For communications professionals in southern Africa

SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

JANUARY/FEBRUARY 2019 Volume 23 Number 5

- Advances in technology are future-proofing the SIM card
- The 2010 World Cup network that is now saving lives
- Virtualisation is helping drive Africa towards the 5G era

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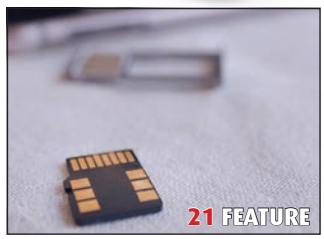

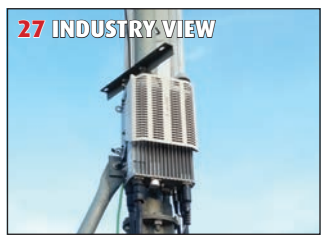

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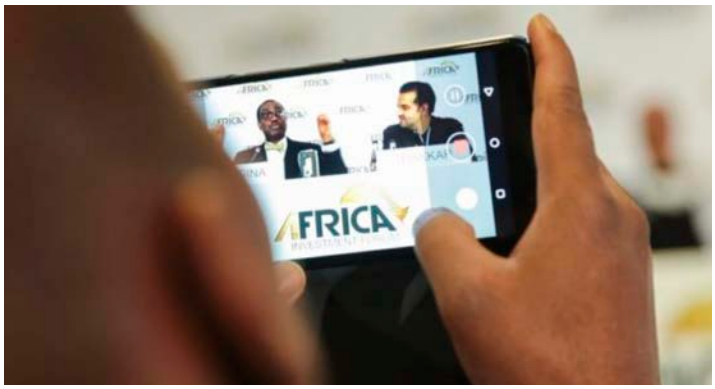
Mara announces first smartphone to be manufactured in Africa

The first, 'made-in-Africa' full-scale smartphone is soon to be manufactured in plants across Africa.

Maraphone is part of the Mara Group which started as a small IT business in Uganda. The group is now headquartered in Dubai and has operations in 25 countries in Africa.

The company says it will produce high quality and affordable smartphones primarily for African markets but also with the aim of exporting to other regions such as Europe.

Speaking at the Africa Investment Forum that was held in Johannesburg last November, group founder Ashish Thakkar said: "China has Huawei and Xiaomi, the US has *iPhone*, and finally Africa has Maraphone. This project will show the potential and ability that Africa can produce high quality and affordable smartphones in Africa, by Africans, for Africans and for the rest of the world."



The Maraphone is described as ''high-spec, affordable, smart, and transformative''. It will be manufactured at two plants on the continent.

Thakkar said that while global manufacture of mobiles is on the rise, none of them are produced locally. Maraphone's initial target market will be first-time African smartphone users, while the first manufacturing plants are to be located in Rwanda and South Africa following USD100m investments. At the forum, Thakkar commended the African Development Bank (ADB) for its push to support the continent's industrialisation through its *High 5*'s strategy under which the Maraphone had received support.

Delegates at the Africa Investment Forum also heard from ADB president Akinwunmi Adesina who said: "By 2020, the value of Africa's mobile money industry is projected to top USD14bn. We need African-developed mobile phones to leverage this potential."

New 'smeature' phones aim to address affordability issues – News p7.

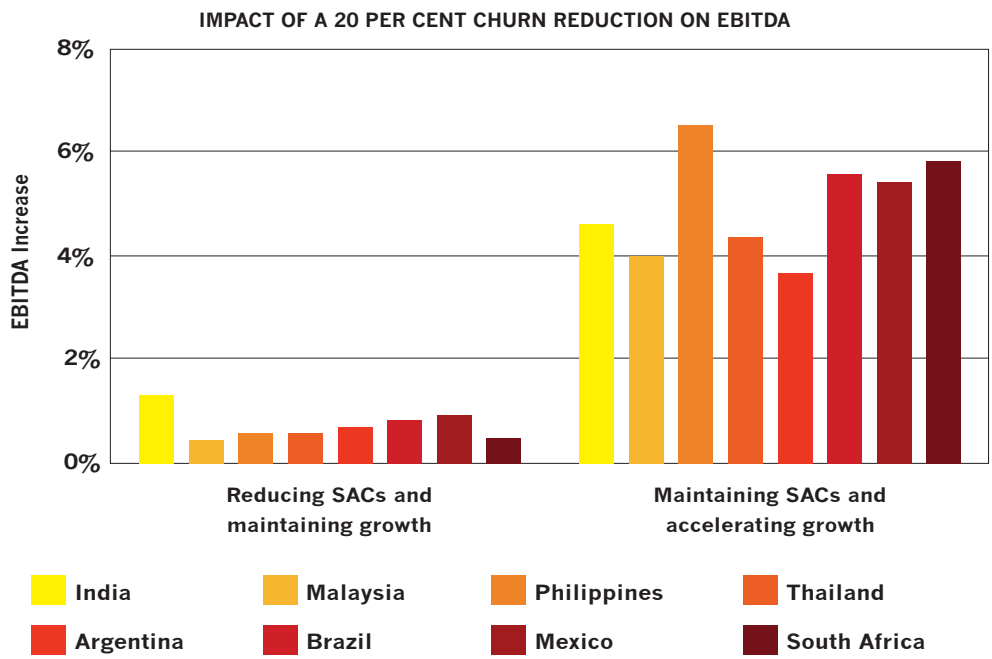
African operators facing a constant 'countdown to no'

Prepaid churn in South Africa is so astronomical that operators must replace their entire prepaid subscriber base every 18 months on average, according to new research from Strategy Analytics and Juvo.

The report, called *Death by a thousand nos*, highlighted the methods to encourage sustainable loyalty amongst prepaid customers and calculated the reduced churn and increased revenues that are possible for developing market operators.

Although prepaid is the dominant form of mobile connection – accounting for 94 per cent of connections and 80 per cent of revenue in Africa as a whole in 2018 – in South Africa alone, operators wasted USD51m last year replacing lost prepaid customers. That is because 93 per cent of subscriber acquisition cost expenditure was devoted to replacing churning customers – amounting to 2.7 per cent of prepaid OPEX.

James Muriithi, head of Africa at Juvo, said more than nine in 10 African mobile customers are on prepaid plans, accounting for eight in 10 dollars of mobile revenue on the continent. "But churn is so high that operators across Africa spend hundreds of millions of dollars a year simply replacing lost prepaid customers – over R700m in South Africa in 2018 alone," he said. "The way we, as an industry, approach prepaid must change.



African operators face a constant 'countdown to no' – swathes of customers leave every month, most as they run out on credit. The solution is to flip this around. By saying 'yes' and offering customers convenience airtime credit to all subscribers at the point of low balance, operators change the relationship. More importantly, with the data they generate, operators can build financial identities to offer personalized mobile financial services which are proven to boost loyalty and provide a sustainable foundation for new, revenue-generating services."

The report also found that prepaid services dominate the mobile market in many other parts of the world, but primarily in developing countries. Globally they accounted for 5.7 billion connections and USD265bn in service revenue in 2018 shares of 71 per cent and 32 per cent respectively. However, these ratios were significantly higher in developing regions, where prepaid services account for 82 per cent of connections and 50 per cent of revenue in developing Asia-Pacific markets.

5G on path to 30 million subscribers by 2024

5G is expected to reach 30 million subscriptions for enhanced mobile broadband in Africa and the Middle East by the end of 2024, representing two per cent of total mobile subscriptions, according to the latest Ericsson Mobility report.

Revealed at the 2019 Mobile World Congress in Barcelona, the report said this will make 5G the fastest generation of cellular technology to be rolled out worldwide. Most of the 5G subscriptions in Africa are expected to come on the back of considerable momentum building up in South Africa.

With regards to mobile data traffic point of view, Africa and the Middle East as a whole is globally the highest with nine times growth forecast (1.8 to 15.4EB/month from 2018 to 2024) with mobile broadband subscriptions to double (860 million to 1.63 billion from 2018 to 2024).

"As 5G now hits the market, its coverage build-out and uptake in subscriptions is expected to be faster than for previous generations," said Rafiah Ibrahim, head of Ericsson Middle East and Africa.

The key drivers for 5G deployment include increased network capacity, lower cost per gigabyte and new use case requirements.

'Mowali' to help scale up mobile financial services

The MTN Group and Orange Group have announced a joint venture to enable interoperable mobile payments across the continent. They say 'Mowali' – mobile wallet interoperability – will make it possible to send money between mobile money accounts issued by any mobile money provider, in real-time and at low cost.

Mowali is a digital payment infrastructure that connects financial service providers and customers in one inclusive network. It functions as an industry utility, open to any mobile money provider in Africa, including banks, money transfer operators and other financial service providers.

The partners say the objective is to increase the usage of mobile money by consumers and merchants. They claim their system will unlock further innovation in the digital financial space within the continent.

Between them, MTN and Orange are said to have more than 100 million mobile money accounts and operations in 22 of sub-Saharan Africa's 46 markets.

Mowali is said to bring together more than 100 million MTN and Orange mobile money accounts and operations in 22 of sub-Saharan Africa's 46 markets. The companies add that the platform is ready to enable interoperability between digital financial service providers beyond MTN and Orange to support the existing 338 million mobile money accounts across the continent.

■ In separate news, in mid-November 2018 Orange announced a new partnership with the Virtual University of Tunis, which provides digital training to students in Tunisia. The partnership aims to support access to the university's courses and training in the African countries within Orange's footprint. A similar partnership was later signed in December with the Virtual University of Senegal.

Hellas Sat 4 to cover southern Africa

Satellite operator Hellas Sat has confirmed that the Hellas Sat 4 satellite was successfully launched from French Guiana and will be positioned to provide coverage over Southern Africa, as well as Europe and the Middle East.

Hellas Sat, a subsidiary of Arabsat, said the new Ku-band satellite, positioned at 39 degrees, "will extend Hellas Sat's capacity and geographical reach to meet the growing demand for applications that include video, maritime connectivity, cellular backhaul, corporate networks and government services".

The Hellas Sat 4 satellite was successfully launched by an Ariane 5 launch vehicle from the Guiana Space Center in Kourou.

Christodoulos Protopapas, chief executive officer, Hellas Sat, described the satellite as "a powerful addition to our network and a major milestone to our business plan". He said: "It brings new capacity that will enable our existing and new customers to unlock new growth opportunities in applications including broadcasting, mobility and private data networks. Moreover, it will enable us to deliver high quality services at competitive prices as well as unmatched performance, resiliency and redundancy to our customers."

The satellite is expected to commence service in the third quarter of 2019.

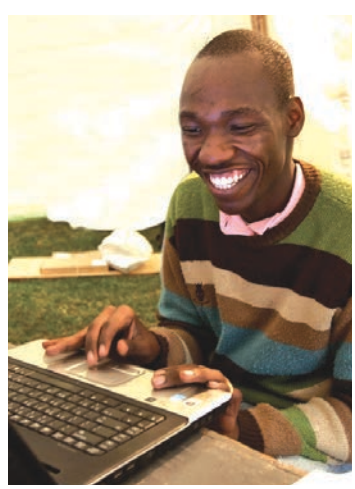
Vodacom Lesotho and Facebook form new partnership

Vodacom Lesotho has joined forces with Facebook to launch a free connectivity service that both companies claim will enable "hundreds of thousands of Basotho" to follow news and stay connected.

Facebook Flex will allow Vodacom Lesotho customers to switch seamlessly between free and data modes, making it possible for them to chat, post, comment, like or share content for free with family and friends.

The mobile network operator said it hoped the alliance would help more people access Facebook and become "first-time users of the internet" in a part of the world with limited connectivity.

Vodacom Lesotho managing director, Philip Amoateng.said it was important to give Basotho "the best possible tools for them to lead successful and fulfilling lives", and that the network and tools would make their lives easier. "This partnership is one of the many ways in which we hope to achieve that," he said. "In the face of blinding unemployment rates, hundreds of thousands of Basotho have found ways to build thriving businesses that use the power of Facebook.



Thousands more have developed and built meaningful relationships in Lesotho and outside to further enrich their lives."

Last August, Vodacom Group said it created "Africa's first standards-based, commercial 5G service in Lesotho", using its assigned 3.5GHz spectrum to initially deliver fixed-wireless access broadband services to two local enterprises.

The operator hopes the partnership will help more people become "first time users of the internet" in a part of the world with limited connectivity

New 'smart feature phones' aim to address affordability issues for mobile users in Africa

The new 'smeature' phones are said to "combine the simplicity of a feature phone with the powerful capabilities of a smartphone"

Rather than forcing people to opt for a feature phone without internet access, or a budget smartphone with limited user experience, mobile users and MNOs in Africa now have a choice.

That's according to KaiOS which specialises in smart and feature phone operating systems. Following partnerships with MTN, China Mobile and Unisoc, and another with Orange, the company is bringing what's claimed to be a new category of affordable mobile devices to the continent.

These so-called 'smart feature phones' will run KaiOS' platform and are said to "combine the simplicity of a feature phone with the powerful capabilities of a smartphone".

The devices can run Google services such as *Assistant* and *Maps*, as well as popular apps like *Facebook*, *Twitter* and *YouTube*. They can also support functionalities like the KaiStore (the first app store for smart feature phones), Bluetooth and GPS.

MTN plans to launch devices in Nigeria and South Africa during the first quarter of the year. Meanwhile, Orange has announced that its first smart feature phone will be 3G followed by a 4G version later this year. As well as the apps mentioned above, Orange customers will also be able to *Google Assistant* in French, English and Arabic to help overcome language and literacy challenges.

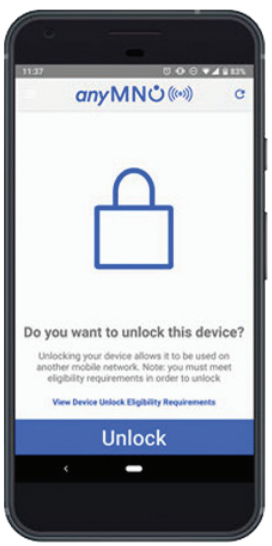
KaiOS says that in Africa more than anywhere else, device affordability is a crucial barrier to moving people from 2G voice and text-capable phones to 3G/4G devices that can access the internet. Citing research from the GSMA, it says the threshold lies at USD34. Below that point, even those in the lowest income groups are said to be capable of upgrading to a data-enabled devices.

But the company goes on to point out that once a user has purchased a phone, there's still the "cost of ownership" in the form of a monthly data plan that has to be factored in. To reduce data costs, KaiOS says it works closely with MNOs to design new data plans that are priced between a 2G voice and text plan and a full-blown smartphone data plan.

It adds that there are several ways in which it achieves reduction of data costs together with carriers and content providers. For instance, the technology behind its operating system minimises data requirements on both the OS and content side.

KaiOS Technologies' CEO Sebastien Codeville says that despite the availability of a few lower-cost budget smart phones in Africa, figures from the GSMA revealed that in 2017, Eastern Africa had the world's lowest smartphone adoption level at 25 per cent, compared to the global average of more than 50 per cent. The GSMA also says that the USD100-200 price for a smartphone is preventing 64 per cent of Africans from upgrading their 2G voice and text-capable phones to 3G/4G devices that can access the internet.

UK firm Trustonic launch new cyber security app



By improving supply chain security and protecting subsidised, financed and leased devices, the new service will assist operators in their fight against smartphone theft, fraud and trafficking.

