For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

NOVEMBER/DECEMBER 2022 Volume 27 Number 3

- What can the global mobile industry learn from Africa?
- In aid of farm 4.0
- Kayamandi Fibre Project goes live

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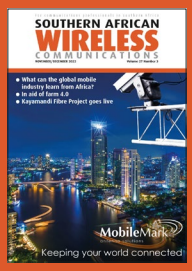

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KADIUM

Gabon to connect 90% of schools to internet by 2026

Gabon plans to connect 90% of schools to the internet by 2026 to enable young people to have access to information and to benefit from the possibilities offered by digital technology.

"This program should enable 90% of public and private denominational schools in Gabon to use digital tools in their learning process by 2026. The goal is to connect pre-primary and secondary schools to the internet," said general coordinator for the digitization of primary education, Joachim Ondjila Ongnélé.

This initiative is the result of a partnership between the United Nations Children's Fund (UNICEF) and the International Telecommunications Union (IUT), which aims to connect every school to the Internet.

"UNICEF is once again committed to strengthening its collaboration with your department in order to contribute to the response to the learning crisis which is affecting the performance of our education systems," said Jean René Guikoumbi, child development specialist at UNICEF.

Vodacom welcomes MVNOs to network

Vodacom has announced that it is open to welcoming mobile virtual network operators (MVNOs) on its network, in line with the obligations of the recently acquired spectrum license.

The company joins MTN and Cell C, which have already opened their networks to operators who do not have physical infrastructure.

"We are already in discussions with a number of interested parties in various sectors and will make announcements in due course," Sitho Mdlalose, managing director of Vodacom South Africa.

The opening of Vodacom's network to mobile virtual network operators should offer more choice to investors interested in this service provider model. It should also make it easier for new players to enter the growing telecommunications sector and secure more revenue for Vodacom.

MTN Rwanda launches device financing program for smartphones and tablets

MTN Rwanda has launched a financing program for smartphones and tablets in Rwanda, in partnership with the Bank of Kigali (BK). As part of this program called 'Macye Macye,' the financial institution will provide mobile operator subscribers with loans payable in several instalments.

This initiative comes in a context where smartphones remain unaffordable for most African consumers. According to the GSMA, only 49% of the 515 million unique mobile subscribers in sub-Saharan Africa use smartphones.

This partnership should make it possible to accelerate the penetration of mobile and internet in Rwanda in a context of accelerated digital transformation. According to Mapula Bodibe, managing director of MTN Rwanda, the program is expected to "create a more connected world to enable more people to access the power of the internet and bridge the digital divide in the country, where around 75% of the population does not own a smartphone."

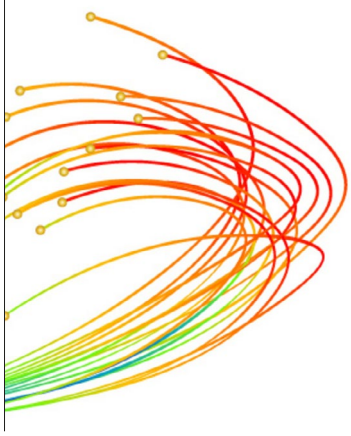
Meta and Paratus Zambia to construct 900km fibre

Paratus Zambia has signed an agreement with Meta for the construction of a 900km open-access metropolitan fibre optic network across ten towns in Zambia. The project aims to improve the quality of broadband internet connectivity in the cities concerned.

The project will be carried out in two phases. The first will bring fibre to six cities by January 2023, while the second is expected to connect the remaining four cities before the end of next year. The network will be based on Paratus' existing fibre infrastructure in Zambia. It will also be connected to Paratus' neutral data centre in Lusaka.

This project is part of Paratus' strategy to 'transform Africa through exceptional digital infrastructure and customer service.' It comes at a time when internet usage remains low in Zambia despite growing demand and accelerating digital transformation. According to the regulator's statistics for the second quarter of 2022, around 10 million Zambians are connected to the internet, representing a penetration of around 53%.

"These metropolitan networks are key to building digital communities and helping businesses scale, especially in under-connected communities," said Nomonde Gongxeka-Seopa, public policy manager for Southern Africa at Meta.



Paratus Group and OneWeb to build Angola gateway

Paratus Group has announced a multi-year agreement with OneWeb to build a gateway in Luanda, Angola, which will be operational in the second half of 2023. The gateway – the first of several planned for Africa - will provide low Earth orbit (LEO) satellite services to several countries in the region.

"With this agreement, we are taking another giant step in realising our plan to use Angola as a communications hub for the region," said CTO of Paratus Group, Rolf Mendelsohn. "Being selected as the preferred partner to install the gateway in Angola for OneWeb reaffirms our superior capability in developing world-class telecommunications infrastructure in Africa."

"When considering the size and persistence of the digital divide, and the connectivity barriers for businesses operating in rural or remote areas, the need for LEO satellite options are obvious," said Joe Paciaroni, director of ground infrastructure at OneWeb. "On a global scale, mobile internet penetration is still only 50% and many of those who remain offline reside in Africa. By installing OneWeb teleports linked to hundreds of LEOs, we can bridge that divide effectively and affordably."

The teleport will consist of 16 antennas and a network hosting facility, linking to OneWeb's LEO infrastructure.

WIOCC to activate first fibre pair on Equiano

WIOCC is working with Ciena to become the first operator to activate a fibre pair on the new Equiano submarine cable system.

Running a total of 15,000km from Portugal along the African west coast, Equiano will be one of the largest cables serving Africa, with 12 fibre pairs delivering a total of 144Tbps of capacity. WIOCC is a key investor in Equiano, owning a full fibre pair on the system in addition to submarine line terminal equipment (SLTE) from Ciena. Working with Ciena makes it possible for WIOCC to move rapidly in activating and then adding to its capacity to meet expanding demand for connectivity in South Africa, Nigeria, and neighbouring countries. Spectrum sharing is supported across the network, allowing WIOCC to broaden its service portfolio.

"Ciena has extensive experience delivering market-leading submarine network solutions across the globe. This collaboration offers us the best lead times, a great commercial proposition and high-quality, accessible technical support – all vital as we expand our ability to support the cloud and wholesale community in Africa. Not only has this allowed us to pre-install our SLTE in Open Access Data Centre (OADC) facilities in Lagos, Nigeria, and Rondebosch, South Africa – meaning we'll be able to light up our capacity as soon as the Equiano system goes live – but it's also optimized budget utilization, enabling us to invest further in other parts of our network," said Chris Wood, WIOCC group CEO. "We're also teaming up with Ciena on the new 2Africa submarine cable, on which we own a fibre pair across the system. The cable, now in deployment and scheduled to go live in stages throughout 2023 and 2024, will land directly in the new carrier-neutral OADC facility in Durban," Wood added.

"Having worked with us on other African cables, WIOCC is again entrusting us to maximize its network assets. Our collaboration is ensuring the systems, and regions, keep pace with bandwidth demands while reducing transport costs. Together, we're making connectivity smarter and faster, utilizing software automation and AI to bring it ever closer to end users," said Ian Clarke, vice president of global submarine solutions, Ciena.

To achieve this, WIOCC is deploying Ciena's GeoMesh Extreme Solution, which leverages the 6500 Reconfigurable Line System (RLS), WaveLogic 5 Extreme coherent optics and Manage, Control and Plan (MCP) domain controller. Ciena Services is providing turnkey planning, design and deployment services to ensure project success.

"For WIOCC, this initiative represents a significant investment in establishing and expanding Africa's converged open access digital infrastructure, linking submarine fibre pair ownership with hyperscale terrestrial buildout and cloud expansion in key markets across sub-Saharan Africa, expediting digital transformation throughout the region," said Wood.

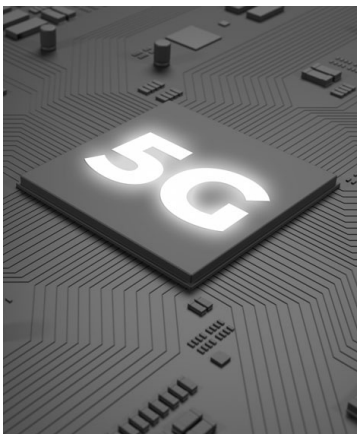
MTN has piloted its 5G network in Congo

MTN has successfully piloted its 5G network in Congo, coinciding with the company's 20-year anniversary of operations in the country.

Minister of posts, telecommunications, and the digital economy Léon-Juste Ibombo said that the pilot was a success and achieved connectivity speeds of 10Gbps and over. "MTN Congo is in the process of materialising Congo's entry into 5G mobile telephony technology," said Ibombo.

The minister said that the government will fast-track distribution of technology-neutral licences to service providers to enable them install and operate terrestrial cellular mobile networks open to the public for the provision of electronic communication services.

The commercial rollout of the MTN's 5G network in Congo is expected by 2025.



WIOCC and EXA Infrastructure sign Africa-Europe transport capacity deal

EXA Infrastructure and WIOCC Group have announced the signing of a deal for capacity on a new terrestrial transport route interconnecting Africa and Europe.

WIOCC will be utilising this new gateway to support its growth as the wholesale carrier of choice across the African continent.

"Our expanded partnership with EXA Infrastructure enables us to harness EXA's robust transport routes to Europe through Portugal on a high-capacity network. WIOCC is continually investing to strengthen Africa's global connectivity, expand open access digital footprint and ICT capabilities, and thereby extend Africa's influence and capabilities," said WIOCC group chief executive Chris Wood. "Africa's internet economy is growing fast, the mobile-first continent unites almost 1.4 billion people and connectivity is fundamental to Africa's digital transformation. We are pleased to have secured this partnership and transport route with EXA."

Africa has around 570 million internet users in 2022 with social media, online shopping and fintech growing in popularity and rising internet penetration, according to Statista. The demand for content both within and outside of Africa is growing and WIOCC has been a key catalyst for internet growth in Africa, investing over $500 million in creating open access, hyperscale digital infrastructure.

"WIOCC has been a pioneer in connecting Africa to the world, and we are delighted to be chosen to support them in Europe as they continue to scale to support the demands of their clients. The African connectivity landscape is rapidly changing with the growing demand for internet traffic and bandwidth. Reliable digital infrastructure is pivotal to improve the quality of people's lives and drive business growth across the continent" said EXA Infrastructure Chief Commercial Officer Nicholas Collins.

"EXA will continue to expand our network in line with customer demand to ensure we are the most compelling choice for our customers who are looking for fast, secure and scalable infrastructure," said Collins.

Vodacom SA launches service for hearing-impaired, increasing digital inclusion

Vodacom has announced another first in South Africa with the launch of a real-time Specific Needs and National Relay Service (NRS), which expands its offerings for deaf, hearing- and speech-impaired customers. This further strengthens the company's support to persons with disabilities and its commitment to building an inclusive digital society.

"For almost two decades, Vodacom has championed the communication needs of persons with disabilities by providing access to products and services that address their challenges and help to improve their lives," said Takalani Netshitenzhe, executive director of external affairs for Vodacom South Africa. "The Specific Needs and NRS Centre offers an inclusive technology solution that advances our goal of empowering all South Africans and ensuring no one is left behind in the digitalisation journey. The launch of this system is another example of how Vodacom is delivering on its purpose to connect for a better future."

The NRS enables deaf, hearing, and speech-impaired persons to contact hearing people such as family, friends, and organisations, in real-time and on their own without asking a friend or someone else to make the call which impedes their independence. Registered Vodacom prepaid and postpaid customers who are deaf and use South African Sign Language (SASL), hearing-impaired or have speech difficulties can place a call to any hearing person via specially trained relay officers (RO). The ROs are the central link on the call and facilitate communication between the NRS user and the called party.

Some examples of these calls include making a booking at a restaurant or an appointment with a medical doctor. More critically, the NRS provides SASL users the option to request emergency services, such as police, ambulance, traffic, sea rescue, and fire services.

The NRS enables deaf, hearing, and speech-impaired customers to choose the type of relay service that meets the needs of their specific disability. This includes voice relay, text relay, live chat, captioned telephony relay as well as video relay. The NRS is free of charge for customers using a Vodacom SIM. As part of the NRS, Vodacom is also offering a Video Relay Service, which enables Deaf SASL customers to use video technology to communicate with hearing persons. A video call connects Deaf customers to ROs, who are South African Sign Language Interpreters (SASLIs).

"Not providing accessible call centre services denies human rights to persons with disabilities and promotes social exclusion as they have limited ways of communicating to organisations and hearing people. With SASL proposed as the country's 12th official language, it is imperative that more is done to bridge the real-time communications gap that currently exists," said Desiree Hayes, managing executive, Vodacom South Africa.

AMN gains US$20m loan

Africa Mobile Networks (AMN) has secured a US$20 million loan from Finnfund and BlueOrchard Finance to further expand its network in rural areas of sub-Saharan Africa. This investment should make it possible to provide telecom services to an additional 35 million people.

"AMN connects the unconnected in sub-Saharan Africa by providing mobile network access for rural areas. We have a unique opportunity to accelerate digital inclusion in growing markets and digital infrastructure is a critical driver of sustainable growth and shared prosperity," said Philipp Mueller, CEO of BlueOrchard.

This investment will support AMN's ambition to expand its portfolio from the current level of around 2,000 towers in 10 sub-Saharan African countries to over 10,000 towers in over 20 countries in the region by the end of 2025.

"It is estimated that more than 300 million people in sub-Saharan Africa live in villages that do not have usable mobile network service today. We set out to meet this challenge," said Michael Darcy, president and CEO of Africa Mobile Networks.

Africell Angola enters Benguela

Africell Angola is launching mobile services in Benguela Province as the second phase of its ambitious national roll-out strategy.

Africell's expansion into Benguela Province only eight months after starting operations in the country means that its network now covers approximately 11 million people.

Following a successful initial launch in Luanda in April, the activation of services in Benguela Province extends those benefits to Angola's dynamic second city, offering individuals, households, and businesses a powerful new platform for digital participation. As in Luanda, Africell Angola's network in Benguela city is 5G-enabled. The network is built using secure and state-of-the-art Nokia equipment.

Malawi: communications costs beyond reach of majority

The Consumer Association of Malawi (CAMA), following Airtel Malawi's price increases, has warned that the cost of communication in the country is now beyond the reach of the majority. CAMA Executive Director John Kapito said that the development is worrisome, especially after the government had assured Malawians of a reduction in the price of mobile phone data. In October, the Minister of Information and Digitalisation Gospel Kazako said that the government will do whatever it takes to bring down data prices.

Kapito said that it was shocking that most of the companies in the country were pushing consumers to the edge by raising tariffs instead of improving internal inefficiencies: "This is shocking to consumers who for a long time have registered their anger with the current bundle prices and one wonders how Airtel Malawi reconciles and justifies their bundle prices with an increase of 20%."

Airtel Malawi released a statement and explained that the revision of prices is largely the result of soaring costs of doing business in the country following the 25% devaluation of the Malawian currency in May, rising energy costs and their domino effects.

"While Airtel has absorbed the ensuing pressure from these headwinds for more than 5 months, the value dilution has become unsustainable. It is prudent to revise accordingly to protect Airtel's broad stakeholder base interests as well as guard its capability to continue to deliver quality services to customers. Further, some of Airtel's products will be discontinued in order to streamline and simplify the products portfolio for customer convenience," said the company in a statement.

The Minister said the solution lies in bringing in new players into the sector to raise the level of competition and force a reduction in costs. To date, the Malawi Communications Regulatory Authority (MACRA) has only given licences to two companies: StarLink to ensure high-speed internet connectivity and Malcel, the county's third mobile phone operator.

Zambia pledges 100% network coverage in 2024

Zambia's government plans to achieve 100% national network coverage by the end of 2024.

Science and Technology minister Felix Mutati said that the government is working closely with MTN Zambia, Airtel Networks Zambia and state-owned Zamtel to achieve this. The government will leverage more than US$41 million generated from the recent auctioning of spectrum by the Zambia Information and Communications Technology Authority (ZICTA).

In July ZICTA confirmed that it had raised US$41.55 million in the spectrum sale with Airtel Networks Zambia emerging as the biggest spender after offering US$29 million on 60MHz of additional spectrum spread across the 800 MHz and 2600 MHz bands. In January 2021, Airtel Zambia was also awarded spectrum on the 800MHz frequency band by ZICTA. In March the same year, ZICTA also awarded MTN Zambia additional spectrum at a cost of US$13.5 million.

"Using the universal access fund and the money raised from the sale of spectrum, the government is working towards expanding mobile network connectivity by way of erecting more towers particularly in the rural areas," said Mutati.

