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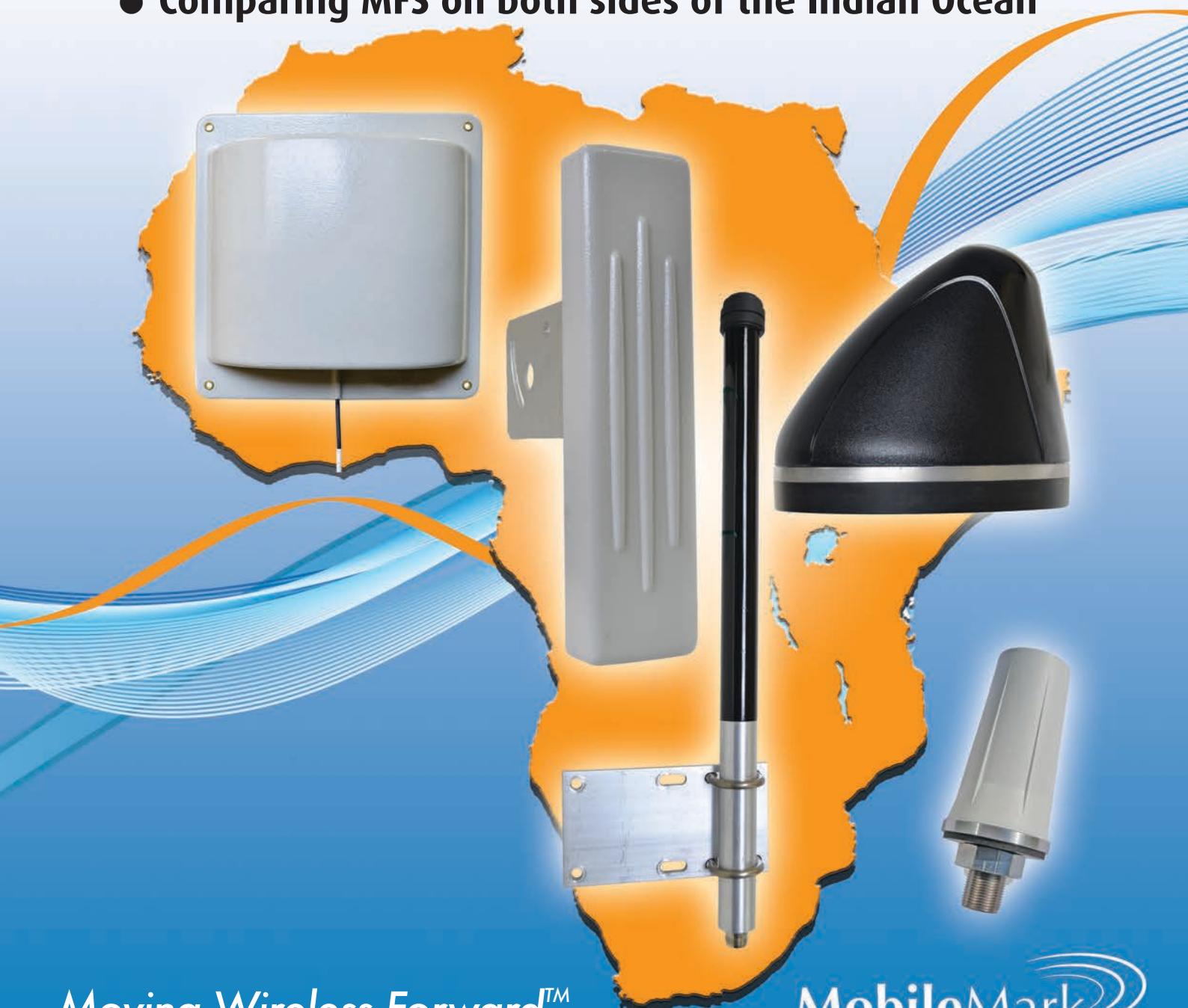
wireless

For communications professionals in southern Africa

COMMUNICATIONS

MARCH/APRIL 2017
Volume 21
Number 6

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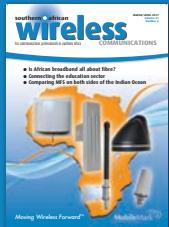
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To find out more about Mobile Mark,
 turn to page 12.

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Vodacom demos LTE critical comms



Applications such as real-time video can be supported on existing consumer smartphones and rugged LTE devices.

Vodacom says it has successfully demonstrated the first broadband multimedia trunking solution for critical comms users on a commercial LTE network in Africa.

It used Huawei's *LTE integrated Trunked Radio Application (LiTRA)* to demonstrate the solution which ran on its nationwide, commercial 4G network.

The operator says traditional private mobile radio network technologies (such as TETRA) mainly provide basic voice trunking services such as PTT and cannot support new, innovative, high-speed data services such as video and multimedia services.

According to Vodacom: "These traditional PMR networks are expensive

to construct and maintain, the user terminals are expensive and have limited variety, and the network technology is often proprietary and inflexible."

The firm believes these issues can be overcome by using a broadband public trunking communications system such as the one it demonstrated. It says *LiTRA* overcomes the challenges of using a public LTE network for critical communication by prioritising emergency comms with a higher QoS and also ensures encryption and security of these messages.

Vodacom says *LiTRA* enables its entire LTE network to be leveraged to provide high bandwidth and low latency trunking capabilities to

improve the performance of existing mission and business critical services such as PTT.

More importantly, the operator says it can also support new broadband multimedia trunking services such as push to video, real-time video surveillance, high resolution photos and location based services. It adds that the solution it demonstrated was fully compliant with 3GPP standards.

Furthermore, the service is compatible with existing consumer LTE smartphones and new rugged LTE devices, and does not restrict the user terminals to exclusive providers as is the case with traditional PMR network technologies.

Regulators sign tech agreement

The Independent Communications Authority of South Africa (ICASA) and the National Communications Institute of Mozambique (Autoridade Reguladora Das Comunicações) have entered into a technical agreement.

The two bodies will cooperate and coordinate in respect of spectrum management for telecoms and broadcasting services. They will also establish a technical committee to address matters of common interest on radio frequency coordination.

Under the agreement, ICASA and ARDC plan to work together to control and manage, amongst other things, radio transmission spillovers, the exchange of information, and expertise in the field of radio comms.

The partnership is the culmination of an agreement entered into by the two governments in June 2015. This aims to find new approaches and strategies for consolidating, expanding and deepening areas of economic development, industrial, and trade cooperation between Mozambique and South Africa.

"It is our commitment as regulators to make expertise, infrastructure and equipment available to assist each other on regulatory matters," said ICASA acting chairperson Rubben Mohlaloga.

IoT to help deliver clean energy to millions

BBOXX and Aeris are collaborating to deliver clean energy to millions of people living in off-grid communities in the developing world.

UK company BBOXX designs, manufactures, distributes and finances plug and play solar systems. Its core products are a range of solar 'battery boxes' that allow users to power small appliances, from lights and mobile phones to TVs and computers.

US-based M2M specialist Aeris offers IoT connectivity in East and Central Africa. The collaboration between the two will ensure that the battery boxes have reliable IoT connectivity and can be remotely monitored.

BBOXX will install Aeris' global SIM at the point of manufacture, thereby reducing both supply-chain costs and deployment time. BBOXX adds that by utilising Aeris' single global access point name, its solar system can also be deployed anywhere

in the world on a simple plug-and-play basis, removing the necessity to configure local network settings.

Aeris will also provide its *AerPort* connectivity management platform for IoT devices. This will give BBOXX real-time access to data usage, alert

management and device- connectivity management over each SIM's lifecycle.

The company adds that Aeris' global support of major mobile standards such as GSM, CDMA and LTE, means that it will be able to deploy its devices across the world as it looks to expand.



BBOXX's solar 'battery boxes' can power domestic appliances such as TVs.

Zimbabwe sees its first Tier II data centre

TelOne has launched what's said to be Zimbabwe's first Tier III data centre. It unveiled two new mirrored facilities in Harare and Mazoe in late March.

Built at a cost of USD4m, they are part of the state's National Broadband project and were funded by the USD98m loan arranged with China's Export Import Bank two years ago.

TelOne says it is in the process of transforming its business model from a fixed landline provider to a fixed

mobile converged company with emphasis on broadband, cloud and digital services.

The operator claims its data centre facilities offer a one-stop shop with a range of services that include rack and server space rental, colocation, disaster recovery, backup and storage, bandwidth rental, and diverse cloud services.

Ring fibre connectivity links user branches to the data centre via VPN or dedicated leased IP lines. TelOne

claims customers will benefit from IT cost savings of between 15 and 35 per cent when they migrate from a silo data centre to its integrated service.

The Tier III facility promises 99.98 per cent uptime (1.6 hours downtime a year) and is backed by UPS systems, on-site generators and battery power. It is also said to feature next-generation firewall protection, along with biometric, multi-tier physical security systems.



A SpaceX Falcon 9 rocket lifts-off with the first 10 LEO satellites for Iridium's NEXT constellation.

Launch success for Iridium

In what it describes as "one of the biggest tech refreshes" in history, Iridium has finally launched the first satellites that will eventually replace and enhance its existing network of low-Earth orbit (LEO) satellites spanning the entire globe.

The first 10 satellites that comprise Iridium's *NEXT* constellation were originally due to be launched by SpaceX last September (see *News*, Aug-Sep, 2016). But the loss of Spacecom's *AMOS-6* on the launchpad (*ibid.*) has resulted in a backlog in Spacecom's schedule. Iridium's satellites were eventually launched on 14 January

2017. They were delivered to a 625km temporary parking orbit where they are currently undergoing tests. Once they have passed, the satellites are expected to be moved into their 780km operational orbit some time in April.

These first 10 satellites are the start of what the company claims will be the largest commercial fleet in space, providing 100 per cent truly global communications coverage.

Over the next 18 months, SpaceX will carry out seven more launches for Iridium, deploying ten *NEXT* satellites at a time. One-by-one, these

new orbiters will be positioned near a current generation Iridium satellite, each moving at around 17,000 miles per hour as testing begins. Iridium says "unique" inter-satcom links from nearby satellites will be repositioned to point to the new *NEXT* spacecraft as it prepares to take over service. Existing satellites will eventually be de-boosted and de-orbited.

The second launch was expected in mid-April but this has now been moved to mid-June following continuing delays at SpaceX. The entire Iridium *NEXT* network is scheduled to be completed by mid-2018.

Managed satellite network service offering for Africa

Asian satellite operator Thaicom has teamed up with Intersat to launch a managed satellite network service for African enterprises and governments.

The platform will use capacity from *THAICOM 6/AFRICOM 1* which orbits at 78.5°E. Intersat will manage the end-to-end service from its teleport and NOC in Nairobi which features iDirect's *Evolution* hub technology.

The two partners say their new offering provides a fully managed, customised turnkey service. When combined with *THAICOM 6/AFRICOM 1*'s "powerful" beams over Africa, they claim the platform leverages high degrees of efficiency to deliver cost-effective and competitive managed services to its customers.

Intersat and Thaicom add that the service will deliver "reliable and secure communications with a rugged network infrastructure and a quick turnaround time".

Thaicom CCO Patompob (Nile) Suwansiri says: "We have been working hard to stay ahead of the curve by offering flexible, cost-effective, end-to-end satellite services to our customers in Africa."

Hanif Kassam, CEO of Intersat, reckons his firm's "proven" managed service platform has taken a leap forward by taking advantage of Thaicom's experience as an end-to-end satellite service provider, and what he describes as its "powerful" C-band coverage across Africa.

Intersat and SES boost pan-continental internet – News p11.

Expansion of high-performance broadband

Liquid Telecom will introduce Intelsat's high-performance *EpicNG* satellite services into its network.

As part of the new multi-year agreement, the firm has committed to dedicated services on the *Intelsat 33e* high-throughput satellite (HTS) which is now live (see *News*, p9).

By taking advantage of Intelsat's HTS system, Liquid says it will be able to deliver more bandwidth with greater efficiency to meet the growing needs of businesses across Africa.

The operator says *EpicNG* services will expand its coverage and network capabilities across the DRC, Kenya, Malawi, South Africa, Tanzania, Uganda, Zambia and Zimbabwe, where demand has grown for VSAT technology to deliver connectivity to underserved rural areas.

Engineering work is now under way and Liquid is expected to begin using the Intelsat platform at the end of July. The solution features ground networking kit based on Newtec's *Dialog* VSAT platform, including technology developed under the ESA-funded *Project Indigo* announced earlier by Intelsat and Newtec.

Furthering the relationship between the companies, Liquid has been awarded a three-year contract from Intelsat to provide fibre backhaul and uplinking services from its South Africa teleport. This will be integrated into the *IntelsatOne* network as Intelsat extends its managed services platform into Africa.

The gateway service will enable Intelsat to accelerate the introduction of *EpicNG* services.

Tigo launches Tanzania's first "state-of-the-art" call centre

Tigo has opened a new call centre in Tanzania, and claims it is the first of its kind in the country.

The operator has migrated its facility from E1 to SIP (Session Initiation Protocol) technology. It says this allows for a wide range of functionality and offers the agility necessary to service its growing subscriber base which currently includes 10 million customers.

The centre is also said to feature embedded data security measures to protect customer information and identity, and a USSD/SMS platform for query follow-up and escalation.

With 100 per cent CRM monitoring of customer satisfaction, Tigo boasts that its customer service is expected to "rocket sky high".

The call centre operates 24 hours and can serve 55,000 customers daily, every day of the week. Tigo reckons that by hosting such high volumes of customers, the centre will also provide an ideal platform to receive and respond to customer feedback.

It adds that the facility aims to escalate customer queries every two hours and provide swift resolution to customer queries, thereby drastically



Tigo MD Diego Gutierrez reckons call centre agents are ready to provide "excellence" in customer service.

reducing call queues. The centre is supported by the PCCI Group which specialises in customer experience

and operations outsourcing worldwide. The company will offer Tigo customers both a traditional voice call centre as well as new digital customer service solutions that include social media, e-chat and email. It plans to employ more than 500 people to support local talent.

Tigo MD Diego Gutierrez said: "Our business partners and customers can now look forward to receiving the most advanced customer care available in the country, buttressed by professional call centre agents ready to provide excellence in customer service."

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Peering at NAPAfrica

 As part of its aim to become a major IP transit and MPLS player in sub-Saharan Africa, Angola Cables has chosen NAPAfrica as its peering point. IP product manager Darwin Costa says peering with NAPAfrica enables Angola Cables to reduce latency and increase bandwidth throughput, as well as increase overall connectivity performance on the continent: "We want to use peering as a tool to keep traffic paths local and throughput as high as possible."

New licenses and rules

 The Lesotho Communications Authority (LCA) has invited interested firms to apply for individual licenses in the categories of Network Services and Network Infrastructure. The authority has not released further details but says the closing date for submission of applications is 18 August 2017. Separately, the LCA has also started a review of the current licensing framework and regulatory fees. It has developed draft rules aimed at aligning regulations, evolving technology and developmental imperatives, and has invited comments.

Spectrum fee review

 The Communications Regulatory Authority of Namibia is introducing new regulations on spectrum fees. CRAN CEO Festus K. Mbandeka said the fees have not changed since 2007 and a review was necessary to assess the inflationary impact on cost recovery in respect of operational activities and capital investment pertaining to spectrum management. Furthermore, he said CRAN is aiming to achieve simplicity by ensuring the new charges are easy to understand, practical, and incur minimised collection costs. The new fees are due to come into force on 1 January 2018.

More spectrum needed for IoT and 5G, warns DSA

Moving society from "spectrum scarcity" to "spectrum abundance" is the only way to maximise the true potential of 5G and IoT, according to the Dynamic Spectrum Alliance (DSA).

