OCTOBER/NOVEMBER 2015
Volume 14
Number 5

northern african wireless COMMUNICATIONS

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Volume 14
Number 5

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Features:

SUBSCRIPTIONS:
Northern African Wireless Communications is a controlled circulation bi-monthly magazine. Register now for your free subscription at www.kadiumpublishing.com
Readers who do not qualify under the terms of control can purchase an annual subscription at the cost of £110.
For more information and general enquiries please contact Suzanne Thomas at suzannet@kadiumpublishing.com or call +44 (0) 1932 886 537.

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Fibersat to offer satellite services at the cost of fibre in Africa

Fibersat will use a hosted Ka-band payload on forthcoming high-throughput satellites (HTS) from Arabsat to provide extensive coverage over Africa using an innovative system.

Luxembourg-based Fibersat is a new operator and its HTS payload, *Fibersat-1*, is planned for launch in 2018. The company claims its optimised design will enable satellite services to be delivered at the cost of fibre throughout the continent.

Fibersat-1 will use beams that are smaller than conventional geo satellites, but it's claimed they can deliver up to 100 times more bandwidth.

"Traditional geostationary communication satellites typically use one large beam to illuminate a large area," states the firm. "This single beam usually has a capacity of 1Gbps. Fibersat has smaller beams – so much smaller that we cover the same area with almost 100 beams. Each one of these beams has as much bandwidth as a traditional satellite beam."

As a result, Fibersat reckons broadband delivered via its system will cost a "tiny fraction" of what it costs today.

The company's CEO Christof Kern says: "By combining the benefits of a power-optimised HTS design and leveraging a hybrid satellite architecture, Fibersat will be able to offer customers unprecedented price levels for satellite services which is key in price-sensitive markets like Africa. This is the only way to meet the exploding demand for internet in Africa, the fastest-growing market in the world."

At launch, Fibersat says it will be able to provide affordable internet access services to remote areas across the continent using low-cost commercially available VSAT terminals.

The firm adds that it has already signed up "significant" pre-launch orders with key African operators but does not name them. It says the agreement with Arabsat represents a major step forward in its mission.

For Arabsat, the deal means it will be able to expand its coverage across the region. CEO Khalid Balkheyour says: "This cooperation with Fibersat will position Arabsat as a major service provider to the growing markets of sub-Saharan Africa, with a portfolio of broadband and telecom services. By employing an innovative payload design in Ka-band, Arabsat will have blanket coverage over the MEA region."

At the time of writing, Arianespace was getting ready to launch Arabsat's next satellite. *Arabsat-6B*, which will be operated as *BADR-7*, was expected to lift-off from French Guiana on 10 November and will orbit at 26°E to provide telecoms and broadcast services for Africa and the Middle East.

In late October, Arianespace began preparations for the launch of *Arabsat-6B,* seen here receiving its propellant.

Equitel aims to be continent's first m-banking MVNO

Kenyan MVNO Equitel is working with Effortel to provide what's claimed to be Africa's first fully integrated banking system using a mobile network.

Equitel has a partnership with Equity Bank as part of a project that aims to bring a more mobile and truly integrated banking experience to East Africa. The MVNO claims that 450,000 users have so far signed up for the mobile money service which is activated on its platform.

As well as being an MVNO itself, Belgium-based Effortel is also an MVNE (enabler). It is responsible for the day-to-day technical operations and administrative management of the Equitel-Equity service.

The company says its platform delivers core network capability, CRM and billing systems. It supports a number of VAS provided by Equitel, including a branded mobile banking service that allows users to check balance updates, make payments, and withdraw money from ATMs using a PIN code sent directly to their phones via USSD.

"Equity Bank recognised that the limited infrastructure of banking institutions in East Africa, along with the groundswell in mobile, was driving the mobile banking phenomenon," says Effortel CMO Liudvikas Andriulis."

He adds that the majority of people want more from the mobile banking experience than simply the wire transfer functionality offered by typical mobile wallet services.

'Mobile as a service' enables MTN Benin to expand

MTN Benin will use managed rural coverage (MRC) provided by Ericsson to bring 'mobile as a service' to central and northern parts of the country where connectivity was previously unavailable.

This is the first MRC contract Ericsson has signed. The company claims MRC is a "cost-competitive" solution whereby operators provide mobile coverage for a set period according to SLAs and defined KPIs.

Under the terms of a five-year contract with MTN Benin, Ericsson will provide access via its low-power BSTs running on solar energy to avoid the expense and emissions associated with diesel generators. It adds that transmission will be provided via satellite as an alternative to the high costs and civil works associated with building a microwave backhaul network in remote villages.

Ericsson says solar powered BSTs and satellite transmission – as used in this Cambodian deployment – creates a more viable model for a rural network rollout.

As a result, MTN Benin say it was possible to create a business model to provide mobile coverage to parts of Benin where people have to survive on less than USD2 a day. "With Ericsson's help, we are now able to provide mobile coverage in areas where it previously did not exist," says Stephen Blewett, CEO, MTN Benin. "This connectivity allows people in these areas to communicate with family, friends and acquaintances which they previously could not do. We are also proud to see members of these communities establishing themselves as *MTN Mobile Money* agents."

MTN Benin has been an Ericsson customer since 1999. The vendor is the sole supplier of core, packet core, radio, transmission and charging system nodes to the operator.