African mobile network operators can dramatically reduce smartphone theft, fraud and trafficking following the launch of a product by mobile cyber security firm Trustonic.

The new Asset Lifecycle Protection Service (ALPS) will also help them to safeguard their device investments, protect revenue and drive additional profit contribution. Trustonic, which is based in the UK, said two key services that will aid African operators include supply chain security and protecting subsidised, financed and leased devices.

The former protects devices by locking them at the moment they are produced and safeguards every stage of the lifecycle – and every participant involved – by making devices worthless to thieves. The latter prevents the use and resale of devices if instalment payments are not made. Once the subsidised plan is paid in full, a subscriber can request the device to be unlocked. Alternatively, once a lease agreement ends, devices can be locked if not returned.

Ben Cade, chief executive officer, Trustonic said a global crime wave of stolen, fraudulently obtained and sold-but-not-activated smartphones "is costing operators billions of dollars in lost revenue annually, not to mention the loyalty of defrauded customers" and the safety of employees. "After developing and proving the service with some of North America's largest operators, Trustonic is pleased to launch ALPS in Africa and globally," he said. "Our relationships with device makers and the impartial, trusted role we play in the ecosystem means Trustonic can rapidly deliver a single solution to operators that protects revenue across their device portfolio. African network operators can now take control in their fight against fraud, theft and device trafficking by improving supply chain security and protecting subsidised, financed and leased devices." Cade said it not only solves a billion-dollar problem for the industry, it also added a significant contribution to their bottom line performance.

Angola Cables and Broadband Infraco look to boost internet connection in southern Africa

Angola Cables has signed a "memorandum of understanding" with Broadband Infraco to extend internet connectivity within southern Africa.

The deal is for the interconnection of over 14,960 km long South African terrestrial network of optical fiber to Angolan international submarine cables. The additional data capacities provided, courtesy of the agreement, will help the South African firm deliver its promise to provide high-quality internet to the "Square Kilometre Array" (SKA)'s project antenna in South Africa.

In Africa, Angola Cables has focused on the 15 member states of the Southern African Development Community (SADC), having established itself as the main international telecoms service provider for the Angolan market.

Angola Cables executive chief officer António Nunes, said that the partnership provided a genuine opportunity to collectively fast-track connectivity on the continent. "The very real possibility now exists to connect Brazil and South Africa to the other BRICS nations of Russia, India and China through a high speed, low latency connection," he said. "Such a connection together with our robust network will accelerate international co-operation on multiple levels, promote economic development and fast-track projects that will enable new opportunities for digital content exchange across the region."

MTN Zambia becomes first operator in Africa to deploy Instavoice ReachMe app

MTN Zambia has become the first operator in Africa to offer a new roaming service for customers travelling outside Zambia, which makes a "drastic" reduction in the cost of making and receiving calls overseas.

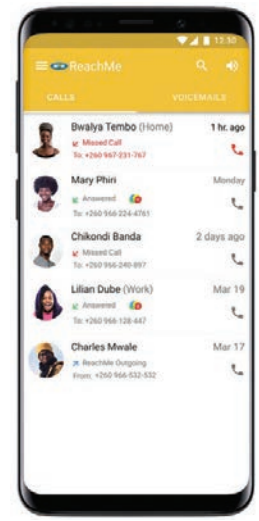
The Instavoice ReachMe app, from voice messaging and social media mobile apps specialist Kirusa, also allows customers to use their existing MTN Zambia number anywhere in the world, even where the operator has no roaming partners.

It works by converting regular phone calls into Voice over Internet Protocol (VoIP) calls, which allows users to make or receive such calls within the app. This means the user does not suffer when roaming, is out of network coverage or the device is on flight mode but without an active data connection. It could be data from a sim card, roaming data or a Wi-Fi network.

Furthermore, there will be an opportunity to purchase virtual numbers for the US, UK, Canada and France for $1 a month. Additional countries are expected to be added shortly. The numbers can be used alongside a current mobile number and can be activated instantly without having to liaise with an operator. Up to 10 numbers can be linked to a business and used on any device, which means the users need only carry one phone.

Customers can now download the app from Google Play, the Apple store or MTN subscribers can visit *https://go.onelink.me/0Wz6reachme.*

MTN Zambia said ReachMe "solves a pain point" for its frequent flyer audience. "This app is an outcome of totally re-thinking roaming and, by clever integration with the cloud, drastically minimizes our costs thereby allowing us to roll out attractive roaming packages," said Seun Soladoye, acting chief marketing officer."



The app allows customers to use their existing MTN Zambia number anywhere in the world. Even where the operator has no roaming partners

TCCA sets out roadmap for critical comms evolution

The TCCA (TETRA and Critical Communications Association) has released a new white paper that presents the current roadmap to the operational use of mission critical broadband.

According to the association, there has been considerable debate and discussion about the possible introduction of broadband for critical communications. It says that some public protection and disaster relief (PPDR) operators have plans for dedicated broadband in addition to their narrowband network; other operators are beginning a move from dedicated TETRA or other narrowband networks to mission-critical broadband service relying on partnerships with commercial operators.

The new white paper is for organisations looking to move away from narrowband networks, or to introduce critical broadband to complement their existing services. The are three phases: the current situation; the next three years to 2021; and 2022-2030. All this is set against the timetable of 3GPP Releases and the issue of interoperability.

The TCCA points out that the window of opportunity for the introduction of critical broadband is up to each indivdual country. For example, the USA, UK and South Korea have been early in their planning, while other countries have renewed their narrowband systems to allow more flexibility in their transition plans.

However, irrespective of the geography, the TCCA says replacing an existing PPDR network with a new broadband service, or adding critical broadband capability to narrowband services, involves a great deal of planning, coordination and cooperation.

"Developing standardised features and functions, engaging service providers, undertaking procurement and operational processes, implementing trusted radio networks and finally convincing the users and management that the new service is fit for purpose takes time, expertise and patience," the association said.

"For governments and operators looking to eventually transition from TETRA or other narrowband networks to critical broadband services, or to introduce complementary critical broadband services, TCCA recommends the process should be started as early as possible."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Smartphone sales up 7.2%

South African smartphone sales had a bumper 2018, except for the last quarter. Unit sales rose 7.2 per cent year-on-year to around 13.5 million and value grew 13.2 per cent to just under R35 billion. New sales tracking data from GfK South Africa's Weekly Monitor showed that unit sale growth for the fourth quarter of the year declined 8.7 per cent to 3.6 million units compared to Q4 2017.The data also showed that while the high-end smartphone segment (R6,000 and above) accounted for 9.7 per cent of smartphone unit sales last year – it contributed almost 50 per cent in value. Low-end smartphones (R1,499 and below) accounted for 61 per cent of unit sales in 2018, but contributed just 17% to the value of the market.

Spacecom makes news

Spacecom has announced a partnership to provide satellite capacity for permanent SNG (satellite news gathering) services for what it describes as "one of Africa's largest public broadcasters". Globecast is providing a long-term solution for the unnamed broadcaster and will utilise Spacecom's *AMOS-7* Africa KU-band beam. Provision of the service began in September 2018. Spacecom said its satellite's capabilities allow the broadcaster to uplink HD-on-the-move all within one beam that covers the entire Southern African region.

CETel expands

CETel, the Germany-based provider of managed end-to-end communications solutions, says it will deliver "fibre-like" connectivity into Africa utilising O3b's medium Earth orbit satellite constellation. Under a long-term contract signed last November, the company said it will support a "leading" communications and technology solutions provider to further expand its network across the continent. The unnamed company will serve various vertical markets, such as mining, enterprise, construction, telecoms/ICT and government.

BRCK and Clear Blue to serve next billion

Clear Blue's Smart Off-Grid technology will be used to power thousands of Wi-Fi hotspots across Africa.

Clear Blue Technologies International has been selected as the power service provider for BRCK, a hardware and services tech specialist based in Nairobi.

BRCK says that because connectivity is too expensive for the average African to afford, the majority of citizens in developing markets rely heavily on Wi-Fi. The company has developed its free to consumer *Moja* platform of Wi-Fi hotspots but says powering them is crucial for success.

In 2018, Clear Blue supplied its *Smart Off-Grid* technology to power Wi-Fi hotspots at 10 sites in Kenya. With the success of these installations, BRCK is now planning a wider rollout. Clear Blue will provide its technology and service for a multi-year rollout of thousands of Wi-Fi hotspots across Africa, set to begin in 2019 and running through 2024. The company will manage, monitor and control the systems remotely from its service centre.

According to Clear Blue, its *Smart Off-Grid* technology provides a low-cost, highly reliable off-grid power solution. It also features automated remote management and control, predictive weather forecasting, and the ability to optimise systems remotely.

The vendor also claims that its "extensive" troubleshooting capabilities facilitate quick resolution of any issues, keeping systems running with "unmatched reliability and long-lasting performance, while at the same time reducing installation and maintenance costs by up to 80 per cent". Canada-headquartered Clear Blue will manage, monitor, and control the systems remotely from its cloud-based service centre.

Clear Blue says this latest alliance with BRCK adds to a wide variety of similar strategic partnerships with innovative, visionary organisations and investors. The firm says its technology and services are now bringing off-grid power through more than 500 projects in communities around the world. It adds that they are being sold into an array of high-growth segments which, according to research, will represent an estimated addressable market worth USD38bn by 2023.

FNB makes customer data promise

FNB said customers who use FNB Connect will now benefit from data rollover changes and the ability to transfer mobile data, the company announced.

The company said its mobile virtual network operator would align with new regulations from the Independent Communications Authority of South Africa (ICASA) for mobile operators, which came into effect 28th February. ICAS's regulations also call for data depletion notifications and out-of-bundle data usage by default prevention.

"We are providing an option for a free rollover of data near the expiry date for use in the following month," said FNB Connect chief executive officer Len Pienaar. "Customers who are on FNB Connect can also transfer data to one another, which is a major benefit for households."

Under the changes, FNB Connect customers will receive depletion notifications when their data usage is at 50%, 80%, and 100%, and will be requested to provide consent before being charged out-of-bundle data rates.

"We believe that the combination of free data rollover, data transfer, depletion notices, and consent on out-of-bundle usage adds significant value to FNB customers," Pienaar added.

ATU appoints Kenyan as new head

The ATU has appointed John Omo, former director of legal services at the Communications Authority of Kenya, as its new secretary general.

Omo succeeds Niger's Abdoulkarim Soumaila and is the second Kenyan to head the union after Jan Mutai who served from 1999 to 2003.

Omo received the instruments of office in Nairobi on 24 December 2018 at a handover ceremony presided over by Kenya's ICT cabinet secretary, Joe Mucheru, who is also the chairman of the ATU Conference of Plenipotentiaries. Speaking at the event, Mucheru said: "Africa is one community and it is our hope that we will continue using technology and the goodwill that we have from our leaders to ensure that we create that single digital market."

Incoming ATU secretary general John Omo (left) receives instruments of office from his predecessor, Abdoulkarim Soumaila.

He added that the ATU has a big role to play in ensuring that Africa has interoperable technologies, especially in the area of mobile money.

Omo acknowledged that he was taking over as ATU leader against a backdrop of challenges across the continent's ICT landscape, particularly regarding internet policy. He said that in order to create a robust industry, African governments must create meaningful ICT policies and regulatory environments that attract investments, especially in broadband.

Intelsat and Vodacom strike deal to support growing data demand

Intelsat has inked a deal with Vodacom Mozambique to provide 3G services to meet the data demand generated by growing tourism.in the country.

Under the terms of the multi-year agreement, Vodacom International has upgraded a network operated by Vodacom Mozambique using the Intelsat EpicNG satellite platform. The solution delivers 3G services to Pomene, a key tourist resort in located in southern Mozambique.

The satellite telecommunications giant did not disclose any financial information relating to the deal. Intelsat is said to have improved the network's capabilities and enhanced connectivity in a cost-effective manner, improving customer experience of Vodacom Mozambique. The latter has expanded the network to cover tourist lodges in Pomene, generating a new revenue stream for the operator.

Basilio Pereira, executive head of transmission, Vodacom Mozambique, said Intelsat showed how the improved efficiency and throughput of Intelsat EpicNG could meet Vodacom's needs better than a terrestrial option. "In addition, we were able to expand our reach, grow our subscriber base and meet our growth objectives due to the lower total cost of ownership," Pereira said.

Brian Jakins, Intelsat's regional vice president, Africa sales, added: "We have combined the traditional strengths of satellite, such as reach and ubiquity, with a new approach that delivers improved economics for mobile network operators. This helps our customers deliver a 3G experience within the constraints of their budgets."

Orange launches 'Sanza' smartphone across Africa

Orange said it has democratised access to the internet for a large number of Africans with the launch of a $20 USD voice recognition smartphone called "Sanza".

The device, which will be made available in 15 African countries from April this year – as well as in the Middle East.

Alioune Ndiaye, managing director of Orange MENA, said the launch of Sanza was a major step toward giving a larger number of Africans access to the internet because the smartphone was affordable.

"Sanza is concrete proof of the capacity of Orange to be a key player of digital inclusion in Africa and the Middle-East" he said. "With its access to internet with the voice (recognition) and its attractive price around $20 USD I have the conviction that this 3G phone and soon 4G is a powerful lever to develop access to internet for all Africa."

The smartphone penetration rate in Africa is low because of price, which has made the devices unaffordable for low-income earners that make up the majority of the continent's population.

Gérard Lokossou, chief executive officer, Orange Democratic Republic of Congo said penetration in the country was 30 per cent versus the average of 50 per cent for the continent. "The established mobile payment services via Orange Money, the launch of 4G+ in 2018 and our engagement to extend 3G coverage to the whole country are all contributing to boost the smartphone penetration rate in DRC," he added. "The next commercialisation of the Sanza phone at an affordable price demonstrates our strategy for the democratisation of Internet access in the country."

The new device will be commercialised with a dedicated offer (voice/text/data) starting around $US20 USD - depending in which country the user is based - that will help customers to work to their budget.

In addition, the Google Assistant feature will help users overcome language and literacy challenges and understands multiple French and English accents. The phone menu is available in Arabic, Swahili, Portuguese, English and French.

Sanza will also give users access to applications such as Twitter, Facebook, YouTube, Google Search and Google Maps, as well as Orange Money, the flagship mobile-based money transfer and financial services offer and My Orange - the application to monitor your mobile consumption, among other things.

The new smartphone from Orange comes with the UNISOC SC7731EF processor and is powered by the KaiOS operating system.

The phone comes with the UNISOC SC7731EF processor, manufactured by UNISOC, and is powered by the KaiOS operating system from KaiOS Technologies.

South African MVNO team up with British based firm

South African MVNO The Unlimited has gone into partnership with British based cryptocurrency, Electroneum (ETN), to help manage airtime top up via the latter's mobile app.

ETN users in South Africa can now top up their airtime and data directly with cryptocurrency and The Unlimited, which doubles up as a financial services provider, will give users double airtime and double data, as an incentive to purchase via the payment method.

The companies claim the deal will "give real-world value to ETN", helping them reach the 11.2 million 'unbanked' people living in South Africa. The free app also allows users to 'mine' up to $3 USD worth of ETN every month.

Before the partnership, ETN was said to have a user base of close to three million. It will start out as a three-month trial.

