Issue 3 2022

Communications Africa Afrique

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IS THE ANSWER UP THERE?

How satellites can deliver mobile broadband

Digital terrestrial TV

Winners and losers in South Africa's analogue TV switch-off

Kenya

Connectivity keeps cattle herders in business

Power

Data centre dilemmas

The internet of things

How IoT could transform African industry

Landing stations: bringing subsea cables ashore.

FEATURES: ● Why towers need fibre ● Why satellites need spectrum ● Why retail needs Bluetooth

REGULAR REPORTS: ● Agenda ● Solutions ● Events

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See mobile broadband story on page 13.

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A note from the Editor

THIS ISSUE CELEBRATES change, while noting that it may be happening in Africa at a slower pace than many would like. For example, nearly three decades since 2G cellular networks began to transform the continent, the big problem in much of Africa is still rural and remote connectivity.

However, an ongoing satellite revolution - encompassing lower orbits, cheaper launches and improving technology - could be part of the answer. And the continuing arrival of subsea cables - Equiano is the latest - could boost both fixed and mobile connectivity, though rural areas may not immediately benefit.

Similarly, South African TV is at last going digital, though several years behind schedule. And the promise of IoT in Africa is immense, though skill shortages, device and network costs, power supply and policy bottlenecks could all delay the fulfilment of that promise. Data centres, too, are having trouble keeping up with demand, although so is the availability of power to keep them going.

So it's a mixed picture but, to take an upbeat view, change - for the better - is definitely coming.

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Events/Événements 2022

SEPTEMBER/SEPTEMBRE			
1-2	**Cybertech Africa**	KIGALI	https://africa.cybertechconference.com/
9-12	**IBC 2022**	AMSTERDAM	https://show.ibc.org/2022-conference
19-20	**AI Expo Africa**	JOHANNESBURG	https://aiexpoafrica.com/
30	**Tourism and Technology Summit Africa**	NIGERIA	https://tourismandtechnologysummit.com/
OCTOBER/OCTOBRE			
10-14	**GITEX GLOBAL**	DUBAI	https://www.gitex.com/
NOVEMBER/NOVEMBRE			
2-3	**TECHSPO Johannesburg**	JOHANNESBURG	https://techspojoburg.co.za/
7-11	**AfricaCom**	CAPE TOWN	https://tmt.knect365.com/africacom/
22-23	**EDUtech Africa**	SOUTH AFRICA	https://www.terrapinn.com/exhibition/edutech-africa/index.stm
JANUARY/JANUARE			
26	**Digital Retail Africa 2023**	JOHANNESBURG	https://itnewsafrica.com/event/event/digital-retail-africa/
FEBRUARY/FEBRUARE			
15-16	**Africa Tech Summit Nairobi**	NAIROBI	https://www.africatechsummit.com/nairobi/
27-2 March	**MWC Barcelona 2023**	BARCELONA	https://www.mwcbarcelona.com

IBC returns to Amsterdam

Amsterdam gets set to welcome the content and technology community to IBC as a face-to-face event after two years of virtual formats.

IBC IS BACK – and it has announced a world-class line-up of headline speakers and a partnership-led approach to bringing more innovative content to the show, as the media, entertainment and technology industry gets back to live, in-person networking, learning and collaboration at the RAI Amsterdam on 9-12 September.

This year's IBC Conference (9 and 10 September), which brings together some of the industry's most influential thought leaders to present keynotes, panel discussions and IBC Technical Papers, is centred on the theme 'What's next? Designing the future together'. The conference will explore core trends and technologies shaping the future of media, including the metaverse, data-driven ad strategies, hybrid business models and cloud migration.

This year, IBC's Partners' Programme is hosting the brand-new, free IBC Changemaker sessions, which bring together industry trailblazers to explore topics such as raising equality, advancing sustainability and mental health awareness – as well as the latest thinking in creativity and technology.

Also featured at the 2022 show is IBC's Partnership Pavilion and free-to-attend IBC Owner sessions, which will enable attendees to engage with and gain insights from the six leading international bodies behind IBC: IABM, IEEE BTS, IET, RTS, SCTE, and SMPTE. Other free-to-attend sessions include panel discussions, product demonstrations and case studies presented on the Content Everywhere Stage in the expanded Hall 5.


Photo: Adobe Stock

The RAI, home to IBC.

A four-day programme will cover: live streaming and VOD; achieving low latency; content discovery and recommendations; audience engagement; monetisation models and ad tech; software development strategies; and device fragmentation.

IBC's new Showcase Theatre in Hall 12 will feature live demos, masterclasses and thought-leadership insights on key trends and opportunities from leading technology providers.

Show visitors can also discover demos, presentations and other sources of information on offer from IBC's exhibitors, with over 850 booked for this year's show. Leading brands exhibiting at IBC2022 include ARRI, Avid, AWS, Blackmagic Design, Canon, EVS, Fraunhofer, Grass Valley, Hewlett Packard, MediaKind, Meta, Nagra, Ross Video, Sony, Synamedia, and many more. Companies planning their IBC debut this year include Ad Insertion Platform, Blitz micro, Ceeblue, Castify.ai, Castr Live Streaming, Green Streams, PikoTV, LiveAPI, Riverside.fm, and XroadMedia.

And don't forget – the IBC Accelerator Media Innovation Programme returns to Amsterdam in 2022, bringing together pioneering media companies and leading-edge technology partners as they collaborate to solve real-world challenges and drive advances across a range of areas.

Oser, c'est faire un pas vers sa réussite

Pourquoi hésiter, débattre, discuter sans fin ?
Pourquoi ne pas saisir l'instant,
les opportunités uniques qui se présentent ?
Ce qui est fait n'est plus à faire !

Alors, ***on fait quoi aujourd'hui ?***

MTN

"We are very excited to complete this transformative transaction (the acquisition of Teraco), that positions Digital Realty as the premier data centre and connectivity provider on the high-growth African continent."

William Stein
CEO
Digital Realty

"I want to devote more time to supporting Safaricom's investment in Ethiopia and relinquishing the role of chairman allows me the flexibility and freedom to undertake this important role."

Michael Joseph,
former board chairman
Safaricom

"In technology, you learn from risks and never lose sight of meaningful, market-relevant innovation. This is the ethos of Sigfox South Africa, and we look forward to helping IoT make even more positive impacts for everyone."

Raymond Ndlovu
non-executive director
Sigfox South Africa

"The large market potentials buoyed by the huge population, impressive gross domestic product figure, and proximity to our operations in the neighbouring African countries, as well as the appreciable friendly operating environment are great motivators for our expansion plan into the Nigerian telecom market."

Victoria Adefala
non-executive director
Orange Group

"This timely (debt financing) deal with a proudly South African digital infrastructure business (MetroFibre Networx) supports our mission of driving sustainable and truly embedded technological growth across Africa, and developing digital innovations that matter."

Nishela Ramgoolam
executive for structured capital
Standard Bank

"We were excited to work with (Niger operator) Zamani and help them upgrade their services to provide a better experience for their customers. Their end users will benefit from stronger signal and faster speed."

Liliane Ginot
sales director of Africa
Telrad Networks

"I would like to thank Tecnotree on the successful delivery of the Digital Service Provisioning System. We trusted Tecnotree on their digital portfolio and delivery capabilities and they achieved our expectations before time!"

Wilson Lado
CTIO
Zain South Sudan

"Our satellite broadband services will provide tangible benefits in service, accessibility, cost and socio-economic development to the underserved homes and businesses in the (Nigerian) area, unlocking all the opportunities that reliable satellite broadband products offer."

Muhammed Bashir
vice president, digital transformation and innovation
P3Tech

"Upon consultation with the industry and in view of the challenges enumerated above, I have very reluctantly decided to grant a conditional extension (to the SIM card re-registration exercise). The programme will be extended to 30th September, to end on the anniversary of its commencement."

Ursula Owusu-Ekuful
minister of communications and digitalisation
Ghana

"Our rapid turnaround on the construction of our first Johannesburg facility has allowed us to more quickly meet demand for hyperscale data centres in the area."

Justin Jenkins,
COO EMEA
Vantage Data Centres

"M-PESA has, over the past 15 years, evolved from simply money transfer to a robust payments platform and driver of financial inclusion for Kenyans. This has paved the way for numerous innovative services. By partnering with Visa to provide the M-PESA GlobalPay virtual card, we are looking to bridge the gap for our customers who would like to use M-PESA anywhere across the world."

Peter Ndegwa
CEO
Safaricom

"We are delighted to begin exploring how we might offer our platform to Realme and provide it with the opportunity to grow and access the African market. Both of our companies share similar values, and we look forward to a collaboration that would provide Jumia's consumers access to best-in-class, affordable smartphones via Jumia's seamless shopping experience."

Sandeep Narayanan
VP, consumer electronics
Jumia

"Through the years, we have built a payments platform that seeks to solve issues faced by businesses and their consumers. Partnerships such as this (with water utilities) are critical in ensuring that we deliver the best possible digital payment service in Zambia. The vertical of water utility companies is critical mainly because of the need to improve collection efficiency for thousands of Zambians."

Gilbert Lungu
country manager
Cellulant Zambia

"We have launched the country's first-ever National Data Centre, a digital infrastructure that raises our stakes in delivering data-driven, seamless and timely service to you fellow citizens."

Lazarus Chakwera
president
Malawi

"Our partnership (in Mozambique) with IoT.nxt offers added value in supporting the implementation of existing business solutions through the creation of an IoT platform designed to meet customers' needs."

José Correia Mendes
Executive Director
Vodacom Business

Cellulant announces water payment deal in Zambia

CELLULANT ZAMBIA, PART of leading pan-African payments company Cellulant, has announced a digital payment partnership with five leading Zambian water utility companies; Nkana Water, Kafubu Water, Mulonga Water, Chambeshi Water and Western Water.

This partnership will allow customers to conveniently pay their water bills with their preferred mobile money and selected bank accounts (Standard Chartered Bank, Zambia National Building Society and Natsave).

Photo: Cellulant

Customers will be able to pay for their water bills through Cellulant's Tingg platform.

Rather than travelling long distances to pay for their water bills customers will now be able to pay for their water bills through Cellulant's Tingg platform. Since first partnering with Mulonga and Nkana Water three years ago, Cellulant said, all the water utilities in northern Zambia have jumped on board and experienced exponential growth in digital payments.

Digitising the payment collection process unlocks access to efficient and more affordable water services for thousands of Zambians by creating a virtuous cycle of payment and service improvement.

Ultimately, when customers are enabled to pay easily and have a good customer experience, said Cellulant, their willingness to pay on time and consistently increases substantially. In turn, the water utility companies experience reduced costs in collections and increased revenue, increasing their ability to upgrade services, invest in innovation and extend their network.

More than 300,000 water utility customers are set to benefit from the partnership.

Play-to-earn partnership planned for DRC

TOKENS.COM CORP, A publicly traded company that invests in Web3 crypto assets and businesses linked to the metaverse and NFTs, has announced that its subsidiary, Hulk Labs, has entered into a play-to-earn partnership with the DRC.

Tokens.com and Hulk Labs plan to work with several local entities and universities to identify and train a group of players to participate in the play-to-earn gaming economy.

Tokens.com will also deploy play-to-earn assets to this network of players in the DRC to allow them to play top play-to-earn games using assets owned by Tokens.com and Hulk Labs.

The DRC government will support the effort by providing drop-in facilities with high-quality internet availability and other local resources.

Safaricom comes to Ethiopia

AS THIS MAGAZINE went to press Safaricom was expected to start commercial services in Ethiopia in August. It failed to meet the previous launch target in April 2022.

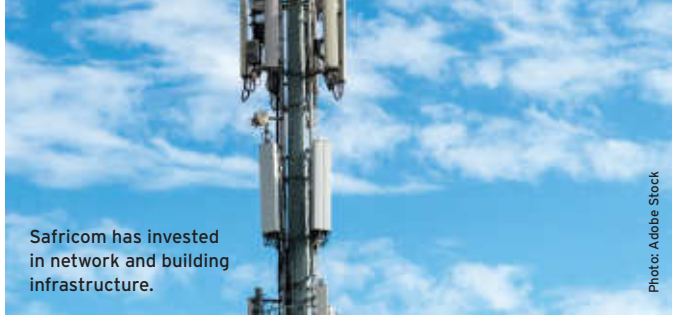
The phased commercial launch will start in August 2022, switching on the network in 25 cities across the country by April 2023.

Safaricom is implementing an infrastructure sharing deal with incumbent, state-owned Ethio Telecom, and has insisted that this is "progressing well" after an agreement earlier this year that Safaricom would share cell sites, interconnection and tower assets in Ethiopia with Ethio Telecom.

Safaricom won the licence in July 2021, making it the first private operator in Ethiopia. Since then it has invested in network and building infrastructure, including its own mobile radio towers, national transmission network, and wholesale agreements for international connectivity.

Local press reports quoted a Safaricom spokesperson as saying, "We have invested US$1bn (including the licence fee); imported equipment worth over US$300mn; developed our core network, IT, products, and services; set up a call centre; and built two data centres."

The company has also appointed a management team and experts for commercial launch, providing professional and skills development to employees. It has recruited 500 staff, 320 of whom are Ethiopians.



Safricom has invested in network and building infrastructure.

Photo: Adobe Stock

GhanaPay brings banking to mobiles

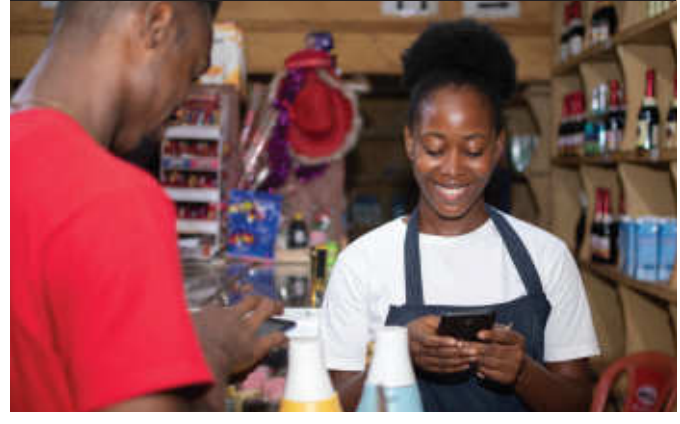


Photo: Adobe Stock

GhanaPay can be used to send and receive money.

GHANAPAY MOBILE MONEY Service has been launched in Ghana. It is the first bank-wide mobile money service by universal banks, rural banks and savings and loans companies to individuals and businesses.

The GhanaPay service operates like existing mobile money services, with additional banking services. It is open to everyone with access to a mobile phone with or without a traditional bank account.

Speaking at the launch of the service, vice president Mahamudu Bahamia described the introduction of the GhanaPay mobile money service as "another ground-breaking initiative", as the service further expands the government's vision for financial inclusion to all Ghanaians through digital banking.

GhanaPay, once registered, can be used to send and receive money to and from mobile networks and bank accounts. It can also be used to cash in and cash out, buy airtime and data, and also pay for goods and services through a GhQR merchant. GhQR is a way to make payments to a merchant by scanning a QR code displayed by the merchant with a mobile phone.

Avanti and Viasat sign capacity deal

AVANTI COMMUNICATIONS, A provider of high-throughput satellite capacity across Europe, the Middle East and Africa, has signed a long-term capacity lease agreement with global communications company Viasat.

The agreement will aid in meeting the connectivity needs of Viasat's customers in the energy sector.

Avanti's fleet of HYLAS Ka-band satellites will be used to extend coverage across the North Sea and western Africa. The latest lease agreement will see Viasat accelerate the deployment of Ka-band solutions to the Viasat Energy Services customer base.

In 2021, RigNet merged its capabilities with Viasat Energy Services, offering a global managed services network infrastructure.

Viasat Energy Services plans to leverage the HYLAS capacity from Q3 2022.

Côte d'Ivoire plans major fibre optic rollout

The development is expected by 2025.

Photo: Adobe Stock

CÔTE D'IVOIRE HAS announced the construction of a data centre and the development of a 7000 km national fibre optic network by 2025.

According to Amadou Coulibaly, minister for communication and the digital economy, the investment into the network is part of the implementation of a national digital development strategy, designed to contribute to supporting widespread national economic development.

"The fibre optic network and the data centre are the priorities of my department, as they form the foundation of the digital transformation that Côte d'Ivoire wants to fast-track," explained Coulibaly via media reports.

In 2021, Côte d'Ivoire adopted a national digital development strategy, planned through 2025. The strategy is based on seven pillars: digital infrastructure; digital services; digital financial services; digital skills; the business environment in the digital economy sector; innovation; cybersecurity; and digital trust.

According to The World Bank, the digital economy could bring Côte d'Ivoire more than US$5.5bn by 2025, and more than US$20bn by 2050, if the public authorities and private sector manage to strengthen investment into the five fundamental pillars of digital innovation: infrastructure, platforms, financial services, entrepreneurship, and skills.