Kalpak Gude, who was appointed as the alliance's president last November, said: "As the demand for connectivity increases, the emphasis is being placed on efficient and effective spectrum management. Dynamic access technology, coupled with unlicensed spectrum, will help in driving the necessary availability and innovation."

Gude was speaking as regulators from around the world are set to attend the fifth annual DSA Global Summit which this year takes place in Cape Town in May. Since the 2016 summit,

The DSA's president Kalpak Gude believes there is an increasing industry focus on efficient and effective spectrum management.



which was held in Bogota, the DSA says Colombia's regulator has submitted a proposal to develop rules for license-exempt access to TVWS technology. The alliance believes this will not only enable the efficient use and management of spectrum TV bands in the country, but would also bring connectivity to its most remote areas.

In Africa, DSA members such as Adaptrum, 6Harmonics and C3 have

worked together with Microsoft to launch successful TVWS pilots across the continent. For example, C3 and Microsoft were recently involved with a project with the UNHCR in the Dzaleka Refugee Camp in Malawi. Here, last-mile connectivity using TVWS technology is bringing internet connectivity to the camp's 28,000 refugees.

"Regulators play a key role in spectrum management decisions that drive investment in new wireless technologies," said Gude. "These regulatory decisions help create the canvas upon which wireless internet access solutions are drawn. We look forward to open discussions on spectrum policies from regulators and industry leaders from around the world."

HTS to boost eProcess' banking network

eProcess International will use a high throughput satellite (HTS) platform to expand and strengthen its corporate banking services throughout Africa.

The company, which is a subsidiary of pan-African banking conglomerate Ecobank Group, connects head offices and affiliates across 27 countries in Africa, enabling banking transactions and corporate data exchanges through its network. Given the growth in commerce across the continent, eProcess sought to enhance its

network to address increasing transaction volumes for its customers.

Its HTS solution uses Intelsat's *EpicNG* C-band spot beam capacity that will be available on *IS-35e* which is on schedule for launch during the second quarter of this year. The satellite will feature C-band spot beams as well as Ku-band coverage for Africa. The capacity will complement eProcess' existing network which is based on wide beam C-band connectivity on *IS-903*.

Leveraging the backwards com-

patibility of *EpicNG* and the higher efficiency of the spot beams, Intelsat says the bank is able to accommodate its growing bandwidth demand across its pan-continental network.

Claude Edmond Traoret, group manager for technology services at eProcess, adds: "Our banking and mining customers across Africa will truly benefit from these latest improvements, as Intelsat *EpicNG* enables us to deliver over 30 per cent more throughput, driving improved economics within our business model."

Arabsat expands capacity for CETel

CETel has upgraded its extended C-band service from Arabsat to meet increasing demand in the raw material extraction sector.

Based in Germany, CETel is a global provider of satellite, fibre and wireless-enabled communications solutions. It is working with Arabsat to jointly deliver reliable and economic managed end-to-end services across Africa for the oil and gas, mining and construction industries. The two companies have been long-term strategic partners. For instance in 2015, they built an Earth station which uses a 9.3m antenna at CETel's teleport in Ruppichteroth near Bonn.

As part of the upgrade, Arabsat is

supplying the designated space segment from Arabsat-5C which orbits at 20°E. With more than 50MHz of C-band on Arabsat-5C extended, CETel says it will deliver connectivity to rural areas in many countries, especially Mali, Niger, Nigeria, DRC and South Africa.

In announcing the upgrade in March, CETel MD Guido Neumann said: "CETel expands this customer network serving up to 200Mbps to critical and sensitive operations in the natural resources industry. The increased bandwidth demand is realised via a hub-based solution from our teleport in Germany, providing dedicated as well as shared services."



In 2015, Arabsat and CETel built an Earth station which uses a 9.3m antenna at CETel's teleport.

Intelsat extends EpicNG with IS-33e

Intelsat has now gone live with what it claims to be the first multi spot beam, Ku-band, high throughput satellite (HTS) service for the EMEA, APAC, Mediterranean and Indian Ocean regions.

Intelsat 33e was successfully launched last August and is the second satellite to use Intelsat's *EpicNG* high throughput system. It was due to enter service at the end of last year (see *News*, Jun-Jul 2016),

but this was delayed due to a malfunction in the primary thruster which meant orbit raising took longer than originally planned. The satellite eventually entered service on 29 January 2017.

Manufactured by Boeing, *Intelsat 33e* is said to be equipped with the "most advanced" HTS payload design that is also "exceptionally flexible".

From its orbital location of 60°E,

Intelsat says the new spacecraft will enable the delivery of enterprise-grade, broadband services to fixed and mobile network operators, aeronautical and maritime mobility service providers and government customers.

Some of the African customers committed to *Intelsat 33e*'s vast geographic coverage include Orange Cameroon, Djibouti Telecom, Africell,

MultiChoice, Vodacom, Telkom South Africa, amongst others.

Intelsat's first satellite to use its *EpicNG* HTS system was 29e which went live with services for the Americas in March 2016. The company says its *EpicNG* global footprint will be completed with additional launches over 2017-18. This includes 35e in the next few weeks.

Microsoft and Liquid partner for African cloud

Microsoft and Liquid Telecom have joined forces to accelerate the use of cloud services across Africa.

The companies say businesses across the continent have traditionally been slower adopters of cloud services, particularly in areas with limited ICT infrastructure.

As well as the delivery of cloud services, their joint effort will also focus on SMB development, and the enablement of a TVWS technology and partner ecosystem to provide further connectivity across Africa.

By combining Liquid's fibre network reach – which now spans more than 40,000km across 12 countries – with Microsoft's business solutions, the partners say they will bring the cloud closer to the end user. They reckon this will enhance business potential and enable startups and home-grown operations to be more productive and efficient.

"Cloud computing is still gaining momentum on the continent, but we believe it has the potential to transform the way businesses of all sizes operate," says Ben Roberts, group CTO, Liquid Telecom. "Through better connectivity, faster internet and secure cloud offerings, businesses will have the platforms and tools they need to grow and succeed."

Part of the project, 'Business in a Box', will offer SMBs a cloud-based toolkit of relevant applications, cloud services and connectivity.

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Gazprom scores big with satellite connectivity

Gazprom Space System's (GSS) *Yamal-402* satellite has been kept busier in Africa over the past few months.

In mid-February, the Russian operator announced that the satellite's capacity was used for the 2017 Africa Cup of Nations football tournament that was held in Gabon at the start of the year. This event was broadcast by Equinoxe Television Cameroun using *Yamal-402*'s Southern Beam which

covers sub-Saharan Africa. Gazprom says it will work with Equinoxe on further plans to develop business for full-time and occasional use TV broadcasting.

As the winner of the Africa Cup of Nations, Cameroon will now participate in the Confederation Cup held in Russia in June 2017. Gazprom's *Yamal-202* will be used to arrange backup links for TV broadcasting of Confederation Cup games as well as

next year's FIFA World Cup Finals.

In separate news late last year, Gilat Satellite Networks (GSN) has also struck a deal with Gazprom to use *Yamal-402*'s Southern Beam to deliver services based on its *SkyEdge II-c* technology in sub-Saharan Africa.

Initially, the capacity will be used to implement broadband connectivity in schools and deliver services to mobile operators in rural Ghana.



Cameroon clinched their fifth title after defeating seven-time champions Egypt in the 2017 Africa Cup of Nations final.

GSS director general Dmitry Sevastyanov said: "The partnership with Gilat will further enforce our presence in the African market and will also involve enhancement of telecommunication infrastructure in Africa."

Zamtel 4.5G launch

Zamtel has launched a 4.5G LTE-2300 network in Zambia's Copperbelt Province.

The government-owned telco claimed the deployment is a "crucial step" that will allow it to offer innovative high-definition services to customers in the province, and will help it attain its vision to be the market's technology innovation leader.

According to Zamtel, the network will enable it to offer its fixed network subscribers significantly higher data speeds. The 4.5G LTE-2300 technology has been rolled out in Kitwe, Kalulushi, Chambishi, Chingola, Chililabombwe, Mufulira and Solwezi.

Speaking at a launch event in Kitwe late last year, transport and communications minister Brian Mushimba said the network rollout is part of the advanced delivery of the Universal Access Phase 2 Project that the government is implementing together with Zamtel and Huawei Technologies. He said: "The successful implementation of this project by Zamtel signifies the transformation of the ICT industry on the Copperbelt, redefines internet services, and opens up numerous opportunities in ICT."

In separate news, Zamtel has also launched its *ConnectedCar*, fleet management service. It allows owners or fleet managers to view their vehicles current locations in real time and track where they have been on their computers or phones via the *ConnectedCar* responsive web portal.

Smartphone re-use drives digital inclusion programme

Facebook has appointed HYLA Mobile to collect high-end smartphones for re-distribution in emerging markets as part of its *Smart Restart* initiative. The programme seeks to underline the company's commitment to sustainability while driving digital inclusion in underserved parts of the world.

It's claimed the re-distribution of devices will have a major impact in many parts of Africa where device affordability is a major barrier to mobile broadband adoption.

For example in Kenya, Facebook has been working with Medic Mobile to get smartphones to frontline health workers in Isiolo County.

Devices collected through *Smart Restart* and refurbished by HYLA are being donated to 120 community health workers (CHWs). Supported by Christian Aid Kenya and the Kenyan Ministry of Health, the CHWs will use the phones to register pregnant women, receive automated antenatal care visit reminders, report danger signs, and track deliveries.

They will also register new-born babies and receive immunisation reminders to ensure that children are receiving necessary and life-saving vaccinations. All the data collected will integrate directly into the Ministry of Health's reporting tools.

US-based HYLA Mobile specialises in mobile device recycling



HYLA Mobile runs global operation centres to extend the lifecycle of mobile devices. It says the global secondhand market is worth around USD17bn.

and re-commerce. It says the global secondhand device market is worth around USD17bn. The company claims to use "sophisticated" technology across its global operation centres to extend the lifecycle of mobile devices in the "most secure" manner possible.

WIOCC supports lion conservation



WIOCC CEO Chris Wood (right) presenting some of the veterinary drugs to KWS deputy director Edwin Wanyonyi.

WIOCC has donated much-needed drugs and consumables worth KES500,000 (USD4,860) to the Kenya Wildlife Service (KWS). WIOCC, which describes itself as "Africa's carriers' carrier", has its main office in Nairobi, and its CEO Chris Wood says the continent's wildlife has always been dear to his heart.

In late March 2016, Mohawk, a 13-year-old lion with a distinctive black mane, was shot dead after straying away from the Nairobi National Park and before a suitably-equipped veterinary team could reach him. As a result, Wood began raising funds for the

KWS through multiple activities and initiatives, starting at a global telecoms industry event in Chicago last May.

Following this initial support, he wanted to see how WIOCC could partner with KWS moving forward. "Out of this came [the] donation of additional anaesthetic drugs and medical consumables for use by veterinarians during wildlife rescues. The hope is that this will help prevent similar tragedies from occurring in the future," says Wood.

KWS says WIOCC's donation will help support the work it is doing to protect and conserve lions.

Creating Africa's cashless society

Mastercard promises to "empower" more than 150,000 micro, small and medium enterprises (MSMEs) in Kenya this year by giving them access to its *Masterpass QR* system.

The company says MSMEs have traditionally struggled with the cost of installing payment infrastructure such as POS devices, as well as with issues of security surrounding payment.

It claims *Masterpass QR (Quick Response)* combats these challenges in a "simple and user-friendly" manner, helping to stimulate the economy by digitising a sector previously solely dependent on cash-based transactions.

In Kenya, the company began introducing its mobile solution via various mobile banking applications in February. Consumers can pay for

in-store purchases by scanning a QR code displayed at the checkout on their smartphones, or by entering a merchant identifier into their feature phones.

Masterpass QR can be used at any supported location across Africa. As well as Kenya, the system is already available in Rwanda, Tanzania, Uganda and Ghana, as well as in Nigeria which was the first market

on the continent to see the launch of *Masterpass QR* last September following a partnership with the Ecobank Trans International Group.

Mastercard's global goal is to connect 40 million micro and small merchants to its electronic payments network by the end of 2020. By then, it says *Masterpass QR* will have been rolled out to 33 countries across Africa.

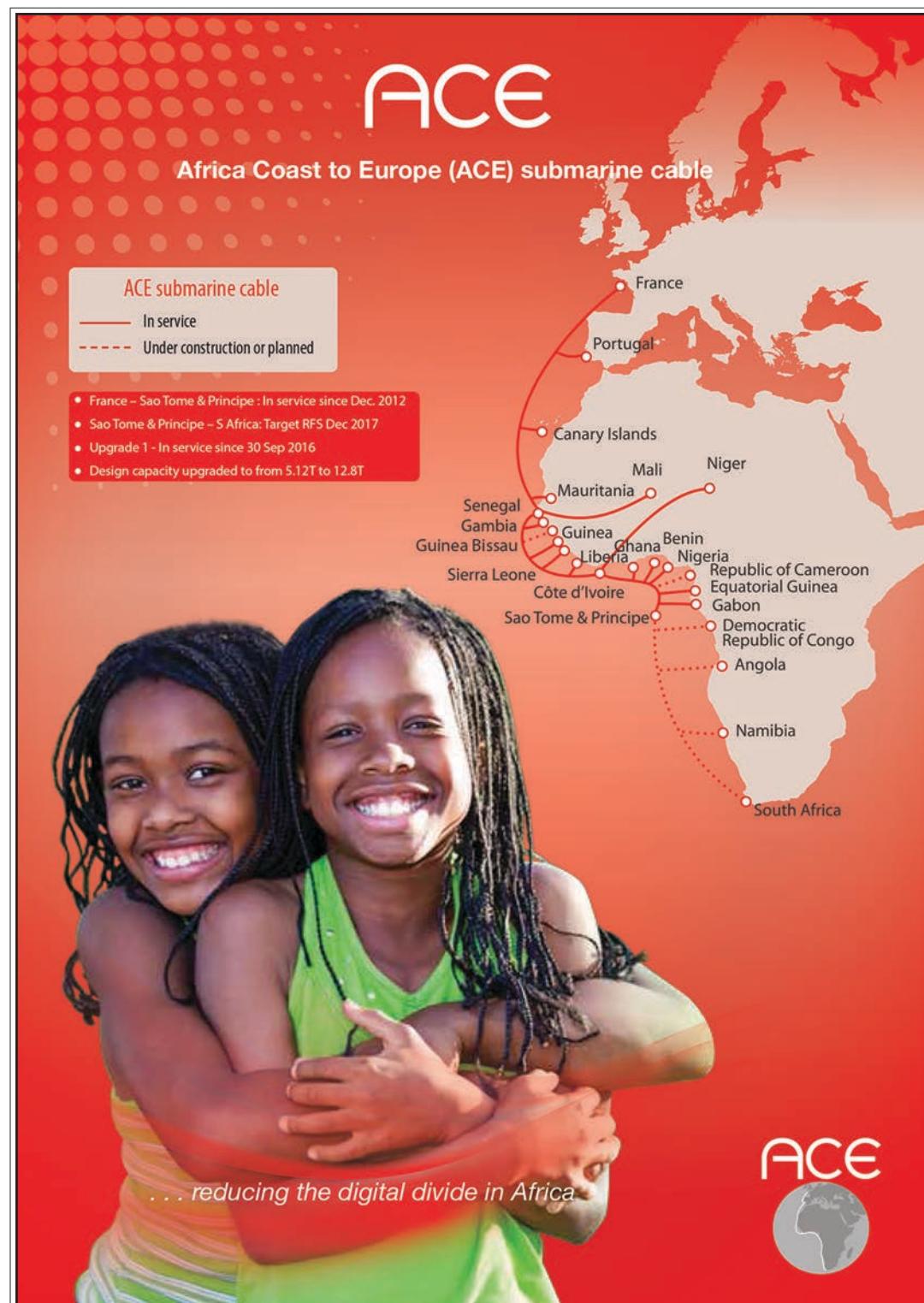
Intersat boosts pan-continental internet

Intersat is delivering internet services across Africa following the signing of a multi-year capacity agreement with SES.