Richard Ells, director and founder of Electroneum, said his company did not "do anything without careful deliberation" and that it had studied South Africa "for some time because we knew there was a real market in the country and a real desire" for a service like ETN. He added the decisions was made after careful deliberation and assessment of financial inclusion data, including incomes and access to financial services.

"We saw that The Unlimited do things differently and that makes them a perfect partner for Electroneum," he said. "We wanted to work with a company whose ethos and vision aligned with our own and we're going to make a vast difference to the lives of people throughout South Africa." The country has already shown itself open-minded to the launch, with 77% of the total population saying they are interested in crypto.

He added that the country had already shown itself open-minded to the launch, with 77% of the total population saying it was interested in cryptocurrencies.

To take advantage of the new collaboration, users just need to download the Electroneum app and select "Get your free SIM".

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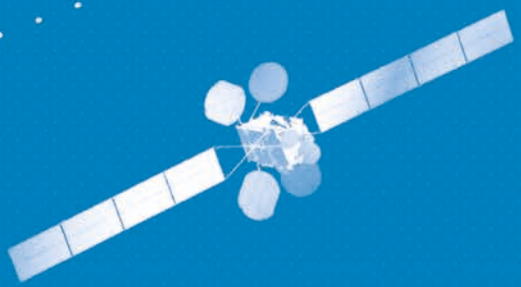

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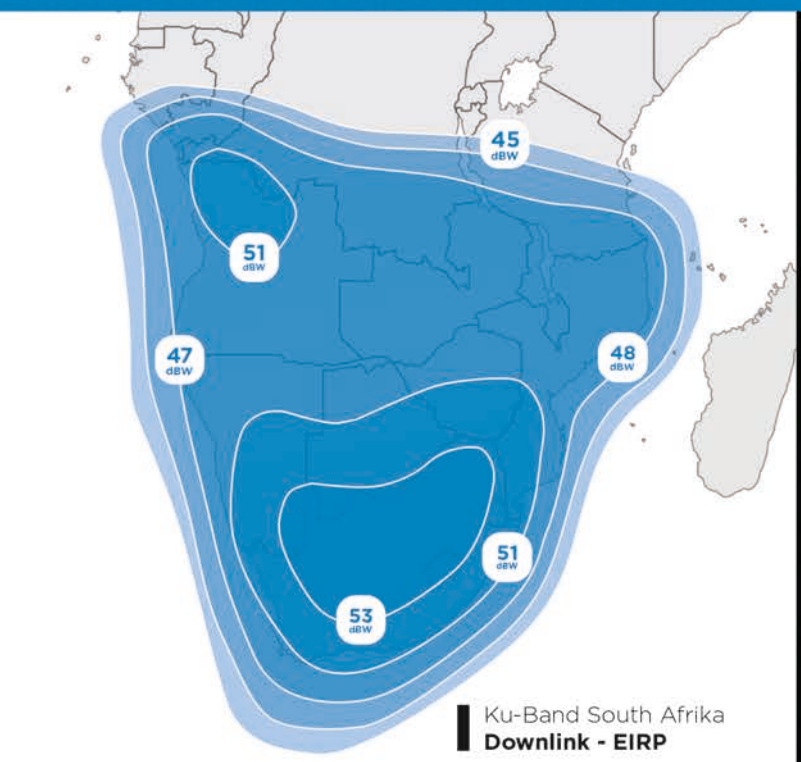
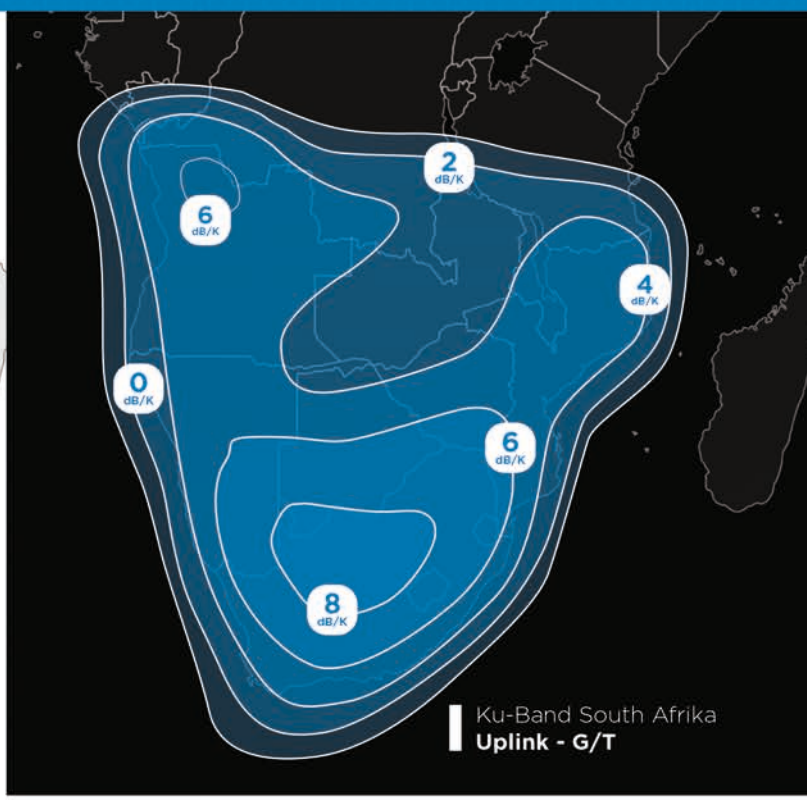


Ku-Band South Afrika
Downlink - EIRP



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African telecoms giants choose Hughes JUPITER service

Three African telecoms companies have chosen US firm Hughes Network Systems to power delivery of satellite broadband services.

Botswana Telecommunications, Satcom Networks Africa (SatCoNet) and an undisclosed East African firm have all signed up to the Hughes JUPITER system.

The former is using the system to expand its high-speed business broadband service in Botswana, with the first phase of deployment to include hundreds of remote terminals connecting businesses and homes. SatCoNet, based in Tanzania, selected JUPITER to improve its service offering for the market with better throughput.

The unnamed East African player, said to be one of the largest in the region, will use JUPITER for video and broadband in schools.

Hughes regional director, Dharmendra Singh said Africa is a key market for the company and it has tripled its sales and engineering support across the continent to reflect that.

"Our JUPITER system enables service providers to improve their offerings and deliver a wide range of applications supporting economic and social development across Africa – helping close the digital divide, which is our global mission."

The Hughes JUPITER System is a popular choice because it is designed to support a wide range of applications across all market sectors, from consumer to enterprise, government and mobility. The most widely deployed satellite broadband platform (VSAT) around the world currently serves in excess of 1.3 million subscribers in the Americas alone and has been deployed by operators on both conventional and High-Throughput Satellites (HTSs).

Its in-built DVB-S2X technology allows the system to deliver more than 200 Mbps of TCP throughput per terminal. For cellular backhaul applications, it includes 4G/LTE optimization capability that can produce 30 to 60 per cent bandwidth savings versus that of conventional backhaul solutions.

Infinidat appoints Pinnacle as primary distributer

Infinidat, the software-centric data storage solutions firm, has appointed ICT distribution company, Pinnacle, as its primary distributor in South Africa.

Infinidat, which is based in both the US and Israel, plans to grow its customer base in South Africa, as well as enable Tier 1 enterprise customers to leverage its proposition of "high availability, high performance" and the lowest possible TCO at multi-petabyte scale.

Both companies said the distribution partnership is "an ideal strategic fit", as the Alviva Group, Pinnacle's Holding company, also has longstanding relationships with many of Infinidat's alliance partners such as VMWare and Cisco, as well as with with Commvault, Mellanox and others.

"This partnership is especially critical for us, as our go-to-market strategy is wholly focused on a channel model," said Hayden Sadler, Infinidat country manager for South Africa. "Customers will be more exposed to our value proposition and understand the company's innovative and disruptive architecture." "This will not only save customers money, but also give them more capacity, reliability and better performance than any other data storage solution they've previously used."

MTN opens mobile money API and launches startups fund

Developers and programmers in Uganda are being given free access to MTN's mobile money proprietary software platform. The company hopes the move will spur innovation in the developer community around the country.

Third party developers will be able to access MTN's mobile money API (access programming interface) via http://MoMoDeveloper.MTN.com/. The operator says this replaces the previous system where developers had to physically submit paperwork to MTN Uganda and then go through a lengthy standard integration process. The company adds that its online system provides an option where developers can test their products before going live by using a free sandbox that is available on the website.

Elsa Muzzolini, GM of mobile financial services at MTN Uganda, says: "Our expectations are that this decision will enable innovators to monetise their products, ensure that there is fast turnaround of innovations to get to market, and improve the value created for innovators and entrepreneurs. Why not a Ugandan Ebay or Amazon in the next few months?"

In partnership with several technology and innovation hubs around the country, MTN Uganda is facilitating the training of developers on how to use the platform.

MTN Mobile Money is said to be used by 10 million customers in Uganda, making it the country's most popular mobile money platform. According to the Consultative Group to Assist the Poor (CGAP), open APIs have the potential to further drive financial inclusion, which is already being accelerated by the usage of mobile money. In January 2018, MTN Uganda and CGAP formed a partnership aimed at driving customer growth and activity by facilitating a wider range of mobile wallet applications for all customers through open APIs.

MTN Uganda has also announced the launch of a UGX1bn (USD270,000) fund that will be accessed by local technology startups. MTN Uganda CEO Wim Vanhelleputte says: "I encourage as many startups as possible to participate in the several innovation challenges we shall be hosting in order to access funding from the MTN Startup Fund."

Courtesy of the MTN Foundation, MTN Uganda has also unveiled a USD81,000 high speed internet connectivity package as part of MTN's *Innovation Village* programme. The package includes free internet connectivity for use by young developers and innovators.

Alibaba partners with government to promote economic development in Rwanda

The Rwandan Government has teamed up with Alibaba, the world's largest online commerce company, to establish an electronic world trade platform (eWTP) hub in the country.

The eWTP is a multi-stakeholder global initiative promoting public-private dialogue. The aim is to foster a more effective and efficient policy and business environment to enable SMEs to participate in cross-border electronic trade. Rwanda is the first African country to establish an eWTP hub.

Under the agreements, Alibaba will work with the Rwanda Development Board to help Rwandan SMEs sell their products to Chinese consumers through Alibaba's online marketplaces which are said to attract more than half a billion consumers. The two organisations will also work together to promote Rwanda as a tourist destination, while Alibaba affiliate Ant Financial will share expertise in inclusive financial tools, such as mobile payments, to support the Rwandan digital economy.

Alibaba adds that it is also committed to providing capacity building to academics, policy-makers and entrepreneurs on how to grow a digital economy. As well as hosting courses and workshops, the company says it will also continue to support Rwandan entrepreneurs through programmes such as the eFounders Fellowship. In partnership with UNCTAD, Alibaba is training

1,000 entrepreneurs from emerging markets over five years. Two hundred of these entrepreneurs will come from Africa, and five Rwandan entrepreneurs have already graduated from the programme.

Speaking during the signing of the MoU in early November, Rwandan president Paul Kagame said the eWTP opens up new frontiers in e-commerce and tourism for Rwanda, and will also boost business capacity and competitiveness. He said: "Rwandan producers will be able to sell directly to a much larger set of customers than before, while bypassing costly intermediaries. This improves productivity and profitability. There really are no downsides to doing business on a global scale."

Also speaking at the signing ceremony, Alibaba Group founder and executive chairman Jack Ma said: "Entrepreneurs in Rwanda, and elsewhere in Africa, are ready to seize the opportunities offered by the digital economy. It is up to all of us to help them succeed."

Avanti signs multiple service and distribution agreements for satellite broadband in Africa

Avanti Communications has signed various agreements with several companies in Africa for the distribution of services via its *HYLAS 4* satellite that was launched last year.

In November, the operator announced that South African satellite integrator Logical Wireless will provide communication and connectivity services to enterprises and end-consumers. Under a Master Service Agreement (MSA), the company will use HYLAS 4 to complete its coverage of sub-Saharan Africa and provide "cost-effective and reliable" satellite internet services into regions that suffer from unreliable or non-existent connectivity.

Logical Wireless MD Gavin Behr said: "The partnership with Avanti enables us to deploy satellite broadband services that can be installed anywhere and provide a complete communication and connectivity solution to allow individuals and companies to conduct business as if they were in a city."

Pan-African telco Paratus Group also signed an MSA in November to provide high-speed satellite broadband across the continent using HYLAS 4. Kallie Carlsen, Paratus' MD for South Africa, said: "With HYLAS 4 we are further extending our reach and ability to provide high throughput connectivity throughout Southern Africa."

This latest agreement extends the strategic partnership between the companies – Maxwell Technology, which is part of the Paratus Group, has been using Avanti's HYLAS 2 services since 2012.

Avanti added that each MSA will enable Logical Wireless and Paratus to deliver high capacity sites for carriers and telecom providers to directly access cloud and content platforms in Africa's largest data centre, making services more efficient and cost-effective.

Meanwhile, following on from its partnerships with COMSAT and iWayAfrica announced last August (*see Wireless Business, Aug-Sep 2018 issue*), Avanti has also signed another Master Distributor Agreement with Afrique Telecom. The pan-African service provider said it will provide affordable high-speed satellite broadband to connect homes, small businesses and enterprises, especially in rural and remote locations where terrestrial networks are limited or unreliable.

Early last November, Afrique Telecom tested its first live site in Abidjan. Using *HYLAS 4*, it's claimed the site can reach superfast broadband speeds of 100Mbps. Avanti said the new MDA will enable Afrique Telecom to deploy similar high-quality services throughout sub-Saharan Africa.

Hytera says court ruling has "no impact" for customers – but Motorola claims company is "serial infringer"

Hytera claims its customers and end users "remain completely untouched" following a German district court's ruling as part of the long running patents dispute with Motorola Solutions.

In late November 2018, the Düsseldorf regional court ruled in the first instance that a combination of functions that could previously be selected for certain Hytera DMR radios in connection with direct mode communication violated a Motorola patent that is valid in Germany.

Speaking right after the verdict, Matthias Klausing, CEO of Hytera's German subsidiary, Mobilfunk, said: "We respect the decision of the district court, but we are still firmly convinced that we in no way violate an existing patent and will therefore appeal."

Hytera claims that in early September 2018, following the release of software release (9.0) for its entire DMR product portfolio, it had already removed the features complained about by Motorola.

Furthermore, Hytera says it added more than 20 "new and innovative" functions to its radio devices, repeaters and DMR system technology. Therefore, thanks to the court decision and the long running

NEW APPOINTMENTS

Date	Name	New employer	New position	Previous employer	Previous position
8/11/18	Emmanuel Lugagne Delpon	Next Generation Mobile Networks (NGMN) Alliance	Chairman	–	Also continues as SVP of Orange Labs Networks,
13/11/18	Federico Guillén	Nokia Group	President, customer operations, EMEA & Asia	Nokia Group	President, fixed networks
13/11/18	Ashish Chowdhary	–	–	Nokia Group	Chief customer operations officer – resigned
22/11/18	Tommi Uitto	Nokia Group	President, mobile networks	Nokia Group	SVP, global product sales, mobile networks
22/11/18	Marc Rouanne	–	–	Nokia Group	President, mobile networks – resigned
26/11/18	Barbara Bergmeier	Airbus Defence and Space	Head of operations	Dräxlmaier Group	COO
26/11/18	André-Hubert Roussel	Ariane Group	CEO	Airbus Defence and Space	Head of operations
28/11/18	Jeremy Prince	Sigfox	Chief strategy officer	Mikros Image	CSO
12/12/18	Ayush Sharma	Sterlite Tech	Head of programmable networking & intelligence	Reliance Jio	SVP of engineering & technology
12/12/18	Rajesh Gangadhar	Sterlite Tech	Head of wireless broadband converged platforms	Epgenia Wireless	Founder & principal
13/12/18	Ursula Burns	VEON	Chairman & CEO	VEON	Executive chairman
31/12/18	Sandra D. Motley	Nokia Group	President, fixed networks	Nokia	COO, fixed networks
1/3/19	Douglas Craigie Stevenson	Cell C	Interim CEO	Cell C	Chief operating officer

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AFRICAN WIRELESS COMMUNICATIONS

patents dispute with Motorola, Hytera brazenly claims its products now benefit from new features and "even better performance".