Jumia and realme team up for e-commerce deal

THE WORLD'S FASTEST-GROWING smartphone brand, realme, has signed an agreement with the Africa's leading e-commerce platform, Jumia.

The agreement allows realme to host an official store on Jumia's platform, with the intent to eventually connect it with online consumers across 11 African markets, beginning with Nigeria. The platform will then be expanded to Kenya, Ghana and Côte d'Ivoire, before coming to the remaining African countries in which Jumia operates.

Sandeep Narayanan, vice president for consumer electronics at Jumia, explains that sub-Saharan Africa is one of the world's fastest-growing mobile regions.

"Millions of African mobile users use a smartphone to access Jumia for their everyday needs. With this in mind, we look forward to further enhancing the penetration of e-commerce in the region."

Jumia's marketplace is supported by its propietary logistics business, Jumia Logistics, and its digital payment and fintech platform, JumiaPay.

Photo: Adobe Stock

The agreement will see realme's product range sold on Jumia.

Safaricom introduces zero-interest credit services

Photo: Adobe Stock

Zero-interest loans will be available for product purchase.

KENYAN OPERATOR SAFARICOM HAS UNVEILED a zero-interest credit service that will allow millions of its customers to shop for goods up to approximately US$841 and pay later.

Users of the interest-free product (to be known as Faraja) will buy goods and services from as low as around US$0.17 up to approximately US$841, and pay the same amount without any of the extra fees associated with other credit products.

Regular M-Pesa transaction charges will apply at the point of sale on the product, which is to be bankrolled by Equity Bank.

Faraja will function as a digital credit card, where users will have a credit limit, depending on their credit score, to make purchases against and repay at a later date within a 30-day window.

The service is set to be a game-changer in the mobile loans market, undercutting costlier credit products including Safaricom's Fuliza.

The product is owned by Edomx Ltd, a Kenya-based financial technology firm.

Kenya switches to Internet Protocol Version 6

THE COMMUNICATIONS AUTHORITY (CA) of Kenya has announced that the country is to move from Internet Protocol Version 4 (IPv4) to Internet Protocol Version 6 (IPv6) in 2023.

Internet Protocol (IP) is a set of rules for addressing and routing data so that it can travel across networks and arrive at the correct destination.

IPv4, which was released in 1983, is still the most popular version of IP. However, IPv6 has a 128-bit address length and is much more complex and efficient than IPv4, which has a 32-bit address length.

Photo: Adobe Stock

IPv6 is much more complex and efficient than IPv4.

Only devices with IPv6 capability will be type-approved for use in Kenya as of July 2023. The CA will run a public awareness campaign that will educate consumers about the need to acquire IPv6-compliant devices starting in September 2022. This will be done through online platforms, pamphlets, radios, televisions and outreach programmes.

IPv6 will create an IP address pool large enough for use by persons as well as machines, facilitating Internet of Things networks. It will have efficient routing due to the reduced size of routing tables, as well as eliminate the need for addressing translators in the network and error checking at various stages of data routes.

There will be transparency in the network as each node in the network has a distinct address, which also makes troubleshooting easier. IPv6 will assure enhanced security as it supports the end-to-end IP security protocol mode. The efficiency of network bandwidth will increase due to the use of multicast as opposed to broadcast, when sending data to multiple destinations.

The CA says it will organise initiatives, where trainees from the service providers will be taken through hands-on training on IPv6 migration and related technologies by authority-sourced experts.

ECOWAS Court says Nigerian Twitter ban was unlawful

FOLLOWING A SUIT by the Socio-Economic Rights and Accountability Project and 176 'concerned Nigerians', the ECOWAS Court has declared unlawful the suspension of Twitter by the government of president Muhammadu Buhari.

The court ruled that the ban is inconsistent with the provisions of Article 9 of the African Charter on Human and Peoples' Rights and Article 19 of the International Covenant on Civil and Political Rights. It also ordered the Buhari administration to take steps to align its policies to give effect to the rights and freedoms, and guarantee a non-repetition of the unlawful ban of Twitter.

The court ordered the Buhari administration to bear the costs of the proceedings as well.

Togo claims world-first with new e-Visa platform

THE TOGOLESE REPUBLIC has announced the completion and relaunch of its electronic visa issuance system (e-Visa), Togo VOYAGE. It is designed to simplify the entire visa and health check application process for visitors to the country. The move comes as a part of the government's Digital 2025 strategy.

The new system will allow applicants to complete the application process (including submission of the application, payment and withdrawal of the e-Visa) electronically without needing to visit an immigration office or embassy in person.

The platform will also allow incoming and outgoing travellers to complete all the necessary health formalities to ensure safe travel, including paying for PCR tests for unvaccinated travellers, which are mandatory on departure and arrival in Togo.

Available in French and English, it offers features such as a Visa Wizard, which enables incoming travellers to quickly determine whether they need a visa to travel to Togo. It allows travellers to update their information by creating a personal account, saving their personal information such as names, contact details and passport numbers, in order to avoid refilling all their information for each trip they organise.

The platform and its supporting mechanism are currently only deployed at airports. More widespread roll-out, which includes land and sea borders as well, is expected during the course of this year.

The project has won the Togo Digital Agency recognition as a 'catalyst for digital transformation in public administration' in the country.

Togo's government said the country will be the first globally "to fully integrate under a single platform, their online visa and immigration application processes with their COVID-19-related policies, significantly easing the application process for future visitors".

Professor Robert Dussey, minister for foreign affairs, cooperation and regional integration, commented, "The Voyage Togo platform is streamlining travel processes and formalities to and from our country. This is great news for foreigners wanting to come to Togo."

Paratus plans network hub in Angola

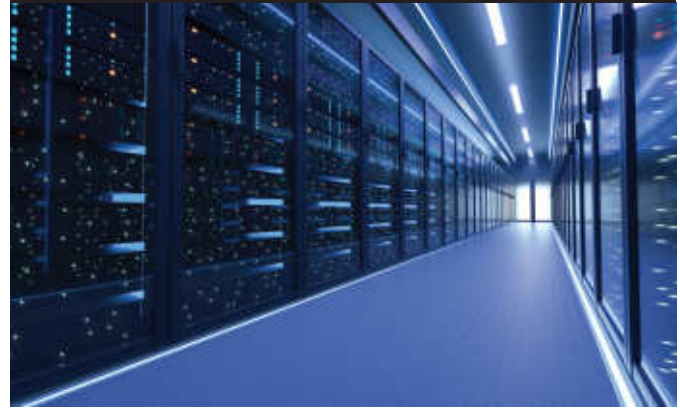


Photo: Adobe Stock

The hub is the culmination of several years of telecommunications infrastructure investments.

THE PARATUS GROUP has said it is close to establishing a highly sophisticated network hub in Angola. The hub is the culmination of several years of telecommunications infrastructure investments, including the recent establishment of fibre connections to the Democratic Republic of the Congo (DRC), the inauguration of a new data centre in Namibia, and the inclusion of new submarine cables such as the Google Equiano Cable (for which Paratus was the landing partner when the cable landed in Namibia on 1 July).

It is also the result of the expansion of fibre and microwave coverage across Angola's 18 provinces.

Local telecommunications services provider Internet Technologies Angola (ITA) has officially rebranded to Paratus Angola. The companies say the brand repositioning will provide access to additional resources and seamless integration across Paratus' transcontinental network in Africa.

Financing agreed for Metrofibre Network

STANDARD BANK WILL provide South African fibre company Metrofibre Networx with R5bn (around US$299.6mn) in financing to facilitate its fibre roll-out and expand its connectivity into homes and businesses in underserviced communities across the country.

The bank said the financing is set to help increase Metrofibre's network reach by an additional 500,000 households in South Africa.

Metrofibre Networx ranks among the country's top fibre-to-the-home operators, along with Vumatel, Openserve, Dark Fibre and others. Its open-access network currently passes 350,000 homes in six provinces and aims to reach an additional 500,000 residential homes by 2025. It is a diversified network operator, a carrier-class Ethernet (CE 3.0) infrastructure company that today provides access to managed fibre optic broadband connectivity in South Africa.

Niger's Zamani taps Telrad for infrastructure upgrade

TELRAD NETWORKS, A global provider of wireless telecommunication solutions, has successfully completed the provision and deployment of a large-scale 4G LTE-TDD network for Niger's Zamani Telecom.

The project has allowed Zamani to fully phase out its aging WiMAX network and increase capacity for its growing customer base of more than three million subscribers. In addition, it provides Zamani with a consolidated Layer 2 LTE solution for its parallel B2B services. It ensures 100% coverage across the entirety of Niger's capital city of Niamey and main towns. This marks one of the company's most significant infrastructure upgrades since Zamani finalised its acquisition of Orange Niger two years ago.

Telrad was selected from a competitive pool of solution providers as part of an open RFP process.

Zamani is also seeing considerable cost savings from the new equipment. Prior to the LTE-TDD deployment, the company had to maintain WiMAX devices from two different vendors. Telrad's solution has allowed Zamani to streamline its infrastructure, resulting in lower opex.

"With these Telrad devices in place, subscribers now have the possibility of higher data transfer speeds under challenging real-world conditions. Not only did this turnkey solution meet our expectations in terms of throughput, it ended up exceeding them with regard to coverage. The final range of coverage is actually even better than we first anticipated," said Alhassane Diene, CEO of Zamani Telecom.

Photo: Adobe Stock

Customers will benefit from stronger signals, improved reliability and faster speeds.

"This LTE-TDD network showcases the many advantages of Telrad solutions – from cost to coverage to seamless connectivity. We were excited for this opportunity to work with Zamani and enable them to upgrade their services in order to provide an even better experience for their customers," said Liliane Ginot, sales director – Africa at Telrad Networks Ltd.

Zamani Telecom is wholly owned by businessmen Mohamed Rissa of Rimbo Invest and Moctar Thiam, both of whom had been minority shareholders of Orange Niger. In 2019, France Orange Group completed the sale of its entire 95.5% stake in Orange Niger to Zamani after the transaction received approval from the relevant authorities. Zamani Telecom SA (formerly Orange Niger) is one of the primary telecommunications operators in Niger, offering fixed, mobile and internet services to consumers as well as businesses.

Phase3 Telecom and YahClick partner for satellite broadband

PHASE3 TELECOM, ONE of Africa's leading independent aerial fibre optic network infrastructure and telecommunications service providers, has partnered with YahClick (powered by Hughes) to offer world-class high-speed, low-latency satellite broadband services. As a result of this partnership, satellite broadband services will be available throughout Nigeria, focusing on the unserved and underserved communities.

The partnership between Phase3 and YahClick, a market leader in bringing connectivity across Africa, represents a strategic collaboration to make internet connectivity available to residential and business users throughout Nigeria, bypassing the infrastructure deployment challenges and reaching even the most remote regions.

"By providing a truly extensive satellite coverage service with a range of product options, P3Tech [a division of Phase 3 Telecom] will provide all unserved and underserved communities in Nigeria with the opportunity to connect and take part in the global digital economy, further transforming the Nigerian telecommunications space, accelerating national growth and positively contribute to the Federal Government broadband access target," said Stanley Jegede, Phase3's executive chairman.

Photo: Adobe Stock

As a result of the partnership, satellite broadband services will be available throughout Nigeria.

West Africa's first fibre optic factory opens in Ogun

Photo: Adobe Stock

The manufacture of fibre optic cables locally will aid the deployment of Information Communication Technology throughout the economy.

WEST AFRICA'S FIRST and Africa's fifth fibre optic cable manufacturing factory has been inaugurated in Ogun State, in Nigeria's South-West region.

The factory, built by Coleman Technical Industries Limited in collaboration with an American firm Fibre Business EMEA, is expected to boost innovation and development of Nigeria's digital economy infrastructure.

George Onafowokan, managing director and chief executive officer, Coleman Technical Industries Limited, said the project was a response to the Federal Government's call for rapid development of digitalisation penetration in Nigeria and the drive for local content development.

He added that the plan is first to build capacity for Nigeria and then West Africa, Central Africa and 50% of the African continent, making Coleman the biggest fibre optic cable factory in the African continent.

Dapo Abiodun, Ogun State governor, said, "The manufacture of fibre optic cables locally will aid the deployment of information communication technology in the different sectors of the economy. It will boost tech innovation, advancement in teaching and learning processes in our academic institutions, improve medical care, improve ease and access to data information and enhance internet connection."

He added that the commissioning of the factory would go a long way to conserving scarce foreign exchange, promoting tech transfer, generating employment and alleviating poverty.

5G subscriptions in MEA to exceed 250mn by 2026, says Nokia

NOKIA HAS ANNOUNCED research forecasting that 5G subscriptions are expected to reach 263mn in the MEA region by 2026. The 5G subscription growth will primarily be in Gulf Cooperation Council (GCC) countries, including Saudi Arabia, the UAE, Qatar, Oman, Kuwait and Bahrain. Additionally, subscribers in South Africa, Nigeria and North African countries will increase adoption following the release of new spectrum.

Photo: Adobe Stock

5G and 4G together are expected to drive more than 90% of data traffic in MEA.

This trend is triggered by the increasing use of high-bandwidth consumer applications and industrial use cases.

The Nokia MEA Broadband Index Report I (part II will be published in 2023) provides valuable insight, data and analysis on mobile broadband subscribers, coverage, ARPU and traffic growth in the MEA region, as well its respective sub-regions: GCC, southern Africa, North Africa, Middle East, and central East West Africa. The report has been created based on Nokia's intelligence, as well as data from third-party sources, GlobalData and Tutela.

In GCC countries, 5G technology will dominate, with the subscriber base reaching 64% of the total and with data traffic likely to surpass 70% by 2026, according to the study.

In Africa, 5G technology adoption will grow steadily, driven by the evolution of the device ecosystem and 5G spectrum allocation in many countries. While 4G subscribers in the southern Africa region are projected to reach 105 million (58% of total subscribers) by 2026, 5G will contribute more than one-fifth of data traffic in the same time-frame.

North African operators have seen a high demand for mobile broadband and the region is expected to have a 20% increase in total subscribers by 2026, compared to 2022.

In central East West Africa, today more than 60% of the total data traffic is carried by 4G. This traffic is expected to grow four times over the next four years. At the same time, 5G subscriptions are expected to account for nearly 10% of the total mobile subscribers in this period.

The study also reveals that 5G and 4G together are expected to drive more than 90% of data traffic in MEA. Total data traffic is expected to increase significantly in the next four years, with a compound annual growth rate of 35%.

Network International partners Infobip in banking services deal

LEADING DIGITAL PAYMENT solutions provider Network International has announced it will bring WhatsApp for Business banking services to financial institutions across Africa through a landmark collaboration with Infobip.

The full-stack cloud communications company is one of the world's largest providers of A2P SMS services and will support Network International in its commitment to financial inclusion across Africa.

In addition to helping financial institutions reach their customers through a familiar and reliable channel, the agreement will help them deliver world-class support and seamless services in a personal, timely, and reliable manner.

Nomanini launches digital retailer solution

NOMANINI, A FAST-GROWING fintech platform in Africa, has launched a new supply chain finance solution called StockNow that connects fast-moving consumer goods (FMCGs) and financial service providers to serve Africa's informal retailers at scale.

StockNow, an easy-to-use app for retailers developed by Nomanini, makes it possible for informal micro and small retailers to purchase stock digitally.

Ten million informal retailers in Africa are reached by global FMCG value chains but lack access to responsible and affordable finance solutions to keep their shelves stocked to attract customers and grow their businesses.

The StockNow app connects informal retailers to distributors of global fast-moving consumer brands relevant in the general trade market, enabling them to purchase goods using stock advances to keep their shelves stocked with essential goods, ensuring business continuity and support for last-mile consumers.

As sole proprietors, retailers in the informal sector require stability, and working capital solutions such as the StockNow app, which is available on android devices and feature phones, can provide greater resilience and a buffer against shocks. StockNow will also enable them to build a stronger financial track record and trade with more confidence and volume over time.

Going live in Tanzania with key partner Nestlé ESAR, the launch of StockNow has formalised the relationship enabling a more strategic approach to alleviate some of the challenges experienced by retailers in Africa's general market.

Vahid Monadjem, CEO of Nomanini, commented, "In response to challenges we saw retailers face during the pandemic and related lockdowns, we established the opportunity to accelerate the development of our digital working capital solutions to provide tools to help retailers keep their shelves stocked with essential goods."

StockNow is now live and being rolled out to thousands of informal retailers in Tanzania, with plans underway to scale the solution across the continent from Mozambique to Uganda and from the Democratic Republic of Congo to Egypt.

IoT agreement targets Mozambique

LEADING SOUTH AFRICAN technology pioneer IoT.nxt and Vodacom Business Mozambique have officially launched in Mozambique. IoT.nxt offers disruptive and innovative Internet of Things (IoT), edge computing, data visualisation and machine learning solutions through its award-winning platform.

Photo: IoT.nxt

IoT.nxt's technology allows for easy data integration, device interoperability, and reduced human intervention.

The company specialises in rapidly connecting physical and virtual assets, devices and actors at scale to deliver insight and control.

