their digital transformation and thus reduce the digital divide by applying the most advanced technologies and the experience of our group."

HE will now be responsible for strengthening Huawei's investment in digital infrastructure and training of young talent in Africa.

Djibouti approves draft law re transfer of Djibouti Telecom shares

The Republic of Djibouti has approved a draft law defining the terms and conditions for the total or partial transfers of shares in state-owned capital in public enterprises.

During the Council of Ministers meeting July 11, the government announced the share capital opening of the historical national operator to private investors.

The state will offer a minority and significant portion of its shareholding to a first-rate strategic partner.

This opening of Djibouti Telecom's share capital a sign of the government's determination to implement a proactive policy to modernise the country's economy, increase global competitiveness, and optimize the governance and management of state-owned enterprises (SOE), it said.

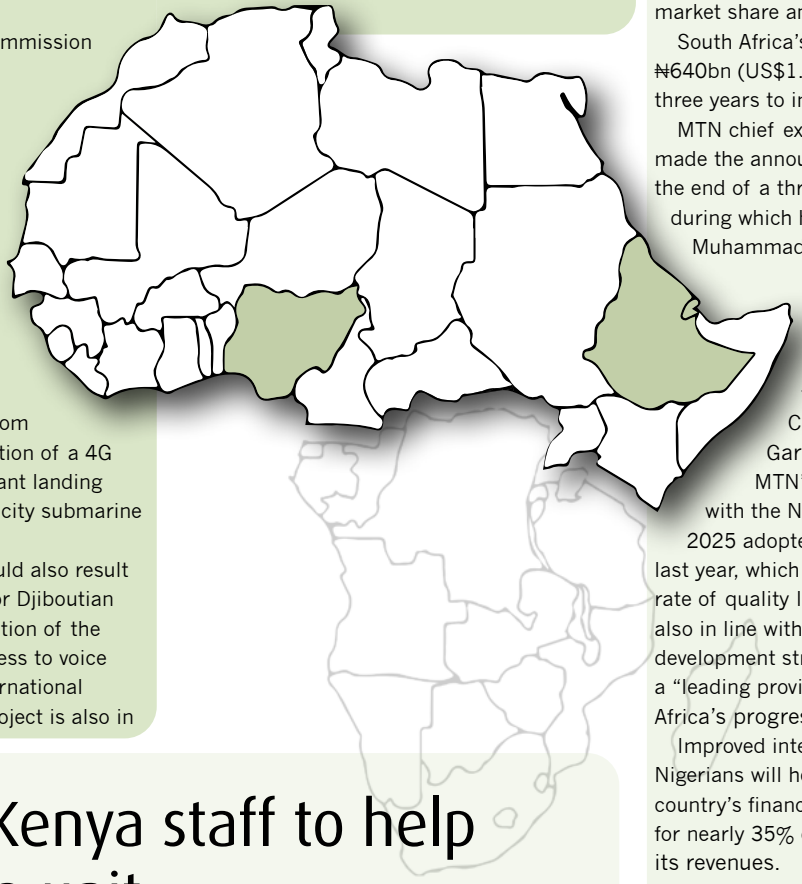
The Republic of Djibouti will commission international advisors to conduct the transaction.

For 20 years, the country has been implementing an ambitious development agenda and has established itself as a key logistics and services gateway between Asia, Africa and Europe. Djibouti Telecom is strategically positioned to connect the region, the continent and the rest of the world. It has state-of-the-art telecom assets (including the implementation of a 4G network) as well as a very important landing infrastructure of twelve high-capacity submarine cables (AAE-1, SMW5, Dare 1).

It is hoped the transaction should also result in direct positive consequences for Djiboutian citizens and businesses: optimisation of the operator's offer and services, access to voice and data services at the best international standards, among others. This project is also in line with Djibouti's desire to rapidly develop an entire ecosystem linked to the digital economy, of which Djibouti Telecom would be one of the major players.

During the Council of Ministers meeting, the country's president Ismaïl Omar Guelleh stressed the urgency "to accelerate the pace of reforms concerning public sector companies, to better cope with international and regional competition, and to ensure that these companies participate fully in the national effort of emergence and development financing".

The Djiboutian state will remain a majority shareholder, committed to the company. It will also propose clear and ambitious specifications to the private partner.



MTN plans three-year US$1.5bn investment to improve broadband connectivity in Nigeria

Nigeria wants to increase the internet penetration rate to 90% by 2025, the government said.

The announcement has led to a raft of mobile operators in the country battling to win more market share and solidify their customer base.

South Africa's MTN announced plans to invest ₦640bn (US$1.5bn) in Nigeria over the next three years to improve access to broadband.

MTN chief executive officer Ralph Mupita made the announcement June 21 following at the end of a three-day working visit to Nigeria during which he met with the president Muhammadu Buhari, vice president (VP) Oluyemi Oluleke Osinbajo, minister of communications and digital economy, Isa Ali Pantami and executive VP of the Nigerian Communications Commission (NCC), Umar Garba Danbatta.

MTN's investment in Nigeria is in line with the National Broadband Plan 2020-2025 adopted by the Federal Government last year, which aims to increase the penetration rate of quality Internet connectivity to 90%. It is also in line with the company's "Ambition 2025" development strategy, which is to become a "leading provider of digital solutions for Africa's progress."

Improved internet access for millions of Nigerians will help MTN to further increase the country's financial contribution - which accounts for nearly 35% of its annual performance - to its revenues.

Safaricom's Kenya staff to help with Ethiopia unit

Kenyan operator Safaricom will second its staff to run Ethiopia operations for products and network development that will help it gain market share currently enjoyed by state-owned Ethio Telecom.

The telco, which alongside other partners is seeking to start operations in 2022, will then gradually reduce Kenyan expertise and inject into the local workforce as the business grows.

Safaricom's operations in its native Kenya will be through an operating company that will have its own CEO, executive team and a full management team.

Safaricom CEO Peter Ndegwa said the operator wants to achieve a high network coverage in a market with more than 100 million people and a relatively lower uptake of mobile and internet services.

"We will need to second several people to be able to inject the level of expertise, both on the technology side, but also on the commercial side," he said. "But quickly (we will) start to embed local talent, to ensure that their flavour of the business will start being Ethiopian. We intend to make sure that long term that business is truly Ethiopian."

Safaricom said it will employ the strategies that saw it overtake Airtel Kenya (then Kencell) in the mobile phone market nearly 20 years ago.

Vodacom records 14% rise in Q1 revenue

South Africa's Vodacom Group posted a 14.2% rise in revenue for the quarter ended June 30 thanks to demand for more connectivity services across the continent.

Revenue rose to R24.78bn from R22.73bn year-on-year as the operator, along with rival MTN, benefitted from greater demand for connectivity as the Covid-19 pandemic continues to force people to work and study from home.

Vodacom said revenue for the quarter would have been higher but for an appreciation in the South African rand which rose by 20% during the reporting period.

Revenue from Vodacom's international business, which includes M-Pesa payments operations, was up more than 15%, it said.

M-Pesa, which allows customers to send money, save, borrow and make payments, is part owned by Vodacom and the UK's Vodafone.

Meanwhile, the operator said about 70 businesses had signed up or committed to its new digital financial services "super app" that promises to be a one-stop shop for online transactions.

Last year, Vodacom announced a partnership with digital payments provider Alipay to build an app that would allow consumers in South Africa to shop online, pay bills and send money to family members. Alipay is owned by Ant Financial, the financial affiliate of China's Alibaba Group Holdings.

Digital financial services have become a significant part of African telecom operators' businesses in recent years, after they expanded from traditional voice calls into providing data, mobile payments and other digital services.

The 70 businesses include Massmart's Makro, Game and Builders Warehouse stores, pharmacy group Clicks, department store chain Edgars, online flight booking firm TravelStart and the KFC fast food chain, according to chief officer of Vodacom financial and digital services, Mariam Cassim.

Econet increases data packages by 20%

Econet Wireless increased its data packages by 20%, causing a major public outcry in the process.

The company justified its decision by indicating that operating costs have escalated over the past few months.

According to the reviewed Econet data bundle prices, the daily data bundle now costs Z$25 for 20MB up from Z$20. Subscribers will now pay Z$375 for a weekly 370MB data bundle, up from Z$288.

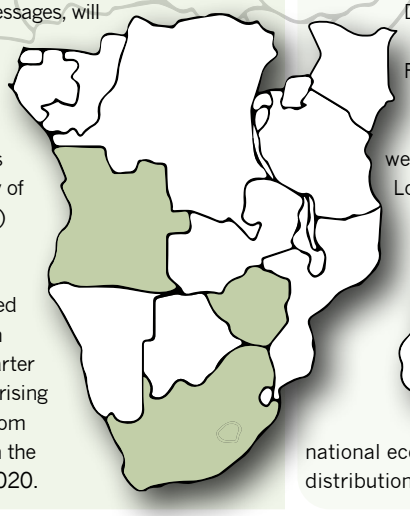
Several Zimbabweans took to social media to vent their frustration, but Econet defended the latest hikes which it said were prompted by rising operating costs of doing business.

"Econet Wireless has confirmed the review of its promotional bundle prices, saying the average 20% adjustment effective tomorrow was necessitated by rising costs," a company spokesman said. "The bundle price adjustment is an average 20 % uplift across the board and is essentially in response to rising input costs."

The service provider said the latest adjustments, which are still below the approved bundle tariffs by the regulator, will see a two-minute voice call bundle now going for Z$10, up from the Z$8.40, while a weekly 30-minute bundle will go from Z$166 to Z$180.

An SMS daily bundle, consisting of five messages, has been reviewed upwards to Z$2.40, from Z$2.09, while the weekly bundle, made up of 75 messages, will now cost Z$30, up from Z$23.81.

A recent Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) report said the telecommunications industry had recorded a 34.1 % increase in costs in the first quarter of 2021, with costs rising from Z$7.6bn, up from Z$5.7bn recorded in the fourth quarter of 2020.



Angola sanctions privatisation of Multitel through public tender

The president of Angola, João Lourenço, has authorised the privatisation by public tender of 90% of the capital of Multitel Serviços de Telecomunicações, which specialises in providing internet services for businesses.