In an online statement released on its website on 29 November 2018, Motorola Solutions said Hytera should provide open communications with customers and dealers regarding the previous ruling from the US International Trade Commission (also see Wireless Business, Jun-Jul 2018).

"The numerous court rulings across the globe have confirmed that Hytera is a serial infringer of Motorola Solutions' intellectual property," claimed Mark Hacker, general counsel and chief administrative officer, Motorola Solutions.

Citing an unidentified source, Hacker continued by saying that it had been reported in a recent interview that Hytera admitted its new i-Series will lack important features available on Motorola devices. "While Hytera has stated that the features are 'minor,' we believe [it] is deliberately misleading its own customers and distributors as our patented technologies provide important benefits that vastly improve performance."

Hacker also added that Hytera's contention that its i-Series has been broadly cleared by the trade commission is not supported by the organisation's public materials.

"Hytera has been fighting hard in court to keep as much as possible of the ITC's rulings redacted and secret, and we urge Hytera to permit the rulings to be made public," stated Hacker. "Dealers and customers deserve the right to make informed decisions about the risks they run in purchasing products lacking the critical functionalities covered by Motorola's patents, and in doing business with a company that has engaged in intentional copying, infringement and misappropriation."

Spacecom targets growing data and video markets

Spacecom, operator of the *AMOS* satellite fleet, has launched a vertical solutions division targeting MNOs, government programmes, service providers and other commercial groups operating in what it says are the "fertile" data, mobile and video markets.

The company claims the division will enable customers to reach a broader range of new business opportunities as they add complementary applications and push further into digital markets. Its first deal is a multi-year contract with an unnamed, "leading" Southern Africa VSAT services provider via *AMOS-7*.

Based on its growing satellite fleet, Spacecom says it is working with clients and partners to determine the optimal solution for the new services utilising capacity on *AMOS-3, AMOS-4*, *AMOS-7* and *AMOS-17*, following the latter's scheduled launch in 2019 to service Africa.

The company adds that it is partnering with select international and local vendors as well as integration, installation, operation and management experts on a case-by-case basis.

GSMA highlights policy reforms to lift Nigerian economy

Modernising regulation and policy reform will be crucial to boosting Nigeria's digital economy and boosting mobile broadband penetration, according to the GSMA.

Speaking after an event held in conjunction with the Nigerian Communications Commission at the end of last November, the GSMA's sub-Saharan Africa head Akinwale Goodluck said: "For Nigeria to take full advantage of the next phase of its digital transformation, it's vital that collaboration between industry and government enables the right policy environment for millions to benefit from ultra-fast mobile broadband.

"If policies don't keep pace with the needs of society and technological innovation, there is a risk that citizens will be left behind and productivity and competitiveness will suffer."

In its Spotlight on Nigeria: Delivering a Digital Future report, the GSMA said the mobile industry contributed USD21bn to Nigeria's GDP in 2017, representing 5.5 per cent of the total. In addition, it said the growth of the country's digital economy resulted in the creation of nearly 500,000 direct and indirect jobs.

The association's research also found that smartphone adoption in Nigeria has risen to more than 53 million connections. Forty-nine per cent of the population is currently connected by mobile technology, compared to less than one per cent who have a fixed-line.

With increased spectrum harmonisation and licensing reform, Nigerian mobile penetration is forecast to rise to 55 per cent by 2025, with 70 per cent having 3G connectivity and 17 per cent having 4G access. Currently, only 44 per cent and four per cent of mobile subscribers in the country are using 3G and 4G, respectively. That's compared to more than 18 per cent 4G penetration in South Africa and 16 per cent in Angola.

The report therefore concludes that there is still broad scope for Nigeria to increase its mobile penetration.

For instance, the GSMA believes the harmonisation of the 1427-1518MHz and 3.3-3.6GHz spectrum bands makes them "critically important" for mobile operators seeking to offer new mobile services to consumers and businesses.

It said: "Making these bands available for assignment to mobile operators will be a core component in reinforcing Nigeria's position as Africa's leading mobile market."

The association also reckons Nigeria's active participation in the ITU World Radiocommunication Conference 2019 process will prove "hugely influential". It said: "With a year to go until WRC-19, leading the region in support of identifying new IMT bands that 5G will benefit from, especially the 26GHz, 40GHz and 70GHz bands, will be crucial."

The association continued by saying that changes in the market

INVESTMENTS, MERGERS, ACQUISITIONS

Date	Buyer	Seller	Item	Price	Notes
2/10/18	CSG International	Forte Payment Systems	Acquisition	NA	CSG says the purchase of Forte adds to its expanding portfolio of public cloud offerings & grows its footprint in new verticals in the increasingly complex payments world. It also claims the acquisition "uniquely positions it to help clients create a convenient & differentiated customer experience, resulting in increased loyalty & share of wallet".
31/10/18	HTA Group (Helios Towers)	Standard Bank of South Africa, Barclays Bank Mauritius, & Mauritius Commercial Bank	Loan	USD100m	Helios Towers CFO Tom Greenwood: "The term loan facility will provide us with additional flexibility to support our long-term growth initiatives. This facility will not only enable us to continue investing in tower infrastructure in our current markets but will also support our intentions to seek opportunities in new markets across Africa."Company adds that loan will be drawn as required.
28/11/18	n/a	Qualcomm	Ventures AI Fund	USD100m	Qualcomm will use its recently launched Ventures AI Fund to invest up to an aggregate of $100m in startups that aim to transform artificial intelligence. The company says the fund will focus on startups that share the vision of on-device AI becoming more powerful and widespread, with an emphasis on those developing new technology for autonomous cars, robotics and machine learning platforms.
3/12/18	Nokia	Nordic Investment Bank	Financing	EUR250m	Nokia says the loan, which has an average maturity of approximately five years after disbursement, will finance its "extensive' R&D programme focused on 5G activities in Europe in 2018-2020. In particular, the investment will focus on developing new 5G-related end-to-end product offerings for different business areas.
11/12/18	Liquid Telecom	CDC Group	Investment	USD180m	Owned & managed by the UK government, CDC Group supports companies that help poor countries grow. Liquid says the $180m will enable it to expand its high-speed broadband connectivity to some of the most underserved communities across Africa, including supporting the continent's thriving tech start-up ecosystem with high-speed internet & cloud-based services.

and technologies have resulted in a licensing framework and licensing conditions in Nigeria that could benefit from a review and update. Building on the progress already achieved by the NCC, the GSMA report recommends the following reforms:

•Retire the Digital Mobile License, the National Carrier License and the International Gateway License

•Eliminate superseded conditions in the Unified Access Service License (UASL), and migrate many others towards a supplementary general UASL conditions document or to parallel regulations

•Transition to an indefinite duration for the UASL

•Guarantee a true unified approach to licensing, permitting licensees to offer the full range of services, as per the UASL scope of services provision

•Provide coverage obligations via radio frequency licenses

According to the GSMA, a "future-fit" licensing regime will help promote market growth, boost investor confidence and enable increased connectivity. Left as is, it warns that Nigeria's current licensing framework and conditions could pose an "impediment" to future growth.

Boomplay and UMG in "landmark" music distribution deal

Universal Music Group (UMG) says it has become first music company to partner with leading African music streaming and download service

Boomplay Music (formerly 'Boom Player') is a music and video streaming app that was developed and is owned by Transsnet Music. It was was first launched in Nigeria in 2015 by TECNO Mobile and has since gone on to become what's claimed to be Africa's biggest and fastest growing music app. According to July 2018 figures on Boomplay's website, the service has 31 million users and 17 million monthly active. It is also said to add nearly two million new users each month.

Under the terms of a multi-year agreement signed last November, Boomplay will distribute music from UMG's labels through its streaming and download platforms in Nigeria, Ghana, Kenya, Tanzania, Rwanda, Uganda and Zambia. Users will now have access to UMG's extensive catalogue of both global and local recording artists including Tekno, Post Malone, Lady Zamar and Cina Soul, to name but a few.

UMG says it is accelerating its focus on growing the entire African music ecosystem, including recordings, publishing, production, live events, brand partnerships and merchandising efforts. Earlier last year, the company launched its Universal Music Nigeria division. It claims this provides "comprehensive opportunities" to artists throughout the region, as well as giving pan-African talent the "best possible launchpad for wider international success".

IN BRIEF...

Cell C has parachuted in Douglas Craigie Stevenson as interim group chief executive officer (CEO) of the company, effective 1st March. Stevenson has taken on the role vacated by Jose Dos Santos, who announced his resignation from the South African mobile firm last month.

Currently, Stevenson holds the position of chief operating officer, responsible for all operational aspects of Cell C.

The firm described him as a seasoned executive with over 20 years' experience in the telecommunications industry and said he is well versed in the financial, operational and technical side of the business.

"As a board, we believe he is capable of achieving the company's objectives, strategic imperatives and long-term vision," said Kuben Pillay, chairman of the Cell C board. "Douglas has a proven track record in successful planning, execution and negotiation at various organisational levels and we believe he will add tremendous value to the Cell C leadership team."

Stevenson joined Cell C in October 2017. Prior to that he was CEO of Telekom Networks Malawi. He also had roles fulfilled various senior roles in Vodacom, including group managing director of the Vodacom Business Africa Group.

A permanent successor to Dos Santos is expected to be made in the coming months.

Facebook claims 2018 saw its momentum grow and investments increase in Africa. Among some of the highlights for the year, the company says it hosted around 300 events across the continent, and that more than 139 million people across Sub-Saharan Africa use its services every month, of which nearly 98 per cent come back on mobile.

LATEST COMPANY RESULTS

Date	Company	Country	Period	Currency	Sales (m)	EBITDA (m)	EPS (units)	Notes
26/10/18	SES	Luxembourg	3Q18	EUR	1,469.4	927.7	NA	First nine months' results in line with expectations, supported by growth in underlying revenue on the back of double-digit growth in SES Networks division. Company says it is "on track" to deliver on financial outlook for FY18 and FY20.
30/10/18	Intelsat	US	3Q18	USD	536.9 m	416.3	(2.74)	Intelsat reports net loss attributable of $374.6m for quarter. Company says that in 1Q18, it adopted the provisions of ASC 606 (Financial Accounting Standards Board Accounting Standards Codification Topic 606). As a result, total revenue for 3Q18 reflects $25.1m primarily related to significant financing component identified in customer contracts. Total revenue for period excluding effects of ASC 606 was $511.9m.
8/11/18	VEON	Netherlands	3Q18	USD	2,317	848	NA	Total revenue grew organically by 2.9% YoY & EBITDA by 4.6%YoY, driven by Pakistan, Ukraine & Uzbekistan. But total reported revenue decreased by 5.7% YoY largely due to currency weakness of USD289m, causing decline of 11.8% on prior year revenue, more than offsetting the organic growth of 2.9% and the positive impact from Euroset of 3.2%. Reported EBITDA declined by 18.7%, or USD 194m, primarily as a result of currency headwinds (USD122m), Euroset integration impact (USD10m), & effect of an adjustment to a vendor agreement (USD106m) in 3Q17.
30/11/18	Avanti Communications Group	UK	Jul-Sep 2018	USD	10.8	10.6	NA	As part of its outlook, company said current activity levels & pipeline gives it confidence that it will see "strong growth" in bandwidth revenues in final quarter of 2018. It added that recently signed contracts underpin "significant growth" in core bandwidth revenue throughout 2019.
30/11/18	Eutelsat Communications	France	1Q18-19	EUR	349.1	NA	NA	€334m revenues of operating verticals down 1.8% like-for-like. CEO Rodolphe Belmer said: "The underlying performance of the five operating verticals is globally in line with our expectations at this stage of the year, where the revenue profile is back-end loaded due to the ramp of African Broadband & the China Unicom contract in the second half."

Extreme's new Wi-Fi 6

Extreme Networks has announced six new high-performance 802.11ax (Wi-Fi 6) indoor, outdoor and stadium Wi-Fi access points and a range of multi-rate Gigabit switches.

Extreme's new solution provides connectivity in dense and challenging environments and a best-in-class edge CX, while delivering 4x greater capacity. This ultimately enables organisations to support an ever-increasing number of devices and applications, and scale networks for future growth.

By tapping into the power of AI and machine learning, customers can better understand the behaviour of 802.11ax RF networks. This ultimately enables them to optimise performance and the overall experience, while simultaneously minimising the workload for engineers and also automating networking at the edge.

The product is also equipped with built-in WPA3, which offers enhanced security for networks transmitting sensitive data, thereby assuring users that their wireless communications are secure.