Shane Cooper, COO of IoT.nxt, said that the introduction of the partnership will drive significant growth and development, leveraging IoT.nxt's deep experience across Africa. "Although business needs are similar around the world, there are more particular challenges to overcome. Remote and tough-to-access facilities, limited connectivity and the precarious state of infrastructure are factors to consider when deploying solutions. The introduction of our technologies and our industry know-how has produced impressive results and we are confident that we can deliver the same value to clients in Mozambique."

He added, "Our close partnership with Vodacom Business offers our clients extended benefits of extensive network capability, reach, and local business partnerships to complement what we provide. Together we believe our proposition is compelling as together we will offer end-to-end solutions with an in-country presence."

IoT.nxt's technology solutions allow for easy data integration, device interoperability, and reduced human intervention in high-risk areas of operation. This forms the basis for delivering cutting-edge innovation, focusing on operational process digitisation and business modernisation.

More space for mobile broadband

What can satellites offer end users in remote areas that isn't possible by conventional cellular networks? The answer to his question could be highly relevant to the future of mobile broadband in many parts of Africa. Two companies with distinctive approaches to the problem discussed their solutions with Vaughan O'Grady.

Case study: a managed service for rural connectivity

There are many barriers impacting connectivity across Africa, ranging from high licensing fees to prohibitive installation costs due to harsh terrain that is difficult to access.

Satellite communication service provider Avanti, a leading Ka-band high-throughput satellite capacity partner, is trying to improve this situation through Avanti EXTEND.

Avanti EXTEND is a managed service for rural connectivity that provides high-performance and cost-effective 2G, 3G and 4G solutions to remote and hard-to-reach areas across sub-Saharan Africa. This enables MNOs and tower companies to provide reliable cellular service to the 100 million people living in these challenging locations that would otherwise be impossible to reach using traditional terrestrial infrastructure.

Using this service mobile operators can reach small communities who have never had coverage. Many of these new users are existing mobile phone owners who use the service outside their community for trading and in the workplace.

Avanti EXTEND helps to remove the current barriers prohibiting the roll-out of rural connectivity across Africa, by providing high performing, and cost-effective solutions, leveraging Avanti's technical expertise, high-throughput Ka-band, and proven ability to roll out thousands of sites across sub-Saharan Africa and Europe.

As Libby Bar, chief operating officer at Avanti, explained, Avanti EXTEND is a managed satellite network service that provides the physical, transport and network layer for transmission of cellular backhaul traffic to and from cellular towers and connection back to an MNO's core network.

EXTEND's built-in and fully operational capex solution integrates seamlessly into MNOs' terrestrial networks to reduce network complexity and increase efficiency. It also offers the opportunity for MNOs and tower company partners to undertake large deployments quickly and effectively, and scale operations to support long-term rural expansion with no additional capex.

"This," she said, "removes the need for our partners to manage satellite configurations, hub infrastructure or terrestrial networks to deploy a successful satellite cellular backhaul topology."

Photo: Avanti Communications Group plc

Libby Bar: "Voice demand remains high in underserved regions, so 2G is key"

It's worth mentioning that Avanti EXTEND supports the delivery of speeds for 2G, 3G and 4G services up to 100Mbps downlink and 25Mbps uplink and is already operational in many of the company's markets, integrated with multiple RAN providers for 2G and 3G services.

Of course, as Bar pointed out, "Voice demand remains high in these underserved regions, so 2G is key for success in ultra-rural delivery."

However, the company is also working with partners in the industry to accelerate the global rollout of 5G, and help establish a strong digital infrastructure in Africa.

"For example," she said, "Avanti recently launched INSTANT5G, a global research project endorsed by the European Space Agency, UK Space Agency and the Romanian Space Agency, to investigate how to extend 5G coverage via integrated satellite and terrestrial communication."

The research will be used to help MNOs and tower companies extend their 5G network coverage, a move which will ultimately provide more people around the world with reliable cellular service.

And Africa is an important part of Avanti's plans – partly because of an obvious need Avanti can meet. "Across the globe there are currently 3.7 billion people living without connectivity," said Bar. "This is a particularly prominent issue across Africa, in rural communities where terrestrial networks are limited. Our mission is to work in partnership with the people of Africa to empower growth, protect communities and unlock opportunities for individuals, businesses and governments by creating better connections across the continent."

To help power growth, the company has committed 75% of its total investment to help connect the continent. "As the number one high throughput satellite company in Africa, Avanti has established teams throughout Nigeria, South Africa, Kenya and Tanzania. We also have plans to deploy cellular backhaul sites in several other countries across Africa, including Ghana,

Ivory Coast, South Africa, Namibia, South Sudan, Kenya and Tanzania."

Case study: the first space-based cellular broadband network

Demand for mobile connectivity increases every year, both in terms of throughput and coverage. Meanwhile, at any moment, hundreds of millions of mobile phone users leave cell site coverage areas as they live, work and travel.

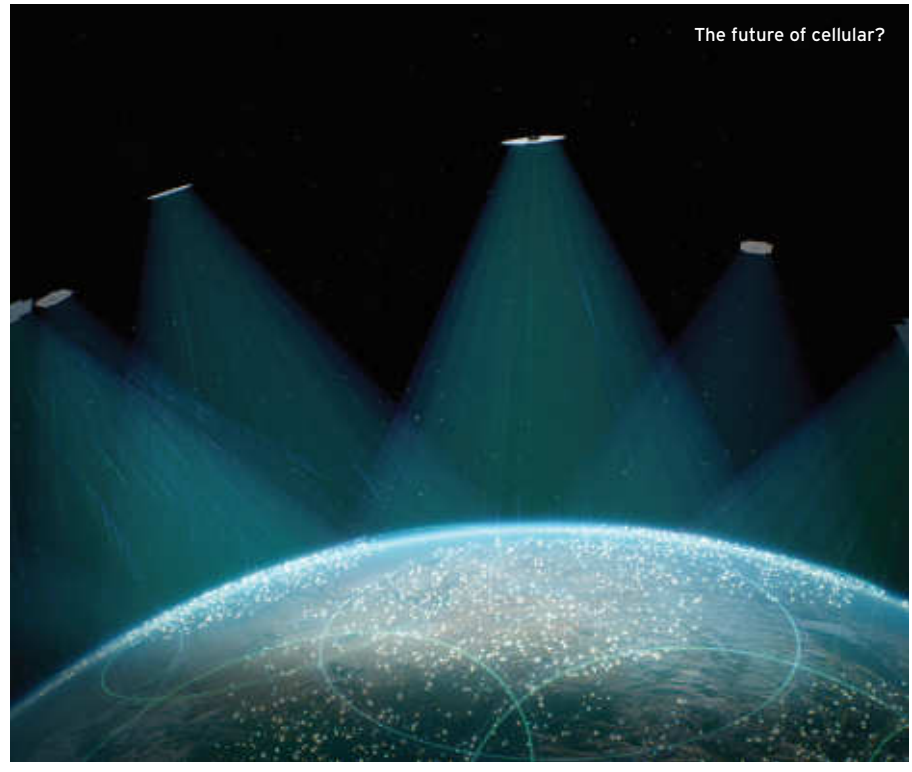
Satellite technology can provide ubiquitous coverage where traditional wireless networks can't, especially in regions where geography presents extreme challenges to building out ground infrastructure.

Scott Wisniewski is chief strategy officer for AST SpaceMobile, a satellite communications company unlike any other. He told us, "Our planned low-Earth-orbit (LEO) satellites, called BlueBirds, are being designed to leverage cellular spectrum already licensed by mobile network operators (MNOs) and connect directly to the more than five billion mobile phones in use today. This differs from existing satellite connectivity solutions, which require that users buy either a specialised phone or antenna dish."

AST SpaceMobile is, essentially, building the first space-based cellular broadband network accessible directly by standard mobile phones – and thus, it says. closing connectivity gaps all over the world. "Our satellites are being designed to be 3GPP-compliant with 2G, 4G, and 5G," Wisniewski explained. "This means phones, IoT devices, and other devices that work with terrestrial cellular infrastructure would be compatible with our planned network. However," he added, "our technology is designed to be flexible, and we anticipate new potential markets and use cases could be offered to users through MNOs."

With a LEO network, the company also has the flexibility to launch additional satellites to address increased demand or next-generation cellular standards.

It's certainly impressive, but is this is a viable business model – both for AST and for end users? Wisniewski said, "We believe we can address numerous opportunities within the wireless services market, which globally sees more than US$1tn of annual revenue. As part of that work we have secured more than 20 agreements and understandings with MNOs." This gives AST potential access to over 1.8 billion mobile customers.



The future of cellular?

Photo: AST-leo-constellation

"Our satellites are designed to be 3GPP-compliant with 2G, 4G, and 5G"

He continued, "We expect our service will be attractive to those users who live, work, and travel in and out of terrestrial cellular coverage, as well as those in rural areas."

This is a big market. According to GSMA data, approximately half of the world's population does not have cellular broadband, and nearly half a billion people have no cellular coverage at all.

Thus, the SpaceMobile network is planned to be a mass-market consumer offering through MNOs, targeting consumers who increasingly prioritize connectivity above other household purchases.

Wisniewski said, "The overall unit economics of our satellites, and our approach, leveraging existing mobile phones, allows for us to price our service attractively to various types of end users and use cases across cellular services including voice, text, video, and internet."

Getting to this point hasn't been simple of course. To answer the challenge of satellite direct-to-phone cellular connectivity with no modifications to handsets, AST had to develop a new type of satellite: one large enough to connect with phones hundreds of miles away, yet launchable to low Earth orbit.

It may come as no surprise that as Wisniewski explained, "Our proprietary technology is supported by over 2,300 patent and patent-pending claims. We also aim to design and manufacture our own satellites, which allows us the benefit of vertical integration, while taking advantage of mass production to lower costs at scale."

And Africa represents a significant opportunity to not only expand coverage to existing subscribers, but also help introduce cellular broadband service to wholly unconnected populations.

Wisniewski said, "We have signed agreements or memoranda of understanding with MNOs that serve subscribers across the continent, including Vodafone, MTN and Orange. Despite it being early days on the regulatory front, we remain active globally, both independently and together with the MNOs, in targeting approvals for testing and commercial service."

And the first markets are close to being addressed. "We are licensed for initial market access in six countries across Africa and Asia, of which Nigeria is the largest in terms of population." ✆

Photo: AST-leo-constellation

Africa's data centre energy use challenge

Can we really build 'net zero' data centres in Africa? Craig Blankers, regional director, WSP in Africa, is hopeful. He told Phil Desmond about some of the opportunities that alternative power sources and more efficient use of energy can offer an industry already under fire for being far too power-hungry.

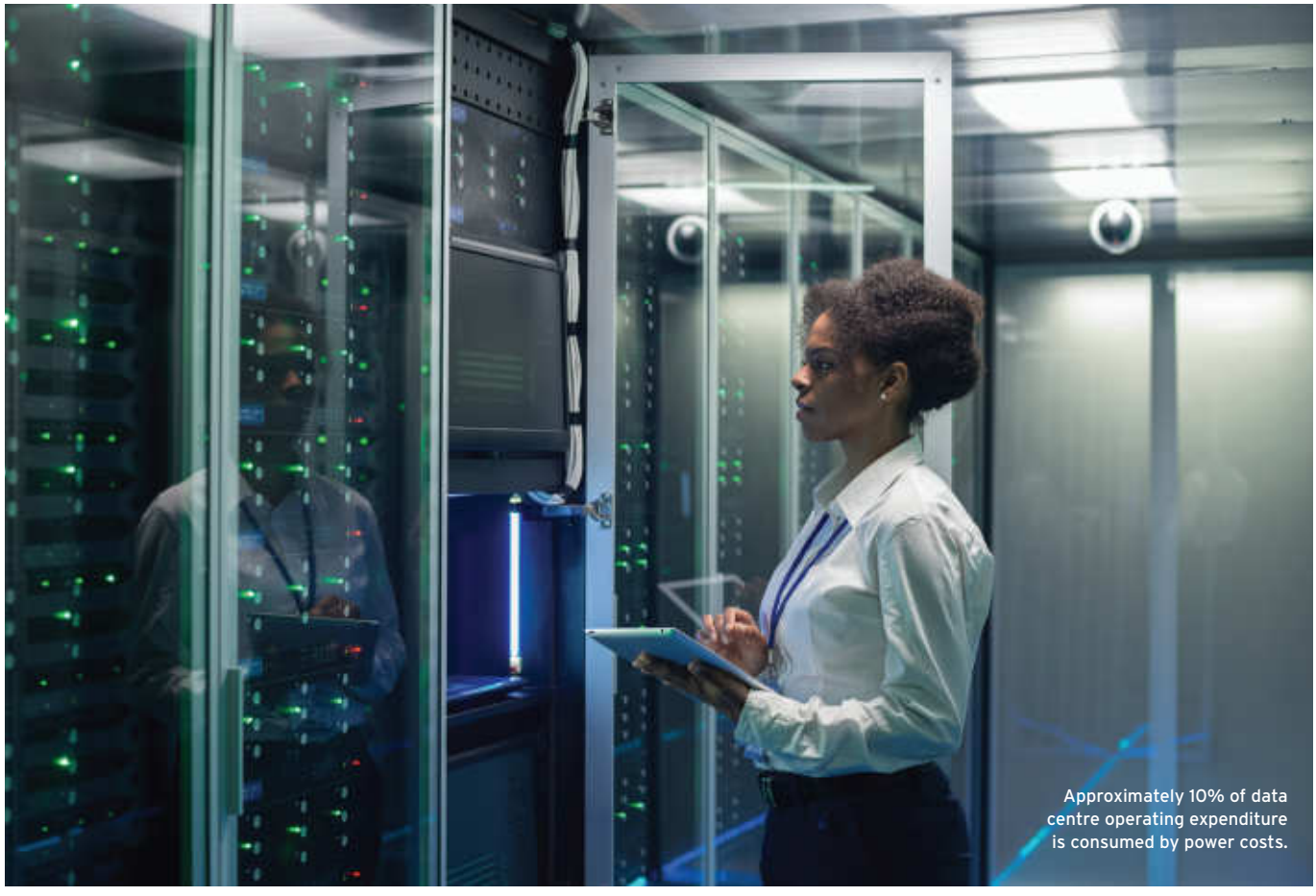


Photo: Adobe Stock

Approximately 10% of data centre operating expenditure is consumed by power costs.

DEMAND FOR DATA centres is increasing. Africa alone needs 1000MW and 700 facilities to meet growing demand. Much of the continent's capacity remains in South Africa but other countries are beginning to attract attention.

Data centres are not as power-efficient as many would like. Approximately 10% of data centre operating expenditure is consumed by power costs. In Africa, unstable power supplies that are still heavily fossil fuel-dependent and increasingly expensive are posing a significant challenge for the data centre industry to contend with.

But Africa's potential for producing renewable energy is vast. The challenge is space, which is not readily available in urban centres.

WSP is a globally recognized professional services firm that has examined the question of powering data centres in some detail. Craig Blankers, regional director, WSP in Africa, said, "Despite modern advances, data centres remain extremely power hungry." He cited research and consulting firm Gartner, which suggests that approximately 10% of a data centre's operating expenditure is consumed by power costs.

What are the traditional power sources that would be used in Africa? "Across the continent, unstable power supplies are still heavily fossil fuel-dependent and increasingly expensive. This has resulted in many organisations turning to gas instead of diesel as an alternative form of power supply."

> **"If there is one thing all South Africans are acutely aware of then it is the unreliability of the power grid"**

Of course some form of energy-efficiency is likely to be 'designed-in' in the future. Nevertheless, it remains tricky to embrace the concept of net zero design. "One of the best ways this can be pushed for adoption is if it is mandated or governed," suggested Blankers. "This will require a data centre to be designed with a certain capacity for consumption. Already, office buildings must comply with specific KVA usage per square metre. This is essential for data centres but must be driven by government."

However, he added, you cannot manage that which you do not measure. Power usage effectiveness (PUE) is a metric that has become the industry standard for measuring how efficiently a data centre uses energy. "This sees data centres deploying heating, ventilation, and air conditioning (HVAC)

technology that will deliver a low annual average PUE," Blankers explained.

But there's another issue. Data centres cannot neglect their water usage. This is an area in which South Africa and the rest of the African continent is still lagging behind. However, it has started gaining global momentum. As Blankers put it, "It is not just about PUE but also about water utilisation. Ultimately, the data centre must be designed with the most optimal energy-and-water-efficient design possible."

But what can be done with older, legacy data centres to improve energy efficiency? For retrofitting legacy data centres, there have been advances in design and new technologies that promote, among other things, energy-efficient cooling solutions and lower losses on power infrastructure.

Of course another big issue is existing power grids. This also has an effect on sustainability. Blankers said, "If there is one thing all South Africans are acutely aware of then it is the unreliability of the power grid. It is no longer sustainable to use especially when it comes to still being reliant on coal-based power stations. The more data centres rely on the grid, the less sustainable they are when it comes to power usage."

