For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

MAY/JUNE 2021 Volume 25 Number 6

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- How mission critical communications are all about trust
- Network monitoring and the solutions available

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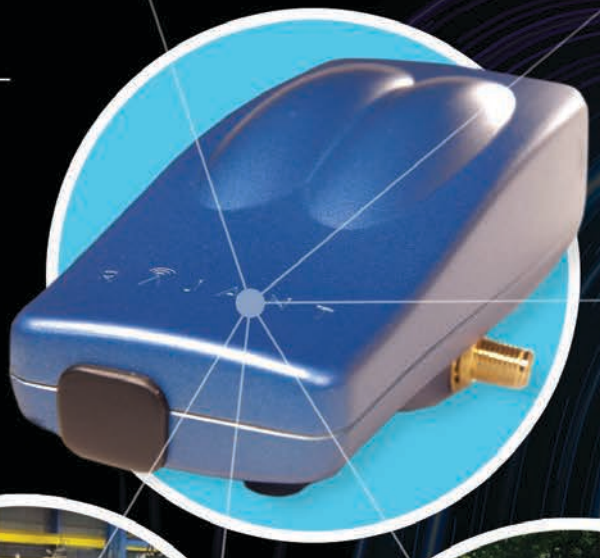

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RAJANT

Juniper Networks and NEC build new network for SA FWA provider

Juniper Networks and NEC have built the first commercial network in South Africa to be driven by segment routing, the companies said.

Built for Herotel, the country's largest fixed wireless service provider, the project was part of a significant network upgrade initiative.

Herotel chose to build its new IP network based on segment routing principles, augmenting traditional MPLS (multi-protocol label switching) techniques. Segment routing means fewer network elements are involved, avoiding slow response to sudden network changes. It also supports the application QoS (Quality of Service), mapping specific applications and end users to preferential network service paths.

"Streamlining deployment at massive scale and across vast distances, yet still focusing on the user experience, was the challenge that Herotel brought to us," said Brendan Gibbs, vice president of automated WAN solutions, Juniper Networks. "The segment routing solution now in place delivers optimal bandwidth utilisation, reduced latency and automated traffic engineering capabilities. This enables Herotel to provide stand-out connectivity and services to its many thousands of business and residential users, despite the geographic challenges of such a dispersed population."

Gibbs said it also has "the necessary headroom and agility to keep ahead of Herotel's ambitious ongoing growth plans, again without any compromise to the end-user experience".

Herotel has been expanding its service provision across the country through the acquisition of 40 different service providers between 2018 and 2020, as well as initiating new builds. It has now consolidated 19 separate networks and operating frameworks into a single architecture.

Built for Herotel, the country's largest fixed wireless service provider, the project was part of a significant network upgrade initiative

The company's chief technology officer Eldred Ekermans added: "Herotel's stated mission for South Africa is 'everyone connected'. In support of this, we have three clear strategic anchors: excellent customer experience, low-cost deployment and strategic availability of our services.

"The network is the critical element, so we knew we had to be bold and innovative to succeed and keep this promise to our customers. The solution from Juniper, with NEC XON as the integration partner, has delivered the simplicity, operational functionality and agility that other vendors simply could not," Ekermans continued. During South Africa's initial national lock-down period starting in March 2020, Herotel said it experienced a 30% increase in network traffic.

Intelsat partners with local DRC firm

Intelsat has partnered with local business HCI to deploy its Intelsat CellBackhaul service from Kinshasa, Democratic Republic of the Congo (DRC). Out of the more than 49 million people that live in remote or rural regions of DRC, more than 32 million live in an area without a minimum of 3G.

"With an increasing number of businesses and people relying on internet access to operate, communicate or access education or health services, connectivity is not just an option anymore -- it's a necessity," Nathan Dahan, country manager, DRC, Intelsat told Southern African Wireless Communications. "At Intelsat, we're continuously working on developing and implementing new ways to address the need for broadband and mobile connectivity. With Intelsat CellBackhaul, Mobile Network Operators in the DRC overcome the technical and economic challenges often associated with traditional, terrestrial backhaul deployments for rural coverage. They can quickly and efficiently expand their coverage - even in the most remote areas."

In addition to expanding coverage, MNOs can use Intelsat CellBackhaul to ensure their subscribers stay connected anywhere they go by providing backup to existing coverage.

DPA helps Econet cut carbon footprint

Distributed Power Africa (DPA), the continent's leading renewable energy solutions firm, is helping network operator Econet Wireless Zimbabwe reduce diesel consumption by 80% through the use of solar batteries.

The former has recently increased its provision of energy security for Econet base stations through lithium-ion battery technology.

Norman Moyo Nhidza, chief executive officer, DPA, said the Tesla Powerwall rollout helped Econet's diesel reduction programme, as the batteries extend the operator's energy security by an additional 50% battery run time.

"We are impressed with the performance of Tesla Powerwall as it addresses the customers' power backup requirements with significant cost savings," he added. "We look forward to rolling out other cost-effective initiatives in the energy security spectrum."

Kezito Makuni, chief operating officer, Econet, said the company was leveraging the latest technologies and service partners to drive business sustainability through greater energy efficiencies, low carbon emissions, risk reduction and cost control.

Zamtel pens MoMo deal

Zambia Telecommunications (Zamtel), the country's incumbent telecommunications operator, has formed a partnership agreement with the American payment company MasterCard, in a bid to boost its mobile money (MoMo) business.

Under the terms of the deal, Zamtel Mobile Money subscribers - even those without bank accounts - will be able to make secure and transparent digital payments on the MasterCard network, including international e-commerce transactions.

"We are very excited about this partnership with MasterCard, which is another step in realising our ambition to become a digital lifestyle partner of choice," said Sydney Mupeta, Zamtel's president and chief executive officer. "With access to MasterCard's unparalleled merchant network, this partnership instantly expands the ecosystem of locations where our mobile wallet can be used."

Mauritius launches first satellite

Mauritius became the latest African country to have a presence in space, following the successful launch of a CubeSat – MIR-SAT1 on board the SpaceX Falcon 9 from the Kennedy Space Centre in Florida, USA.

MIR SAT, which stands for Mauritius Imagery and Radiotelecommunication Satellite, is a nano satellite (a term reserved for any satellite with a mass from 1kg-10kg. Once it is deployed and begins orbiting Earth, the ground station at the Mauritius Research and Innovation Council (MRIC) in Ebene will be able to contact it a few times a day.

Data the MRIC receives will help the Indian Ocean nation with disaster management and prevention. The ground station will also allow the receipt of data and telemetry from other satellites.

Furthermore, the satellite is also expected to help survey the ocean to improve the management of marine resources and to tackle the depletion of stocks. It will also monitor areas where there is frequent flooding.

The MIR-SAT1 was built by a team of researchers at the MRIC, which advises the Mauritian government on matters concerning applied research, innovation and research and development issues.

There was also help from the country's Amateur Radio Society and a team from AAC-Clyde Space UK, a company that provides rapidly manufactured spacecraft, services and solutions, designed with quality and innovation in mind, for the small satellite market.

While a number of African countries have launched satellites (44 satellites in total) the MIR-SAT1 is only Africa's second satellite this year.

Data the MRIC receives will help the Indian Ocean nation with disaster management and prevention. The ground station will also allow the receipt of data and telemetry from other satellites

MTN selects partners to expand OpenRAN

South African operator MTN has picked five partners to launch an open radio access network (OpenRAN) in Africa to expand 4G and 5G services more quickly and cheaply.

The network provider said it aimed to roll out OpenRAN by the end of 2021 with its partners, Voyage, India's Tech Mahindra and US-based firms Altiostar, Mavenir and Parallel Wireless.

A radio access network (RAN) connects individual devices to other parts of a network through radio connections. Previously, network equipment provided by Nokia, Ericsson, Huawei and other firms was largely proprietary, making it difficult to mix.

However, US government restrictions that have hit Huawei's ability to source chips have sped the adoption of so-called openRAN technology, where any vendor can assemble industry-standard chips and software to create inter-operable networking gear.

"This is a real game-changer for mobile advancement in emerging markets," said Amith Maharaj, MTN's head of network planning and design.

Undersea mudslide caused continent-wide internet outages

A new study has found that two subsea cables off west Africa were severely damaged by undersea mudslides, which may have been linked to nearby river flooding.

In January 2020, the south Atlantic 3/West Africa (SAT-3/Wasc) cable, linking Africa to Portugal and Spain was hit by a breakdown in Gabon, whilst the West Africa Cable System (WACS) that connects South Africa to the United Kingdom saw an outage off the coast of the DRC Congo.

Later, in March, the WACS cable experienced a further break affecting international bandwidth. Whilst many ISPs suffered extended outage periods, most of the major mobile operators were able to mitigate the impact on internet traffic due to their redundancy measures and were in a position to redirect data traffic to other subsea cable networks.

A yet-to-be-peer-reviewed study by Professor Peter J. Talling and a team from the Departments of Earth Sciences and Geography at the University of Durham in the UK, co-led by Angola Cables, suggests the events were caused by large undersea mudslides.

"The cable fault on the SAT-3 was likely caused by an exceptionally large and powerful submarine mud slide that originated at the mouth of the Congo River, just 10 days after the Congo River recorded its largest flood since the 1960s," according to the press release.

It is hoped that the results of the study could help engineers build more resilient cable systems.

Orange launches 4G TDD in Botswana

Orange Botswana has launched a new TD-LTE network to provide fixed-wireless connectivity for home and business users, called Konnecta Max.

This new service includes three tiers of pre-paid and post-paid offers and is available to customers in 22 towns across the country. The first is Unlimited Prepaid Max, which affords customers unlimited access and flexibility as it is available without a contract.

Konnecta Prepaid Max offers more volume and affordability for as little as P199 for 20GB. The third offer is Konnecta Postpaid Max, which gives customers affordable unrestricted access on contract.

Patrick Benon, chief executive officer at Orange Botswana, said the company was excited to offer a service with more data access options.

"Indeed, we now offer a higher entry level package at a cheaper price, so not only is this a first for Botswana in terms of the technology being used, but we are actively working to ensure that the quality to price ratio remains competitive in the market as our customers deserve to get value for their money," he added. Orange already uses its FDD 4G network to provide access for home users.

In May, Orange Botswana partnered with the Citizen Entrepreneurial Development Agency (CEDA) through its OrangeMoney service, starting a new bill payment service aimed at CEDA customers. The service allows them to repay loans through Orange Money, anywhere.

Tanzania gov warns over disclosure of information

The government of Tanzania said it would take tough action against telecommunications companies found disclosing their customers' information to third parties.

Speaking recently during a meeting with executives of operators, the minister for communication and information technology (ICT), Faustine Ndugulile, urged the companies to review their administrative guidelines with a view to identifying the culprits of such malpractices.

He said the government had gathered information that some employees of telecommunication firms were collaborating with some unscrupulous individuals to disclose their customers' secrets without official approval. "By so doing, they endanger the safety of the perpetrators." Ndugulile added, " The acts are also illegal."

The meeting in the capital Dodoma sought to discuss key issues towards the sixth phase of the border and regional telecoms project. Ndugulile added that in order to expand the telecoms scope in the country, thegovernment had built 7,610 kilometres of the national ICT broadband backbone.

The government expects to build another 1,880 kilometres of the national ICT backbone during the next few months. "I believe that this will be your main platform upon which you get the communication across," said Ndugulile. He said the government had expanded and successfully connected East and southern Africa to Tanzania.

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So far, he said, it was only Mozambique that had not been connected to Tanzania, noting however that with the ongoing 409-kilometre project, the southern African nation will also get connected to the country (Tanzania). Experts are currently conducting feasibility studies to see the possibility of connecting the country to the DRC.

He said the aim was to ensure that Tanzania becomes a communications hub for the east and southern African region.

He also reminded the telecommunication firms' senior executives that the government was closely monitoring the issue of Subscriber Identification Module (Sim) cards that had not been biometrically registered, saying they will be disconnected soon.

Meanwhile, Ndugulile said the ministry was announcing a sixth phase tender that focused on cross-border communication.

South African watchdog says a settlement is 'likely' by end of August

The ongoing negotiations between MTN and Telkom over litigation related to the South African government's proposed spectrum auction will be resolved by the end of August, according to the country's regulator.

Both telecom companies called the Independent Communications Authority of South Africa (ICASA) to court in two separate cases claiming the process to auction high-demand spectrum in the country put them at a disadvantage.

The court reacted by halting the auction process that was originally due to be completed in March 2021.

"We should be in a good position to yield an amicable settlement agreement by no later than end of August 2021," said Keabetswe Modimoeng, chairman of ICASA said.

President Cyril Ramaphosa has called the auction of spectrum – delayed for over a decade – a major element of economic reform in the country. ICASA has been liaising with MTN and partly state-owned Telkom since March. The watchdog said that once a settlement is reached, it will take a few more weeks to set a date for the auction process to restart.

Tanzania wants to connect by optical fibre to the DRC

South African operator MTN has picked five partners to launch an open radio access network (OpenRAN) in Africa to expand 4G and 5G services more quickly and cheaply.

The network provider said it aimed to roll out OpenRAN by the end of 2021 with its partners, Voyage, India's Tech Mahindra and US-based firms Altiostar, Mavenir and Parallel Wireless.

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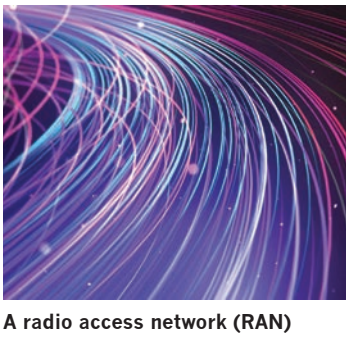
However, US government restrictions that have hit Huawei's ability to source chips have sped the adoption of so-called openRAN technology, where any vendor can assemble industry-standard chips and software to create inter-operable networking gear.

"This is a real game-changer for mobile advancement in emerging markets," said Amith Maharaj, MTN group's head of network planning and design. For mobile network operators, a radio access network makes up the bulk of capital and operating costs.

MTN said it would reduce power consumption and emissions by modernising its radio access networks using OpenRAN, supporting its target to achieve net zero emissions by 2040.



A radio access network (RAN) connects individual devices to other parts of a network through radio connections

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SA and Zambia believe the Hype

Hype, the in-browser chat service for Opera Mini users, has been launched by global internet brand Opera in South Africa, Zambia and Ghana.

The service is described as a personalised and engaging browsing experience that enables seamless chatting, surfing and sharing without compromising speed or driving increased data consumption. Hype is also the first African-inspired chat service built into a mobile browser.

Aimed at the younger generation, users of Hype can create an account and commence chatting to friends immediately. Furthermore, they can browse the web and share GIFS with other users.

Moreover, users of Opera Mini and Cell C in South Africa, MTN in Zambia and Vodafone or MTN in Ghana can activate free data anytime by opening the Feedback Bot in Hype, sending 'Unlock my free data' in chat, then clicking on the link in the reply section. Free mobile data will be activated once the page has loaded.

Hype was piloted in Kenya, where it attracted 400,000 activations and more than 10,000 invites to join Hype per day.

MTN Rwanda to launch new MoMo business

MTN Rwanda has been given the green light from the country's Central Bank to forge a fintech subsidiary, which it has named Mobile Money Rwanda.

Headed by chief executive officer Chantal Kagame, the firm will drive business development, strategy, innovation and the day-to-day running of the company.

In a statement, the company has also said that creating a fintech business is in line with its strategy to lead digital solutions while contributing to the national economic strategy on enhancing cashless transactions that offer convenience.

MTN already provides mobile payment services under the name MoMo, which has been in existence since 2010. A presentation by MTN in April of this year said that its Rwandan unit has approximately six million subscribers. Of that figure, some 3.2 million are said to be active mobile money users, while 2.4 million customers use the company's MoKash service for savings and loans.

Meanwhile, MTN Rwanda's board of directors has approved a recommendation for a dividend pay-out of Rw10.2bn to shareholders. However, this is subject to approval by shareholders at the upcoming AGM, which is slated for June 30.

MTN Rwanda has come a long way since its inception in 1998, when it started out as an exclusive GSM network providing voices and text services. Today its footprint is covered by 4G, 3G and 2G networks as well as an extensive fibre network.

EU wants to end Africa's Wi-Fi dead zones with new satellite

A new multibillion-euro European Union (EU) communication satellite network can cut out internet blackspots across Europe and also in Africa, according to the internal market commissioner.

Speaking at a June 21 event to launch the EU's space program running to 2027, Thierry Breton said a third major EU satellite constellation was needed to follow up on the Galileo geo-location network and the Copernicus earth observation program.