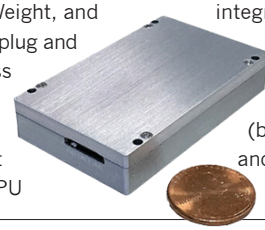
Extreme also say the three modes of software-programmable radios enhance user engagement analytics, granular locationing, and IoT connectivity. This ultimately supports a variety of devices and delivers optimal performance, without cable retrofits. *www.extremenetworks.com*

Amphenol RF launch new 2.2/5 connector series

Amphenol RF has launched a 2.2/5 connector series, which it claims to be ideal for wireless infrastructure in indoor and outdoor applications. With an interface that is a more compact version of the previously released 4.3/10 connector series, its footprint is 53 per cent smaller. Described as lightweight with the ability to "accommodate thick, low loss cables up to a half inch", coupled with a robust design, Amphenol says the 2.2/5 connector series is tailored to the needs of applications which require low PIM in order to avoid interference in network quality during high-speed data transmission. "These connectors offer flexibility in installation with the ability to blind mate and are IP-68 rated in the mated condition" Amphenol says. "This allows for prolonged exposure to the elements without compromising the performance." The 2.2/5 are "ideal" for wireless applications such as small cells, mobile networks, distributed antenna systems (DAS), low power base stations and in-building architecture and 5G communication technology. *www.amphenolrf.com*

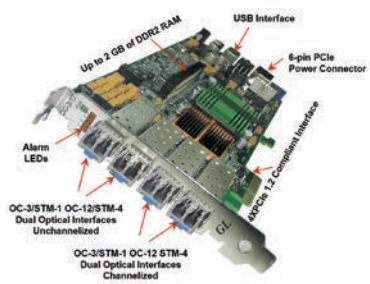
Doodle Labs' Smart Radio a 'world's first'

Doodle Labs has developed the Smart Radio, which it argues is "the world's first high-speed, long-range radio that has been optimized for SWaP (Space, Weight, and Power)". Nearly plug and play, the wireless modem removed the need to connect to a separate CPU board and utilises an ethernet interface (USB interface available). The company says the product has been designed to simplify integration into Industrial IoT applications while providing the high performance of its proprietary BII technology (broadband for industrial IoT) and 2x2 MIMO communications. The full Smart Radio portfolio includes models that cumulatively cover 100 MHz - 4 GHz range. Apparently designed to service both "the physical and performance requirements" of mobile applications that need to transmit large amounts of data – such as video over long distances – examples include drones, public safety/video surveillance, plus mines and construction site machines. *www.doodlelabs.com*



GL approaching LightSpeed

GL Communications is rather gushing about its LightSpeed 1000 product and claims it can do a lot of things. The hardware platform (PCIe Card and USB Pod) is capable of OC-3/12 and STM-1/4 wire-speed processing on quad optical ports for functions such as wire-speed recording and wire-speed playback of unchannelised and channelised ATM, PoS, and RAW Traffic. Two of its four ports are designed for SONET/SDH unchannelised and unframed data. The other two ports are meant for SONET/SDH channelized data of carrying many independent unframed/framed T1, E1, T3 and E3 streams. It also comes with software for overall monitoring, BERT, emulation and protocol analysis and GL says its price tag "compares very favourably" with similar test instruments at three times the price. Its main advantage, GL says, is that any of the T1/E1 or DS0 test requirements can be met without resorting to electrical access. *www.gl.com*



Comtech's CDM-760 modem 'significantly enhanced'

Comtech EF data reckons its CDM-760 advanced high-speed trunking and broadcast modem "has been significantly enhanced with faster data rates" and was designed to be the most efficient, highest throughput, point-to-point trunking and broadcast modem available. The company says it's a popular solution for high-speed trunking, fiber restoration and broadcast applications. "Now with 2X faster speeds", the CDM-760 supports . 720 Mbps simplex and > 1.4 Gbps duplex data rates. Comtech further claims the Gigabit capability enables faster data transmissions between satellites and ground stations, allowing service providers to deliver new services and improve quality of experience for end users. The modem now offers expanded modulation techniques with support for 128APSK and 256APSK operation. Comtech says this increases the potential spectral efficiency and maximises the usable throughput of satellite links. *www.comtechefdata.com*

Centiel's Li-ion battery solution to hit the market

Centiel has brought its Li-ion battery solution to market. Unlike lead acid, Li-ion batteries are happy running at a temperature of high 20s/low 30s (0C). Similarly, most IT systems work at >250C and the UPS technology itself can work well up to 400C. By contrast: an industry standard estimate is that for every 10 degrees above 200C the operating life of a VRLA battery is halved. The firm claims Li-ion batteries typically require less than half the physical space of the equivalent lead acid blocks and are less than 25 per cent of the weight. It also reckons that while 10-year design life lead acid batteries are normally replaced every seven or eight years, with Li-ion this is 13-15 years. Centiel says the adoption of Li-ion within UPS systems so far, has been greater in developing countries in Africa and the Middle East, where the main power grid is less reliable than in the UK and frequent power problems are more commonplace. In these instances, the UPS and battery systems are required to be cycled several times per day. The company says this greater take-up is primarily due to the higher cycling life of Li-ion: typically, 2,500 power-up and down cycles compared with around 300 for VRLA technology.

www.centiel.com

Advantech introduce latest L-Band to 720MHZ frequency converters

Baylin Technologies presents its new L-Band to 720MHz SATCOM synthesized frequency converters. The company says they are designed to translate the 720 +/- 200 MHz band to 800-1550 MHz with 100 KHz step size. Developed by Baylin subsidiary Advantech Wireless Technologies (AWT), it says this frequency translation provides a low cost alternative for using off-the-shelf, satellite based, block-up or block-down converters that usually include an L-band input or output within 800-1550 MHz. The "special purpose" of these converters is to reduce the high level of customization and the overall cost of the new generation of MEO (Medium Earth Orbit) and LEO (Low Earth Orbit) constellations of satellites, in particular those used for earth imagery and weather forecasting. The new frequency converters supposedly provide a bridge between high data rate 720MHz modems and conventional off-the-shelf satellite X-Band hardware. Combined with AWT's line of solid state power amplifiers the product line "offers an advanced solution" for any new applications in which very high data rate modems need to process large amounts of data over large bandwidth. In particular, high definition video links as requested by geo imaging are, apparently, perfectly suited for this class of converters.

www.*advantechwireless.com*

Narda release equivalent remote conrtolled version of SignalShark

Narda Safety Test Solutions has just released an equivalent remote-controlled version of its SignalShark at, what it describes as, an attractive price/performance ratio. This new "real-time remote analyser" detects, classifies and localises RF signals in the frequency range between 8 kHz and 8 GHz to the highest degree of precision and reliability. Narda says the product has been modified and optimized for universal applications requiring efficient, centrally-controlled monitoring of systems, the components of which may be widely spaced and spread out over a large area. Other key features Narda points out are the module's ability to solve complex measurement and analysis problems, thanks to its high RF performance, ITU compliance, reliability and speed.

www.accutronics.co.za

Also look out for...

First 5G NR call on mobile device

In a demonstration described as marking the next critical milestone for 5G development, Ericsson and Qualcomm have successfully completed a 3GPP Rel-15 spec compliant 5G NR call on a mobile test device.

The over-the-air call was performed using millimetre wave (mmWave) frequencies in the 39GHz band in non-standalone mode. It utilised Ericsson's *AIR 5331* commercial 5G NR radio and baseband products, together with a mobile test device integrated with a Qualcomm *Snapdragon X50* 5G modem and RF subsystem. The tests took place in Ericsson's lab in Kista, Sweden.

The demonstration call is a continuation of the interoperability development testing that was announced in 2017 which used Ericsson's 5G NR pre-commercial base stations and Qualcomm Technologies' 5G NR UE prototypes. The companies say it further shows their commitment and ability to achieve milestones that pave the way for commercial launches of 5G NR standard-compliant infrastructure, smartphones and other mobile devices.

In addition, it's claimed these early trials and milestones will enable global operators and OEMs to conduct tests in the field using their own networks and devices.

According to Qualcomm, mobilising mmWave for a smartphone has been regarded by many as an "impossible challenge". The company reckons this latest demonstration in collaboration with Ericsson proves that they are on track as the industry progresses to the commercialisation of 5G networks and devices in early 2019.

Qualcomm unveiled its prototype system for use in 3GPP-based millimetre 5G NR trials last year.

IDEMIA says its FuZion single card system means that the compromise between having a second SIM or more room for storage is a thing of the past.

The cards that mean business

It may be getting smaller, but the humble SIM card is the major link between the subscriber and the mobile operator. RAHIEL NASIR discovers that a future dominated by connected devices and 5G means there's a whole lot of life still left in this fantastic plastic.

It is estimated that the total available global market for SIM cards grew by 2.75 per cent in 2017, with units rising from 5.45 billion to 5.6 billion. That's according to figures published in April 2018 by the SIMalliance. Its members are said to represent around 90 per cent of the worldwide SIM market, and their collective shipments totalled 4.9 billion units in 2017

Speaking at the time, SIMalliance chairman Remy Cricco said: "Technology advances and continued LTE migration continue to be the key growth drivers globally, contributing to the largest total available SIM market ever reported. These are transformational years for the global SIM industry as our technology and ecosystem evolve rapidly to serve an increasingly connected digital world, with unprecedented security requirements."

The SIMalliance's membership includes Gemalto, the France-based digital security specialist which claims to be the world's largest manufacturer of SIM cards. It currently serves nearly 60 mobile operators across Africa with various solutions for mobile security, digital identity and cloud backup.

Sherry Zameer, the company's SVP of IoT solutions for the CISMEA region, says that despite rising unique subscriber numbers and accelerating smartphone penetration, the continent's operators continue to face "serious challenges" in the fight for market share and profitability. "In a region where price sensitive pre-paid markets are particularly significant, voice revenue continues to be squeezed. Churn rates of 10 per cent are not uncommon."

So what challenges does Zameer see when it comes to SIM cards and SIM technologies? "With more devices coming with SIMs, and with the consumers' propensity to use multiple SIMs, there are growing concerns about the non-renewable resources used in all this.

"eSIMs [embedded SIMs], which are built into the devices, have a role to play in making mobiles more environment-friendly by simplifying the manufacturing process and enabling a sleeker, more ergonomic design with fewer moving parts. This could reduce the amount of material used in the device manufacture and thus the environmental impact."

Zameer goes on to say that eSIMs fundamentally alter the dynamics of the relationship between the operator and its customers by shifting the focus from the SIM itself to the services provided. He believes this sets the stage for a customer experience that is constantly improving, and also the evolution of a mutually beneficial customer-service provider relationship.

"In particular, because eSIMs effectively provide an operator-agnostic platform, they make it easy for users to subscribe to the services they want from multiple providers, and also for providers to manage and service their subscriber base more effectively. For example, consumers will be able to link their mobile devices – phones, tablets and now wearables – easily to the mobile operator and package of choice. In addition, eSIM technology means that activating a mobile package in a foreign country is seamless."

Germany headquartered Comprion provides services and products for testing smartphones, eSIMs, NFC, etc. The company's marketing director Hajo Sandschneider agrees that, while plastic SIMs will continue to prevail for quite some time, eSIMs represent a big part of the future: "With eSIMs being really small chips integrated into the device, a lot of plastic, energy and complexity can be saved – as can a lot of physical letter handling for shipment of the actual SIM cards or PIN codes. The higher flexibility and [eventual] lower costs combined with advantages for device makers will inevitably lead to a success of eSIM technology."

The eSIM edge

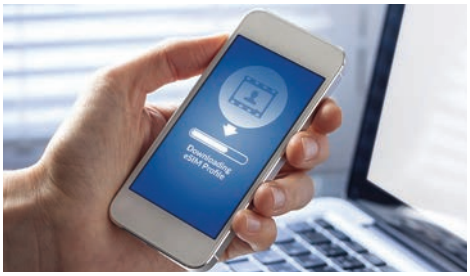
So what exactly are the advantages of an eSIM compared to its plastic, conventional counterpart? Sandschneider reiterates that one technical benefit is that it gives end users greater freedom to select their mobile subscriptions more easily by directly choosing it on their cellphone without needing to go to a shop and without physically changing the SIM. He says that the approach is the same when it comes to eSIMs in M2M environments but with the added benefit of simplified logistics for mobile network operators who need to make changes to globally connected devices or appliances. "In both architectures, PIN handling becomes more digital and thus less susceptible to analogue attack vectors."

IDEMIA – the rebranded company which came about in 2017 following the merger of Oberthur Technologies and Safran Identity and Security (Morpho) – agrees that the advent of eSIMs enables MNOs to digitalise the entire subscriber journey.

In a blog posted in May 2018, Mathilde Barens, the company's strategic positioning and product marketing manager, mobile operators, wrote: "[eSIMs make] it possible for customers to select their tariff plan, enrol themselves, and instantaneously activate their mobile devices in complete security – whether in a mobile operator boutique, via a third-party reseller in a supermarket, or even from the comfort of their home on their smartphone. And this is just the beginning. Experts predict that the number of connected devices with eSIM capabilities will near 500 million by 2022."


Hajo Sandschneider, marketing director, Comprion

"With eSIMs, a lot of plastic, energy and complexity can be saved – as can a lot of physical letter handling for shipment of the actual SIM cards or PIN codes."


Over-the-air SIM management is an essential part of the eUICC architecture where robust remote SIM provisioning must be ensured.

As has been well documented, connected devices and the Internet of Things signify huge opportunities for the mobile industry. Africa is no slouch here, and a variety of stakeholders across the region are already leveraging mobile network coverage to usher in the new era in machine interconnectivity.

Zameer reckons that crucially, Gemalto can combine long-term reliability with the privacy and security essential for bringing trust to M2M deployments. "[Our] ruggedised Machine Identification Modules (MIMs) are used in applications that range from transport and fleet management to security and power. For example in South Africa, MiX Telematics is using Gemalto MIMs to enable vehicle tracking, while separately, TLC Engineering has chosen them for a system designed to eliminate derailments on the national rail network.

"Another innovative application is the *SOLARKIOSK*, a self-contained, solar-powered business hub that can provide sustainable energy in virtually any location without the need for additional cabling or infrastructure. Wireless connectivity is supported via Gemalto's robust *Cinterion* M2M modules."

The *SOLARKIOSK* enables and empowers the sustainable economic, social, and environmental development of 'base-of-the-pyramid' (BoP) communities worldwide through the provision of clean energy services, quality products and sustainable solutions. It is a modular, robust, secure and lightweight unit that is designed to be expandable and easily transportable even to remote areas. The kiosk combines technology with an inclusive business model to foster local entrepreneurship at the BoP.

Comprion also believes the future will see an increasing number of M2M devices with an eSIM. As a result, in 2018 the company claimed a first with the launch of a test eSIM (also known as test eUICC) for M2M architecture to ensure that switching to another mobile operator and the related remote SIM provisioning (RSP) work reliably. The firm said its *Test eUICC M2M* enables MNOs and infrastructure suppliers to test the interoperability of the included components in the eSIM M2M environment during product development and integration.

According to Comprion, running RSP functions is protected by credentials that are normally not known to the user. It said the *Test eUICC M2M* is personalised with test certificates and test keys to allow technicians to set up an RSP test infrastructure.

OTA management

For Sandschneider, one of the real advantages of SIM cards in general lies in their flexibility thanks to their remote provisioning and remote management capabilities. He says over-the-air (OTA) SIM management is an essential part of the eUICC architecture which states that "robust" RSP must be ensured, adding: "Most SIM card vendors who already have strong experience of OTA management are offering the required OTA servers for eUICC remote provisioning and can also offer this service for MNOs."

Zameer reckons another big challenge for mobile operators is managing large numbers of subscribers at any one time. He says Gemalto offers the capability via dedicated offshore centres to undertake this on their behalf, and goes on to claim that the company's eSIMs are set to "radically transform" card management and OTA support. "They enable secure remote provisioning and can be used to manage identity securely and effectively, authenticating IoT devices and securely connecting to cellular networks globally.

"Gemalto's integrated approach thus enables mobile operators to secure both their own networks as well as those of the service providers using it, creating a trusted and secure platform on which mobile operators can build profitable ecosystems."

Giesecke+Devrient (G+D) Mobile Security describes itself as the "market leader" in eSIM management. Since May 2018, Orange has been using the German company's eSIM management platform to provide customers with secure, seamless and on-demand connectivity throughout the lifecycle of their devices. G+D says this has enabled subscribers to remotely activate devices and add or remove services at their convenience, thereby reducing the need for customer service intervention.

Carsten Ahrens, CEO of G+D Mobile Security, said: "Our unparalleled experience in eSIM management is driving the market toward a new norm, where remote provisioning and lifecycle management of devices will become commonplace."

Following the deployment of G+D's platform last year, Orange affiliates became among the first European carriers to commercially launch eSIM devices. They include the latest smartwatches from Apple, Huawei and Samsung, as well as Apple *iPads* and *iPhones*. G+D added that further eSIM devices were also in preparation and will be supported with its services.

CALLUP is another company specialising in eSIM remote management as well as VAS and mobile device management. At *AfricaCom* last November, the firm introduced a secured version of its eSIM remote management system for IoT. The firm claims its *IoT eSIM Engine* features two key and innovative network elements: *Subscription Manager Data Preparation* (*SM-DP*) and *Subscription Manager Secure Routing* (*SM-SR*).