The leader explained in a new presidential decree that he had taken this decision because Multitel "does not meet the necessary conditions" for its privatisation via the IPO procedure.

The state's share in Multitel amounts to 90%, via PT Ventures (40%), Angola Telecom (30%) and Banco de Comércio e Indústria (BCI) (20%).

Privatisation of Multitel falls within the framework of the 2018-2022 national development programme, which embraces the reform of the public finances of the executive. By 2022, the state plans to divest its stakes in the capital of 195 companies to restructure and resize the public sector of companies in Angola.

Angola's oil-driven economy has been in recession since 2016, causing its debt-to-GDP ratio to increase from 57.1% in 2015 to around 120.3% in 2020, according to the African Development Bank (AfDB) in its report "African Economic Outlook 2021: From Debt Resolution to Growth: The Road Ahead for Africa".

The Covid-19 pandemic has further weakened the country's economy. Lourenço said at the launch of the privatisation program in 2018 that the money from the sale of Multitel and several other actions of public enterprises would help "promote macroeconomic stability, increase the productivity of the national economy and achieve a more equitable distribution of national income ".

MTN ringfences R350m for SA network upgrade

MTN will pump R350m into its network in South Africa, specifically within the provinces of Limpopo, Mpumalanga and North West, to modernise, upgrade, build new sites and transmission links.

The operator said maintaining network quality remains the key objective despite challenges, like battery theft.

"We want to bridge the digital divide and create exciting opportunities for communities, businesses and individual users," said Kagiso Moncho, MTN general manager for northern region. "Our investment is therefore far more than achieving market share growth in the region – it is about bringing the benefits of the digital world to more people through a stable, secure and innovative network experience."

MTN said it is making progress with its 5G tech rollout strategy and activated this technology in greater Polokwane and Witbank, with the intention to expand coverage into areas such as Nelspruit and Middelburg.

"We are committed to ensuring our network coverage and quality is maintained and expanded so our customers stay connected," Moncho added. "This is even more critical in the face of the pandemic and subsequent lockdown, connectivity is essential for medical emergencies as well as for learners and individuals working from home."

Orange to use Huawei in Africa but not Europe

French telecommunications giant Orange will avoid using equipment from Chinese vendors when developing Europe's 5G networks but sees no issue in working with Huawei in Africa, where the Chinese company dominates as a supplier of equipment to many telecoms operators.

Speaking to newswire Reuters at Mobile World Congress in June, Orange chief executive officer.

Stéphane Richard explained the rationale behind the company's decision.

"We're working more and more with Chinese vendors in Africa, not because we like China, but we have an excellent business relationship with Huawei," he said. "They've invested in Africa while the European vendors have been hesitating."

A number of European governments have tightened controls on Chinese companies building 5G networks following diplomatic pressure from the US, which alleges Huawei equipment could be used by Beijing for spying.

Huawei has repeatedly denied being a national security risk.

However, countries such as Britain and Sweden have banned the Chinese vendors outright, while others have encouraged telecom operators to opt for European suppliers, particularly in the core parts of their networks.

Sweden's Ericsson and Finland's Nokia have steadily taken market share from Huawei. In late 2020, Orange's Belgian division decided to progressively replace Huawei equipment with kit from Nokia.

Talking critical

Chris Hogg
GCF head of 5G certification

Next generation mission critical services are being defined now – it's time to take part

An analysis by the Global Certification Forum (GCF) has revealed that the rate of adoption of 5G technology in mobile devices is significantly outpacing the rate at which 4G LTE was adopted in its early years. GCF is a non-profit, global, membership driven organisation. With more than 300 members from major operators, MVNOs, all major device and IoT manufacturers and the test industry, working together with key industry partners on certification programmes demanded by the market.

One of 5G's cornerstones will be ultra-reliable low-latency communications, significant for mission critical use cases including semi-autonomous driving, and many more benefits are promised. Much of this improvement, the increases in performance and efficiency, and greater flexibility and variety of offerings, will be built upon the virtualisation of services. Here, hardware and software will be separated and commercial off-the-shelf computer systems will replace dedicated equipment proprietary to specific vendors within the telecom infrastructure.

What effect will this have on the provision of and demand for, mission critical services (MCX)?

These new 5G services will take time to roll out but the established 4G networks already provide many functions that blue light services and other critical users value, such as broadband internet access and high-definition video. Currently, in order to access these functions, operatives must carry additional devices, which are connected to non-mission critical networks. This is clearly not ideal and consequently there is a demand for a mission critical broadband solution. Such a solution would require a hardened radio network (LTE or 5G – both standardised by 3GPP) that, as defined by The Critical Communications Association (TCCA), "is capable of a very high degree of availability, priority, pre-emption, trusted security and extensive coverage".

So, where are we on the path to MCX over LTE?

Working together, GCF and TCCA are on track to launch a certification programme for mission critical devices based on 3GPP wireless protocols during 2022. Ensuring mission critical devices and networks are interoperable is a key part of GCF's vision to enable the high quality, reliable and secure wireless communications demanded by users and industries across the globe, and of TCCA's mission to promote standardized critical communications solutions and the benefits of open and competitive markets in efficiently developing and delivering these solutions. GCF certification, developed in close cooperation with TCCA, is the way to ensure that broadband LTE devices are interoperable with mission critical networks and services. With lives sometimes depending on it, complete trust in this interoperability is crucial.

What are the next steps?

Having completed an extensive gap analysis, GCF's Mission Critical Services workgroup has defined the scope of a first phase of certification. GCF and TCCA are tracking the progress of deployments of mission critical LTE, currently ongoing in the USA, UK and South Korea, and gathering inputs from stakeholders to make sure that when mass scale deployments begin there is a fully proven certification process in place. A number of field trial test cases are being developed with the intention of submitting these to the GSM Association (GSMA)'s Field Trial Devices Group so that they may be included in a test specification. In the US, three National Institute of Standards and Technology (NIST) funded conformance test tool projects are underway, including one with TCCA as a participant, and GCF is monitoring the status of these and the expected availability of commercial MCX test tools.

The next generation of mission critical services, delivered over 3GPP based networks and devices, will be revolutionary and their shape and scope are being defined now. GCF and TCCA are keen to ensure that all parties interested in ensuring the seamless interoperability of devices and networks in this new MCX world have the opportunity to contribute to the discussion and, in doing so, help to fashion a certification programme that benefits all stakeholders.

To learn more or participate in the GCF Critical Communications certification programme, contact gcf@globalcertificationforum.org

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The powerful pull of a home number

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

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

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

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

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

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

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

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

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

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

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

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

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

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

The rise of the MVNO market was in part a response to some of these issues. MVNOs were established to help target a niche audience that MNOs couldn't or wouldn't. Many of the initial niche audiences were diaspora audiences that wanted to be both still 'home' and 'local' at the same time and so didn't automatically fit in either market. They needed something new to work for them and so MVNOs were created to target them.

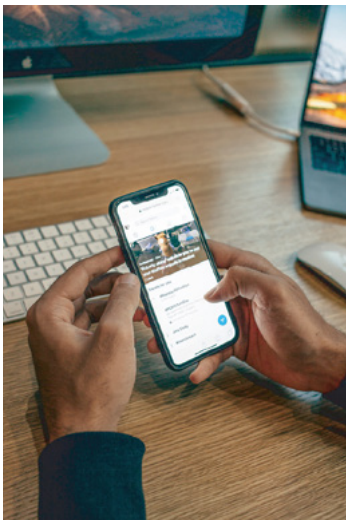
But the physical requirements of an MVNO, with a SIM card, mean that not everyone can easily be sold to. To buy something physical, people need to buy it in person, or be able to receive a delivery, which puts another barrier to entry in their way, but for some people and communities the logistics can be almost insurmountable. So communities that most need a niche solution created for them are further excluded.

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

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

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

So for example, someone who emigrates from Nairobi to Toronto will be able to get a contract with a Canadian MNO, but by downloading a digital MVNO onto



their handset, they will also be able to add a Kenyan number to that handset. They can then make and receive calls to any friends and family they have left behind. On many of the digital MVNOs, those calls and messages would be free if their friends and family had downloaded the same app.

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

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

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

Why is broadband connectivity still a problem in Africa?

Lack of access to reliable and affordable electricity and other services make accelerating Africa's broadband penetration difficult. But what are the other reasons? Robert Shepherd poses the questions

Every few months comes a new report about Africa's broadband/internet penetration – or lack thereof. What's more, it's not always easy to tell which paints the most accurate picture, with figures often skewed to suit a certain narrative.

One thing that's very clear is that broadband and internet penetration has never been more important, according to Richard Jacklin, director of sales, ViaLite Communications. "Covid-19 has brought in 'lockdown', requiring adults and children to be kept within the homestead," he adds. "For employees who can perform their work on a broadband connected device then connectivity to the home is essential to continue that work. Similarly for children and students, moving classes on-line also necessitates a broadband connected device. So broadband penetration is critical to enable this and reduce

Christoph Fitih, Parallel Wireless

"These functionalities of wireless tech and 5G could help the governments in African countries to close the gaps in governance and deliver services like healthcare and education on a mass scale by side-stepping infrastructural challenges with Open RAN"

the number without access to the connected technology – the digital divide."

What's also clear is the world's richest and most developed countries are committed to engagement in the race for digitalisation of their economies and societies. However, with its foundations embedded firmly in faster and expanded national broadband infrastructures, Africa lags behind, with numerous broadband access technologies still only scraping the surface of the continent's unmet and growing connectivity needs. Time to ask why.

Time to bore you with some facts, but they are necessary, so stay with me at the back.

As the second largest continent by land mass and population with circa 1, 340, 598, 147 inhabitants in 54 countries, broadband access is only enjoyed by a third of the population. What's more, achieving universal, affordable and good quality internet access by 2030 will require an investment of at least US$100bn. This is according to a report (The Broadband for All Working Group) launched at the Annual Meetings of the World Bank Group in 2019, which called for urgent action to close the internet access gap while providing a roadmap to reach this ambitious goal.