Based in Dubai, Intersat also has offices in Kenya and South Sudan and is said to be one of the largest providers of internet solutions on the continent. It will use the *NSS-12* satellite located at 57°E to deliver broadband connectivity to businesses and consumers. The agreement includes a new C-band capacity lease, infrastructure services out of SES' Betzdorf teleport, and a renewal of upgraded Ku-band capacity out of the Djibouti Teleport. The latter is managed by BringCom and has been used by SES since 2014 after it installed a nine-metre Ku-band antenna and hub equipment at the site.

Intersat will also use the *Enterprise+* service to deliver high-speed broadband connectivity across the continent. SES says this managed, ready-to-deploy, customised satellite connectivity solution provides carrier grade services and enables a range of applications including connectivity for ERP, VPN, VoIP services, remote data traffic, etc.

Hanif Kassam, executive director of Intersat, says: "With the new and upgraded capacity and customised connectivity platform on *NSS-12*, combined with an extensive teleport infrastructure, we will be able to offer truly differentiated services to our customers."



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.



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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Motorola Solutions accuses Hytera of patent infringement

In a complaint filed with the US International Trade Commission (ITC) in late March, Motorola Solutions claimed China's Hytera Communications is "unlawfully" importing and selling two-way radio equipment and systems and related software and components that infringe its patents.

It has called for an immediate investigation by the ITC, an exclusion order to halt the importation of what

it says are "infringing products", and a cease-and-desist order to stop the marketing and sale of these in the US.

In a statement issued during the International Wireless Communications Expo (IWCE) held in Las Vegas at the end of March, Hytera said it "embraces competition" and respects the intellectual property rights of others.

The statement said: "Motorola Solutions' new action continues

its pattern of legal manoeuvring instead of competing with Hytera in the marketplace. By waiting to file its ITC complaint on the first day of [IWCE] – the largest US trade show for PMR providers – Motorola Solutions is transparently using its legal filings to generate publicity."

Hytera added that it will defend itself against the allegations and remained "fully confident" that it will prevail.

But Mark Hacker, general counsel and chief administrative officer of Motorola Solutions, said: "Hytera asserts that it embraces legitimate competition, but there is nothing legitimate about the illegal copying and misappropriation in which it has engaged. We are committed to vigorously defending our valuable intellectual property as we continue to drive innovation for our customers across the globe."

Teraco to invest ZAR1.2bn in South African data centres

Teraco has raised a medium-term funding facility from Absa Bank to help build what it claims will be the largest commercial data centre in Africa.

The company's current colocation data centres in South Africa include *CTI* in Cape Town, *DB1* in Durban, and *JB1* at Isando in Johannesburg. It says the facilities enable clients to easily connect to submarine cable systems, terrestrial networks and major IP backbones on the continent. Teraco is also home to NAPAfrica which is said to be Africa's largest carrier-neutral Layer 2 IXP.

Teraco CFO Jan Hnizdo says the ZAR1.2bn (USD87.24m) funding facility will be used to expand the Isando campus which has been established as the connectivity gateway into South and sub-Saharan Africa.

"The site presently has 20MW of capacity which needs to all be brought online," says Hnizdo. "We have also purchased land adjacent to the existing site allowing for further expansion. In addition, a component of the funding has also been earmarked for the construction of Teraco's new data centre in Bredell."

Absa's loan will enable the completion of the plant and data centre fit-out of the new facility located on the Isando campus. It will also partly fund the Bredell facility where construction commenced in November 2016 and is due for completion towards the end of 2017.

According to Hnizdo, the Bredell site will feature more than 6000m² of technical deployment space and

Teraco CFO Jan Hnizdo says the funding facility will be used to expand *JB1* as well as contribute to the development of a new data centre.



24MW of power, thereby eclipsing the current campus for power availability. "Bredell will be the largest commercial data centre in Africa, and Teraco will be the largest commercial data centre operator in Africa," he claims.

"Huge growth" in money transfers to Tanzania

WorldRemit – the digital money transfer service that describes itself as the "WhatsApp of money" – says it has hit 10,000 unique transactions per month in Tanzania.

The company introduced its services in the country in January 2012. Since then, WorldRemit says it's seen rapid expansion fuelled by growing demand for instant remittances from more than four million expatriates living abroad.

WorldRemit customers can send money to Tigo, Vodacom and Zantel mobile money accounts in Tanzania. They can also use their mobiles to transfer funds for bank deposits and cash pick ups. The biggest senders to the country include diaspora in the UK, Sweden, Australia, Norway and Canada, amongst others.

Company founder and CEO Ismail Ahmed says: "Our mobile money partnerships combined with existing

services for bank deposits and cash pick-up will give more choice to Tanzanians, further supporting the transition from costly offline remittances via high street agents to faster, cheaper and safer online transfer methods."

WorldRemit says remittances play an important role in Tanzania's economy – citing figures from the World Bank, it says in 2015 the country received a total of USD390m, almost ten times the amount received in 2010.

The London-based firm also claims it achieved a new record of 10,000 unique transactions completed in December 2016 alone. It says it grew 150 per cent YoY last year, driven primarily by the rapid expansion of mobile money accounts as the preferred receive method.

Elhage quits following changes at Nokia

Nokia has announced changes to its organisation and group leadership team.

As part of the restructure, the company has split its Mobile Networks business group into two organisations: one will focus on products and solutions, while the other on global services. This has led to the resignation of Samih Elhage who was appointed president of Mobile Networks in 2016 (*see Wireless Business, Jan-Feb 16 issue*). It has been reportedly suggested that Elhage did not support the separation of the division, although Nokia's official line is that "with the integration of Alcatel-Lucent largely complete", Elhage has decided to leave to "pursue new opportunities".

Nokia president and CEO Rajeev Suri described Elhage as a close friend and advisor through times both good and bad: "From helping lead the transformation at Nokia Siemens Networks and creating a disciplined operating model that remains a competitive advantage, to being one of the driving forces behind the acquisition of Alcatel-Lucent and its fast and successful integration, Samih's contributions to Nokia have been remarkable."

Marc Rouanne, currently chief innovation and operating officer (CIOO), will become president of the Mobile Networks business group. Igor Leprince, currently EVP of Global Services, has been appointed president of the new Global Services division.

In addition, Nokia will also split its CIOO organisation. Its current operating activities will be moved to a newly appointed COO organisation, innovation activities to the CTO, and incubation to a chief strategy officer.

Other personnel changes announced by the company include: Monika Maurer, current COO of Fixed Networks, assumes the position of group COO; Kathrin Buvac, chief strategy officer, gains additional responsibilities for incubation of select new business opportunities; and CMO



Samih Elhage walked away from Nokia after the firm restructured its Mobile Networks division.

Barry French has been given additional responsibilities for health, safety, security and environment.

All of the changes became effective from 1 April 2017.

Intelsat and OneWeb combine

Intelsat and OneWeb have agreed to merge in a share-for-share transaction. Japan's SoftBank Group – which acquired a 40 per cent stake in OneWeb at the end of last year (see *Wireless Business*, Jan-Feb 17 issue) – has also agreed to invest USD1.7bn in newly issued common and preferred shares of the combined company.

Both the merger and the SoftBank investment are subject to, among other conditions, successful completion of debt exchange offers to certain existing Intelsat bondholders as well as receipt of certain regulatory approvals.

The debt exchange offers together with the proceeds of the SoftBank investment are intended to reduce Intelsat's debt by around USD3.6bn, assuming the minimum level of participation in the debt exchange offers is achieved. Either party can terminate the agreement and SoftBank can end its investment if the debt exchange offers have not been successfully completed within 90 days of the date of the agreement which was announced on 28 February 2017.

"As an early equity investor in OneWeb, we recognised a network that was a complement to our next-generation *EpicNG* fleet and a fit with

our long-term strategy," said Intelsat CEO Stephen Spengler.

"By merging OneWeb's LEO satellite constellation and innovative technology with our global scale, terrestrial infrastructure and GEO satellite network, we will create advanced solutions that address the need for ubiquitous broadband."

End-to-end ICT solutions from a single provider

South Africa's incumbent operator Telkom is re-launching Business Connexion (BCX) to create a new end-to-end ICT solutions provider.

The move is the final step in the integration of Telkom Business and Business Connexion, and follows Telkom's acquisition of the ICT services provider in 2015 (see *Wireless Business*, Sep-Oct 2015).

BCX will continue to fall within the umbrella of the larger Telkom Group but will operate as a separate business arm serving the enterprise space. All employees fall under the purview of the new brand and all physical office spaces will reflect the new brand name. Additionally, all existing customer contracts will be covered by the new BCX entity.

BCX is built from what's claimed to be the foundation of Telkom Business' "deep knowledge" of infrastructure and Business Connexion's "expertise" in providing customised ICT solutions.

Telkom reckons BCX is now the first brand in Africa that can offer

end-to-end ICT solutions from a single provider. The company says it will address the technology and telecoms needs of companies operating in Africa, both within their domestic market and as they expand.

Althon Beukes, BCX's chief of international business, adds: "BCX's extensive African footprint with its international subsidiaries which include Kenya, Nigeria, Tanzania, Namibia, Zambia and Botswana, as well as a presence in Dubai and the UK, makes us the ideal strategic ICT partner for clients doing business in Africa or those wanting to navigate the continent's growth opportunities."

Moving forward, Telkom says BCX will also focus on offering cutting edge solutions specifically for cloud computing, unified communications and collaboration, converged connectivity and business mobility, security, IoT, and Big Data analytics.

"The launch of BCX is truly the beginning of a new chapter of digitalisation for Africa," says BCX CEO Isaac Mophatlane. "This new brand is the culmination of the vision my late brother and I had when we started Business Connexion over 20 years ago."

BCX CEO Isaac Mophatlane claims the launch is the beginning of a new chapter of digitalisation for Africa.



African growth for Facebook accelerates

Facebook says the number of people connected to its platform across Africa has grown 42 per cent since 2015 to reach more than 170 million monthly active users. Of these, it says 94 per cent access the services via mobile.

"Facebook is deeply committed to Africa, a mobile-first continent where seven in 10 of all connected people use the platform," says Carolyn Everson, VP of global marketing solutions. "Many people in Africa are coming online for the first time, unleashing new possibilities for people and businesses alike. We're also seeing growth of small- and medium-sized businesses that are driving economic development, companies that Facebook wants to help grow locally and regionally across the continent."

As a result of the expansion, Facebook moved its Johannesburg offices into new premises. Everson says the new offices are part of the company's "ongoing commitment" to invest in the African market and work with innovators across its key target countries.

Nunu Ntshingila, Facebook's regional director for Africa, reckons the firm has grown from "strength to strength" since first establishing a direct presence in sub-Saharan Africa in 2015. "We have enjoyed working closely with entrepreneurs, partners, developers and small businesses as they have used Facebook as a platform for growth. It's inspiring for us to learn

INVESTMENTS, MERGERS & ACQUISITIONS

| Date | Buyer | Seller | Item | Price | Notes |
|---------|------------------|-----------------------------|---|-----------------|--|
| 9/2/17 | Hytera | Sepura | Company | NA | Sepura's shareholders have reached a majority decision (97%) in favour of Hytera's acquisition offer. At the time of writing, the companies were liaising with the competition authorities in Spain & Germany to gain their approvals. |
| 17/2/17 | VimpelCom (VEON) | Various international banks | Multi-currency term & revolving facilities agreement (TL/RCF) | Up to USD2.25bn | New agreement replaces existing USD1.8bn revolving credit facility signed in 2014. Several international banks have committed to the TL/RCF in an aggregate amount of USD2.108bn. The TL/RCF includes option to increase amount up to the full USD2.25bn, which would consist of a term facility of USD562,500,000 & a revolving credit facility of USD 1,687,500,000. |

LATEST COMPANY RESULTS

| Date | Company | Country | Period | Currency | Sales (m) | EBITDA (m) | EPS (units) | Notes |
|---------|------------------|-------------|--------|----------|------------|------------|-------------|--|
| 24/2/17 | SES | Luxembourg | FY16 | EUR | 2,068.8 | 1,451.5 | 1.34 | 2.7% YoY growth. Video is 68% of group revenue & grew 4.7% to EUR1,398.8m. Fully protected contract backlog increased from EUR7.4bn to EUR 8.1bn for year ended 31 December 2016. This included EUR 0.3bn from O3b & EUR 0.1bn from RR Media, which were consolidated in 2016. |
| 27/2/17 | VimpelCom (VEON) | Netherlands | FY16 | USD | 8,885 | 3,232 | 0.23 | Delivered on all 2016 financial targets & returned to growth at 7.5%. Reported YoY revenues up 27.7%, but earnings in Algeria organically decreased 14%. Company has now re-branded as 'VEON'. |
| 28/2/17 | Intelsat | US | FY16 | USD | 2,188 | 1,613.4 | NA | 15% YoY decrease in Network Services; 2% YoY decrease in Media revenues; & Government earnings flat. Forecasts FY17 revenue to be in a range of USD2.180bn to USD2.225bn. |
| 31/3/17 | Huawei | China | FY16 | CNY | 521.6 (bn) | NA | NA | Net profits were CNY37.1bn (USD5.3bn), an increase of 0.4%. In 2016, YoY revenues in EMEA grew 22.5% from CNY127,719m to CNY 156,509m. |



Carolyn Everson, VP global marketing solutions (left) says Facebook wants to help SMBs grow locally and regionally across the continent. Also pictured is the company's regional director for Africa, Nunu Ntshingila (middle) and Nicola Mendelsohn, VP EMEA.

from the continent and to play a role in helping people and organisations connect with the world," she says.

Cataleya in management buyout

A joint management team has acquired Cataleya from Singapore-headquartered Epsilon Global Communications group. Financial details have not been disclosed.

The team includes technology startup accelerator Incipio and a group of R&D and engineering specialists. It was led by Andreas Hipp who co-founded Epsilon in 2003 and was the former CEO of both Epsilon and Cataleya until October 2015.

Cataleya specialises in IP networking and in developing and deploying next-generation carrier grade switching systems. Under its new ownership, it's claimed the firm will be able to push intelligent networking applications and services into new areas and develop new commercial models for next-generation session border controller (SBC) technologies (see *Wireless Solutions*, p16).

"Epsilon Global Communications made the strategic decision to focus on its core service provider offering," says

Epsilon CEO Jerzy Szlosarek. "The timing was right to dedicate ourselves fully to innovating within our Cloud-centric networking platform."

Hipp becomes Cataleya's chairman and CEO and will oversee its global operations. The company will maintain its Silicon Valley-based R&D facilities and headquarters in Singapore while expanding its operations in Pune, India.

In the coming months, Cataleya plans to make announcements around features and functionalities related to NFV, cloud and UCaaS (Unified Communications as a Service) in addition to its machine learning-based fraud identification and mitigation capabilities.

Kenyan authority denies plans to split M-PESA from Safaricom

Kenya's information and communications minister has rejected recommendations from a report commissioned by the local regulator that says Safaricom and M-PESA should be separated.

In a study carried out on behalf of the Communications Authority of Kenya (CA), consultancy firm Analysys Mason looks at the degree of competition and its effectiveness in various telecoms markets in the country. While the CA says it plans to release the findings of Analysys Mason's *Dominant Market Power and Regulated Services* study in May, some news outlets claim they have already seen it.