Kayamandi Fibre Project goes live

A prepaid and low-cost fibre project has gone live in South African township Kayamandi in Stellenbosch in the Western Cape, with ambitions to roll out connectivity to tens of thousands of previously unconnected residents and spread similar projects across Africa.

The Kayamandi Fibre Project is a collaboration between Isizwe and partners Paygozo and Vulacoin.

As of 7 November, more than 3,000 Kayamandi homes now have access to uncapped prepaid fibre at a cost of just R5 per day with internet speeds of more than 100Mbps.

The goal is to extend the fibre to all 30,000 homes in Kayamandi. Isizwe has open-sourced the township fibre blueprint, providing a step-by-step guide for how to build networks at a low cost without compromising quality and then make it easy for consumers to buy airtime.

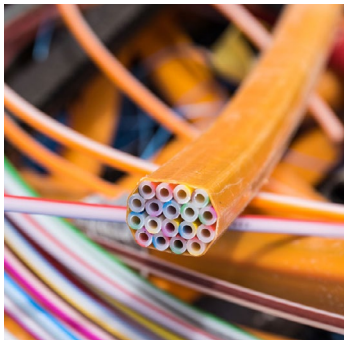
"We're trying to do for fibre what Shoprite Checkers did for food and Capitec did for banking, namely bring down the costs so that more people can have access to more internet, and in the process help entrepreneurs build big businesses that can create job opportunities for thousands of youngsters in townships," said Steven Briggs, CEO of Isizwe.

Isizwe explained that it can roll out the fibre at such a low cost because townships are traditionally such high-density areas that you can pass more homes per 100m of fibre than you can in regular suburbs, which means you can charge a lower retail rate and get the same return on investment.

"Our goal has been to create a fundable template for township fibre so that local entrepreneurs can access funding to build fibre infrastructure in any township in SA," explained Richard Henn, CEO of Paygozo, which is the prepaid ISP enabling the Kayamandi Fibre Project. "Fibre internet is not rocket science. It's about getting the civils properly delivered. Instead of having to hire technicians and engineers and specialized skills, we decided to outsource to ASLA, a company that specializes in building township infrastructure. South Africa has an enormous and under-utilized construction management sector, which we believe can be applied towards fibre deployments, and which can achieve lower build-costs and higher quality than can be achieved in-house."

Based on the results of the commercial model, Isizwe intends to expand the project to other countries.

"We're already working on plans to penetrate the metropolitan conurbation stretching from Lagos to Accra. The truth is that most of world is more like South Africa than it is like OECD (Organisation for Economic Co-operation and Development) countries like England. Which means solutions that work in South Africa are more applicable to the world than solutions that work in England," said Alan Knott-Craig Jr, chairman of Isizwe and the founder of nonprofit sister company Project Isizwe. "At the core of our mission is the fight against digital apartheid. The gap between those that have fast affordable Internet, and those that don't. Those that have uncapped home fibre, and those that don't. The Kayamandi Fibre Project is our small way of trying to tackle digital apartheid."



AngoSat-2 cleared for use

AngoSat-2, Angola's second communications satellite, is now ready for use after successfully undergoing a series of tests.

The satellite's services are expected to cover the whole of the African continent and a significant part of southern Europe in C-band. It will also provide almost complete coverage of southern Africa in Ku-band.

Its commissioning should contribute to the development of telecommunications, agriculture and other sectors of the Angolan economy, in a context marked by the acceleration of digital transformation. The new infrastructure should also allow Angola to be autonomous in terms of space technology while strengthening its position in the African market.

Paratus Mozambique opens new office in Nampula

Paratus Mozambique has opened a new office in Nampula and established a point-of-presence (PoP), along with another in Nacala, north of the country.

"This is a key strategic development for our business," said Paratus Mozambique MD, Rui Maia Costa. "Our oil, gas, banking/Fintech, and shipping customers are already planning their migration to our infrastructure in the north because they are aware of the benefits."

The PoPs will provide reliable internet access via fibre or microwave, and, in more remote areas, satellite.

"With a contiguous footprint of fully redundant, quality connections from Mozambique to Namibia, from Zambia to Botswana and South Africa, we have the area covered for the best possible quality connectivity – and where we need last mile or combined connectivity, we have this covered too. It's an exciting time for our business here in Mozambique as more and more key business sectors realise now that it is critical to have the best possible connectivity and linked service options," said Costa. "Through Paratus Group's offering of four datacentres in three African countries, quality network routes across the SADC region, and PoPs not only in northern Mozambique now but also in 37 African countries, we are busy transforming the continent through exceptional digital infrastructure and customer service. We have appointed expert technicians and sales support staff in our new Nampula office who will be on hand to service our customers' needs in that region."

SES to deliver satellite connectivity for DRC mine

SES has said that it will provide high-speed satellite-based connectivity services to a leading African mining company based in the DRC as part of a new agreement between Shevon and SES.

During the two-year agreement, Shevon will provide for the first time SES's O3b medium Earth orbit (MEO) high-throughput and low-latency connectivity services, enabling the DRC mining company to implement new services and applications that will improve workers' safety, digitalise operations and maximise profitability through increased agility and automation. The new agreement reflects the strength and success of the existing long-term partnership between the two companies.

"SES has been providing us geostationary satellite capacity for years, and it has served us well," said Craig Jennings, CEO of Shevon. "However, in recent years, the energy sector in this region has been growing and developing, where the demand for reliable, high-throughput and low-latency services is more critical than ever. We are excited about our first MEO contract with SES and how the low-latency services will transform our business."

"Digitalisation is helping the mining industry to evolve. High-throughput, low-latency connectivity and native integration with cloud platforms enable a new generation of more profitable operators, who can also boast high levels of oversight and compliance over their remote sites," said Caroline Kamaitha, vice president of sales Africa at SES. "At SES, we are proud to be helping to spearhead this change through our O3b MEO network – and our upcoming O3b mPOWER service."

MTN Zambia launches 5G

MTN's Zambian subsidiary has officially launched its 5G mobile network in the country. MTN Zambia is now the first operator to launch commercial ultra-broadband in Zambia and the group's third African subsidiary to achieve this technological leap after MTN South Africa and MTN Nigeria.

MTN Zambia's 5G network is already operational in the cities of Lusaka, Kitwe, and Ndola, as well as parts of Chingola, Solwezi and Kalumbila. It can support up to around 15% of the Zambian population.

"We plan to achieve 100% 5G coverage in Lusaka, Kitwe and Ndola by mid-2023, while gradually expanding the 5G network to other locations," said Bart Hofker, MTN Zambia CEO.

According to MTN, the introduction of ultra-broadband in Zambia is part of a broader network strategy which includes other programs such as the optimization and modernization of existing 3G and 4G networks, the construction of a fibre optic ring, as well as the extension of coverage in more rural areas.

"5G can transform businesses and livelihoods beyond simple connectivity, with the potential to unlock many new use cases. In Zambia, we see great opportunities in many sectors, and in the mining industry in particular," said Ralph Mupita, chairman and CEO of MTN Group.

ICASA gains four new councillors

Four new councillors were sworn in at the Independent Communications Authority of South Africa (ICASA), each for a four-year term.

At a virtual ceremony presided over by Judge Thokozile Masipa, councillors Thabisa Faye, Cathrine Mushi, Nompucuko Nontombana, and Ntombiza Sithole took the Oath of Office, pledging to serve the South African people, the ICT sector and the public interest with integrity and probity, and in accordance with their mandate as enshrined in the Constitution and the ICASA Act.

"On behalf of the entire organisation, it gives me great pleasure to welcome the appointment of the new members to the ICASA Council. Their arrival will serve to greatly strengthen the work of the Authority as it regulates the ICT sector: telecommunications, broadcasting, and postal services. We look forward to their collective contribution, to collaborate with them and to learn from the wealth of experience and expertise that each individual Council member brings to the governing collective of the Authority," said Charley Lewis, acting chairperson, ICASA.

Mauritius Telecom to modernise WiFi network

Mauritius Telecom has entrusted the modernization of its WiFi network to Alepo, which has duly deployed its WiFi service management platform (SMP) for this purpose. The initiative should enable Mauritius Telecom to better meet the needs of its customers, which are banks, government entities, hotels, etc.

The SMP WiFi solution is expected to enable Mauritius Telecom to manage and monetize its WiFi services and support new services such as WiFi Calling, Secure Onboarding, Bring Your Own device, and enabling the Internet of Things (IoT).

"Alepo's modern and advanced WiFi solution is a perfect fit for us: it allows us to continue to focus on delivering innovative, high-quality services with an unparalleled customer experience, while maximizing our revenue potential," said Yoganaden Samy, principal telecom engineer at Mauritius Telecom.

The modernisation is timely as demand for broadband connectivity grows across the country. According to the latest statistics from the regulator, subscribers to internet services in Mauritius have increased from 1.4 million in 2019 to 1.8 million in 2021.

Dolphin Telecoms wins MVNO licence for Zimbabwe

Dolphin Telecoms has been issued an MVNO licence by the Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ).

Previous attempts to launch MVNOs in Zimbabwe's telecoms sector have failed. However, local media reports that Dolphin has a wholesale agreement in place with one of the country's 3 mobile operators, as yet not disclosed.

Dolphin plans to launch services before the end of the year, offering a large coverage area. The company has invested US$15 million into the launch, and is reportedly aiming to offer a wide range of customisable tariffs as well as mobile financial services.

Vodacom Lesotho and LCA reach agreement

Vodacom Lesotho and the Lesotho Communications Authority (LCA) have reached an amicable agreement, ending a dispute that dates to 2019 for the non-respect of certain obligations by Vodacom Lesotho.

The agreement was endorsed by the Supreme Court of Lesotho which issued an order to this effect on 1 November. The Supreme Court order overturns the regulator's decision to revoke Vodacom Lesotho's operating license. It also orders Vodacom Lesotho to pay R4 million to the LCA.

In 2020 the LCA imposed a fine of R134 million on Vodacom and decided to revoke its license due to a dispute which had opposed them since 2019. The regulator accused the Vodacom subsidiary of failing to comply with a number of requirements of its licence, including failure to pay regulatory fees, failure to meet Universal Access Fund (UAF) obligations and failure to appoint an independent external auditor. However, Vodacom was able to obtain the provisional cancellation of these two sanctions from the Supreme Court.

The settlement of the dispute between Vodacom and the LCA should improve the impartial regulation of the Lesotho telecoms market and accelerate its development with the introduction of more competition.

Zimbabwe embarks on first communications satellite

Following Zimbabwe's historic achievement with the launch of the ZIMSAT-1, president Mnangagwa has affirmed the country's plans to begin work on its second satellite, ZIMSAT-2, a communication satellite.

The recent landmark deployment of Zimbabwe's satellite ZIMSAT-1 is part of an ongoing strategy that will see the country launching more satellites.

"ZIMSAT-2, which we hope to launch quite soon, will give us additional capabilities, including in the critical field of communications. Once up, ZIMSAT-2 will enable total national connectivity, thus making ICT and other communication applications pervasive handmaidens in National Development," said president Mnangagwa. "Of course, that we named our maiden satellite ZIMSAT-1 means we foresee the launch of more satellites as our nation fully exploits and harnesses space technology for rapid industrialisation and modernisation. Indeed, ZIMSAT-2 is on its way, and should be a lot easier given the expertise, experience and confidence we have now garnered through this multinational partnership."

The satellite serves a key purpose in Zimbabwe's ambitions, as the country modernises processes, especially in conservation, public health, agriculture and disaster mitigation.

Vodacom Tanzania launches 5G FWA routers

Vodacom Tanzania has launched 5G fixed wireless access routers to enable homes and offices to access 5G internet.

Vodacom Tanzania launched the country's first 5G network in September and has recently acquired spectrum portfolios that it intends to use for network expansions and investments, including 5G deployments.

"Although 5G was launched in the country, it has not been accessible to many of our customers and businesses due to mobile device limitations in terms of capabilities to latch onto 5G, so today we are excited to launch our 5G routers which will enable our customers to enjoy 5G internet," said Vodacom Tanzania director enterprise business unit director, Arjun Dhillon. "5G Home and Business Internet, powered by the only 5G network in the country is ideal for anyone who wants ultra-fast connectivity to stream, game, or work flexibly. For businesses, 5G adoption means higher productivity, efficiency, and more connections while for homes it means smarter homes and better internet experience."

The 5G routers for business represent a unique intersection of flexibility and fibre-fast performance, enabling wireless WAN connectivity and forward-thinking innovation for fixed and temporary locations, vehicles, and beyond.

Vodacom Tanzania says that "companies can expect to see faster time-to-value from their IoT initiatives, greater opportunity to eliminate costly-wired installation, and maintenance, increased network uptime, and resilience associated with wired options."

Vodacom's head of brand and communication Warda Kimaro said 5G will greatly increase the speed and responsiveness of wireless networks and expand them to enable hundreds of thousands of connections. "To experience the transformative power of 5G to their home and businesses, our customers can reach us through our various access points such as emails, calling, shops or websites," he said.

Talking critical

Tim Clark, TCCA Board member

Considerations for critical broadband device procurement

Today's mission-critical user devices are still mostly built on narrowband technologies such as TETRA and provide mission-critical voice and short messaging services. These services are often available within nationwide network coverage, utilising dedicated frequency bands. The narrowband critical communications device ecosystem is well established, including infrastructure and terminal suppliers, system integrators, service providers and resellers. From a device procurement perspective, there are existing frame agreements in place. The solution costs are well known, device lifecycles are long, and there are no major changes in the product specifications. Finally, TCCA's TETRA interoperability (IOP) process allows for multi-vendor procurement.

Now, as the critical communications sector is looking to adopt broadband 4G and 5G communication technologies, there are several issues that need to be considered. In addition, from the procurement perspective, the transition to mission-critical broadband will require a series of well-planned steps. Bringing devices to market that support these new technologies, and meet various critical user requirements, will need investments by the vendors, as well as commitment from customers in terms of development support, minimum order quantities, user testing and acceptance, etc. Many current procurement models also allow device purchases from other sources. User organisations can run their own procurements, broadband devices can be leased from IT service companies, or even purchased by individual employees (BYOD - Bring Your Own Device).

Device and OS/software lifecycles of broadband devices are short compared to narrowband radios, even though vendors are doing their best to extend them. The current procurement, testing, certification, and approval processes required for mission-critical usage therefore need to be adapted accordingly. At the same time, the vendors must be able to provide information on their existing capabilities and present a roadmap that shows how they plan to meet the evolving customer needs and requirements throughout the contract period. As in any change there is room for improving the status quo.

An essential part of creating a mission-critical device procurement specification is to fully understand the user needs. The user community will consist of multiple groups, each with its specific requirements and operational processes. Once the distinct user groups have been identified, close engagement will be necessary to fully understand their use cases and device requirements. This may be achieved via interviews, questionnaires, workshops, etc. It is likely that the diverse needs can be grouped to simplify analysis. When describing their use cases and requirements it is important that the user groups look ahead to how the new broadband technology can transform and enhance their operations. Functionality delivered by existing narrowband systems is the reference, but users should not just focus on replicating the voice and messaging functionality and reliability of their existing system. The evolution from a voice-centric to a data-dominated working environment requires considerable investment in business process redesign.

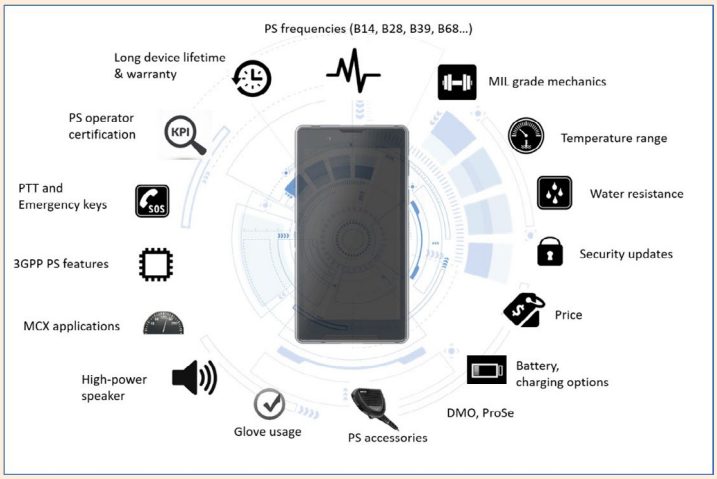
With the development of mission-critical mobile broadband solutions for PPDR based on 3GPP standards, the international critical communications community has entered a new world of needs and possibilities for their user organisations. This new world has a lot of potential to support the work of critical users to make them more efficient, but also to provide more security for the users of mission-critical services. One of the key elements in the chain of information is the device that will be used to unlock the new possibilities.