Given that power grids may not be reliable in many African countries another attraction of renewable energy is that it can be independent. Adopting an alternative energy model that comprises a tri-generation plant using natural gas to power the data centre and going off grid can result in significant opportunities to lower demand on available power and water resources. Being able to operate independently from the grid will also result in data centres significantly reducing their carbon emissions while having resilience against uncertain service delivery.

So what alternative power sources can Africa offer? We've heard of, and written about, solar, but are wind, hydropower, gas flaring and other sources of power viable or being considered?

On solar Blankers said, "South Africa receives more than 2,500 hours of sunshine per year, with average solar-radiation levels ranging between 4.5 and 6.5kWh/m2 in a single day. The country's average solar radiation of about 220 Watt per square metre is more than double that of Europe (100 W/m2). But despite this, putting solar panels on the roof of a data centre will only provide sufficient power for the support services of the building."

Which may explain why the Northern Cape has become such a hotspot for solar power plant investments. Not only is the area ideal when it comes to its solar power generation potential, but also the space is available to create larger solar catchment solutions. You cannot build a solar farm in the middle of Johannesburg and have it power a data centre like you can in the Northern Cape.


Photo: Adobe Stock

The Northern Cape is ideal when it comes to its solar power generation potential.

Andrew Galbraith, director: power, WSP in Africa, added "But for this to work, the transmission infrastructure in the Northern Cape must be expanded to allow additional solar projects to come online. With solar still seen as a variable power generation supply and not a base load, Eskom still needs to provide spinning reserve."

Wind is also becoming more prevalent in the later REIPPP (Renewable Independent Power Producer Programme) rounds. Galbraith explained, "This can be seen as complimentary to solar as it may operate outside of the usual daylight hours, sometimes late at night or early in the morning when solar is not available."

Something that could complement renewables would be additional pump storage schemes. The South Africa power utility Eskom describes pump storage thus: "A pumped storage scheme consists of lower and upper reservoirs with a power station/pumping plant between the two. During off-peak periods, when customer demand for electricity has decreased, the reversible pump/turbines use electricity from the national grid to pump water from the lower to the upper reservoir. During periods of emergency or peak demand, this water is allowed to run back into the lower reservoir through the turbines to generate electricity. In this way, the potential energy of water stored in the upper reservoir is released and converted into electricity when needed."

Pump storage schemes, Galbraith said, "will use cheap solar power during the day (pump mode) and provide peak power at night (generation mode). Eskom already has pump storage in its fleet but that is likely not sufficient."

So there are a number of options, but regardless of whether a data centre is using solar, wind, hydropower, gas flaring or any other renewable, everything must be manufactured and transported to the country. That means, said Blankers, "data centres must understand the entire movement of the supply chain in their quest to become net zero. After all, what does it help to have a solar or wind farm if the hardware is still manufactured in a coal-based factory and transported via diesel-powered ships to get to the country?"

Returning to where data centres are sited, in many African countries, the need to avoid latency may mean siting many data centres in cities. If power is remote, can that be effectively used?

We need a consortium of engineers, green scientists, and other specialists to create standards they can take to companies investing in green data centres

Continued on page 18

The IoT effect: new ideas for agriculture, mining, retail and more

Could Africa embrace the Internet of Things (IoT)? Some people would argue that it has already started to, given that an established event - IoT Forum Africa - has come to the continent and is taking place once again next year. Abe Wakama, IT News Africa, organisers of the show discussed some of the issues this show is likely to address with Ron Murphy.

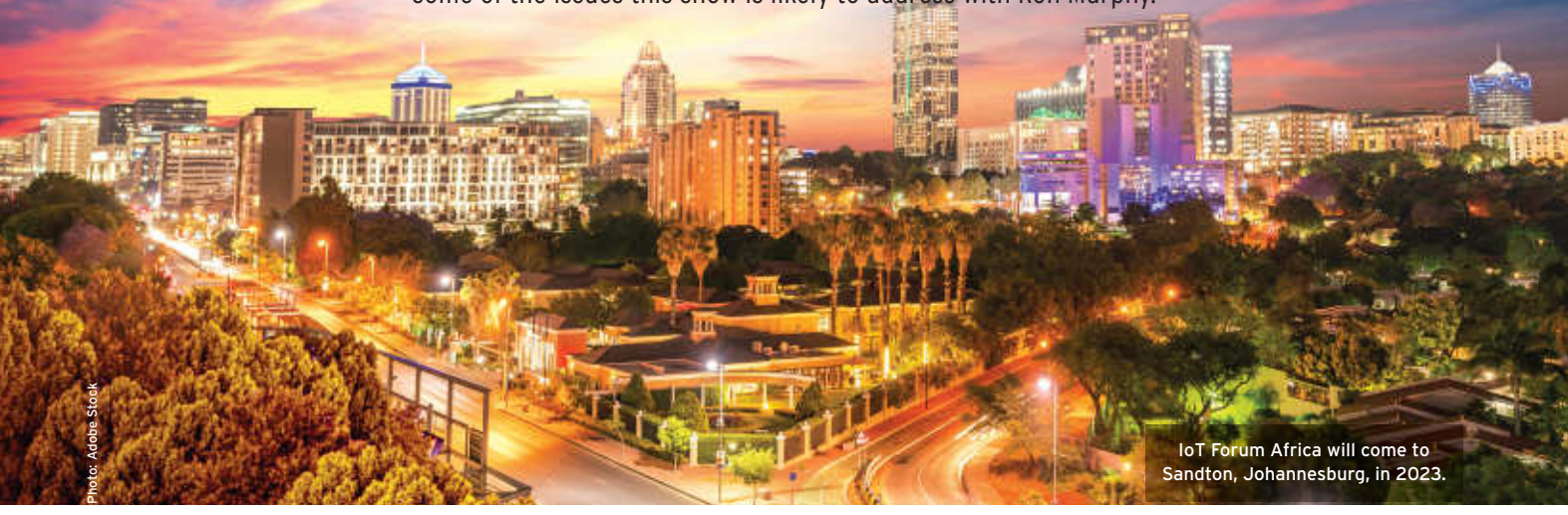


Photo: Adobe Stock

IoT Forum Africa will come to Sandton, Johannesburg, in 2023.

THE PROMISE OF the Internet of Things (IoT) – the interconnection via the internet of computing devices embedded in everyday objects, enabling them to send and receive data – may still be unfulfilled but its potential is undeniable in many regions. And that includes Africa.

In fact there's already a major IoT event planned for Africa next year. Taking place at The Maslow, a business hotel located in Sandton's financial district in Johannesburg, IoT Forum Africa is described as the premier African event on the Internet of Things.

Preparations for the 2023 event, taking place on 29 and 30 March, are already under way with the stated aim of "Exploring the latest challenges, opportunities and innovations in IoT and finding out how IoT can deliver unprecedented intelligence to drive performance, growth and profitability".

With this in mind, the show promises a chance to engage with 300+ senior executives, entrepreneurs and solution providers bringing together business leaders, government functionaries, IT decision-makers, technology service providers and IoT experts to equip attendees with the knowledge and tools needed to plan and implement successful IoT projects.

This is reflected in the agenda, which will present a series of top-level keynotes, interactive panel discussions and solution-based case studies. The 2023 topics include all the popular IoT industry buzzwords such as industrial IoT, IoT strategy, big data and IoT, smart cities, ethical IoT, and cybersecurity.

Abe Wakama of IT News Africa, which provides insight into enterprise IT trends, innovation and technology in Africa and is staging the event, told us more about the expectation for IoT underpinning the event.

The obvious question is: What stage has the IoT reached in Africa? As Wakama said, "The Internet of Things is quickly catching on across major industries in Africa. From agriculture and mining to retail, the IoT is changing how business organisations operate on the continent."

> **"The IoT is changing how business organisations operate on the continent"**

As for the country staging the event, a place where IoT rollout is well under way, he said, "According to recent statistics, the South African IoT market size is expected to grow from US$4,977.8mn in 2022 to US$31,558.9mn by 2028, and according to the IoT Industry Council of South Africa, IoT is anticipated to reach an installed base of 21.5 billion active, connected devices by 2025."

However, this rapid adoption comes with many challenges. Wakama explained, "IoT Forum Africa will bring together public and private sector policy makers, IT decision-makers and service providers, to discuss the IoT opportunity, and find solutions to some of the key challenges brought on by the adoption of this technology. Some of the challenges include cybersecurity, big data, IoT skills, reliable connectivity and government policies."

Despite the optimism and excitement, IoT is still in its infancy in Africa. Why should companies be positioning themselves now for its rollout? The answer, it seems, is competitiveness. The IoT, when applied properly, can dramatically improve productivity and performance. Wakama gave some examples. "In the healthcare sector, medical practitioners can diagnose ailments faster by analysing data from wearable devices for instance; car dealerships can detect engine faults remotely and have them fixed timeously; petrol stations can use IoT to detect when underground tank levels are low, thereby triggering an order for additional supplies."

Thus, as he put it, "If you want to stay competitive in the fourth industrial era, adopting IoT is essential for success."

He touched earlier on the challenges IoT could bring. Which areas are likely to be problematic specifically for the African market? Wakama pointed out that when implementing IoT in the African market there are many factors that must be considered, "such as the availability of relevant skills, reliable electricity, the high cost of sensors and network devices, the challenges around securing your network and your data, as well as managing, analysing, storing and making sense of the large amounts of data generated by IoT devices". However, he added, "A lot of these challenges can be overcome with the right strategies – which we will discuss at the next IoT Forum Africa event."

As for areas in Africa he feels are suited to IoT, the short answer is virtually all industries, including the public sector. "However," he added, "key industries that drive African economies such as mining, oil and gas, banking and agriculture are in dire need of digital transformation. With the deployment of sensors and sophisticated data analytics, these industries would become a lot more transparent and efficient."

That implies the show's focus is on both the private (industry, factories) and public (smart services) sectors. Is that correct? "Most definitely," said Wakama. "The government has a major role to play, both from a regulatory point of view and in terms of implementation. That is why traditionally we've always had speakers

"If you want to stay competitive in the fourth industrial era, adopting IoT is essential for success."

and attendees from the public sector, discussing issues around smart cities, IoT for safety and security, smart traffic management and smart public infrastructure among other topics."

How can ubiquitous connectivity of devices benefit Africa?

Photo: Adobe Stock

So how enthusiastic is African government about the IoT? "We have found that African governments are quite keen to implement technology solutions to enhance service delivery, particularly in countries like Kenya, Rwanda, South Africa and Nigeria. The Lanseria smart city project in South Africa is a case in point. However," he added, "slow legislative processes and bureaucratic bottlenecks often keep government policy a few steps behind technology developments. Furthermore, the cost of deploying technology when there are so many competing needs in terms of access to healthcare, electricity and education means that governments always have to carry out a balancing act when allocating budgets – and unfortunately, technology often takes a back seat."

Still, things are likely to pick up now that pandemic restrictions have been lifted. What advances does Wakama expect in the African market by the time of the 2023 event?

"The deployment of IoT devices slowed down during the Covid pandemic for obvious reasons. With many African countries lifting restrictions, I expect to see investments in IoT projects ramp up again over the next six months to a year. I also expect IoT Forum Africa 2023 to be our biggest event yet." ✆

For more information on this event, and to register or sponsor, go to https://itnewsafrica.com/event/event/iot-forum-africa-2023

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Blankers said, "Of course, you cannot build a wind farm or hydro plant in the city centres of Johannesburg and Cape Town. Therefore there must be a more efficient way of transferring the power generated by remote locations to the data centre. After all, a data centre must have sufficient alternative power in place if it is to remain operational when the power goes out – without experiencing any delays in switching over." A potential answer comes in the form of improved storage techniques "New and efficient battery technologies that can retain the transferred power from these remote locations can be a significant enabler in this regard. It all comes down to storing the power generated by alternative energy solutions as efficiently and as long as possible."

Blankers noted that there is currently no set of industry standards for building 'green' data centres in South Africa. But could there be – and where could such standards come from?

One way forward is shown by the ASHRAE Standard 90.4 that is defining the path to energy efficiency compliance for data centres in the USA. Green standards similar to ASHRAE can be derived from industry professionals like WSP working with the Green Building Council of South Africa (GBCSA) and the Council for Scientific and Industrial Research (CSIR). "Ultimately," said Blankers, "we need a consortium of engineers, green scientists, and all other specialists operating in this space to create standards they can take to companies investing in green data centres."

Moreover, he suggested, "this must encompass everything from concept to execution, and then close-out. Furthermore, the standards created in this regard must also talk to how best to decommission these facilities when needed."

But the global shift towards net zero is driving the need for carbon reduction. This means standards are on the way for data centres. "Additionally," said Blankers, "we anticipate it also impacting on other commercial property spaces where green building has become a requirement for most major developers." He added, "It is easier to design a green building, whether a data centre or commercial property, from the ground up than trying to retrofit such a facility."

The key to a lot of this is South Africa. It's evident that South Africa is the leading data centre hub in sub-Saharan Africa. Will this bring greater pressure to bear on power generation and the need to look for alternatives? How ready is South Africa? Blankers agreed that there is definitely a willingness in South Africa to embrace change and adopt a different way of thinking when it comes to power generation and using alternatives. This is partly driven by load-shedding – the deliberate shutdown of electric power in a part or parts of a power-distribution system when demand strains the capacity of the system. Blankers said, "The continuous scourge of load shedding has had a significantly negative impact on the economy with many companies and consumers looking for ways to effectively go off-grid."

The upside is that this shift will place more emphasis on the role of architects and consulting engineers to continue to produce alternative and operationally cost-efficient designs that reduce energy consumption, reduce carbon emissions, and improve the overall operational efficiencies of new data centre projects. He added, "South Africa can certainly play a leading role on the continent and put in place best-practice solutions for others to adopt and customise according to their country-specific requirements."

And finally, what about WSP? What can Blankers' company contribute to the data centre energy efficiency drive?

"As an organisation that is globally committed to achieving net zero, WSP fully embraces the opportunity that the digital era holds and identifying ways for data centres to optimise their energy and water efficiencies while also using alternative methods of energy generation.

We are committed to working with our clients to rethink how data centres are designed, built, and operated with sustainability principles at their core."

He added, "This approach ensures that data centres not only perform well in today's context but are future-proof by design."

From sea to shore and beyond: the role of landing stations

What is the role of a landing station in subsea networks? Where should it be located? And how can it be secured? WIOCC's director of subsea networks, Verne Steyn, told Communications Africa more about the role of this very important terrestrial interface between the seaborne submarine cable and land-based telecommunication networks.

The Equiano cable being landed on the beach at Lekki, Lagos.

Photo: WIOCC

The Lagos landing station is very important in terms of the ongoing development and growth of the digital economy of Nigeria

WIOCC IS A leading player in the deployment of carrier-scale, future-proofed network infrastructure into Africa. Communications Africa asked WIOCC's director subsea networks, Verne Steyn, about the role of landing stations in general and its work with the Lagos landing station in particular.

Communications Africa: What is the technical composition of a landing station?

Verne Steyn, WIOCC's director subsea networks: Cable stations provide a terrestrial interface between the submarine cable, which is in the sea, and telecommunication networks on the land. The cable landing station (CLS) contains the equipment (power feed equipment or PFE), which powers the cable, which in turn powers the repeaters, which are spaced approximately 70 kilometres apart along the entire length of the submarine cable route.

The CLS is also an interface point where telco operators can connect terrestrial equipment and distribute data to their networks. The CLS has redundant grid supplies as well as redundant generators, ensuring that there are no interruptions to service. Redundant heating, ventilation and air conditioning (HVAC) systems control the temperature and humidity.

Network operations centres (NOCs) monitor and manage and configure the equipment in the cable station as well as monitoring the cable in the water/sea.

Communications Africa: How do you choose the land for a landing station?

Verne Steyn, WIOCC: The cable landing location on the beach is determined by several factors, bearing in mind the 25-year life expectancy of a submarine cable system. The following aspects need to be considered

- Marine protected areas (MPAs)
- The composition of the seabed
- The topography of the seabed
- Marine and terrestrial environmental impact and social assessment (EISA) criteria
- Security, military, ammunition deposits, wreck positions and archaeologically sensitive areas
- Shipping and fishing activities
- Seismic, tectonic or volcanic areas, canyons and alluvial flow
- Oil, wind farms and gas activities
- Other cable systems; cable separation is preferred to ensure redundancy
- Local, religious, tribal, business and privately owned land
- The distance from where the cable exits the sea into a beach manhole (BMH) and the physical cable landing station (preferably less than 15 km)

Communications Africa: What are the main technical and regulatory challenges involved in building a landing station?

Verne Steyn, WIOCC: The technical challenges include power, grid

supply, stability and availability; continual system upgrades as technology improves and the demand for data increases; and site security.

The various permits and licenses follow rigid and bureaucratic processes. Several governmental authorities, local government and municipal offices need to be engaged throughout the planning, installation and commissioning stages of landing and operating a cable system.