According to CALLUP, the *IoT eSIM* Engine allows operators to upload their eSIM profile and issue control commands to eSIMs embedded in M2M and IoT devices. It says this enables

remote lifecycle management of the eSIM from its activation, through upgrades and updates, and until it is cancelled.

With *SM-DP*, it's claimed operators who use the engine can securely encrypt their credentials ready for OTA installation within the eSIM. The SM-SR then allows them to deliver securely the encrypted credentials to the eSIM, and remotely manage eSIMs embedded in various devices.

CALLUP adds that the *IoT eSIM Engine*'s automatic report subscription system enables the operator's executive and technical teams to subscribe to system reports and receive them directly via email. It says the system will automatically repeat the update process on eSIM cards that could not accept the original update due to various reasons, such as devices that were turned off or subscribers who were in roaming.

The engine is also said to support the GSMA standard for subscription management, as well as all standard files of the eSIM IP Multimedia Services Identity Module (ISIM). Furthermore, CALLUP says it includes an "advanced" GUI-configurable general OTA script that fits many operators for the activation and swap of eSIMs. This GUI is said to include a variety of functionalities, such as editing features for eSIM profiles, cards, scenarios, scripts, and more.

SIMs, storage and security

According to IDEMIA, two clear trends have emerged with the rise of the smartphone: the desire for a second SIM in the same device so that users can separate work and personal calls without needing two handsets; and a growing demand for more storage. The company says the solution to this has so far been a two-slot tray that offers room in the smartphone for either a second SIM or a storage card – it says having extra connectivity and extra memory at the same time was simply not possible until now. IDEMIA reckons it has solved the problem with *FuZion*, a single card that combines a SIM and a 128GB MicroSD storage device while occupying only one slot on the tray of a dual SIM smartphone. *FuZion* is said to be fully compatible with 55 models of dual SIM smartphones marketed by 15 major brands. IDEMIA says future applications for the system can be developed in areas such as the IoT, or secure transactions in banking and government.

When it comes to the future of SIMs, most commentators agree that it is not only about eSIMs but that these will then be further integrated with digital ID security systems.

"Using official digital IDs and biometrics such as facial recognition, Gemalto is developing technology to safely and reliably create digital IDs on mobile devices," says Zameer. "Such digital IDs can then be used to verify transactions of all kinds, thus reducing fraud, which is a major challenge in the digital world."

Zameer believes that for mobile operators, OEMs and other enterprises, trusted digital IDs mean smoother digital workflows, faster customer acquisition processes, and consistent customer data. "Operating costs are reduced and the customer experience enhanced. Moreover, a Trusted Digital Identity can serve as a gateway for subscribers to access multiple security-sensitive services such as mobile money, e-gov and online banking, allowing MNOs to take the lead in these fast-growing sectors.

"In time, offering identity-as-a-service solution will help mobile network operators facilitate greater uptake of cloud services by enabling secure access to online resources and protecting the digital interactions."

Zameer goes on to state that trusted identity management services can help cellcos enhance their value proposition by securing not only their own networks but also the growing number of transactions that take place on their platforms. He says effective cyber security will have to encompass both cloud security and device security, covering the whole data lifecycle.

"Industry research consistently shows that security and trust are two of the top barriers to mobile technology adoption and innovation. Telcos must remain abreast of the risks, constantly upgrading security standards to ensure a seamless service – secure identity is the cornerstone of a dynamic and flexible security ecosystem."

IDEMIA also talks about a future where secure and reliable digital ID systems will be crucial. In the blog mentioned above, Barens wrote: "As digital advancements increase the physical space between mobile operators and subscribers, the need for convenient, secure and reliable 'Know Your Customer' (KYC) solutions (the process of collecting customer identity information) will only become more apparent. Today, mobile operators are implementing more rigorous KYC solutions, with 150 countries requiring mandatory registration for contract and pre-paid users. These regulations vary according to the specific challenges countries may face – including terrorism, identity fraud or money laundering."

Barens continued by saying that a streamlined, fully digitalised registration process also generates the need for mobile operators to guide their customers through this new journey. "After all, they are evolving from simple connectivity providers to providers of what we call 'Augmented Identity'. This is a verified digital identity created through the embedded KYC process that can be used by subscribers to access other online services – an identity so reliable that mobile operators vouch for their customers with third-party services."

Comprion's Test eUICC M2M enables MNOs to test the interoperability of components in an eSIM M2M environment.

"Industry research consistently shows that security and trust are two of the top barriers to mobile technology adoption and innovation."

When asked about the future of SIMs, Comprion's Sandschneider says for the SIM, it will be the eSIM, and then there will be further integration such as iSIM (integrated SIM). "A VPP (virtual private platform) and SSP (smart secure platform) might help these tamper-resistant tokens not only in terms of remote configuration updates or MNO subscriptions, but also operating system updates. This will also enable the rollout of new features during the [eSIM's] full lifecycle and is a huge win in terms of flexibility."

So what about 5G? As Sandschneider points out, this will support low latency, higher bandwidth and massive IoT, all of which will mean a whole host of new, cellular-based (i.e SIM-enabled) network services, applications and connections. Will all this impact the subscriber identity module as we know it?

In December, the SIMalliance published guidance for the optimisation of 5G SIM capability beyond network access. The recommendations provided in the technical document (*3GPP R15 5G SIM Card: A Definition*), specifically relate to 5G Phase 1 (the document can be downloaded for free at *https://simalliance.org*).

The alliance says its recommended 5G SIM addresses, among other things, subscriber privacy issues, offers reduced power consumption for extended battery life, and supports delivery of IP services.

SIMalliance chairman Remy Cricco says a SIM is the only platform that can be used to secure 5G network access according to 3GPP. He adds: "SIMalliance recognises in its technical definition that a number of SIM technology options may enable 5G network access, yet the different capabilities they offer, which are defined for different 5G deployment use cases, are also outlined. On behalf of the SIM industry, [we] advocate only one type of 5G SIM which promotes the highest levels of security and functionality in 5G networks.

"By deploying the recommended 5G SIM at 5G launch, MNOs will offer their customers the best possible experience, services, security and privacy, while optimising their investments and positioning themselves to realise the full potential of 5G as future use cases and possibilities unfold." ■

The Pretoria skyline, the largest place of the Tshwane Metropolitan Municipality (City of Tshwane)

From football to the emergency services

A network originally introduced for crowd control at the 2010 FIFA World Cup is now saving lives and detecting criminals.

Just a few years before the turn of the millennium, the general consensus was that the conventional analogue radio network used by what is now South Africa's City of Tshwane Metropolitan Municipality was in urgent need of updating. The world was about to ring in the year 2000 and this part of South Africa had a radio network that had been in place since the 1960s. So, when various municipalities amalgamated in the previous decade to form the City of Tshwane Metropolitan Municipality, there was a genuine fear that a geographical area of some 6,500 Sqkm could experience its radio networking clogging up in the event of a disaster. The situation was made worse as VHF/UHF radio frequencies became scarce and the City of Tshwane's emergency services were at risk of not being able to exchange critical information.

However, the City of Tshwane, like the rest of the country, experienced some good fortune when South Africa won the right to be the first country on the continent to host the FIFA World Cup in 2010. Of course, it wasn't just the City that was going to benefit from this – the whole nation was buzzing. The domestic problems weren't going to go away as a result of it, but fans from around the world descending to the southern tip of Africa gave the 'Rainbow Nation' and its inhabitants something to bond over and look forward to.

Still, winning the bidding process was just

the start and the hard work was about to begin for South Africa and its regions. Negative press coverage in other countries that focused on fan and traveller safety more than the tournament itself meant South Africa faced a bigger PR battle than most other host nations had experienced in the past.

So, when Pretoria was named one of the host cities – the Loftus Versfeld rugby and football stadium being one of the grounds slated for use – the City of Tshwane was charged with various projects.

With such a big task in hand, the City knew that new technology and a solid infrastructure were key – so it called in specialist Rohill for help.

The brief was to implement a new metropolitan mission critical TETRA communications network. The challenge? To supply the network, install it and make it operational in time. One of the reasons for its creation was crowd control.

So how does the whole thing work? The all IP mission critical network is built around a redundant TetraNode eXchange Industrial that serves a TETRA network with 27 base station systems and 58 TETRA carriers. The TETRA network offers interfacing with telephony and 40 analogue channels with legacy networks that are

distributed over the network.

The World Cup may be a thing of the past, but the metropolitan mission critical TETRA communications network most certainly is not. In fact, its role has become broader and far more important.

The core TETRA technology provided by Rohill and implemented by its partner Global Communications – the latter also provided TETRA terminals as part of the project – has had a lasting effect.

Today, the network is an integral part of the day-to-day operations in the region. Although it is mainly used with the Tshwane Metro police, fire brigade and ambulance services, city electricity and water service delivery also use the network.

Like many places in developing nations, the City of Tshwane is evolving rapidly, and more TETRA base stations are being added to improve coverage. James Masonganye, deputy director, electronic systems management at City of Tshwane, said most City departments make use of the Rohill TETRA network on a daily basis, while officials and emergency personnel face increasing pressure from the politicians to address the service delivery expectations of the City of Tshwane residents.

"Rohill has provided the City of Tshwane with the best and effective radio communication network that meet the requirement of a mission critical network," he says,

There are a number of key benefits. The true multi-agency network, powerful dispatch solution and the fact it is fully interoperable with legacy networks are among its unique selling points.

Although the new network replaced many legacy networks, a large number remain operational as an important part of the TETRA network.

In addition, the network includes dispatch rooms with Chameleon dispatch stations

City of Tshwane Metropolitan Municipality

The new network was first used at the 2010 World Cup

with an integrated positioning application to communicate with the mobile workforce based on their geographical position. What's more, a centrally displayed NodeView in the main dispatcher room shows the network resource usage in real time.

How to upgrade a communications network in a most dangerous place

In 2013, South Africa's only inland crude oil refinery decided it was time for a major overhaul of its ageing communications system. However, the plant soon realised it would not be as straightforward as it sounds – here's why.

Natref in Sandton, South Africa describes itself as a technologically advanced refinery. A joint venture between Sasol Oil and Total South Africa, its raison d'être is to refine heavy crude oil.

With such a big and important function to carry out every day in what can only be described as lethal conditions, bosses at the plant were only too aware that a cutting edge communications system was of paramount importance. Natref began investigating the upgrade of the communications system with a view to adopting new technology. However, it soon became evident that with the upgrade of the plant itself, the environment was no longer conducive to IS radio because of the hazardous materials being manufactured in the plant.

The initial RFI went out in 2013 but was later retracted because there was no clear indication or guidance as to which technology platform would be most suitable to the plant. Then in late 2015, the tender was issued for a Mission Critical Communications Network that could supply ATEX/IS equipment (technology permitted for use in highly flammable places).

However, from the start it was clear that the tender was flawed with regards to its specifications as a lot of safety boxes needed ticking.

Meanwhile, the Natref plant upgrade began in 2014, which lead to serious challenges with regards to the usage of MPT and DMR Tier III.

The Natref plant is densely constructed, so its telecoms equipment supplier Verstay recommended an extension of the existing Sasol TETRA network in addition to upgrading the system from MPT to ATEX TETRA.

This spurred the likes of Motorola, Airbus and Sepura into action and they all offered TETRA solutions in competition with Hytera. Motorola's pitch was highly cost effective and so stood out, but the equipment was in the process of being withdrawn from the market.

In addition, the client also had to contend with under two watt output instead of five watt output on the MPT 1327 radios. With diligent training this obstacle was overcome, but another remained – how to interface MPT 1327 with TETRA.

What could have been a tricky situation turned out to be the opposite. Luckily, a local company called Expert System Solutions, which has implemented a Hytera TETRA network for Sasol in the past, submitted a solution compatible with the current Sasol TETRA network. ESS had form, so It made sense for obvious reasons.

The POC between MPT and TETRA was proven and that cleared the way for a total ATEX solution. Once the network order was issued, so was the terminal tender.

Verstay, the former incumbent, also submitted a tender. Part of its pitch was the fact it had carried out prior direct end user conferences and endless supporting visits to Sasol and Natref.

However, Hytera complied to all the specifications that were listed. Furthermore, what actually clinched the deal for Hytera was the fact that all of the equipment, as well as the software, was developed and manufactured in-house.

A total of two base stations were added to the existing Sasol network and 600 ATEX terminals and spare batteries were deployed. The rest is history.

The plant now benefits from a safe and secure communications environment and cross communication into the existing Sasol network.

The first plant in South Africa to embrace a fully-fledged Hytera ATEX network, it can now pave the way for fellow petrochemical plants in the region and further afield to upgrade from non-ATEX standard equipment to a full ATEX radio set up when required.

Most importantly, for Hytera anyway, is that the feedback from the client has been nothing short of complimentary. It says the new communications network at the plant came about after many years of investigating various possible networks and platforms that would fit easily in to such a risky environment.

It adds that the pure functionality of the radio network and the end user terminals lives up to the expectations required, as promised.

What's more, additional equipment for both the network, as well as terminals have been procured since the handing over and commissioning of the entire system, says Hytera.

Moving Wireless Forward

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. We have grown and evolved over the years, along with the industry.

Today, we benefit from enhanced design capabilities and expanded production capacity – along with a greater understanding of new and emerging markets – all of which have allowed us to become one of the best antenna developers in our field.

Our customers have been our partners throughout the years. We believe in taking the time to understand our customers' individual needs. Through close consultation with clients, we are able to deliver innovative, tailored solutions that meet specific antenna requirements.

Rapid prototyping capabilities allow us to take our designs from concept to reality in an extremely short time span, and to verify the performance of the antenna. A variety of network analyzers and an anechoic chamber enable us to conduct measurements up to 13 GHz, and ensure that the antennas designed meet or exceed customer requirements.

We have onsite injection molding equipment and a fully equipped modeling shop staffed with skilled model makers to assist in the design phase and help us come up with a superior product – an antenna that not only meets the customer's electrical specifications, but is also very attractively packaged.

Mobile Mark antennas are used in many sectors of the wireless industry. Here are just a few examples:

Asset Tracking & RFID

Managing and tracking important assets can be a challenge in the field, and both RFID and WiFi offer effective wireless solutions. RFID / WiFi technology allows us to identify, monitor and track items ranging from medicine to fruit to parcels to people. Since each application has its own challenges, Mobile Mark offers a range of antennas so network developers can choose the right mix.

MobileMark
antenna solutions

We are now looking for distributors throughout Africa

Commercial Fleet Management

Mobile Mark has consistently lead the industry with the most extensive and innovative range of antenna solutions that combine multiple wireless technologies: from simple GPS & Cellular antennas to complex 6-cable antennas combining LTE MIMO, WiFi MIMO, DSRC and GNSS in the same antenna housing. This combination of wireless technologies allows fleet owners to track and/or redirect their fleets of cars and trucks for optimum efficiencies. Mobile Mark antennas are rugged enough to handle tough environments and efficient enough to maintain reliable connections.

Public Transit & Bus Management

From monitoring the location of the bus to monitoring the condition of its tires, wireless has become an essential part of professional bus management. Mobile Mark's multiband antennas allow the system to capture that information and transmit it back to a central monitoring station with real-time connectivity. For an added touch, real-time WiFi service can also be added for the passengers. That's why companies like INIT have selected Mobile Mark antenna to complete their product offerings. And they have made the following endorsement:

"INIT GmbH – as a worldwide leading supplier of integrated planning, dispatching, telematics and ticketing systems for buses and trains – uses Mobile Mark bus antennas in public transportation projects all over the globe.