"[The new satellites will] put an end to dead zones, giving access to high speed broadband to everyone in Europe, but also potentially in Africa," he said of the initiative. "We will move fast on this project."

As things stand, EU countries yet to agree on how to finance the plan, so Breton is lobbying capitals to stump up funding. He had previously said the Paris-based European Space Agency could also help cover the cost. Breton commissioned what's been described as a "feasibility study" for a satellite project to rival SpaceX's Starlink, the UK's OneWeb and other similar initiatives that will provide space-based commercial internet service.

As of June, Vox will leverage Eutelsat Konnect, the new-generation high throughput satellite and Eutelsat's service to further grow its base

"The power to connect is and will remain essential," Breton told EU space policymakers Tuesday. "This is why Europe must position itself and build a European state-of-the-art, autonomous and secured space-based connectivity system."

A day later (June 22), Paris-based Eutelsat Communications and ICT specialist Vox reached a multi-year distribution agreement to extend high-speed network connectivity to South Africa.

As of June, Vox will leverage Eutelsat Konnect, the new-generation high throughput satellite and Eutelsat's service to further grow its base.

Mozambique operators reach agreement

Mobile operator Vodacom Mozambique has agreed to maintain the interconnection of telecom services with state-owned Moçambique Telecom, SA (Tmcel).

During a mediation session held June 18 at the headquarters of the National Institute of Communications of Mozambique (INCM) in the capital Maputo, Tmcel agreed to pay the sum of US$3.1m within 90 days in order to reduce its debt by one third. The incumbent has offered to pay the remaining amount in instalments.

Vodacom Mozambique had threatened Tmcel with termination of its interconnection services with the state-owned telecom company for failure to pay its interconnection charges.

During the mediation meeting, the subsidiary of Vodacom Group accepted the proposal of its competitor following the arguments of the telecom regulator who pleaded for the interest of consumers.

Since 2018, Vodacom Mozambique has blamed Tmcel for the continued failure to meet its commercial commitments. The mobile operator stood firm to prevent the debt from growing further. Vodacom Mozambique feared that such a situation would damage its long-term financial stability.

If an agreement had not been reached, the interruption of services would have deprived Tmcel's subscribers of voice access to Vodacom Mozambique customers. This in turn would have severely hampered communications between business partners as well as friends and families.

Ericsson reveals 5G mobile subs outlook

The latest Ericsson Mobility Report has revealed regional 5G mobile subscriptions outlook in coming years, while more than 20% of the Q1 global net additions were recorded in Africa. In sub-Saharan Africa, Nigeria notched the third-highest numbers of net adds globally, while 4G accounted for around 15% of subscriptions at the end of 2020.

Over the forecast period mobile broadband subscriptions are predicted to increase in sub-Saharan Africa, reaching 76% of mobile subscriptions.

Although 5G and 4G subscriptions will continue to grow over the next 6 years, HSPA (High Speed Packet Access) will remain the dominant technology with a share of over 40% in 2026, the report added.

Ericsson said the driving factors behind the growth of mobile broadband subscriptions include a young, growing population with increasing digital skills and more affordable smartphones.

Over the forecast period, discernible volumes of 5G subscriptions are expected from 2022, reaching 7% in 2026.

In the Middle East and North Africa region, some 32% percent of mobile subscriptions were for 4G at the end of 2020. The region is anticipated to evolve over the forecast period, and by 2026 about 80 percent of subscriptions are expected to be for mobile broadband, 4G being the dominant technology with more than 50 percent of subscriptions.

Commercial 5G deployments with service providers have taken place and 5G subscriptions exceeded one million at the end of last year. Significant 5G volumes are expected in 2021 and the region is likely to reach around 150 million 5G subscriptions in 2026, representing 18% of total mobile subscriptions, the report said.

The Ericsson Mobility Report is released biannually, providing industry projections and analyses of the latest trends in the mobile industry, including subscription, mobile data traffic and population coverage.

Talking satellite

Martin Jarrold, chief of international programme development, GVF

10,000 viewers & counting

Pandemic... It is with us still, affecting everyday activities, impacting everyday decisions, circumscribing the scope of our endeavours. It has changed us; what we choose to do, what we can do, and what we are permitted to do.

Like many people since March last year, I have been doing a lot of work-related "Zooming". Virtual space has replaced aerospace and I have come to appreciate that webinars do have certain advantages. Of course, whilst there is something of an urge to return to real events, and to having human interaction with satellite industry colleagues and partners again, this will not be a return to "normal". We cannot yet grasp what the climb out of successive lockdowns might be like; the progress of global vaccines distribution and availability is far from equitable; and, the world won't be "normal".

The GVF-Satellite Evolution Group (SEG) webinar series actually began in May 2020. Pandemic lockdowns and travel restrictions had come to necessitate that the satellite industry, just like other communities of interest, gather only virtually. Meeting had to be online, and in response GVF and SEG forged this new, regular and frequent series of connections in the Zoom ecosphere.

The advantage of webinars is that with them being saved to the Cloud, their content has longevity, extending their potential audience over distance and over time for as long as the themes of their dialogues have continuing relevance, and an interested audience. As I've noted here before, the GVF-SEG series has proven to be a noteworthy success.

After the 25 March 2021 webinar in the series, 'Satellite Networks Solutions: Development & Evolution of Capability & Performance', which attracted 328 registrations from 70 countries, we received the following comment from an audience member in the Czech Republic, "Thanks to GVF for this unique webinar

series." This was just one of many complimentary responses received since the series started. In another example of responses to the series we have people dialling-in all around the clock. Over the Zoom Chat function at the start of 'Satellite Networks Solutions' (3PM in London) we received this message – "Hello, this is Timor-Leste. It is 12AM here."

That webinar brought the total of our series viewers to well over 10,000 located in at least 141 countries, and we greatly appreciate the support of the diverse range of global audience members who have been joining us on Zoom since May last year. During this period the series has featured 28 broadcasts, including programmes for third party virtual conference organisers and in association with satellite industry companies. A visit to https://gvf.org/webinars/ will reveal the complete video archive as well as details of future online events which will build on the success achieved so far.

Reflecting the demand for coverage of more current satellite industry topics, and requests for further opportunities to sponsor events, the webinar series will continue for the forseeable future, and as at the time of writing we have just completed a short series produced in partnership with Intelsat. Like the rest of the GVF-SEG series, the below noted events have been recorded so you can catch up at https://gvf.org/webinars/.

Boosting Africa's communications network infrastructure requires a new roadmap to affordable and reliable connectivity, supporting the continent's digital transformation and enabling greater economic growth and meeting the growing need for shared prosperity. Broadband, fully integrated hybrid networks, smart device penetration, new business models and creative partnerships are the priority foundation to radical socio-economic advance, and it is the solutions to meet this objective that were examined in 'Connecting Africa to Broadband – Where You Need It, When You Need It' on 20 April.

On 22 April the focus was on how to 'Enable High-performance Network Coverage in Europe & MENA'. Driving the next wave of enterprise services innovation and transformation is the adoption of hybrid cloud and connectivity models to optimise the performance and resilience of current services at lower-cost. The transformation of satellite solutions for enterprises, and supporting applications in a secure, reliable, and cost-effective manner across EMENA comprised the foundation to this online dialogue.

More recently still, on 18 May, we presented Enable High-performance Network Coverage in Africa in partnership with both Intelsat and Liquid Intelligent Technologies Satellite. This programme featured, mbora, a customer end-user and wealth creation platform that establishes market gardens with groups of women smallholder farmers, and follows up by building a satellite connected Wi-Fi Hotspot hub with each cluster of market gardens to enable low-cost convenient access to financial services, a clinic, and digital channels for content and education, using internet connections. It is a prime example of what is being achieved through partnerships for connectivity.

For readers in south Asia this information may not seem of direct interest, but there are parallels in, for example, India, where 5,000 remote villages across 15 states get internet connectivity at speeds of 2-20Mbps from a partnership of Hughes India (a subsidiary of Hughes Network Systems) and ISRO. The Organisation's communications satellites, GSAT-19 and GSAT-11, and Hughes' Jupiter system, were contracted by Bharat Broadband Nigam Ltd (BBNL) – a special purpose vehicle created to implement the government of India's BharatNet network project – to provide affordable high-speed broadband access to rural citizens and institutions.

Our next significant, and geographically broader, Asia focus will be what is now called Asia Tech X 2021 (the virtual incarnation of what has in recent years been known as ConnecTechAsia 2021), which is scheduled for 14-16 July 2021... prevailing Covid-19 circumstances permitting. GVF will be providing virtual conference content in the form of a short series of webinars to explore the themes of 'Planes, Trains, Automobiles & Ships: Satcoms-on-the-Move'; 'Bridging the Divide: Enabling Affordable Business & Community Digital Connectivity'; and, 'Natural Disasters: Preparation & Response via Satellite'. A final thought. Wherever you are whilst reading these words... Keep well, stay safe.

5G and beyond – the future of mobile networks

While the pandemic is far from over in most countries, the effects of COVID-19 have rocked countries and industries, serving as a catalyst to accelerated digitalisation, and creating new operating models across verticals. As enterprises and industries embrace this new way of doing business, traditional operating models continue to evolve into what has been deemed the new normal.

The Fourth Industrial Revolution (4IR) is also no longer a dream – as organisations digitalise in all shapes and forms. It has become a reality overnight, forcing CSPs to re-evaluate their operating models to support the increased demand driven by a sharp growth in demand for reliable connectivity to enable video conferencing, remote working capabilities, and access to remote education and telemedicine.

Enter the 5G era

5G adoption in Southern Africa is gaining momentum, with first deployments across the region taking place. These are following closely behind the Middle East, Europe, the United States, and the Far East. The ecosystem of devices is beginning to mature, but as the availability of spectrum is still relatively slow, CSPs are being convinced to enter into roaming agreements and partnerships with those who already have access to spectrum. In South Africa, for example, the release and subsequent extension of temporary radio frequency spectrum licenses during the pandemic has already yielded great results, showing the benefit that the availability of spectrum brings to markets and economies in the region. Once spectrum becomes more universally available, we expect to see large-scale 5G rollouts across the region, which in turn will drive the benefits of mobile broadband and the Internet of Things (IoT). One of the immediate use cases would be fixed wireless access (FWA) as an alternative to fibre, to connect under-developed area.

Industries such as online retail, media and banking have already evolved to embrace digitalisation, but physical industries such as manufacturing, healthcare, transportation, logistics, mining, and utilities have lagged.

The current information and communications technology (ICT) investment ratio between digital and physical industries is 70:30, despite the proportion of their respective GDP contributions being 30:70. Nokia Bell Labs Consulting believes that this provides an opportunity for a big inversion that will see physical industries invest in a broad ecosystem of technologies that they collectively term "5G+". 5G+ brings together the foundational 5G network, along with key technologies that will digitalise every part of a company's operations, including cloud infrastructure, augmented intelligence/machine learning (AI/ML), enterprise private networks, and advanced sensors and robotics. With physical industry poised for growth in ICT investment, Nokia Bell Labs Consulting projects that investment enabled by these 5G+ technologies will grow to $4.5 trillion globally in 2030. Additionally, the historical 30:70 spend ratio between physical and digital industries will invert to 65:35 in favour of physical industry spend. This will, in turn lead to increased wages, profits and tax revenues, increasing global GDP by up to $8 trillion, something which is sorely needed in the wake of the COVID-19 pandemic.

Digital skills for a digital Southern Africa

This shift to digitalisation will require that new skillsets are developed on the continent. Forge Academy, launched at the end of 2020, powered by Nokia in partnership with Business Finland, EduExcellence and the United Nations, was established to provide students and entrepreneurs access to an incubator that has industry relevant accredited courseware, hardware and platforms along with hands on experiences that will position them for current Artificial Intelligence, Augmented Reality, Virtual Reality and digital media opportunities so they can shape opportunities for themselves in this new Fourth Industrial Revolution (4IR) economy. The objective of the academy is to develop skill sets within the next generation of engineers, technologists, entrepreneurs, and job titles that will still be created in years to come to prepare South Africans to take up their right place in the local economy. Another objective is to bridge the existing mismatch between youth skills and employer needs, enabling them to adapt to Industry 4.0.

Moving beyond 5G

While 5G is only beginning to gain momentum in the region, Nokia is already actively working towards 6G. As the overall lead in the European-driven Hexa-X project, Nokia has joined forces with other global forces to lay the foundation for the next generation of network architecture and technology, with the goal of shaping standardisation to meet future technology requirements. Hexa-X is a 2.5-year project within the EU's Horizon 2020 ICT-52 programme and consists of 25 key players from adjacent industries and academia which will frame the 6G research agenda and lay the groundwork for long-term European investment in future wireless network technology.

It is expected that by 2030, 5G will have transformed society through the many new and impactful applications and services it enables in the dimension of enhanced mobile broadband (eMBB). Additionally, mission critical and massive machine connectivity will be a reality, which means that it would be time to go beyond what 5G can offer and look to new technologies with new capabilities. That means that now is the time to start exploring the elements and challenges around 6G in preparation for its introduction to the market. Trustworthiness, sustainable development, and digital inclusion will remain key priorities in the 6G era and will be the foundational principles around which future networks will be defined and implemented. Artificial Intelligence (AI) and Machine Learning (ML) should be used to optimise networks, enable new services, and ultimately make our lives better, delivering immersive communication and cyber-physical systems that are versatile and flexible to meet our future needs. ■

"With physical industry poised for growth in ICT investment, Nokia Bell Labs Consulting projects that investment enabled by these 5G+ technologies will grow to $4.5 trillion globally in 2030"

Jaco du Toit, Head of Sales for Mobile Networks SAV at Nokia

Pandemic hits Safaricom revenue

Safaricom recorded flat growth in its revenues despite high growth in the mobile data segment because of the Covid-19 pandemic, according to its full-year end results for 2020.

A government directive to scrap transaction fees in mobile money transfers affected transactions of Ksh1000 and below to the tune of Ksh4.4bn. This, together with a generally subdued business environment, saw the company's revenue contract marginally.

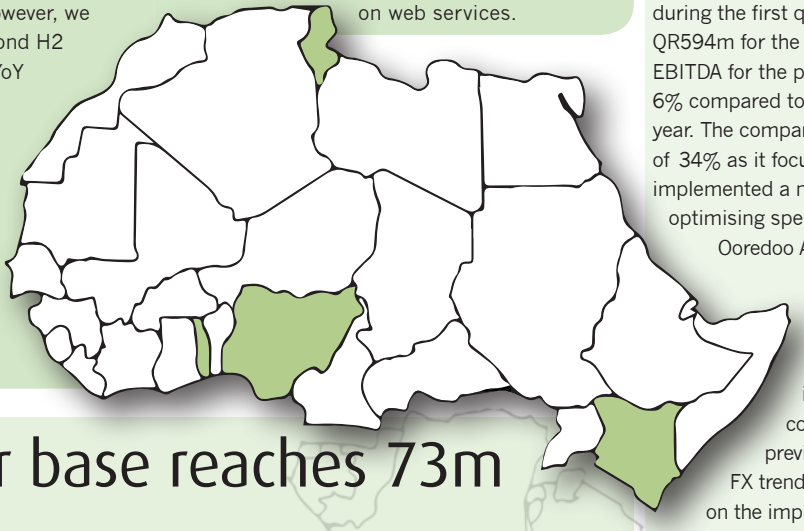
Total services revenue recorded a marginal decline of 0.3% to close at Ksh250.35bn the telco said. Mobile money, widely affected by the waiver on transactions, was subdued by 2.1% YoY to rake in Ksh82.64bn. The company's net income reduced by 6.8% YoY to Ksh68.68bn.

"The impact of our response to COVID-19 in zero-rating M-Pesa transactions weighed heavily on our performance," said Dilip Pal, chief financial officer at Safaricom. "However, we saw a gradual recovery in the second H2 with service revenue posting 4% YoY from a decline of 4.8% in H1."

Nevertheless, the mobile data business grew 11.5% YoY to register revenue of Ksh 44.70bn, attributed to the increased use of data during the work-from-home directives in 2020.

"Despite a tough financial year, the company is committed to investing in the business and maintaining a consistent dividend payout ratio in line with our dividend policy," added Safaricom CEO Peter Ndegwa. "Our guidance for the financial year 2022 is at the range of Ksh105-108bn for Earnings Before Interest and Tax and Capital Expenditure guidance in the range of Ksh40 -43bn. But our most critical support to our country was and remains to ensure network stability to keep the country connected. During this period we accelerated the network roll-out specifically for 4G with over 1,000 new sites set up."