The landing station in OADC Lagos.

Photo: WIOCC

Communications Africa: How can the landing station be protected from the elements or vandalism?
Verne Steyn, WIOCC: There are three general sections of the landing station that need to be considered independently.

For the cable in water up to a depth of 50m, you need to consider:

- Cable protection. As the cable crosses the beach and enters the water, the cable is buried to a depth of two metres. The cable is protected with armouring; the closer to the shore the heavier the armouring. The cable is also encased in steel articulated pipes (APs) for an average distance of 500 m. This cable is jet-buried to a depth of 1.5 m (this is seabed determined). From this point seaward the cable is ploughed into the seabed at a depth of 2m, to a water depth of 1000m
- Spatial separation
- Vessels. The cable needs to be protected from fishing activities, dredging and anchor damage from large vessels
- The role of automatic identification systems (AIS). These manage vessel activities in the immediate vicinity of cable systems. Alarms and controlled zones are managed by dedicated personnel to protect the cable from maritime activities
- Cable awareness charts. These are distributed and communicated extensively through the various seabed users and local municipalities. Cable system routes are plotted on hydrographic charts.

When it comes to the land cable route from the BMH to the cable station you need to consider:

- The land cable, which needs to be buried from the BMH to the CLS. The cable is inserted into sleeves/ducts. The sleeves are encased in concrete in high-risk areas
- The manholes along this route. These have high-security covers and are lockable. Thanks to advances in technology the manholes often have tamper detection and electronic access control. Fibre strain technologies are employed to detect any activities along the entire route
- Cable awareness charts. These are distributed and communicated extensively through the various seabed users and local municipalities

For the cable station itself, remember cable stations are generally considered as national key points (strategic installations requiring tight security). These sites are secured by CCTV, perimeter fences, armed security guards, biometric access control, centralised access control, and restricted access to building rooms and equipment. Operating systems are protected via VPN and firewall technologies

Network operations centres (NOCs) monitor and manage and configure the equipment in the cable station

Communications Africa: Can you tell us a little bit about the Lagos landing station? Which areas will it connect?
Verne Steyn, WIOCC: WIOCC is proud to be Google's landing partner in Lagos for the Equiano cable, which was landed at OADC Lagos – the flagship data centre of WIOCC's subsidiary, OADC. OADC Lagos will become the largest Tier 3 data centre campus in West Africa. The initial phase will open in Q3 2022, with a further seven phases being deployed in 2023 and beyond. It will deliver 20MW site load across more than 7,200m² of white space – sufficient for 3,200 racks – when fully operational.

With 12 fibre pairs and a design capacity of 144 terabits, the Equiano cable brings roughly 20 times more international capacity than any previous submarine cable serving the region, and with it significant economic benefits to the country.

However, Equiano and the Lagos landing station are not the end of the infrastructure deployment – they are really just the start. To reach the whole Nigerian population, national and local fibre networks are needed to complement the submarine capacity. Data centres are needed in every city across the country, not just in Lagos.

In partnership with [aerial fibre optic network infrastructure and telecommunications services provider] Phase 3 Telecom, WIOCC is deploying a comprehensive, hyperscale national network, so that the benefits brought by landing the Equiano cable at the landing station in Lagos can also be realised throughout the country.

WIOCC is also investing in expanding its metro area fibre network in Lagos in partnership with [Nigerian company] Western Telecom and Engineering Services to support local operators in delivering hyperscale capacity to end users.

Communications Africa: Finally, are landing stations evolving technically? Is there an upgrade roadmap for, say, more capacity or new delivery technologies?
Verne Steyn, WIOCC: Submarine cable systems are at the forefront of telecommunication technological evolution. Submarine line terminating equipment (SLTE) determines the system throughput. Various factors determine the next generation of SLTE, including modulation techniques (SDM).

With the advent of open access cable, the network operator can allow SLTE equipment from other vendors to be installed and co-exist on the system.

There are challenges too. Various drivers such as the metaverse, emerging devices, blockchain, digital retail and sustainable living will also come into play, forcing SLTE manufacturers to adapt. Other drivers are pressure from over-the-top customers (OTTs) and technical convergence.

Among positive trends, specialist transmission hardware companies offer versions of their everyday line transmission equipment, along with minor tweaks, making the hardware suitable for SLTE use.

As for mapping the future, predictable roadmaps are driven by the demand for data and thus may be determined by extrapolating the trend. ✆

Moving workloads closer to the customer

Africa's edge data centre leader, Open Access Data Centres (OADC), recently announced deployment of the continent's first large-scale, open-access edge data centre environment, OADC Edge, in South Africa. OADC CEO Dr Ayotunde Coker told Phil Desmond how this could benefit cloud service providers.

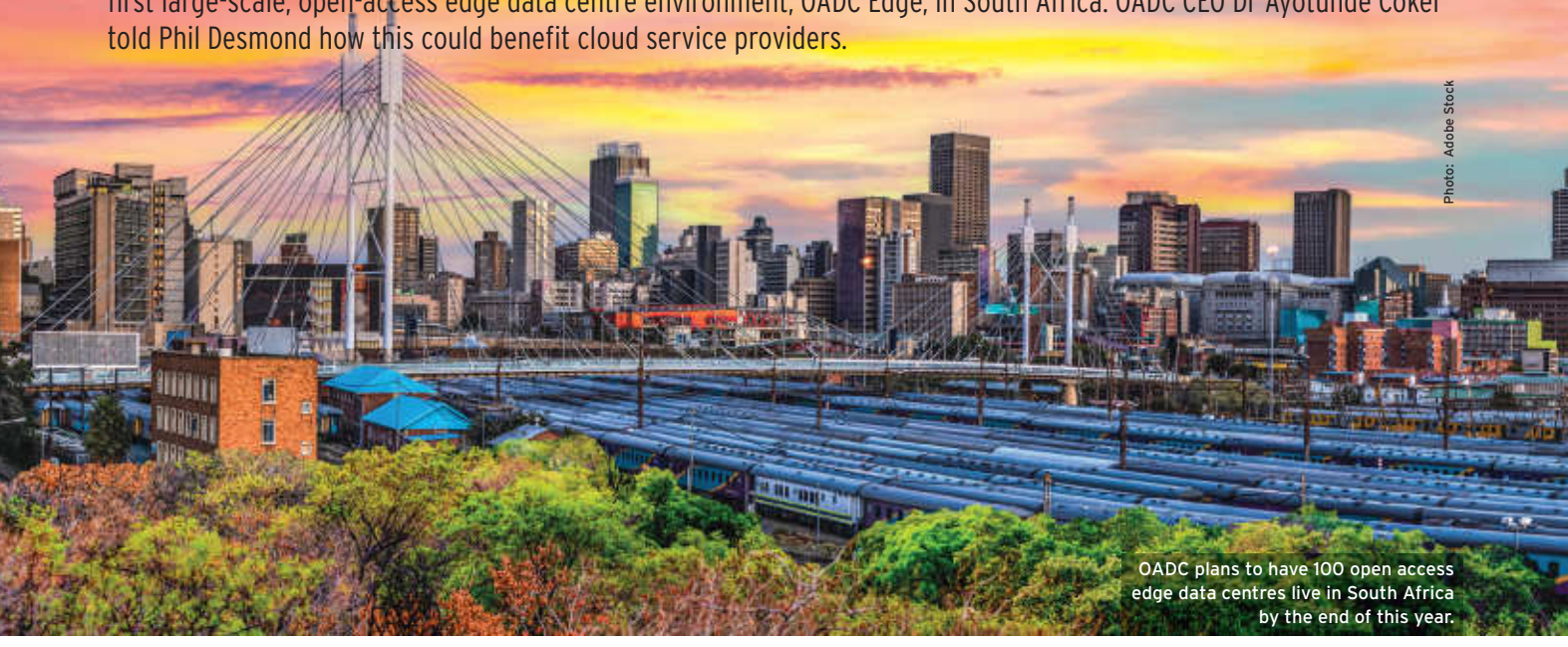


Photo: Adobe Stock

OADC plans to have 100 open access edge data centres live in South Africa by the end of this year.

OPEN ACCESS DATA Centres (OADC), a major name in edge data centres in Africa, says that as part of its deployment of the continent's first large-scale, open-access edge data centre environment, OADC Edge, 26 open access edge data centres were live in South Africa by late August – and 100 will be live by the end of 2022. It's part of a strategy that combines core data centres and OADC edge facilities and is the first step in a wider rollout of OADC Edge across Africa.

We asked OADC CEO Dr Ayotunde Coker to explain how OADC Edge works, how could it benefit Africa and what it might mean for cloud service providers.

His company is building world-class, carrier neutral, Tier III, hyperscale specification data centres at core locations. These are essentially the 'mega-edge' linking other global data centres into key interconnection and scale points in Africa such as Nigeria and South Africa.

These will be supported by mid-size – typically 200-rack – data centres in key metros that drive flexibility further into the edge.

As for the growth in importance of the edge, Dr Coker explained: "With the growth of 5G and the demand we anticipate for delivery and processing of data closer to the point of origin or consumption, we are implementing a network of 'edge' data centres, with over 20 already operational in South Africa and more in planning and deployment."

And it won't end there. "The same architecture will emerge in Nigeria, and we will rapidly expand it to other countries on the continent, bringing our clients the benefits of a comprehensive and unique edge-core to edge architecture across Africa."

He added, "We are also in the unique position of hosting multiple landing stations for the 2Africa and Equiano cables at various landing locations on Africa's Atlantic and Pacific coastlines."

How then do OADC's facilities support cloud providers in extending their businesses further into Africa? In fact the same consideration – distance – tends to apply. Coker explained, "Given the practical implications of latency and increasing enforcement of data sovereignty laws, the major cloud, content distribution and content providers are having to move workloads closer to the customer, with distribution further into the edge offering considerable advantage for specific applications and services. We are building the specifications of data centres to meet that demand."

He continued, "Edge services connect clients to the core carrier-neutral data centres whilst delivering particular services closer to the point of use, often for cost and/or performance and therefore customer experience optimisation."

> **"Edge services connect clients to the core carrier-neutral data centres whilst delivering particular services closer to the point of use"**

As for the delivery of cloud services in Africa, he said, "The anecdotal evidence is the increasing footprint being established in South Africa by providers such as Microsoft and AWS, with similar activity emerging in locations such as Nigeria and Kenya."

So does this mean that cloud providers could be a growth market for OADC's services in the coming years? Dr Coker looked back in time to another technology to explain why this might be the case. "The analogy that supports growth expectations for cloud in Africa is the rise of mobile telephony over the last 20 years, given the innovative pay-as-you-go business model that has been well implemented across the continent, and the growth we have seen, in particular in Nigeria, which dominates in the number of registered mobile users on the continent."

With this in mind Dr Coker has coined a term for the way Africa operates: 'the sachet economy'. He explained, "Most earn on a daily basis and spend day-to-day, week-to-week as required. Given mobile penetration and increasing broadband penetration, cloud services will deliver services at the point of use to individuals, micro/small medium enterprises and corporates on a pay-as-you-use/pay-as-you-go basis. Given the analogy of the growth of mobile telephony, cloud is poised for significant growth over the next three-to-five-year timescale." ✆

Taking Bluetooth to the shops

Bluetooth technologies are known mainly for short-range wireless connectivity and used, quite often, by music fans connecting wireless headphones to a music player. But can they offer more? Ron Murphy looks at Bluetooth beacons.

BLUETOOTH HEADPHONES ARE well-known. But other uses of this short-range wireless technology have been developed over the years. One of the most interesting, albeit it has still not gained major international traction, involves what are called Bluetooth beacons.

These beacons are very small, fairly low-cost (around US$25 – or much less in bulk), very low-powered devices that send out one-way messages to nearby smartphones and tablets, messages containing a small amount of data.

One estimate suggests beacons can have a range of up to 70 metres. That, however, is when there are no walls. As we will see, range may not be an issue when they are deployed – as they are likely to be – in confined areas, especially areas where shopping is done.

So why are they useful? Well, if you're an airline or airport, beacons may help you to offer indoor navigation to get travellers to the correct gates quickly. If you're a shopping centre, using asset tracking and positional analytics means you can better understand customer habits. In most venues Bluetooth beacons can help you add value by sending out useful information, promotional material or alerts to user devices. Or rather they can help to enable this. A beacon simply transmits short identifiers; relevant apps need to be downloaded on the user's phone or tablet to make beacons' transmissions useful.

But in theory, app-supported Bluetooth beacons can be used to track people or assets, to send relevant ads or prompts in a store (for someone in a clothing, food or electrical department who might be interested in a new range, say), to offer information in a large building (for example to help people find out where they are or where they want to be), to aid check-ins at a venue, to support in-store campaigns and to offer interesting supporting content for shows and exhibitions.

Bluetooth beacons could even be used for epidemic risk mitigation. By utilising location and environmental information and interoperating with manual contact tracing, an appropriately designed system could increase the accuracy of contact tracing actions and may help reduce epidemic spread.

"If you're running a shopping centre, using asset tracking and positional analytics means you can better understand customer habits"

Photo: Adobe Stock

A new way to shop?

But retail sems to be the most popular use, at least for now – and especially in the US. That's because Beacon technology can add value to a shopping trip, through apps offering greetings, sales support, promotions, directions, customised loyalty programmes, relevant information about a product, enhanced customer service and more.

There are two good reasons why more retailers may choose over time to embrace this technology. Firstly, of course, it enhances a shopping experience that is being challenged by online retail. Secondly, retailers not employing beacon technology don't want to be left behind by those that are.

But again it's not just about retail. Properly managed, Bluetooth beacons can support services in a variety of venues, including airports, bars, conferences, hotels, museums, schools, stadiums, trade shows and much more.

Are there issues? Well, yes. You need a Bluetooth enabled app-capable phone –ideally a smartphone. A retailer, hotelier or venue owner needs to develop apps or content to make use of the signals Bluetooth beacons send out. Consumers need to want to embrace the technology and use it, especially in retail contexts.

And there's an investment to consider, though buying the hardware may be less costly than making and marketing the apps and content.

Another problem is that alternatives exist, like Wi-Fi. It's true that a venue's outlay on Bluetooth will be lower but some venues develop Wi-Fi as standard. However, to engage customers based on their location or to provide an indoor navigation experience, Bluetooth technology is arguably the best choice, offering greater location accuracy and a better in-venue experience while not draining batteries.

But is all of this relevant to Africa? Well, there's already a South African company using an Apple-designed approach to beacons, called iBeacons. The company is called, not surprisingly, iBeacon Africa and specializes in custom-developed Bluetooth beacon solutions. Then there's SovTech, a South African custom software development company providing a complete software design and development service, with a Bluetooth focus if required.

App developers also exist of course: one such is Pointblank, a full-service digital agency with a core team of specialists in Cape Town. iBeacon app development is just one of its services.

Despite these encouraging signs, growth in Africa may depend on smartphone adoption and disposable income. As Sovtech points out, retail stores that have employed beacon technology align their brand with advances in technology and are geared towards the growing trend of consumer use of the mobile phone.

But as we said, it doesn't need to be about shopping. Bluetooth beacons may find new markets we have not yet considered. ✆

More choice for viewers – more challenges for content providers

The arrival of digital terrestrial television in South Africa means more choice and better quality signals for viewers. But it will also challenge traditional, linear TV models more than ever before, as Megan Walker, a media strategist at digital marketing agency The MediaShop, told Vaughan O'Grady.

DTT will mean more choice – and changing viewing trends.

Photo: Adobe Stock

DIGITAL TERRESTRIAL TELEVISION (DTT) is finally coming to much of Africa. But what is DTT? Simply put, DTT uses a network of TV transmission towers on earth to transmit signals that are digital instead of analogue. DTT offers better picture and sound quality, more options (including additional channels) for consumers, and frees up the radio frequency spectrum for mobile broadband services.

This won't, incidentally, affect users of satellite TV. DTT and satellite television are simply different ways of broadcasting a signal. Satellite television broadcasts to a satellite dish. DTT uses transmitters on the ground to broadcast the signal, which you then receive using a TV aerial and set top box (STB).

But STBs are a challenge – one that South African DTT rollout is trying to address. When South Africa goes fully digital, everyone currently using a TV aerial will need an STB (also called a decoder), which will decode the digital signal. Without this there's no picture.

Hence the South Africa government's Broadcasting Digital Migration (BDM) plan and funding to help poorer households (about five million of them) get STBs. Signal distributors are being asked to roll out the digital network infrastructure on behalf of broadcasters. One such distributor is Sentech, a South African state-owned company and leading provider of electronic communications network services to the country's broadcasting and communications industry. The South African Post Office will disburse the subsidized STBs.

> **"In the medium-to-long term, the future for mobile device-based services should be good"**

That's good news for job creation, of course. The digital migration process will require people for the manufacturing, installation and repair of STBs and antennas as well as call centres for consumer support.

While the intended benefits of DTT include reaching unserved areas, and cheaper access to the internet, there's also a bonus in freeing up radio spectrum for mobile phone services. But it's taken a long time: the original International Telecommunication Union deadline for the changeover was 2015.