Ericsson manages BSS platform for MTN Group operations – News, p11.

Ethiopian metro rail uses unique LTE system

In what's claimed to be the first use of LTE in an African metro railway system, Huawei has provided the communications systems for the Addis Ababa City Light Rail Transit (AACLRT) project.

The new railway line connects urban centres and industrial areas in the Ethiopian capital. The first phase of the project involved the construction of two railway lines that span 31km and includes one control centre and 39 stations, two of which are underground. Further development phases are expected to follow soon.

Huawei provided several key technologies including its end-to-end *eLTE* trunking solution and related communication systems. These are used to support vehicle-mounted devices and dispatching systems provided by another project partner, Shenzhen Communication Technology.

Huawei claims that just one of its *eLTE* cells provides a wireless network that covers 1,200m, and requires just four baseband units and nine radio remote units. The vendor adds that *eLTE*'s ultra-wideband technology enables wireless dispatching and various other services, including voice trunking and single-network ticketing data management, thereby reducing the need for trackside devices and lowering maintenance costs.

In order to avoid duplicating network capacity and minimise the investment required for each device, Huawei says it based the AACLRT's system on a single backbone network that supports multiple services, including communication, signalling, SCADA and fare collection.

As urban rail transit systems are increasingly using video applications, the firm says it created a bespoke version of its integrated *Digital Urban Rail Transportation Solution* for the AACLRT. This train-to-ground communication platform uses LTE HD video and optical transmission technologies, and includes all necessary service systems such as: wireless, transport and IP-based fixed networks; communication power supply; telephony; and CCTV.

Huawei created a bespoke end-to-end *eLTE* system for the Addis Ababa City Light Rail Transit project.

Vodafone Ghana upgrades to secure power sources

Vodafone Ghana says it has invested about GHS4.5m (around USD1.1m) over the last four months as part of measures to improve its fixed broadband service across the country.

The operator says the advent of an energy crisis in Ghana coupled with "external pressures" has affected delivery of its fixed line and broadband services. It adds that the situation was compounded by a 24-hour power outage schedule, which affected service to some key stations in specific parts of the country.

Ghana has been facing an energy crisis brought about by a lack of capital, leaving most people without or with limited access to power. According to local reports, although the government is looking to address these issues, financial constraints and the lack of an established power sector have led to significant setbacks.

As a result, Vodafone has upgraded its existing power sources to provide a more reliable and resilient service. It also continues to offer all active fixed broadband customers up to 20GB worth of mobile data to ensure they remain connected on occasions when their systems experience intermittent performance. Altogether, Vodafone says these measures are helping most of its customers remain connected for around 99 per cent of their subscription time.

The operator plans to continue to invest in measures over the coming months in a bid to eventually build a robust and efficient platform to support its fixed broadband network.

Eutelsat and Facebook to expand broadband in Africa

Eutelsat Communications and Facebook have joined forces on a new initiative to connect more people in Africa to broadband. Under a multi-year agreement with Spacecom, the two companies will utilise the entire broadband payload on the future *AMOS-6* satellite. They will build a dedicated system comprising satellite capacity, gateways and terminals to accelerate data connectivity in sub-Saharan Africa.

Scheduled to start service in the second half of 2016, *AMOS-6*'s high throughput satellite architecture is expected to contribute to additional gains in cost efficiency.

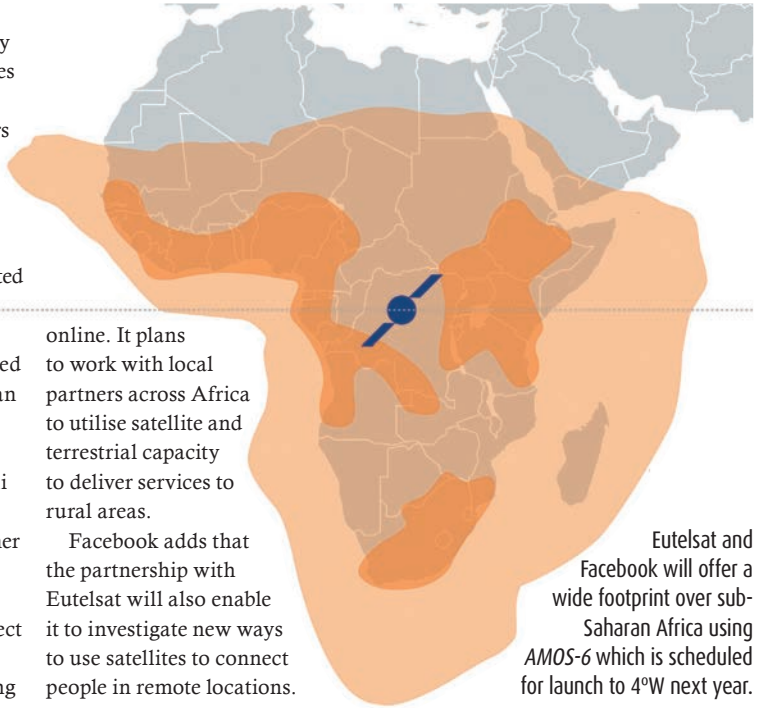
Spacecom says the satellite's Ka-band payload is configured with high gain spot beams covering large parts of West, East and Southern Africa, and is said to be optimised for community and direct-to-user internet access using affordable, off-the-shelf customer equipment.