In late February, Kenya's *Daily Nation* reported that among the recommendations is a "functional separation" of Safaricom's mobile money service from its core telecoms business. According to the report, this would require the two to have separate offices and staff working below board level, as well as distinct branding, accounting and systems for business

operations, support and management information. It added that the report fell short of splitting M-PESA and Safaricom into different legal entities.

Joe Mucheru, cabinet secretary in Kenya's Ministry of Information and Communications, believes the proposals are detrimental to investors and innovators. "You cannot begin to punish companies for their innovativeness," he told journalists. "There is dominance in voice, which is a big area, according to the report. Parliament also wants to separate mobile money from the telecommunications and data business. We are having discussions with telecommunication operators in the country to determine how to manage dominance."

In mid-March, the CA issued a press statement which said that it "has no intention of splitting the business of market players in the telecommunications sub-sector, or take such drastic actions that create disruptions that may destabilise dominant market players".

Board chairman Ngene Gituku confirmed that the CA's aim is to undertake "modest" regularity measures that are focused on the progress of the sector. He added that Analysis Mason's report will be released once the "required processes as stipulated in the constitution, ICT sector law and the Fair Competition and Equality Treatment as well as the Tariffs Regulations have been concluded".

The CA also pointed out that while it does not regard dominance in any market segment as an offence, it is the "abuse and the potential of abuse of dominance" that must be regulated. Its statement said: "Uncompetitiveness in the sector has the potential to compromise consumer welfare in terms of limited access to services, poor quality of service, high tariffs and limited choice, if it is not regulated."

Abuse of dominance could also lead to barriers to entry into the market and ultimately result in market failure."

Tigo and Airtel confirm merger in Ghana

As reported in our last issue, Millicom and Airtel have now agreed to combine their operations in Ghana. The financial terms have not been disclosed, but each company will have equal ownership and governance rights in the merged entity.

It's claimed the combination of Millicom's Tigo in Ghana with Airtel's local subsidiary will cover more than 80 per cent of the population with high speed data, providing the widest 3G coverage across the country. It will have revenues of just under USD300m and a 25.93 per cent market share, making it Ghana's second-biggest mobile voice operator.

Millicom and Airtel expect the integration of their networks to provide a "major boost" for customers in both rural and urban network coverage. They add that their amalgamated fibre footprint and increased data centres will also give enterprise customers access to a diverse portfolio of "world class" solutions. Mobile financial services will also be enhanced with integrated agent networks and platforms.

"The combination of Tigo and Airtel will create an operator that will be able to offer Ghanaian consumers and businesses a state-of-the-art network with high-speed mobile data coverage," says Millicom Africa EVP Mohamed Dabbour. "This transaction underlines confidence in the Ghanaian economy, and provides the opportunity to develop nationwide digital infrastructure and services."

The merger is subject to obtaining approvals from the relevant authorities in Ghana and the satisfaction of customary closing conditions.

NEW APPOINTMENTS

| Date | Name | New employer | New position | Previous employer | Previous position |
|---------|-----------------|------------------|--|-------------------|--|
| 24/2/17 | Steve Collar | SES | Executive committee member | - | Has been appointed in his capacity as O3b CEO. |
| 28/2/17 | Samer Abu Ltaif | Microsoft | President MEA | Microsoft Gulf | Regional GM |
| 7/3/17 | Godfrey Motsa | MTN South Africa | CEO | MTN Group | VP of SEA region |
| 7/3/17 | Mteto Nyati | - | - | MTN South Africa | CEO – steps down |
| 7/3/17 | Karl Toriola | MTN Group | Interim VP of SEA region | MTN Group | Toriola remains VP of WECA region & takes on role of VP of SEA region until a successor to Motsa is found. |
| 28/2/17 | Ali Faramawy | Microsoft | Head of Emerging Markets Digital Transformation Organisation | Microsoft | Corporate VP |
| 13/3/17 | Béatrice Beau | Eutelsat | EVp, global broadband services | Nc+ | Member of supervisory board |
| 20/3/17 | Ilan Tevet | RAD | VP of marketing & business development | RAD | Head of service provider line of business |

Cataleya launches virtualised session border controller

Cataleya has launched a virtualised software version of its session border controller. The Singapore-based vendor says *vOrchid One* provides all of the

MANUFACTURER: Cataleya

PRODUCT: *vOrchid One*

MORE INFORMATION:
www.cataleya.com

functionality of the hardware version of its *Orchid One* appliance (*pictured*), combining Big Data, real-time network analytics and machine learning to guarantee IP network performance.

vOrchid One is designed to deliver end-to-end visibility into network performance from transport to application layers. It's claimed service providers benefit from "comprehensive" visibility via near real-time and trending analytics reporting.

Cataleya says the platform enables users to deliver up to 2,250 concurrent sessions per core with a QoS analysis engine that allows the system to detect and predict voice performance. It offers full WebRTC to SIP interoperability as well as support for VoWiFi.

The firm adds that the software's integrated intelligent firewall and built-in fraud management services enables service providers to protect against voice fraud.



vOrchid One works with *vCenter* for VMware, Openstack for KVM, and is said to support multiple API standards and protocols.

According to Cataleya, the platform enables operators of all sizes to deploy intelligent networks. It reckons the platform delivers an immediate competitive advantage with faster monetisation of intelligent networks and the ability to deliver higher QoS and QoE for customers.

Small cell radio platform aims to be alternative to SDR

ip.access has come up with a new band- and RAT-flexible small cell designed specifically for the needs of specialist integrators.

MANUFACTURER:
ip.access

PRODUCT: *S60z*

MORE INFORMATION:
www.ipaccess.com

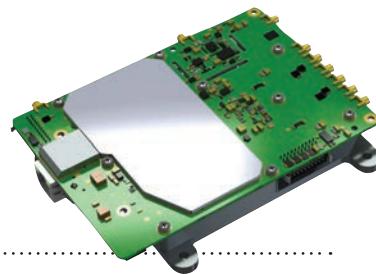
Despite the proliferation of software defined radio hardware, ip.access believes integrators struggle with inherent performance and reliability, as well as the need for extensive integration of the software necessary to run the device, the components for which often have to be sourced from multiple vendors.

In contrast, the firm claims its new *S60z* provides integrators with a complete 'cellular engine' that offers a carrier-proven alternative to SDR

approaches. By combining the new hardware platform with its "operator-proven" UMTS and LTE software stacks, ip.access says the *S60z* removes the software integration burden (while still offering low-level access), and enables integrators to achieve the RAT and band flexibility they need.

The *S60z* platform has been designed to support all UMTS and LTE bands (both FDD and TDD) in frequencies ranging from 500MHz to 3.6GHz.

It also supports ip.access' *SUMO* multi-operator technology which is said to further reduce the capex challenges in cost-sensitive deployments such as rural networks.



High capacity 24GHz point-to-point link from Proxim

Proxim Wireless has introduced a high capacity, 24GHz, point-to-point (PTP) radio. It is license-exempt and said to be ideal for providing a trunking backbone for the firm's 5GHz portfolio.



While 6, 11, 15, 18 or 23GHz have long been used as backbones for lower capacity point-to-multipoint base stations, Proxim believes this approach often results in delays and extra cost

MANUFACTURER:
Proxim Wireless

PRODUCT: *Tsunami GX-824*

MORE INFORMATION:
www.proxim.com

as licensing approval is required. Because its new *Tsunami GX-824* operates in a license-exempt band similar to 5GHz, the vendor says customers and carriers can proceed with their deployments without any regulatory delay.

It's claimed the *GX-824* delivers almost 1Gbps in a full duplex system, totalling just under 2Gbps of actual throughput. Proxim says moving almost 2Gbps of backbone capacity to the license-exempt 24GHz band frees-up 5GHz spectrum for last-mile access links using some of its other *Tsunami* products.

The *GX-824* is said to be rugged and offers support for either GbE or fibre as the interface. It is managed by the vendor's *ProximVision Advanced* hybrid controller.

Scalable LTE test solution to help operators prepare for 5G

IxLoad LTE XAir2 has been designed to emulate mobile subscribers at scale in order to validate the performance and functionality of 4.5G- (LTE-A Pro) and 5G-related products and services.

Developed by network testing, visibility and security specialist Ixia, the new RAN test product combines scale and performance testing with realistic subscriber emulation and QoE validation. It can also be used for testing LTE on unlicensed spectrum.

The vendor says *IxLoad LTE XAir2* facilitates the realistic emulation of massive amounts of subscribers with multi-Gigabit OTT traffic via the internet, to help customers' future-proof their networks and devices.

The platform features Ixia's *XAir2* load module. It claims this provides LTE user equipment emulation that enables a "powerful" eNodeB Layer 1 to 7 test solution. By using its *IxLoad*

test system's real-world subscriber modelling, Ixia says users do not need to be protocol experts to develop test realism. From a single tool, it says they can perform capacity tests, detail a cell throughput, measure voice and video quality, and model a wide variety of mobility scenarios.

The firm adds that 5G presents unique technical challenges in terms of Wi-Fi and LTE-unlicensed spectrum. It says *IxLoad LTE XAir2* has been developed to address complex scenarios involving features like Carrier Aggregation, 4x4 MIMO and 256 QAM.

MANUFACTURER: Ixia

PRODUCT: *IxLoad LTE XAir2*

MORE INFORMATION:
www.ixia.com

New service targets SIM-swap fraud

Myriad Connect has launched a service to counter the growing threat of 'SIM-swap' fraud.

When a customer lets their operator know that their SIM card is damaged, lost or stolen, the current module is deactivated and a new one is issued.

MANUFACTURER:
Myriad Connect

PRODUCT: Anti SIM-Swap fraud service

MORE INFORMATION:
connect.myriadgroup.com

But according to Myriad, criminal groups and insiders at financial organisations and network operators work together to gather personal data and then pose as contract owners to secure a new SIM. Once activated by the fraudster, he or she is able to access bank accounts and other sensitive data authenticated through the SIM.

The threat from SIM-swap is said to be the greatest in regions where mobile banking penetration is highest. The firm believes its new service can help reduce this by providing a real-time check on the card. It adds that this cannot be



tampered with via compromised third parties within an operator or bank.

The service uses SSD authentication and no persistent data is held with any third party. Myriad reckons this provides a more secure service than current two factor authentication services which, for example, use SMS to store data and are therefore vulnerable to being intercepted.

It adds that a clear audit trail is also established, where the user's identity is verified by a party external to the transaction. The company reckons this results in a technology that will "greatly enhance" the security of transactions vulnerable to SIM-swap fraud.

Satellite QoE 'revolutionised' with dynamic network access platform

Comtech EF Data has unveiled its *Heights Dynamic Network Access (H-DNA)* technology with the claim that it offers a "step change" in satellite network performance as well as a vehicle to provide "exceptional" end user QoE.

H-DNA is designed for the return

MANUFACTURER:
Comtech EF Data

PRODUCT: Heights Dynamic Network Access

MORE INFORMATION:
www.comtechefdata.com

links in Comtech's *Heights Networking Platform*. The firm says it instantly assigns capacity based on network-wide demand and intelligently utilises total network bandwidth at all times.

It also allocates all available bandwidth per user demand and configured SLAs, ensuring that all capacity is used at all times. Comtech says H-DNA can provide sub-second reaction time to changing user demand and link conditions without introducing the excessive jitter and latency normally associated with any comparable technology.



The technology leverages the *VersaFEC-2* high-performance LDPC waveform, as recently announced as an option for Comtech's *CDM-570A/L-IP* satellite modems (pictured).

It also uses ACM, dynamic power control, IP optimisation, low framing overhead, multi-tier QoS and WAN optimisation. As a result, Comtech claims H-DNA offers the "most robust reliability" and delivers the most user IP bits per Hertz compared to any other solution in its class.

System could help reduce rising capex

TEOCO's *SMART Capacity Management Solution* aims to help CSPs optimise current network capacity and plan ideal capex investments for traffic growth. The analytics, assurance and optimisation specialist claims

MANUFACTURER: TEOCO

PRODUCT: SMART Capacity Management Solution

MORE INFORMATION:
www.teoco.com

initial deployments of its solution with customers have demonstrated the potential of reducing upgrade spend by 10 per cent or more.

TEOCO says the platform does this by identifying the four most common areas of capex waste as it relates to capacity. These include: delays in re-purposing older infrastructure; failure to promptly re-farm spectrum; leaving 'default' settings across sites; and ineffective management of software licenses.

SMART is said to offer a way to plug capex leakage in these four areas, using

network event data in combination with subscriber behaviour.

As data demand grows exponentially and LTE and VoLTE networks are increasingly rolled out, TEOCO says capacity management will be more continuous in nature with the demand on 'what-ifs' and 'next best actions'.

The firm reckons its data and algorithm driven SMART solution can evaluate network traffic and its provisioning while identify potential cost savings through 'what-if' models centred around customer behaviour.

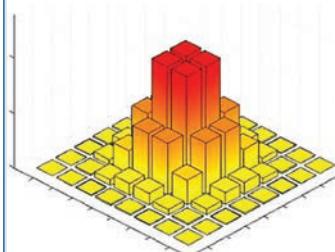
ALSO LOOK OUT FOR

Optical DSP boosts fibre capacity

Nokia and Facebook have tested new optical digital signal processing technologies over a live 5,500km transatlantic submarine link. It's claimed the test showed an increase of almost 2.5x more capacity than the stated optical transmission capacity of the system.

The partners trialled new 'probabilistic constellation shaping' (PCS) technology from Bell Labs. This uses 'shaped' QAM formats to flexibly adjust transmission capacity to near the physical limits of a given fibre link. In the first experiment for an installed submarine link, Nokia and Facebook used PCS based on 64 QAM, combined with digital non-linearity compensation and low-linewidth lasers. They say they achieved a record spectral efficiency of 7.46bps per Hz, indicating the potential to upgrade the cable to 32Tbps per fibre in the future.

Nokia adds that tests based on its commercially available *Photonic Service Engine 2* validated the successful transmission of 8 QAM wavelengths running at 200Gbps and 16 QAM wavelengths running at 250 Gbps. In addition, the firm says 200G 8 QAM wavelengths supported a spectral efficiency of 4bps per Hz while exhibiting sufficient performance margin to support reliable, commercial operation.



This graphic shows a genuine 'probabilistically shaped' 64 QAM constellation, with the height of the bars representing the 'probability' of transmitting a given constellation point. Nokia draws attention to how it is 'shaped' - in existing hardware it would look like a flat square with all points equally probable.



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LIQUID
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A fibre future?

Fibre infrastructure has been slow to expand past coastal regions. DAVE HOWELL wonders whether it can truly deliver universal broadband access across the continent.

As the African telecoms sector approaches one billion subscribers, the question many across the industry are asking is whether consumers across the continent are benefiting from the promised broadband speeds and consequential services that were promised.

Indeed, Ovum's Broadband Development Index (BDI), which measures how different countries and regions are adopting high-speed broadband networks, gave Africa's fixed broadband status a score of 106 at the end of 2015 – the lowest among world regions.