Things are changing now, but, as Megan Walker, a media strategist at digital marketing agency The MediaShop, told us, more TV doesn't always mean more opportunities for everyone. It's true that, with greater access to digital services and the internet on offer consumers will embrace non-linear or streamed viewing. "Consumers faced with choice and lowered costs or barriers to entry in general will take up that choice," she said.

They will no doubt welcome more streaming services and channels. However, advertisers may not as the audiences fragment. Walker said: "The overall TV universe is likely to decline, so achieving the same reach levels will not be possible," adding, "In fact we have seen this for some time now, even prior to the DTT transition."

This, she pointed out, is due both to the proliferation of content available for consumption and the fact that it can be consumed via multiple devices. Many of these

Continued on page 25

FTTT: effective, efficient, robust and resilient

What are the advantages of fibre to the tower (FTTT) connectivity? And how widely used is it compared to other approaches? Mohamad Darwish, CEO of IHS Nigeria told Ron Murphy how and why FTTT is an essential part of today's evolving networks.

AS MOBILE NETWORK operators (MNOs) continue to evolve their network and service offerings through a series of network upgrades towards 4G/5G, this is driving an increasing need for more robust transmission backhaul capacity with high throughput, availability and lower latency to support exponential growth in both voice and, largely, data services.

That need has affected all players in the market – including tower companies. Mohamad Darwish, CEO of IHS Nigeria and senior vice president and co-founder of IHS Towers, one of the largest independent owners, operators and developers of shared communications infrastructure in the world, explained, "MNOs require our sites to be supported with fibre backhaul infrastructure in order to fully deliver on the attributes of next-gen technologies installed at the sites and the services they support."

Fibre optic cable networks are replacing traditional wireless backhaul solutions, including microwave radios, VSATs and so on. Thus IHS has expanded its service offering to provide fibre-to-the-tower (FTTT) services to its MNO customers in Nigeria. "This is designed to help accelerate their time-to-market as we look to provide other ancillary communications infrastructure services that help generate incremental revenue and further augment our growth," he said.

As for what sort of equipment, apart from fibre optic cable, is involved, the IHS FTTT solution consists of both aerial and terrestrial build (underground) options. At the moment, a large part of deployment is through terrestrial build consisting of the fibre optic cable (FoC) installed in multiple high-density polyethylene ducts (HDPE) or steel pipes (GI pipes) in required areas that end at the sites. Manholes are installed along the routes with closures for fibre splicing at designated points, together with other protection elements such as the warning tapes and route markers for ease of maintenance and repairs.

Darwish added: "At the sites, we install optical distribution frames – ODF cabinets – for adequate fibre terminations and connection to customer equipment, as well as bespoke outdoor cabinets, with adequate cooling and power, to house active transmission and edge equipment. These are deployed by our customers at the site. Our aerial solutions have similar features but are strewn along existing power-line infrastructure belonging to transmission companies or those installed by IHS for its delivery."


Photo: IHS Nigeria

Mohamad Darwish, CEO of IHS Nigeria: "Where towers are connected to fibre, this offers higher bandwidth."

Obviously this hasn't always been the preferred approach. FTTT provides backhaul from IHS towers to an existing fibre connection that its customers use. Previously, this link would have been provided by microwave or copper cables.

Fibre is not the sole option, however. Darwish added, "Where towers are connected to fibre, this offers higher bandwidth. However, microwave or satellite links are likely to continue to be used in remote areas for seamless connectivity."

So is fibre future-proof or easily upgradeable as new bandwidth demands arise? Well, fibre is generally viewed as the most effective and efficient backhaul transmission solution and has remained so for decades. Improvements in optical fibre technology ensure that it is future-proof and continues to evolve in terms of resilience, capacity and throughput through constant modulation of advanced active devices that deliver hundreds of megabytes of transmission capacity over long distances of fibre connections.

MNOs, given their investment in active network equipment, have a preference for dark fibre solution

As for IHS, "We can customize our commercial models depending on the individual customer's preference and include multiple layers of connectivity options from passive (dark fibre) to active (IP and leased circuit services etc.). However, MNOs, given their investment in active network equipment, have a preference for dark fibre solutions and would typically procure multiple pairs of fibre core connecting one site to another. In addition, for lit fibre solutions such as SDH, IP, Ethernet services etc, we prefer to deploy equipment that is easily upgradeable to support the growth in capacity requirement by customers. In Nigeria, we have enormous expertise in FTTT, and we will continue to leverage these operational skills across our African portfolio, including in our two newest markets: Egypt and South Africa."

As for FTTT's specific contribution to Africa, fibre connected tower sites obviously enhance the delivery of broadband and other connectivity services that improve end users' access to critical next-gen digital services delivered through 4G/5G networks where available. Darwish explained, "These include financial inclusion and banking services, healthcare, education, e-commerce and an array of digital content."

Of course, with multiple subsea cable systems already connecting Africa, Latin America and the Middle East to the rest of the world, and the addition of high-capacity systems such as Facebook's 2Africa and Google's Equiano Systems, the continents need robust terrestrial backhaul and access cable networks to bridge the connectivity gap between the upstream capacity provided by these subsea systems and the services required to deliver to the consumers.

Darwish said, "Our FTTT assets serve as resilient backbone infrastructure for the delivery of these services and are providing fibre spurs for the extension of services to homes and

corporate organizations, thereby supporting the rapid expansion of African businesses with the potential to unlock the innovative potential of the continent."

But FTTT is far from ubiquitous – notably in rural areas. As Darwish explained, "In a perfect world, every tower would be connected to fibre, including those in rural and urban areas; however, given the significant cost, the number of towers connected with fibre will grow in tandem with demand."

He added, "As part of our strategy, we are already investing in rural networks and hope that these will drive digital inclusion in those areas and reduce urban emigration and pressure on city infrastructure, thereby helping to create new cities and new economies. We expect that more and more rural communities will ultimately get connected through fibre optic networks, but we are also aware that fibre connectivity in certain rural areas is likely to remain commercially impractical. In these areas, it may make more sense for our customers to use microwave or satellite solutions.

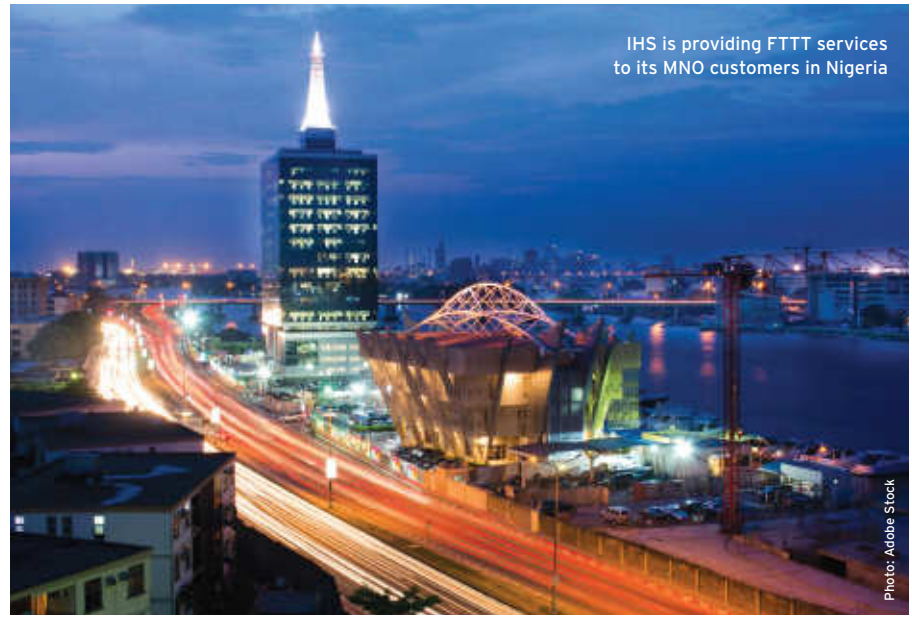

IHS is providing FTTT services to its MNO customers in Nigeria

Photo: Adobe Stock

Improvements in optical fibre technology ensure that it is future-proof and continues to evolve in terms of resilience, capacity and throughput

And finally what about IHS itself? Does it roll out fibre to the tower alone or work with partners?

"Both. In Nigeria, we have successfully rolled out FTTT alone, leveraging sub-contractors when it is optimal to do so. By comparison, in Brazil, we have partnered with TIM Brasil – one of the premier players in the market – to initially provide broadband services using fibre to approx. 6.4 million households through the new entity I-Systems, of which IHS has a 51% stake."

Darwish summed up, "Over time we intend to expand our network in Brazil to more homes and have the opportunity to connect the network to other locations such as towers. As we continue to roll out fibre across our markets we will look to leverage our operational expertise gained from Nigeria and Brazil." ✆

Continued from page 23

do not lend themselves to calculation of audience figures.

She continued, "As the competitive landscape increases in terms of the number of competitors – as it is likely to do following ASO (analogue switch off) completion – it is likely to make it tougher for broadcasters and streaming services to secure their portion of ad spend."

Money will follow audiences. Increased choice means increased fragmentation of audience and therefore increased fragmentation of budget. To encourage investment from advertisers, content providers, like any other industry, will need to service their consumers well in order to grow and retain audiences.

There's no switch-off for satellite TV, of course, but it may suffer in other ways. To remain successful, satellite TV, and any newcomers tempted by greater access via DTT will be affected by the quality of content they offer and the cost to access this content.

Walker explained, "The competitive landscape is going to see the number of ASO players increase and through the ASO options out there, consumers / viewers will be able to view free content for the small trade-off of watching a few adverts. That's a threat to any content providers."

Subscription services may be insulated from this threat – for a while. "Established players that have contracted viewers or subscribers have the benefit of the established relationship with their customers and with careful management can retain this viewer base, but they need to be aware that competitive offers with good content can threaten that position."

As for a market we've discussed for a long time in these pages, "In the medium-to-long term, the future for mobile device-based services should be good, particularly in a country – and indeed possibly a continent – where mobile device penetration is high, and the ownership of smartphones is increasing."

Data cost will play a part in this. "When DTT is a full-blown reality and the opening up of available bandwidth has indeed had the long-awaited effect of reducing the cost of data, then the uptake of on-demand content will escalate."

In the interim, there may be cell service providers that offer a video streaming service as a bonus to their subscribers, or as a means to entice new subscribers. "But," said Walker, "what would potentially be of more value to their customers would be a data 'allowance' each month, particularly until data costs reduce overall due to DTT and competitive market pressure."

Consumers will want to make and control their own choices and follow their preferred content

And consumers will want to make and control their own choices and follow their preferred content. A mobile operator pushing them into consuming its own on-demand video content may not be successful.

It's hard to deny that DTT is a major change, and media planners and strategists not embracing the current changing landscape will need to do so soon. TV ownership is still high and important in South Africa. TV is still the medium in the country with the greatest reach despite the changes being seen in terms of consumption. Content consumption on devices such as phones, tablets and laptops is undoubtedly increasing, but, said Walker, "there is still a large portion of viewership in the middle and lower end that is via TV".

As for the future, Walker said, "Going forward, socio-economic factors may influence the device that content is viewed on, as well as whether premium streaming services or advertiser-funded services are selected. But", she added, "the fact is that our population are already finding their favourite content on the platforms they have access to, economically and logistically, and this trend will continue – just in the context of ever-expanding choice in content." ✆

Spectrum and policy considerations for the satellite sector

For obvious reasons satellite systems have regularly been promoted as a way of resolving issues with rural technology and coverage. However, issues of spectrum availability, interference and regulation will need to be managed, as Dr Abhaya Sumanasena, managing consultant, Real Wireless, explains.

ACROSS THE WORLD, 4G wireless access is available in an impressive 95% of urban areas. This, however, drops to 71% in rural areas. This gets even worse when looking at developing and lower developed nations. According to a recent ITU report, in lower developed countries, 17% of the rural population has no mobile coverage at all, and 19% of the rural population is only covered by a 2G network.

The provision of a full service is not simply a question of where people live, but the areas through which they travel or work. We've seen estimates suggesting that only 25% of the earth's landmass is served by mobile networks today. That figure drops to only 10% of the planet, if you include the oceans.

What are nations doing to standardise, to regulate or to facilitate the plugging of these 'gaps'? Well, quite rightly, when it comes to nations they are, firstly, prioritising getting coverage to their disenfranchised rural communities.

Secondly, there is connectivity supporting the needs of public infrastructure: networks serving remote essential national or international emergency services or industries of national importance (energy utilities being a key one), and connectivity for transport across remote areas.

And thirdly, there are (increasingly private) networks serving businesses or venues in the hardest to reach areas: (air)ports, mines, manufacturing facilities.

An EU-wide initiative called Rural SMEs supports innovation in local businesses in rural areas – and ensuring the comms infrastructure is available is a key part of this. Increasingly, we are likely to see more specialist providers like Northern Spain's WIFINOR that are focused on filling this gap and providing services to rural communities and businesses using a mix of technologies.

In Japan, Softbank has been proactive in its strategy for serving rural and remote communities (roughly 80% of Japan is mountainous!) and last year agreed with operator KDDI to form a joint venture specifically aimed at accelerating the roll-out of 5G to rural communities.

Sometimes though, these initiatives need the weight of regulators behind them to ensure they deliver – since they may not be commercially prioritised by MNOs.

Above Africa's skies new satellite systems are coming...

Photo: Adobe Stock

The Peruvian government specifies the needs of rural coverage as part of its spectrum licensing requirements – tackling the fact that 80% of its localities were rural and lacked any internet coverage (in 2016). Even back in 2013, the Peruvian authorities stipulated, in their contract with Telefonica: "Free access to Social Internet (Satellite) in 661 highest impoverished districts and 396 TAMBOS (Rural development and distribution centres)."

For obvious reasons satellite systems have regularly been mooted as the way of resolving issues with rural technology. However, it's only very recently that this potential has seemed likely to become reality, through the combination of technology development, a growing (but by no means universal) industry alignment, and an increasing (but by no means universal) recognition of the importance of regulatory alignment from policymakers.

Nevertheless, in spite of the caveats, the satellite sector is evolving apace, with an increasing number of non-geostationary orbit (NGSO) satellite constellations providing high-capacity data services across large parts of the global land mass and the oceans. NGSO covers low earth orbit (LEO) and medium earth orbit (MEO) constellations with LEO services perhaps getting most media coverage (and investment) today.

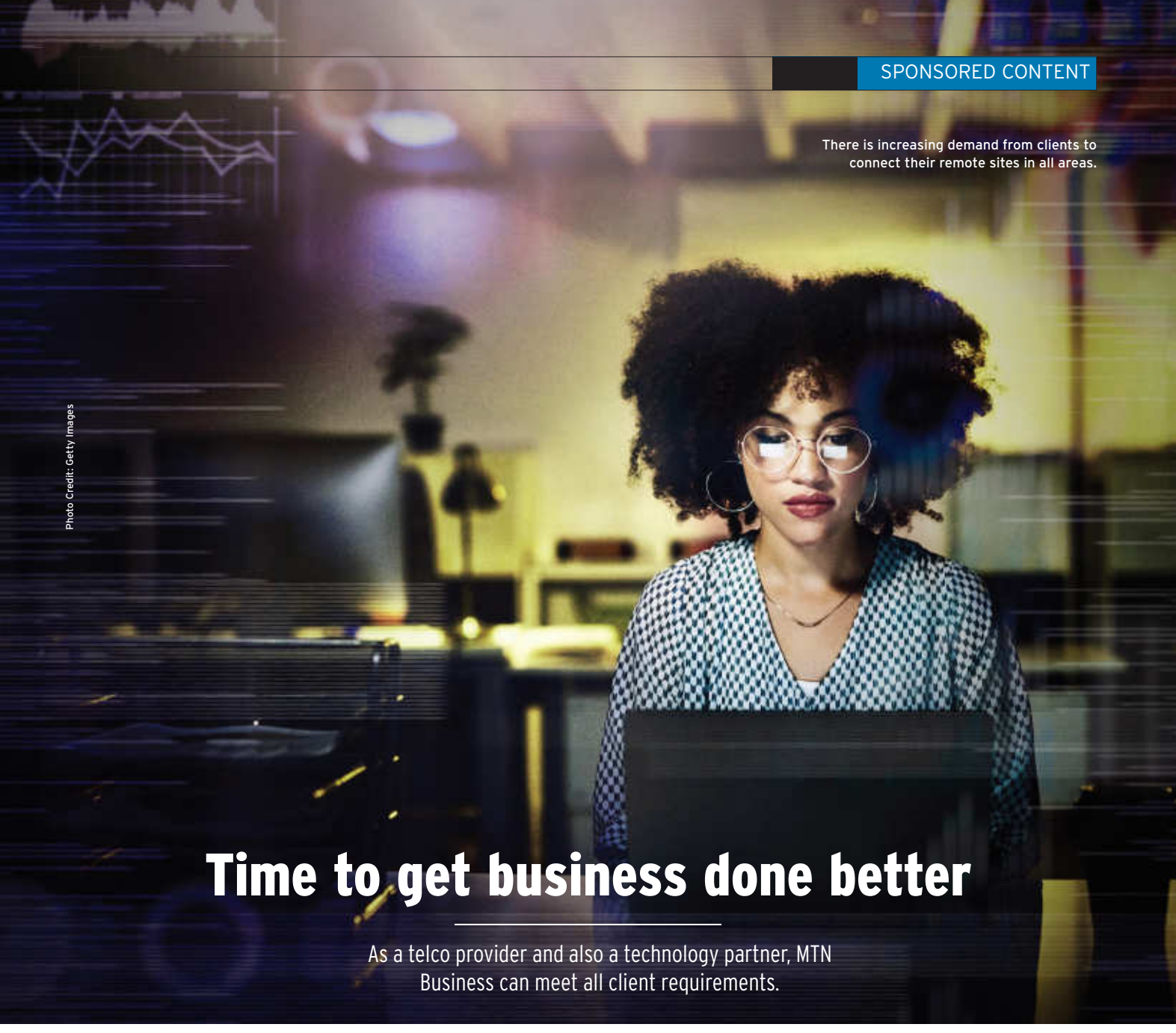
"Sometimes initiatives need the weight of regulators behind them to ensure they deliver"

The general consensus is that, in developed European markets, satellite broadband is likely to be niche. However, it's worth noting that satellite systems offer capabilities that other types of deployment would struggle to match, including:

- Connectivity to remote areas (land, sea or air) for individuals, transport platforms, business or for mobile backhaul.
- Continent-wide or global IoT services.
- Resilient links for some security-conscious industries (military, banking, lotteries).
- One-to-many content distribution (such as TV broadcast, media or software distribution).
- High-capacity links in the absence of high-capacity fixed connectivity.
- Peripatetic links, such as electronic news gathering (ENG) and some sports coverage (e.g., golf).