The mobile broadband world is a complex one. To be able to use the functional possibilities in the most effective way, some key elements should be considered before device procurement can lead to a successful outcome. These include functional needs, technical conditions, end to end testing, user, and equipment management and of course security. Regardless of the procurement model these key elements should be well defined.

However, it should be noted that the more variety and freedom that lies with the users, the more risk there is that the end-to-end mission-critical functionalities cannot be guaranteed by the operator of the mission-critical network. Therefore, it is recommended to set up a robust system with standard set of device requirements and settings, as well as an approved device catalogue process to ensure a guaranteed level of quality for the end user.

The world of mission-critical smart devices is still developing and not yet fully mature. The ecosystem compared to standard smartphones is still small. It is therefore very important that PPDR organisations, manufacturers, standardisation, and testing bodies cooperate to stimulate the growth and development of the mission-critical device market. It is expected that the mission-critical device ecosystem will reach a mature level in the coming years.

This article is taken from TCCA's white paper 'Mission-Critical Broadband Device Procurement'. *The aim of the white paper is to provide a holistic overview of critical broadband device-related requirements, to list the main topics and issues to be considered, as well as provide recommendations for a successful procurement, and is therefore particularly relevant to public safety organisations who are planning new device procurements.*



Cote d'Ivoire's government to sell 9.95% stake in local Orange unit

Cote d'Ivoire's government is divesting a 9.95% stake in Orange's local unit via a public offering.

While the state will retain a 5% holding in the fixed and mobile provider, 14.99 million shares will be sold on West Africa's Regional Stock Exchange (Bourse Regionale des Valeurs Mobilieres, BRVM). Of these, 750,000 shares will be exclusively available to Orange CI employees for a share price of XOF7,600, while the remaining 14.24 million shares will be available to the general public for XOF9,500 per share.

The government is looking to raise $222 million from the sale.

The IPO project will be presented to Orange's board of directors at its next general assembly. If the project is validated by the board it will then require regulatory approval.

BCX revolutionises Skylink satellite service with Twoobii

BCX has partnered with Twoobii to bring major benefits to South Africans using its Skylink VSAT Access.

Customers can now benefit from seamless voice and data connectivity, amplified by speeds from 2Mbps up to 20Mbps through Skylink VSAT Access. This service is optimised for off-grid users with no access to mainstream LTE, fibre, and microwave networks and those who need a solution to the continuing load shedding disruptions.

BCX selected Twoobii to gain rapid deployment and immediate service activation upon installation, plus independence from third-party or terrestrial infrastructure. With satellite uptime availability at 99.5%, Skylink VSAT Access is an extremely dependable offering for use either in day-to-day operations, or during emergencies when other systems have been degraded or disrupted.

Skylink's 100%, all-Africa signal coverage and support of both voice and POS services serves as an innovative solution for a wide range of industries. Engineering support will be provided by Q-KON Africa, using full end-to-end access to ensure optimum customer service delivery. BCX believes that its full-service model represents the future of Smart Satellite Services in South Africa.

"We are delighted to have partnered with Q-KON Africa and to be able to utilise their Twoobii solution," said Neo Phukubje, BCX managing executive: wireless solutions. "This next-generation platform and access to high-throughput satellites, ensures we can deliver the connectivity, speed, and value our customers expect, including equipment repair and replacement, support services and uncapped internet over satellite access."

Skylink has been engineered as the ideal back-up to existing terrestrial services and is almost infinitely scalable, to allow businesses to connect multiple remote branches into their networks. Compatibility with SD-WAN, Layer 2, Layer 3 and VPNS makes Skylink highly beneficial as an underlay to SD-WAN, SD-WAN Express and the public Cloud.

"The success of our partnership with BCX underlines the suitability of our Twoobii Smart Satellite Services as a white label solution for satellite connectivity providers. By leveraging the power of Twoobii in this way, BCX can now deliver an exceptional B2B offering under their Skylink VSAT Access brand," commented Hendrik Bezuidenhout, account director: key accounts for Q-KON Africa and Twoobii. "The success of BCX has been built on their multi-vendor model, and Q-KON Africa is delighted to be able to add to their continued growth as they recruit more corporate and enterprise customers."

Angola looks to sell Unitel stake

The Angolan government is considering privatising Unitel, with minister for mineral resources, oil and Gas, Diamantino Pedro Azevedo, saying the move would provide greater stability and efficiency.

The move indicates a rapid about-face for Unitel, which was finally nationalised just last month after a long legal battle. The ownership issues centred around Unitel's entanglement with Isabel dos Santos and Leopoldino do Nascimento, who until recently each held a 25% stake via Vidatel and Geni, respectively.

The Angolan government ultimately took the decision to seize do Nascimento's stake in Unitel in January 2022, while dos Santos' stake was seized at the end of October after the failure of her last legal challenge. Interpol would later issue an international arrest warrant for dos Santos at the request of the Attorney General of the Republic of Angola.

The seizure of do Nascimento and dos Santos' stakes left Unitel entirely nationalised, with the government already holding the remaining 50% of the business via Group Sonangol.

Struggles for Safaricom

The new call termination rates introduced in August and an increase in excise duty on SIM cards has impacted voice revenue for Safaricom.

According to the company's financial half-year results, voice revenue decreased by 3.8% to KShs39.88 billion.

"Given the impact of the Mobile Termination Rates from KShs0.99 to KShs0.58, a slowdown in business operations due to the elections period, increase in excise duty on SIM cards and mobile phones and a failed rain season leading to more economic hardship for the country, Safaricom has done very well to deliver solid revenue growth and a net income that is within the expected range," said Safaricom CEO Peter Ndegwa.

Mobile data and mobile money both saw a significant rise in revenue. Mobile data revenue grew by 11.3% to KShs26.30 billion, while M-Pesa revenue grew by 8.7% to KShs56.86 billion. Total service revenue stood at KShs144.83 billion.

Safaricom's 5G has been deployed at 35 sites in five towns in Kenya and the company is planning to establish 200 sites by early 2023.

MTN resilient under challenging conditions

MTN Group has underlined the resilience of its South African subsidiary, along with that of its Nigeria, Ghana, Rwanda, and Uganda operations, as a significant contributing factor to the company's third quarter results.

MTN has described the results as 'resilient under difficult macroeconomic geopolitical and regulatory conditions.'

These operations contributed to the overall increase of 14.3%, in constant currency, to R144 billion in MTN Group service revenue; strong growth in data traffic and fintech transaction volumes; and the expansion of the group EBITDA profit margin to 45.3% in an environment of elevated energy and general inflation.

MTN South Africa, the group's second-largest contributor to service revenue after MTN Nigeria, grew subscriber numbers by 8.1% to 35.9 million in the period to 30 September 2022. Service revenue growth of 3.5% was impacted by loadshedding and revenue concessions that supported the recapitalisation of national roaming customer Cell C.

"MTN South Africa's enterprise business continued to expand, delivering service revenue growth of 19.7%. The consumer postpaid business was resilient, with growth of 4.2%. The rising cost of living and the impact of loadshedding was felt most acutely in the consumer prepaid market, where service revenue grew by 0.4% in the period," said the company in a statement.

"Amid unprecedented loadshedding which negatively affected network availability, MTN South Africa expanded market share, delivered encouraging underlying service revenue growth, strong expense controls and investment in network resilience and expanding the 5G coverage," said MTN group president and CEO Ralph Mupita. "Work on network resilience and availability progressed well, but persistent loadshedding in the last quarter of the year could impact revenue growth, particularly in the consumer prepaid market."

Rwanda approves EACO launch

The Rwandan government has approved the establishment in Kigali of the secretariat of the East African Communications Organization (EACO), a regional body that brings together regulatory, post, telecommunications organizations and broadcasting of the East African Community (EAC). This long-awaited approval should enable EACO to better coordinate its efforts to improve access to quality communications services at affordable prices.

ECA seeks sale of Ethio Telecom stake

Ethiopian authorities have revived attempts to attract investment into its communications sector, relaunching separate processes to issue a third mobile licence and sell a 40% stake in Ethio Telecom.

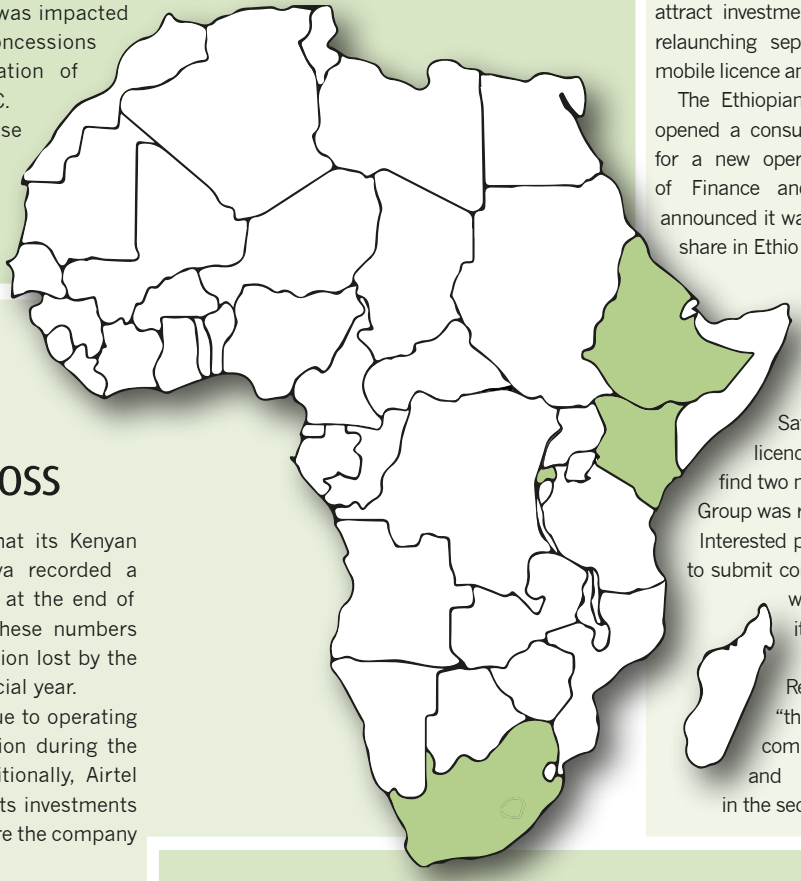
The Ethiopian Communications Authority (ECA) opened a consultation which will shape its tender for a new operator, while the country's Ministry of Finance and Economic Development (MoF) announced it was revisiting a plan to sell a minority share in Ethio Telecom.

The move comes just a month following Safaricom's nationwide launch, which rendered it Ethiopia's first private MNO.

The process which resulted in Safaricom and its backers winning a licence in 2021 was originally designed to find two new MNOs, however an offer by MTN Group was rejected in favour of retendering.

Interested parties now have until 16 December to submit comments or questions on the tender which will be used to help guide its next steps.

ECA director general Balcha Reba said that the move showed "the government and ECA's firm commitment to introduce competition and create a level-playing field in the sector."



Airtel Networks Kenya reports second year of loss

Bharti Airtel Limited reported that its Kenyan subsidiary Airtel Networks Kenya recorded a post-tax loss of US$18.3 million at the end of the 2021/2022 financial year. These numbers are down from the US$$22.3 million lost by the company in the 2020/2021 financial year.

The loss has been attributed due to operating costs which reached US$30 million during the financial year under review. Additionally, Airtel Kenya relies heavily on loans for its investments in the Kenyan telecom market where the company is struggling to break even.

Airtel Kenya's total assets at the end of the financial year 2021/2022 were worth US$950.9 million against debts of US$1.1 billion. The previous year, the company's assets amounted to US$1 billion for debts of US$1.3 billion.

Airtel Africa Plc, the intermediate parent company of Airtel Kenya, claims to be confident in its prospects and continues to invest heavily in the company. The company notably paid US$5 million to the regulator in partial payment for an operating license for the period 2015-2025. It has also invested several million dollars for the acquisition of additional telecom capacities.

Econet Wireless hit by inflation

Econet Wireless, which posted a ZW$578 billion loss in the first half of August 2022, has been hit by low tariff costs. The company has continued to lobby the regulator to increase tariffs amid rising inflation which has worsened year on year.

Econet Wireless recently raised its tariffs to ZW$41.77 per minute for voice calls, up from ZW$25.95, while data charges were raised to ZW$6,6 per Mb, up from ZW$4,1 per Mb. Sending a SMS now costs ZW$8,59 per message, up from ZW$5,33.

An excerpt from a statement released by Econet Wireless reads: "inflation adjusted revenue for the period under review was $112,4 billion, representing a decline of 1% compared to the same period last year. While voice and data volumes increased by 27% and 40%, respectively, these increases were negated by tariffs which remained unaligned to the cost base of the business."

MTN Group-Turkcell legal battle finally over

The ten-year legal battle between MTN Group and Turkcell over the acquisition of a mobile license in Iran has now ended. A claim filed by Turkcell in the Johannesburg High Court in 2013 in connection with the case was dismissed with costs on 30 November.

The legal proceedings were launched in November 2013 by Turkcell and its subsidiary East Asian Consortium (EAC) after the failure of a first attempt launched in 2012 before the Federal Court in Washington. MTN was accused of acts of corruption in the process of acquiring the first private network operator license in Iran in 2004. Turkcell, which was also in the running, claimed financial compensation of US$4.2 billion in damages.

In November 2020, Turkcell withdrew as plaintiff from the case, leaving EAC as sole plaintiff in the action against MTN in South Africa.

Following the Johannesburg High Court's ruling, MTN said it was "delighted with this outcome, as it has always maintained that the Turkcell litigation is without merit."

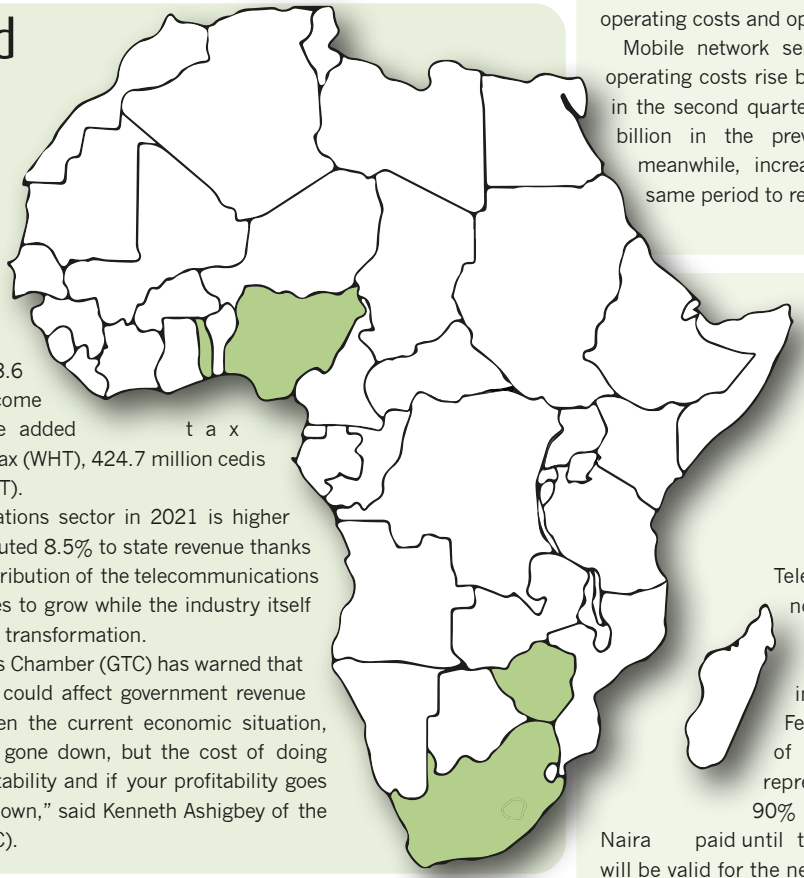
Ghana's telcos paid 4.3 billion cedis in taxes in 2021

Actors in the Ghanaian telecommunications sector paid 4.3 billion cedis in taxes and levies during the financial year 2021. These figures represent 7.7% of state revenue during that year.

The total amount includes 883.6 million cedis paid for corporate income tax (CIT), 657.4 million cedis for value added tax (VAT), 722.2 million cedis for withholding tax (WHT), 424.7 million cedis for the tax on communication services (CST).

The contribution of the telecommunications sector in 2021 is higher than that of 2020 when the sector contributed 8.5% to state revenue thanks to the 3.6 billion cedis paid in tax. The contribution of the telecommunications sector to Ghanaian state revenue continues to grow while the industry itself grows, driven by the acceleration of digital transformation.