Compare that to the 27-nation European Union, where in 2020, Statista, a German company specialising in market and consumer data, recorded that 89% of households in the EU-27 had access to broadband internet.

So, let's get to the point: why in 2021 are large swathes of Africa still without broadband?

Farhad Khan, chief commercial officer of Yahsat and chief executive officer of YahClick, says it's linked to the sparse distribution of communities that are in rural areas and the high cost of connection per subscriber. "Unlike in the dense urban and suburban areas, where the delivery of fibre and installation of cell towers have economic benefits for operators, the rural areas rely on USO (universal services obligations) and donor funding or project funding to pay for access technology," he adds. "In addition, lack of electricity makes it difficult for operators, as diesel theft is rampant, and natural power technology costs have not reached critical mass economics."

For Brian Jakins, regional vice president of Africa sales, at international communications satellite services provider, Intelsat, there are two key reasons: "Africa is a vast continent and the differences in terrain can make it difficult to access certain regions," says Jakins. "The cost of handsets, energy and data can also be too high for some populations." More on cost later.

US-based Open Radio Network (Open RAN) specialist Parallel Wireless has a long and rich history in Africa, partnering with some of the biggest players on the continent. Christoph Fitih, sales director, Africa extolls the virtues of the technology and highlights the difference it's making.

"The mobile penetration in Africa remains at 44%, which means over 600 million people in Africa are still without mobile connections," he says. "The internet penetration in the continent is still at 25-30%. The biggest advantage of Open RAN as the technology to build 2G, 3G, 4G, and future 5G networks in Africa is that it brings down the capital as well as an operational expense and at the same time improves the experience for the end consumer. Infrastructure based on Open RAN can deliver high data speed, low latency, effective use of spectrum, better coverage, and support a larger number of devices."

As a result, Fitih says it enables service providers to offer several innovative services like augmented reality, virtual reality, remote surgery, autonomous transport system, industrial automation and more. "These functionalities of wireless tech and 5G could help the governments in African countries to close the gaps in governance and deliver services like healthcare and education on a mass scale by side-stepping infrastructural challenges with Open RAN," he continues. "It enables the authorities to provide services, including e-learning and e-health, through digital platforms, which is more cost-effective and improves lives of people across the continent."

Statista provides an interesting breakdown of internet users in Africa – as of December 2020 – by country.

At the top is Kenya with 85.2%, followed closely by Libya with 84.2%. Nigeria 73%, Mauritius 73% and Seychelles 72.2% make up the top five. Kenya's spot will come as no surprise, owing to its dominant position in the mobile money space, while Libya is going through a renaissance in the post Muammar Gaddafi era. Mauritius and Seychelles are investing heavily to service the tourists who frequent the Indian Ocean islands.

Indeed, the future looks bright for Nigeria - projected to double its 200m population by 2050 - which is embracing improved broadband connectivity.

For example, South Africa's MTN announced plans to invest ₦640bn (US$1.5bn) in the west African nation over the next three years to improve access to broadband.

MTN's investment in Nigeria is in line with the National Broadband Plan 2020-2025 adopted by the government last year, which aims to increase the penetration rate of quality Internet connectivity to 90%. It is also in line with the company's "Ambition 2025" development strategy, which is to become a "leading provider of digital solutions for Africa's progress".

Craig Thomas, vice president strategic marketing and business development at the body Broadband Forum, says the marketplace for broadband experience in the African region is diverse and is characterised by limited fixed broadband penetration. "In more developed areas, customers have the choice of mobile networks such as 4G, 5G, fixed wireless access, fixed access and satellite technology," he says. "Where internet connectivity is limited to 3G or

"This really could be a game changer for the rural coverage black spots, emergency scenarios and connecting the next billion using a standard smartphone"

4G, that inaccurately becomes the expectation of what broadband is. There is a clear argument to invest once and look at the broadband access network holistically to deliver next-generation access. One unified access network can integrate all technologies, with the final access technology the only variable as the network can be built to accommodate all broadband access technologies."

Jakins is of the view that Africa, with its burgeoning economies and rising youth populations, is transforming quickly, with cross-generation entrepreneurs set to drive the continent into its next phase of development, and broadband connectivity is a key enabler.

"Submarine cables running up and down Africa's coasts, combined with fibre-optic cables and cellular towers, have dramatically improved access to connectivity in the continent over the past 10 years," he says. "Yet, last-mile connectivity remains a challenge and according to GSMA, as of the end of 2019, 670 million people were still not covered by mobile broadband (3G or higher). The Covid-19 crisis highlighted even more the digital divide across the continent as people become even more dependent on connectivity for work but also to access news, health, finance services and education, as well as communicate with friends and family."

Time now to learn of some other figures. Martin Jarrold, vice president international programme development at GVF, the global non-profit association of the satellite industry, cites that broadband penetration figures for Africa – including 3G and 4G mobile connections – "do significantly vary by region" (southern = 62%, northern = 56%, western = 42%, eastern = 24%, central = 26%). "Expansion of broadband networks (not necessarily exclusively based on mobile/cellular technology, as will be explored below) and increasing these internet access percentages has many challenges," he adds. "One of these challenges is that meeting Africa's 2030 internet access target and carrying the burden of the US$100bn investment funding

"The cost of handsets, energy and data can also be too high for some populations"

requirement is beyond the capability and means of any one of the stakeholder types sitting on the Broadband Commission for Sustainable Development."

Of course, there are other challenges. Covid-19 has been felt throughout the ecosystem surrounding the internet and communications technology everywhere and certainly across Africa with the build-out of mobile/cellular networks being slowed due to various reasons. They include the declining affordability of network access as disposable incomes have declined during the pandemic, says Jarrold. "This has happened exactly as internet access has become even more vital, as the pandemic has manifest itself as a driver of an even greater need for bridging the digital divide," he says.

American, Asian, British, French, Italian and Middle Eastern companies – among others – in the telecommunications and technology sectors continue to invest in Africa. While there have been a number of success stories, it can still be a notoriously tricky place to do business for a number of reasons. However, one stands out more than the others, argues Jakins.

"Infrastructure in Africa remains the biggest challenge for telecom operators," he says. "Reaching the remote communities, in dire need of connectivity, is often uneconomical or not feasible. This creates a very meaningful opportunity for satellite technology, which is the most effective and cost-efficient way of connecting these communities." Jakins adds that satellite "is typically the only practical way to provide connectivity" to areas underserved or unserved by terrestrial networks, where economics do not make sense. "Satellite's ubiquitous coverage means that there are no 'last mile' issues, while the scalable and cost-effective space-based solutions can help countries meet connectivity challenges quickly," he says.

Jarrold counters that the state of Africa's broadband does not rest on the single issue of physical infrastructure roll-out. "Coordinated efforts by governments, the private sector, development agencies and civil society are necessary in supporting the prioritising of development of an overall ICT environment," he says.

Nevertheless, being a satellite official, he echoes Jakins' views on the technology and adds that there are challenges and obstacles to broadband access that cannot be blamed on power and pandemic. "To put it bluntly, terrestrial broadband infrastructure has fundamental limitations," Jarrold says. "Fibre landing from the trans-oceanic floor serves well many of the continent's coastal major cities their commercial business districts and richest residential neighbourhoods but is too expensive and impractical to roll-out far inland." He doesn't stop there – arguing that microwave towers are also expensive and geography and topography "can create too many practical deployment problems" for line-of-sight based services. "Mobile wireless cellular technology has been a considerable connectivity game-changer for Africa, but it does not have all the solutions to Africa's broadband connectivity needs within its 'gift'," Jarrold continues. "That is where and why satellite is now playing a bigger role in Africa's broadband connectivity expansion than ever before, an expansion that is significantly evolving away from any concept of satellite as a stand-alone technology used only as a rural and remote area service provision gap-filler. The era of the 'creative partnership' is what is beginning to change Africa's broadband connectivity/internet access status."

We know that terrain, cost and inconsistent power have often been used as blunt tools to explain Africa's slow progress in the broadband connectivity space. Another is politics.

Jakins says governments the length and breadth of Africa have understood the importance of broadband connectivity and are working on accelerating its deployment. "For instance, Intelsat, Liquid Telecom and senior leaders from the Rwandan government have been working together to support a pilot project in Rwanda that tests the viability and sustainability of VSAT based broadband services to connect schools in underserved areas to the internet," he adds. "Also, South Africa's Department of Telecommunications and Postal Services (DTPS) has partnered with its social partners and the World Economic Forum to develop the South African Internet for All initiative (Internet4Mzansi)."

He explains how through a strategic partnership Intelsat, Didusec and Sentech have rolled out five Wi-Fi hotspot pilot sites at locations selected by DTPS. "Private-public partnerships and innovative business models can help governments accelerate the deployment across the whole region," he says.

While the number of broadband connections in Africa crossed the 400 million mark in 2018 (nearly twenty times 2010 levels), the regional average broadband penetration —including 3G and 4G connections— is only just north of 25%. Mobile broadband coverage in Africa is still at 70% of the population. Even in north Africa, there is ample room for growth with 4G networks covering only about 60% of the population.

Nevertheless, there continues to be an almost tangible disparity between north African countries and sub-Saharan nations, as well as those much further south.

Jakins believes that's because sub-Saharan Africa "is one of the most difficult and challenging regions of the world to connect because of its geographic complexities" and number of remote communities. "Also, north African countries were amongst the first ones on the continent to get connected with two fibre-optic submarine cables, out of the three connecting the entire continent, dedicated to north Africa from 2008," he says. "This early adoption helped north African countries pursue the deployment."

Khan's analysis is a little starker. "The disparity is largely historical, with the divergences accentuated by massive differences in GDP and monetisation of resources, governance and related fiscal agility," he says. "We must also consider the magnitude of corruption and literacy levels."

Farhad Khan, CCO of Yahsat and CEO of YahClick concurs.

"Besides the challenges in the roll-out of infrastructure described above, pricing is a stumbling block," he says. "Whether it's a mobile device, or customer premises equipment (CPE) for fibre/VSAT, the question is often one of affordability. If the CPE or device is subsidised, then cost of access is contended with essentials like rent and food, as the disposable income in some of these regions is often on average US$2-3 per day, if not less."