There are, of course, large parts of the world

Continued on page 29



There is increasing demand from clients to connect their remote sites in all areas.

Photo Credit: Getty Images

Time to get business done better

As a telco provider and also a technology partner, MTN Business can meet all client requirements.

ACCORDING TO MTN, a lot of clients have come out of the Covid-19 pandemic with a focus on repositioning themselves in the marketplace.

For the first time, there is a recognition that digitising operations can offer unprecedented commercial value in scale and agility.

Having made substantial investments in fibre technology, high-speed terrestrial and undersea networks and new frequency spectrum across the markets wherein it operates, MTN is perfectly positioned to respond.

A few years ago, MTN also made the decision to build an IP capable radio network for their mobile services, giving their core network the ability to seamlessly integrate with enterprise IP networks. Their mobile towers deliver services to enterprise clients absolutely anywhere they have a network, shortening the last mile and removing complexity and cost.

Now there is increasing demand from clients to connect their remote sites in all areas, including rural and semi-rural. MTN has not only assisted clients with overcoming the connectivity hurdle, but is also committed to helping them automate and digitise their businesses.

Digital demand

Ten years ago, it was unheard of for an automobile manufacturer to approach a mobile operator about the need to automate their plant. Today, airports, ports, mines and manufacturing plants are relying on what was classically considered mobile networks to automate and digitise their operations.

The same telecom provider (now techco) provides the high speed network to store the company's data in a cloud environment. MTN believes that clients expect their techco partners to add a lot more value.

MTN's evolution

For MTN, the focus has shifted from being a core telecommunications services provider, towards becoming a technology solutions provider or techco.

The value that the client derives from a technology partnership is now defined by the commercial value-added, not simply a solution that meets a specification and price point. The service offering of a techco includes the Internet of Things (IoT), unified connectivity, cloud services, data security, networking infrastructure and asset tracking.

The scope has changed to being client and industry specific, so the requirements and service portfolio vary from one client to the next. Now, the expectation is that a techco like MTN must respond to challenges and make it work, supported by the appropriate technology for each market, and following the client wherever their business leads.

Clients need partners like MTN that will invest in underlying infrastructure, deliver the services they require, have market credibility, are financially sound and have a long-term commitment to their market presence. ✆

Gone but not forgotten: Google's balloon-based connectivity project didn't take off.

Photo: Loon

Tana River County gets connected

The Loon project was yet another attempt to provide cost-effective internet connectivity to rural Kenya. It was well received by some end users but didn't last. However, says Mwangi Mumero, other initiatives are under way.

RESIDENTS OF THE far-flung county of West Pokot in Kenya's northern region, close to the Ugandan border, live a desolate existence characterised by insecurity, drought and inaccessible mobile network services.

Over the years, other marginal northern counties, including Garissa, Wajir and Tana River, have suffered from few or no mobile telephony services. Lack of connectivity has led residents in these regions to feel alienated from the rest of the country – over 20 years since the first rollout of Kenya's mobile networks.

According to data from the 2019 Kenya Population and Housing Census (KPHC), only 13.7% of rural dwellers have access to the internet – and only 41.0% own mobile phones. Few rural dwellers have access to the smartphones that have become business tools among residents of cities such as Nairobi, Mombasa and Kisumu. Most Kenyans access internet services through their smartphones.

Recent investments in mobile infrastructure, however, have improved access to mobile broadband and network coverage, boosting local businesses and connecting families separated by long distances, many for the first time.

"I can email the finished document to my lecturer with ease. We no longer have to travel to Eldoret 100 km away"

Use of Loon balloons (a now-defunct balloon-based connectivity project from Google) and other technologies has in recent years led to residents of West Pokot, Tana River and Garissa counties accessing critical mobile services, many for the first time.

In addition, at least 14 sub-locations in West Pokot County have been connected to mobile network services this year by the Communications Authority of Kenya (CA) with funding from the Universal Service Fund (USF).

At least US$14.6mn from the USF is being utilised to help deliver communications services to 101 sub-locations in 19 counties across the country. Mobile operators Safaricom and Airtel are among those that have been awarded contracts to set up infrastructure. Other partners are American Towers Company (ATC), Seal Towers and Alan Dick and Company (East Africa).

"This project will facilitate residents of the beneficiary regions to enjoy a host of services, including mobile voice, data, internet and a bouquet of other value-added services including money transfer services," observed Ezra Chiloba, director general, Communication Authority.

The USF is primarily financed by mandatory contributions of 0.5% of the gross revenue from licensed mobile phone operators in order to extend mobile phone services to remote areas of the country.

Already, the impact of mobile connectivity in West Pokot is being felt by the local residents, most of whom are cattle herders. "We are able to communicate and negotiate better prices for our beef cattle with buyers in Nairobi and Mombasa in real time. Deposit payments can then be paid via mobile money transfer services, allowing the deal to go through quickly in the comfort of our homes," observed 66-year-old Joash Mnangat, who only started owning and operating a mobile phone this year.

Cyber cafe businesses that offer internet services have also started allowing residents to send emails and access e-government services such as applications for driving licences, passports and other vital documents.

"I can now download important research material, complete my assignments and email the finished document to my lecturer with ease. We no longer have to travel to Eldoret 100 km away," said Charles Kibet, a 21-year-old student at a local university.

Beyond connecting the mobile networks of the sub-locations, the CA project has also brought high-speed internet to 884 secondary schools in these marginal counties across the country. This is expected to boost learning activities through e-learning to supplement the normal classroom lessons.

In Tana River County, a least four sub-

locations serving 160,000 people and covering 70,000 sq km have been connected to mobile services under the USF project. The county has partnered with Huawei to enhance the use of internet and digitise some services.

"We have waited for over 30 years for a mobile network. It will make a huge difference in our growth and development," observed Mr Mohammed Dube, the county's ICT executive.

The county has already trained over 200 youths in digital marketing skills to maximise the benefits of broadband connectivity.

Partnerships between the government and the private sector have been critical in reaching out to these isolated pockets of unconnected regions. "The cost of services can only be reduced if there is a deliberate effort from operators to collaborate in the deployment of infrastructure. When the private sector collaborates on infrastructure sharing, a significant amount of investment costs could be saved and thereby prevent the duplication of similar infrastructure on the same route," noted Joe Mucheru, Kenya's ICT cabinet secretary.

At the height of the Covid-19 pandemic in 2020, Google launched a pilot project in Kenya to connect villages in remote areas of the country with 4G internet links – bridging the gap between demand and supply as families were forced to remain indoors.

Using Loon balloons to carry routers, the project, done in collaboration with Telkom Kenya Ltd, brought hope to rural homes and trading centres in remote parts of Kajiado, Narok and Baringo counties. The balloons were powered by solar batteries. The Kenya Civil Aviation Authority was also a partner in the project.

"The cost of services can only be reduced if there is a deliberate effort from operators to collaborate in the deployment of infrastructure"

"This service will extend Telkom Kenya's 4G network to areas that are currently not covered by any of our mobile network providers. The service will also boost online learning as it will allow teachers and students to access education materials remotely," said Kenya's president Uhuru Kenyatta at the time, raising prospects for businesses that were served by the links.

He further said that fast internet will link local businesses with global markets, benefit e-commerce, provide educational opportunities, and connect people to public healthcare information.

The Loon USP was to take the essential components of a cell tower and made them light enough and durable enough to operate at 20 kms above the Earth. By moving with the wind, Loon balloons could be arranged into small clusters to provide periods of prolonged connectivity in a defined area. The balloons acted as floating cell towers, transmitting a provider's service directly to a subscriber's LTE handset below.

Google has, however, wound up the project, but residents of these regions remember the vital service the balloons offered them during the period of Covid-19-induced lockdowns.

But new efforts are being considered. The US Trade and Development Agency has awarded a grant to a Kenya-based internet service provider and telecommunications infrastructure company, Mawingu Networks Limited, to do a feasibility study to support the deployment of broadband services throughout rural and underserved areas in East Africa.

The study will evaluate market demand in those countries and determine the technical and commercial viability of deploying last-mile connectivity across rural areas to prioritise expansion opportunities. ✆

Continued from page 27

where people remain unserved by any fixed-line broadband service, and satellite systems have a unique ability to reach these areas, at what might be considered zero marginal cost.

In recent years, a new breed of NGSO satellite systems has started to be developed that promises low-cost broadband connectivity. For example, the "European Union is progressing with its low-earth-orbit quantum-encrypted satellite communications system, with the European Commission pushing industry and member states to get to work on around US$6.13bn project as early as next year."*

This growth in investment in new satellite systems will increase the demand for spectrum, orbital slots and terrestrial gateways that need to be deployed in a number of countries – all essential requirements for any planned satellite service.

Acquiring spectrum will always be challenging, since the available spectrum bands are already occupied with various types of terrestrial and non-terrestrial services. Therefore, from the regulators' and existing users' perspective, interference management is of paramount importance for the successful operation of any planned new systems. Regulators will be looking to develop flexible licensing approaches that will help alleviate the spectrum scarcity, but only if any co-existence challenges can be overcome to the satisfaction of all stakeholders. Therefore, technical co-existence analysis is a fundamental requirement during the development of new satellite systems, getting approval from regulators and maintaining the system performance of all existing and newly launched systems.

Due to the velocity of NGSO satellites and the complexity of their constellations, interference scenarios are much more complex than with GSO and terrestrial mobile networks. Therefore, when planning for new integrated satellite and terrestrial systems – known as non-terrestrial networks – it is essential to carry out the co-existence analysis across the different environments in which they operate – space, maritime, aeronautical and terrestrial – in addition to ensuring that both incumbents and emerging service providers can operate without harmful interference.

"In recent years, a new breed of NGSO satellite systems has started to be developed that promises low-cost broadband connectivity"

Real Wireless is experienced in conducting regulatory assessments of potential inference scenarios and co-existence analysis. Our aim is to ensure that regulation is proportionate to the nature of the challenge. The severity of the interference varies significantly across systems and depends on the geometries of the system components, the path loss between them, and the transceiver characteristics. As a result, the potential mitigation and licensing conditions available for each scenario are different.

Our domain knowledge in this field enables us to model such systems using realistic interference scenarios and parameters, so that the regulators and service providers can develop sensible regulatory approaches and licensing conditions. ✆

Real Wireless is the world's leading independent wireless advisory firm. Its network of experts includes engineers, physicists, economists, security advisors, business strategists and deployment specialists.
www.real-wireless.com

**https://sciencebusiness.net/news/eu-launches-plan-independent-low-earth-orbit-satellite-broadband-communication-system*

A leader in satellite communications

Qatar's satellite operator Es'hailSat discusses current trends in the telecommunications landscape and prospects for its business in the Middle East and North Africa.

Photo: Es'hailSat

Es'hailSat has been servicing broadcasters, telecom companies, enterprise and Government customers for the past eight years from its Doha headquarters.

AS THE WORLD emerges from the pandemic, a few things have changed in the telecommunications landscape. Firstly, when it comes to fixed networks, it has become evident that connectivity of any kind – be it fibre, cellular or satellite – is critical infrastructure delivering a fundamental need of keeping individuals, businesses and the economy connected in an increasingly virtual world. Secondly, as maritime and aeronautical services return to normalcy, the bandwidth required for these vessels to remain connected to their headquarters and/or the Internet is witnessing rapid growth. All these trends are changing the way people remain connected, no matter where they may be physically located.

With the FIFA World Cup 2022 just around the corner, Qatar is energised with development activities across all sectors. As Qatar's satellite operator of choice, Es'hailSat has been serving broadcasters, telecom companies, enterprise, and Government customers for the past eight years from our headquarters in Doha. For our business, the immediate priority is to expand our services to support the rapid growth of Qatari customers across the board.

We are working on multiple long-term projects to fulfill our vision to be a world-class satellite operator and service provider.

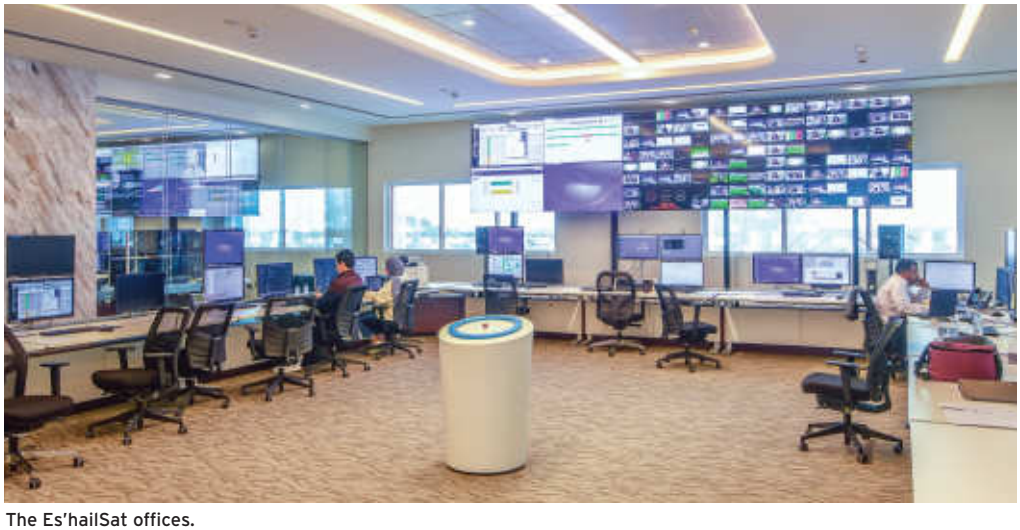


Photo: : Es'hailSat

The Es'hailSat offices.

The Middle East and North Africa region has been a hotbed of economic activity in the space sector over the past decade. If we look at space-based services delivering television across the region, MENA has growth of streaming services as well traditional television expanding into premium 4K/UHD content over satellite direct-to-home (DTH). Due to this underlying demand demographic, we continue to remain bullish on the future of satellite television in the region for many years to come. We are keeping a close watch on the latest advancements in technology, including Cloud Playout services, Content Delivery Networks (CDN), Mobility and Telecommunication services. At the core of our network is our fleet of two satellites, Es'hail-1 and Es'hail-2 at 25.5/26 East hotspot, bolstered by services delivered from our Teleport in Doha, spread across 50,000 sq m of land.

We are also working on multiple long-term projects to fulfill our vision to be a world-class satellite operator and service provider that effectively contributes to the success of Qatar's National Vision 2030 by adding a new dimension to the diversifying economy. ✆

Les clients demandent de plus en plus de connecter leurs sites distants dans tous les domaines.

Crédit d'image: Getty Images

Il est temps de mieux faire du business

Si vous êtes à la recherche d'un opérateur téléphonique qui sera également un partenaire technologique, MTN Business est ce qu'il vous faut.

Selon MTN, de nombreux clients ont cherché à se repositionner sur leurs marchés à la sortie de la crise sanitaire du Covid-19. Pour la première fois, il est reconnu que digitaliser ses opérations peut offrir une valeur commerciale sans précédent en termes d'échelle et d'agilité. Ayant réalisé des investissements substantiels dans la technologie de la fibre optique, les réseaux terrestres et sous-marins à haut débit et les nouveaux spectres de fréquences sur les marchés où il opère, MTN est parfaitement positionné pour répondre à ce nouveau besoin.