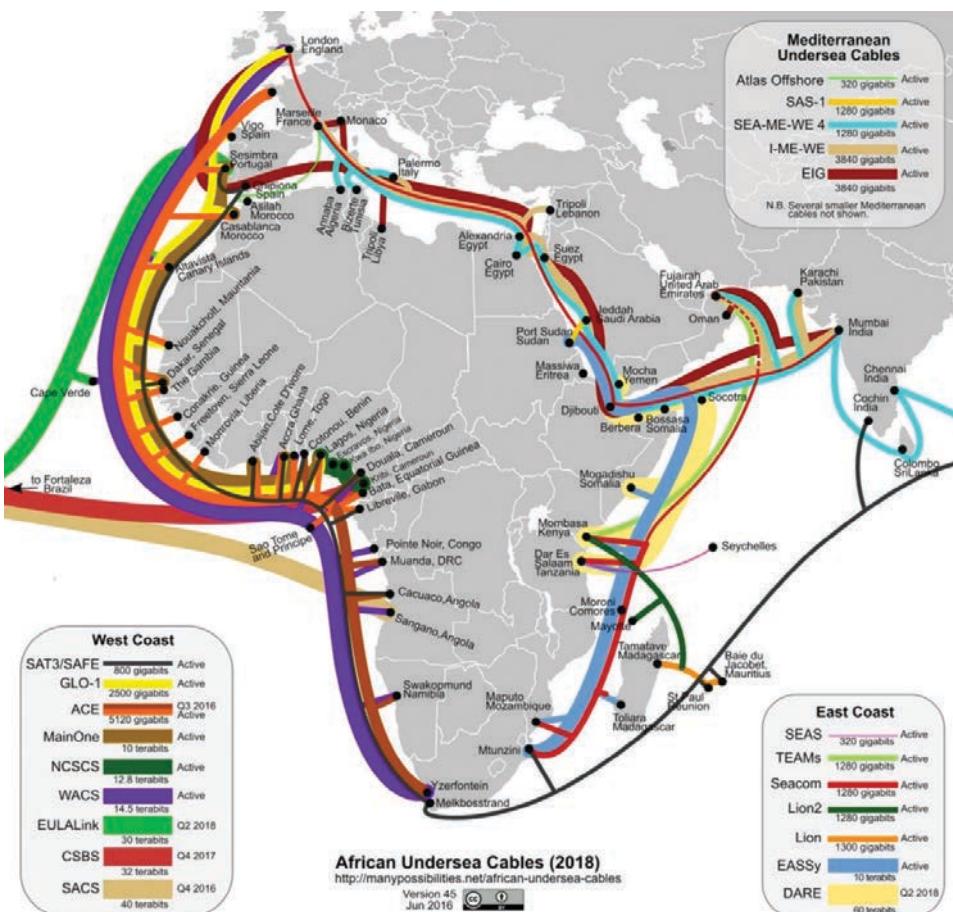
In addition, a focus on the 'low hanging fruit' has largely lead to a patchy rollout of fibre. Even in some wealthier areas and within major conurbations, several competing fibre services can be seen, but the question remains whether they are delivering the services consumers demand at a price they can afford.

While the level of submarine cable availability has continued to expand, this has not in many cases translated into more service availability. Bottlenecks continue with a lack of affordable cable and therefore affordable fibre backbone.

The Internet Society points out that cross-border infrastructure in the region remains the least developed element, but adds that encouraging developments are emerging.

For example, it says work has started on an East African Backhaul System to serve Kenya, Tanzania, Uganda, Rwanda, and Burundi. (EABS is a joint venture between operators from the five East African Community Countries and involves around 30 other MNOs in Eastern and Southern Africa.) Also, the society says that the landlocked countries of East Africa (Uganda, Rwanda and Burundi) have already established backbones that give them access to international bandwidth via submarine fibre at almost the same price as the coastal countries.

"And now, this cross-border terrestrial infrastructure is being further extended to the DRC, Ethiopia, and Somalia, with creation of regional backhaul rings to increase reliability also under way," states the organisation.



The many submarine cable systems that now surround Africa are used to connect countries and continents to the internet. But more terrestrial fibre is needed to extend this connectivity to landlocked countries or urban centres in countries without submarine cable access.

SOURCE: MANYPOSSIBILITIES.NET

António Nunes, CEO of Angola Cables, reckons African connectivity is getting better every year with a lot of projects in development across the region. His company is busy with its own landmark deployment, the South Atlantic Cable System (SACS), which will be the first submarine fibre in the southern hemisphere to connect Africa and Latin America.

But Nunes agrees that there are still hurdles to overcome: "One of the biggest challenges in Africa is infrastructure construction. Power also remains one of the big problems for African development."

Even with the eventual availability of backbone, delivering fibre over the last mile to consumers outside of urban areas will continue

to be a challenge. Unlike other developing regions, Africa's fibre network delivery has become fragmented. The main carriers have development plans but these have been slow to gather momentum. This has meant other players have entered the market, with some commentators likening this to a fibre land grab.

But Nunes points out that there is space in the market for various competitors. "Big telecoms cannot compete with small ones in some areas, since the demand is too low for them. In other areas, where the business opportunities are better, it makes sense for the big players to jump in."

He says the model created in Angola was to give an opportunity for new players to enter the market. "We are an example of it. Angola Cables is providing the international connectivity and the other operators are building out the fibre and developing the mobile networks all over the country. Working together gives us the ability to deliver specific services according to customers' needs and specifications."

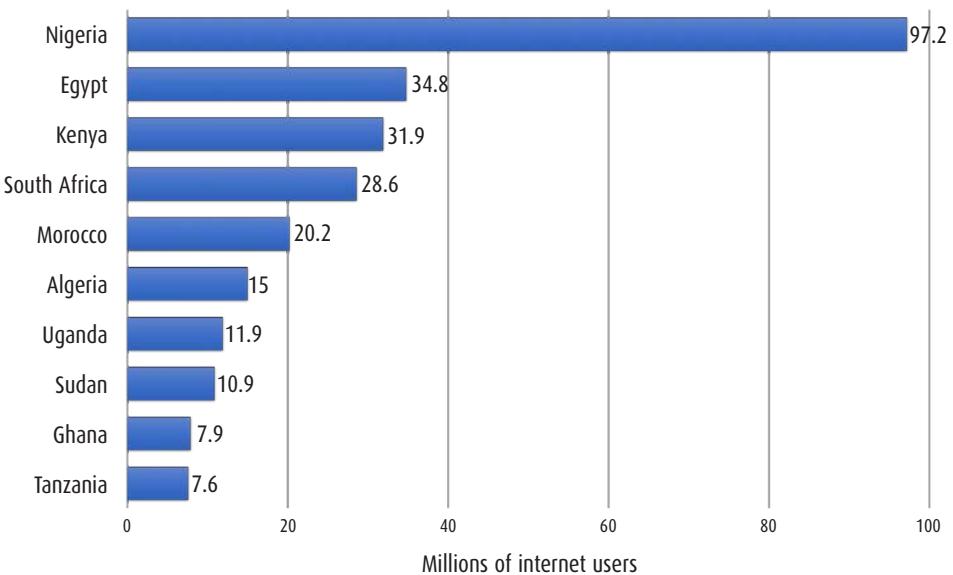
That all sounds plausible enough. But across the continent, prices have also been volatile, as smaller players look to deliver the connections that consumers, particularly in urban areas, are looking for to access more online services at reasonable prices. And then there are the bigger players who can create difficulties for some fibre delivery companies that want to move forward with their plans. Dan Zajicek, CEO of Gilat Satcom which provides satellite and fibre-based connectivity across Africa, says: "The monopoly operators who are charging unreasonable prices for using their networks are an obstacle. There are also inconsistent rules from the regulatory bodies which can slow down infrastructure rollouts."

"On the cusp of a boom"

Suveer Ramdhani, chief development officer at SEACOM, believes innovation is often "stifled" in large organisations and, as a result, many "theorised for too long" about the viability of



"Big telecoms cannot compete with small ones in some areas, since the demand is too low for them. In other areas, where the business opportunities are better, it makes sense for the big players to jump in."



Estimated internet users in Africa as at the end of June 2016. An increase in access will slowly expand across the continent as costs reduce.

SOURCE: INTERNET WORLD STATS

fibre deployments rather than getting started. He says: "Entrepreneurial broadband suppliers followed a try-it-and-see approach. It paid off. They learnt how to deploy cost-effectively and they learnt about consumer spending behaviour, refining their business cases over time."

Ramdhani reckons this learning has now become pervasive, especially with some of the startups being bought out by larger players. "The reservoir of content online, especially video, means there is tremendous consumer demand for high-speed fibre and an excellent business case. There is also a large construction contractor base with experience in fibre deployments, so the engineering risk is mitigated. As such, we are on the cusp of a boom."

Various organisation now laying fibre to what they believe is a ready and waiting consumer base for services that require fibre's delivery speeds.

For example in Uganda, the Oxfam-lead *Internet Now!* project aims to connect 100 rural villages with fibre. Further east, Kenya Power has launched a year-long pilot project with Safaricom which aims to connect 12,000 homes in Nairobi with a fibre-based internet network. And in Rwanda, Liquid Telecom has invested more than USD35m in rolling out the country's first FTTH network to homes and businesses in Kigali, offering speeds of up to 100Mbps.

Liquid Telecom is arguably the continent's biggest terrestrial fibre network provider and now looks set to get even bigger. Late last year, the company was given permission for the ZAR6.55bn buyout of South African communications network operator Neotel. Liquid's partner, South African investment group Royal Bafokeng Holdings, will own a 30 per cent stake in the acquisition once the deal closes which is expected during the first quarter of 2017.

By merging Neotel's network assets and service platforms with its own, Liquid says it will have "unrivalled" reach across Eastern, Central and Southern Africa, enabling it to offer access via a single connection over 40,000km of cross-border,

national and metro fibre networks in 12 countries. Speaking at the time, Liquid Telecom group CEO Nic Rudnick said: "The combined companies will create an unparalleled footprint covering key markets across the continent, giving Liquid Telecom a significant competitive advantage through the breadth, depth and flexibility of our consolidated networks. We will be able to offer African companies the highest quality and most extensive connectivity on the continent."

Connecting consumers

The Internet Society says that as Africa's infrastructure and user base grows, the need to coordinate and manage internet growth and development becomes increasingly important.

"Several institutions and processes have emerged over the last 15 years, each playing a role in strengthening Africa's internet ecosystem," says the society. "Africa has embraced the multi-stakeholder model of internet governance which enables policymakers to draw from the expertise of the relevant stakeholders to develop sustainable public policy approaches that can meet the challenges of the digital age."

These approaches are clearly going to be key moving forward as broadband access reaches more people across the continent. Ovum predicts that the number of fibre broadband subscribers will increase from 400,000 at the end of 2016 to two million in 2021. It forecasts that fibre broadband subscriptions will represent 10 per cent of fixed broadband usage in 2021, compared to three per cent in 2010 (other fixed broadband technologies include ADSL, satellite, etc.).

In comparison, mobile broadband subscriptions will increase from 310 million at the end of 2016 to 975 million in 2021. But that huge forecast for the number of mobile broadband users will depend on the continued development of the backbone infrastructure which will be required.

Mike Last, CMO and VP of international business development with WIOCC, says: "Reach and accessibility will continue to increase as further investment delivers ever more terrestrial fibre and many more metro networks in major urban centres."

"Capacity utilisation will also increase, driven by ever greater uptake of demanding consumer and business applications. And with greater dependence will come a greater emphasis on service availability, rather than simply price. This will inevitably result in suppliers needing to invest more heavily in network diversity to protect their customers from downtime."

But the Internet Society warns that cost will remain a pressure point to the expansion of online services. It says users in Africa have to pay many times more for internet access than their peers in developed countries. "For instance, some studies show that bandwidth costs for broadband in sub-Saharan Africa are 30-40 times those in the US. [Given] the difference in earnings, what takes perhaps 15 per cent of US gross national income per capita will take over 800 per cent of sub-Saharan GNI per capita."

Citing Ethiopia as an example in Africa, the society says 60.4 per cent of the country's average GDP per capita is required for broadband access, while it is 31 per cent in Uganda, and 15.7 and 7.4 per cent respectively in Kenya and Sudan. South Africa fares better at 6.1 per cent – but that's still considerably more than the less than two per cent in most of Europe.

Angola Cables' Nunes agrees that price remains the biggest challenge: "The African market does not support the prices available for mobile phones or PCs in the world market. A new solution of devices needs to develop, so that this massive market of about one billion people can have access to the broadband services. We have to change the traffic profile of the African customer. We also need to provide access to the local internet exchange in order to reduce prices and increase the quality of service."

Nunes goes on to say that the continent's networks should exchange more African traffic in Africa. "Today, we are exchanging our traffic

in Europe. Local peering benefits local networks and local communities. This growth is important for the future of Africa's digital growth and the reduction of the market pressure. In 2015, we launched in Angola the fastest-growing exchange points in Africa. Called *Angonix*, this exchange point welcomes any kind of networks and aims to keep local traffic in order to minimise latency and to ensure better Internet quality."

A patchwork of operators and technologies

All the main fibre operators remain bullish about their plans for the future rollout of infrastructure, and there is little doubt that they will expand their platforms. However, as mentioned above, the large players have been joined by smaller and often more nimble operators that have seen lucrative gaps in the market that are not yet being filled.

Fast broadband access across Africa therefore remains a patchwork of operators and technologies. For instance, Gilat Satcom's Zajicek points out that the expected reduction in demand for satellite services as fibre expanded has not materialised. Indeed, satellite services are on an upward trajectory, as ISPs use several connection channels to deliver their services.

SEACOM's Ramdhani supports this view: "Mobile services create demand for fibre since mobile towers need fibre to work. Once the fibre is deployed, it becomes cheaper to connect homes and businesses in the vicinity of the tower. Satellite is expensive and fibre doesn't reach every corner of Africa – thus satellite is useful for remote parts of the continent where there is no infrastructure. But satellite is also often used to prove the financial viability of markets to justify the capital expense of fibre deployment."

Nunes adds to this by saying that Africa is a big continent and many of its rural areas do not have big data demands. Satellite connectivity is therefore still a backbone solution in such regions.

Andrew Rugege, ITU regional director for Africa, says that submarine communications cables are used to connect countries and continents to the internet, and terrestrial

Suveer Ramdhani,
Chief development officer,
SEACOM



"Satellite is also often used to prove the financial viability of markets to justify the capital expense of fibre deployment."

fibre optic cables are then used to extend this connectivity to landlocked countries or urban centres in a country without submarine cable access. But he adds that while in most of the world a large number of such cables exists, often mounting to robust internet backbones, the insufficient number of high-speed cables poses a great problem for most African countries

"The deployment of both submarine cables and terrestrial fibre extensions is considered an important step to economic growth and development for many African countries. It is also a great advantage to successful implementation of the SDGs," says Rugege.

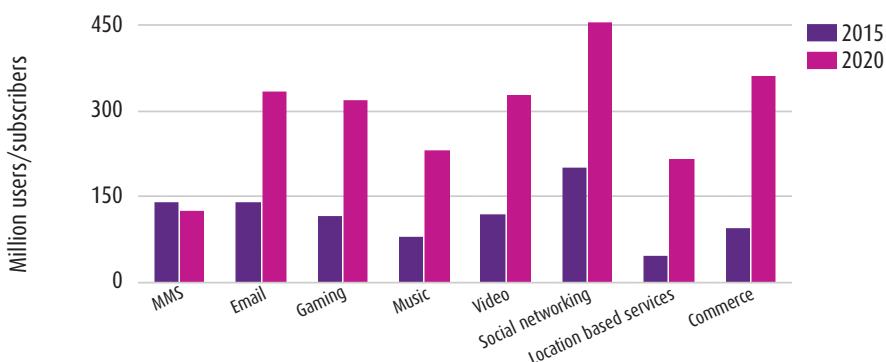
The SDGs – or Sustainable Development Goals – replaced the UN's Millennium Development Goals in 2015, and universal access to broadband plays a key part in helping to achieve several of the 17 global targets that member states have agreed to achieve by 2030.