Khan adds that Africa cannot be treated as a single homogenous entity. "Whilst southern Africa and north Africa are in line with the global benchmark of 60% internet and broadband penetration, a big cause for concern is the west Africa cluster at an average of 40% and east and central Africa at approximately 25%," he says.

It's a view shared by Jarrold, who says the continent should be treated as 54 countries. He adds that generalisation is always problematic but sometimes serves a purpose when trying to grasp a broad and complex problem in the most intelligible and easily digestible terms.

"To achieve anything like universal broadband access, it will require that an additional 1.1 billion people get online," Jarrold continues. "The World Bank's call for action to close the internet access gap – the 'digital divide' – includes the estimate that realising universal, affordable, and good quality internet access by the 2030 target for achieving the United Nations Sustainable Development Goals will require an investment of US$100bn."

It's hard to reach a clear conclusion as far as improvement as to the future of Africa's broadband connectivity is concerned – that's because many of the points raised in this piece have been aired on many times over the years.

The good news is entities such as the World Bank Working Group on Broadband for All and the Broadband Commission for Sustainable Development have identified investment requirements and policy roadmaps to increase connectivity and to reach full coverage in Africa.

So, is enough being done to improve broadband connectivity in Africa?

Jacklin says there's still some way to go to get to the types of broadband penetration rates needed for a technically advanced and connected economy. "I guess this forms a large part of the business case for new LEO based satellite services," he says. LEO constellations are being built on completely different economics compared to the GEO systems; the satellites are mass produced and lightweight, the launch costs have reduced significantly as they launch large batches, and huge effort is being applied to produce lower cost user terminals. These terminals will be ideally suited for roll out across Africa."

Moreover, Jacklin points to one other connectivity technology "that is worth watching out for" is what he calls "Cellular from Above". He believes "this market really is an exciting area of telecoms combining capabilities of the 4G / 5G standards interoperating with standard off-the-shelf smartphones", along with new flying platforms including stratospheric planes and LEO satellite. "This really could be a game changer for the rural coverage black spots, emergency scenarios and connecting the next billion using a standard smartphone," he concludes.

The investment is there and so is the willing, but some things just take time.

As the old African proverb goes: "Only a fool tests the depth of a river with both feet." ■

Orange submarine cable ship

Journey to a digital Africa

Jean-Luc Vuillemin, executive vice president, international networks, Orange examines the role of submarine cables in bringing connectivity to Africa

The global need for connectivity is continually increasing. Beyond the ability to communicate with one another, connectivity is now relied upon as the means to access education, employment, healthcare and even democracy.

This trend, accelerated by the Covid-19 pandemic, has only served to highlight the disparities between developed nations and those with less comprehensive digital infrastructure. Despite marked improvements over the last decade, development and access to digital technology remains a key challenge for Africa. There is a growing need for the ongoing investment from operators for improved reliable, secure and high-quality connectivity to contribute to the populations' digital inclusion and help stimulate the countries' digital economy. And it all drills down to the infrastructure which makes this transformation possible.

The evolution of infrastructure

When the first transatlantic telegraph wire was laid between Ireland and the North American continent in 1858, there is little chance that these early pioneers would know of the precedent that they were setting. Although much

has changed from a technological standpoint, the fact remains that physical cables laid on the ocean's floor between continents are still the most widely used solution to global connectivity. Today, African connectivity is reliant on a huge network of fibre optic cables buried deep beneath the ocean linking coastal African hubs to data centres in Europe and the Americas.

This is not to say that submarine cables are the only means to provide connectivity across the region. Satellite technology for example was for a very long time the preferred method and was widely seen to be the successor to outdated cable infrastructure. And satellite continues to provide valuable connectivity in particular to regions that are otherwise hard to reach, such as remote and rural areas, for which the African continent is well known. However, while satellites remain an integral aspect of global internet infrastructure, following the advent of fibre optic in the 1980s, subsea cables have taken a firm place as the dominant force in intercontinental connectivity.

There are a number of reasons for this, both in terms of cost and capacity. When fibre optic first appeared on the market it had 100x the capacity of the most advanced satellite at the time. Since then, satellite technology has also seen a period of progress and there are exciting developments still happening in this arena. For example, work is currently being done by SpaceX to improve satellite's ability to connect polar and other remote regions where it has historically been difficult to erect base stations using advanced laser links. While these developments sound promising and any technological progress facilitating connectivity in remote locations should be welcomed, it remains the case that fibre optic cables are the most cost-effective connectivity solution. This is why now 99% of intercontinental internet traffic passes through the hundreds of thousands of kilometers of submarine fibre optic cables. The cost-effectiveness of this technology is especially important in the context of connecting Africa, where much of the population would not be able to afford additional costs that could potentially be passed down the chain to the consumers.

How is Africa connected today?

Currently, Africa is served by a complex ecosystem of fibre optic cables, linking the continent to internet infrastructure in Europe and the US. Every day, these cables serve as the arteries powering African connectivity and are already providing millions of people with internet access and all of the inherent benefits that come with it. Of the 54 countries on the continent, 38 of these have a seashore and 37 of these have at least one submarine cable landing. This submarine cable network is vital for African connectivity, with routes such as ACE (African coast to Europe), SAT 3 and MainOne providing collectively around 32,000kms of fibre optic cables connecting Africa to Europe and beyond, where the vast majority of internet content is created and housed.

Over the years, as the benefits provided by internet access have become clearer, and uptake in broadband services has increased, so too has demand. Additionally, a burgeoning digital economy in Africa means that there is far more domestic content being produced than was the case when this initial ecosystem of cables was laid. As such, we have to look to ways to provide the increased bandwidth and capacity needed to satisfy the rise in demand, as well as building a domestic infrastructure that will enable traffic to flow between African countries as opposed to being rerouted to further afield as is the case today.

Fortunately, continued progress in the development of fibre optic means that we have seen a spectacular increase in the capacity that these cables can provide – from a few hundred megabits per second in the 80s to 20 terabits per second or more today. This is expanding with the help of GAFAM (Google, Amazon, Facebook and Microsoft) who are now the origin of 70% of the increase in global internet traffic.

What lies ahead?

There are now a number of recently completed and ongoing projects that are looking to take African connectivity to the next stage; increasingly the availability of internet access to more substantial parts of the African population and building a resilient network infrastructure that will last for decades to come.

2Africa is one of the largest submarine cable projects in the world and promises to connect 23 countries across Africa, the Middle East and Europe. This new generation of cable will deliver more than the total combined capacity of all subsea cables currently serving Africa today. With the backing of a host of different operators and partners such as China Mobile, Facebook, MTN, Orange and others, it is set to be the most comprehensive cable network serving the MEA region. The cable will have 21 landings in 16 countries in Africa and is expected to go live in 2023, with a design capacity of up to 180 Tbps, underpinning the growth of not only fixed broadband access but also 4G and 5G capabilities for hundreds of millions of people. New technological advancements will allow for the deployment of up to 16 fibre pairs instead of the 6 supported in older generation fibre optic cables, bringing much greater, and perhaps more importantly, much more cost-effective capacity.

In addition to increasing capacity and bandwidth entering Africa, we also need a means to allow traffic to flow freely inside the continent without it being re-routed back to Europe. This is where the Djoliba network will play a key role. Focused on connecting the landlocked countries of west Africa, who are otherwise underserved by the submarine network, Djoliba is the first fibre optic backbone in Africa, bringing together 10,000kms of terrestrial and 10,000kms of submarine cable infrastructure.

The Djoliba network promises to dramatically improve the quality of service offered to the African population with its Very High Broadband service of up to 100Gbps and 99.9% availability because of its high-redundancy mesh network. Until now, telecommunications networks in west Africa were built inside each country, up to its borders: there was no cross-border network. To provide a service between two capitals, operators had to integrate the offers of several providers and join several different networks which were interconnected at the borders. This new network is a true innovation that simplifies the interconnection processes between countries. With a grid of nearly 155 technical sites, that connects 300 points of presence across Europe, America and Asia, through Djoliba, the telecommunications industry is meeting the needs of companies and telecom players in Africa serving a potential 330 million inhabitants. This promises to take connectivity in Africa to the next level, hugely increasing the reach and quality of internet services to some of the most underserved communities in the world.

A truly digital continent

By investing in the future arteries of African connectivity we are laying the foundation for a truly digital continent. It is increasingly clear that internet connectivity is no longer an optional resource, but the facilitator of much of our day to day needs and wants. Beyond the benefits that connectivity brings to individuals, national and global economies are also increasingly built upon digital foundations. With the ongoing updates to Africa's fibre optic infrastructure represented by 2Africa and Djoliba, the continent is another step closer towards achieving seamless connectivity that is open to the whole world. ■

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Mobile Mark is a leading supplier of innovative, high performance antennas to wireless companies across the globe. We've been in the wireless industry for over 30 years and have our roots in the early Cellular trials. Today, we benefit from enhanced design capabilities and expanded production capacity – along with a greater understanding of new and emerging markets such as mining and exploration.

Modern mining operations rely on a battalion of vehicles, ranging from massive extraction vehicles to modest-sized material transport trucks. These vehicles operate in tough environments where high vibration is a frequent wear and tear challenge. Mining companies throughout Africa have relied on our rugged, foam-filled mobile antennas for consistent connections. Mobile Mark's infrastructure antennas have been used for rapid deployment and redundancy coverage for effective wireless coverage in isolated settings.

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Tigo Tchad required a partner to quickly refurbish 40 of its cell sites

Serving the people of Chad

With customers relying on their mobile network for their very livelihood, Tigo Tchad required a partner to quickly refurbish 40 of its cell sites and establish an in-country teleport with limited downtime. SES completed the upgrades and teleport construction in less than four months, despite the physical challenges involved.