Ndegwa said the company has seen a 40% uptake of 4G devices on the Safaricom network. This was attributed to the company's campaign to offer low monthly payments for users who want to upgrade to 4G devices. Meanwhile, Safaricom is discussing the use of its mobile money service M- Pesa on Amazon's eCommerce platform. the two already partner on web services.



Ooredoo posts positive results in north Africa

Ooredoo Group posted a net profit of QR193m (US$53.1m) in the first quarter of the year despite a challenging macroeconomic environment, thanks in part to solid results in Algeria and Tunisia.

In local currency terms, Ooredoo Algeria's revenues increased 2% in Q1 2021 compared to the same period in the previous year, supported by the bundling of offers in the "My Ooredoo" App and the launch of plans targeting SOHOs and SMEs. Consequently, an EBITDA margin of 34% has been maintained. In Qatari Rial terms, the company's performance was impacted by the 9% year on year depreciation of the Algerian Dinar. Ooredoo Algeria reported revenues of QR 551m during the first quarter of 2021 compared to QR594m for the same period in the previous year. EBITDA for the period was QR188m, a decline of 6% compared to the same period in the previous year. The company maintained an EBITDA margin of 34% as it focused on cost optimisation and implemented a number of initiatives including optimising spend and digital efficiencies.

Ooredoo Algeria's customer base was 12.7 million in Q1 2021, up 3% compared to the same period in the previous year. The company reported revenues of QR394m in Q1 2021, an increase of 3% compared to the same period in the previous year supported by favourable FX trends. The company remains focused on the implementation of its value creation plan which includes expanding its digital proposition and streamlining its operations through the digitisation of its sales and distribution channels.

The company reported EBITDA of QR162m in Q1 2021, down 3% compared to the previous year. The company's focus on efficiency and cost optimisation supported a healthy EBITDA margin of 41% in Q1 2021. Ooredoo Tunisia changed the reporting of its prepaid customer's base from the original life-cycle definition to the 90 days network activity definition, aligning with the standard reporting methodology used in Tunisia.

MT customer base reaches 73m

Maroc Telecom's customer base reached more than 73 million at the end of March 2021, up 6.8% compared to the same period in 2020, the group said.

This performance was driven by the sustained growth of the customer base in the subsidiaries (+11.2%). The Mobile customer base had 19.3 million customers, down 3.2% year-on-year, while the fixed customer base continued to grow (+5.8% year-on-year) and amounted to 2.0 million lines at the end of March 2021.

The broadband customer base grew by 9.2% and reached almost 1.8 million subscribers.

"In a context still marked by the health crisis linked to Covid-19, the Maroc Telecom Group ends the first quarter with operating results driven by its international assets," said Abdeslam Ahizoune, chairman of the management board. "Its diversification strategy is once again proving itself and improving its resilience in this context of crisis."

Ahizoune added that the operator "is continuing its savings plan and is managing to maintain its profitability and focuses its investments" on strengthening networks, infrastructure and improving the quality of service.

Ethiopia loses US$500m from telco licence MoMo move

Ethiopia's decision to exclude mobile money from the terms of two new telecom licences cost the government some US$500m from bid levels, according to the country's prime minister Abiy Ahmed.

The block imposed to allow the country to build its own expertise in phone-based financial technology will be lifted after a year, the Horn of Africa nation's leader said. He was speaking at the launch of Telebirr, a mobile-payments service run by state-owned Ethio Telecom.

"This decision has cost us a high price," Ahmed said. "When it was decided to open up the telecom market about two years ago, one of the key areas of contention was the issue of mobile money."

The Ethiopian government has long been in the process of selling two new telecom licences, which is a policy at the heart of Abiy's economic-reform strategy. The move will open up one of the last major markets yet to welcome international investors and is intended to trigger a wider privatisation program to raise foreign-exchange and boost productivity.

The issue of mobile money has been vital to the progress of the auction. Financial technology is a major revenue and profit driver for African telecom operators, who are filling a gap left by traditional banks and taking advantage of soaring smartphone use.

Angolan minister invites Safaricom to invest in the country

Angola's minister of economy and planning has invited Kenyan telecom market leader Safaricom to invest in the country, in a bid to gain access to its game-changing mobile payment solution, M-Pesa.

On Thursday June 17, Sérgio Santos exchanged views via videoconference with Sitoyo Lopokoiyit, managing director of M-Pesa Africa, and Ogugua Adegbite, director of strategy and International Expansion of M-Pesa Africa, on the ways and means of bringing the service to the country.

At the meeting, hosted by Sianga Abílio, the Angolan ambassador to Kenya, Santos said that almost 80% of the Angolan economy is in the informal sector. He added that he recognised the need for mobile money to bank this sector and enable the financial inclusion of millions of people. Safaricom was invited to participate in a seminar to be held soon in Angola and to use this opportunity to explore partnership opportunities in the country.

Angola's interest in Safaricom's M-Pesa solution comes from the low level of financial inclusion in the country and the slowness of local telecom operators to invest in the mobile money segment. Angola has a bank penetration rate of less than 30%. The National Bank of Angola (BNA), in the national plan for financial inclusion, wants to increase the number of citizens with access to basic financial services to 50% of the population by the end of 2022.

In December 2019, at the 9th edition of the 'Forum on the Challenges of Governance in the Digital Age in Africa', held in December 2019, Vera Daves, then Angolan Minister of Finance, already argued that only Mobile Money would allow Angola to reach the desired level of financial inclusion.

Beyond improving financial inclusion in the Angolan informal sector, the government also sees M-Pesa as a chance to increase competitiveness in the national mobile money segment, where the telecoms company Unitel has been investing since last year, and to generate new financial revenues for the state treasury.

In 2019, the Central Bank of Angola estimated financial inclusion to be below 30%. To raise the level, it agreed in 2020 to grant a mobile money license to Unitel. However, in a rush to see the segment grow quickly, the government is considering opening it up to a big-name operator.

TelOne claims US$2.6m in unpaid invoices

The unpaid phone bill that TelOne, Zimbabwe's incumbent telecom operator, is claiming from the government has reached US$2.6m as of March 31, according to the company's financial report for the first quarter of 2021.

This amount represents more than 60% of the total debt owed to TelOne, which now stands at US$4.3m. The operator said the money owed by the government is weighing on its cash flow and operations and it is increasingly facing financial difficulties that prevent it from paying its main service providers and meeting its various obligations.

The situation that exposes TelOne to a new penalty from the Tax Authority, which had served it with an $8.9 million fine in 2018 for late settlement of its tax obligations.

Furthermore, the government's unpaid bills to TelOne come at a time when the operator is in dire need of cash to remain competitive in the national telecom market. Demand is growing fast across the country and the mobile financial payments segment is also gaining in value. However, TelOne does not have the wherewithal to expand its network to meet demand.

Zimbabwe's telcos appeal for additional forex allocation

Zimbabwe operators saddled with legacy debt have appealed for increased foreign currency allocation to fund their infrastructure.

It announced that it will discard the 1:25 fixed interbank exchange rate system, which had been in place since February 2020.

The Reserve Bank of Zimbabwe (RBZ) replaced the interbank market with weekly foreign exchange auctions, in an effort to ensure the transparent and efficient distribution of foreign currency – and determine the Zimbabwe dollar exchange rate.

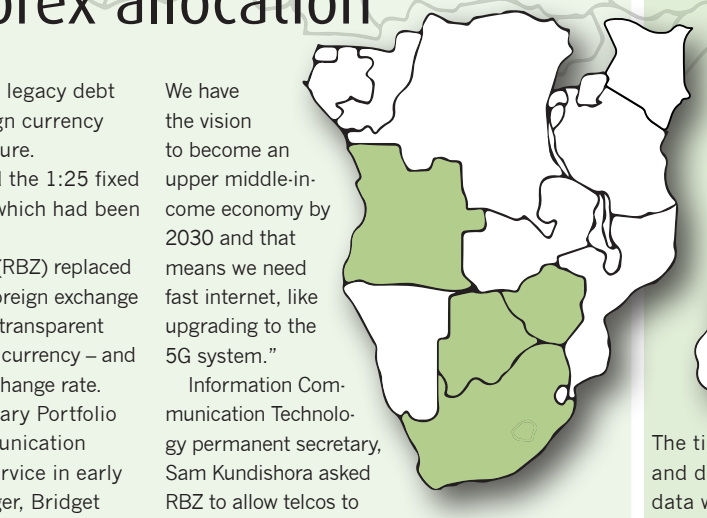
Speaking before the Parliamentary Portfolio Committee on Information Communication Technology, Postal and Courier Service in early May, TelOne senior finance manager, Bridget Hwata revealed various challenges being faced by the telecommunications industry and specifically access to foreign currency.

"We don't have the foreign currency to service our infrastructure," Hwata said. "We require US$2m per month for our operational cost, but currently at the auction market we only bid US$ 300 000 per week, which is far below what we need."

Hilda Mutsekwa, director of economics, tariffs and competition at the Postal and Telecommunications Regulatory Authority of Zimbabwe (Potraz) added: "The foreign currency that is being allocated to the telecom companies is inadequate. We have the vision to become an upper middle-income economy by 2030 and that means we need fast internet, like upgrading to the 5G system."

Information Communication Technology permanent secretary, Sam Kundishora asked RBZ to allow telcos to abstain from participation in the auction system.

Meanwhile, the Zimbabwean government has entered into a partnership with the International Telecommunication Union (ITU) and the United Nations Children's Fund (UNICEF) to implement a school connectivity project named the "GIGA" project. Last year, the government launched the e-learning strategy for schools to complement traditional forms of learning and mitigate disruptions to the education sector caused by the Covid-19 pandemic. Many schools faced financial challenges, so Potraz decided to pay for bandwidth for 400 schools across the country from May to December this year.



MTN cuts prepaid data prices to 30GB for R349

MTN South Africa has cut the cost of prepaid data and voice calls by tweaking its EverydayGigs plan and introducing a new one called EverydayTalk. The time-based tariffs offer cut-price voice and data options, starting at R29 for 1GB of data with one day's validity and R8 for up to 15 minutes of voice over three days (up to five minutes per day). MTN has cut the price of some data plans, including its 30GB option, which offers 1GB/day of data over 30 days. In addition, a new 90GB option, offering 3GB/day, costs R699. The new EverydayTalk plan offers up to 1 800 minutes of calls at R299 for 30 days. A weekly plan offering 210 minutes of voice, or 30 minutes a day, costs R49. MTN first launched EverydayGigs a-year-ago to help prepaid customers to stay connected by paying once and getting allocated data daily in lieu of recharging or converting airtime to a bundle.

Airtel Africa names new CEO, reports solid results

Airtel Africa has appointed Olusegun "Segun" Ogunsanya, current managing director and chief executive officer (CEO) of Airtel Nigeria, as its new CEO following Raghunath Mandava's retirement.

The former joined Airtel Africa in 2012 as MD and CEO Nigeria and has been responsible for the overall management of the company's operations in the region, the group's largest market in Africa.

Before joining Airtel Africa in 2012, the company said Ogunsanya held leadership roles at Coca-Cola in Ghana, Nigeria and Kenya as managing director and CEO.

Following Mandava's retirement, effective September 30, 2021, the company said arrangements have been made to ensure a smooth transition of responsibilities.

"We are delighted to appoint Segun Ogunsanya as the group's new CEO," said Sunil Bharti Mittal, chairman of Indian parent company Bharti Airtel. "He has displayed significant drive and energy in turning around the Nigerian business by focusing on network modernisation, distribution and operational efficiency. It is this commitment, together with industry experience, strategic vision, constant customer focus and proven record of delivery that will enable him to continue to deliver our strategic objectives and to lead the Group in the next stages of development."

Ogunsanya added: "Having been part of the Airtel Africa journey for the past nine years, I'm looking forward to taking up the role of CEO. On a personal note, as an African, I feel honoured to have the opportunity to lead a group that continues to make a difference to millions of people, bridge the digital divide and expand financial inclusion. This is an exciting opportunity to position Airtel Africa for further success in a dynamic continent full of potential." Ogunsanya will join the board of Airtel Africa October 1 2021.

Meanwhile, the operator has continued strong revenue growth, increased profitability and cash flow, and continued deleveraging as indicated in the recently released financial results for the period ended March 31 2021. It reported that revenue grew by 14.2% to $3,908m, with Q4'21 reported revenue growth of 15.4% while constant currency underlying revenue growth was 19.4%, with Q4 2021 growth of 21.7%. This was largely driven by 19.4% growth in underlying constant currency revenue, partially offset by currency devaluations, mainly in the Nigerian naira (10%), Zambian kwacha (34%) and Kenyan shilling (5.7%), in turn partially offset by appreciation in the Central African franc (7.1%). Reported revenue benefitted from a one-time exceptional revenue of US$20m relating to a settlement in Niger.

The operator has continued strong revenue growth, increased profitability and cash flow

Lycamobile now Uganda's third national operator

The Uganda Communications Commission (UCC) has granted a National Telecommunication Operator (NTO) licence to British mobile virtual operator Lycamobile, officially establishing the operator as the country's third national player under the new licencing regime, alongside Airtel and MTN.

Following the approval of the new licencing regime in June 2020, the watchdog allowed all existing telecommunications operators to apply for licencing category of their choice on condition they meet all requirements.

Lycamobile is a British mobile virtual network operator (MVNO) with a presence in 23 countries. In Uganda, it has operated under its parent company, Tangerine since 2008.

The company is expected to extend its network coverage to 90% of Uganda's geographical boundary within five years of acquiring the licence.

"The commission is confident that the entry of Lycamobile to the NTO market will further improve competition in the sector and ultimately benefit the Ugandan consumer," said UCC acting executive director Irene Kaggwa Sewankambo.

Furthermore, the operator is also expected to list a minimum of 20% of its shares on the Uganda Securities Exchange in accordance with the listing rules and guidelines set by the Capital Markets Authority and the Uganda Securities Exchange.

World Bank 'to invest US$200m in Ethiopia's telecommunications'

The World Bank will invest US$200m in Ethiopia's telecommunications sector but wants the country's government to open this market up to competition.

Ousmane Dione, World Bank country director for Ethiopia, Sudan, South Sudan and Eritrea said the organisation will invest in Ethiopia's digital economy and drive a new Digital Ethiopia Foundations project.

He said the project will provide funds to strengthen regulator the Ethiopia Communications Authority and to prepare the legal and regulatory building blocks for the digital ecosystem.

Part of the plan is to pre-purchase capacity from Ethio Telecom and new operators, through competitive bidding, Dione added.

However, the World Bank has also expressed concern over a decision by the government to limit investment by independent cellular tower companies. The financial institution argues that the decision compels telecommunication companies to use infrastructure provided by Ethio Telecom, and restricts infrastructure roll out – particularly in rural areas.

Part of the plan is to pre-purchase capacity from Ethio Telecom and new operators

It advised that new entrants be allowed to negotiate commercial arrangements and decide to either build their own infrastructure or purchase capacity from Ethio Telecom.

Dione warned that policies which seek to protect Ethio Telecom's infrastructure by allowing it to charge high prices for interconnections will end up harming the company.

He said Ethio Telecom will need to both collaborate and compete with the new entrants who will be the telco's biggest customers if prices are set fairly, and that Ethio Telecom has the potential to become a regional powerhouse - but only if it is well-prepared for the competitive environment.

Meanwhile, the successful bidders for Ethiopia's telecoms licences will be able to offer mobile money services, according to reports. However, they will not be restricted to using the infrastructure of Ethio Telecom, as had been originally suggested, Ethiopia had come under severe criticism from a number of authorities, including from the World Bank in February, for its stance on preventing new operators from offering mobile money and on limiting competition for infrastructure.

South Africa unit boosts Vodacom

Vodacom's South African business posted a healthy rise in revenue growth, fuelled by increased demand for connectivity, helping the group record strong results for the year ended March 2021. In South Africa, service revenue grew by 7% to R56.4bn on the back of increased data usage, with its successful summer campaign and demand for financial services collectively helping Vodacom. As a group, in the year, Vodacom's revenue was up 8.3% (7.4 %) to R98.3bn. The company also added 8.2 million customers, to serve a combined 123.7 million clients across the group, including Safaricom. Vodacom's total financial services customers, including Safaricom, were up 12.9%, or 6.6 million to 57.7 million, while earnings per share rose by 4.2% and headline earnings per share surged 3.7%.