Under their agreement, Eutelsat and Facebook will share the capacity and will each deploy internet services designed to relieve pent-up demand for connectivity from the many users in Africa beyond the range of fixed and mobile terrestrial networks.

Eutelsat says the capacity will enable it to step up its broadband activity in the region that was initiated using Ku-band satellites to serve professional users. The operator is establishing a new company based in London that will steer its African broadband vision and business. It will be led by Laurent Grimaldi, founder and former CEO of Tiscali International Network, and will focus on serving premium consumer and professional segments.

For Facebook, the initiative is a continuation of its *Internet.org* project that aims to address the barriers that are keeping people from getting online. It plans to work with local partners across Africa to utilise satellite and terrestrial capacity to deliver services to rural areas.

Facebook adds that the partnership with Eutelsat will also enable it to investigate new ways to use satellites to connect people in remote locations.



Eutelsat and Facebook will offer a wide footprint over sub-Saharan Africa using *AMOS-6* which is scheduled for launch to 4°W next year.

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Rahiel Nasir, Editorial director

ON THE NETWORK

Who's right about C-band?

As I write this, the ITU's World Radiocommunication Conference is getting under way in Geneva. Held every three to four years, WRC reviews the international regulatory framework for radio communications and revises it as needed.

The most controversial item on the agenda this year is the possible re-assignment of C-band spectrum. Terrestrial wireless operators have been lobbying for additional frequencies in C-band that include the 3.4GHz to 4.2GHz band used for satellite receive/downlinks.

Naturally, the satcoms industry is against this. In rallying its supporters earlier this year, the Global VSAT Forum (GVF) said operation of IMT in the C-band could cause "excessive" levels of interference, and might preclude future use by broadcasters and many other industries that depend on satellite services supported by C-band.

On the other side, the GSM Association issued a report to coincide with WRC-15 which said the use of additional C-band spectrum for mobile broadband in London and Shenzhen alone will generate an additional USD440m of economic benefit.

According to its research, the GSMA says the use of C-band spectrum for mobile broadband can be achieved through the development of sharing techniques to allow mobile services to co-exist with other users of the band, such as satellite and fixed link services.

It cites studies that show that C-band small cells can co-exist with satellite services, provided that an exclusion zone of a 5km radius is established around the satellite installations. It adds similar provisions can be made to ensure the protection of continued operation of fixed link and point-to-multipoint services that use the band.

The battle lines for C-band are drawn. But whichever side is favoured at WRC, it's clear that there are going to be some big casualties of war to deal with.

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Yahsat integrates OSS and BSS to VSAT platform

In what's described as a "pioneering" service provision model, Yahsat will use Newtec's platforms and operating systems for its third satellite.

Al Yah 3 is due for launch in late 2016. It will extend Yahsat's commercial Ka-band coverage to an additional 19 countries and 600 million users across Africa, as well as in Brazil where it will cover more than 95 per cent of the population *(also see News, Jul-Aug 2015)*.

In a deal announced in mid-October, Yahsat will use Newtec's multi-service VSAT *Dialog* platform, baseband hubs, user terminals and various CPE. The contract also includes the supply of an integrated BSS/OSS system. Newtec says its turnkey solution, which is provided in partnership with Tech Mahindra, is integrated with an Oracle platform, bringing Tier-1 capabilities to the OSS/BSS layer.

According to the firm, this will allow Yahsat and its customers to benefit from a broader product range and wider implementation.

Yahsat CCO David Murphy adds: "This latest contract award to Newtec signifies the first time a satellite operator is set to integrate a fully-fledged OSS/BSS into the VSAT service platform for both wholesale and consumer segments."

While Newtec is Yahsat's preferred partner for the Brazilian market, the company says its platform may also be deployed in other territories across the operator's footprint.

Dialog (left) is claimed to guarantee optimal modulation and bandwidth allocation for all satellite-based applications.

Ultimate personal gigabyte experience

Ooredoo Group will use advanced technologies from Nokia to boost 2G, 3G, 4G and LTE-A networks across its global operations.

The Qatari telco's footprint covers the Middle East, South East Asia and North Africa where it runs mobile networks in Algeria and Tunisia. As part of a long-term development strategy, it has signed a five-year framework agreement with Nokia, and will use the vendor's mobile broadband technologies and products to enhance voice and data services across its markets.

The deal is part of a renewed agreement but its conditions have been revised to include global best practices in terms of delivery and technology for the benefit of both firms.

According to Nokia, Ooredoo has taken the lead in network performance across its footprint, offering 4G+ in Qatar and Kuwait, 4G in Oman, Tunisia and the Maldives, in addition to launching the first commercial 3G in Algeria and Myanmar. In Qatar, the company also recently deployed Nokia's high-capacity small cells to enhance its 3G and 4G network.

"Our hands-on innovation approach enables mobile broadband networks to deliver gigabytes of personalised data per user per day profitably and securely by 2020," says Nokia's EVP Ashish Chowdhary.

"With our latest innovations we will support Ooredoo to prepare for the huge data demand, and provide high-speed data services with improved network coverage, in addition to clearer voice call services to ensure the ultimate personal gigabyte experience."