Clearly then, Africa cannot depend purely on fibre for increasing broadband access. And the current reach of fibre across the continent isn't comprehensive enough to allow costs to reduce. Add in mobile services and satellite to the mix, plus a lack of critical mass with internet access demand, and the result is a strain on the available capital investments that can be made.

Once online services are in demand, the provision of fibre will expand to meet this. The main players in the marketplace will continue to invest, but it is the smaller concerns where more innovation and service provision is likely to appear.

For the African consumer, choice of access supplier, the performance of that access and, of course, its cost, are all at the moment slightly out of focus. Over the next few years this will change but for now, getting fibre inland still remains a challenge.

Nonetheless, there is cause for optimism. "I think that provision of fibre on the continent will keep growing," says Nunes. "The price for connectivity will drop and the demand will grow. Connectivity and access to broadband in the future will be a commodity – we are already observing that in Europe and USA. The African population is very young and with a growing appetite for digital content." ■



Growth in smart devices, mobile video and 4G networks will drive an eight-fold increase in global mobile data traffic by 2020, predicts Cisco. The above chart shows the forecasted adoption of mobile services in the Middle East and Africa from 2015 to 2020.

SOURCE: CISCO VNI SERVICE ADOPTION FORECAST, 2016

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No longer lost for words?

How mobile operators and network service providers are helping to boost education across the continent.

MTN's *21 Days of Yello Care* is its annual employee volunteer programme that takes place during three weeks in June. 2016 marked the tenth year of the initiative which had the theme of 'Investing in Education for All'. 10,450 volunteers across the company's 22 country footprint established 56 libraries and eight ICT labs, built 10 classrooms, and created four online learning platforms. MTN said more than 140,000 people in Africa and the Middle East are now benefiting from the initiatives.

Each year, the company recognises the operations that delivered the most impactful *Yello Care* projects with a prize of USD100,000 to further invest in community projects. The winner for 2016 was MTN Côte d'Ivoire for the work its staff carried out at the Marchoux Elementary School. Located around a kilometre away from the Marchoux Village in the country's Bingerville municipality, the school is in an area inhabited primarily by people suffering from leprosy, and those from underprivileged backgrounds. In recent years, the area has seen an influx of displaced persons from Abidjan, which has led to a substantial population increase. As such, the school has been unable to meet the increasing enrolment demand due to limited capacity, and many children were placed on waiting lists with no certainty when they would receive access.

Last June, 663 staff from MTN Côte d'Ivoire, together with help from the government, partners and members of the community, built seven classrooms to accommodate an additional 350

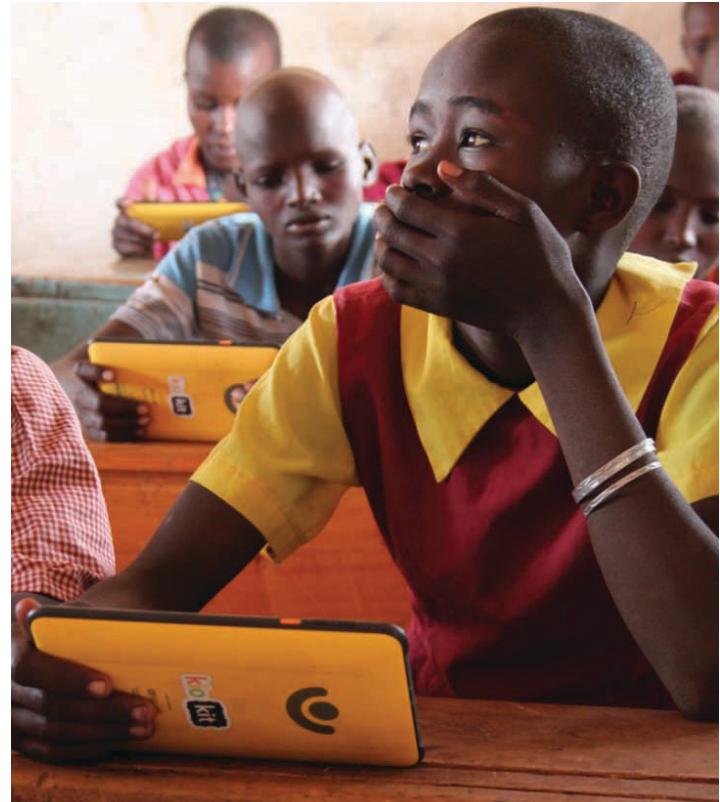


Last year, MTN says 10,450 volunteers across its footprint in Africa and the Middle East established educational facilities such as classrooms and ICT labs that will benefit more than 140,000 people.

children and significantly improve learning conditions at the school.

Another one of the many projects undertaken by MTN employees during *Yello Care* 2016 was in Cameroon. Here, the company has built classrooms at three primary schools, enabling an additional 600 learners to be accommodated per year. It has also helped the government equip ten schools with PCs, workstations, servers, printers, projectors and internet connectivity, enabling remote access to tutorials. MTN said its partnership with MINEDUB (Ministère de l'Education de Base – Ministry of Basic Education) has seen primary schools receive 54 extra classrooms and 16 portable water points.

The operator has now established nearly



Connected via a VSAT supplied by Liquid Telecom, BRCK's *Kio Tablet* has transformed education for both teachers and children in the remote Kenyan village of Kiltamany.

40 multimedia centres in schools since 2005, bringing 60,000 students and 4,000 teachers online across the country. Similar centres have also been rolled out in Benin, Ghana, Côte d'Ivoire and Congo.

Other projects in 2016 saw mobile libraries bridging Cameroon's digital divide, and the first of eight libraries planned for the Congo was opened. Computer labs have been set up for special needs learners in South Africa, while MTN Sudan has been installing interactive whiteboards and training teachers on how to use them in the classroom. And in Swaziland, the operator's *Educare* programme has been broadcasting maths and science lessons over the airwaves – content is delivered via social media and learners can interact with teachers in real time using *WhatsApp* or *Facebook*. MTN said that the programme has been so successful that it's now going to be televised.

Digital school in a box

Vodafone is planning to provide free access to digital educational content as part of its *Instant Schools for Africa* initiative which will launch later this year.

Millions of young people in DRC, Ghana, Kenya, Lesotho, Mozambique, South Africa and Tanzania will be given free access to online learning materials developed in conjunction with local educational partners and experts, ministries of education, and Learning Equality. The latter is a US-based not-for-profit provider of open-source educational technology solutions which,



Each *Instant Classroom* is shipped in a durable and lockable storage box that weighs 52kg with its contents. Inside, is a laptop, 25 tablets pre-loaded with educational software, a projector, a speaker and a hotspot 3G modem. According to Vodafone, it takes just 20 minutes to set up.

according to its website, is led by people who “eat the digital divide for breakfast”.

Vodafone said *Instant Schools for Africa* is a long-term cumulative programme, and it plans to increase the initiative’s reach, scale and relevance over time. It will also encourage other major mobile operators in the countries involved to adopt a similar, non-commercial approach by giving them the technical specifications needed to extend the benefits of the programme to the largest possible number of beneficiaries.

Under the project, learners and teachers who are customers of Vodafone or its African subsidiaries will not incur any mobile data charges when accessing *Instant Schools for Africa*. They will simply need a data connection to the Vodafone network.

The online materials will be tailored, drawing on what’s described as a combination of the best openly licensed global and local educational resources to provide country-specific content. Vodafone adds that the content will also be optimised for simple, low-cost mobile devices with basic data connectivity (3G) and areas of low coverage/capacity.

In the meantime, the Vodafone Foundation’s *Instant Network School* programme continues to provide previously remote and isolated communities with access to a wealth of educational content and resources. The company believes this link to the outside world can be a “game changer” for education programmes in refugee camps, and will be critical for the long-term future of the children and communities that live there.

As part of the programme, Vodafone connects classes to the internet providing connectivity, power, tablet computers, mobile content and teacher training. There are 70 trained Vodafone employees who make up the *Instant Network* team. These volunteers remain on standby ready to deploy to set up the schools, and manage on-site introduction teacher training alongside the UNHCR.

The training is aimed at building ownership of the *Instant Network School* programme within the local community, and to ensure that the technology and solution respond to its needs.

One of the team’s latest deployments was at the beginning of September 2016 in the Mole and Boyabu refugee camps in remote Equateur Province. These camps host more than 50,000

refugees who fled civil war in neighbouring Central African Republic. Vodafone’s team installed three new *Instant Network* schools with the help of Vodacom Congo and the UNHCR.

When the team arrived, many people at the camps had never used the internet before. After four days of training, the teachers gave their first digital lesson – teaching the alphabet. Using the *Instant Classroom*, they can project the alphabet on to the screen, stream ABC song from YouTube, and use tablets to practice writing. The *Instant Classroom* is another Vodafone innovation. It’s described as a digital ‘school in a box’ and was created to bring tablet-based teaching to refugee camps and areas where electricity and internet connectivity are unreliable or non-existent.

Shipped in a robust, 52kg, lockable storage case, the *Instant Classroom* contains: 25 Android tablets with 10-inch screens for students; one 11-inch convertible Windows laptop/tablet (which also acts as a content server and AV source) for the teacher; 1000 lumen LED projector and 20W audio system; and a 3G Ethernet modem with integrated Wi-Fi hotspot/router and external antennas. According to Vodafone, it takes 20 minutes to set up the entire *Instant Classroom*. It adds that battery power is around 1.5 hours for the projector and around eight hours for the router/hotspot. A built-in system can be used to recharge all 25 tablets and the laptop simultaneously while they are in the case.

The bus that teaches ICT skills

Airtel Africa runs several CSR initiatives to support schools and help improve the quality and delivery of education to children in underprivileged communities. For example, under its flagship *Our School* programme, the company works closely with governments and has currently ‘adopted’ 38 primary schools in rural areas across its 15 country footprint. Airtel said its adopted schools presently cater to more than 18,000 children. The support it provides under the programme includes: infrastructural refurbishment of classrooms and furniture; provision of uniforms, books and teaching aids; and ICT and broadband connectivity.

In addition, the initiative also works towards

building community and employee engagement with the adopted schools. Airtel said the school calendar ensures there is enough opportunity for the community – as well as its own employees – to understand and be engaged with the programme by participating in activities undertaken by schools, such as cleanliness drives, tree plantations, etc.

Other programmes Airtel has been involved with include the *ICT For Schools Project*. Last September in Uganda, the company teamed-up with Huawei and the Kazo and Nasasira (KAN) Foundation to power 30 PCs in three schools. Set up by John Nasasira after he stepped down as Uganda’s ICT minister last year, the KAN Foundation seeks to address ICT issues in education, water and sanitation, and agricultural businesses. The 30 computers were supplied by Huawei and donated to Kashwa Primary School, Rwemikoma Secondary School and Karo Secondary School which are all in the Kiruhura District, western Uganda. The PCs will each receive 2GB of data from Airtel for a period of one year.

Further east across the border in Kenya, Airtel announced last September that it had connected five schools in the Nyanza region and two in the Rift region to the internet as part of another one of its flagship programmes, *Internet for Schools*. The initiative aims to enhance quality of learning in order to enable more pupils to have access to relevant educational information that is available online.

Meanwhile, for *Education Day* last August, representatives from Airtel Madagascar visited the *CoderBus*, a mobile platform for learning



John Nasasira, of the Kazo and Nasasira Foundation and Uganda’s former ICT minister, praises Huawei and Airtel for supporting e-learning in the country.



The *CoderBus* is a connected mobile platform that aims to guide women and children to learn about ICT. Nearly 500 children are said to have so far benefited from the project.

computer science. The *CoderBus* is a non-profit project and is backed by Madagascar's *Habaka* innovation hub. Its mission is to guide women and children to become passionate builders, not just consumers, of new technologies through hands-on learning of technical skills in a collaborative and social way. *CoderBus*' founders claim that nearly 500 children have benefited since they started up around a year ago, adding that this is just the beginning as the plan is to gradually increase this impact up to eight times.

Airtel said its visit to the *CoderBus* in Ivato, central Madagascar last August was an opportunity to support the enthusiasm of young Malagasy encoders, the local council and the Madagascar *CoderDojo* – a global volunteer-led community of free programming clubs for people aged between seven and 17. The grass roots organisation is made up of individual clubs ('*Dojos*') that act independently. Since 2015, when signing the partnership with Madagascar *CoderDojo*, Airtel has donated hardware, internet connections, phones and monthly communication credits to three clubs in Antananarivo and Fianarantsoa. It said nearly 500 young people have benefited from its ongoing support.

Liquid delivers internet to pupils at remote Kenyan school

For Liquid Telecom, internet access always has a "transformatory" effect in education. "Improving education is at the core of our own mission of facilitating the rise of Africa as an economic powerhouse," said Ben Roberts, CEO of Liquid Telecom Kenya.

For instance, the company has connected all 46 branches of Kenya's National Libraries to high speed internet so that more than 500,000 library members across Kenya have easy – and free – access to research materials, opportunities and information.

Another more recent deployment was for a school in the remote village of Kiltamany. According to Liquid Kiltamany is, in many ways, a typical rural Kenyan village surrounded by kilometres of dry, dusty barren land. It lies around 160km from the nearest town and is a seven hour drive from Nairobi. The men herd goats, the women make beaded necklaces, and there are few outside visitors.

There are around 170 children in the school divided into eight classes. But recruiting and keeping teachers is difficult. There were

usually only five teachers so the children were often behind in their studies compared to their contemporaries. In addition, there was a shortage of books, pens, papers and other essential items.

However, Kiltamany's fortunes changed when it was chosen by Kenyan technologist and entrepreneur Erik Hersman as an early recipient of his latest initiative: *Kio Kit*. This is a digital classroom in a box developed by BRCK Education which was co-founded by Hersman in 2014 and is said to be one of the first hardware startups in Africa.

Kio Kit comprises a rugged, battery-powered Wi-Fi router that can, according to its developers, "seamlessly" serve educational content to 40 tablets. Due to the demands of rural environments, and the fact that children are bound to drop and spill things on the tablets, the *Kio Tablet* was also designed to be hard-wearing, adaptable and highly functional. There is a single plug used to charge all the kit and one button to power up the entire system. As well as accessing information online, tablet users can also take advantage of a wealth of pre-loaded multimedia content including the local curriculum, games that stimulate critical thinking, and information focused on responsible citizenship.

However, Kiltamany is around 20km from the nearest base station and is only covered by a patchy and weak 2G signal. So Hersman asked Liquid to help provide connectivity. Although it is perhaps best known for its pan-African fibre network, Liquid also provides satellite connectivity across the continent. The company says it has "vast experience" in connecting remote rural locations which mostly share the same characteristics: unreliable or no power; poor roads; no local engineers; as well as dust and heat.

Liquid installed its most robust VSAT dish on a one-metre high pole. The firm says this offers upload and download speeds of 10Mbps. The antenna is wired to the BRCK Wi-Fi router while power is provided by a solar battery and generator set.

With almost zero interference, Liquid claims the tablets can be used up to 50 metres from the BRCK router which means people outside the classrooms can also use the network. Indeed parents, teachers, village elders and others are all encouraged to use the Wi-Fi network after school lessons have finished, and most of the villagers have accessed the internet, either by phone or tablet.

With satellite availability of more than 99

per cent, content can be constantly updated so children do not have to wait for new materials to come from the nearest town. Data about how the tablets are being used can be gathered by BRCK. This enables the company to constantly review online tests and interactive exercises in order to both monitor the children's progress and help it improve the content.

Kiltamany's five teachers all agree that their work has been made easier with the fast internet connectivity, and they have been able to widen their scope of teaching to match what is taught in urban schools. "We used to travel for about 20 kilometres to Archer's Post to update fresh educational materials into our kits," says teacher Elizabeth Leress. "But with the internet and solar infrastructure in place, we have reduced the cost and time we spent on the way."