Ukrainian buys SA firm

Ukrainian businessman Max Polyakov has acquired South African satellite manufacturer Dragonfly Aerospace. The founder and CEO of EOS Data Analytics, which specialises in the provision of advanced satellite image processing and analysis solutions, announced his move in an interview with Reuters. He said the deal signed for an undisclosed amount "gives us cost-control and mass production of components. It allows us to bring everything in-house". The businessman also expressed his ambition to see the devices manufactured by Dragonfly launched on the Alpha rocket of Firefly, one of his companies that specializes in the development of small and medium-sized launch vehicles for commercial launches to orbit. Dragonfly Aerospace allows Polyakov to manufacture and launch his small satellites into Earth orbit in this highly-competitive market.

Talking critical

Mladen Vratonjic, chair,
The Critical Communications Association (TCCA)

Mission critical communications – it's all about trust

Users of mission critical communications typically operate in environments and/or circumstances that are dangerous, challenging, and perhaps even life threatening. It is therefore essential that they need to trust the communications services that support them. In extreme situations, the communications channel is of vital importance – it can literally mean the difference between life and death.

For communication services to be truly mission critical, they need to be available always and everywhere. Natural disasters, terrorist attacks, road, rail or air accidents can happen anywhere - it is impossible to predict when and where incidents will take place. Therefore, excellent geographic radio coverage is the most important aspect for high service availability. The mission critical network must be resilient, with redundancy, fallback options and off-network communications capability.

And of course, the communication services need to match user requirements, to seamlessly support users' operational processes with interoperable services and prioritisation. Communication needs vary depending on incidents and response procedures, so the communications structure must be able to adapt efficiently. Examples of this include creating new communication groups, managing group memberships and combining different groups on the fly.

While there is an enormous amount of work going into making commercial 4G networks perform well enough to be considered mission critical, this is an ongoing process. It will eventually be the choice for users who need broadband services, but at present there is no other technology that can surpass the quality of TETRA as the service of choice for mission critical users.

Designed from its inception as a mission critical communications bearer, TETRA was first operational in the late 1990s and for that reason some term it an 'old' technology. It is indeed a mature technology, well proven and in use worldwide, but remains very much current, maintained and enhanced on a regular basis.

TETRA fulfils the operational requirements of a variety of end users. Today it is considered as the technology of reference across all mission and business critical market sectors, including but not limited to public safety and security, transport, utilities, extraction and mining, critical national infrastructure protection and the military.

TETRA is deployed across the African continent for public safety, transport, mining, and other markets. A nationwide TETRA system announced for the Ministry of Interior in Angola is part of the country's initiative to modernise the public security and safety service. The City of Cape Town, Cape Town International Airport, the Botswana Police Service and the South African Police Service are all TETRA users. The South African wine region of Stellenbosch and its municipal area are equipping public safety personnel such as police officers and firefighters with the mission-critical service.

Critical users need particular features to enable them to work effectively. These include secure encrypted networks, calls and two-way radio messaging, assured coverage, capacity and call quality, the ability to send voice, data and images, direct mode operation which allows rapid communications between groups of workers, for instance a first responder team at a major incident, and managed fall-back for additional resilience. In an emergency, voice will always be the most immediate form of communication, and the clarity of TETRA voice services is guaranteed through outstanding noise suppression capabilities and a special voice codec for optimised voice performance in challenging noisy areas.

Although TETRA is not a broadband bearer, its narrowband data capabilities have supported critical users for more than two decades. TETRA's data service was put to good use during the 2010 Football World Cup, hosted by South Africa. With operations over 37 venues, organisers utilised TETRA messaging to enable users at multiple venues to simultaneously submit standardised status updates and incident reports to the Command Centre in Johannesburg. This minimised voice traffic on the Johannesburg City TETRA network, ensuring the network was not overloaded with the huge amount of traffic.

TETRA has been designed from the bottom up to meet the needs of critical users. The European Telecoms Standards Institute (ETSI) develops and enhances the TETRA standard, and the number of dedicated features and functions now exceeds 300, and these will be relevant for many years into the future. Investments in infrastructure easily cover 10-15 years in the core and even longer for base stations. Devices have been shown to have a typical lifespan of seven to ten years in the field. Users, operators and investors rely on the very well documented standard, constantly being maintained, evolved and improved.

Through TCCA's Interoperability (IOP) process, in which all major TETRA vendors participate, TETRA provides multi-vendor choice. This allows customers to switch from one supplier to another without sacrificing network capabilities. TCCA's world-leading IOP process is managed by TCCA's Technical Forum, with results independently verified. The process was developed to enable a truly open market for TETRA equipment and systems. This benefits both the end users in terms of a wide portfolio of compatible equipment, competitive pricing and rapid development of new products; and the industry in terms of a wider accessible market, faster market take-up and better possibilities for investment in innovation.

Many national TETRA networks have been upgraded in the last five years and had their life extended – some have maintenance contracts beyond 2035.Control room vendors have their systems tightly integrated with TETRA networks, and many users have optimised operational processes around the flexible capabilities of TETRA.

TETRA is essential to the organisations using it; it is integral to the operational procedures of mission critical users. If organisations want to evolve to broadband in the future, those operational procedures will also need to evolve. Simply switching TETRA off and switching critical broadband on in one go will not be possible, so TETRA and broadband will co-exist for quite some time until new procedures are written, accepted, trusted and adopted by the users.

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antenna solutions

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

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

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The powerful pull of a home number

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

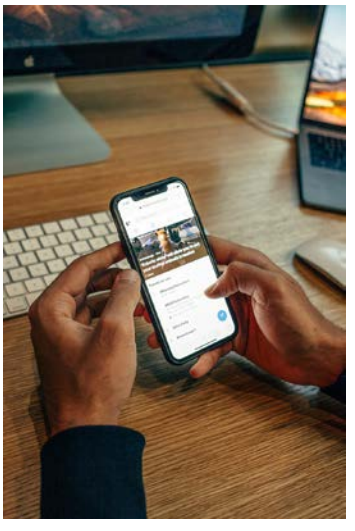
But the physical requirements of an MVNO, with a SIM card, mean that not everyone can easily be sold to. To buy something physical, people need to buy it in person, or be able to receive a delivery, which puts another barrier to entry in their way, but for some people and communities the logistics can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

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

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

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

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



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

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

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

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

Africa's smartest cities

Africa was the fastest urbanising continent in the world prior to the arrival of Covid-19. Are smart cities the solution to its rapidly urbanising population?

Africa is still the planet's most rural continent, with a mere 40% of the sub-Saharan region's population living in cities. Even the sprawling and bustling heartlands of Cairo and Kinshasa, teeming with traffic, pollution, inadequate public services, are in their relative infancy and on the brink of a growth spurt.

In short, Africa, like any other part of the world, needs to plan for the future if it is to keep up with its predicted and expected future.

One idea that appears to be gaining traction are newly-developed satellite "smart cities," manifesting themselves in ambitious multi-billion dollar, hyper-liveable hi-tech cities populated with bustling, beautified boulevards, private condos and luxury cars.

Of course, money, culture, location and other factors mean smart cities around the world can be very different from one country to the next.

Ben Roberts, group chief technology and innovation officer, Liquid Intelligent Technologies

French telecommunications giant Orange has long been a major player in Africa ...

Keith Matthews, country manager for South Africa and sales director sub-Saharan Africa Orange Business Services, says wherever it's located, a smart city must be intelligent,

"Nairobi is dwarfed by the mega cities of Kinshasa and Lagos with populations of almost 15 million"

connected, agile, sustainable and innovative. "There is no difference in the core aim of building a smart city in Africa to anywhere else in the world," he says. "The smart city uses IT and digital technology extensively to improve the quality of life of citizens, and to boost the economic attractiveness and tourism potential for local authorities and companies." Matthews adds that smart cities improve lives through everything from mobility solutions to sustainable energy and smart grids. "However, they are dependent on the free, frictionless and efficient flows of data – this is what really makes cities 'smart' – supported by embedding and integrating key sophisticated technologies into the core of the city. Critically, smart cities should essentially be designed around human needs (human-centricity) and built on a foundation of trust," he says.

Ben Roberts, group chief technology and innovation officer Liquid Intelligent Technologies, the pan-Africa technology firm formerly known as Liquid Telecom, says cities in the world fall into three categories. "Very old and have evolved and expanded over centuries for example, Rome," he adds. " A new and planned city such as Milton Keynes in the United Kingdom, my own hometown, which was built from scratch and where everything has been planned and implemented to a blueprint. Cities/towns/even villages that have grown very fast such as Nairobi whose census results show the city has moved from a population of 2.2 million in 2000 to almost 5 million today. In Africa however, Nairobi is dwarfed by the mega cities of Kinshasa and Lagos with populations of almost 15 million."

Under its previous identity as Liquid Telecom, it spent the last decade building our fibre network which stretches 100,000km from Cape Town to Cairo across 13 countries.

Roberts adds that the arrival of millions of urban-dwellers has created problems for unplanned cities around the world both in terms of infrastructure and capacity. That said, he opines that African cities have an advantage over many older overseas cities for a number of reasons. One is a lack of legacy infrastructure and systems means that African cities can start with the latest technology available – evidenced in telecoms where countries leapt to 3G, 4G and 5G rather than invest in fixed networks. The second, he says, is a young population combined with an entrepreneurial zeal.

"Our young people have the same aspirations as their foreign counterparts · to have fulfilling and well-paid employment, good housing, healthcare, education, access to the digital economy etc.," Roberts continues. "However, Africa's key ingredient is its 'Can Do' attitude and the ability of its people to innovate and create home-grown solutions to the continent's problems."

Third, Roberts says, problems that affect the entire population of a city. "No matter how rich or poor you are in Nairobi, poor air quality affects us all which focuses the attention of government ministers," he adds. "However, this concept of the 'smart city', where technology and machine-to-machine (M2M) communications are leveraged to measurably improve the quality of life and efficiency of communities, can only succeed if connectivity is reliable and effective."

The paragon for many observers is Eko Atlantic in Lagos, Nigeria, built on land reclaimed from the sea, which is expected to house 250,000 people once completed. Hope City in fellow west African nation Ghana is slated to feature the continent's tallest skyscraper.

Rwanda, a regional leader in developing "smart cities," published a Smart Cities Blueprint in May to help foster the use of technology in urban management. The continent needs to find ways of improving urban life.

In 2017, Finnish gear-maker Nokia and regional development firm SRG collaborated with the government of Rwanda to deploy smart city technology in Kigali to improve the lifestyle and social sustainability of citizens. At the time, Mohamed Abdelrehim, head of solutions and business development, for Nokia in Middle East and Africa market, said the project was in line with the company's vision to use technology innovation to create social sustainability and make people's lives better and safer.

The city has since developed into an enviable example of a smart city, according to Roberts. "Kigali in Rwanda stands out as one of the cleanest and well-run capital cities in the region," he says. "And this is no coincidence, as it has institutionalised an agenda of urban planning and zoning with the aim to become a smart city at the heart of this."

Keith Matthews, South Africa country manager and sub-Saharan Africa sales director, Orange Business Services

"There is no difference in the core aim of building a smart city in Africa to anywhere else in the world"

Liquid itself has been carrying out a lot of work in the Kenyan capital Nairobi, the headquarters for its east African operations, which it uses as a test-bed for most of its pan-African services.

"Nairobi is a city with a number of challenges, with perhaps traffic queues being the most obvious to visitors and residents alike," Roberts explains. "Large strides towards making Nairobi a smart city have been made in recent years with installation by the government of an extensive network of CCTV cameras and smart traffic lights in certain areas."

Liquid began by building and operating a robust smart city infrastructure for Nairobi. This comprises of a city-wide fibre optic metro backbone, which connects all major buildings and office parks, and serves to connect many communications towers. Roberts says this further enables multiple MNOs to offer 100% 4G and emerging 5G coverage in the city, along with ISPs that provide affordable uncapped data using fibre to the home and Wi-Fi last mile technologies.

It's no secret that air pollution is a particular problem in Kenya with the World Health

Organization declaring that it is the fifth largest cause of deaths and disability across the country.

Roberts says this pollution is caused by substantial increases in traffic levels, construction of high-rise buildings and new industrial activities releasing fine particulate matter into the air. “Poor refuse removal services result in citizens burning plastic and other garbage on roadsides which is also a major contributor,” he continues. “To help provide reliable data about air pollution, our IoT air quality system has been rolled out across 3000 sites in Kenya following a trial in Nairobi. The sensors provide detailed neighbourhood measurements of airborne pollutants every 2 ½ minutes. This information is freely available to anyone via a simple dashboard.”

Head further north to Egypt and just outside Cairo, you’ll find the New Administrative Capital (NAC), a large-scale project that has been under construction since 2015. It’s one of the projects for economic development, which forms part of a larger initiative called Egypt Vision 2030. Orange has long been a major player in Africa and Matthews, says the NAC is “a truly visionary project and offers a glimpse into the high-tech future” of Egypt.

“Orange already has a huge amount of experience of operating in the region. We have developed several smart city projects across the Middle East, such as in Saudi Arabia and the UAE and Orange has a long history of operating in Egypt in particular,” he says. “Because of this, our knowledge and understanding of the environment will allow us to fully adapt the design of the infrastructure to the needs of the new city. The NAC is set to become Egypt’s new financial and administrative capital, housing the main government departments and ministries as well as foreign embassies. It will be built based on five main pillars: safety, connectivity, integration, digitalisation and replicability.”

When it comes to comparing NAC with other African smart cities, Matthews says its distinctive feature is that it is a greenfield project and concept consisting of an entirely new city, designed and built from scratch, whereas most of the other African smart city projects consist of deploying smart solutions in existing cities or districts. “The scale of the NAC presents its own challenges, and the solutions, priorities and operations deployed there will be different to other smart city projects across Africa,” he adds.

As far as Nairobi is concerned, Roberts says it lacks a smart city plan but has all the elements of a smart city organically coming together. He adds that the purpose and mission of such a master plan could be a road map to co-ordinate the smart city activities of central and county governments, private sector companies, along with NGOs and civil society.

“Completely new cities in Africa like Tatu City and Konza Technopolis, both in Kenya, are being constructed from the ground up as tech enabled smart cities from day one with an aim to be the pinnacle of modern living in Africa,” continues.

Nevertheless, even with access to the right

Liquid has enabled a successful precision farming deployment, now in its 3rd year of operation, in partnership with Twiga Foods at its Takuwa Farm, just outside Nairobi. The results have been an increase in yield of crops such as onions, as well as decrease in input costs, and the project recently won an IoT technology award at the East AfricaCom conference

technology, infrastructure and with enough funding it's been said that smart cities can only make sense if put in the broader picture of giving every African citizen the right to basic services. Is that a fair comment?

Roberts says that using technology and data-driven systems to solve real-life problems is both pragmatic and cost-effective in the long-term.

"Many African economies are driven by agriculture and Kenya is no exception," he says. "Outside of the large cities we are seeing smart technology being used in many ways to improve services. In the agricultural sector, Liquid is looking at ways that tech can enable precision farming in agriculture and in aquaculture."

Roberts cites examples of how Liquid, using the Sigfox 0G network, has enabled a successful precision farming deployment, now in its 3rd year of operation, in partnership with Twiga Foods at its Takuwa Farm, just outside Nairobi.