Softwire and SES to bridge information gap in Nigeria

Softwire Digital Solutions will use satellite capacity from SES to implement nationwide e-learning solutions in Nigeria.

Based in Abuja, Softwire Digital Solutions is a specialist provider of IT and capacity building services. It is one of several companies chosen by the Nigerian government to implement a number of ICT projects that aim to bridge the digital and information gap that exists in rural parts of the country.

As part of a multi-year deal with SES, Softwire will use capacity on the *NSS-10* satellite located at 37.5°W for the deployment of a project to provide more e-learning facilities to underserved areas. It is financed by Nigeria's universal service provision fund (USPF).

SES says many governments and public institutions on the continent have already begun to develop broadband policies to address digital inequality but are hindered by costs, infrastructure and inaccessible non-urban populations.

"Satellites have vast coverage and a reach that's undaunted by mountain, desert, jungle or savannah," says Ibrahima Guimba-Saidou, SVP for SES Commercial in Africa.

SES' Ibrahima Guimba-Saidou says satellite technology will help drive growth and knowledge transfer in Nigeria.

"Our satellite broadband technology is able to deliver a wide range of services across Nigeria's non-urban population to help drive growth and knowledge transfer."

Softwire CEO Dalo Edetanlen believes the partnership with SES will ensure that his company delivers high-quality service to its clients, particularly the USPF. He adds: "We hope to leverage this relationship to expand our business and become one of the leading ISPs in the country."

SCI migrates to C-band VSAT network across multiple sites

Save the Children International (SCI) will act as virtual operator to provide services to its network of C-band VSATs across 35 sites in Africa.

The UK-based NGO is using a network supplied by SpeedCast France (formerly Geolink Satellite Services). SpeedCast says the rollout of the new service was particularly complex as the migration to its platform required work across multiple countries, and had to be completed to a tight deadline before the previous provider switched off SCI's existing service.

The company says the deployment to all 35 sites – which are situated in some of Africa's most remote areas – was successfully implemented ahead of the deadline in five weeks.

The new service was set up for SCI as a virtual network operator. SpeedCast says this allows the organisation to allocate pooled bandwidth efficiently and gives it the flexibility to make changes quickly. This was not possible with the previous system where each location had individual contracts with a range of different suppliers.

The company adds that its team worked directly with SCI to optimise network design and meet specific requirements. For example, SpeedCast says QoS was used to prioritise certain types of traffic, such as *Skype* and *Lync* services.

In addition, the company trained members of SCI staff as VSAT installers at its teleport in Germany. This approach proved to be particularly successful as one of SCI's team members was able to quickly apply the training and completed the installation of a number of VSAT units in Sierra Leone during the Ebola crisis.

"During the recent Ebola emergency, I spent two months connected to the SpeedCast service, and the connection quality was better than some places in Europe," said Mark Hawkins, global field technology manager at SCI.

SpeedCast also supported the NGO in Somalia which its says can be a challenging place when it comes to finding satellite engineers. With the company's help, SCI staff in the country were able to re-point all of the VSAT systems to the new network.

Since the initial migration of its core C-band network, SCI has now worked with SpeedCast to expand the network to 51 sites. "By replacing Ku-band equipment with C-band systems, we have been able to provide our field sites with a better service for a lower monthly cost," says Hawkins.

SpeedCast adds that the new network will enable SCI to "significantly" reduce its operating costs, and claims this will allow for a full investment recovery as its service delivers "greater performance at a lower price point".

New satcoms initiative set to transform lives in Africa

A satellite-based connectivity project that promises to revolutionise e-commerce and maternity services in remote areas is ready to be rolled out.

The *Digital Frontiers* initiative forms part of the UK Space Agency's two-year, GBP32m (USD49m) *International Partnership Space Programme*. It has partnered with Inmarsat which has been awarded funding for projects in key parts of East and West Africa.

The initial projects will see the firm deploy its most advanced L-band communications satellite, *Alphasat*, to deliver data connectivity solutions in Nigeria and Kenya. The aim is to demonstrate how companies can provide socio-economic benefits to areas that currently lack communication capabilities, as well as evolve business models that mean more of these projects can be commercially sustained.

Working in partnership with Equity, Inmarsat has provided *BGAN* terminals and internet connectivity to more than 200 sites in Kenya.

Working with the Equity Bank Group, Inmarsat has provided connectivity to enable financial services, welfare and other content access to more than 200 locations in Kenya. Each site has a *BGAN* internet connectivity terminal which is pre-loaded with a range of educational materials and apps covering agriculture and business, among other topics.

In Nigeria, the company has helped deliver the *MAMA Connect Project* onsite system, which is pre-loaded with maternal and child health information. The satellite network updates the content and provides real-time connectivity for pregnant and new mothers to interact online.

Bond issue via mobile

Kenya plans to float the first-ever government bond that will be offered exclusively via mobiles. *M-Akiba* will be delivered in partnership with Safaricom's *M-PESA*. It aims to broaden access to the retail bond market which was previously subject to lengthy and bureaucratic processes, and only accessible to banks and commercial traders. Using *M-Kiba*, deals can reach an upper limit of KES140,000 (USD1,370) per day until the bond offer period closes.