Il y a quelques années, MTN a également pris la décision de construire un réseau radio compatible IP pour ses services mobiles, donnant à son réseau central la capacité de s'intégrer de manière transparente aux réseaux IP des entreprises. Leurs tours mobiles fournissent des services aux entreprises clientes absolument partout où elles disposent d'un réseau, ce qui raccourcit les distances et élimine la complexité et les coûts. Aujourd'hui, les clients demandent de plus en plus à connecter leurs sites distants dans toutes les zones, y compris rurales et semi-rurales.

MTN a non seulement aidé ses clients à surmonter l'obstacle de la connectivité, mais s'est également engagé à les aider à automatiser et à numériser leurs activités. Il y a dix ans, il était impensable pour un constructeur automobile d'approcher un opérateur mobile afin d'automatiser son usine. Aujourd'hui, les aéroports, les ports, les mines et les usines s'appuient sur ce qui était considéré comme des réseaux mobiles pour automatiser et digitaliser leurs activités. Le même fournisseur de télécommunications (désormais techco) fournit le réseau à haut débit permettant de stocker les données de l'entreprise dans un système connecté.

MTN croit que les clients attendent de leurs partenaires technologiques qu'ils apportent encore plus de valeur ajoutée. Pour MTN, l'objectif n'est donc plus d'être un fournisseur de services de télécommunications de base, mais de devenir un fournisseur de solutions technologiques ou "techco". La valeur que le client tire d'un partenariat technologique est désormais définie par la valeur ajoutée commerciale, et non plus simplement par une solution qui répond à un cahier des charges et à un prix. L'offre de services d'une techco comprend l'internet des objets (IoT), la connectivité unifiée, les services de sauvegarde en ligne, la sécurité des données, l'infrastructure de réseau et le suivi des actifs.

MTN est parfaitement positionné pour répondre à ce nouveau besoin.

Le champ d'application a également évolué pour devenir spécifique au client et au secteur, de sorte que les exigences et le portefeuille de services varient d'un client à l'autre. Il est attendu d'une entreprise technologique comme MTN qu'elle relève les défis et en fasse des succès, en s'appuyant sur la technologie appropriée pour chaque marché, et en accompagnant le client là où son activité le mène. Les clients ont besoin de partenaires tels que MTN qui investit dans les infrastructures sous-jacentes, qui fournissent les services dont ils ont besoin, qui sont crédibles sur le marché, qui sont financièrement solides et qui s'engagent à long terme quant à leur présence sur le marché. ✆

Rohde & Schwarz launches first software development lab in Rwanda

ROHDE & SCHWARZ, A technology company which develops, produces and markets innovative information and communications technology products for professional users, has opened a software development lab in Kigali, Rwanda.

Rohde & Schwarz has an extensive sales and service network in more than 70 countries and, in addition to its established business fields, has made substantial investments in future technologies such as 6G, quantum technology, the industrial internet of things (IIoT), artificial intelligence and cloud technology.

Until now, the company's presence in African has been limited to sales activities. The software lab in the Rwandan capital of Kigali is both the Munich-based company's first subsidiary in central Africa and also its first R&D location anywhere on the continent.

Photo: Rohde & Schwarz

Paul Kagame, President of the Republic of Rwanda, at the opening ceremony in the Kigali Convention Centre.

Peter Riedel, president and COO of Rohde & Schwarz, commented, "Africa is an enormous growth market and Rwanda is a trailblazer in digitalisation. Rohde & Schwarz is making a long-term commitment for sustainable growth and stability. We want to develop products for the global market together with our team in Rwanda."

In opening the facility, Rohde & Schwarz said it will cooperate closely with local partners and nurture talent within the country – a promise which helped it to receive prominent support. For example, the opening ceremony was attended by president Paul Kagame along with Paula Ingabire, minister of ICT & innovation and Valentine Uwamariya, minister of education. The official opening ceremony, which was postponed because of Covid-19 restrictions, underscored the importance of this project.

After the success of the Rohde & Schwarz subsidiary in Singapore, which has grown into a major Asian hub over the past 25 years, the company will be continuously expanding the new lab in Kigali. The next steps will include activities in the area of cybersecurity and support of local students and engineers.

Airbus sets up new global player in cybersecurity, safety and sustainability

AIRBUS HAS LAUNCHED a new subsidiary – Airbus Protect – to bring together its expertise in cybersecurity, safety and sustainability-related services.

The new entity will provide a unique global service offering to protect Airbus and meet the needs of external authorities and commercial customers, including in the field of critical infrastructures.

Thierry Racaud, Airbus Protect CEO, commented, "Our teams are committed to meeting our customers' needs and challenges ahead with an exceptional group of professionals and resources at all levels. The diversification of fields of application linked to the size of Airbus and its products will provide a fabulous playground for them and for new talents."

Kwik kickstarts KwikStore

NIGERIA'S KWIK, WHICH began as an on-demand, last-mile bike delivery service, is expanding its offer of digital services with the launch of KwikStore – a new addition to the offer it brings to African business owners and social vendors.

KwikStore is a free e-commerce storefront solution that allows any African business owner, merchant, social vendor, entrepreneur or SME to create their own online store.

Social vendors will be able to set up their online presence quickly and without any prior technical knowledge. The solution allows them to run it via a smartphone. Users can link their KwikStores to their social media accounts, automating the sale, fulfilment, inventory management and delivery process, giving them the possibility to focus on sales and marketing.

KwikStore is a free-to-use feature of the Kwik Delivery app and requires no down payment or service charge apart from standard payment gateway fees.

The KwikStore can be fully customised with the merchant's brand and, once an order is approved by the owner, payment is processed automatically through payment partners. A Kwik rider is automatically dispatched to the pickup location, or the order can be picked up directly by the customer.

KwikStore can be used independently of the Kwik Delivery platform, allowing merchants to use the delivery solution of their choice or to sell anywhere in Africa, even in areas not yet covered by the Kwik Delivery platform.

"KwikStore is a milestone in establishing Kwik as the one-stop-shop for African merchants to run and grow their business from their smartphone," commented Romain Poirot-Lellig, founder and CEO of Kwik. "We will continue to expand our offer of innovative digital services focused on enabling African merchants to grow their business with all the benefits that technology brings."

Olivier Decrock, co-founder and CTO of Kwik, added, "We are very proud to have developed KwikStore in Nigeria with our growing software development team. Kwik is strongly committed to build its development capacity in the country."

Nokia's radio technology to support AST SpaceMobile

NOKIA HAS SIGNED a five-year 5G deal with AST SpaceMobile, a company building the first and only space-based cellular broadband network accessible directly by standard 4G or 5G mobile devices.

Nokia and AST SpaceMobile will work to achieve their joint ambition to expand universal coverage and connect underserved communities around the world. Later this year AST SpaceMobile's BlueWalker 3 test satellite will be launched to begin global testing with mobile network operators on six continents.

Nokia's AirScale Single RAN equipment aims to enable AST SpaceMobile in providing mobile services to new and existing subscribers in regions currently not served by terrestrial communication networks. This includes connecting devices globally on land, at sea, or in flight. Nokia will provide equipment from its comprehensive, energy-efficient AirScale portfolio including its AirScale base stations powered by its latest generation of Nokia's ReefShark System-on-Chip (SoC) chipsets. AST SpaceMobile will benefit from Nokia's modular baseband plug-in cards which add capacity where it is needed, offering flexibility and efficiency. Nokia will also provide its NetAct solution for network management and seamless daily network operations as well as optimisation and technical support services.

"With the integration of Nokia's AirScale system, AST SpaceMobile and Nokia are taking an important step toward closing connectivity gaps all over the world," said Scott Wisniewski, chief strategy officer at AST SpaceMobile. "Nokia is supporting us with dozens of engineers and development professionals, including leading architecture research experts at Bell Labs, the world-renowned industrial research arm of Nokia. In the coming months, we are scheduled to launch our BlueWalker 3 test satellite into low Earth orbit, which has a 64-square metre phased array antenna designed for direct-to-cell connectivity. With this satellite, we plan to conduct testing all over the world with leading mobile network operators, leveraging Nokia's technology solutions on the ground."

Collaboration for OT cybersecurity solutions

GLOBAL SOFTWARE AND technology leader Emerson and Nozomi Networks, the leader in OT (operational technology) and IoT (Internet of Things) security, have established an agreement to meet growing demand for OT cybersecurity services and solutions in the specific industries both companies serve. Emerson will offer Nozomi Networks' advanced solutions for industrial control system cyber resiliency and real-time operational visibility to customers worldwide. The agreement combines Nozomi Networks' industry-leading OT & IoT security and visibility capabilities with Emerson's DeltaV distributed control system (DCS), consulting and professional services. The agreement delivers comprehensive solutions to strengthen cybersecurity and reduce the risk of downtime due to cyberattacks or process anomalies.

Digital PayGo introduces new mobile payments solution

ZAMBIA-BASED FINTECH COMPANY Digital PayGo has launched PayGo SME-in-a-Box, a new mobile payments solution powered by Mastercard that will enable small and medium enterprises (SMEs) to safely make and receive digital payments through various digital channels.

The low-cost, bundled digital offering enables business owners to access a wide range of financial services quickly and easily through a single intuitive app compatible with all Android mobile devices. Backed by Mastercard's payment technology, PayGo SME-in-a-Box enables businesses to accept in-store digital payments from their customers across channels, including Quick Response (QR), USSD, card and mobile money. SMEs can also pay for services and procure goods using a virtual and physical (plastic) card.

A report commissioned by the Zambian Ministry of Commerce, Trade and Industry indicates that SMEs represent 97% of all businesses in Zambia and employ over half of the working-class population, with nine out of 10 businesses said to operate within the informal sector. These SMEs are faced with varying challenges from paying and getting paid digitally to accessing the capital they need to scale up their businesses.

Digitalisation of payments in the SME sector will enable these businesses to generate a transaction history used for credit scoring, enabling them to be eligible to access finance. By opening up critical funding opportunities, both new start-ups and existing SMEs will be able to grow and contribute to Zambia's overall economic development.

Charity Mwanza, Digital PayGo's chief executive officer, said, "We are excited to partner with Mastercard to launch PayGo SME-in-a-Box. Our aim is to help SMEs improve their operations and grow their revenue, while driving financial inclusion and supporting the growth of the digital economy. The Zambian SME sector has been largely excluded in terms of access to financial services and this proposition will enhance the inclusion process through which SMEs make and receive payments through various channels."

According to Mastercard, this partnership supports its global commitment to bring a total of one billion people and 50mn micro and small businesses into the digital economy by 2025.

"SMEs have an outsized impact on the economy, providing a livelihood for many while advancing inclusive growth to reduce poverty and boost prosperity. As a result of the Covid-19 pandemic, there has been a heightened consumer preference for cashless payment options, yet many small businesses do not have the resources and tools to accept digital payments. Through PayGo SME-in-a-Box, we can support financial inclusion by providing SME owners with a quick and simple way to digitise their business, and deliver best-in-class consumer experiences for sustained future growth," said Vincent Chipimo Malekani, country business development director at Mastercard, Zambia and Malawi.

This partnership supports efforts by the Zambian government to accelerate financial inclusion for all citizens.

Collaboration to test and validate 5G non-terrestrial networks

ERICSSON, QUALCOMM AND THALES plan to enter smartphone-use-case-focused testing and validation of 5G non-terrestrial networks (5G NTN).

Photo: Adobe Stock

5G connectivity via LEO satellites offers coverage in remote areas.

The result could effectively mean that a future 5G smartphone could use 5G connectivity anywhere on Earth and provide complete global coverage for wideband data services, including places normally only covered by legacy satellite phone systems with limited data connectivity capabilities.

The benefits of 5G connectivity via low earth orbit (LEO) satellites are expected to include coverage in extreme geographies or remote areas across seas, oceans and other locations where terrestrial coverage is absent.

Such widespread connectivity would boost 5G smartphone subscriber roaming service capabilities, as well as enabling global connectivity for transportation, energy, and health sector 5G use cases.

The space-based network could also be used as back-up support to terrestrial networks in the event of major network outages or disasters.

The expected security capabilities of 5G NTNs mean that national government communications may be a main use case, to enhance safe and secure national security and public safety government networks.

Erik Ekudden, senior vice president and chief technology officer, Ericsson, said, "This testing and validation cooperation between Ericsson, Thales and Qualcomm Technologies will be a major milestone in the history of communications as the ultimate result could effectively mean that no matter where you are on Earth – in the middle of an ocean or the remotest forest – high-end, secure and cost-effective connectivity will be available through collaborative 5G satellite and terrestrial connectivity."

Globalstar launches satellite asset tracking solution

GLOBALSTAR, A LEADING mobile satellite services and connectivity provider, has introduced Realm Enablement Suite, an innovative portfolio of satellite asset tracking hardware and software solutions featuring a powerful application enablement platform for processing smart data at the edge. With Realm, partners can accelerate new solutions to market with AI-enabled applications that generate an advanced level of telematics data. By defining smart data at the edge, users send only the data they need over the highly reliable Globalstar LEO satellite network to the customer endpoint – significantly reducing transmission costs.

Realm Enablement Suite introduces Integrity 150, the first solar-powered, deployment-ready satellite asset tracking device with an application enablement platform; ST150M satellite modem module that drastically simplifies product development; and Realm application enablement platform, offering tools and an extensive library for quickly accessing and developing AI-enabled applications at the edge for vertical-specific solutions.

"This newest innovation from Globalstar represents a continued commitment to IoT as a core business pillar. With Realm Enablement Suite, customers have the flexibility and agility they need to optimise data from their tracking devices and edge sensors," said Dave Kagan, Globalstar CEO.

"The end-to-end design of the new Globalstar Realm Enablement Suite ecosystem removes the technology barriers to profitable innovation in the tracking and industrial IoT space," said David Haight, vice president of IoT. "Realm delivers greater speed and lower cost in both development and deployment by providing the flexibility to innovate with the power to host applications and process data."

For more information, download the white paper, or visit www.globalstar.com.

9PSB, SeerBit partner for customer experience

Innovation and digitalisation in payment services will significantly change the payments market.

NIGERIA'S FOREMOST PAYMENT service bank, 9Payment Service Bank (9PSB), and SeerBit, a pan-African enterprise payment platform, have formed a strategic partnership to facilitate seamless access to financial services for individuals and business in Nigeria.

The two companies will co-create a seamless payment and omnichannel banking ecosystem, aggregating and simplifying transactions for banking agents, merchants, end consumers and businesses.

The partnership represents a unique opportunity to see the deployment of homegrown solutions to establish a roadmap for the digitalisation of payments, enabling the ecosystem for closing the financial exclusion gap.

Branka Mracajac, CEO of 9PSB, explained, "The core of our business is to provide easy, convenient and seamless financial transaction to the unbanked, under-banked and under-served.

"To achieve this, collaboration is central to our strategy – with technology leaders and partners on this long journey with the ultimate goal to move Nigeria from a cash to cashless society. Thus, expanding on our promise to deliver relevant financial products, through this partnership we will be providing our agents, partners, and customers with a single point of entry to enjoy various products and services."

Omoniyi Kolade, founder and CEO of SeerBit, added, "The collaboration also consolidates SeerBit's position as a frontline player in the digital payment ecosystem in Africa. Our goal has always been to grow a new wave of prosperity in Africa by creating more avenues for businesses in Africa to accept payments and we are happy to do this in partnership with 9PSB. We will empower millions of businesses to accept digital payments, charting the course for the new direction for digitisation in Africa."

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Liquid launches cybersec fusion centre

LIQUID CYBER SECURITY, a subsidiary of Cassava Technologies, has launched the first of its matrix of Cyber Security Fusion Centres in Johannesburg, marking a continental first.

With the fusion centre, Liquid aims to bolster the cybersecurity industry in the nation by managing growing threats to cyber infrastructure.

"Our pan-African Cyber Security Fusion Centres will, when fully operational, leverage our ability to track and predict threats across the continent and will be enhanced by the capability of our international partners like Microsoft, ITC Secure and Xcitium," said David Behr, CEO of Liquid Cloud and Cyber Security.

"The alarming rate of cyberattacks led us to launch Liquid Cyber Security in 2020, and today we are elevating the offering for our customers by launching the first Fusion Centre. As a result, we will ensure our South African customers have access to world-leading cyber security services, enabling them to mitigate potential threats timeously. Most importantly, customers can focus on their critical business needs while we manage their cyber security requirements 24/7/365 with the most cost-efficient and effective approach."

For the first time, African businesses and governments will have access to Liquid's matrix of Security Fusion Centres across key markets.

"One of the most significant advantages of the Liquid Cyber Security Fusion Centre is the improvement in the time it would take for the organisation to detect and respond to threats faster and smarter. As a result, Liquid can now assist its customers in real-time and enable them to be proactive rather than reactive, as well as effectively handle the situation, especially in today's complex threat landscape," concluded Behr.

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