However, the Ghana Telecommunications Chamber (GTC) has warned that overloading telecom operators with taxes could affect government revenue and slow the growth of the sector. "Given the current economic situation, volumes have gone down, revenues have gone down, but the cost of doing business continues to rise. It affects profitability and if your profitability goes down, 25% of your corporation tax goes down," said Kenneth Ashigbey of the Ghana Telecommunications Chamber (GTC).



MTN appoints independent non-executive director Nicky Newton-King

MTN Group has appointed Nicky Newton-King as its independent non-executive director.

Nicky will help manage the business, politics and the regulatory environment, and is a highly respected leader with an immaculate reputation both in South Africa and internationally.

"Nicky has significant exposure to many of MTN's core markets in Africa and her unique regulatory experience will bring particular insight and value to MTN. Nicky's passion for sustainability and the role that business can play in achieving a more equitable society has seen her dedicate much of her time to initiatives in this space," said MTN in a statement to its shareholders.

NetOne increases prices

NetOne increased the prices of its telecom services on 13 November, with competitors expected to follow suit shortly. These adjustments should enable operators to compensate for the increase in operating costs.

Back in July, the Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ) approved a 180% tariff increase, the first since September 2021. This tariff adjustment was to be implemented in three phases of 60% in July, September, and November.

Zimbabwean telecom operators have regularly revised their prices upwards since 2019, but these adjustments have always proved ineffective due to the country's continued economic crisis. The economic context affects the telecom sector through service demand and consumption levels, operating costs and operator investments.

Mobile network service providers saw their operating costs rise by 44.9% to Z$24.7 billion in the second quarter of 2022, from Z$17.01 billion in the previous quarter. Revenues, meanwhile, increased by 35.1% over the same period to reach Z$38.9 billion.

Nigeria cuts right of way fee 90%

Telecom operators will now pay 14.50 Naira per metre as a right of way fee to deploy broadband infrastructure in the Federal Capital Territory of Nigeria. The new tariff represents a reduction of 90% compared to the 145 Naira paid until then December 2022. It will be valid for the next two years.

In 2017, the federal government entered into an agreement with all the governors of Nigeria's 36 states to harmonize right of way fees for telecom companies in the country. Until then, fees were set by the states and varied between 4,000-8,000 Naira per metre. It was after the harmonization that the tariff increased to 145 Naira.

The reduction in right of way charges is expected to accelerate investments in broadband telecommunications infrastructure in Nigeria. This should not only improve the availability and quality of telecom services, but also reduce their costs.

Vodacom Group reports 7.7% revenue growth

Vodacom Group saw interim earnings decline as start-up costs from its recent launch in Ethiopia and higher finance costs impacted the pan-African operators' profit.

First-half headline earnings per share (HEPS) – a key profit measure in South Africa – fell by 9.5% year-over-year (YoY) to R4.57 per share while operating profit was down 5.6% YoY to R13.3 billion. Revenue for the six months that ended on 30 September 2022, however, was up 7.7% to R53.7 billion "despite ongoing financial market volatility and weaker prospects for the global economy," Vodacom said.

"The war in Ukraine, which followed hard on the heels of a global health crisis, continues to result in increased inflationary pressures and elevated living costs in many countries across the world, including markets where Vodacom operates. Vodacom has attempted to absorb considerable inflationary costs from the dramatic increase in energy costs as far as possible," said Vodacom Group CEO Shameel Joosub.

This together with the Ethiopia rollout costs contributed to a 9.3% YoY decline in earnings per share and muted earnings before interest, taxes, depreciation and amortization (EBITDA) growth of 0.6%.

Vodacom Group added another 3 million customers during the six months, upping its total to 132.6 million customers across its footprint, with the planned acquisition of Vodafone Egypt set to add further scale going forward.

The M-Pesa platform, including Safaricom, processed $355.2 billion in transaction value over the last 12 months, up 17.6%, and overall financial services customers were up 10.2% to 63.1 million (if Safaricom is included on a 100% basis) for the half year.

Talking satellite

Martin Jarrold, vice president international programme development, GVF

Forging Africa's space ambitions

In my previous column in this publication, I referenced Africa's aggregate space economy being small (it is about 4% of the global space economy) and relatively young; but as more countries fulfil their ambition to join the club of space faring nations, the continent's space economy forecast is for one of significant growth.

Currently, 15 African nations have launched satellites to space – 10 of these are sub-Saharan countries [Angola (satellite lost after four months in orbit), Ethiopia, Ghana, Kenya, Mauritius, Nigeria, Rwanda, South Africa, Uganda, and Zimbabwe], and five are in the north of the continent [Algeria, Egypt, Morocco, Sudan, and Tunisia]. In aggregate, these nations have approximately 40 satellites in orbit, serving the following main applications (available data): telecoms (eight satellites), Earth observation (24 satellites), education & technology (eight satellites). Research predicts that a further 10 African countries will have a total of about 125 satellites in orbit by 2025, at which time the continent's space economy will have reached US$23 billion, up from US$19.4 billion as at the end of 2021.

Prior to writing this column I had finalised the latest version of GVF's fortnightly membership newsletter, 'GVF FOCUS.' One of the newsletter's items of *GVF Member News* noted that the low Earth orbit (LEO) satellite operator, and GVF member, OneWeb had announced a distribution partner agreement with an Africa-based specialist technology company that supplies connectivity solutions to 'off-grid' locations through its satellite broadband service, Twoobii. The OneWeb LEO satellite network will give Twoobii users access to high-speed, low-latency broadband connecting even the most rural and remote communities across countries including South Africa, Lesotho, eSwatini, Namibia, Botswana, Zimbabwe, Zambia, Malawi, and Mozambique. The service will provide vital internet service and WiFi backhaul to connect schools, hospitals, civil government and other fixed enterprise and fintech services throughout the continent including banking, mining, and backhaul solutions.

An example of a Twoobii application is telemedicine for healthcare professionals. Telemedicine uses communications technology to connect patients, clinicians, and remote diagnostic equipment. The COVID-19 pandemic highlighted weaknesses in healthcare provision infrastructure in many countries, with populations in rural areas located far from clinical facilities. Modern technology offers access to needed medical advice and care cheaply and quickly, however, with a lack of terrestrial communications coverage – i.e., absence of mobile and fibre – in the regions in greatest need of telemedical coverage only smart satellite services offer the necessary speed and bandwidth to support seamless video and voice calls while offering other forms of specialist communication required for the clinicians to be able to interact with, and diagnose, patients.

Despite a quiet year with only one launch in 2020, satellite is becoming a more permanent feature on Africa's investment horizons. Tunisia launched its *Simba* satellite in 2021. Challenge One, supporting IoT applications, was not the only African satellite aboard the Soyuz launcher that day, with Kenya's *Simba* nanosatellite lofted in tandem, with a mission dedicated to observing wildlife in Kenya's natural parks. Mauritius' Earth observation *MirSat-1* satellite was also launched in 2021.

This year, 2022, has seen Uganda's first satellite, with *ZimSat-1* placed into orbit from the International Space Station (ISS) with a mission to monitor weather and disasters, map the country's mineral wealth and generate other significant data streams. Zimbabwe's *ZimSat-1* was similarly orbited from the ISS.

More African satellites are to be launched in 2023. Botswana's first satellite programme, *Bot-Sat-1*, was started in December 2020. The satellite will be utilised to generate valuable data to solve developmental challenges in the communications, internet, weather forecasting, agricultural, land resources mapping, television broadcasting, and tourism, which will be the backbone of the knowledge economy within Vision 2036 and the 'Reset Agenda' of Botswana. Zimbabwe is preparing to launch its second satellite in 2023, ZimSat-2, a communications satellite which will enable total national connectivity, making ICT and other communication applications pervasive in national development.

Kenya's *Simba* nanosatellite is an example of the importance for African countries' satellite programmes of the development of CubeSat technology. With CubeSats – smaller, lighter, and easy to design – the African satellite market is increasingly open, based on 'democratisation' of the manufacturing process.

Of course, no African country has its own launch capacity, and most African-owned satellites are still designed abroad, but there is underway a process of change and transition which means that the continent is definitely in the new 'space race.' Assets in space are much more than an exercise in national vanity or international rivalry. Owning a satellite is now a strategic necessity, for both economic and social development. The scale of the range of applications which can be served by satellite has already been partially illustrated above and encompasses meteorology, natural resource management, navigation, and surveillance as well as the telecommunications on which services such as the Twoobii-based telemedicine depend.

Connecting schools is another example of where there is a satellite imperative. One project to connect schools in fact engages both satellite communications and Earth observation (EO). 'Giga' is a joint initiative of UNICEF and the ITU – combining UNICEF's 'experience in education and procurement, ITU's expertise in regulation and policy, and the private sector's ability to rapidly deploy technology solutions' – to connect every school in the **world** to the internet by 2030.

Connecting schools allows children to develop digital skills and access online learning. Schools can become anchor points for surrounding communities, such that if you connect a school, you can connect local businesses and services. 'Giga' is advancing school connectivity with a combination of EO and an AI algorithm which can recognise such surface features as school-type buildings and football pitches. With information on school locations across remote regions being collected and collated, there is introduced an efficient and further first step in bridging the digital divide.

Accelerating to Airport 4.0

Airport 4.0 enables airports to embrace paperless operations, enhance operational and situational awareness, as well as reduce costs so they can become more competitive, outlines Mohamed Amin, digital transformation, Nokia MEA

The adoption of Industry 4.0 digital technologies, such as IoT, AI, machine learning and data analytics are expected to revolutionize the operations of airports, accelerating automation, reducing costs, and monetizing connectivity — all with the goal of improving the passenger experience and overall airport operational efficiency. Leading African airports are increasingly being supported by service providers to digitize their operations and improve their passengers' experience with a complete set of innovative technology solutions that will help African airports to transform to Airport 4.0.

The biggest challenge is the fast adoption of new technology solutions while focusing on the day-to-day operations. Airports CEOs and CIOs know that they must transform the way they used to operate airports. Going digital and paperless in Airfield & MRO operations is a must and this is becoming more obvious in the wake of the pandemic, which resulted in increasing pressure on airport operations to cater for the growing number of passengers and increased airline traffic.

Bleeding edge technologies

The airport is the main smart city gateway, and the newly developed smart city's target is to attract and accommodate more visitors per year. That's why the first visitor experience on arrival at the smart city airport is key for the overall experience. Moreover, the airport is considered a small multinational smart city within itself with all its own services along with those from companies operating within the airport.

We cannot claim that airports are becoming testbeds for new technologies since they are highly regulated areas with intense security measures and critical operations. However, some leading European airports like Brussels Airport have been at the forefront of implementing new technologies like 5G-ready private wireless network. These new technologies have enabled them to accelerate digital innovation, facilitate the integration of future technologies to optimize the airport's overall operations, and increase the operational efficiency and reliability of airport systems by introducing technologies like IoT (Internet of Things), automated vehicles, mobile safety systems or track-and-trace technology.

Public vs private networks

Airports must provide broadband connectivity everywhere for wireless communications to function properly. The challenge in Africa is in encouraging telecom operators and regulatory authorities to provide more wireless spectrum to cater the broadband demand from passengers and for airport operations. This is in addition to allowing airports to use 4G/5G private wireless technologies for their operations.

The shared WiFi/public wireless networks in use today for passengers are susceptible to traffic congestion, cybersecurity threats and poor signal strength (resulting in unpredictable performance). The WiFi and public wireless networks are unable to prioritize bandwidth for critical applications. Moreover, WiFi does not support proper QoS (Quality of Service) management and public networks are engineered to meet non-critical customer needs. That's why they might be sufficient for passenger use but not for critical airport operations, which need private dedicated wireless networks.

Airport automation requirements are reliable, low latency, secure and scalable wireless infrastructure. This is especially true in the dense use case environment like the stand. Wireless connectivity should be guaranteed in this environment, including coverage, capacity and QoS, and to enable use cases such as automated gate bridge, turnaround optimization analytics and autonomous vehicles. These requirements can be addressed through dedicated private 4G/5G wireless networks for airport operations while keeping WiFi & public cellular for passengers and retail use.

The foundation of Airport 4.0

Private wireless networks create the foundation for Airport 4.0.

Indeed, one of the key pillars in an airport's digital strategy is pervasive, reliable, and secure wireless communications able to support a diverse set of use cases and applications. Currently airports typically employ publicly accessible WiFi, which is shared by passengers and operations staff. They also have a choice of several locally available mobile operator services. Because neither of these wireless services is up to the task of supporting the digital transformation of airport operations, airports need to consider a separate, purpose-built private wireless network to support their digital operations and mission-critical communications.

Once this private wireless foundation is there, it will allow the usage of new technologies for Airport 4.0 such as IoT, AI, machine learning and data analytics, that hold great promise for accelerating digitalization, while lowering operating costs, and monetizing the services that airports can offer to partners and tenants.

Of course, if a private network is taken down, contingency plans must be in place to support mission critical operations. Robust equipment and network architecture that are resilient by design must be implemented. Moreover, potential network failover scenarios must be tested before accepting it to be operational. ■

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Transforming digital Africa

African data centre sustainability

Data centres have become key to Africa's mobile network operators, helping support the massive growth of data from voice and mobile, as well as emerging technologies like 5G and IoT. Amy Saunders discusses one of the most pressing considerations for those in the data centre world: sustainability

Data centres play a key role in our increasingly digital world, providing centralised locations for processing organisations IT operations and equipment to store, process and disseminate data.

For MNOs, data centres have become vital for managing the huge volumes of data and voice traffic – in the first quarter of 2020, more than 45 exabytes of data and voice and traffic passed through telecommunications networks – and with the ongoing 5G and IoT deployments, this data volume is set to skyrocket. African MNOs are investing heavily in data centres to keep up with demand brought about by digital transformation.

The importance of data centres is growing across the world as public and private sector enterprises alike are becoming increasingly digitised. This is reflected in the numbers; Allied Market Research reports that the global data centre market is expected to grow at a compound annual growth rate of 10.5% over 2020-2030 to reach US$517.17 billion.

A fledgling market

The African data centre market is in its infancy; however, demand is booming as the digital revolution takes hold.

Arizton Advisory and Intelligence reports that the African data centre market is expected

to expand at a compound annual growth rate of 12.73% to US$5.4 billion over 2021-2027, significantly above whole-world averages. The market is expected to comprise 1,355,000 square feet of floor area and 267MW of capacity by 2027. Research and Markets reports that Africa has more than nine data centres that have each added 30,000 square feet of white floor area or more in 2021. South Africa is the leading country in terms of investment at more than 50% in 2021, followed by Kenya, Nigeria, Egypt, and Ethiopia.

Market growth has been attributed to the advancement of technologies like the cloud, big data, and IoT, which generate more data through high-end applications and need more efficient systems for data processing. Significant recent activity by hyperscalers looking for more than 20MW data centre capacity has impacted on Africa. Meanwhile, several government bodies have taken initiatives to develop special economic zones (SEZs), free trade zones, industrial parks, high-tech parks, and business service parks that provide tax exemptions for data centre development. Kenya aims to set up special economic zones in Mombasa, Lamu, and Kisumu to attract data centre investment.

Key continent-wide investments that will positively affect the market include Kenya's construction of the first smart city, Konza Technology City; Teraco Data Environments has partnered with Routed for African Cloud Exchange; Microsoft, has announced the availability addition zone in Johannesburg; the National Information Technology Development Agency (NITDA) has released the Nigeria Cloud Computing Policy (NCCP) with the goal of achieving a 30% increase in the cloud adoption by 2024; MTN plans to become carbon neutral by 2040 via its Project Zero programme.

Leading by example

Homing in on Africa's leading data centre market, Arizton Advisory and Intelligence reports that South Africa will see its market expand at a CAGR of 11.15% in 2022-2027 to reach US$3.23 billion. Market size is expected to reach 555,000 square feet of floor areas and 103MW of capacity by 2027, while colocation market revenue should hit US$540 million.

South Africa has more than 20 operational colocation data centres, most of which are being developed according to Tier III standards. Johannesburg is the centre for investment in South Africa, followed by Cape Town, Durban, Centurion, and other cities like Port Elizabeth.

The regional growth is attributed to the increase in local internet and social media penetration driven by COVID-19, deployment of 5G, improved inland connectivity, and low electricity and land prices. Hybrid cloud services are gaining increased traction, with most enterprises using private and public cloud environments to improve information sharing and efficiently manage data. Research and Markets estimates that cloud adoption will grow up to 25% annually and is expected to generate US$1.5 billion by 2024. Additionally, South Africa is witnessing improvements in submarine and inland connectivity. For instance, 2Africa, the longest subsea cable, will connect South Africa with other countries such as India, the UAE, Saudi Arabia, Spain, the UK, Oman, and other countries.