As a landlocked, developing nation, Chad poses several unique challenges to deploying mobile networks. Tigo Tchad has nonetheless remained committed to connecting Chadians across the rough geography and identified more than 40 sites that needed updates. Several of these sites were located away from Chad's transportation and communications infrastructures, so careful planning would be required. A number of sites shared a location with a competing MNO and required a temporary solution while the old equipment was removed since new pad construction or disruption of the competition's service were not permitted. Long outages were also not tolerable, as Tigo's customers rely on their connection to conduct business, access weather reports, and communicate with family and friends.

Tigo Tchad determined the following requirements:

- Integration of satellite capacity and hardware, mobile network hardware, installation, maintenance, and logistics, covered by a single service level agreement (SLA)
- Replacement of both satellite and mobile network components across more than 40 sites within four months
- In-region technical expertise and readily available satellite-based network capacity and facilities
- Replacing single carrier per channel (SCPC) satellite network with a dynamic SCPC
- Migration from TDM to IP-based technology to upgrade sites from 2G to 3G

SES was selected to provide satellite capacity and orchestrate this upgrade because of its proven track record of delivering highly reliable, managed satellite communications in Africa. Tigo Tchad was already a user of the O3b MEO network and was familiar with SES's ability to provide end-to-end management.

This solution utilises SES's GEO capacity for ease of deployment and broad coverage of all locations.

To supply in-country uplink and downlink services, SES managed the construction and continues to operate a new teleport near Tigo Tchad's headquarters in N'Djamena. It was completed within three months in order to bring all sites on-net within the following month.

SES and Tigo Tchad partnered with local engineers and technicians in order to import, warehouse, deploy, and install all sites within the deadline. Local experts were effective in navigating the difficult terrain and lack of infrastructure at the install locations.

By utilising future-proof, IP-based solutions, all sites were brought to 3G-readiness, although a few are still operating 2G technology, depending on the current demand. The deployed hardware can be switched to 2G or 3G remotely to respond to changes in user demand, as well as updated, diagnosed, and sometimes repaired over-the-air.

SES's Network Operations Centre (NOC) monitors the load, traffic, and uptime of the network 24/7. The multilingual team serves as a single point-of-contact for any issue in the network. An automated ticket generator is included, which can discover outages even before Tigo's customers can report them.

Certain upgraded sites were designated "critical" by Tigo, and at those, SES deployed parallel, redundant satellite terminal hardware in both Ku-band and C-band to ensure the highest possible availability. Developing a network of local technicians provides for a rapid response if issues do arise requiring a physical presence.

SES and Tigo Tchad agreed upon a single SLA to cover all elements of the satellite and mobile network, providing for 99.5% network availability. While SES manages the network, Tigo Tchad may access its network statistics through a network management system (NMS) and via daily reports provided by SES's NOC. ■

Connecting and protecting Uganda's rural communities

Launched in 1994, a mobile network operator (MNO), that is a part of a multinational telecommunications group, operates in 21 countries across Africa, Asia and the Middle East. It offers vital voice, data and digital services to retail customers, as well as enterprise solutions to the corporate and public sectors. In Africa, they partner with the Uganda Communications Commission, which was established with the principal goal of developing a modern communications infrastructure.

More than 80% of Uganda's population lives in isolated rural areas, with poor or non-existent broadband connectivity. Motivated by a desire to bring the social and economic benefits of reliable connectivity to these communities, the government of Uganda launched an ambitious strategy: to facilitate access at speeds of at least 3 Mbps to 100% of rural areas by 2020.

In the past, operators have been unable to provide connectivity in these scattered settlements. The long distances between sites and the lack of adequate power infrastructure made terrestrial backhaul too costly to sustain.

Intelsat worked with the MNO on a turnkey solution and commercial model that would bring resilient, high-performance connectivity to Uganda while minimising implementation and operating costs.

With a business plan in place, Intelsat implemented a satellite-based low-cost, turnkey, solar-powered solution for expanding 2G and 3G, providing data and voice services to thousands in Bufundi and Kibuku.

Intelsat implemented a solution for thousands in Bufundi and Kibuku

The fully outdoor, small-cell system – implemented with satellite equipment, small-cell RAN and solar power and batteries – delivered fast, affordable internet services and reduced the need for maintenance and management.

A quickly deployed pilot program (using a cost-effective solution reaching rural areas) gave the MNO a competitive advantage in a new market. Dynamic bandwidth sharing between sites combined with high-throughput satellite delivered profitability and a quality user experience for voice and data.

A scalable business model without capex constraints enabled the MNO to adapt bandwidth on demand. As a result people of the two isolated communities in Uganda where the connectivity were deployed were able to make phone calls for the first time, giving them access to the outside world and enhancing health and well-being across the region. ■

Aiding learning and development opportunities at the cornerstone of a Maasai community

Kanzai Primary School is located in the arid remote setting of Etalal in rural Kenya. The land contains important resources for the local community and is also home to habitat reserves, forests that are carbon sinks and rivers and springs that supply fresh water to more than seven million people living in and around the port city of Mobasa, Kenya's second largest city.

The local community relies on education to sustain itself and to ensure students are able to gain opportunities for future employment. However, access to quality education is a major challenge in rural parts of Kenya due to a poor infrastructure and an acute shortage of teachers.

Kanzai Primary School is supported by the Maasai Wildlife Conservation Trust (MWCT) and the Ministry of Education. These organisations are committed to ensuring the improvement of enrolment, retention, completion and transition rates, while maintaining aspects of Maasai culture. This purpose-built school teaches a combination of the Kenyan and British curricula and is attended by some of the best pupils in the area. It prepares students for enrolment in leading national and international schools and consequently enables them to become future community leaders.

A shortage of teachers combined with the school's remote location means that resources are stretched. To abate these challenges, the school is utilising e-learning, which is only possible through a secure, high-speed connection. YahClick joined forces with the MWCT to provide reliable satellite broadband services to Kanzai Primary School. The community school now benefits from fast, uninterrupted connectivity – something that was not possible with a traditional telecommunications infrastructure.

The benefits of the YahClick service are far-reaching, according to head teacher, Ronald Kana Aguso, who says that connectivity not only expands the classroom learning environment, but incentivises children to attend school, who may otherwise have stayed at home with their families. ■

Tower Xchange

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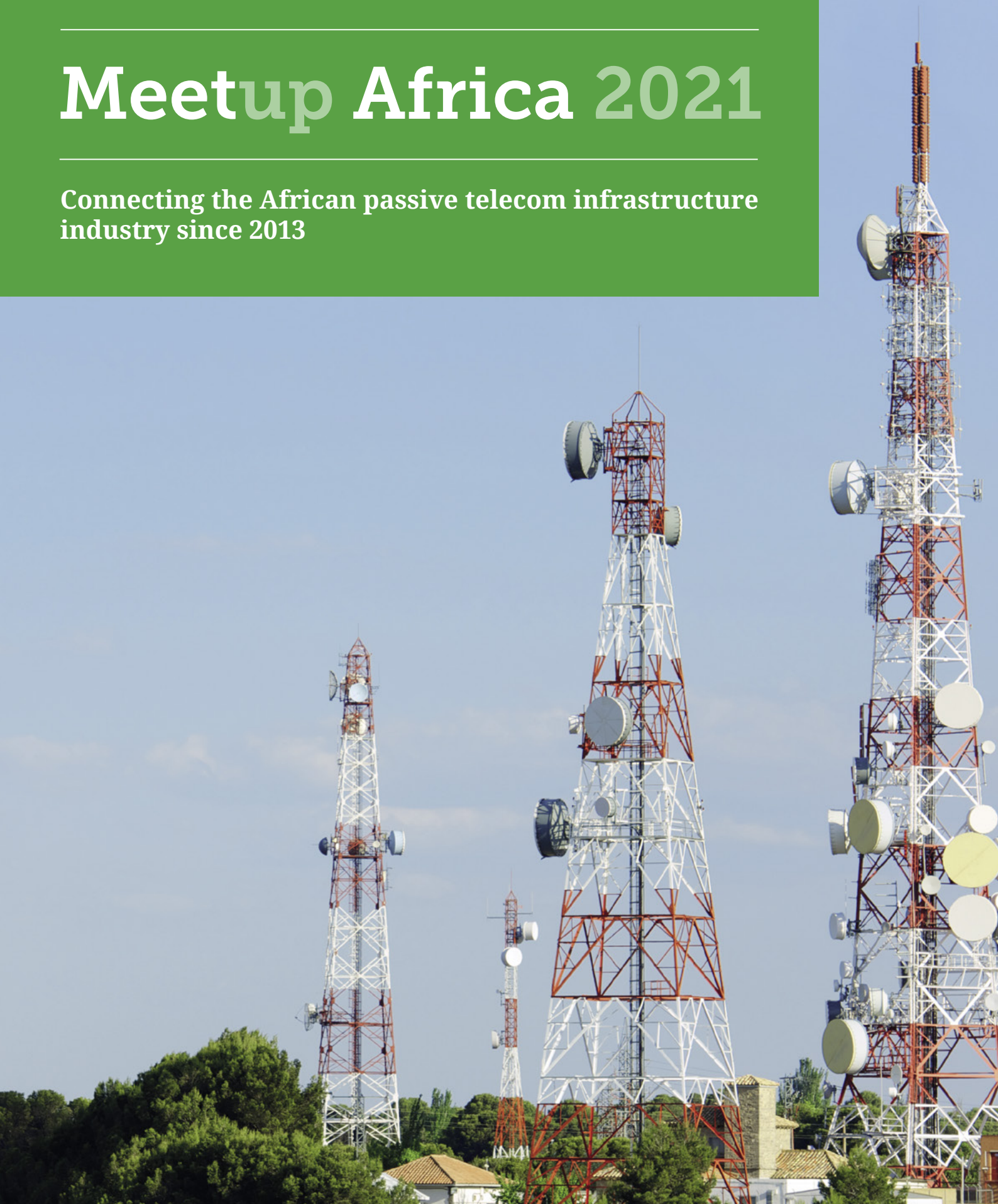
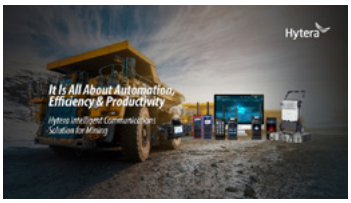
Connecting the African passive telecom infrastructure industry since 2013



Hytera's solution for the mining industry

The Hytera 4G LTE Intelligent Communications Solution for Mining, the company claims, offers an integrated platform capable of supporting a wide range of audio, video, data and M2M/IoT applications suitable for surface, strip, open-pit and underground mining.