Mobile clinic in Tunisia

Ooredoo and Tunisian Red Crescent have teamed up to create Tunisia's first mobile medical clinic. It will be funded by the operator and run by Red Crescent which will offer healthcare and advice for people in remote areas. The clinic will also provide training for volunteers from the Tunisian Red Crescent. The areas it will target include Kebili, Gabes, Sidi Bouzid, Mahdia, Kef and Zaghouan. The partnership between the two organisations is part of the expansion of an initiative launched in 2013 by Ooredoo and the Leo Messi Foundation.

Algerian cable cut

A cut on the fibre cable connecting Annaba to Marseilles disrupted internet traffic to Algeria on 22 October. Algeria Telecom (AT) said a break on the SMW4 submarine system 15km off the coast of Annaba caused it to lose 80 per cent of the international bandwidth transiting via the cable. MECMA, the international consortium responsible for maintaining SMW4, initiated repair work but AT warned customers that this could take several days depending on local weather conditions. To mitigate the impact of the cut, AT re-routed traffic to the Algiers-Palermo cable.

Eliminating 'pain points' for business

Chase Bank Kenya has partnered with Safaricom to launch a service that aims to boost the efficiency of businesses by aggregating all their banking services and making them accessible through a mobile.

Mobile2Bank, which is said to be the first of its kind in Kenya, will enable businesses to make payments and collections directly to their bank accounts. It will also enable access to micro-credit and fund transfers from one *Lipa Na M-PESA* till to another in real-time. *Lipa Na M-PESA* is the Safaricom service used by retailers to accept payment of goods and services from their customers.

"[*Mobile2Bank*] demonstrates how innovation in the mobile space can be harnessed to address some of the common pain points in business," says Chase Bank CEO Paul Njaga. "With *Mobile2Bank*, businesses [both] small and large will no longer need to carry out physical withdrawals of cash from bank accounts, thereby enhancing their efficiency."

Njaga adds that the service will also help boost credit scoring once users start accessing credit via the mobile app available on the *Android* and *iOS* smartphone platforms.

Safaricom says *M-PESA* agents are among those who will benefit from *Mobile2Bank*, as they can now move floats between tills and bank accounts in real-time. They can also send floats directly to another agent's account without having to visit the bank.

ATU calls for more universal access funds

The African Telecommunications Union (ATU) says the continent's countries should open up their ICT sectors to allow private telcos and companies to invest in the development of broadband infrastructure.

ATU general secretary Abdoulkarim Soumaila said governments should utilise resources from locally established ICT specialists, and suggested that two per cent of their turnovers should be used to develop broadband in the most remote rural areas.

"This money is a universal access fund [to finance] high-speed internet," he said, adding that this is the target East African Community member countries have agreed to achieve by 2020.

Soumaila was speaking during the opening of a training workshop recently held in Nairobi involving twenty journalists from six East African countries: Ethiopia, Kenya, Rwanda, South Sudan, Tanzania and Uganda

He believes journalists should be able to explain how ICT has contributed in the development of the continent: "We want to create and strengthen the capabilities of a network of African journalists specialised in ICT, well-equipped to inform the public about the progress and benefits of the use of ICT."

The training workshop was organised in partnership with ATU, the African Media Initiative and Huawei. At the event, the union signed an agreement with the latter that aims to boost broadband connectivity in African countries, especially in the most remote areas. "Huawei uses ICT to promote health, education, productivity and income improvement at work, all in order to transform positively and improve people's lives," said Soumaila.

ATU general secretary Abdoulkarim Soumaila (right) with Dean Yu, Huawei's Nairobi office CEO.

Ericsson manages BSS for MTN

MTN will use Ericsson's *Order to Cash* BSS platform to standardise the customer experience of its products and services in all 22 countries where it is operational.

As part of the deal, Ericsson will be responsible for the replacement of all legacy infrastructure with its new *Charging System*, along with its *Multi Activation and Multi Mediation* software.

According to the vendor, *Multi Mediation* supports the retrieval and processing of user data from all network nodes. The data can then be made available to the relevant IT back-end systems and billed in real-time. It adds that *Multi Activation* provides MTN with fully automated real-time fulfilment capabilities.

MTN says the new BSS platform will enable subscribers to activate new services more efficiently and to better monitor their data costs and usage. In addition, it's claimed the operator will be able to deal with customer complaints more efficiently.

Ericsson will support, operate and manage the suite of products. It says this managed services approach will ensure the benefits of the BSS platform are realised across all MTN operations, allowing for an "agile" launch of differentiated services and thus increasing the company's capacity for innovation and speed.

MTN expects the new *Charging System* to enable new services such as catalogue orchestrated charging, flexible refill and community charging, among several other different voice and data offerings.

MTN has worked with Ericsson for many years, and has used the Swedish vendor's real-time charging capabilities since 1996.

Mobile platforms for 100 million women

Tata Communications and MasterCard are combining their respective strengths in global telecoms and payments technology to financially empower women in the developing world.

As part of a Commitment to Action under the Clinton Global Initiative (CGI), the two companies will join forces with a network of partners that also includes Brightstar, crowd-funding platform Kiva, mobile communications company Tone, amongst others.

Over the next five years, the partners will work together to improve the lives of women in the developing world through access to transformative mobile platforms comprising a range of financial, health and education applications and services.

The programme will start with pilot projects targeting 25,000 women in India, Nigeria, Indonesia and Guatemala. These projects will serve as microcosms that can be replicated to ultimately reach 100 million women by 2020.