The introduction of South Africa's Protection of Personal Information Act (POPIA) will protect the confidentiality of the citizen's personal data, which will boost the market. Moreover, the country is also home to several city projects like the Lanseria Smart City, which will be built near the Lanseria International Airport near Johannesburg over the next 25 years.

Enabling Africa's MNOs

The last decade or so has seen data centre technology become essential for telecommunications providers. Data centres are expected to help operation teams with simplified and automated data management that improves operational efficiency while cutting costs. Meanwhile, their customers are set to benefit from lower latency and higher quality services – a win-win for everyone.

With the rise of 5G, providers must transform their service infrastructure to meet new requirements, including high data rates, ultra-low latency, and massive machine-type communications. Incorporating cloud-native architecture into telecommunications data centre design is the key to enabling new services made possible by 5G that are application driven, agile, and mobile. This provides the best experience for the end user, and also optimizes and reduces bandwidth occupancy on the network transport side.

This technology presents an opportunity to provide services that maximize revenue opportunities with Opex savings. It helps deliver converged broadband and multi-access edge computing. This will result in an improvement of service velocity, agility, and operational efficiency that service providers can pass on to their consumer and business customers.

Moreover, using new-built local data centres rather than those apart from the continent enables MNOs to meet national data regulations, as well as benefitting from reduced latency.

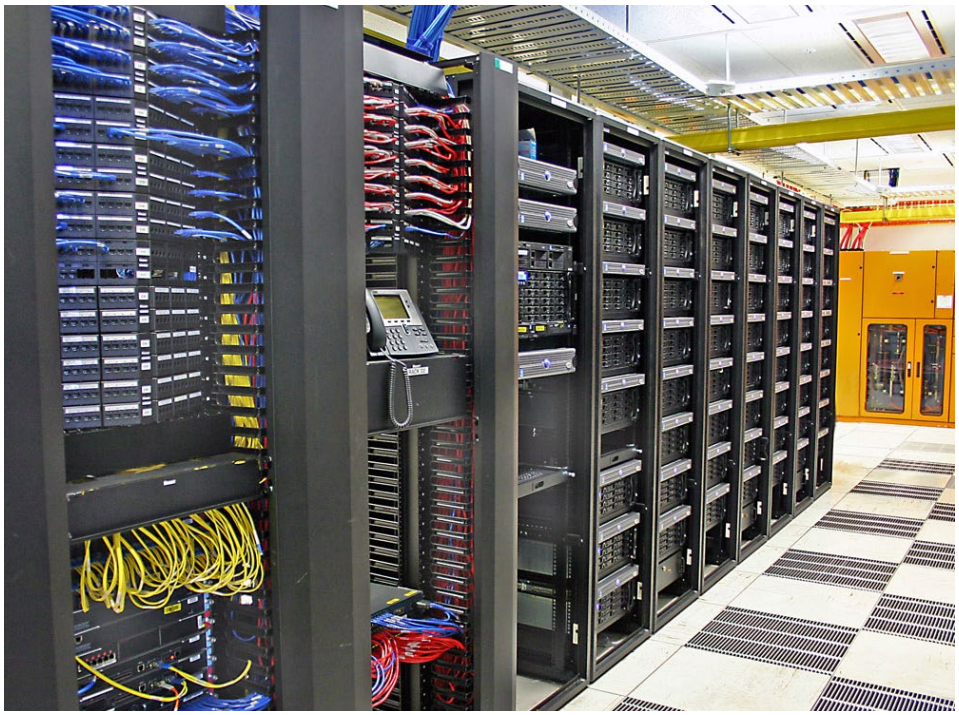
"MNOs using African data centres instead of data centres outside the continent will increase drastically their performance and ensure African countries data sovereignty to protect African citizens," said Paul-Francois Cattier, managing director, Africa Data Centres Association.

Recognising the opportunities offered by data centre technology, Africa's MNOs have adopted their use faster than anticipated; a fantastic development for those in the value chain but one that raises questions about sustainability.

Climate neutrality

Data centres are estimated to consume anywhere from 1-3% of a nation's total power consumption. This is just one reason why sustainability has become a key target for data centre operators and users alike. Many have committed to becoming climate neutral by 2030, and as of July 2022, 74 data centre operators and 23 associations have signed up to the Climate Neutral Data Centre Pact, which requires increased energy efficiency; clean energy; water efficiency; circular economy; circular energy.

The Climate Neutral Data Centre Pact recognises that legacy data centres present one of the biggest challenges. Those built 10 or more years ago consume huge amounts of energy and will require heavy investment in the years to come for decarbonisation.



"The industry has to look towards technology that allows balance from both energy-efficiency, along with the data centre's operational needs," said Stavros Spyropoulos, business development manager Africa region, Subzero Engineering. "It is not unusual to walk into a data centre in Africa and find not only the chillers working at 100% but also within the hall itself A/C units working full time to make the working environment more bearable. As costs increase, this is becoming more and more unsustainable."

However, most African data centres are modern constructs featuring more environmentally friendly designs. Moreover, for the many upcoming data centres on the continent, there are several features that can be incorporated from the planning stages to produce a greener installation. Immersion cooling, the application of artificial intelligence for workload management, and sourcing renewable materials for construction are just the tip of the iceberg. As well as proving positive for the environment, these green initiatives lower Opex for the lifetime of the data centre.

Indeed, many new ideas are coming into play, and vendors that can help source renewable energy, lower power usage effectiveness, and provide for greater building efficiency can expect to gain business in the years to come.

Energy efficiency key for sustainability

Data centres on the African continent face challenges unique from much of the world, including a hot, humid environment which requires more energy to cool and dry than those in Europe. With energy consumption accounting for a whopping 20-30% of the total cost of ownership for data centres, a large amount of which is associated with cooling measures, energy efficiency is key for both financial and environmental reasons.

"Energy efficiencies in data centres can come from two sides. The first is technical infrastructure of cooling. Cooling is a large energy consumer that can be reduced drastically with hot aisle and cold aisle urbanisation, as well as containment of hot aisle and in row cooling. Free cooling is available even in Africa given the right altitude, or overnight," said Cattier. "The second side is the IT on servers; following the latest ASHRAE standard for data server temperatures, the environment could decrease the energy needed for cooling. Moreover, the virtualization of servers where possible is an excellent driver to reduce energy consumption up to a factor of five."

According to the Africa Data Centres Association (ADCA), the average African data centre power usage efficiency ratio (PUE) is just 1.5, below the global average of 1.58. One of the reasons for this better-than-expected score is that most of Africa's facilities are modern and more efficient, a positive result from being a latecomer to the digital revolution.

Looking to ensure African data centres continue to improve on their environmental credentials, the ADCA has outlined the following plan for sustainability:

- Continued adoption of latest technology for new data centre construction
- Creation of an African Code of Conduct utilising the process of continuous improvement through, planning, and monitoring
- Promotion of the use of on-site renewable energies like solar, wind, water, hydrogen
- Development of a 'Keep it African' Label to ensure the maximum usage of construction materials and hardware are sourced from the continent
- Avoid the mistakes made in the past by global data centres lacking climate awareness

Power supply is notoriously challenging in parts of Africa and varies widely from country to country.

"The biggest challenge for Africa in the development of their data centre industry is access to a stable electricity grid, let alone a low carbon grid. In many areas a grid doesn't even exist or is so unreliable that on site generation is the only way to operate," said Simon Brady, head of data optimisation at Vertiv.

Indeed, South Africa has faced more than its fair share of power disruptions this year, causing chaos for MNOs and other enterprises relying on always-on connectivity, leading to the Pan South African Language Board (PanSALB) to crown 'load-shedding' as its word of the year.

As highlighted by both the Climate Neutral Data Centre Pact and the ADCA, renewable energy has a huge role to play in the African data centre market. Adoption of renewables varies widely across the continent, although the International Renewable Energy Agency (IRENA) states that solar is now the fastest-growing renewable energy source in Africa, with an increasing number of countries working to increase their solar capacities beyond 1GW. Northern and Southern Africa lead in renewable projects but countries across sub-Saharan Africa also have major renewable projects in the works.

"An ageing energy infrastructure in some countries means there is an overreliance on oil generators and operators need to look at more reliable sources," said Spyropoulos. "If you take Kenya as an example, it hosts the largest wind farm in Africa, Turkana Wind Farm. The wind farm covers 160 square kilometres and has a capacity of 310MW, enough to supply one million homes. 90% of all of Kenya's electricity being generated from renewable sources, such as wind and geothermal. However, in South Africa there is still a reliance on thermal power meaning currently it has a large carbon footprint."

Several governments are adding more renewable energy production to cater to the increased requirements from African data centre operators. In August 2021, Morocco commissioned the 300MW Boujdour wind farm, part of an 850MW integrated wind energy project. In South Africa, Eskom plans to invest US$7 billion for renewable energy plans for the next nine years.

On-site power supply has been highlighted as a key factor in obtaining reliable energy for data centres. Environmentally unfriendly diesel generators are frequently found at African data centres for backup during grid outages to ensure continued operations for customers, but these are used at a high price for the environment.

"Sadly, most on site generation in these developing regions is via diesel generation," said Brady. "On a more positive note, many of these developing regions have more solar hours, but data centre power density makes creating a net

zero facility an expensive investment."

The delivery of on-site renewable energy is challenging, since data centre form factors are compact, thus only a limited number of solar panels can be installed.

"With the most solarized area of the planet and the weakest energy grid, Africa will be obliged to achieve on site solutions for energy production as the best way to reach a climate neutral data centre," said Cattier. "It's been very interesting to see all these African Green Hydrogen projects breaking ground; these will certainly be used by African data centres."

Alternatively, signing long-term power purchase agreements with renewable power providers could make a huge impact on data centre sustainability, as well as the local grid; however, regulations on this vary across the continent.

"Using renewable energy is complex as most of the time, they are not permanent – solar during the night, wind, even water is sometimes not producing energy - so it's best to use a micro grid to juggle different sources of energy: the grid when available; battery storage; diesel generator; and renewables like solar, wind, hydrogen or water; and using the most effective and sustainable source at every moment automatically," said Cattier. "Using this mix of energy sources will enable the most sustainable data centre, while maintaining 99.999% uptime."

A green future

The African market is seeing some of the fastest growth in internet use and availability in the world due to a combination of factors including increased options, falling prices, and a fast-growing population with a high proportion of young people.

"Africa will reach a population of 2.5 billion by 2050, and most probably account for half of the global population at the end of this century, with a median age today below 18 years old. This young, dynamic group is adopting smartphone and internet as quickly as US teenagers, and leapfrogging Africa ahead in the digital world," said Cattier. "African MNOs have been big drivers of this change, bringing access to the internet, knowledge, business opportunities, healthcare, finance, commerce and simplifying daily life."

Alongside increased adoption of voice and data via mobile phones, and the onset of 5G, IoT and smart cities, data production and consumption are expected to continue to boom across the continent for the foreseeable future, fuelling increasing investments in cables, fibre, and data centres.

"While the developed world is still expanding internet and mobile reach, and trying to do so sustainably, developing nations are being asked to invest in their infrastructure in a sustainable way, when we didn't have to," said Brady. "More needs to be done to help these regions get their infrastructure up and running with ESG goals in mind."

"The industry is responding successfully to this twin digital and sustainability challenge, with operational agility and technology innovation very much to the fore," said Spyropoulos. "Add in the burgeoning secondary/regional/edge market and there is, perhaps, no better example of how all of these factors are shaping the global data centre industry than in Africa right now."

Sustainability strategies are going to have a huge role to play to ensure that Africa doesn't contribute disproportionately to climate change. Global and local standards can help here, however, good intentions only go so far. Real action is needed across the entire ecosystem - from MNO, to service provider, through to the data centre owner, to consumer – to strive for and demand truly sustainable technologies, for the good of their wallet, and indeed the good of the world. ■

What can the global mobile industry learn from Africa?

The mobile industry has advanced in leaps and bounds across the African continent. By adoption mobile technology later than much of the world, Africa has been able to leapfrog some challenges, and learn from our mistakes. So, what can the rest of the world learn from Africa? Waheed Adam, chairperson, iTouch, reports

Mobile industry insights company Global System for Mobile Communications (GSMA) predicts that Africa will have 120 million new mobile subscribers by 2025, taking the total number of subscribers to 615 million, some 50% of the region's population. While the continent as a whole has been behind the technology adoption curve, the advent of cheap mobile devices has allowed Africans to transition straight into a mobile-first economy.

Despite Africa's lack of formal infrastructure - in fact, because of it - the power of mobile internet has inspired amazing innovations that could help empower both the continent and the world at large.

So, with all this rapid change, what can the mobile industry learn from Africa?

Free your thinking when considering infrastructure

Mobile infrastructure is far easier to set up than the traditional infrastructure of wired landlines and fibre optic broadband. With a basic smartphone and a 3G signal, these resources then become the technological infrastructure.

In Kenya, for example, ATMs are a rare sight. They require wired networking, restocking, and security. But with mobile wallets and internet banking, someone selling fruit at the side of the road can now get paid electronically, without the need for either buyer or seller to visit an ATM, allowing them to sell more and in greater quantities.

These fruit sellers now have the electronic money required to pay suppliers electronically, and so on, creating a rolling digital infrastructure through a simple smartphone and 3G connection.

So, rather than seeing the rollout of mobile connectivity as a cost, we should view it as an investment. Mobile connectivity creates digital infrastructure. Africa provides a fantastic model of how a mobile-first economy creates low-cost, rapidly scalable digital infrastructure that can be replicated across the world.

Growth can suffer if the cost of data is misjudged

Despite 75% of all e-commerce now being done via mobile, only 58% of Africans can now access 4G internet. The majority of those connected to 4G are in urban centres, with 47% of urban dwellers connected compared to just 26% of rural dwellers.

These mobile owners spend large chunks of their salaries on mobile connectivity. Just one gigabyte of data could cost as much as a third of someone's salary. This is around 50% more than in Europe and prohibits growth.

By focusing on reducing the costs of data while increasing penetration (including reducing the cost of handsets), more people can connect to the global digital infrastructure. This will create numerous global benefits, such as information sharing, innovation and economic growth.

Search for and nurture local innovation

An increasing number of successful African businesses have been established to solve challenges specific to Africa. And while many solutions created in Africa may be designed to solve African problems, there are plenty of innovations that will also benefit other regions.

Take pre-paid mobile credit, for example. As many Africans lack access to formal banking, they are unable to complete the credit checks required for pay-monthly mobile contracts. So, prepaid mobile credit was invented as a way of enabling people to get connected without the need for credit checks – an innovation that has benefited people across Europe and the rest of the world.

Large foreign multinationals, such as Google, as well as global VCs, are starting to recognise the potential of African innovation and are setting up regional innovation hubs. Through mobile internet, these innovations can be rapidly shared and improved upon.

As such, the mobile industry should invest in innovation hubs, especially in regions historically affected by adversity. People in these regions have had to innovate to solve regional challenges, making them quiet innovation powerhouses.

Speak to what is useful

In Africa, informal business is huge. For example, in South Africa, informal taxis generate around 50 billion rand a year, local fast food around 90 billion rand, and traditional medicine is estimated to generate 18 billion rand.

Local informal convenience stores, known as spaza shops, generated an estimated 150 billion rand a year, selling more potatoes, for example, in 2020 than large chain stores.

However, the needs of these informal businesses aren't going to be the same as large chain stores. Someone selling produce from a shipping container doesn't need the latest and greatest in Rich Communication Services (RCS) – they need fast and reliable mobile wallets, access to global pricing indexes, and the ability to quickly and easily order more stock.

Rather than assuming every business has the same needs, we need to understand and speak to the needs of each specific sector of the market. They are doing huge amounts of business and provide a key service to the community, yet we tend to speak primarily to the needs of large, complex global businesses, following the same pattern we take in Europe. Africa is an opportunity to learn, and recognise the benefits of speaking to smaller, more nimble businesses.

Consider GDP

An unspoken reality of the African environment is the fact that there are so many 'informal' businesses that are excluded from the data we see reported when looking at the GDP of an African country. Hence most reports on potential opportunities on the continent do not reflect what

is the true reality on the ground. And while these informal businesses may not be recorded, they still contribute to the fiscal as they pay VAT on their purchases but do not claim VAT, as the usual process in the formal sector.

So, what is the real opportunity? These informal businesses are the future economy, and which are solving real-life problems at grass root level. As we already know, technology and in particular, a mobile first environment plays a major role in solving these problems. We have seen that in Kenya where mobile money solutions have empowered this informal community of businesses that now contributes immensely to their GDP. South Africa is no different - more potatoes are sold to the informal sector than mainstream retail. So, when considering Africa as a destination to expand your business, factor in this so called 'informal' business community and consider how you may be able to serve their needs.