Hytera reckons its solution can help the industry realise the benefits of digitisation. "It provides a highly transportable end-to-end broadband solution including terminals, network, data centre and command and dispatch centre". It is also capable of supporting sophisticated automation, data analytics, and all the voice, video, data and M2M/IoT applications used in the mining industry.



The fully 3GPP-compliant 4G/5G solution provides a complete wireless broadband network including radio access network (RAN), backhaul, LTE core, device and network management. Multiple services can be run simultaneously over the high throughput and resilient 4/5G network, including: Mission Critical Push-to-X (Voice/Data/Video); real-time video streaming; telemetry/SCADA; and M2M/IoT sensor monitoring. Low latency transmission rates (< 100ms) enable precise control of remote automated operations.

The various technologies can all be managed using one unified command and visualized dispatch centre and a remote control centre, which receive and distribute real-time information from and to the field operations. The network infrastructure also supports intelligent data analytics and artificial intelligence applications, Hytera claims. *hytera.com*

A tracking and monitoring service for maritime customers

Thuraya, the mobile satellite services (MSS) subsidiary of the UAE-based Al Yah Satellite Communications Company (Yahsat), has launched its web-based SatTrack maritime tracking and monitoring service in partnership with FrontM, an international developer of software applications. Developed for vessels and fleets serviced by the Thuraya MarineStar Solution (supporting voice, tracking and monitoring), SatTrack, it is claimed, facilitates sustainable fishing practices, improved crew welfare and safety, better fleet visibility and management, plus onboard real time condition monitoring.

The transition to digitisation is changing the maritime sector globally, yet the pace of change is slow, because the overall costs of integrating and maintaining third-party services are still high.

Described as "a low-cost turnkey subscription-based service", Thuraya's SatTrack helps MarineStar users "stay in command and gain vital market advantage", while ensuring compliance with national and international fishing laws and regulations. Subscribers do not have to delve into multiple layers of data for comprehensive insights. The online system displays

the information reported from onboard MarineStar terminals on a user-friendly dashboard. Moreover, it can create and monitor geo-fences, produce detailed maps, customized alerts, weather and position reports at preset intervals based on user requirements. *thuraya.com*

Nokia's all-in-one solution 'for premium 5G mobile indoor coverage'

The Nokia Smart Node is an indoor mobile module solution delivering 4G and 5G indoor mobile coverage for residential and small-medium enterprise use. The compact, 'plug and play' modular design can be deployed readily in any environment to support evolving consumer applications. It is future-proofed to support 4G now and 5G networks when required and both non-stand-alone and stand-alone 5G applications through a software upgrade.

Described by the company as "stylish, durable and smart", Nokia Smart Node is a dedicated indoor mobile solution with apparently "superior coverage and capacity" – and it can be easily scaled from single to multiple units to meet total indoor coverage requirements. Its coverage, latency and reliability delivers ubiquitous 5G connectivity for specific use cases such as immersive entertainment. The 'plug and play' capabilities also make it easy to set up, which keeps installation costs to a minimum. It can be wall, ceiling or desktop mounted.

Nokia Smart Node supports traffic management by reducing core network load and optimising macro resource allocation. It will be available from Q4 2021. *nokia.com*

Sierra Wireless introduces 5G modules

Sierra Wireless has introduced its next generation of 5G mobile broadband embedded modules, the EM92 Series. These new 5G modules feature 3GPP Release 16 standard capabilities and provide secure connectivity worldwide at the highest possible speeds and with low latency for mobile computing, routers, gateways, industrial automation, and new IoT applications.

Adding to the company's existing portfolio of EM Series modules, Sierra says "the new and advanced" 5G EM92 series is based on the latest Qualcomm Snapdragon X65 and X62 5G Modem-RF Systems. With an apparently faster speed, positioning technology for a wide range of indoor and outdoor use case requirements, and enhanced 5G NR Sub-6 carrier aggregation, the EM92 Series of modules enable next generation IoT applications such as live media streaming, video security, extended reality (XR), robotics and private networks.

"Qualcomm Technologies and Sierra Wireless have a long history of collaboration in delivering new, cutting edge wireless technologies, says Gautam Sheoran, senior director, product management, Qualcomm Technologies. "Combined, Qualcomm Technologies' modem-to-antenna solution and the new EM92 Series modules from Sierra Wireless enable customers to make the

most of 5G's capacity, data speeds, wider coverage, and lower latency, enabling the expansion of the mobile ecosystem to new industries such as precision agriculture, smart manufacturing, connected healthcare and smart cities, and transforming the IoT industry by enabling next-generation computing and edge-to-cloud applications." *sierrawireless.com*

CommScope unveils Heliax to speed up FTTA deployments

CommScope's Heliax SkyBlox has been specifically designed to facilitate network operators to speed up their fibre-to-the-antenna (FTTA) deployments on the back of optimal network performance. With the growing prevalence of 5G deployments, service providers are facing the pressure of installing complex antenna-radio connections across crowded 5G-enabled networks.

Weighing one kilogram, this new piece of kit helps to minimise the impact on tower loads, as well as reducing typical total installation time by more than 50%. This includes mounting the box to the tower, configuring the fibre and securing all power cables.

"Mobile connectivity is critical for economic renewal," said Farid Firouzbakht, senior vice president of outdoor wireless networks, CommScope. "Network operators can expedite 5G network rollouts by selecting technology which will help them address challenges and simplify the installation. The new Heliax SkyBlox innovation marks another milestone in faster deployments and reduced carbon footprint."

The Heliax Skyblox is purpose-built to streamline, simplify and support optimal network performance for new

or expanding fibre-to-the-antenna (FTTA) deployments. Made of 100% recyclable materials, CommScope claims the new system will support operators tackling the burden of time-to-market delays - with complex fibre and power architectures, as well as weight limitations on tower deployments, limiting how much load can be added to existing cell sites. *commscope.com*

The Amdocs 5G-native CES21 Suite

Amdocs, a provider of software and services to communications and media companies, offers Amdocs CES21, the latest evolution of its cloud-native, microservices-based, open and modular BSS-OSS integrated suite. The 5G-native CES21 enables service providers to build, deliver and monetise advanced services, "leveraging their investments in technologies such as 5G standalone network, multi-access edge computing (MEC), software-defined networks (SDN), AI and machine learning (ML), and the cloud". It also includes new developments such as a low-/no-code experience technology foundation, enabling service providers' business users with no technical background to intuitively create and manage customer journeys and omni-channel flows, as well as embedded and productized analytics capabilities across the entire portfolio, from 5G network functions (NWDAF), to service automation and monetisation, and care and commerce. Amdocs says CES21 aligns with the TM Forum's open API framework, offering a continuous integration/continuous delivery (CI/CD) environment built on the foundation of Amdocs' cloud agnostic Microservices360 infrastructure platform to ensure agility and IT velocity. *amdocs.com*

'The Android device series for professionals'

MiTAC Digital Technology Corporation (MDT) brings to market its new MioWORK A500s series 5" handheld Android™ 10.0 devices for enterprises. The rugged A500s series models replace the A500 series released in 2018 and complement the already available 7" F740s tablets and the larger 10.1" L1000 series tablets.

All devices of the A500s product line are GMS certified for enterprise use, allowing for straightforward implementation of enterprise mobility management solutions. The series contains three models, the standard A500s, the A505s with a Honeywell 1D/2D LED aimer, and an 8 megapixels camera on the back. The A545s model features a Honeywell Laser Aimer instead of the LED aimer, with GPS/AGPS + GLONASS for navigation, and LTE Cat.6 connectivity. There's more:

MioWORK™ A500s handhelds provide businesses the option to integrate a small and light device for frontline staff in warehousing, logistics, hospitality. With IP67 water and dust protection, the devices apparently withstand exposure to the elements by logistic delivery staff and endure up to 1.8m drops with the optional protective caps following military standards. The integrated

NFC / HF RFID readers allow for payment processing by delivery services and restaurant order management. *enterprise.mio.com*

Look out for...

6G network in SK 'might commercialise in 2028'

The South Korean government has unveiled the five-year plan to invest nearly US$193 million deploying the first-ever 6G network by the end of 2028.

Even though 5G is still in its infancy in many parts of the world, the east Asian nation is already targeting 6G technology. Korea will also structure a program to curate the core standards and technologies in the period of five years.

Lim Hye-sook, the country's science and ICT minister, said that since the next generation of mobile networks will be the pillar for digital transformation, South Korea intends to lead the international market in the 6G era based on the field experiences.

To accelerate the development of 6G technologies, multiple collaboration and agreements are being signed in the region.

The Institute for Information communication Technology Planning and Evaluation (IITP), the state body of the Korean Ministry of Science and ICT, has inked an agreement with the US-based agency National Science Foundation (NSF) to carry out joint researches in 6G technologies.

Meanwhile, Korean tech giant LG signed two deals with the US-based firm Keysight Technologies and Korea Advanced Institute of Science and Technology (KAIST) to carry out research on future 6G technologies.

The introduction of 6G is something the tech space had been reluctant to pursue, owing to the slower than hoped roll-out of 5G in certain parts of the world. However, nations like China, the US and those in the European Union have already launched various programs and partnerships to shape the 6G framework.

In February this year, a 6G research program was announced with the presence of several major European vendors. Elsewhere, US operators have already committed to the next G alliance - established with the primary goal of defining 6G technology.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Oman issues tender for first satellite

Omani Space Communication Technologies (SCT) has launched a tender for the design, manufacture and launch of the country's first satellite dedicated to telecommunications.

The Sultanate plans to launch "OmanSat-1" 2024.