For example: INIT has installed Mobile Mark antennas in projects located in Abu Dhabi, Hertfordshire UK, Turku Finland, Oslo Norway, Montreal Canada, Luxembourg, as well as several German projects.

In 2017, a fleet of more than 1,500 buses will have Mobile Mark Antennas installed in one of INIT`s current major projects for National Express, West Midlands, UK."

Remote Monitoring & Surveillance

Surveillance plays an important role in maintaining secure settings. Network deployments need to be low maintenance and weather resistant. Broadband surface mounts offer flexibility for multi-frequency coverage and are rugged and dependable. YAGI antennas provide practical point-to-point coverage. Our antenna solutions are designed to handle tough conditions while providing the reliable wireless connection you would expect from a Mobile Mark antenna.

Mining & 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.

Smart Cities & Smart Highway

For cities and highways, the lynchpin of a successful "Smart" system will be dependable wireless connections. Companies like Kapsch understand this, and have worked with Mobile Mark to find ideal antenna solutions. Wireless networks must reach seamlessly into hard-to-cover corners of city intersections and along vast expanses of highways. They must be carefully embedded in city lighting and electrical meters. Mobile Mark offers both small network infrastructure as well as embedded antenna elements to help network designers tie all the pieces together.

Let us know how we can help

We understand the RF wireless world and are ready to help you evaluate your options. Contact us by email, phone or fax and let us know how we can help.

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The future of mobile networks

Virtualisation will help drive Africa's journey towards the 5G era, as LUX MAHARAJ explains.

5G technology has already started to make its presence felt in Africa. MTN and Vodacom are in the process of conducting 5G trials, and recently South African operator Rain announced that it would be launching services soon. It is heartening to see Africa taking significant steps towards the deployment of 5G in the region.

At the same time, the service providers face tough choices, since nearly 600 million African citizens continue to be without basic connectivity. Even today, the continent is one of the most under-penetrated regions in the world with even primary 2G networks yet to reach more than 110 million people, according to a GSMA report.

Meanwhile, internet penetration in Africa is still at just 25 to 30 per cent against the global average of 43 per cent. Smartphone usage in the sub-Saharan region is only 34 per cent as compared to 57 per cent globally. As has been well documented, affordable communications is crucial to overall social and economic growth; it opens up new business opportunities and promotes entrepreneurship. More importantly, access to connectivity is known to lead to expansion of education opportunities and improves access to government services.

While African telcos have started exploring 5G, the GSMA predicts that only three per cent of the continent's population will be using 5G by 2025. Should service providers therefore focus on connecting the unconnected or on deploying 5G networks?

Growing relevance of 5G in Africa

Going beyond popular use cases such as remote surgery and autonomous driving, 5G offers a number of other applications that are extremely relevant to Africa. The technology can help the region in addressing the problems of poverty and challenges in accessing the infrastructure. The relevant authorities can use the technology to provide e-learning and e-health through digital platforms, and improved literacy promotes social inclusion.

5G technology promises sustainable development and is an opportunity for developing regions like Africa to use digital platforms for the social and economic growth of the people. The use cases are immense and promise to change the way people live and work in the 5G era, with overall economic growth helping to reduce poverty in the region.

A few use cases that are especially relevant to a growing country include transformation of public safety and disaster relief infrastructure, remote surgery, a more efficient waste management system, among others. And because 5G technology enables low latency and ultra-high-speed mobile broadband, it allows many innovative use cases. Unlike previous standards, 5G is not just about a faster network. AR, VR, IoT and automation are some of its many smart applications. For enterprises, the technology promises to come up with many uses to improve processes and enhance productivity. Innovative and disruptive use cases mean that service providers will be able to come up with new revenue streams.

Present-day networks are not capable of addressing the vastly different and dynamic requirements of 5G technology. Africa's service providers will need to adopt new technology approaches to prepare for the fifth generation era. The three technology concepts of network densification, network slicing and, most importantly, virtualisation, are likely to play key role in the networks of the future.

Network densification:

Global Mobile Data Traffic Forecast Update says mobile data traffic has been growing by 60 to 100 per cent every year and that total traffic will rise seven-fold between 2016 and 2021. This unprecedented growth in data traffic is fuelling the demand for network densification. This has already started with 4G/LTE but is likely to gather pace with 5G, since there will be more connected devices using the technology, with 20 billion connected devices likely by 2020. Further, as the IIoT (Industrial Internet of Things) catches on, service providers will need to add to network infrastructure in order to boost capacity and ensure quality of experience.

With only three per cent of Africa's population predicted to be using 5G by 2025, should operators focus on connecting the unconnected or on deploying the latest mobile technology?

What's more, low latency of less than one millisecond in 5G is only possible with network densification. Service providers will therefore need to ensure that the user devices are closer to the content providers' data centres. Thus, service providers will need to add more macro and small cells to enhance the quality and capacity of the network.

Network slicing:

By dividing a network, each part can function as a separate, virtualised network. This approach allows mobile operators to offer customised services to a different set of clients in the same network.

Network slicing will help in bringing down opex while at the same time adding to service provider revenues. It also helps in faster scalability of operations, especially in the IoT.

A vast number of IoT devices, including cars, wearables, machines and meters are going to be connected, and network operators will need to support different services. They will need to deploy networks for different service types over one infrastructure. The concept of network slicing will allow them to offer different type of services over one infrastructure. The providers will be able to bring new services rapidly in keeping with changing market dynamics.

Slices can be defined in keeping with the requirements. The control and user planes for every slice remains different and there is no impact on the user experience.

Virtualisation:

This involves moving from a primarily hardware-based system to software-based infrastructure. Since it is software-driven, the network consumes much less energy and space, and it is also easier to upgrade and manage the network.

Virtualisation is especially relevant to address the digital divide in Africa and, at the same time, prepare networks for 5G rollout. Shifting the network to a virtualised platform means that the service providers will be able to meet the requirements of their 2G subscribers and still be ready to move to 3G, 4G or 5G as and when the market is prepared, or when it is commercially viable to move to new technology.

Right now, the telcos are reluctant to invest in expensive 2G equipment to expand, and the market is not yet ready for 5G. Virtualisation resolves this dilemma. This way, operators are able to respond to market demand without making major changes to their networks. At the same time, they are ready to move to newer technology in keeping with that demand.

By using virtualisation, operators can continue to support 2G while at the same time preparing their networks for 5G.

Virtualisation also comes with self-optimising and self-organising capabilities, making it easier to deploy and manage. It also makes it easier for service providers to expand in newer geographies as the cost of network deployment and management significantly comes down with virtualisation.

The solution is part of the Facebook-led Open RAN Telecom Infra Project (TIP) initiative to promote innovation, and has already been successfully deployed by operators such as Telefonica and Vodafone. The Open RAN initiative was started to bring down the cost of radio access networks by segregating hardware and software components. It also uses white box equipment to reduce the capex involved in setting up the network. Bringing down the cost of network infrastructure will help telcos to expand in newer geographies, offer better tariffs to their subscribers, and thus bridge the digital divide.

Easy and affordable access to communication services is crucial to Africa's overall social and economic growth. 5G technology can play a vital role in connecting the unconnected, and also help the continent in addressing major issues such as challenges in accessing state infrastructure. Meanwhile, virtualised 2G can support telcos in expanding their networks to reach new subscribers. That means operators continue to support 2G networks while at the same time preparing their networks for 5G. ■

Unprecedented growth in data traffic is fuelling demand for network densification. This has already started with 4G/LTE but is likely to gather pace with 5G.


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Helios Towers announces DRC mobile infrastructure upgrade

Helios Towers has been upgrading and building backbone sites covering 1,800km in the DRC. In an announcement made in August 2018, the towerco said its investment in the project was in the "double-digit millions" and will improve mobile infrastructure and connectivity to around six million citizens.

The backbone network runs through multiple areas of DRC, including the equatorial rainforest and Kasaï-Central province. Helios said that the project was due for completion by December 2018, and provides the infrastructure to connect major towns and cities, transmitting signals via microwave from towers up to 40km apart.

Earlier last year, the DRC government awarded inaugural 4G licenses to the country's major cellcos, such as Vodacom, Orange and Africell. Helios said the new backbone network will support operators in their continued network improvements and expansions. It claimed the network adds "significant" capacity to replace existing satellite connectivity in the area, and provides the infrastructure needed for increased 3G capacity and the launch of 3G in Northern Kasai, as well as the launch of 4G in Kisangani, the DRC's third-largest city.

Helios Towers entered the DRC in 2011 with a 521 tower portfolio acquisition from Millicom. Since then, the company said it has become the country's market leader with 1,819 towers and a share of 63 per cent.

According to CEO Kash Pandya, DRC has one of the lowest mobile penetration rates in the world, with only around 25 per cent of its 85 million population having a phone today.

The new backbone network was due to be completed by December 2018 and replaces satellite-based backhaul connectivity in the area.

He added: "Following the upgrade and construction of our backbone towers through some of the most remote areas in the country, last mile communications can eventually be created to connect towns and cities with increased reliability and speed, fit for the growing Congolese economy."

LTE Emergency Services Network to be launched in phases

The UK Government has decided on what it described as a "new strategic direction" for an LTE-based Emergency Services Network (ESN) that should have begun to be deployed last year.

In 2015, it was announced that the TETRA communications system used by the UK's emergency services and supplied by Motorola Solutions and Airwave would be replaced with a mobile-based communications network that uses LTE (*see World News, Jan-Feb 2016*).

Rollouts were expected to begin in mid-2017, but in September, the UK's Home Office announced that the project will now be launched in phases starting in the New Year.

The government said its new incremental approach means police, fire and rescue, ambulance crews and other users will be able to use data services over the network from early 2019, with voice capabilities following soon after. It added that it will also leave the emergency services free to test and choose which ESN products they want as and when they become available, rather than having to wait for the network to be fully implemented.

The Home Office is engaging with its commercial partners, mobile operator EE and Motorola Solutions, regarding future changes to their contracts.

Telecom Egypt doubles backbone network capacity with new high-speed service

Telecom Egypt is claimed to have doubled the capacity on its Delta Region DWDM backbone network. Commercial deployment of its new high-speed service started earlier last year and is said to represent the first 200G long distance, single carrier transmission service in Africa.

MD and CEO of Telecom Egypt, Ahmed El-Beheiry says: "Doubling capacity on our existing backbone allows us to offer high-speed broadband and LTE services in addition to 100GE services for mobile operators, while reducing costs."

With growth in demand for mobile video and ultra broadband services, Telecom Egypt worked closely with Nokia to enhance its current backbone network. It's claimed that by upgrading its existing Nokia *Photonic Service Switch* (*PSS*) *1830* switches with the vendor's *Photonic Service Engine* (*PSE*) technology, the operator has not only doubled its capacity but has also reduced its operating costs.

The deployment includes Nokia's 500G DWDM muxponder, a programmable card that is said to provide wavelength capacities from 50G to 250G per line port. Based on Nokia's *PSE* coherent digital signal processor, this programmability is designed to allow Telecom Egypt to provision and tune wavelength capacity per optical route to ensure that its network is operated at peak performance, capacity and lowest cost-per-gigabit.

"This is exactly what we had in mind when we designed the *1830 PSS* platform," says Nokia's MEA head Amr El-Leithy. "Its flexibility and easy upgradability will allow [Telecom Egypt] to proactively manage the data explosion and develop new revenue streams – all the while improving the experience for their customers."

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Mobile money worth trillions in Kenya

The value of mobile money transactions hit the KES2 trillion milestone for the first time, according to figures released by the Communications Authority (CA) of Kenya in mid-December 2018.

In its latest industry sector statistics report, the CA said that 730.2 million transactions valued at KES2.027 trillion were recorded during the July-September 2018 period – that's up from 611.3 million transactions valued at KES1.9bn for the previous quarter.

At the same time, mobile commerce transactions went up by 8.8 per cent to reach 526.9 million valued at KES1.5 trillion, while person-to-person transfers were valued at KES718.2bn.

Additionally, the CA said there was a 5.6 per cent increase in the number of mobile money transfer agents operating throughout Kenya. This now stands at 218, 495, a rise from 206, 940, while actively registered mobile money transfer subscriptions are at 29.7 million.

The report also shows that mobile penetration rose by 2.3 percentage points to hit 100.1 per cent from 97.8 per cent in the previous quarter. The CA said this increase is mainly attributed to most users owning more than one SIM card, either from the same or different service providers. According to the authority, this fact is also supported by the Kenya Integrated Household Budget Survey report released by the National Bureau of Statistics in April 2018. This indicated that at least 30 per cent of mobile users in Kenya own more than one SIM, translating to an average of 1.3 cards per subscriber.

The number of active mobile subscriptions increased to 46.6 million from 45.5 million in the preceding quarter, marking a 2.4 per cent increase. In terms of market share, the report said Safaricom's was down 1.2 percentage points and comes in at 64.2 per cent, whereas Airtel gained 0.9 points to post a share of 22.3 per cent. Telkom Kenya, Finserve Africa and Mobile Pay recorded shares of 9.0, 4.2 and 0.2 per cent, respectively. Sema Mobile Services exited the market during the quarter.

The total number of active internet/data subscriptions grew 2.7 per cent from 41.1 million reported in the previous quarter to 42.2 million in the period under review. The number of mobile data/internet subscriptions also grew 2.7 per cent, from 40.7 million registered users during the previous quarter to 41.8 million in the period under review.

However, terrestrial wireless data subscriptions declined substantially by 51.3 per cent to stand at 59,380 from 122, 037 in the preceding quarter. The CA attributed this drop to the regulatory guidance it issued to Mawingu Networks to review its data on the number of data/internet subscriptions.

The report also noted a significant quarterly rise in international internet bandwidth available to Kenya. This is up from 3,277.72Gbps to 4,623.30Gbps. The CA said this is because EASSy (Eastern Africa Submarine Cable Systems) increased its capacity from 161.3Gbps to 828.144Gbps during the period.

Given the rapid growth in mobile internet related services and applications, together with increased 4G roll outs, the authority anticipates that Kenya's data/internet market will expand significantly. The development and growth of the country's e-commerce industry is also expected to drive demand for internet services.

Bharti Airtel and Telekom Kenya join forces

Bharti Airtel and Telekom Kenya, two of the largest mobile phone operators that service the east African nation, are merging to create a stronger challenger to the market leader, Safaricom.

The two cpmpanies will operate under a joint venture company that will be named Airtel-Telkom. According to the two carriers, the deal comprises their corresponding mobile, carrier, and enterprises services but will not include Telkom Kenya's real estate portfolio and specific government services. Telkom Kenya is 60 per cent owned by London-based private equity firm Helios and 40 per cent owned by the Kenyan government.

Both companies will continue to run independently but will combine efforts to enhance their range of products, marketing services, and offerings to customers. No financial details have been made and finalisation of the deal is subject to regulatory approval.

Europe needs security testing for 5G equipment

Europe needs a security testing scheme to check the safety of 5G equipment before it is deployed, according to the mobile network industry.