Liquid trained a local man to manage and update the system although, to date, no connectivity problems have resulted. However, after the first week, a fence had to be built around the dish as goats were using it as a scratching post and misaligning it.

The operator concludes that the deployment has been a "textbook" example of how children can benefit from the internet. No longer are teachers the only sources of knowledge and information in the classroom. The world has got much bigger for both the children and adults of Kiltamany. ■



Liquid Telecom engineers install a VSAT dish on a one-metre high pole in the Kenyan village of Kiltamany.

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An ocean apart

NITIN MADHAVAN looks at the trends in mobile financial services and telecoms on both sides of the Indian Ocean and discovers similarities as well as marked differences.

The wireless communications markets in India and Africa have really advanced over the past couple of years, and we have seen operators launching new services as well as strengthening existing ones.

Whilst some areas in both regions still have low mobile penetration rates, their markets have evolved beyond the initial 'land grab' phase of service providers competing for licenses and rolling out the early networks. The more established operators are now looking at revenue improvements through increasing their services and making their offerings more competitive.

One of the most important services in this region is mobile money and money transfer, with the likes of *M-PESA* which was introduced in Africa in 2007, and Immediate Payment Services launched by the National Payments Corporation of India in 2010 (the NCPI is an umbrella organisation for all retail payment systems in India).

The mobile money markets on both sides of the Indian Ocean have now grown beyond initial micropayments and simple money transfers and, certainly in India, we are transitioning towards a largely cashless society.

The value of m-banking in Africa

The African focus now is on expanding the mobile money system and adding digitisation to improve efficiency – making previously manual processes more automated and relying more on systems, networks, processes and technology.

In many respects, mobile money is 'old news' to the African market – Safaricom has been championing mobile money and payments with *M-PESA* in Kenya for 10 years now. Whilst other countries like Uganda, Zambia and Zimbabwe are beginning to expand, Kenya and Safaricom remain leaders of the pack.

However, although 350 million of the world's unbanked adults live in sub-Saharan Africa, mobile financial services have not had the same level of success as Kenya elsewhere on the continent. Vodacom and MTN shut down their mobile money services in South Africa last year, and other countries have struggled. In South Africa's case, this is most likely because the country's banking system is already very sophisticated and around 80 per cent of the population have some type of formal bank account.

These figures are lower in Kenya. While formal inclusion for men in Kenya has risen steadily since 2006, formal inclusion for women leapt between 2009 and 2013 driven by the spread of MFS. This has lessened women's exclusive reliance on the use of informal services. Compared to men, however, women still have lower access to formal prudentially regulated services such as banks (35 per cent for women compared to 50 per cent for men).

Formal inclusion and exclusion also differ across regions within Kenya. Formal inclusion is more than 70 per cent in most parts of the country, but slightly lower in the western and coastal areas. The northern parts of the country continue to face higher levels of exclusion, up to about 52 per cent.

Going back to South Africa, getting a new license for MFS in the country is now difficult thanks to its formal regulatory framework. Mobile money proponents I have spoken to say the regime is now harder to navigate for new entrants. Compare that to India where a special dispensation for non-banks financial companies or e-money providers is available.

For example, Bharti Airtel has started its own bank, known as a 'payment bank'. These payment

banks generally get a quicker license owing to the capital investments and various other factors when compared to the process of gaining a full-fledged license to start a bank.

However, while this may make it more attractive for telecoms companies to become banks, with great power comes great responsibility. Furthermore, regulators in both India and Africa are getting tougher on the telcos. The public sector has become more involved, and operators on both sides of the ocean are beginning to find themselves facing huge fines for any money laundering or illicit activity conducted on their networks. Should they fall foul of fraudsters repeatedly, they run the risk of having their licenses revoked.

But for me, the positives of this transition towards less cash and a more 'mobile' payment society outweigh the risks. By taking money from paper to wireless, many of the previously unbanked populations in the rural communities of India and Africa will now be able to move and store funds more easily and safely than ever before.

The majority of the population whose transactions are monitored and protected are good, honest folk and this increased visibility in transactions, both domestic and across borders, will help the countries in which they operate to trade more freely with the West. In order to trade with the USA and EU, countries must be able to show that they are on top of any potential crime (money laundering) and terrorism threats within their borders. The data available to telcos makes them one of the best positioned to spot terrorism and crime and help law enforcement to stop these threats, enabling greater trust and better trading potential.

India's MFS drivers

India has recently completed a massive demonetisation drive following the abolition of its largest currency notes in a fight against unaccounted wealth and corruption. This initiative has been a boon for local e-payment providers. For example, mobile payments and commerce platform provider Paytm reported a three-times surge in

new users, adding more than 14 million new accounts in November alone. Meanwhile, Oxigen Wallet claims its daily average users increased by 167 per cent since demonetisation began.

The initiative has also presented an opportunity for telcos to open banks, offering competitive interest rates and allowing people to deposit cash and use their mobiles to make payments for everything from cabs to airline flights. This new opportunity gateway has encouraged new players into the market, but has also raised concerns in the fintech community about cybersecurity and account hacking.

Another key driver in mobile financial services (MFS) is serving the unbanked and underbanked. According to the World Bank, around two billion adults worldwide don't use formal financial services and more than 50 per cent of adults in the poorest households are unbanked.

The Indian market has around 75 per cent mobile penetration and 53.1 per cent financial inclusion, presenting a clear opportunity for MFS. As part of its *Global Telecoms Risk Management Survey 2016*, Neural polled 113 individuals at different levels in operators from every part of the world. The results, published in February 2016, revealed that compared to other regions, Central Asia (which includes India, Pakistan and Bangladesh) saw greater opportunities in the fields of allowing the unbanked to establish a credit history (25 per cent), and helping the World Bank's 'unbanked' initiative (17 per cent) (see graph below).

EY (Ernst & Young) Global Telecommunications leader Prashant Singhal also points out that there are three benefits for financial institutions promoting MFS: expansion of reach; decrease in capital expenditure due to lesser need for physical infrastructure; and lowering of transaction cost.

"The cost of mobile banking channels is significantly lesser compared to traditional channels," says Singhal. "For instance, a mobile banking transaction can be done at 10 to 15 per cent of the branch banking cost. The cost involved in financial infrastructure is also much less – USD400 for agent-enabled mobile banking as compared to USD250,000 for a traditional branch. Furthermore, for banks the cost to serve customers declines



Nitin Madhavan,
Regional business
development
manager,
Neural Technologies

by a staggering 96 per cent when moving from a branch infrastructure to a mobile platform."

In emerging economies, all this adds up to a very attractive prospect.

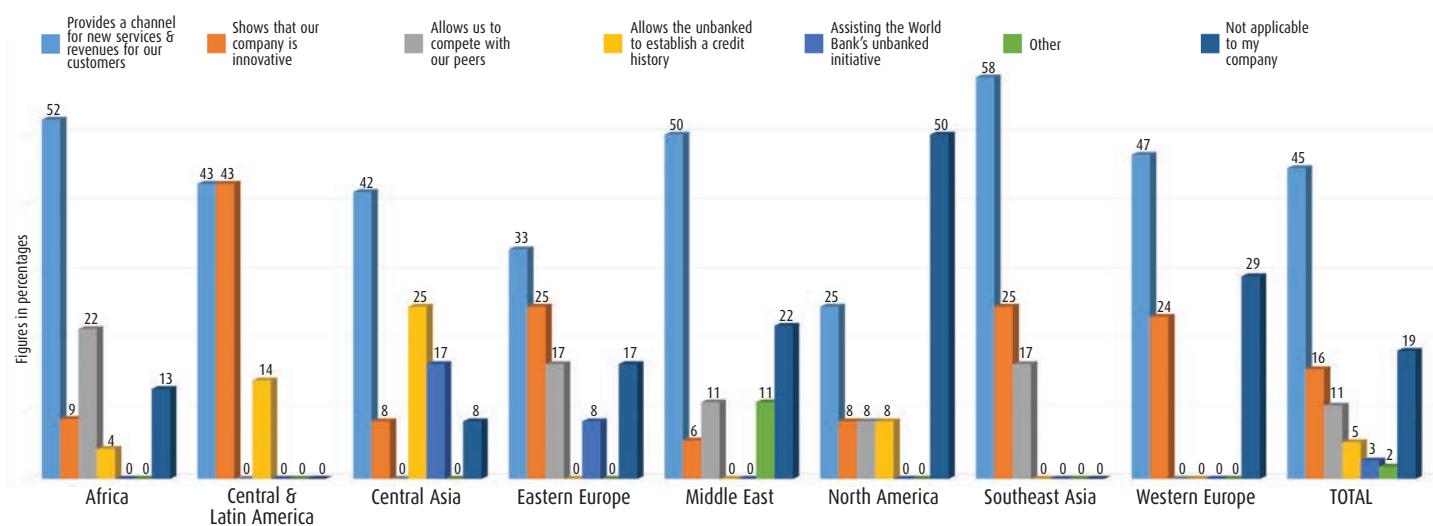
How IoT will affect the market

The growth of the Internet of Things (IoT) has the ability to take mobile money a stage further and integrate more areas of daily life for people within these two markets. Mobile money in emerging regions will be the catalyst for creating smart cities, transferring vast amounts of data over networks without requiring human-to-human or human-to-computer interaction.

Once these smart cities emerge, their inhabitants will start to see the full potential of the IoT, as interoperability will not be limited to banks and telecoms, but spread to utilities, municipal authorities and transportation systems.

Any company will be able to integrate into this payment and mobile money ecosystem and force the competition to innovate. Once an ecosystem is built, machines or devices will be able to determine the best rate and company for every aspect of daily life automatically, from electricity to groceries to healthcare.

As the IoT spreads its wings worldwide, the technological leaps made by India and Africa will set them in good stead to take advantage of the digital future. It will be interesting to see how these two regions measure up against the UK and USA in five years' time. My money would be on these currently 'emerging' markets overtaking the currently 'developed' world and setting the bar for them as we transition into the digital age. ■



Operators in Africa see MFS as a big opportunity to provide new services and revenues.

SOURCE: GLOBAL TELECOMS RISK MANAGEMENT SURVEY 2016, NEURAL TECHNOLOGIES

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Ishkhan Alexio Manyonde,
Senior Engagement Manager
Information & Analytics,
Unilever

EU approves 'digital dividend'

 The European Parliament has approved the use of 700MHz spectrum for mobile broadband. It will be allocated in 2020, while any European Union member states that need to delay (for certain technical or financial reasons) will be able to do so until 2022.

In a press announcement published in mid-March, the parliament said coordinating the release of the spectrum in EU member states is crucial to allow innovative mobile services, such as remote healthcare, smart cities and connected cars, to work across the union.

It added that member states



TCCA CEO Phil Kidner said his members will continue to lobby for reserved spectrum in the 700MHz band.

will ensure the availability for broadcasting services in the sub-700MHz band until 2030, and may also compensate end-users for any direct costs caused by migration or the reallocation of spectrum.

The TCCA, which represents the global critical communications industry, welcomed the news. It said binding technical provisions

were published in 2016 to establish harmonised technical conditions in the 700MHz band for public protection and disaster relief (PPDR) mobile broadband services.

With the European Parliament now having approved the use of the spectrum, the TCCA said EU members can now start preparing for the implementation of mobile broadband services for mission-critical communication applications.

However, the association's CEO Phil Kidner said his members will continue to lobby governments to reserve dedicated spectrum within the 700MHz band to prevent mission-

critical services having to compete with consumer services for bandwidth.

"France is currently the only member state that has allocated dedicated spectrum for PPDR in the 700MHz band," said Kidner. "We are following closely the progress of the Swedish PPDR stakeholders' recommendation to hold one of the three 700MHz allocations as a national asset for a future nationwide mission-critical mobile broadband network."

"There are also positive developments in Norway, where a report to the national regulator clearly recommends taking the needs of PPDR onboard in the licensing conditions."

Chile sees regions first NarrowBand IoT

 A water utility company in Chile has successfully tested a telemetry solution for residential water meters using NarrowBand IoT technology (NB-IoT).

The system used real data from meters installed with residential customers. It will enable them to know their exact daily water usage, and means that the unnamed water company will be able to bill for actual, rather than estimated, consumption. Telemetry will also

allow the supplier to detect leaks and unaccounted water flows.

The experimental deployment was led by Spanish telco Telefónica. It worked with Danish vendor Kamstrup, which provided the smart meters, and Huawei, which carried out the update to the NB-IoT network.

The pilot in Chile is claimed to be the first time NB-IoT technology has been used in Latin America. The partners plan to expand the project in the near future and include more

than 300 residential water meters by reusing the 700MHz LTE network.

NB-IoT offers low-power wide-area network (LPWAN) connectivity focused on adapting devices to the needs of the Internet of Things market. It is therefore said to enable increased battery life, appropriate use-specific cost, wide coverage and indoor penetration. At the same time, the technology aims to allow for great scalability and comprehensive security.

Wi-Fi optimised at botanic research institute

 The Leibniz Institute of Plant Genetics and Crop Plant Research (IPK) has optimised its Wi-Fi network using what's claimed to be a "unique" system.

IPK is a non-profit and internationally renowned botanic genome institution in Germany, and needed to provide comprehensive coverage and reliable connectivity for its researchers. To meet this objective, IPK upgraded its legacy Wi-Fi network to a solution based on the latest .11ac standard, and

used the *WHG* series WLAN gateway-controllers from wireless specialist 4ipnet. According to the Taiwan-based vendor, its controllers are "unique" because they integrate user authentication, role-based access policy enforcement, and centralised AP management into the same box.

Furthermore, 4ipnet says *WHG's Service Zone* feature allows a single gateway to simulate multiple independent virtual networks, each with their own user roles, access policies, and customised login pages.

With two *WHG405s* deployed, IPK is able to offer Wi-Fi service tailored for individual user groups. Guests are assigned to the first service zone and authenticated via the built-in local user-database with accounts generated using 4ipnet's *WTG* keypad-based ticket printer solution.

The second service zone is configured for visiting researchers. Here, users are authenticated by 802.1x directly with their home institution's 'eduroam' account. The third service zone, 'ipk', is exclusively reserved for the institute's employees.

4ipnet's *EAP757*, *EAP76*, and *OWL630* APs were deployed to accommodate the various research labs, lecture halls, libraries, guesthouses and outdoor facilities.

The Leibniz Institute's new Wi-Fi network features several AP from 4ipnet including the *OWL630* (inset).

Internet of the body

 Ingestible connected pills that enable wireless medical monitoring have been approved for use in Europe's hospitals.

The *e-Celsius Performance* was developed by France-based BodyCap which specialises in miniaturised wireless monitoring devices for e-health applications. The disposable electronic capsule is coated in a biocompatible medical grade plastic, and follows the intestinal transit after being swallowed by the patient. The pill then uses 433MHz frequencies to wirelessly transmit measurements of the patient's core body temperature every 30 seconds.

The readings are sent to a monitor called an *e-Viewer* which can be up to one metre away. The data show alerts when the measurement is outside the range set by the healthcare professional.

Each *e-Celsius* pill is provided in standby mode. When the device is ready to be used, an activation box wakes it up and links it to the *e-Viewer* for data collection in real-time mode, or by recovery from the pill's internal memory, says BodyCap.

It adds that each device can store up to 2,000 data events and can remain operational for up to 20 days, but leaves the patient's body naturally after one to three days.

The *e-Celsius* will be sold directly or through specialised distributors for a unit price of EUR40 to EU60 (USD42-63), depending on volume.



Zong boosts 4G network in Pakistan

 Zong, China Mobile's subsidiary in Pakistan, is expanding its 4G network and services in the country.