According to *No Ceilings: The Full Participation Report* published by the Clinton Foundation and the Bill and Melinda Gates Foundation in March 2015, 200 million fewer women than men are online in developing countries, and 300 million fewer women own a mobile phone.

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Dabengwa quits following NCC fine

MTN Group CEO Sifiso Dabengwa has resigned. In a press release issued on 9 November, he stated: "Due to the most unfortunate prevailing circumstances occurring at MTN Nigeria, I, in the interest of the company and its shareholders, have tendered my resignation with immediate effect."

His decision follows the Nigerian Communications Commission (NCC) imposing a fine equivalent to USD5.2 billion on MTN Nigeria. The penalty relates to the timing of the disconnection of 5.1 million MTN subscribers who were cut off in August and September 2015. It is based on NGN200,000 (around USD1,000) for each unregistered subscriber.

Around 33 per cent of the MTN Group's total earnings come from Nigeria, making the country the operator's biggest market. Nigeria's government is fighting Boko Haram militants, and says the use of unregistered SIMs hampers its ability to track potential terrorist activities.

According to reports, shares in the group fell more than 12 per cent following news of the NCC's fine.

On 30 October, MTN issued a statement which said that Dabengwa was engaging with the Nigerian authorities on the regulatory aspects of the matter. It added that company executives were also in talks with the Johannesburg Stock Exchange, and shareholders were advised to "exercise caution" when dealing in MTN's securities until a further announcement was made.

The operator has now appointed Phuthuma Nhleko as executive chairman in a temporary capacity.

"I will assume responsibility as executive chairman for the next six months as I proactively deal with the Nigerian regulator and will continue to work with them in addressing the issues around unregistered subscribers as a matter of urgency," said Nhleko. "Together with the MTN board, my second priority will be to find an appropriate chief executive officer to take MTN forward. I will then revert to my non-executive chairman role."

Sifiso Dabengwa said his resignation was in the best interests of MTN and its shareholders.

Moody's stabilises outlook for EMEA telecoms companies

Moody's has changed its outlook for telecommunications service providers in EMEA from 'negative' to 'stable' on the expectation of a 1-2 per cent revenue growth into 2017.

The international investment analyst and ratings agency says this will largely be driven by increasing demand for broadband and consumers' ability to spend more.

Moody's says KPIs including ARPU will be "solid and sustainable" and churn rates lower. The firm believes this will be supported by price increases across the board as customers increasingly demand bundled product offers including broadband and TV.

However, it says there are some exceptions as some companies have not fully adapted to the lower pricing in their domestic market and/or because of limited international diversification.

In its industry outlook for the sector, Moody's expects capex to remain broadly stable but says this will depend on the stage that a telco is at in the cycle. For example, it says increased capex for operators such as Orange (rated 'Baa1 stable') to differentiate its offering will offset any increase in free cash flow resulting from higher revenues and improved margins. However, others such as Vodafone Group (Baa1 stable), are nearing the end of their capex cycle.

"We also expect telcos to benefit from efficient operating leverage, such that their average EBITDA increases by around four per cent in 2016, underpinning an average improvement in adjusted EBITDA margin to 35.4 per cent from 34.8," says Moody's.

With specific reference to Africa, the Middle East and Turkey's telecoms markets, the analyst says the outlook is now stable as revenue growth moderates, driven by an expectation of low single-digit revenue growth on average in the next 12-18 months.

However, it expects negative pressure on revenue growth to build in some commodity-driven markets where GDP growth is slowing – Nigeria, South Africa and Zambia are cited as examples in Africa.

"We expect commodity prices to remain lower for longer, driven by a strengthening US dollar driving prices lower in dollar terms, and unfavourable market fundamentals which could curb consumer demand or spending," says Moody's.

The company adds that operations with revenues in domestic currencies but which have dollar-denominated debt will also remain under pressure as financing costs and debt obligations increase in their currency of operation. Examples here include some of MTN Group's (Baa2 stable) operations (38 per cent of total debt), and Turkcell Iletisim Hizmetleri (Baa3 negative with 82 per cent of total debt as of June 2015).

"Operations with revenues in currencies other than dollars across Africa and Turkey will face increasing imported equipment costs, which will put pressure on margins and capex spend," says Moody's. "These operations' free cash flow will also suffer as the price of equipment for 3G and 4G/LTE network rollout will also increase."

Orange returns to growth

The Orange Group reported 3Q15 revenues of EUR10.284bn, an overall increase of 0.5 per cent following falls of 0.2 and 0.9 per cent in the second and first quarters respectively.

The telco reported that the trend of continued improvement reflects the "favourable" change in mobile services across all regions, which saw growth of 1.2 per cent in 3Q after declines of 1.6 in 2Q and 2.8 per cent in 1Q. However, enterprise revenues continued to rise with an increase of 0.5 per cent in the quarter.