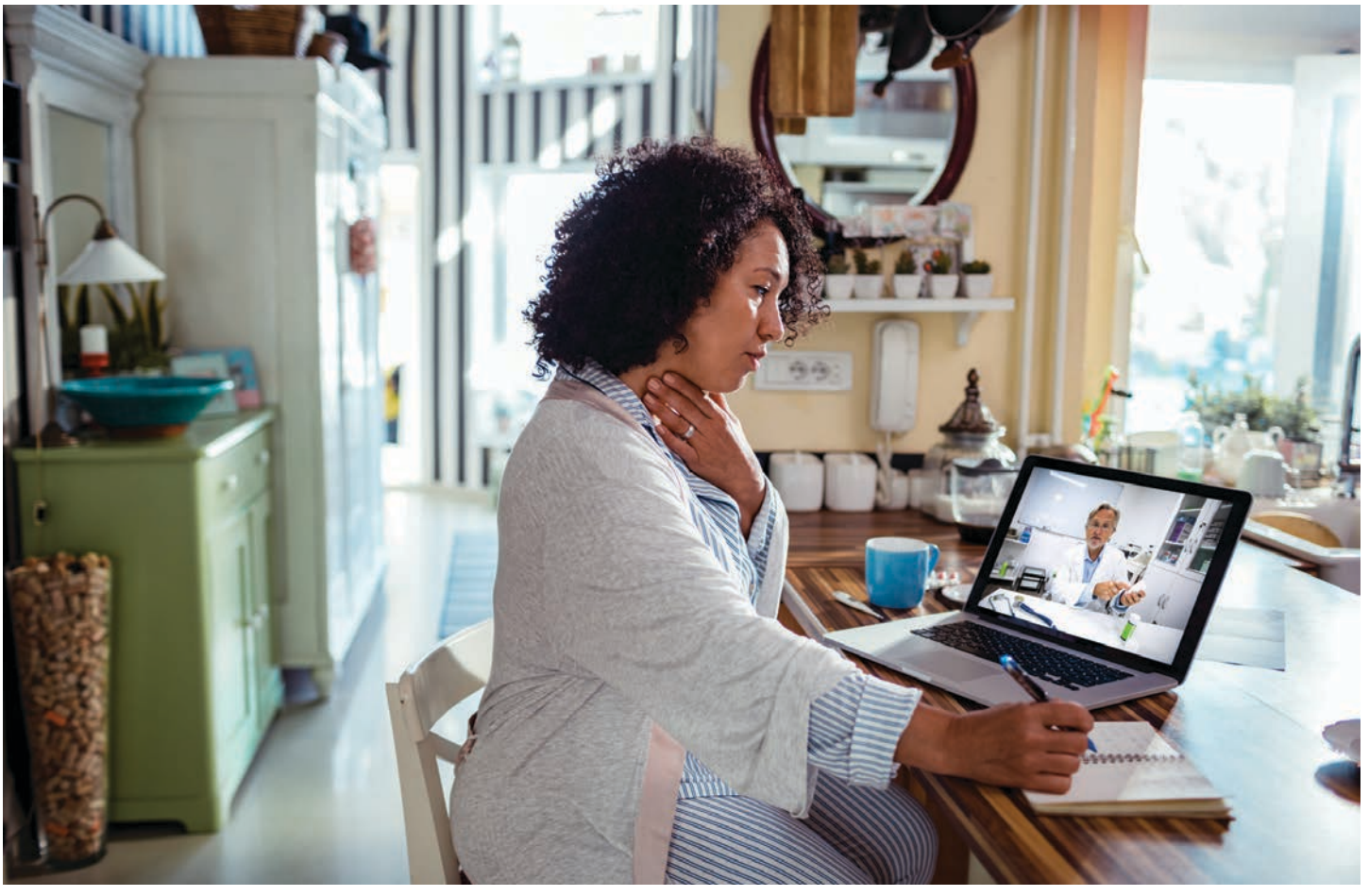
The results have been an increase in yield of crops such as onions, as well as decrease in input costs, and the project recently won an IoT technology award at the East AfricaCom conference.

"In the extreme western side of Kenya, Liquid has deployed sensors in Lake Victoria to help grow the yields of Tilapia fish farmers," says Roberts. "It is certainly my dream that the enablement of Agri-Tech will not only make a noticeable impact on the GDP of African countries but will also offer a bright future to the tech savvy youth who are born in rural areas to remain in their communities implementing technology for rural income generation, instead of heading to the cities in search of jobs."

For Matthews, smart city projects can help facilitate the delivery of services to citizens and help improve the quality of life for growing urban populations, giving more people easier access to local services and information. "A smart city is a complex ecosystem with an array of vertical activities, including digital solutions to improve access to health, facilitate mobility, enhance security... all coordinated by the smart city integrated operations and security centre, providing safe city and digital living services and experiences," he says. "Every smart city is a unique network of integrated services that may grow and develop organically over time as new use cases emerge and then evolve, supported by new bursts of innovation. The key to success is embedding intelligence, integrating sophisticated technologies, including IoT and artificial intelligence to make use out of the massive amount of data generated across the smart city."

In fact, Matthews goes on to say that as a result of a growing number of people living in cities, smarter cities can help improve the quality of life for citizens and create new opportunities to innovate. He says that Africa has the advantage of relatively little legacy infrastructure and so can move forward faster. "By making a city smart, the urban digital ecosystem can bring new opportunities for the creation of new jobs and small businesses, and also for existing companies to develop their business – creating added value for urban populations," Matthews adds. "Smart city solutions can also help ease traffic congestion, improve the information on city services available to residents, and help make areas safer through smart lighting and surveillance, and enhance the efficiency of utilities and energy consumption. Making a city smart and listening to people's needs and ideas can empower the population and help city administrators make the right decisions."

While Africa has its problems, just like every other continent, it is at least addressing them by embracing new technology and adopting wireless connectivity where and when it can. This can only lead to a very bright and smart future. ■



What a difference a year makes

Lessons learned from the global pandemic by Dan Losada, vice president, Hughes Network Systems

It is hard to believe that one year ago, we were at the start of the pandemic. It was around the annual satellite industry conference in Washington, D.C. last March that we started to hear rumors of a highly contagious virus that was spreading from one continent to another. Most of us didn't know anything about "social distancing" or "herd immunity." By the time the satellite show shut down early in March 2020, global travel drew to a halt and stay-at-home orders became commonplace everywhere around the world.

In some ways, the global pandemic brought people together like never before, thanks to a singular, shared experience. No matter where you lived or worked, there was no escaping the need to stay away from people outside your household, work and study from home and wear a protective mask. Zoom meetings across continents looked eerily monotonous thanks to commonly used digital backgrounds.

Yet, even as citizens from the Seychelles to Southern Asia to San Francisco shared the experience of staying at home, hand-washing and social-distancing, the vast differences in digital access grew more pronounced. Never has it been more apparent that those with Internet access have distinct advantages over those without.

Now, 12 months into the pandemic, as vaccine programs expand and stay-at-home orders lift, one thing is certain: Internet access is no longer a "nice to have," it is a necessity, enabling telehealth, supporting education and delivering social services.

New drivers of connectivity

The pandemic accelerated the need for connectivity around certain drivers. With COVID, there was suddenly a more pressing need to scale up

telehealth services. Mild COVID cases would be treated remotely so they wouldn't overwhelm medical facilities or further spread the illness. Elderly patients or those with pre-existing conditions were also better served by receiving care from the safety of their homes. Of course, all of this demands connectivity, as do the many pop-up sites and processes supporting testing and vaccine distribution.

The disparity between the connected and the unconnected was perhaps most glaring after the sudden shift to remote learning. School systems and communities, along with families and students without access at home, faced added stress and strain. There is simply no remote learning without connectivity. Even the bulk of today's in-class education throughout developed regions relies on connectivity.

In an environment where remote work is recommended and in-person services are rare, citizens in communities around the world still need access to basic health information and government services at the local, state, and national levels. They need to be able to find updates on infection rates in their area, review World Health Organization guidelines or learn about quarantine related rules and restrictions. Connectivity is the public's best way to secure information and services.

Bridging the digital divide

Disparities in access don't have to span continents to be profound. For instance, in Indonesia, many citizens have direct-to-home Internet access and yet, many do not. Across the island nation, there are places where cable or fiber are simply impossible to connect, making satellite the broadband of choice for many. To help connect the unconnected in Indonesia, both private industry and the government deliver satellite solutions. Pasifik Satelit Nusantara (PSN), the oldest private telecommunication and information service provider in Indonesia, provisioned the Hughes JUPITER™ System for broadband services over the PSN VI High-Throughput Satellite (HTS) and also implemented more than 5,000 Community Wi-Fi Hotspots to help connect even more. On the government side, BAKTI, a division of the Indonesian Ministry of Communications and Information, launched an initiative to help close the digital divide by deploying satellite connectivity across 8,000 cellular and Internet access sites.

Internet service providers (ISPs) and mobile network operators (MNOs) face two challenges in bridging the digital divide. The first is justifying the investment to extend service to reach these unconnected populations, many in rural and hard-to-access areas. The second is offering service at a price point the market can afford. When average per capita income is $315, as in sub-Saharan Africa, a monthly service fee of $40 dollars for Internet access is out of the question. To overcome both of these hurdles, satellite connectivity presents an ideal solution with three applications.

Direct-to-home service

Many people live in areas where there is no terrestrial broadband access, like hard-to-reach mountainous or desert regions or exurban communities where fiber or cable to the last mile was deemed too costly. Very Small Aperture Terminals (VSATs) have helped solve this problem by enabling delivery of satellite broadband services almost anywhere. VSATs comprise an antenna (the "dish"), an outdoor and an indoor unit. As convenient, two-way ground stations, they make it possible to transmit and receive satellite data practically anywhere. That means, ISPs can provide reliable, convenient, and affordable satellite connectivity services to consumers, as YahClick, the joint venture between YahSat and Hughes, is doing, for example, for thousands of subscribers in South Africa using Hughes JUPITER terminals.

Satellite backhaul

Satellite backhaul of cellular traffic has been used for decades, supporting no less than 70,000 sites today with 200,000 sites projected by 2029, according to NSR. For cellular operators, a major barrier to expanding service in low density and rural areas has been the prohibitive cost of backhauling traffic over terrestrial facilities, whether using microwave, fiber or cable. The cost of terrestrial backhaul, such as fiber or cable, is directly proportional to distance, making it increasingly unjustifiable the further the reach from urban centers. What's more, not everyone can afford direct-to-home Internet service but nearly half the world's population has a smart phone and roughly half of all global internet access is by mobile device.

Providing cost-effective backhaul is now at the top of the priority list in justifying business cases to meet this growth. Next generation HTS and associated ground networking solutions such as the Hughes JUPITER System being deployed throughout Africa and worldwide present operators with a viable path to profitable expansion and the ability to connect more people who otherwise would not have access.

Community Wi-Fi hotspots

Satellite-enabled Community Wi-Fi Hotspot services successfully bring Internet to places where it is either not available or unaffordable for locals. Deploying Wi-Fi access points makes the last mile affordable for the consumer, who can access the service with any Wi-Fi enabled device. However, this kind of shared access still requires a broadband backbone to carry traffic to and from the Internet connection point.

In this model, a shared, high capacity VSAT can be configured readily to support traffic requirements of local users. The service enables providers to expand their networks cost-effectively and to make Internet available and affordable to unserved and often ignored market segments, while still attaining profitability. By sharing service costs among dozens of users, the price-per-user decreases substantially to align better with market rates.

For implementation, Community Wi-Fi is especially attractive to governments striving to provide Internet access to entire towns on short timelines and without massive cost implications. A shared VSAT model is also ideal for local service providers hoping to expand services to areas with smaller populations that may have lower per capita income.

As ISPs and MNOs around the world seek to serve growing broadband demands in their markets while expanding their wireless footprints, satellite Internet, satellite backhaul and Community Wi-Fi Hotspot services will continue to be an important part of the infrastructure. Simply put, satellite broadband connects the unconnected by enabling service providers to improve their offerings, deliver better throughputs, and support education, economic development and social connection.

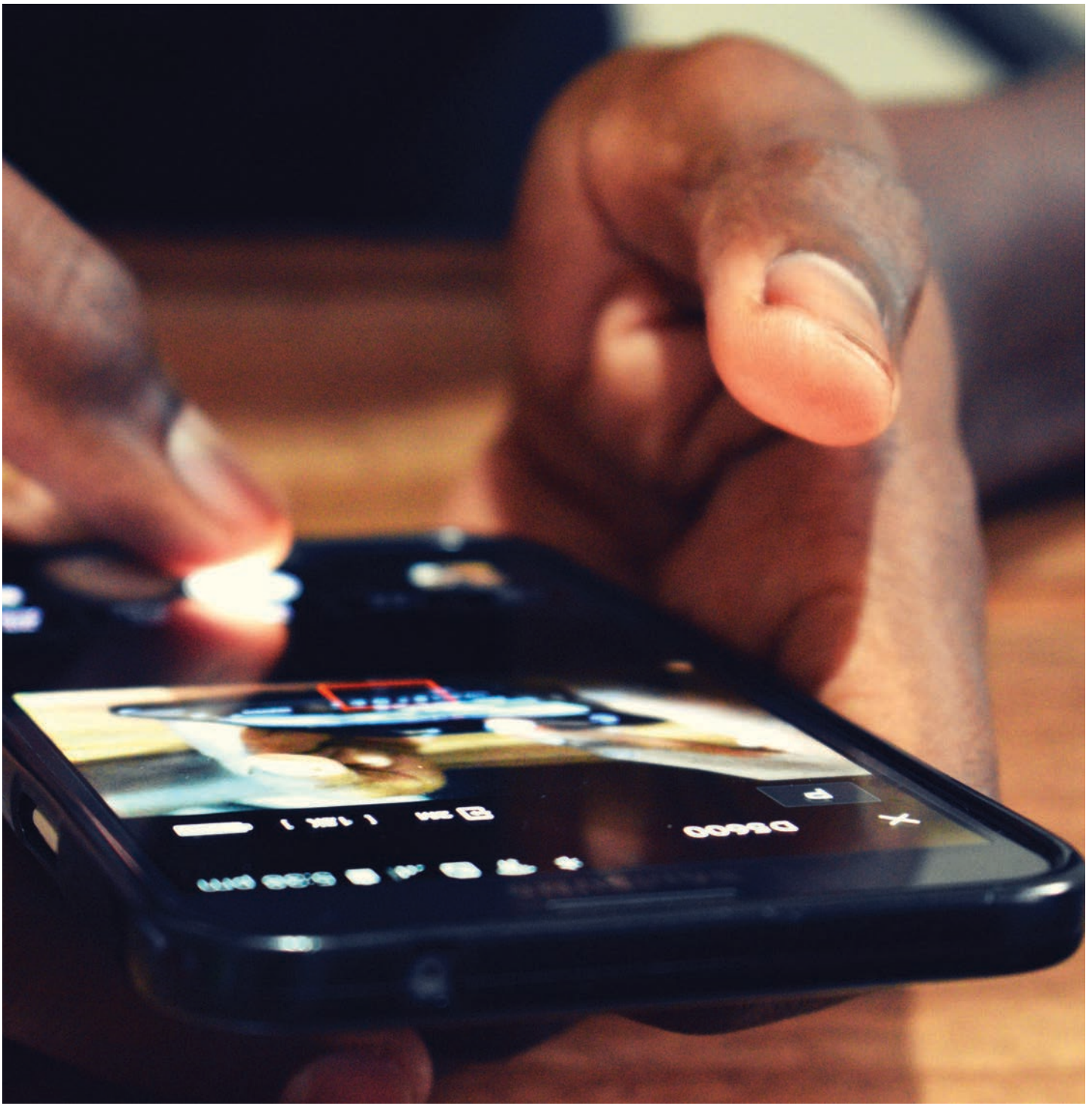
The way forward: connectivity everywhere

Now, as we look to post-pandemic life, governments across Africa and Asia are exploring ways to ensure all citizens have the connectivity they so desperately need, with satellite offering the fastest and most efficient solution for hard-to-reach and remote locations. Governments are best positioned to implement effective connectivity. Certainly, that includes cable and fiber broadband where available and affordable. Yet, across large swaths of Africa and Southern Asia, satellite continues to proliferate as the technology of choice for connectivity, with good reason.

The BAKTI program and others underscore the rising trend of governments taking a more active role in bridging the digital divide. In Botswana, Botswana Telecommunications Corporation uses satellite (and the Hughes JUPITER System) to expand its high-speed business broadband service across the country with hundreds of remote terminals connecting businesses and homes.

One of the largest telecommunications companies in East Africa uses satellite broadband to deliver video and Internet access to schools. In the Philippines, Cignal TV Inc., the premier direct-to-home satellite provider, offers Internet service to two million subscribers using the same JUPITER terminals and network management system that Hughes employs to power HughesNet®, the company's flagship satellite Internet service with more than 1.5 million subscribers.

Around the globe, governments and communities, ISPs and MNOs alike were overwhelmed by all that the pandemic wrought. But today, the focus has shifted from managing dramatic spikes in network traffic, to understanding how to better serve existing customers and apply innovative ways to expand services and connect everyone. Because pandemic or not, the lesson we've learned above all others is that we need connectivity everywhere. ■



Testing the network

The increased usage of IoT, streaming and other services mean operators are faced with commercial and technical pressures to continually protect and enhance their network. Robert Shepherd looks at some network optimising tools at their disposal

The need for high-performance increases by the day, courtesy of IoT streaming and other demands and so must the rate of network optimisation. As far as operators are concerned, monitoring user activity (no, not snooping) and experience along with sending alerts immediately upon detecting network and service instabilities can drastically reduce the negative effect that network problems have on end-user applications.