Global standardisation is critical

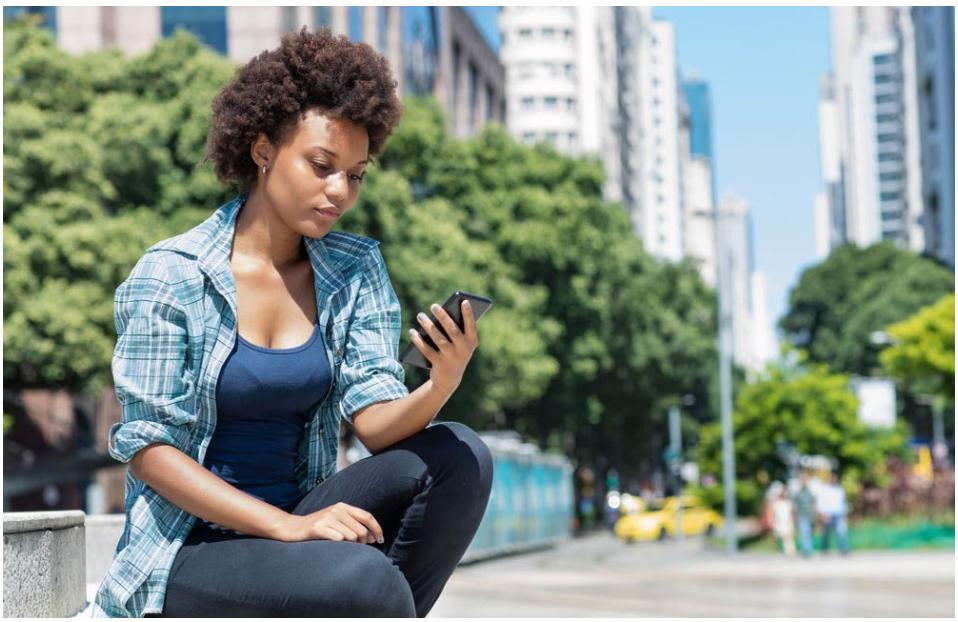
One major challenge to mobile growth in Africa is the plethora of local regulations and cultural expectations. Africa contains 54 different countries, each with its own regulations.

Industry bodies representing the private sector, such as MEF, have an opportunity to encourage businesses to grow from foreign investment by taking on a strategy to shift policy and align trade departments, both in Africa and globally. Africa shows us that standardisation is key, and as the global mobile industry expands, it needs to work together to ensure standardisation across markets.

Through events like trade investment conferences, industry bodies can help create collaborative environments to make it easier for businesses and people to connect and trade across borders.

By applying the lessons learned from Africa to other regions and businesses, the mobile industry can provide sustainable and scalable economic opportunities to every part of the world.

The potential is massive and, as an industry sector, mobile has a huge part to play. Above all, Africa demonstrates that a mobile-first economy can thrive without expensive formal infrastructure. Mobile infrastructure is relatively cheap and easy to set up, can facilitate information sharing and innovation, and benefit every business from fruit sellers to Google. ■



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Aiding agritech with the cloud

AFGRI Technology Services (ATS), part of AFGRI Group Holdings, is a leading agricultural services company with core competencies to enhance, support and guide the growth of agricultural enterprise. The enterprise works toward the development and implementation of agricultural technology solutions which will help ensure both the future of agriculture and enable food security for Africa and the world at large.

AFGRI offers innovation growth and advisory services, innovation consulting, project management, and management services, in order to develop and build client capabilities within the agritech sector. With such a heavy reliance on communications, and indeed, for an organisation offering its own digital products and services and mobile apps, AFGRI was hindered with a poorly organised telephone system, for both mobile and fixed calls.

"The AFGRI IT service desk, which supports many users across the country, was struggling with frequently dropped calls," said Frederik van Staden, senior account manager: WAN and ISP services at eNetworks, a wholly owned Datacentrix company. "This not only caused frustration for service desk team members and users alike, but repeated calls to different regions were also costly."

AFGRI sought outside assistance to improve its capabilities and streamline operations, landing on Datacentrix.

Cloud-based telephony for fixed and mobile calls

Plans were established, and in time, AFGRI implemented a cloud-based telephony solution that could be integrated with its ITIL-compliant IT service management (ITSM) solution, for use by the internal IT support team.

"Traditional contact centre telephony systems can be integrated with typical CRM, ERP or ITSM software through customised programming, but this can be a lengthy, expensive process. The cloud-based phone system implemented at AFGRI was put forward due to its native integration into the support channel. It takes only a few clicks and can be deployed quickly and easily because no hardware is required for operation," said van Staden. "The eNetworks Session Initiation Protocol (SIP) trunking service, which interconnects with the phone system, means that calls between the branches and the service desk are zero-rated – so no cost is associated with these calls – even though the branches use a different telephone system."

The solution has improved support levels and delivered cost savings. Indeed, some 786 calls were reported on as zero-rated for AFGRI over a month-long period, at an average of 7.7 minutes per call, translating into great cost savings for the organisation. As a result, AFGRI's support team can now spend more time on the phone in order to support their local user base, which is evidenced by the increase in average call duration.

"For the 12 months prior to the rollout, AFGRI's average duration per call was four minutes. Now, with zero-rated calls, calls are averaging 7.7 minutes in length – almost double – which has had a positive impact on the service desk's first-call resolution rate," said van Staden.

The more efficient, robust system saves AFGRI users time on searching for the right records, as the caller's details appear on the screen as soon as the phone rings. Engineers are able to save more time on every call by doing away with manual data entry. Calls are automatically logged as support tickets, along with key details about the call, including whether it is inbound or outbound, answered or missed, and the name of the line that was used. All call comments captured in the telephony system are also logged, along with a link to the call recording itself.

"The mobile nature of the cloud-based system is a great advantage for hybrid workplaces, as users only need a computer or smart phone and an Internet connection. Managers can effectively manage the service teams remotely through the advanced reporting and measurement KPIs," said van Staden. ■

Enabling smart farming with IoT

Twiga Foods is a Kenyan technology enabled B2B food distribution platform which builds fair and reliable markets for agricultural producers, food manufacturers and retailers with a focus on transparency and efficiency.

The company sources produce from more than 17,000 producers and delivers to more than 8,000 retailers around three times a week. Twiga's digital platform and logistics network links retailers with farmers and food manufacturers, presenting a convenient and reliable alternative to the current inefficient and expensive farm/factory-to-market processes.

To drive its mission forward, Twiga plans to develop technology-driven commercial solutions to solve the challenge of food security in Africa. As part of this mission, Twiga foods was looking to deploy a smart agriculture solution in one of its farms as a pilot, which could be replicated across their other farms in the country.

Twiga's Takuwa farm in Nairobi, Kenya was chosen, having been experiencing restricted growth due to insufficient water. The farm was also struggling with proper soil and fertilization management owing to lack of precise soil moisture, weather, and water quality data.

Smart farm transformations

With the potential of the Internet of Things (IoT) to transform agricultural productivity in Kenya and indeed the world at large - affording greater food security and improved incomes for farmers - Twiga Foods partnered with Liquid Intelligent Technologies Kenya to employ farming, enabled by Kenya's rapidly expanding Internet of Things (IoT) network.

"Climate change and global warming has brought about unpredictability in terms of weather patterns," said Peter Njonjo, CEO at Twiga Foods. "Adopting smart agriculture solutions that use IoT will enable farmers gain better information for managing their input costs and increasing their crop yield, thereby encouraging food security in the country."

Liquid Intelligent Technologies deployed a comprehensive precision agriculture IoT system at Takuwa Farm, increasing productivity and helping transform it into an intelligent farm. The system includes four different types of agriculture sensors: a comprehensive weather station; soil moisture and temperature probes; borehole water meters; and sensors for measuring irrigation water acidity and salinity. It utilises Liquid Intelligent Technologies' extensive low-power wide area IoT network using 0G Sigfox technology, which covers 85% of the population in Kenya at lower costs than other technologies.

With the system, the farm managers were able to move on from manual readings and historic analysis to automatic and real-time/predictive analysis. The sensors provide critical information to the Twiga agronomy team, while the smart weather station provides real time data that helps farm managers deploy the most effective farming methods for irrigation and application of pesticides. Meanwhile, the water quality sensors provide specific metrics that help the team to optimize their fertilizer application. Additional data gathered and monitored on a real time basis include temperature, humidity, rainfall, and wind speed.

The soil probes installed at Twiga's Takuwa farm measures moisture levels and temperature at six different depths into the soil, giving precise information of soil quality and irrigation needs at the roots of specific crops. This is set to directly increase yield and productivity.

Saving up to 30%

Since the IoT deployment, Twiga's Takuwa farm is increasing farm production due to more precise application of inputs and faster reaction times to local weather and soil conditions. By applying inputs based on data received on hyper-local weather and soil and water content, Takuwa farm can also save on costs related to irrigation water/pumping, fertilizer, and pesticides.

"Increasing business efficiency through digital solutions is one of the main reasons we partnered with Liquid Intelligent Technologies," said Peter Njonjo, CEO, Twiga Foods. "By using smart devices, we have automated multiple processes across the farm's production cycle. For example, the use of soil probes in monitoring the soil moisture in the expansive farm has resulted in an efficient use of water, as irrigation is only done when the soil moisture level is low. I would encourage other farms to also deploy IoT solutions to aid in food security for our country."

Similar deployments of this IoT technology have resulted in as much as 30% savings on irrigation water, which directly translates to electricity cost savings, and up to 25% increases in crop yields. Man-hours have also been reduced by 50%.

"I am excited about this partnership because, at Liquid Intelligent Technologies, we strive to be at the forefront of technological innovation that continues to bring positive transformation in many sectors of the society, including agriculture," said Adil Youssefi, Liquid Intelligent Technologies CEO East Africa. "Having now deployed our intelligent farming expertise on the Twiga Foods Takuwa Farms through the use of our IoT sensors will increase productivity and efficiency, ultimately contributing to the national Big 4 Agenda." ■

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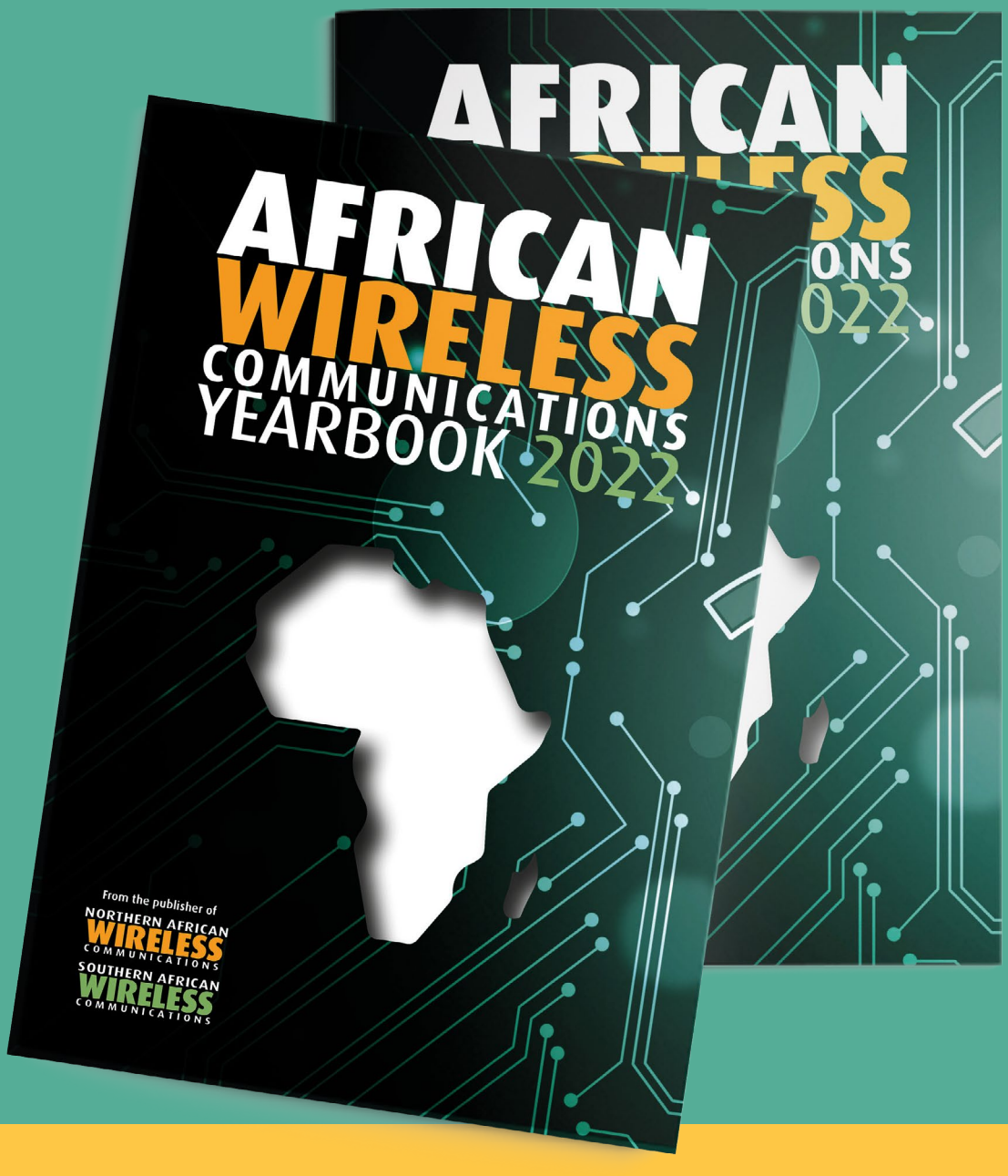

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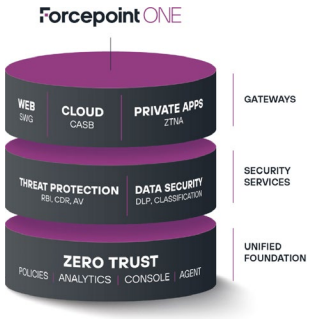
Forcepoint offers single-vendor SASE solution - now available globally

Forcepoint's single-vendor Secure Access Service Edge (SASE) solution has now been made available globally. With the Forcepoint ONE Security Service Edge (SSE) platform and FlexEdge Secure SD-WAN, distributed businesses and government agencies can connect and protect their hybrid workforces with a wide range of centrally managed networking and security solutions that are sourced and supported from a single company. This approach avoids the burdens, inefficiencies, and risks that otherwise come with piecing together a patchwork of point products and dealing with multiple vendors.

As organisations around the world bring people back into the office, SASE provides a cloud-based architecture that can simplify their adoption of zero trust. Forcepoint's data-first SASE solutions take this a step further, building advanced data security into its adaptive-access gateways and intelligently distributing enforcement of security policies based on where each user is working.

Incorporating zero trust web access technology into Forcepoint ONE's secure web gateway (SWG) service enables web security policies to be configured centrally and enforced in the cloud for sites or on the endpoint for people working from home. This distributed enforcement provides the breadth of protection needed at offices — where BYOD, IoT, specialty workstations, and guest computers are commonplace — as well as the fast user experience that remote workers now expect. Forcepoint's endpoint-based web security makes this possible by eliminating the latency that comes with cloud-only approaches, enabling secure web browsing to run up to twice as fast.

Forcepoint's cloud-based and endpoint-based web security take advantage of the zero trust-based advanced threat protection and data loss prevention capabilities built into Forcepoint ONE. Risky or unknown websites can be automatically routed through the platform's remote browser isolation (RBI) service and used safely, even if they're harbouring malicious code. Forcepoint RBI incorporates advanced content, disarm and reconstruction (CDR) technology to sanitise documents as they are being downloaded. Thus, even compromised websites can be used without exposing devices, networks, and sensitive business data to attacks. New dashboards in Forcepoint ONE also make it easy for administrators to see when threats have been encountered and blocked.



Huawei launches i-series solutions based on IntelligentRAN technology

Huawei has released wireless intelligent solutions (i-series solutions) based on the IntelligentRAN architecture, brand new intelligent solutions for multiple scenarios, including iFaultCare, iPowerStar, iHashBAND, and 5GtoX Suite.

The new solutions inject intelligence into wireless network services, experience, and O&M, helping operators achieve intelligent service operations, intelligent network optimization, and intelligent and simplified O&M, and speeding up the evolution to wireless autonomous networks.