Excluding the impact of regulatory measures, group revenues rose 0.6 per cent in 3Q after an increase of 0.4 per cent in the second quarter and a decrease of 0.3 per cent in the first. Orange said its mobile customer base

INVESTMENTS, MERGERS & ACQUISITIONS

Date	Buyer	Seller	Item	Price	Notes
17/9/15	IMImobile	Archer Digital	Company	$5.6m	Johannesburg-based Archer specialises in mobile engagement solutions for banking & government customers across South Africa.
23/09/15	Westfield Capital Management & Bain Capital Ventures	SevOne	Financing	$50m	Brookside Capital, HarbourVest, VT Technology Ventures, & Osage Venture Partners also participated in this round of series C funding. SevOne will use the financing to accelerate growth in markets such as the mobile economy & IoT.
30/9/15	Sterlite Technologies	Elitecore Technologies	Company	NA	Part of the Vedanta Group, Sterlite says acquisition enables it to offer software solutions for OSS, BSS & revenue management.
22/10/15	Ruckus Wireless	Cloudpath Networks	Company	NA	US firm Cloudpath specialises in certificate-based Wi-Fi security & has developed automated, self-service software.

in Africa and the Middle East grew steadily, with 10 million net additions year-on-year on a comparable basis (+9.8 per cent).

15.5 million *Orange Money* customers were reported as at 30 September 2015 (+37 per cent year-on-year). The increase in regional subscribers was helped by the full consolidation of Méditel in Morocco.

"Our return to growth in revenue and restated EBITDA validates our strategy of differentiation through quality and investment and confirms the positive momentum generated over almost two years," said group chairman and CEO Stéphane Richard.

He added that business performed particularly well during the quarter, especially in France, Spain, Belgium, Central Europe, Africa and Middle East, and the enterprise market.

"This commercial momentum is supported by high levels of investment in very high-speed fixed and mobile broadband, in line with our *Essentiels2020* strategic plan," said Richard. "We have now exceeded 263 million customers worldwide with 111 million in Africa and Middle East."

Airtel closes tower sale – and terminates another

IHS Holding has completed the sale and lease back of 949 towers from Airtel Zambia following long-term contracts that were originally announced last December.

The company says it will now upgrade the towers and roll out renewable energy solutions across the operator's African networks.

Over the last two years, IHS says it has spent USD500m in the continent on power systems that feature advanced generators, batteries and alternative power solutions to reduce diesel consumption. The company adds that by the end of 2016, up to 80 per cent of its towers will be run on hybrid solar solutions.

According to IHS, by outsourcing its tower infrastructure Airtel will be able to deleverage through debt reduction and will "significantly" reduce its ongoing capex on passive infrastructure.

IHS Group CEO Issam Darwish says: "Our partnership is designed to further promote network sharing, and deliver higher quality and reliable mobile services. This acquisition will enable us to eventually upgrade these towers and continue to roll out innovative energy saving technology throughout the continent."

Meanwhile, Airtel Africa's deal to sell more than 3,500 of its towers to Eaton Towers has expired. In a regulatory filing made in mid-October, the operator stated: "The agreements for the sale of tower assets in Africa between Bharti Airtel Malawi Holdings and Eaton Towers (Lilongwe) has lapsed and therefore stands terminated."

The two companies originally agreed a deal in September 2014. The value of their transaction was not disclosed but as part of the agreement Airtel was to sell and lease back more than 3,500 towers to Eaton in six countries across its African operations under a 10-year contract.

This latest setback with Eaton follows the termination of two other agreements with Helios Towers Africa (HTA) that were originally signed in July 2014 for the sale of 3,100 towers in four countries. Earlier this year in June, Airtel announced that the deals with HTA covering Chad and Tanzania had been terminated. According to reports, the agreements for Congo and DRC remain intact.

Airtel has around 15,000 towers on the continent which have been on the market for some time now.

Michel de Rosen to step down as Eutelsat CEO

After six years as Eutelsat's CEO, Michel de Rosen will step down from the position in March 2016. He will remain in the role of non-executive chairman of the board until the end of his current mandate in November 2016. After that, de Rosen's tenure will be submitted to the annual shareholders' meeting for renewal.

Rodolphe Belmer has been elected as de Rosen's successor. He will take up the position as from 1 March 2016 but will join Eutelsat as deputy

Rodolphe Belmer joins Eutelsat from Groupe Canal where he was CEO.
© RÉMY CORTIN

CEO on 1 December as part of the transition process. Belmer will work alongside Michel Azibert, Eutelsat's current deputy CEO and chief commercial and development officer.

Belmer has worked at Groupe Canal since 2001 where he was appointed CEO in 2012.

Born in 1969, he is a French national, and after graduating from HEC in 1992 he began his career in the marketing department of Procter and Gamble France before moving onto McKinsey in 1998.

Expanded ABS-3A deal for Arabsat

Arabsat will use more capacity on *ABS-3A* under a multi-transponder, multi-year deal for Ku-band payload.