When voice, data, video and messaging services fail to deliver the expected quality levels, network and service operations centres need to be notified instantly to take prompt action. This is particularly important in critical hotspots such as shopping malls, airports, commercial centres, train stations, highly-populated areas, key commuting routes and public transport.

Network optimisation consists of two key parts: initial and continuous optimisation. The former occurs during network implementation to prepare it for the launch. The aim is to ensure that the agreed objectives for coverage, quality and service performance are met. These objectives are often defined as target values for sets of key performance indicators (KPI) that measure network performance and the quality of end-to-end services.

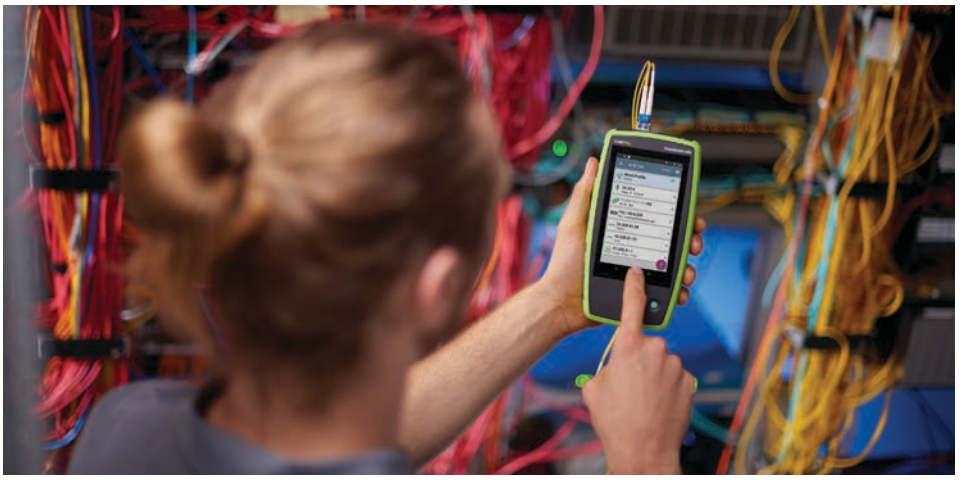
Continuous optimisation is also an integral part of network operations, particularly in a world where networks are constantly changing. The network capacity has to continuously increase due to an ever-growing traffic demand; new network elements are regularly put into operation and new services are introduced, and coverage is extended.

In March, Orange signed-up with Finnish tech firm Nokia to roll out the vendor's 5G optimisation platform across its markets. The French operator said it would help to maintain service quality at a time of increasing network complexity. The deal covers deployment of Nokia's self-organising networks (SON) platform, which provides optimisation across RAN equipment from any vendor.

Orange plans to eventually use the technology in all its global divisions, starting in Europe with France and Spain. It will be heading to Africa next, the operator said, Indeed, Orange SVP of radio networks and 5G Arnaud Vamparys said at the time that "a platform able to deal with all equipment from any vendor would allow it to maintain network quality and customer satisfaction in the next-generation era. Nokia added that the platform would allow Orange to automate RAN configuration and optimisation processes and ultimately improve network performance.

Of course, there's a raft of solutions out there ready to avail themselves to operators across the continent. Let's look at some of them.

The Viavi CellAdvisor 5G, the company claims, "is the industry's most easy-to-use, innovative, and comprehensive base station analyser". It is a field-portable solution to validate and deploy 5G radio access networks. Furthermore, its combination of real-time spectrum analysis and 5G beam analysis, as well as the ability to test fibre, coax, and air interfaces, makes it a versatile cell site test solution. Whether the operator is performing signal analysis, interference analysis, or just inspecting fibre connections, Viavi claims this one instrument "can do it all". Its apparently easy-to-use interface, complemented by cloud-enabled Viavi StrataSync, makes it simple to create reports and close projects fast.



NetAlly's network tester in action

Other benefits include the ability to validate and deploy all physical interfaces, such as fibre, coax and RF, as well the option to upgrade to new features and technology with software licenses, Perform PIM detection plus interference analysis and hunting with the same solution. With regards to applications, there is Interference analysis and PIM detection over CPRI, comprehensive RF signal analysis and antenna analysis with optional RF source. Rohde & Schwarz offers Qualipoc, SmartMonitor and SmartAnalytics, which combine to form a solution for QoE-centric (quality of experience) network monitoring.

The smartphone-based network probes "QualiPoc" for data collection, which can operate as static probes distributed over several network hotspots (e.g. shopping malls, event venues etc., moving probes in a fleet setup, e.g. installed in taxis, public transportation and a combination of the above. It also has web-based controlling software "SmartMonitor" for test configuration and real-time dashboard. It's replete with remote real-time control of network probes and remote test configuration. Additionally, there is web-based analytics software "SmartAnalytics" for data analytics: a software suite to implement comprehensive data analytics based on measurements from network problems.

Next up is GL Communications, which offers its PacketScan – All-IP Analyzer. The solution can capture and analyse high volumes of phone calls over a wide range of protocols on IP and Wireless (2G, 3G, 4G, IMS, and 5G) networks. It can capture, analyse and monitor large-scale networks for surveillance and troubleshooting.

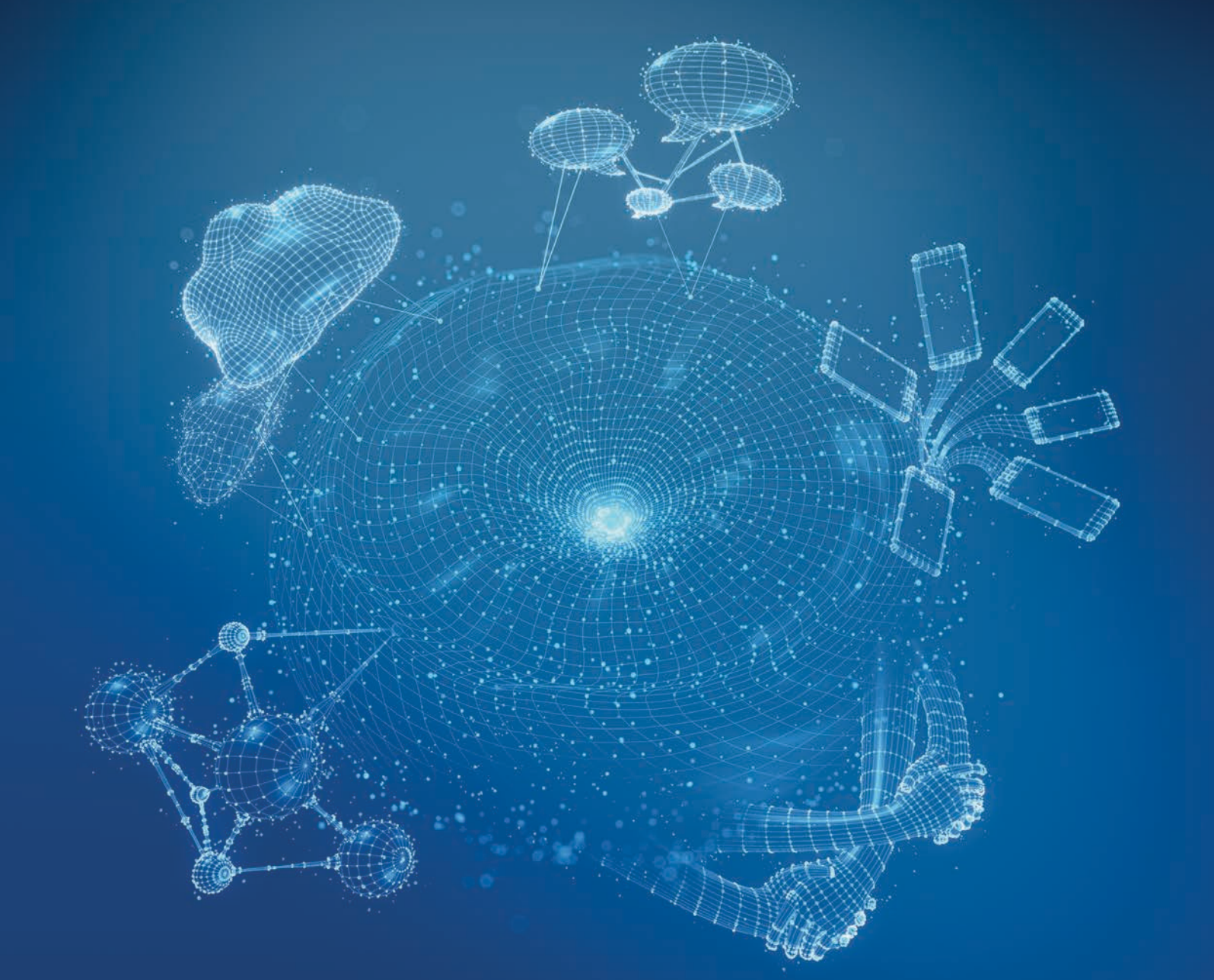
The PacketScan is a high-density multi-protocol 2U rack mounted network monitoring appliance that can capture and process packets over IP on high-speed Ethernet links of 1 Gbps and 10 Gbps links.

Packet Data Analysis (PDA) is a tool for live monitoring of signalling and traffic over IP. It is distributed with GL's Packet Analyzers, allowing users to monitor live IP networks including capture, analysis, and reporting of every call in detail.

Hot off the press, NetAlly has just launched EtherScope nXG v1.5 software with Bluetooth and BLE (Bluetooth Low Energy) site survey capability as part of its AirMapper Site Survey Ecosystem of products. Bluetooth is the second most popular wireless technology in the world, used for many applications from indoor location services to IoT device connectivity. However, until now, there were no solutions in the market to perform location-based surveying and visual heatmapping of Bluetooth beacons. NetAlly spotted the gap in the market and so produced the first bluetooth and BLE site survey solution on the market.

NetAlly says the new functionality will allow EtherScope nXG users to perform a passive bluetooth or BLE site survey using the AirMapper app and internal radio, thus providing full visibility into bluetooth network coverage and performance through the company's Link-Live Cloud Service. It will also allow users to perform both Wi-Fi (active and passive) and bluetooth surveys on the same walkthrough, making it quick and easy to validate Wi-Fi network performance while at the same time validating indoor location services or IoT deployments, as well as possible 2.4GHz Wi-Fi interference caused by bluetooth co-existence in the same band.

"It's surprising how many bluetooth devices are already present in most environments, and with the expansion of location-based services such as way finding and asset tracking, it's only going to increase," says James Kahkoska, chief technology officer at NetAlly. "But deployment is a very manual process, prone to configuration errors." ■



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Vodafone unfurls mobility solution at Massmart

Telecom giant Vodafone created a custom telecommunications solution to improve the lives of employees at a major chain

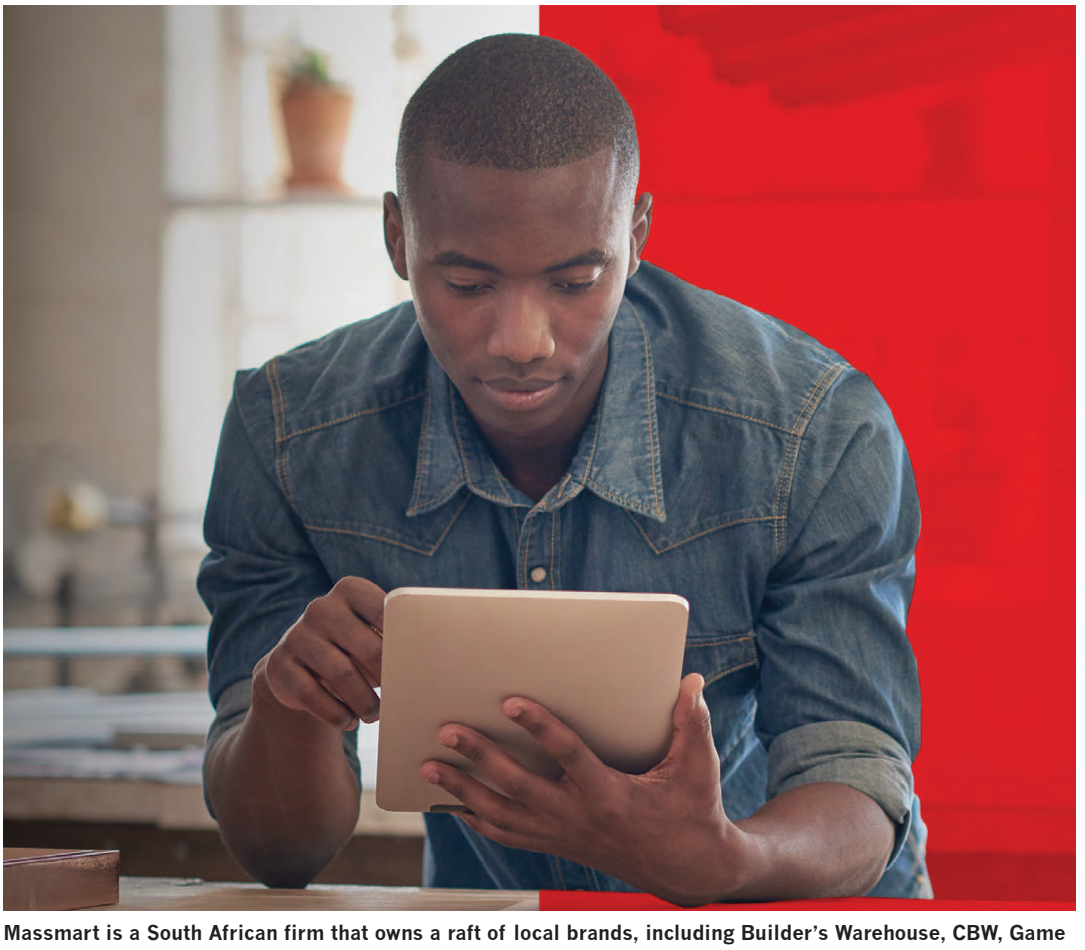
The African telecommunication industry, like the region itself, has been changing at an accelerated rate. The continent grew at 8.7% CAGR in real GDP terms between 2000 and 2010 and, despite the ongoing COVID-19 pandemic, forecasts suggest sub-Saharan Africa will continue at 2.7% in 2021.

Massmart is a South African firm that owns a raft of local brands, including Builder's Warehouse, CBW, Game and Makro. On paper, it is the continent's second largest consumer goods store chain, focusing on supporting both high and low-end income groups. The company is owned by Walmart Group with a 51% stake and the headquarters are in Johannesburg, South Africa. Massmart runs over 400 stores in the country and 12 more in other parts of the continent, employing over 35,000 people.

Over the past few years, Massmart has been growing rapidly, both organically and through acquisition. This significant increase in its workforce and the need to share their staff benefits to employees, demanded the involvement of a telecommunications service provider. In order to address this, Massmart turned to Vodafone to support its vision and also look to future plans for employee engagement.

Nevertheless, Massmart needed to change with the times if it was to maintain its position or, indeed, improve it. The company knew it had to enable its HR services to keep track of the rapid personnel changes, but simple consumer mobility deal would not have been sufficient. With such huge growth in volume and fast staff turnover in the company, they needed to find a unique, custom-made solution to cover communication services for as much of their workforce as possible.

Having won the contract, Vodafone had to take a close look at Massmart's operations in order to get a much fuller understanding at the task in hand. Following a full and comprehensive assessment of the volume and complexity of the situation at the chain, Vodafone created what it described as a "compelling and unique proposition to offer mobile solutions to their people". In addition, they created a dedicated on-line platform for the company's HR and Employee Benefits team to engage with them.



Massmart is a South African firm that owns a raft of local brands, including Builder's Warehouse, CBW, Game and Makro. On paper, it is the continent's second largest consumer goods store chain, focusing on supporting both high and low-end income groups

This bespoke solution consisted of an exclusive management system and competitively priced contracts, involved 8000 staff overall and was signed for a two-year period. The arrangement included the option for Massmart's staff to receive a smart phone, with monthly benefits of 300 MB of data usage, 120 free minutes and 200 text messages. The unique management on-line platform supported the HR and Benefit teams with easy communication to employees who were otherwise extremely difficult to reach. With the management tool, Massmart can now effectively transmit the latest company service news, update the general knowledge base with useful information such as retirement and insurance benefits. As an added bonus, the application and the special telephony service also give Massmart's staff access to otherwise inaccessible online information in their everyday life.

With this deal, Vodafone has proved to be a flexible service provider, a company capable of delivering flexible and engaging deals, to an organisation which supports greater causes, such as Massmart.

The innovative thinking of Massmart – the fact that it offers smart phone and data services to personnel has paid dividends. Not only did it enhance staff lifecycle management, but the company also demonstrated to its workforce how valuable they are by providing the option of having an easy and practical on-line platform for self-development and staying up-to-date with company's news and improvements.