"Since the launch of IntelligentRAN at MWC 2022, Huawei has had extensive communication with industry partners in the wireless intelligence field for joint innovation," said Ma Hongbo, president of Huawei Wireless Network MAE Product Line. "The i-series solutions are a further interpretation and implementation of the IntelligentRAN concept. Huawei and operators will continue to innovate and create more scenario-specific wireless intelligent solutions, and work with industry partners to move towards a 5G intelligent world."

The i-series solutions are technical solutions in network O&M, performance, energy saving, and service scenarios, helping operators reach L4 autonomous networks.

- **The iFaultCare solution** introduces the prediction capability to network O&M, helping operators shift from responsive O&M to proactive O&M. This solution focuses on network fault scenarios and predicts potential problems and risks through intelligent analysis and modelling, contributing to a 22% decrease in cell service interruption time.
- **The iPowerStar solution** uses intelligent algorithms to achieve 'one site, one policy' by managing energy saving in time, space, frequency, and power domains while ensuring stable network performance. It also empowers multi-objective optimization for energy saving, helping operators build networks by striking the optimal balance between performance and energy consumption. Compared with traditional energy saving solutions, which provide around 15% energy savings, iPowerStar provides energy savings of 30%.
- **The iHashBAND intelligent multi-band solution,** against the backdrop of evolution to full-band 5G deployment, adheres to the concept of multi-band convergence on one network and incorporates the virtual grid-based network prediction capability for smart carrier selection and carrier aggregation. It unleashes the potential of multi-band networks and greatly improves uplink and downlink user experience in multi-service scenarios. Compared with traditional solutions, iHashBAND improves average user experience by 30% without changing spectrum resources or hardware.
- **5GtoX Suite solution** integrates intelligence into toC, toH, and toB services, enabling more agile service rollouts and a more stable service experience. It extends simulation from traditional coverage-oriented single-dimensional simulation to SLA-oriented (latency, rate, and capacity) multi-dimensional simulation, substantially improving simulation planning accuracy and reducing planning costs by 80%.

Nokia accelerates IoT & 5G monetisation for enterprises and CSPs

Nokia has introduced **AVA Charging**, its newest software-as-a-service (SaaS) to assist enterprises and communications service providers (CSPs) to quickly commercialise new offerings for Internet of Things (IoT) and 5G use cases.

Via a subscription-based model, AVA Charging – which stands for automation, visualisation, and analytics – incorporates business intelligence from hundreds of customer engagements to enable fast monetisation of 5G and IoT services. According to Nokia, AVA provides 'Intelligence Everywhere' through AI, machine learning (ML), no code configuration, open APIs, multi-cloud orchestration, and digital ecosystems.

"This latest addition to our SaaS arsenal supports CSPs and enterprises in having a dynamic digital infrastructure through 5G network components delivered as SaaS; and provides them with the necessary pay-as-you-go, pay-as-you-grow commercial model to help them reach their desired business outcomes," said Mark Bunn, senior vice president, cloud and network services at Nokia.

The highly scalable SaaS, capable of supporting more than 150 million subscribers, accelerates times to market for new CSP services via automation and no-code charging configuration. Services such as utilities, logistics, healthcare, and cloud gaming can all be monetized rapidly. AVA Charging can be integrated with 5G standalone core network functions in a multivendor environment to support new commercial charging models based on a variety of factors, including low latency, high throughput, device density, and location. It can be deployed quickly for enterprises and CSPs and avoids on-site software maintenance and updates.

Nokia's eighth SaaS, AVA Charging, may also be supplied as part of the Nokia / Qvantel Digital Monetization Solution as a Service, which combines Qvantel's Flex BSS and Nokia AVA Charging. This provides a fast- track approach for CSPs to have a separate BSS stack to support new 5G opportunities and achieve faster time to market, and agility enabled by no-code configurability.

SSE solution maximises security and performance for telcos

Orange Business Services, Orange Cyberdefense, and Netskope have joined forces to deliver a new Security Service Edge (SSE) solution embedded into the Orange Telco Cloud Platform. The enhanced solution delivers optimal performance with maximised security, meaning enterprises will no longer need to find a compromise between the two.

The new SSE solution addresses the security and networking challenges presented by mobile computing, cloud, and hybrid work environments; however, enterprises must incorporate it into their overarching connectivity strategies in order to fully realise the benefits of Secure Access Service Edge (SASE).

The partnership will leverage Orange Cyberdefense's security expertise and Netskope's global security private cloud footprint and SSE leadership, enabling Orange Business Services to deliver consistent internet security on and off network. This will help protect enterprise customers from data loss and the growing volume of threats across cloud, web and private applications, with the full attributes of a cloud-native platform.

The SSE solution will reduce complexity for enterprises by providing continuously updated cloud security via the Orange Business Services Telco Cloud Platform. The software-defined approach optimised for telco workloads enables greater agility and cost reduction. The hybrid architecture embeds Netskope's points-of-presence (POPs) within the Orange network, strengthening the value proposition by delivering the benefits of the Orange network, including speed and agility, while enabling customers to tap into the power of Netskope Intelligent SSE. This provides granular visibility and real-time data and threat protection for cloud services, websites, and private apps accessed from anywhere, on any device.

Thales releases PTT via satellite globally

Thales, in partnership with ESChat, is offering Push-to-Talk (PTT) over satellite for customers across the globe. Thales has expanded its satellite communications footprint by providing a Push-to-Talk service that operates anywhere in the world utilising the ThalesLINK on Iridium Certus L-band product series.

Users that have purchased ThalesLINK solutions, such as Thales MissionLINK or Thales VesseLINK 200 and 700 systems, can now access a reliable low-latency PTT solution.

ThalesLINK solutions operate on the Iridium Certus network of 66 low Earth orbit (LEO) satellites that cover 100% of the globe, providing coverage anywhere in the world regardless of weather or terrain. Combining this technology with the ESChat application, Thales now provides an always-on robust PTT service for users anytime, anywhere.

Look out for...

DARPA prepares for internet of satellites

The US Defense Advanced Research Projects Agency (DARPA) has made selections for its Space-Based Adaptive Communications Node (Space-BACN) program, which will create a low-cost, reconfigurable optical communications terminal to translate information between diverse satellite constellations. A Space-BACN satellite terminal will enable data to be sent anywhere around the planet at the speed of light.

DARPA is planning for a future where tens of thousands of satellites from multiple private sector organizations deliver broadband services from low Earth orbit (LEO). Space-BACN will create an 'internet' of satellites, enabling seamless communication between military/government and commercial satellite constellations. The program will facilitate collaboration among partners to ensure that the terminal is reconfigurable for interoperability among participating constellation providers.

There are three technical areas in the program.

Technical Area 1 (TA1) focuses on the development of an optical aperture for pointing acquisition and tracking and the optical transmit and receive functions. DARPA has selected CACI Inc., MBRYONICS and Mynaric for this area.

DARPA selected Intel for Technical Area 2 (TA2) along with II-VI Aerospace and Defense and Arizona State University to design a reconfigurable optical modem to support current and new communication standards and protocols for interoperability.

In Technical Area 3 (TA3), DARPA selected constellation providers – Space Exploration Technologies (SpaceX), Telesat, SpaceLink, Viasat and Kuiper Government Solutions (KGS) LLC (an Amazon subsidiary) – to identify critical command and control elements to support cross-constellation optical intersatellite link communications and develop the schema necessary to interface between Space-BACN and partner constellations.

ADC expands Nairobi DC with additional 15MW

Africa Data Centres has secured land adjacent to its existing data centre in Nairobi, Kenya, and plans to expand the facility up to an extra 15MW of IT load. Construction will be completed in the first half of 2024 and will bring five times more than the current capacity.

"Colocation has become the foundation of African digital transformation and will be for the foreseeable future," said Hardy Pemhiwa, group president & CEO of Cassava Technologies. "Our investment into expanding our data centre operations in Kenya is in line with the increasing demand that we are experiencing due to the significant increase in the adoption of digital services in the East African region."

The new data centre will begin with 5MW of IT load and will be built in the company's leading-edge modular design. This innovative approach sees the entire facility, including all critical plant rooms, prefabricated off-site to ensure the highest possible quality. Local contractors will be used to lay foundations, assemble, and complete the build.

"We do not use water in any of our cooling systems and are one of the few colocation providers who have taken this step," said Tesh Durvasula, CEO of Africa Data Centres. "Although many believe water and adiabatic systems are more efficient than air cooling systems, this is not the case. With the newest technology, if free-cooling capacity is maximised, it becomes far more efficient and saves water which is becoming a scarce commodity".

The expansion will allow Africa Data Centre clients to grow and scale depending on their requirements. They can start small, increase to a medium capacity, and even benefit from a hyperscale type of deployment in a few years if they choose to. "This is very reassuring for customers, as it brings a lot of synergies by enabling them to operate multiple deployments across Africa Data Centres sites with a single operations team and a campus and infrastructure they are familiar with," said Durvasula.

Airtel subsidiary invests heavily in DC

Nxtra Data has broken ground on a new data centre in Kolkata, India. The Bharti Airtel subsidiary plans to invest Rs 600 Crore in developing a 25MW facility in West Bengal, due to go live in 2024.

The 150,000 square foot facility will be located in Kolkata's Bengal Silicon Valley tech park in the east of the city and offer capacity for around 1,500 racks. The ground-breaking ceremony was attended by numerous government ministers and company executives.

"Nxtra and Airtel are delighted to partner with West Bengal in its digital-first economy agenda and would like to thank the state government for its unflinching support," said said Rajesh Tapadia, executive director & COO, Nxtra. "The new facility will be one of the largest data centers in East India and will be the gateway to serving customers in and around the eastern region and the SAARC (South Asian Association for Regional Cooperation) countries. We are investing extensively on Green Energy and our state-of-the-art, carrier-neutral, hyper-scale Kolkata data center will run on renewable sources of energy."

Nxtra operates 11 large-scale data centres and more than a hundred Edge locations across the country. In October 2021 Airtel said it planned to triple Nxtra's data centre capacity to over 400MW by 2025 and invest Rs 5,000 crores in expanding its footprint across the country.

C-COM opens new R&D facility

C-COM Satellite Systems Inc., has announced that it will open a new R&D facility in Waterloo, Ontario, Canada for the development and commercialization of its Electronically Steered Phased Array antenna. The new site is located on the campus of the University of Waterloo and will open in January 2023.

C-COM has developed a low-profile, lightweight, Ka-band vehicle mounted antenna that can track GEO, LEO and MEO constellations while in motion. The antenna technology is based on small 4x4 transmit and receive phased array modules which are the main building blocks for bigger size antennas and can be conformal to any curved surfaces.

This new antenna technology is a result of more than six years of R&D collaboration between C-COM and the University of Waterloo. The company expects to develop several different models of this antenna that can be deployed for use for land mobility and other markets such as maritime and aeronautical.

"The Waterloo region is the perfect place for us to expand our footprint and help develop our next generation COTM phased array antennas," said Leslie Klein, president and CEO, C-COM Satellite Systems Inc.

The C-COM iNetVu® mobile proprietary antennas, and services associated with these products, are used in mobile applications by corporations, government agencies, the military, law enforcement, homeland security, utilities, oil and gas platforms, police, fire, medical and other security, and emergency services with a need for affordable mobile two-way high-speed internet over satellite connectivity.

Eutelsat and Tizeti to deliver satellite broadband to Nigeria

Eutelsat Communications has inked a deal with Tizeti to jointly improve broadband penetration in Nigeria, especially in underserved locations.

The two companies will deploy Eutelsat's Ka-band satellite connectivity, Konnect, to reach remote communities throughout Nigeria and provide fast and affordable internet services.

"Eutelsat's ambition is to connect one million unserved people across sub-Saharan Africa to high-speed internet over the next five years, and this partnership with Tizeti will help bridge Nigeria's digital divide and unlock the wealth of social and economic opportunities that the internet brings," said Philippe Baudrier, Eutelsat's general manager, connectivity for Africa.

Despite 44.5% broadband penetration mainly covered by MNOs, reliable internet connectivity is still limited to a few states. The partnership between Tizeti and Eutelsat will provide a complementary solution that leverages satellite broadband infrastructure and Tizeti's community WiFi management platform to deliver a fast and affordable public WiFi hotspot service, especially in remote areas that are difficult to reach by terrestrial broadband infrastructure.

Tizeti's CEO Kendall Ananyi said that satellite broadband would complement Tizeti's existing initiatives and lay a foundation for a robust and thriving digital ecosystem across Nigeria. "Our partnership with Eutelsat extends our mission of bringing affordable and reliable internet to more Nigerians and provides us with the opportunity to accelerate the expansion of broadband internet via satellite, to bridge the digital gap and improve digital transformation for more Nigerians."

Konnect's Community Wi-Fi (Konnect Wi-Fi) initiative has already seen considerable success across Africa, with hundreds of sites providing internet access to tens of thousands of people weekly.

Ericsson and e& to collaborate on sustainability

Ericsson and e& have signed a memorandum of understanding to collaborate on sustainable strategies for future telecoms networks, placing decarbonisation and energy efficiency at the heart of their mission.

The companies reached a three-year agreement during the United Nations COP27 climate change conference in Egypt. Ericsson and e& plan to develop a range of initiatives related to network sustainability built around the vendor's energy efficiency moves involving 5G networks and recycling schemes.

Ekow Nelson, VP and head of Ericsson Middle East and Africa's global customer unit stated it is "confident e& will be able to reduce its environmental footprint" by tapping the vendor's various initiatives including "intelligent RAN energy-saving software features."

Hispasat and Sencinet to extend Mexican connectivity

Hispasat and Sencinet have announced plans to extend satellite broadband access in Mexico for corporate and governmental connectivity services until the end of 2024.

Hispasat provides managed capacity in the Ka-band from its Amazonas 5 satellite (located in the 61° West orbital position) to Sencinet through its broadband platform in Ixtlahuaca, a municipality in Mexico State. Sencinet then integrates this capacity to offer the final product to its clients.

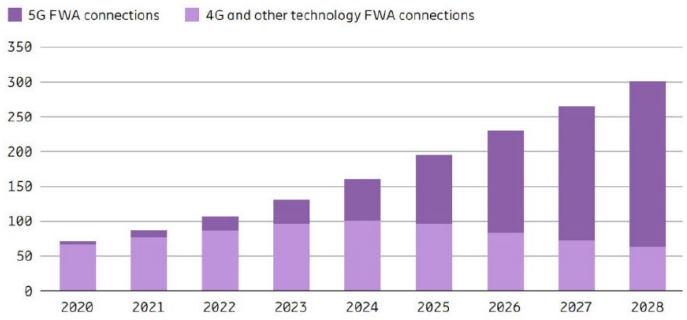
Since June 2021 the two companies have provided critical communications to large Mexican federal government companies and public buildings in rural parts of the country. This new agreement also expands the contracted satellite capacity and builds on the managed service offerings of Hispasat Wave. Launched in March 2022, Hispasat Wave is described as a new generation of managed wholesale services for service providers, telecommunications operators, governments, and audio-visual companies.

"It is essential to ensure good connectivity for our corporate and governmental customers," Sencinet's country manager for Mexico, Central America and the Caribbean, Eduardo Fuentes. "The collaboration agreement that started last year with Hispasat gave us a flexible, robust service that is tailored to our needs, which led us to expand and extend this business relationship to respond to the country's new connectivity requirements."

Ericsson upgrades 5G FWA forecast

Ericsson is maintaining its prediction of more than 1 billion 5G customers by the end of 2022 but has increased its fixed wireless access (FWA) forecast subscriptions.

5G FWA customer numbers will remain low this year at around 30 million from a total FWA base of just over 100 million. However, total global FWA subscriptions will grow at 19% year-on-year during 2022-2028 period to reach more than 300 million by 2028, the vast majority of which will be based on 5G.



The use of FWA for home and business broadband is proving to be a major early use case for 5G, especially in regions where the fixed broadband market is lacking. FWA growth is in part driven by India and will also come in other emerging markets. Ericsson's data shows that almost 40% of 5G FWA launches came in emerging markets in the past year, with services now on offer in densely populated countries like Mexico, South Africa, and the Philippines.

"Following the 5G spectrum auction in India in July, a major service provider has expressed a goal to serve 100 million homes and millions of businesses with 5G FWA services," said Ericsson. "Higher volumes of 5G FWA in large high-growth countries such as India have the potential to drive economies of scale for the overall 5G FWA ecosystem, resulting in affordable CPE that will have a positive impact across low-income markets."

Globally, 5G subscriptions will hit 5 billion by the end of 2028, despite the economic challenges much of the world is facing. Service providers together added 110 million 5G subscriptions in the July-September period, bringing the worldwide total to around 870 million. With that sort of uptake, the 1 billion by year-end figure looks likely. Growth is being driven by device availability, falling prices and large-scale deployments in China.