The celco rolled out an additional 1,000 4G sites across Pakistan in 2016, expanding its 4G coverage to more than 100 cities. It currently has around 6,000 4G sites nationwide, and claimed this makes it the country's biggest operator in terms of LTE coverage. China Mobile has so far invested more than USD300m in Zong's 4G network.

The operator said it will continue to invest and grow its services to "enable a fully connected environment" for citizens. As part of this, the company recently launched what it described as Pakistan's first cloud based electronic medical record (EMR) and practice management software.

Zong's *Cloud Clinik* platform aims to provide EMR solutions for small and big medical facilities. With this cloud-based solution, it said doctors will be able to manage their hospitals and clinics in a paper-free manner with no upfront investment.

Among some of the features on offer, *Cloud Clinik* enables medical staff to register patients, manage appointments, send automated SMS and email alerts to patients, issue e-prescriptions and e-referrals, and more.

'Not-spots' eliminated at Sky

 As part of consolidating its operations, UK-based satellite broadcaster and communication services provider Sky has extensively redeveloped its offices. But with multiple floors and the use of dense materials at its site in west London, wireless signals were heavily affected.

The biggest area of concern involved the second phase of the development, Sky Central. Set over three floors, this has a total combined area of around 46,000m² encompassing office space, a studio, production facilities, and R&D zones. It was vital for Sky to be able

Asian operators gain 5G headstart with Ericsson



Ericsson is helping Singapore pave the way towards 5G, and has also carried out the first live end-to-end transmission of the technology in Thailand.

In late February, the vendor announced that it was piloting key technologies in the evolution to 5G that will enable Singtel to offer faster speeds in Singapore by the end of the year. Ericsson's *AIR 6468* radio, which is said to provide 64T64R Massive MIMO capabilities, will be tested and progressively deployed on the operator's LTE network. The company said Massive MIMO is key to achieving Gigabit LTE speeds as it improves spectral efficiency to triple or quadruple the number of data paths of base stations.

The two partners will also pilot a Cloud RAN. Ericsson said this will



NBTC secretary general Takorn Tantasith outlined plans to support the transformation to a "Digital Thailand".

provide Singtel with the flexibility to centralise, distribute, scale and virtualise RAN functions to "efficiently meet performance requirements today and on the road to 5G".

Earlier this year at an event to mark 111 years in Thailand, Ericsson carried out the country's first live 5G end-to-end demonstration using its 5G test bed and core technologies.

It claimed to have achieved a peak throughput of 5.7Gbps and latency as low as 3ms. The company said these speeds not only support growing

demand for broadband and video on mobile devices, but also provide a "viable and cost effective" alternative to residential fibre connections.

Thailand's National Broadcasting and Telecommunications Commission (NBTC) expects to have broadband connectivity throughout the country by 2018, covering big cities as well as more than 75,000 villages nationwide.

Speaking at the event, NBTC secretary general Takorn Tantasith said: "Along with the fixed internet deployment, we plan to release more spectrum of 380MHz by 2020 which will add to the 420MHz already allocated to the telecommunications industry. This will handle the rising demand for online services, IoT and innovative applications as the country transforms into a Digital Thailand."

Jio build largest All-IP services platform



Cisco is supporting Indian operator Reliance Jio Infocomm to expand its All-IP converged network. Said to be the world's first network of its kind, the multi-terabit capacity platform is built on Cisco's *Open Network Architecture* and *Cloud Scale Networking* technologies featuring IP/MPLS. The vendor says this enables Jio to offer a combination of high-speed data, mobile video, VoLTE, digital commerce, media, cloud and payment services.

Since its launch, it's claimed Jio has accelerated India's monthly user data consumption 40 times, the highest in the world. It's also claimed that the operator's premium broadband service, priced at USD0.15 per GB, is the most affordable in the world.

Jio has more than 185,000 miles of fibre and has built what's said to be India's largest cloud data centre in order to develop platforms for applications and vertical solutions. Its All-IP network has been created

to handle ever-increasing volumes of data, and also promises to help shape the future of India with end-to-end digital solutions and broadband for all.

In addition, Cisco says Jio's infrastructure and CDN extends beyond India into Singapore, France, London, New York, Los Angeles, Amsterdam, and Frankfurt. As a result, it says the operator has direct interconnect with global carriers and content providers enabling "low-latency and high-quality experience" for users in India.



Set over three floors, Sky Central has a total combined area of around 46,000m².

to provide a consistent, strong signal source so that employees could use their mobile devices, connect to the internet and communicate wirelessly wherever they were on campus.

While the company had installed a single operator DAS in existing buildings at its site, it wanted multi-operator coverage to cope with user volumes throughout the much larger Sky Central area.

Martin Eddleston, planning and delivery manager for network implementation at Sky, said: "With the number of colleagues occupying our new building and the importance of mobile communications, it was

imperative that a scalable, high performing and future-proof solution was selected."

Systems integrator Herbert In-Building Wireless recommended Zinwave's *UNItivity* system because of its ability to support multiple operators, services, as well as public

safety access services. It delivered an end-to-end all fibre solution on a single converged system within the building.

Zinwave adds that the platform supports any frequency from 150MHz to 2700MHz, and claims it is only solution that can provide consistent mobile coverage inside metal lifts.

First LTE-R network

 SK Telecom and the Busan Transportation Corporation (BTC) claim to have deployed the world's first LTE-R network. LTE-R is a standard for next-generation railway comms systems. The two partners first signed a contract for the deployment of LTE-R in August 2015. Since then, SK Telecom has built the network for the 40.48km long Busan Subway Line 1 using 10MHz bandwidth in the 700MHz frequency band. In February 2017, SK Telecom and BTC piloted the LTE-R network and plan to commercialise it in April 2017.

Big fibre in Hong Kong

 Prysmian Group, the Italy-based energy and telecom cable systems specialist, is claiming a world record after delivering the densest and highest fibre count underwater optical cable ever made. The firm said its *FlexTube* cable containing 1,728 optical fibres was successfully deployed by Australian telco Superloop for its TKO Express project. This provides broadband connection between Siu Sai Wan on Hong Kong Island and the data centre hub of Tseung Kwan O (TKO) on the mainland. Prysmian says the previous record was set in 2014 with a *FlexTube* cable with 720 fibres.

IoT for Honda

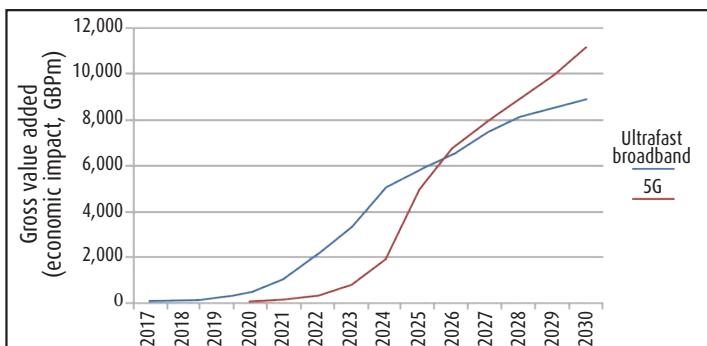
 Honda is using IoT to deliver the *MyHonda Connected Car* system. Using Bright Box's telematics solutions – which are powered by the Cisco Jasper Control Center automated IoT connectivity management platform – Honda will deliver a variety of connected services across Europe. They include vehicle data and diagnostics, alerts and scheduling of maintenance, and GPS tracking. Cisco Jasper says that its partnerships with 50 service providers in more than 100 countries will enable the car-maker to expand its services globally as needed.

5G to deliver benefits 'twice as fast as fibre'

 5G infrastructure will outstrip the economic benefits of fixed fibre broadband in the UK by 2026, according to a report by Telefónica-owned mobile operator O2.

It states that 5G will introduce entirely new industries, platforms and services. In addition to GBP7bn of direct economic value through businesses using the technology, the report says the 'ripple effect' through the supply chain will also see 5G indirectly boost UK productivity by an extra GBP3bn a year.

O2 also believes that the added value of 5G to the economy will become apparent almost twice as quickly as fibre broadband (*see graph, right*). Despite fibre broadband rollouts already taking place in the country and 5G not scheduled for launch until 2020, the latter is forecast to achieve the same



economic benefits as fibre by 2026.

Citing data from UK regulator Ofcom, O2 says more than four in every five adults in the UK now owns a smartphone and nearly three quarters use a mobile device to access the internet on the go. It says the combined value of 4G and 5G connectivity will add GBP18.5bn to the economy in less than a decade, compared to

GBP17.5bn for broadband overall.

"Mobile is the invisible infrastructure that can drive the economy of post-Brexit Britain," says O2 CEO Mark Evans. "The future of 5G promises a much quicker return on investment than fibre broadband, and a range of unprecedented benefits: from telehealth applications to smarter cities and more seamless public services."

UROS connects smart water grid with IoT

 Roaming specialist UROS (Uni-fi Roaming Solutions) is working with Finland's Jyväskylä Energy to create smart management solutions for national water operation systems around the globe.

UROS offers worldwide roaming and IoT solutions for mobile operators, enterprises and consumers. The company says its "bill shock-free" services – which include smartphones, apps and Goodspeed 4G mobile Wi-Fi – are provisioned

by a unique M2M platform providing global connectivity via the eSIM ecosystem.

Jyväskylä Energy will use this M2M platform to connect its water management platform initiative called 'Pisara'. This is said to offer preventive maintenance solutions aimed at avoiding water supply crises and at guaranteeing high-quality water for consumers.

Sakari Laitinen, development manager at Pisara Water Business,

says: "The world's smartest digital water solutions combined with global connectivity and security enable water management to enter a new era in which water will be distributed via intelligent water networks and in which water quality will be controlled using AI and smart sensors."

Laitinen adds that people in communities around the world will soon be able to monitor, in real-time, the quality of their most valuable asset – clean water.

Viasat improves driver safety with Orange

 Orange Business Services (OBS) has signed a multi-million dollar three-year contract with Viasat Group for a global IoT roaming service for up to 350,000 SIM cards. It will allow Viasat to provide global coverage across a number of markets for services that include insurance, fleet security and safety, and telematics.

Italy-headquartered Viasat specialises in satellite-based security systems, which it says incorporate the very latest telematics information technologies to guarantee absolute security for the vehicle and its occupants.



The Viasat Group's remote telematics boxes will be able to remotely send and receive data via the IoT.

OBS will provide the IoT connectivity to enable the company's telematics boxes to remotely send and receive data, texts and voice. It says the SIMs are reinforced to withstand vibration and high

temperatures, and roaming-enabled which provides global coverage.

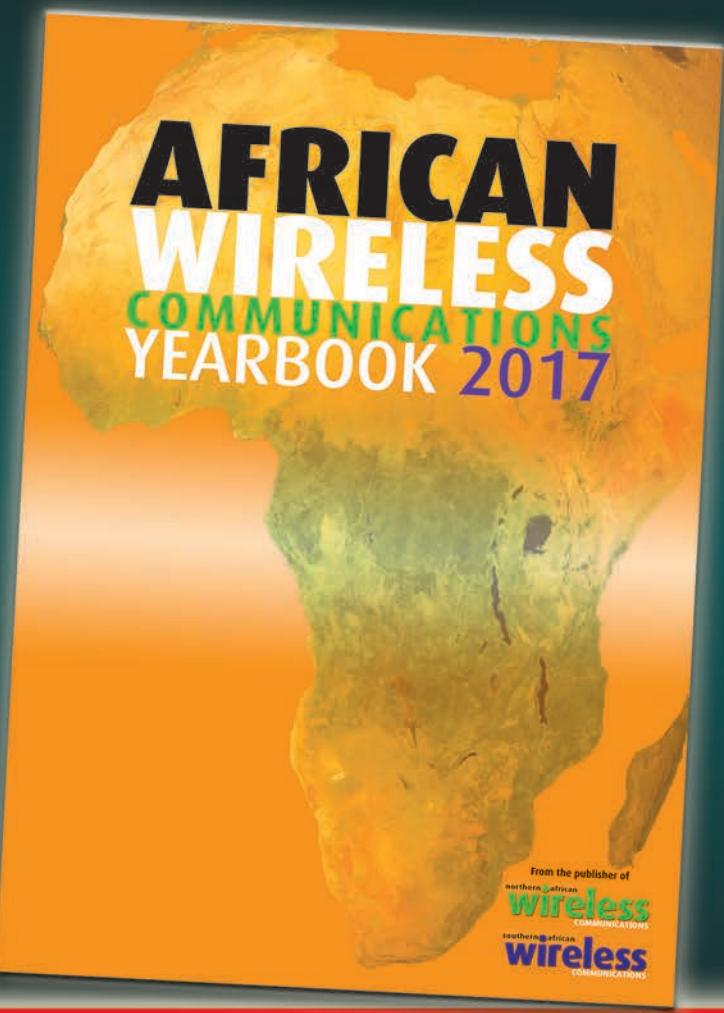
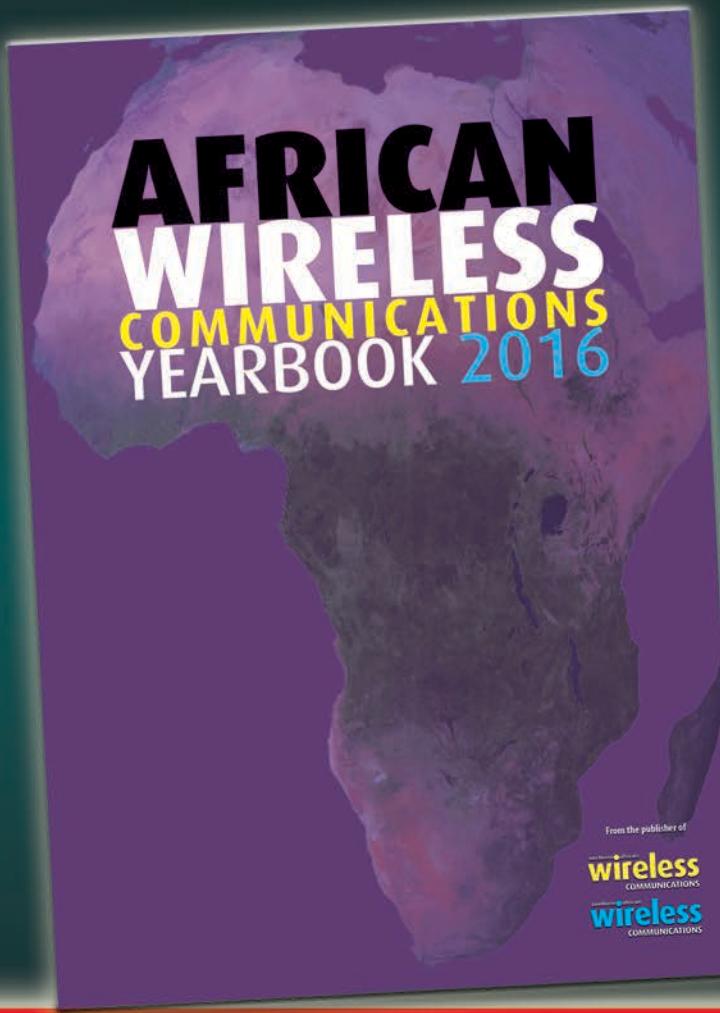
OBS also provides an IoT management platform that will allow Viasat customers to manage and update their own SIMs. It says the platform can be integrated with the customer's back-end system to provide detailed reports and retrieve billing information.

In addition, it's claimed IoT connectivity will also allow customers to improve the quality of their driving which translates into increased safety for passengers as well as vehicles. This will ultimately help to lower the average costs of insurance premiums.

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