A number of countries have already blocked individual companies from supplying equipment for their next-generation networks, because of security concerns. Chinese giants Huawei and ZTE have both faced major scrutiny recently. The US, Australia and New Zealand have already barred the former from supplying equipment for their future 5G networks.

The GSMA, which represents 800 network operators, said a testing scheme would reduce the need to ban suppliers.

Meanwhile, Canada is conducting a security review of Huawei's products and UK service provider BT is in the process of removing Huawei equipment from the core of its 5G network.

SES 'revolutionises' mining activity in Mali

Australian gold miner Resolute Mining has ramped up its operations in Mali by building what is claimed to be the world's first, purpose-built, fully automated, sub-level cave gold mine at Syama.

It is also adopting high-speed connectivity that enables the use of high-tech applications and equipment, among other capabilities.

The full-managed SES Networks satellite data connectivity platform enables enterprise cloud applications and improves the levels of safety and productivity. The fibre-like service delivered via its O3b Medium Earth Orbit satellite constellation extends the high-capacity fibre-optic network that Resolute Mining is installing throughout the mine.

Jodie Hatch, chief technology officer at Resolute Mining said the SES Networks solution is a "game-changer" in that it allows for an unprecedented level of digitalisation of the remote mining site in Syama, delivering the same high speeds associated with fibre.

"With this transformational capability, we can increase our technology adoption and as a result increase our safety and productivity performance," he said.

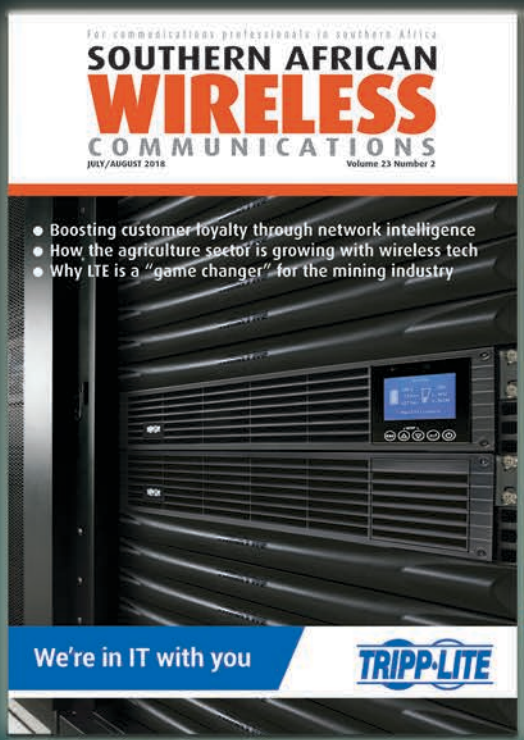
Carole Kamaitha, vice president of fixed data sales at SES Networks, said the remote mine at Syama had made a technological leap by adopting such advanced solutions and applications.

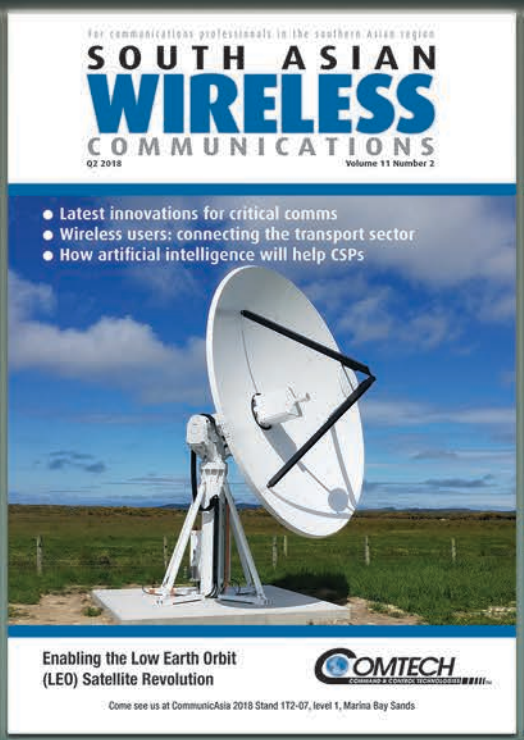
"In addition, the fully-managed solution means that Resolute Mining can focus on its business and the applications it requires to increase productivity, instead of network management," she added.

Carole Kamaitha, VP of fixed data sales at SES Networks, said the mine at Syama had made a 'technological leap' by adopting the solutions.

Do you want more?

Then why not read about wireless communications from outside your region?





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Safaricom appointment

Safaricom has announced the appointment of Rose Ogega to its board and that she will serve the company as an independent non-executive director. Nicholas Ng'ang'a, Safaricom chairman, said: "Ms. Ogega brings wealth of experience spanning over 25 years advising and managing both large, complex and emerging start-up ventures. Her previous boardroom experience and versatility will certainly add value to Safaricom board, helping take the organisation to the next level of success."

Nokia look to expand

Finnish giant Nokia has partnered with the Rakuten Group to build a new mobile network in Japan. Nokia "will provide full turnkey services" to plan, manage, deploy and integrate cloud RAN, AirGile cloud-native core network technology and various Nokia software functions. Based in Tokyo, Rakuten offers services in e-commerce, fintech, digital content and communications to over 1.2 billion members worldwide. Rakuten said it will use its experience as an IT specialist and exploit its membership base of 100 million+ users in Japan as it enters the market as a greenfield mobile operator and digital service provider.

Pearls of the Caribbean

Sky and Space Global (SAS) is stepping up its efforts to bring nano-satellite based communications to the Caribbean following discussions with the Caribbean Telecommunications Union. The company plans to provide narrowband services to the region via is *Pearls* nano-satellite constellation which begins deployment in 2019. This supports the SAS business model of providing connectivity to equatorial locations such as the Caribbean, where these services are required. The firm is also working with officials in various other countries in South East Asia, Africa and Latin America.

Unique comms platform for emergency rescues

South Korea's largest telco, KT, has unveiled a next-generation platform for disaster and safety management, in its latest effort to pioneer new businesses with its 5G and comms technologies.

Called *SKYSHIP*, the platform operates a special aircraft and a mobile communication centre to remotely control drones and robots that carry out search and rescue operations. Teams on the ground are also assisted with AR glasses that have a direct line of communication to doctors at nearby hospitals.

The system comprises a new concept aircraft that combines a helium gas-filled airship and a drone; the *Skyship C3* (command, control, communication) mobile ground control station; along with drones and robots that have been specially developed and are installed on the aircraft.

The *Skyship* aircraft itself features a pod that carries core hardware items including propellants, cameras, network modules and drones, along with a signal scanner. This detects smartphone signals and synchronises them with the mobile carriers' customer database to identify personal information relating to survivors.

KT said image scanning uses an ultra-small LTE device that can check the presence of survivors within a 50 metre radius. When survivors are detected, *Skyship* will deploy drones to pinpoint their exact locations. Robots will then be dispatched on the ground to deliver emergency relief items, relay information to rescuers, and take first-aid measures until medical teams arrive. The operator added that if signal scanning is integrated with national registration and medical databases, it could expedite first aid treatment by immediately providing the survivor's medical records which containing key information such as blood type and pre-existing health conditions.

The SKYSHIP platform features a special aircraft and a mobile communication centre to remotely control drones and robots that carry out search and rescue operations.

NIGCOMSAT adds second Newtec hub

NIGCOMSAT (Nigerian Communications Satellite) is expanding its enterprise, government and consumer Ka-band broadband services in Nigeria with the help of satcoms equipment specialist Newtec.

NIGCOMSAT was established as a company under the auspices of the Federal Ministry of Communication in 2006. It was set up to manage and operate the Nigerian Communication Satellite (*NigComSat*), the first geostationary comms satellite launched by an African organisation for the sub-Sahara region.

Following on from its continued success with Newtec's VSAT platform Newtec Dialog®, NIGCOMSAT will now deploy a second hub from Newtec together with thousands of its *MDM2210* and *MDM2510* IP satellite modems. The vendor's long-term certified business partner, Abuja-based Content Oasis, is the system integrator.

As a multiservice VSAT hub, Newtec claims its *Dialog* platform enables operators to build and adapt satellite networking infrastructures according to specific needs.

The company adds that its modems offer a choice of three return technologies: MF-TDMA, SCPC as well as *Mx-DMA*, its proprietary system. It's claimed the latter combines the best qualities of the other technologies to provide dynamic bandwidth allocation with the "highest level" of efficiency.

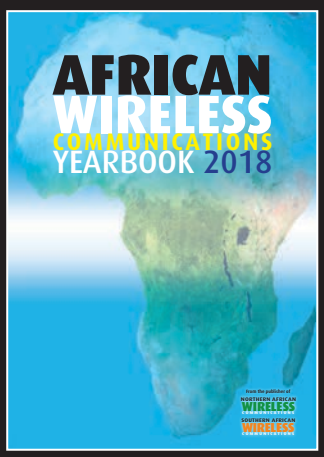
Vodafone to double 5G IoT network sites

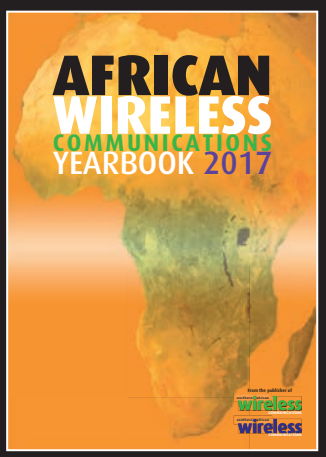
Vodafone will double the number of European cell sites in its 5G Narrowband IoT network footprint by the end of 2019. It's claimed this will create the world's biggest, international NB-IoT network when it becomes available in 10 European countries, including planned launches in the UK, Romania and Hungary.

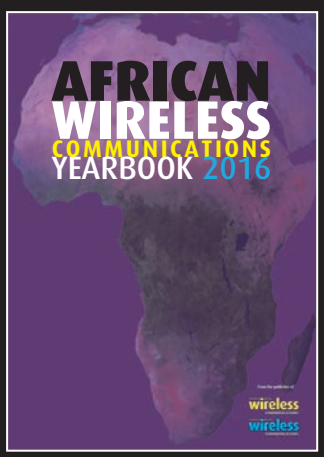
The operator has already launched NB-IoT networks in the Czech Republic, Germany, Greece, Ireland, Italy, Australia, Netherlands, South Africa, Spain and Turkey. It claims to be the global leader in managed IoT, with 74 million connections and an international network and services platform supporting companies such as Amazon, BMW, Panasonic, Philips Lighting, among many others.

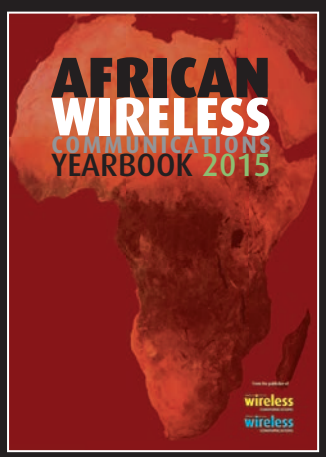
According to Vodafone, NB-IoT is the 'industrial grade' LP-WAN (low power wide area network) technology that will provide connectivity for many smart city and industrial applications at low cost and with equivalent security to 4G. It said NB-IoT operates in licensed spectrum to guarantee service quality, provides "strong" coverage over large areas (even when devices are underground or deep within buildings), and provides "greater" power efficiency enabling devices to run on batteries for 10 years or more on a single charge.

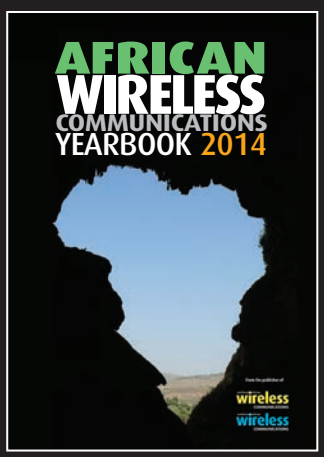
Knowledge is power.

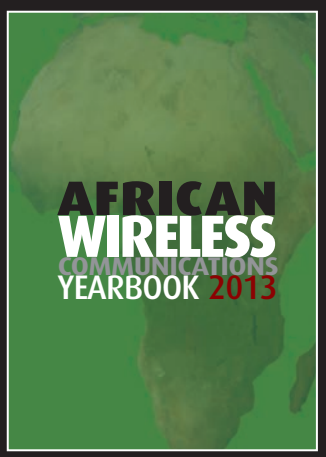


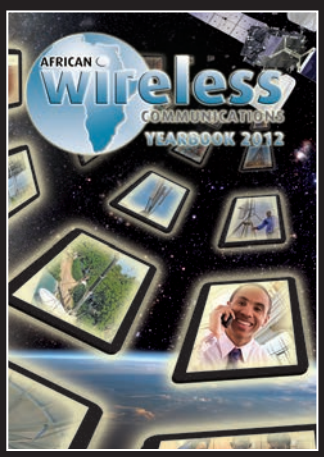


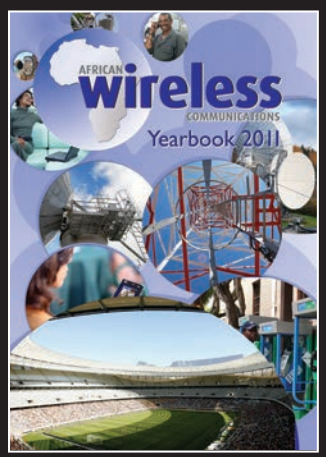


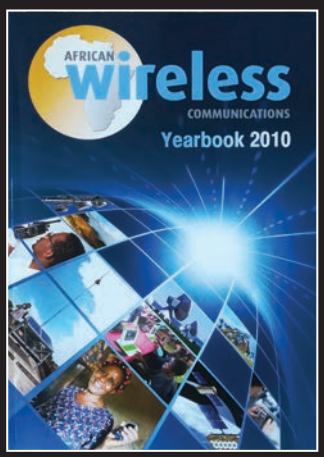


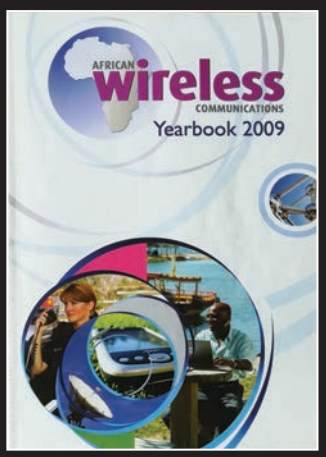


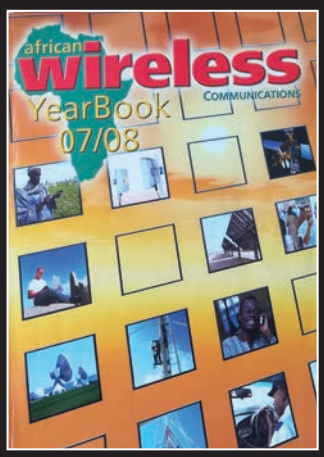


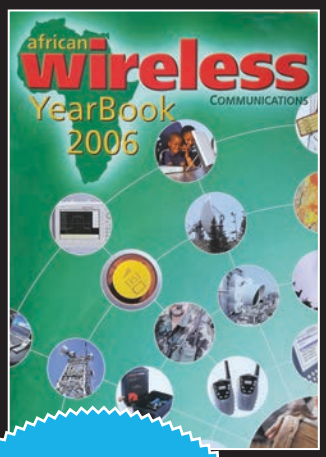












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