Global internet services falling slowly, says ITU

The cost of internet services has inched downward across the globe this year, according to *Facts and Figures*, the annual worldwide overview on the state of digital connectivity from the International Telecommunication Union (ITU).

The internet has become more affordable in all regions of the world and among all income groups, based on the assessment from ITU. Cost, however, remains a major obstacle to internet access, especially in low-income economies. The current global economic situation – with high inflation, rising interest rates, and deep uncertainty – could add to the challenge of extending internet reach in lower-income areas.

"The Internet may be more affordable overall, but for billions of people around the world, it is just as out of reach as ever," said ITU secretary-general Houlin Zhao. "We need to keep internet affordability moving in the right direction even as the global downturn cuts deeper into the economic prospects of many countries."

Earlier this year, ITU reported that 2.7 billion people – roughly one-third of the global population – remain unconnected to the internet. The figure was an improvement from 2021 but revealed a levelling off from the strong connectivity gains made during the onset and height of the COVID-19 pandemic.

"Access to the Internet is increasing, but not as quickly and evenly across the world as it needs to," said Doreen Bogdan-Martin, director of ITU's telecommunication development bureau and ITU secretary-general-elect. "Too many people still live in digital darkness. Our global challenge is to commit the resources that would allow everyone to benefit in a meaningful way from being connected."

Inmarsat launches new IoT service plan

Inmarsat has launched a new IoT service plan to drive growth and generate long term business for its distribution partners. This new service plan will be available to distribution partners who have signed up to its ELEVATE programme, with Ground Control named as the first business to benefit from the offering.

Inmarsat's new 'Internet of Things Growth Plan' will give distribution partners access to a preferential pricing framework to help build competitive large scale IoT solutions using the BGAN M2M service. The pricing plan is just the latest benefit to be enjoyed by members of the ELEVATE programme, the goal of which is to attract highly innovative, fast-moving IoT solution providers into the BGAN M2M fold.

The new pricing framework will be available to all distribution partners when they sign up to the ELEVATE programme going forward, delivering significant cost benefits for themselves and their end users, in addition to gaining access to broader capabilities and solutions via the partner ecosystem.

"The launch of our IoT Growth Plan is an important update to our ELEVATE offering and we're excited to see how it advances and accelerates our work with existing and new distribution partners to turbocharge the development of mission critical satellite IoT solutions across industries. We believe our partner ecosystem is key to helping solve some of the world's biggest challenges through the power of satellite IoT," said Mike Carter, president at Inmarsat enterprise. "We're excited to be kicking this next phase of our ELEVATE journey off with our long-term partner Ground Control and look forward to welcoming more distribution partners to the family going forward."

"We are delighted to be the first distribution partner to have joined Inmarsat's ELEVATE programme and look forward to strengthening our strategic alignment with Inmarsat over the coming months," said Alastair MacLeod, CEO of Ground Control. "We believe close collaboration and access to reliable satellite connectivity are vital to harnessing the true value of IoT solutions across sectors and couldn't have picked a better partner to achieve this with."

Mobile phone recycling could cut 21.4 million tonnes of CO2 emissions

The GSMA claims that changes to mobile phone recycling rates could cut up to 21.4 million tonnes of CO2 emissions annually by 2030.

The GSMA detailed visions on achieving a circular economy across the mobile sector by outlining a business model which places recycling at the heart of the industry's supply chain.

"An increased circularity for devices has a huge potential to reduce negative environmental impact," said Erik Wottrich, head of sustainability at Tele2 Group. Wottrich headed GSMA research into potential device recycling strategies. It pegged annual mobile device sales at 2 billion but noted that 85% of used units were not formally reprocessed.

In addition to the environmental implications, the GSMA noted a failure to recycle devices could hinder digital inclusion by preventing access to lower-cost products.

The GSMA has called for the industry to prioritise maximising the longevity of handsets and continue to target zero waste strategies, arguing collaboration between operators, suppliers, manufacturers and consumers among others was key. It also noted the mobile industry made significant progress in highlighting sustainability in its operations, with research showing 11% of mobile devices sold globally today are refurbished.

MTN Cameroon to gain solar-based solution

Telia Cameroon will rely on Canadian Clear Blue Technologies International's Nano-Grid smart off-grid power solution to provide its solutions to MTN Cameroon. The solution will be based on solar energy.

The partnership between Telia Cameroon and Clear Blue includes the deployment of a pilot system which is expected to be delivered in the fourth quarter of 2022. If successful, this will be followed by an initial deployment of 50 off-grid power systems from beginning of 2023. The sites have an estimated contractual value of CAD$1 million over five years for Clear Blue.

"Clear Blue Technologies' systems have incredible value for telecommunications. To support applications in Cameroon, we need systems that are cost effective and provide reliable solar power without the need for diesel generators," said Jean Baptiste Manga II, CEO of Telia Cameroon.

Increasing numbers of telecom service providers are turning to renewable energy to power their network systems with soaring oil prices and insufficient electrical power, particularly in areas rural. Clear Blue has already signed similar partnership agreements with companies like Viasat, Avanti, iSat, YahClick, 9mobile.

US Government to block ARCOS-1 cable to Cuba

The US Government has called for the Federal Communications Commission to refuse an application to deliver connectivity to Cuba through the ARCOS-1 subsea cable.

The ARCOS-1 cable system connects the US to 14 nations in the Caribbean, Central America and South America. Proposed plans detailed extending to a landing station in Cojimar, Cuba.

A Justice Department panel, 'Team Telecom,' said that the new subsea cable landing station would be owned and controlled by Cuban state-owned operator Empresa de Telecommunicaciones de Cuba S.A. (ETECSA). The panel claims that the Cuban government "could access sensitive US data traversing the new cable segment."

Kazakhstan to auction two 5G mobile spectrum blocks

Kazakhstan is putting two 1x100MHz blocks of 5G mobile spectrum up for sale, with bidding scheduled for 20 December 2022.

The Ministry of Digital Development, Innovation & Aerospace Industry (MDAI) Telecommunications Committee confirmed that the available spectrum would be in the 3600-3700MHz and 3700-3800MHz range.

The reserve price for a single block will be set at KZT1.761 billion. To acquire one of the available lots, bidders must already operate a backbone telecoms network in at least six regions of Kazakhstan, as well as the capital and other major cities.

The country's three main operators – Beeline's KaR-Tel and Kazakhtelecom Group's Kcell and Tele2-Altel – have all launched 5G pilots in anticipation of the commercial licensing process.

Telenor pursues Pakistani ops sale at US$1b

Telenor is pursuing the sale of its Pakistani operations, with invitations the first round of bids expected to be issued in November. According to Bloomberg, Telenor is working with Citigroup on the sale, which is valued at as much as US$1 billion.

In July, Telenor posted a US$244 million loss on the unit, and confirmed that it would carry out a strategic review. In October, Telenor reported that its earnings in Pakistan were down 22% for the third quarter, attributing this in part to increasing energy costs in the market. However, it noted that the government's decision to revoke a SIM tax provided a gain that offset this loss.

Omantel launches 400GbE DCI via Ciena DC

Oman Telecommunications Company (Omantel), has launched a 400GbE DCI service utilizing Ciena's Data Center Interconnect solution. The service is designed to meet the rapidly rising connectivity demands of Omantel's wholesale, cloud and content provider customers while delivering a superior customer experience through optimized performance.

Omantel's 400GbE DCI service runs on Ciena's 6500 Packet-Optical Platform powered by WaveLogic 5 Extreme coherent optics and is managed by the Manage, Control and Plan (MCP) domain controller. The solution gives Omantel the ability to deploy 100G and, for the first time, 400GbE DCI connectivity over wavelengths up to 800Gbps to accommodate increasing network traffic.

"Our vision is for Oman to be the leading gateway to the region and beyond. We are bringing this mission to life, and a recent example is our new 400GbE data center interconnect service that we developed with Ciena. At Omantel, considering the numerous benefits on technical, commercial and social levels, we acted upon a clear strategy for data centers by partnering with Equinix, the world's digital infrastructure company, to launch MC1, the premier carrier-neutral data center in MENA. We are now taking the next step by introducing an innovative new DCI service, the first of its kind in the region," said Sohail Qadir, vice president of wholesale at Omantel. "Crucially, we were able to launch the service sustainably — without deploying additional platforms — doubling wavelength transmission capacity from 400G to 800G and improving overall fiber capacity leveraging our existing footprint. What this means for our customers is faster delivery of on-demand cloud applications and content with the highest quality."

"With a flexible, scalable network foundation from Ciena, Omantel is able to get ahead of the growing demands on today's networks and provide its customers with unrivaled connectivity by way of its DCI service," said Virginie Hollebecque, vice president and leader of EMEA, Ciena.

Sepura deploys 500,000th TETRA radio

Sepura has deployed its 500,000th TETRA radio in Germany, with the landmark device being put to work on the Munich city underground rail network.

Stadwerke München has been running a major project to renew the radio system in the city's underground network. As part of this solution, network managers selected Sepura - through its German partners SELECTRIC Nachrichten-Systeme GmbH - to provide a fleet of more than 1,800 SC20 TETRA radios and accessories for the new network.

"Sepura products are known around the world as tough, reliable products," said Hendrik Pieper, managing director at SELECTRIC. "We have achieved success in the world's largest TETRA market by combining Sepura products with outstanding customer service to users in public safety and commercial organisations throughout the country. We look forward to continuing to support these customers in the future."

As well as the Sepura handheld radios, SELECTRIC's response included fist microphones and charging pods specially developed to customer specifications for use in vehicles. SELECTRIC also managed the integration of the TETRA communication network into the existing control centre, programmed the Sepura TETRA radios, provided training for radio users and guided the deployment with extensive technical support. The full transition into active operation is expected at the end of 2023.

"We are proud to reach the landmark figure of half a million radios deployed in Germany," said Hooman Safaie, regional sales director at Sepura. "We are increasingly seeing commercial organisations with mission critical needs such as Stadwerke München adopting Sepura radios and benefitting from the proven, robust design and flexible features that can be built around their operational needs. We look forward to continuing to provide German users with first class communication solutions for many years to come."

TETRA offers a complete, resilient and secure, service-rich communications solution for rail. Its reliability, availability and security are determining factors in its success.

Telecom Namibia invests in smart city fibre

Telecom Namibia has signed a partnership agreement with OMDis Town Transform Agency (OMDis) to deploy 67.6km of optical fibre in Oranjemund at a total cost of N$12 million, as part of a project to transform the town into a smart city.

"A smart city requires connectivity between citizens, service providers and government," said said Amanda Hauuanga, deputy chair of the board of Telecom Namibia. "Telecom Namibia understands the central role connectivity plays in a smart city ecosystem and therefore we believe we are the most appropriate partner to help OMDis transform Oranjemund into a smart city with all things digital."

This project is part of Telecom Namibia's investment plan announced earlier this year. The company plans to invest N$2.3 billion in the modernization of its fixed and mobile network infrastructure over the next five years.

Ultimately, this project should reinforce Telecom Namibia's existing 10,676km fibre optic backbone for a national coverage of 65%; accelerate digital transformation and connect thousands of additional households.

"The partnership between OMDis and Telecom Namibia will have a positive impact on sectors such as tourism, industrial development, healthcare, agriculture, small and medium enterprise (SME) development, education and development of real estate," said Stanley Shanapinda, managing director of Telecom Namibia.

TikTok joins GSMA

TikTok has joined the GSMA as an industry member and says it intends to 'work with our industry partners to advocate the development of new mobile communication technologies and form lasting business relationships in our global community.'

The app will reportedly share its knowledge, provide industry insights, and support innovative initiatives 'that will benefit everyone in the telecommunications ecosystem.'

"With its powerful influence on culture and massive monthly user base of over one billion, TikTok has captured the world's attention over the past few years," said Lara Dewar, chief marketing officer, GSMA. "We're excited to welcome TikTok as an industry member to work together on initiatives that benefit the entire mobile ecosystem."

"TikTok's mission is to inspire creativity and bring joy. "In partnership with hundreds of telcos around the world, we've made it easier, cheaper and faster for our users and partners to create, share and engage with our amazing video platform," said David Saidden, Director of Distribution Partnerships at TikTok. "As part of the GSMA community, we're excited to expand on these successes, amplifying innovation in the 5G space, streamlining delivery through CDN and Edge infrastructure, and pioneering new modes of connectivity in evolving markets."

Q&A

Tero Pesonen, chair of TCCA's Critical Communications Broadband Group and vice-chair of TCCA's Board

Who was your hero growing up?

I was brought up to respect integrity, people devoted to their values, but also to admire people who were innovative and prepared to think out of the box. However, it seemed right not to idolise individuals, but to recognise the importance of cooperation.

What was your big career break?

I am curious and interested all kinds of fields ranging from history, social sciences, linguistics etc., but technology innovations have always had a special spark. ICT was taking giant leaps and I wanted to be part of it. I applied to do my military service in signalling with digital systems and went to study related fields in the university. An opportunity to write my master's thesis on TETRA opened back in 1997, when my semester break time superior in Nokia moved to the Nokia PMR unit. It felt like a great combination of being allowed to work with leading edge technology and at the same time make a real difference in contributing to the saving of lives around the world.

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

It is debatable if this is really the best or even a good one, but nevertheless one that I have tried to follow is "nothing is to be shamed for." With this I have been able to take a step forward to uncertainty and out of my comfort zone.

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

I devote part of my time to help charities develop their fundraising and volunteer management processes and systems. It is another way of trying to contribute to developing a better world. In critical communications it is about saving lives and protecting societies by enabling first responders and others to conduct their duties efficiently and safely. Charities in turn bring help and relief to the ones in need via different route.

What would you do with $1 million?

Could we make it $100 million? I would split in three.

One third to directly support the charities I care for. One is devoted to increasing literacy around the world and as part of it to protect as far as possible spoken languages from extinction. Being able to express oneself in your own language is a basic need.

Second, to invest in some critical communications start-up phase company that has a novel idea about how to increase operational efficiency in information centric field operations.

The final third would be for a similar investment, but in the charity technology sector. There are plenty of opportunities to communicate to and involve donors and volunteers deeper into the mission of a charity. However, developing suitable tools for that may not be very high on commercial companies' agendas.

Where would you live if money was no object?

Summers with plenty of light in Finland are wonderful, but it is fair to acknowledge that in November – January it would be quite enjoyable to be elsewhere. I have felt rather good wherever I have lived, but I do value access to nature, safety, working process as well as clean air and water (in addition to high-speed reliable internet). Coming to think about it, it is stress free to live in a trust-based society. Perhaps, that is a contributing factor as to why Finland was rated as the happiest country in the world recently.

What is the most challenging aspect of your job?

My role in TCCA is to help build a safer and more secure future. However, everyone in the sector is already quite busy with the present and sometimes past issues. Convincing and bringing stakeholders across the entire sector, including vertical markets, together to invest into the future with great potential return is the most challenging part.

TCCA has been rather successful in achieving this. We have established the Critical Communications Broadband Group that consists of all the stakeholders in the value chain, giving us a unique opportunity to take every relevant aspect into account. A remarkable example is the creation of a white paper on Mission Critical Broadband Device Procurement that addresses the realities from the industry as well as from the user and operator sides for optimum outcomes. Now we are looking into challenges that Massive Mission Critical Video brings, looking into specific cybersecurity questions for the sector and the creation of a common 3GPP standard conformance certification for mission critical services together with the Global Certification Forum (GCF) just to mention few.

'Success In Cooperation' – the theme for Critical Communications World 2023 – is true. Mutual trust, openness and joint work brings us the results.

If you could dine with any famous person, past or present, who would you choose?

Dining with Jesus would be quite remarkable. His teachings are being interpreted in so many ways today; it would be very interesting to ask about them first hand.

From the present day I am certain I would be able to get food for thought with many of those that are leaders in their sector – be it in science, business, politics, culture or even religion.

"It is debatable if this is really the best or even a good one, but nevertheless one that I have tried to follow is "nothing is to be shamed for." With this I have been able to take a step forward to uncertainty and out of my comfort zone."

What's the greatest technological advancement in your lifetime?

In my mind there are two competing things: mobile communications and the internet. Together they have changed the way we live and our societies work profoundly.

These relate also very strongly to our present-day situation with critical communications. In the previous technology cycle 25 years ago, the essence was about digitalisation – moving from analogue technologies to digital one such as TETRA. With that a substantial service improvement was possible. Higher capacity, improved speech quality, increased security and data services like database queries and automatic location. Now, we are on the verge of a new transition the shift from voice centric to information centric field operations. Augmented and virtual reality combined with multi-sensoring interpreted with artificial intelligence are opening new yet to be explored avenues. ■

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