"The company's operational plan depends on the launch of an artificial satellite for High Throughput Satellite (HTS) named 'OmanSat-1' and related services, which provide coverage for the entire territory of the Sultanate, its economic waters, and the associated external markets, which is expected to be launched by 2024," read a statement. "SCT, therefore, invites satellite vendors to submit technical and commercial proposals for the provision of the above services in accordance with the terms and conditions set out in the tender documents."

The contract covers both the space-based and ground-control aspects of the programme. Structured into three segments, the first focuses on the space component. It also includes the procurement of the satellite itself, launch services, orbit raising support, in-orbit testing, provision of satellite simulators, insurance support, and technical training services.

Furthermore, the project is expected to provide national and regional coverage, with the primary TT&C (telemetry, tracking, and command centre) located in Oman.

SCT, part of the Oman Investment Authority (OIA), is one of the Omani Telecom and Information Technology Group companies.

Meanwhile, in neighbouring Saudi Arabia, The Red Sea Development Company has partnered with the King Abdulaziz City for Science and Technology to provide high resolution satellite data of key locations at the Red Sea Project. Satellite imagery helps to monitor the project, covering 28,000km^2.

Oman is ready for its first telecoms satellite

Vodafone Greece deal with Grid Telecom

Vodafone Greece and Grid Telecom have signed a 20-year framework agreement for the exchange and mutual concession of their fibre-optic networks.

Under the terms of the deal, both parties can utilise further sections of their core networks to provide their customers with more choices and to support new investment in digital infrastructure.

For Grid Telecom - a 100% subsidiary of the Independent Power Transmission Operator (ADMIE) - this new cooperation is another step toward the optimum use of the broadband infrastructure it is developing via its transmission network.

This year it will be able to offer super high-speed capacity services in major cities through the dense wavelength division multiplexing (DWDM) network it is developing. Its fibre optic network currently runs to 4,000 kilometres and will double in the coming years.

Furthermore, access to Grid Telecom's network will offer Vodafone the chance to speed up its new €600m investment program for the creation of modern digital services and infrastructure across Greece with new-generation networks such as 5G and FTTH and underwater cables in the Aegean and Ionian seas.

Telekom Austria 'may consider Huawei, ZTE for 5G networks'

A1 Telekom Austria, a unit of Mexican business magnate Carlos Slim's América Móvil, is open to considering Chinese vendors such as Huawei and ZTE for upcoming 5G networks in several countries, a senior official said.

The news comes as European governments continue to tighten controls on Chinese companies building 5G networks following diplomatic pressure from the US.

Washington has accused Huawei of facilitating Chinese spying - a claim the company and Beijing deny.

"For us it is very important to have markets where we have Chinese vendors to test the performance of the different networks in real time," A1 Telekom Austria's chief operating officer Alejandro Plater told Reuters.

Not only is Chinese technology cheaper, but it offers features that are better than their European counterpart, making it competitive, he added.

Last year, A1 América Móvil called Huawei an excellent telecoms equipment provider.

Telekom Austria has 25 million customers across Austria, Bulgaria, Croatia, Belarus, Slovenia, Republic of Serbia and the Republic of North Macedonia.

It already uses radio access networks from Chinese vendors in Bulgaria and North Macedonia for 4G networks, as well as equipment from European vendors like Ericsson and Nokia in countries such as Austria.

A Swedish court recently upheld a ban against Huawei selling 5G equipment in the country.

Rock Mobile becomes Jamaica's third player

Jamaica has given approval for a third telecommunications service provider, Rock Mobile, to be granted a licence to operate locally.

Minister of technology, Daryl Vaz, said the government sees competition "as the best way to achieve quality service at affordable prices for the consumer".

In his sectoral presentation to the House of Representatives, Vaz noted that the appointment of the new provider is in keeping with the government's policy objectives to increase broadband access to unserved and underserved areas; promote competition, innovation and diversity in the telecoms industry; and ensure optimum return in the shortest possible time for the spectrum assigned.

He added that Rock Mobile will be required to deploy its network in keeping with the coverage, quality of service and implementation timing in the bid.

This includes the provision of 95% population coverage at a specified minimum download data rate and 95% population coverage of communities classified as unserved or underserved at a specified minimum download data rate.

Rock Mobile, which is entirely Jamaican-owned, is expected to achieve full rollout of the service within two years, with the service launch date to be no more than 12 months after the granting of the licence.

The onset of the Covid-19 pandemic has highlighted the inadequacies in the access to broadband connection island-wide. Jamaicans living in rural areas continue to experience challenges with accessing quality telecoms and internet services.

Ufinet moves into Brazil following acquisition of NB Telecom

Ufinet has agreed to acquire a majority stake in NB Telecom, a Rio de Janeiro-based carrier, for an undisclosed sum.

The move is Ufinet's second acquisition in Brazil following its purchase of São Paulo-based Netell, in 2019.

This NB Telecom deal solidifies the company's footprint into Brazil's second-largest market and one of Latin America's major business hubs.

"We believe this is a very important step both for us and our customers," said Stefano Lorenzi, executive chairman at Ufinet.

Once the deal is completed, contingent on meeting the standard conditions of this type of transaction in Brazil, this agreement will mean the acquisition of a majority stake in NB Telecom and controlling interest by Ufinet. The closing of the transaction is expected to become effective in the coming weeks.

"This acquisition creates a major platform for our customers. We can now offer an international footprint connecting Rio de Janeiro to the Americas at an unprecedented level," said Edgard Sanchez Leal and Pedro Augusto Oliveira Alves, co-founders of NB Telecom. "It has always been a dream to see our firm join efforts with such a globally respected organization as Ufinet."

NB Telecom currently operates a fibre network of more than 500km connecting all major data centres, PoPs and business centres in the city of Rio de Janeiro.

According to the company, the transaction is due to close in the "coming weeks"'.

NB Telecom is based in Rio de Janeiro

PPF Group raises O2 Czechia stake and plans de-listing

PPF Telecom Group, a PPF Group vehicle used to consolidate investments in telecommunications, has increased its stake in O2 Czech Republic and wants to take the firm private.

The group said in a press release that it had lifted its stake in the group to 90.01%, from 83.58%, in a reverse accelerated book building. PPF has controlled the O2 Czech Republic since 2014.

"As the more than 90% holder in the share capital of O2 CR, PPF announces its intention to initiate a squeeze-out procedure of the remaining holders in O2 CR through a mandatory tender offer for the shares in the telecommunications operator held by these remaining minority shareholders," PPF said:

Now, with a stake rising above the regulatory 90% level, PPF said it would initiate a squeeze-out procedure of the remaining shareholders in the O2 Czech Republic. It is the country's fourth-largest company with a market cap of US$3.81bn.

PPF has assets of almost €40bn across Eurasia and has grown its telecom business in central and eastern Europe.

The O2 Czech Republic provides voice, internet, and data services to customers ranging from households to SMEs and large corporations. O2's internet is available in 99% of the Czech Republic's inhabited territory, making it the country's largest internet provider by some distance.

Deutsche Telekom switches on O-RAN Town deployment in Germany

Deutsche Telekom (DT) switched on its multi-vendor O-RAN Town network deployment in Neubrandenburg, Germany, the operator said.

It will deliver open RAN based 4G and 5G services across up to 25 sites, with the first ones now deployed and integrated into the live network of Telekom Germany. This includes Europe's first integration of massive MIMO (mMIMO) radio units using O-RAN open fronthaul interfaces to connect to the virtualized RAN software.

"Switching on our O-RAN Town including massive MIMO is a pivotal moment on our journey to drive the development of open RAN as a competitive solution for macro deployment at scale," Claudia Nemat, board member, technology and Innovation, Deutsche Telekom.

DT has pioneered open RAN since it co-founded the xRAN Forum in 2016, which led to the formation of the telco-led O-RAN ALLIANCE in 2018. Open RAN introduces supplier diversity to drive innovation and it is expected to lead to an even more flexible, secure, energy efficient and customer-centric network of the future.

The first live sites at O-RAN Town are built on a multi-vendor open RAN architecture with equipment from vendor partners Dell, Fujitsu, Intel, Mavenir, NEC and Supermicro. Remote radio units (O-RU) are provided by Fujitsu and NEC, including Fujitsu's LTE and 5G NR O-RUs and NEC's 32T32R 5G massive MIMO (mMIMO) radio units (RU) conforming to O-RAN Alliance fronthaul specifications, embedded with advanced beamforming technologies.

Mavenir provides the Cloud-Native baseband software for the 4G and 5G distributed units (O-DU) and central units (O-CU), including for the mMIMO radio units. The virtualised baseband software is running on standard server hardware provided by Dell and Supermicro. Moreover, the entire O-RAN Cloud architecture is built on top of the Intel FlexRAN software architecture.

Deutsche Telekom's offices

DT said it plans to expand O-RAN Town in phases across 2021 and 2022, working with different sets of vendors. These solutions are currently being tested in the lab to ensure interoperability across all components. The vendor-independent SMO is designed and developed to support a flexible integration and operation of these components with higher efficiency and with faster time-to-market.

Telefónica hands Nokia and Ericsson equal use of its Spanish 5G bands

Telefónica awarded a contract for its Spanish 5G radio network to Nordic duo Nokia and Ericsson for the frequency bands 3.5GHz and 700MHz.

The Madrid-headquartered mobile and broadband operator said that Finnish giant Nokia and Sweden's Ericsson would share usage of the frequency bands equally until 2026. However, there will be no changes to each network's geographical distribution.

Spain's Telefónica said the move would allow it to focus on improving its standalone 5G offering.

"It's a long-term contract, which is the most appropriate scenario for Telefonica as it maintains 4G providers in place and gives us stability to roll out and develop 5G," Telefónica's head of operations and network Joaquin Mata said in a statement.

"In 5G, all the providers have demonstrated they're supremely prepared... and we feel very comfortable having the best technological partners."

The 700MHz band will be up for grabs before the 21st July, in a twice-delayed auction in which operators Orange, Telefonica, and Vodafone have all expressed interest.

The contracts include the possibility of the Scandinavian operators expanding current 4G services or migrating to 5G depending on their needs.

Meanwhile, Telefónica is spinning off its fibre business in Colombia and has agreed to sell a majority stake to KKR, shedding US$200m million off its debt pile in the process.