For Massmart, the collaboration with Vodafone yielded some good results. First of all, simplicity. With the exclusive mobility service construction, Massmart said it can enjoy simplified telephony costs, tracking and Vodafone's customer service.

Then comes accessibility. Due to this unique solution and Vodafone's 24/7 availability, Massmart enabled many low and medium-income families to have access to information on the internet for the first time in their lives.

Finally, Massmart has ubiquity. Thanks to the flexibility of Vodafone's offer, not only was Massmart able to achieve improved employee engagement, but also improve the lives of the staff and their families by providing a smart phone and data assets.

The rest, as they say, is history. ■

The all-new CDM-650

Comtech's new CDM-650 Satellite Modem leverages the heritage and feature set the company's SLM-5650B/C, CDM-625A and CDM-425 modems – the company says · which have been adopted and deployed globally to support government and commercial applications.

The CDM-650 was purpose-built for secure government and military networks, and is suited for fixed location, on-the-pause and communications on-the-move applications. Furthermore, the product features turbo product codes, three LDPC code families, VersaFEC-2 high performance LDPC short and long block forward error correction and a range of modulation, including BPSK, QPSK, OQPSK, 8PSK, 8-QAM and 16-QAM.

By employing the combination of what Comtech describes as "state-of-the-art forward error correction and modulation techniques", the CDM-650 can optimise satellite transponder bandwidth usage.

"We are pleased to introduce the new CDM-650 Satellite Modem to address the needs of foreign government and military entities," says Fred Kornberg, chairman of the board and chief executive officer of Comtech. "The advanced feature set available in the CDM-650 provides the performance, reliability and scalability needed for secure and mission-critical networks." *comtechtel.com*

Introducing the Wearable Smart Radio by Doodle Labs

The Wearable Smart Radio by Doodle Labs is a compact, wireless mobile mesh router with an integrated Wi-Fi hotspot to allow internet-enabled devices (laptops, tablets, smartphones) to connect to the mesh network.

It apparently provides long-range, high-speed private wireless mesh connectivity for personnel in the field. The Wi-Fi hotspot capability allows field workers to seamlessly collaborate with other team members both in the field and offsite locations using the devices they already have. Field workers can use the company's productivity enhancement apps on an encrypted private wireless mesh network.

The Wearable Smart Radio supports many use cases in industry sectors like construction, agriculture, logistics and material handling, healthcare, public safety, disaster management, border patrol and defence deployments. *doodlelabs.com*

Wittra takes IoT straight to 'proof of value'

Wittra says its 'IoT Network Kit' is redefining the IoT landscape by taking customers straight to 'proof of value'. The company claims its solution provides a simple, practical approach for tracking and monitoring assets. What's more, its 'ground-breaking' positioning technology enables total asset visibility in all environments never considered possible using narrow-band technology.

Reducing the complexities in any IoT project Wittra offers unique pre-integrated, pre-tested and pre-secure products for immediate deployment. Based on open standards to ensure interoperability and ease of integration users can collect, communicate, and control assets. Devices run on a 6lowpan IP-based true mesh radio network which uses the sub-GHz spectrum providing long range and good penetration of structures for robust and reliable data delivery in any setting.

The Network Kit contains the Wittra gateway, sensor tags, mesh routers and all the associated accessories ensuring your IoT project is up and running in hours; deploying the Wittra Solution via its cloud-based API "is simple and intuitive offering a true 'IoT Out Of The Box' experience for use across many market sectors".

Each tag contains several sensors which include temperature, accelerometer, gyroscope, magnetometer, and positioning. Additional sensors can be added via a plug on sensor approach covering humidity, ambient light, and air pressure. The mesh network is extended in range by the addition of Wittra's Mesh Routers creating a multi-hop self-forming and self-healing true mesh network.

"With the launch of the Wittra IoT Network Kit, I believe we position ourselves at the forefront of the IoT industry. It is a response to clear market needs to provide practical IoT solutions that bring value to customers quicker and with much less complexity", says Thomas Bennet, CEO of Wittra. *wittra.se*

Evina's anti-fraud mission continues with TrafficScreener

Evina, the specialist in cybersecurity for mobile payments, has unveiled a new tool that it says extends the anti-fraud protection throughout the entire monetisation flow, starting from the source of traffic.

The Paris-headquartered firm with operations in Europe, the Middle East and 15 African countries says TrafficScreener helps merchants master mobile traffic monetization by detecting fake visits.

After creating Evina DCBprotect, the anti-fraud solution that blocks bots at the time of payment, Evina now leverages the same cutting-edge technology to detect bots as they arrive on a merchants page.

"When dealing with a CPC (cost per click) model, merchants need to know what type of click · fraudulent or authentic · is leading to their webpage, " say Farid Taha, chief customer officer at Evina. "This has long been a blind spot when dealing with ad traffic and it's why Evina created a tool that provides visibility on all visits following ad clicks."

This new product represents the flip-side of Evina DCBprotect which stops bots from making payment attempts. Now, traffic monetisation can be mastered while fraudulent payments by bots are similarly prevented. While DCBprotect protects the payment page from bots, Traffic Screener detects bots that derive directly from the banner ads. By revealing real traffic and real conversation rates, merchants can optimize their mobile monetisation activities. The aim is to reduce the 20% of budget merchants lose when they acquire fake traffic. Specifically, TrafficScreener enables merchants to receive real figures that reflect the quality of their traffic. *evina.com*

HD-EFI product series expands with thread-in configurations

Amphenol RF says it is "proud to announce the expansion" of its HD-EFI product line, "designed to satisfy" the need for a compact RF interconnect solution. The latest addition to the HD-EFI series consists of panel mount receptacle jacks, a common component in wireless infrastructure filters. These HD-EFI jacks feature thread-in mounting and post contacts for easy installation into wireless filters, amplifiers and distributed antenna systems.

HD-EFI thread-in connectors are engineered with white bronze plating to improve low PIM performance and set them apart from the existing options. These connectors are available as straight panel mounting receptacle jacks in both smooth bore and limited detent interfaces. These 50 ohm connectors are designed for crash-proof mating, achieved by using a conical interface and unique plug design, and offer excellent electrical performance through 6 GHz, along with all the existing benefits of this product line.

The HD-EFI product series is a micro-miniature interface which allows large board tolerance stack ups, blind mating and multiple RF lines. In addition to the thread-in connectors, various PCB and cable-mount connector configurations are available. *amphenolrf.com*

MOTOTRBO Ion: Making yourself heard

Motorola's MOTOTRBO Ion is a next generation business-ready smart radio with voice, broadband data and multimedia capabilities to connect teams, inform operations and keep businesses running smoothly.

The device brings real-time intelligent data to existing business workflows. Its fully open Android application ecosystem allows for seamless integration of the mobile data applications that commercial industries depend on, such as those used for enterprise-grade barcode scanning, as well as team communication platforms used for messaging, meetings and shared content.

The MOTOTRBO Ion smart radio is purpose-built for a variety of enterprise environments. The dual microphones, speaker size and audio engineering provide crystal clarity and noise suppression for powerful audio that outperforms smartphones, especially in loud environments. The device also features an integrated camera to send photos and videos, and can even stream video in real-time.

With an ultra-rugged design, it stands up to harsh conditions and exposure to dust, water and repeated drops. It features cloud-based programming and provisioning, remote updating and real-time device monitoring, allowing businesses to deploy and maintain their radio fleets with minimal touch and downtime.

To keep the roaming workforce connected anywhere you do business, the MOTOTRBO Ion enables seamless communication through voice and data, over both public and private networks. *motorolasolutions.com*

'Innovative v45C qualified for operation on Intelsat FlexMaritime network'

Intellian brings to market its v45C antenna, which has also been qualified for operation on the Intelsat FlexMaritime network. By combining Intellian's compact, antenna with Intelsat's FlexMaritime High Throughput Satellite (HTS) service, this approval will deliver global connectivity to customers in the smallest package available to date.

Until now, service providers have required antennas of 60cm or larger to deliver high throughput services owing to the higher power demanded by smaller units, but with the advent of HTS technology teamed with innovative antenna design, the use of more compact antennas has become possible. The v45C has been developed to bring VSAT to new markets where there is limited space available for communications equipment, such as workboats, leisure craft, fishing boats, small commercial and government vessels.

Intelsat is among the first to take advantage of this capability with the addition of a 45cm category to its FlexMaritime HTS service. VSAT delivery to small antennas has traditionally been restricted to localized regions in order to conserve power, but through the use of spot beam technology, HTS satellites can overcome this limitation. By providing high-power service to small, tightly-focused areas, frequencies can be reused across the satellite's coverage area, supporting global service while reducing the cost of delivery. *intelliantech.com*

Look out for...

Nokia achieves 5G speed record

Nokia achieved a 5G speed record during a trial with Türk Telekom in the Turkish capital city, Ankara.

The record, which reached over 4.5 Gbps, is the first to be achieved on 5G New Radio (5GNR) only, utilizing Nokia's AirScale 5G RAN solution on 26 GHz mmWave spectrum, 800 MHz bandwidth and a single user device.

During the trial, Nokia's AirScale Base Station connected with a mobile device to transfer data across Turk Telekom's 26Ghz mmWave spectrum at a peak speed of 4.5 Gbps. Nokia was selected by Turk Telekom to deliver the ultra-low latency, connectivity and capacity required to test the full range of 5G connectivity in the scope of this trial.

The high speeds achieved during the trial will enable more high-bandwidth and latency-sensitive enterprise services, such as remotely controlled devices for industrial needs or mission-critical applications. 5G-powered networks will also allow customers to enjoy VR/AR experiences, download 4K video content or games in a matter of seconds, as well as enable enhanced capacity fixed wireless access connectivity.

Nokia said that "with this successful test", the companies are effectively demonstrating how a 5G rollout can improve service quality and download speeds for consumers, as well as supporting enterprise and business use cases, including Industry 4.0 and digital transformation.

"During the trial we solely used mmWave spectrum over the 5G test network which reached record speeds above 4.5 Gbps," according to Yusuf Kıraç, chief technology officer at Türk Telekom. Thanks to this technology, which provides numerous benefits for users and operators, we achieved the high speeds and large capacity targets promised by 5G. These technologies also act as a bridge to develop and pave the way for "Terahertz" systems that provide ultra-high speed and capacity, which are planned to be used in 6G.. We will continue to lead the development of all new generation technologies in our country, as we are doing today."

MOTOTRBO ION

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More Telecom acquires Powercom Pacific

Australia's More Telecom has acquired national internet and phone provider, Powercom Pacific, substantially increasing the company's SME customer base.

The buyer is the land down under's most successful and longest-running NBN provider with a sister retail business, Tangerine Telecom.

Powercom Pacific owns several brands including Powercom, Montimedia and QTelecom and all customers will be migrating to More Telecom.

Under the terms of the acquisition, Powercom Pacific staff will be moving with the business and maintain ongoing employment with More.

More Telecom general manager, Andrew Branson, said the acquisition strengthens the More business

which is expanding in both customer numbers and product offers.

"The More business consistently seeks exciting expansion opportunities and with Powercom, we identified a business with complementary cultural and business models," he added. "The Powercom customer base consists of long term, loyal, small business owners who want excellent service and we are confident we can deliver on this front."

Under the terms of the acquisition, Powercom Pacific staff will be moving with the business and maintain ongoing employment with More

More Telecom has also expanded its SME reach via the launch of other business services such as More Payments and More Bookkeeping.

The More Telecom and Tangerine Telecom business model works on a B2B/B2C business model delivering more efficiency and faster speeds due to the balanced bandwidth loading between the business peak hours during the day and the consumer peak hours during the evening.

Deutsche Telekom upgrades telecom sites

Deutsche Telekom (DT) has built up 5G capacities at 75 locations across Germany, the operator said in a release.

The company added that it had implemented Dynamic Spectrum Sharing (DSS) to upgrade these LTE sites and has created additional LTE capacities at 173 locations.

DT also noted that its 5G network currently reaches around 80% of the German population, while LTE population coverage is now 98.6%. It had previously said that its technical teams have already upgraded a total of 45,000 antennas for 5G services during 2020. The German telco expects its 5G network to reach 90% of the country's population by the end of the year.

By the end of March, more than 66 million people in around 5,000 towns and cities across Germany will be able to use the telco's 5G network. Over 50,000 5G antennas are already transmitting with 5G across the country.

DT started the rollout of its 5G network in a limited number of cities across Germany at the beginning of July 2019.

In February, it installed the first 5G standalone antenna in Garching, near Munich, to carry out trials of this technology. Deutsche Telecom connected the antenna to a 5G standalone core network via cloud infrastructure.

The operator also noted that the infrastructure in the core network will also be fully upgraded to a new, cloud-based 5G architecture.

Orange to lay off 485 employees

Orange Spain business will lay off up to 485 employees in the coming weeks, citing years of shrinking income amid Spain's hypercompetitive and increasingly low-cost telecommunications sector.

The France-headquartered operator had already signalled that competition in Spain - its second-largest market - was a long-term trend in the region after posting worse-than-expected results in the first quarter.

Orange, like a number of other players, has been facing growth issues separate from the pandemic's impact as the sector, which has spent extensively on infrastructure such as fibre-optic cabling, scrambles to fund its upgrade to next-generation 5G networks.

"The telecommunications sector has spent years enduring revenue loss as a consequence of the hypercompetitivity of the market and the multiplicity of low-cost actors," Orange Spain said in a statement. "This (context) is a huge challenge for the company, which has shouldered intensive investments in the past 20 years and needs to keep doing so amid the technological transition."

The statement added that adapting operations by reducing the workforce will be essential to ensuring Orange's competitiveness in the face of structural changes, noting that negotiations with labour unions would begin imminently.

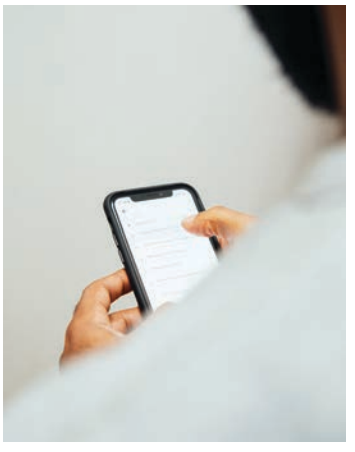
Paraguayan mobile operators enter row with banks

A bill currently under debate in Paraguay's congress, the main aim of which is increase security for electronic payments, has started a row between mobile carriers and banks.

The bill could halt the South American nation's successful progress in digitally-driven financial inclusion. According to local press reports, a major concern in the telecom sector is centred on article 103 of the bill, which says that electronic identification must be issued by an ID system with a high level of security.

The bill has been passed by the senate and is currently under discussion in the lower house. Another concern for the industry is that the security requirements for mobile wallets in Paraguay would be higher than those in countries with greater banking penetration, such as those in European markets. Deputy minister of trade and industry, Pedro Mancuello posted his thoughts on Twitter, backing the bill in the process.

"Our initial position was to support high levels of security for all transactions," he wrote. "Our position is to side with central bank in allowing this to be regulated by the competent authority."



According to figures releases by the World Bank, just 39% of the Paraguayan population is includes in the official banking system.

Staying in Latin America, Claro Argentina has partnered with DOCOMO Digital, the integrator of digital app stores, to facilitate the purchase of applications and content with direct carrier billing within the Samsung Galaxy Store, using Claro's pre or post-paid accounts.

Mexican president attacks telecoms firms over roadblocks to registry

Rights groups say it poses a human rights violation and could lead to wrongful convictions if people's identities are stolen

Mexican president Andres Manuel Lopez Obrador attacked the country's telecoms companies for impeding an initiative to create a national biometric mobile phone user registry that is opposed both by industry and rights groups.

Backed in May as a measure to improve public safety by the Senate, the registry would require companies to pay for collection of their clients' biometric data, which would then be stored and managed by the telecoms regulator.

Telecoms sector groups argue it would cost the industry hundreds of millions of dollars to implement. Rights groups say it poses a human rights violation and could lead to wrongful convictions if people's identities are stolen.

The Latin American country's data protection body plans to challenge the registry before the Supreme Court. Judges have also suspended its implementation, according to local media.

However, Lopez Obrador said operators were impeding a law designed to protect people.

"These telephone companies... have a lot of power, in addition to acting with great hypocrisy, because they already request that data to contract a telephone service," he said at a press conference. "Now as they also have lots of money to buy or rent media, they're running a campaign against us," he added, singling out Telmex, a unit of America Movil, the company controlled by the family of Mexican billionaire Carlos Slim.