Earlier this year, the operator sold off fibre assets in Brazil and Chile via similar co-investment models.

KT fined for slow internet

South Korea's telecommunications regulator fined telecom giant KT ₩500m for providing internet services that were slower than what users had been promised.

A joint investigation by the Korea Communications Commission and the Ministry of Science and ICT, found that KT erroneously set speeds for 24 of its high-speed internet service users, leading to slower-than-expected speeds.

The operator also frequently did not conduct speed tests when opening new internet services. Where it did, there were numerous cases in which speeds did not meet the minimum limit.

KT was the biggest offender with 24,221 cases, compared with LG Uplus. at 1,401 and SK Telecom and its subsidiary at a combined 155.

Local internet service providers are required to notify users of such matters prior to opening services.

Moreover, the regulator said it would fine KT a combined ₩500m for the violations, while others were ordered to take corrective measures.

The move comes after a South Korean tech YouTuber accused KT earlier this year of providing slow internet service speeds, prompting the government investigation.

Australia's Telstra to sell 49% of tower business for A$2.1bn

Australian telco Telstra said it will sell a 49% stake in its mobile tower business for A$2.8bn and return half the sale proceeds to investors, sending its shares to their highest level in over a year.

A consortium of Australia's sovereign wealth Future Fund and pension funds Commonwealth Superannuation Corp and Sunsuper would buy the stake in InfraCo Towers, Telstra said, in a deal valuing the entire business at A$5.9bn.

The deal would allow Telstra to focus afresh on its retail business after years of costly competition in infrastructure with its ageing poles and wires pitted against the state-owned broadband network, analysts said.

Telstra shares jumped 5% to A$3.78 after the announcement, their highest since February 2020, while the broader market was up 0.6%.

The operator has been looking for a buyer for InfraCo, the largest mobile tower infrastructure provider in Oz, since November last year when it split the business from other operations.

Telstra will retain majority ownership and continue to own the active parts of the network, including the radio access equipment and spectrum assets. It has entered into a 15-year agreement with InfraCo to secure ongoing access to existing and new towers.

Telstra chief executive officer (CEO) Andrew Penn said the details on how 50% of the proceeds would be returned to shareholders would be disclosed at a later date and flagged a potential buyback with the company's annual results in August.

The remaining proceeds would be used for debt reduction and enhancing connectivity in regional Australia, Penn said.

Future Fund CEO Raphael Arndt said the investment would strengthen the fund's exposure to digital infrastructure as Australia increasingly moves towards 5G.

Saudi Arabia gives licences to expand mobile telecom services

Saudi Arabia awarded licences to two new mobile virtual network operators (MVNOs), bringing the total number of mobile telecom companies operating in the kingdom to seven.

The new companies to be given the licences, after winning a competition announced by the Communications and Information Technology Commission (CITC) in February are Integrated Telecom Mobile Company (ITC Mobile) and Future Networks Communications Company.

In 2014, CITC awarded the MVNO licences to Virgin Mobile KSA and Etihad Jawraa.

CITC governor Mohammed Al-Tamimi said that licensing MVNOs comes in line with the plan to stimulate the investment environment for Saudi Arabia's telecom sector.

"At CITC, we aim to enhance the level of competitiveness in the sector, and improve user experience, by facilitating additional service providers," he said in a statement published by Saudi Press Agency.

Al-Tamimi also said telecom service providers are important partners in transforming Saudi Arabia into a digital society, which is a key component of Vision 2030.

Companies awarded MVNO licences can provide users with services, including voice calls, internet, SMS, voicemail, media services and more, without owning any towers or frequencies.

The provision of these services depends on the MVNOs renting or purchasing capacities from service providers with infrastructure and then providing services to subscribers.

Starlink secures 10-year operating permit in Mexico

Starlink, entrepreneur Elon Musk's wireless satellite internet service, finally received authorisation to operate in Mexico for 10 years.

It will run from October 28, 2021, when users in the north American country will be able to start using the service.

Starlink Satellite Systems Mexico lodged its request with the Federal Telecommunications Institute (Instituto Federal de Telecomunicaciones, IFT) April 2 this year and received its licence May 28. As per the terms of its licence, Starlink must be operational within 180 days.

The 10-year concession is extendable for a further ten years, said the Low Earth Orbit (LEO) satellite broadband provider. Mexico will offer a 1 Gbps browsing speed, which Starlink said is an ideal service to be used in rural areas, where there is little or no telecommunications infrastructure.

The company already offers service plans in the US, for a US$99 monthly fee and with browsing speeds of 1 Gbps.

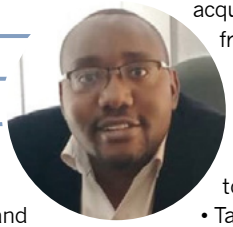
However, the company guarantees that in the future the quality of its service will improve drastically so that its connection speed will increase up to 1Gb.

According to reports, Musk's satellite internet company could offer global coverage starting in September.

Centro Histórico, Mexico City

Q&A

Halonda Denis Enock
CTO
Gilat Telecom Uganda



What was your big career break?

This is always a hard question to answer. All my career journeys have contributed to what I have become and where I am now.

I am a proud Ugandan and started my career at Datanet.com where I really learnt about telecoms through my hands-on work installing BTSs and CPEs. After that I spent six years at Fortis Telecom Uganda, a fast-growing ISP with my final position there being CTO. Taking on a senior management role within an overseas company was a natural progression. There were lots of opportunities available from international companies looking to start and grow their businesses in Uganda so which one to join was a key decision for me which I spent a long time making.

Gilat Telecom has been operational across Africa for 20 years now. In 2016 it decided to launch an ISP in Uganda to deliver cost-effective communication capacity along with a wealth of value-added technologies and services to business clients over its extensive fibre and satellite links.

I could see that the company was committed to Africa and would continue to invest in Uganda and so I agreed to join as CTO and this was my big career break. It's an international firm with a strong and fast-growing presence in Africa. It has improved my network with like minds in my industry and built on my knowledge and growth. Working there has brought me into contact with new experiences and technological solutions that are relevant to the industry.

Tell us about the telecom market in Uganda

Reforms and simplified licensing have made the telecom market in Uganda much more competitive. MTN is here competing with the incumbent, Uganda Telecom, and a raft of other operators including, of course, Gilat Telecom.

Fixed line broadband penetration remains low with people dependent on mobile infrastructure for voice and data. LTE can cope with data demand at the moment, however, we will move to 5G and MTN Uganda held trials early last year.

At Gilat Telecom we are firmly focused on the business market and our customers include banks, NGOs and enterprises of all sizes.

Who was your hero when you were growing up?

My dad was my hero when growing up. He was a good disciplinarian as a father. He taught me the value of earning respect by the works of your hands. This has helped me become the person that I am today. I strongly believe his approach is still relevant today.

If you could work in any other industry, which one would it be?

The Aviation Industry. Ever since I was a young boy, I wanted to be a pilot. All through my education I strived to study the mathematics and science that would help me become a pilot but, given the current pandemic, I'm not sure how this would have worked out. Being an IT Professional is however more fitting and satisfying especially in my home country of Uganda.

And, of course, now that I am working for an international company I get to travel both across Uganda - and to other countries too.

What would you do with US$1m?

Interestingly, I would not think of any investment in technological industry.

I would make one of the safest decisions and invest in government bonds and stocks. I would also invest in helping my community improve their standards of living by investing in Education and Health Care. Mostly I would want to build a hospital near my countryside home.

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

I welcome advice from people across all walks of life. Business acquaintances, family and friends. Here are the phrases I would pass on:

- Whatever challenge you experience you are not the first to experience it.
- Take each challenge as a learning curve and never give up.
- When the window of opportunity closes, look for the door to create another opportunity.

This advice has helped me learn to take failure positively and grow from it.

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

Cape Town because it encompasses our African heritage as well as being a bustling and creative place for commerce.

It's an intersection of both the past and the present. As an African, it's easy to relate to this.

The work life balance is ideal for growth as a person. The Cape of Good Hope is a good getaway for a much-needed holiday with the beautiful scenery, and nature on offer.

My favourite place in Uganda is Murchison Falls National Park, Uganda's largest national park. It measures approximately 3,893 square kilometres and is home to a waterfall where the waters of the Nile flow through a narrow gorge only 7 metres wide before plunging 43 metres. The wildlife is amazing - 76 species of mammals as well as Uganda's largest population of Nile crocodiles and 450 bird species.

The park is also home to The Karuma Hydroelectric Power Station, a 600 MW hydroelectric power project which will be the largest power-generating installation in Uganda.

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

Someone close to me once asked What do you do professionally? This was strange because I assumed they knew what I do for a living. Then I flipped the question and asked them what they think I do professionally. Let's just say the answer was interesting and not close to what I do! But at least they now know what I do professionally!

What will you do when you retire?

Retirement is everyone's end point as long as you are in the work place. I look at retirement as a starting point in another chapter of my life. I intend to take more time in the countryside carrying out farming activities and spend more time with my extended family. Maybe I will get to build a hospital there too. But I will still mentor the young professionals in the industry.

What's the best lesson you've learned?

No man is an island. We all need each other to achieve our goals. Working as a team in an office has helped me appreciate this greatly. A team can either make you successful or can break you. Team work and understanding one another is vital in both the work place and at home.

What's the best technological advancement in your lifetime?

Too many to list. For example, the fourth industrial revolution (4IR), the advancements of AI, augmented reality, virtual reality, robotics, genetic engineering are going to change how we see the world.

In our lifetime we will have the privilege of seeing the positive impact that these technologies will bring to our communities. Just imagine what we will be talking about 20 years from today.

Which law would you most like to change?

The Computer Misuse Act 2011 in Uganda needs to be updated. This Act makes provision for the safety and security of electronic transactions and information systems; to prevent unlawful access, abuse or misuse of information systems including computers and to make provision for securing the conduct of electronic transactions in a trustworthy electronic environment and to provide for other related matters.

Times have changed globally and this law needs to evolve with the times especially since we are now in a global village. Different scenarios have to be taken into account for this law to be effective and efficient. ■

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