Supporters of the measure say it will help crack down on criminals who use unregistered pre-paid phones for kidnapping and extortion calls. The registry's information would be available by request from law enforcement officials.

While over 150 countries around the world maintain cellphone user registries, only about 8% of those also require biometrics, according to global telecoms industry lobby GSMA.

Russia launches satellites for UK telecom

A Soyuz rocket took off from the Vostochny cosmodrome in Russia's Far East, carrying 36 UK telecommunications and internet satellites, the Roscosmos space agency said.

London-headquartered OneWeb is working to complete the construction of a constellation of low Earth orbit satellites providing enhanced broadband and other services to countries around the world.

The company is competing against billionaires Elon Musk and Jeff Bezos in the race to provide fast internet via satellites for the world's remote areas. Images released by Russia's space agency Roscosmos showed the Soyuz rocket taking off against hazy skies Monday April 26 at 7:14 am local time.

"All satellites have been successfully placed in target orbits and have been taken under customer control," Roscosmos said in a statement.

"Mission success!" OneWeb posted on Twitter. The UK company plans for its global commercial internet service to be operational by 2022, supported by some 650 satellites.

Monday's launch was the third batch of its satellites placed into orbit from Russia, with earlier launches from the Vostochny cosmodrome of 36 satellites each taking place in March and in December.

OneWeb's first six satellites were also launched by a Russian-made Soyuz rocket, taking off from the space centre in Kourou in French Guiana in February 2019.

The company launched 68 more from the Baikonur launch site in Kazakhstan in 2020.

Iliad posts disappointing results but steps up 5G spending

French telecommunications group Iliad reported slightly weaker than expected first-quarter revenue growth and said it would revise a key cash flow target as it steps up spending on 5G networks.

The company, controlled by billionaire Xavier Niel, reported like-for-like revenue growth of almost 5% for the first three months of the year, helped by a rise in mobile and broadband subscribers.

However, Credit Suisse and JP Morgan analysts said the figures for its main French market and for Italy were slightly weaker than expected, while Poland was ahead of forecasts.

Iliad said it would review its 2021 cash flow target for France in order to speed up spending on 5G networks in the country, where it launched the cheapest offer of the four main operators late last year.

To help ramp up spending, the Paris-based group said it would sell its 30% stake in On Tower France, which it values at a minimum of 600 million euros (US$731m).

Iliad, which had previously guided for a French operating free cash flow of around 900 million euros this year, said it would give a new target in September, also taking into account a global shortage in semiconductor components.

The company said it expected to turn a profit from its Italian business this quarter, sooner than previously forecast, but delayed the launch of its broadband offer there until after the summer as a result of the Covid-19 pandemic.

In Poland, it said its integration of mobile operator Play, bought in late 2020, was proceeding ahead of schedule, with 8,000 new customers added over the first three months of 2021.

China Mobile targets Shanghai Stock Exchange listing

China Mobile, the world's largest mobile operator in terms of subscriber numbers, has approved plans for a potential US$6.06bn listing on the Shanghai Stock Exchange.

As part of that plan, the Chinese state-owned company will issue up to 964.8 million shares or 4.5% of its total issued shares," the operator said in a statement.

According to a local media report, the funds raised from its listing in the A-share market will be used in a series of projects. They include 5G boutique network rollout, artificial intelligence (AI), cloud computing, and next-generation mobile communication technologies such as 6G, involving a total of 56bn yuan (US$8.71bn).

Furthermore, the company said that if the actual funds raised fall short of the amount needed, the company will supply the rest from internal resources or money raised from other sources. The planned share sale in Shanghai may make the nation's largest wireless telecom operator the first red-chip company to trade A-shares on the Chinese stock market's mainboard.

China Mobile's plan to enter the mainland A-share market follows a similar move by Hong Kong-traded rival China Telecom, which said in March that it plans a Shanghai main board offering that could raise US$4bn.

However, both companies are being ejected from the New York Stock Exchange (NYSE) after former US President Donald Trump issued a November executive order barring American funds and investors from owning stock in companies believed by the government to have ties to the Chinese military. The Trump administration had strained relations with China, after the former accused the latter of spying through companies such as tech giant Huawei.

However, China Mobile did not say the Shanghai offering was linked to the US delisting. China Mobile will hold a meeting for shareholders in Hong Kong on June 9 to seek approval for the proposal.

Bahamas considers mobile entrant

The Bahamas is assessing the viability of introducing a third operator to the archipelago's mobile market to compete with current incumbents ALIV and BTC (Bahamas Telecommunications Company).

Watchdog the Utilities Regulation and Competition Authority (URCA) is expected to undertake an evaluation before the end of June 2021.

The electronic communications sector policy in URCA's Draft Annual Plan 2021 states: "the government of the Bahamas will consider whether further liberalisation of the mobile telephone market should be undertaken in the form of a third mobile operator. The policy requires that URCA provide advice and recommendations to the government on this matter, including a feasibility and market analysis to support any recommendations made."

Only one licence was available at the time, with REV beatinf a rival bid from Virgin Mobile Bahamas. Latin American group Digicel dropped out of the race due to concerns over the steep concession requirements

BTC's monopoly over the Bahamian market was finally broken in November 2016 by the launch of ALIV – the mobile unit of Cable Bahamas (REV) which won the country's second licence at auction a year prior.

Only one licence was available at the time, with REV beatinf a rival bid from Virgin Mobile Bahamas. Latin American group Digicel dropped out of the race due to concerns over the steep concession requirements.

Qatar-based telecom giant Ooredoo appoints first female CEO in Oman

Qatar-based telecommunications giant Ooredoo has taken an unusual step and appointed Noor Al-Sulaiti as chief executive officer (CEO) of Ooredoo Oman, making her the first woman appointed to this position in one of the group's main markets.

Al-Sulaiti has been in the telecoms industry for 17 years and recently held the position of CEO of Starlink, one of the group's companies. Prior to that, she was general manager at Phono and FASTtelco in Kuwait.

Noor's experience has equipped her with a deep understanding of the market, products and delivery channels, the company said. As Ooredoo Oman embarks on a new era, Noor is anticipated to steer the next phase of its strategy.

This will be centred on driving the country's digital transformation, nurturing the development of its people and to help realise the goals of Oman's 2040 Vision.

Telecom Italia 'could drop Huawei'

Telecom Italia is considering cancelling a contract with Chinese tech giant Huawei for supplying equipment to build part of the telecom firm's 5G network in Italy.

According to reports, Telecom Italia sent a letter informing Huawei of its intention to withdraw from the deal due to nervousness surrounding security.

The USA has been pressuring countries to ban Huawei equipment, citing security risks. Although Huawei has continuously denied posing a security risk, as regards Europe only Britain and Sweden have banned the company's equipment.

Telecom Italia had initially planned to give the contract to Huawei and Ericsson, but later brought in Nokia to share the contract among the three companies.

Although Italy has not imposed an outright ban on Huawei, under current legislation it can impose strict conditions on 5G deals involving non-EU vendors.

Telecom Italia's move follows a review of its supply policy, including a cost and benefit analysis.

The company had already ruled out Huawei from the core of its 5G network, where sensitive data are processed, by not inviting the Chinese company to a tender last year.

Türk Telekom and Nokia to deploy commercial private '5G-ready' network

Finnish tech giant Nokia and Türk Telekom will implement the first commercial private 4.9G/LTE network in Turkey for manufacturer Arçelik Global, the companies said.

The industrial-grade 5G-ready private wireless network will be deployed at Arçelik's Çayırova-based washing-machine factory and will provide the platform for Arcelik to accelerate its digital transformation and implementation of Industry 4.0 use cases.

Under the terms of the deal, Nokia will also provide solution design, deployment and on-going managed services, and deliver the private wireless infrastructure based on the Nokia Digital Automation Cloud (DAC) platform.

Türk Telekom will provide 4.9G/LTE spectrum and also will be responsible for project end-to-end management and governance model.

"At Arçelik, we are committed to integrating new technologies into our business model and this deployment positions Arçelik at the forefront of manufacturing digitalisation," said Utku Barı Pazar, chief strategy and digital officer, Arçelik.

An initial application will see the network deliver pervasive, reliable low-latency coverage throughout the facility to enhance automated guided vehicle (AGV) performance.

With AGVs used throughout the manufacturing process for component logistics, improved connectivity will enhance AGV speed, control and operational efficiency. Nokia and Arcelik plan further collaboration in order to develop and implement additional use cases in the mid-term.

The network will support accurate indoor positioning for tracking assets in real-time and enable new video analytics-based applications for site safety and security.

Finland's Nokia is helping with '5G-ready' network

"Arçelik has a highly progressive approach to introducing latest innovations into its manufacturing practices and workflows," added Raghav Sahgal, president, Nokia cloud and network services. "Deployment of the first private 5G-ready network in Turkey for Arçelik is a major step forward in both its approach to manufacturing digitalization, and as an inspiring example of innovation in the region."

Alaska's GCI announces 10 Gbps strategy

Alaskan operator GCI plans to take 10 Gbps service into the wild within the next five years, setting an interim target to deliver 2 Gbps to a majority of residents in the US state in 2022.

The company outlined a plan to serve 77% of Alaskans with 2 Gbps service in 2022, including those living in Anchorage, Fairbanks, Juneau, Petersburg, Sitka, Wrangell and Valdez. It said customers currently on its 1 Gbps rate plan will be the first to get upgraded to 2 Gbps and will not be charged extra for the faster speeds.

"Alaska will lead the nation in 2 gig speeds," said GCI chief executive officer Ron Duncan in a statement. "And it will be our turn, once again, to wait for the rest of the country to catch up."

Duncan Whitney, chief product officer at the company, told media that in order to make the leap to 10 Gbps, GCI plans to use a combination of DOCSIS and HFC advancements alongside ongoing fibre deployments.

The company launched its gigabit service in 2015. It noted approximately 77% of Alaskans now live within its 1 Gbps footprint but added it was working to expand that figure with planned 1 gig launches in Nome and Kotzebue in 2021 and a previously announced Aleutians Fiber Project designed to reach rural Western parts of the state. GCI president and chief operating officer Greg Chapados said in a statement that the latter effort "should be substantially complete" by the end of 2022.

In May this year, Altice USA revealed it is pushing to deploy a 10 Gbps product by the end of 2022. Meanwhile, Circle Fiber announced in March it was deploying XGS-PON fibre technology in Missouri to deliver speeds up to 10 Gbps, and AT&T started its own XGS-PON rollout a year prior.

Citymesh wants to be Belgium's fourth MNO

Citymesh is preparing to enter Belgium's mobile market after announcing its intention to apply for the spectrum package set aside by the country's regulator for a potential fourth national mobile operator.

In December 2020, Citymesh was acquired by IT service provider Cegeka, at which time the former said that the acquisition will enable the necessary capital and expertise required to achieve its long-held aspirations of becoming Belgium's fourth mobile network operator.

Now, the company has announced that the new partnership will enable it to secure the required investment of around €100 million in order to apply for reserved spectrum package.

"Citymesh has had the ambition for years to become the fourth telecom operator," said Citymesh CEO Mitch De Geest. "We have found the final pieces of the puzzle; we have national 4G and 5G spectrum, a clear vision and, together with Cegeka, a strong and complete offering to shake up the telecoms market in Belgium."

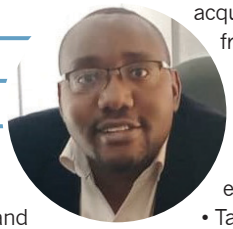
The spectrum package will give Citymesh access to 700MHz, 900MHz, 1,400MHz, 1,800MHz, and 2,000MHz spectrum, which the company will add to the spectrum in the 2,600MHz and 3,500MHz bands which it already owns. This broad array of spectrum will not only allow Citymesh to provide improved B2B services, but also present a competitive consumer offering.

"We have the great advantage of being able to build our networks from the ground up according to the latest standards," said De Geest. "Thanks to sufficient capacity in the 5G package, we can also use these state-of-the-art 5G networks to realise a unique offering on the consumer market."

Belgium has been seeking a fourth mobile operator since at least 2019, with the market being dominated by Proximus, followed by Orange Belgium and Telenet. A study by the regulator in 2018 had concluded that a fourth national operator could reduce prices.

Q&A

Halonda Denis Enock
CTO
Gilat Telecom Uganda



What was your big career break?

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

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

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

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

Tell us about the telecom market in Uganda

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

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

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

Who was your hero when you were growing up?

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

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

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

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

What would you do with US$1m?

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

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

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

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

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

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

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

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

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

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

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

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

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

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

What will you do when you retire?

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

What's the best lesson you've learned?

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

What's the best technological advancement in your lifetime?

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

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

Which law would you most like to change?

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

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

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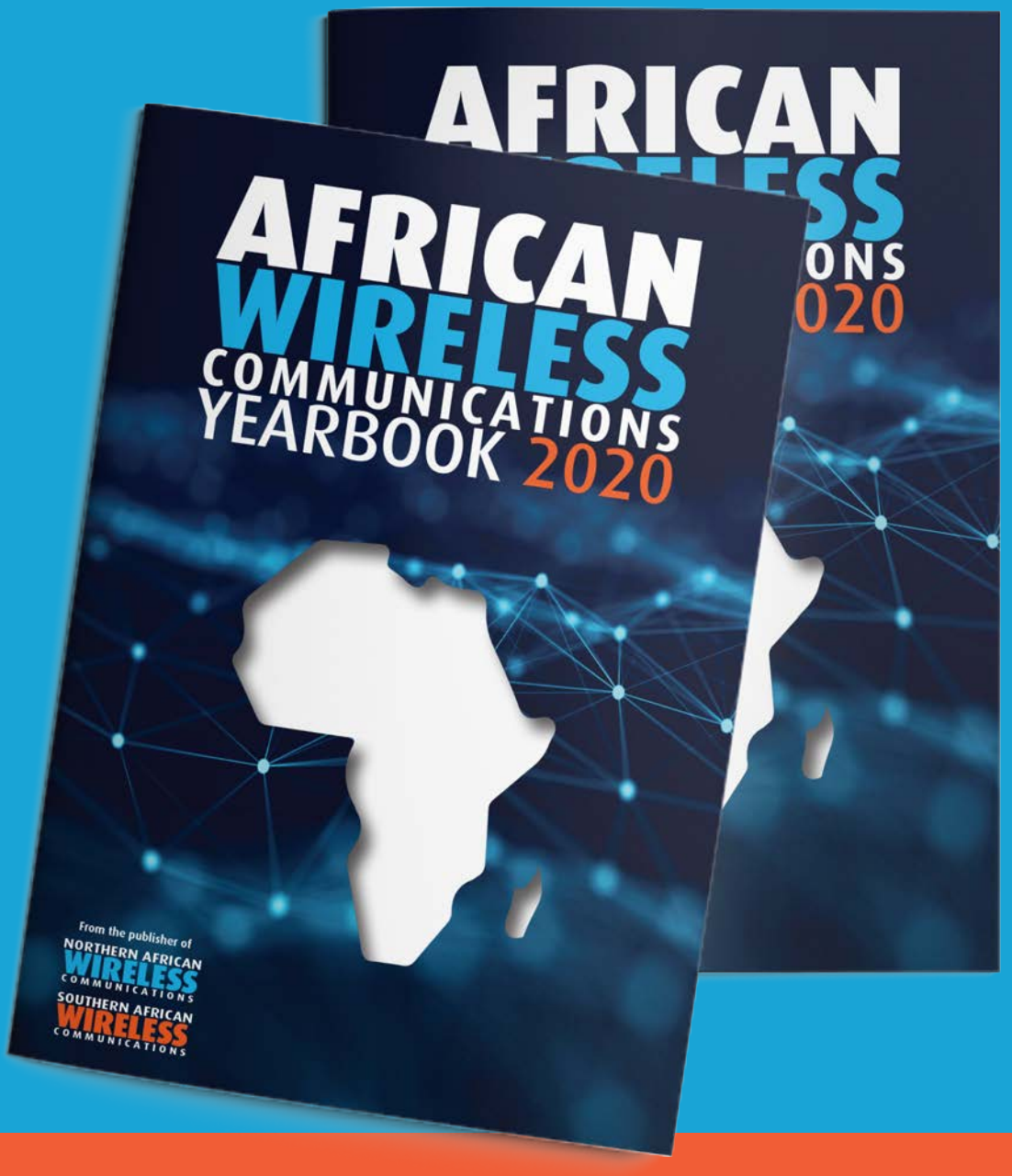

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