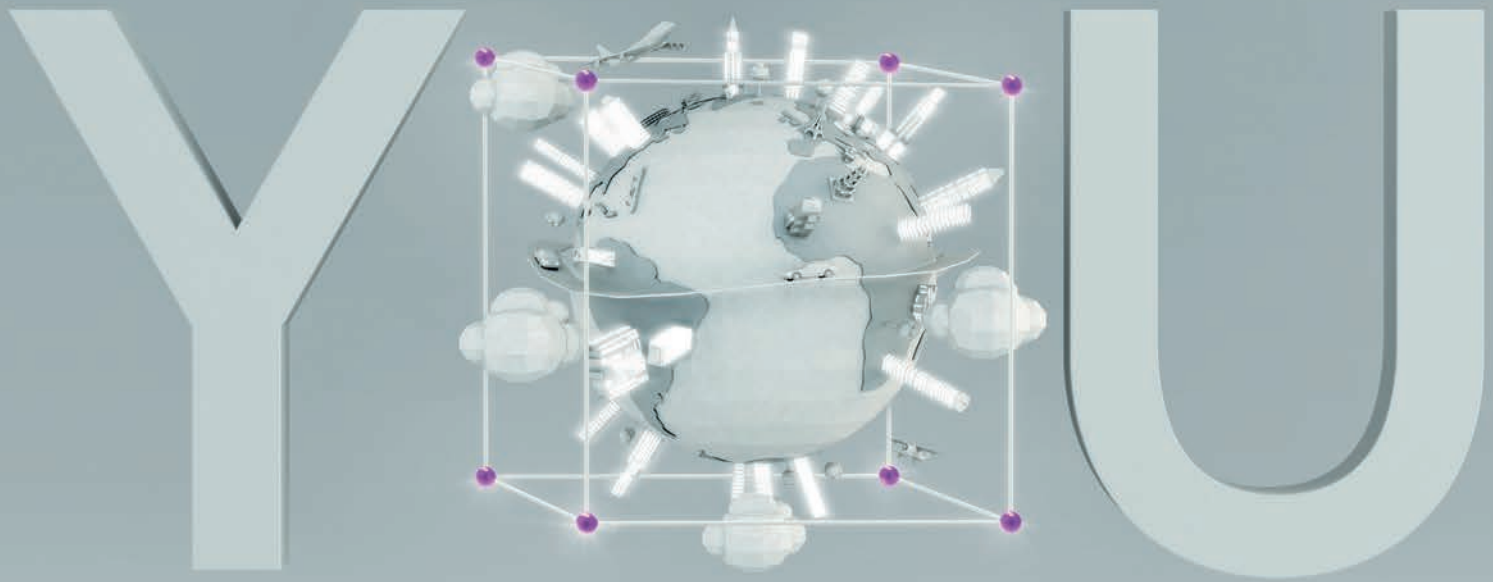
The additional capacity will be used for different customer networks in the Middle East and North Africa, particularly Saudi Arabia. Arabsat says it will use the bandwidth mostly for data services for enterprises, banking and government institutions.

Orbiting at 3°W, *ABS-3A* is one of the first all-electric propulsion satellites in space and entered commercial service on 31 August.

NEW APPOINTMENTS

Date	Name	New employer	New position	Previous employer	Previous position
22/09/15	Raymond de Graaf	Cambium Networks	SVP worldwide operations	Ixia	SVP operations
8/10/15	Richard Swardh	Comtech EF Data	VP, market development	Ericsson	Business development director
14/10/15	Tinus Neethling	Digitata	Group CEO	Rorotika Technologies	CEO
14/10/15	Matthew M. O'Connell	OneWeb	CEO	GeoEye	President & CEO
16/10/15	Yemi Lalude	TPG Growth, Africa	Managing partner	Adlevo Capital	Founder
19/10/15	Michel de Rosen	NA	NA	Eutelsat	CEO – steps down March 2016
19/10/15	Rodolphe Belmer	Eutelsat	CEO	Groupe Canal	CEO
19/10/15	Michael McDonnell	NA	CFO	Intelsat	CFO
19/10/15	Amrote Abdella	Microsoft 4Afrika	Regional director	Microsoft 4Afrika	Director of startup engagement & partnerships
20/10/15	Carsten Brinkschulte	Core Networks Dynamics	CEO	BlackBerry	SVP enhanced network services
20/10/15	Andreas Hipp	NA	NA	Epsilon Global Communication & Cataleya	CEO & co-founder – stepped down
20/10/15	Jerzy Szlosarek	Epsilon Global Communication	CEO	Epsilon Global Communication	COO
20/10/15	Jay Jayasimha	Cataleya	CEO	Epsilon Global Communication	CIO
5/11/15	Brian Jakins	Intelsat	Regional VP of sales, Africa	Aviat Networks	VP sales & services Africa

CLOUD & DATA CENTER SOLUTIONS FOR



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LPWANs to provide around a quarter of total IoT connections by 2020

The dominant position of traditional cellular networks in the market for M2M connectivity is about to change, according to Beecham Research.

In a report published in October, it said that as well as reduced energy consumption, low power wide area networks (LPWANs) also offer low cost, long range, and enable a far wider variety of machine-to-machine and Internet of Things (IoT) applications currently constrained by budgets and distance from a power source.

From a standing start in 2015, Beecham expects that by 2020 LPWANs will provide 26 per cent of the total IoT connectivity market with 345 million connections, marking an end to the near monopoly of traditional cellular networks for M2M connectivity.

It says there's a growing variety of LPWAN technologies, such as Sigfox as well as those developed by the LoRa Alliance. While most of these solutions utilise the ISM bands better known for use by short range wireless technologies such as Zigbee, Wi-Fi and 6LoWPAN, Beecham says recent advances have enabled LPWANs to be established using the ISM bands over longer distances – up to 50km in rural areas and 5-10km in urban areas. It adds that white space technology also promises connectivity over distances of 10km and with "superior" in-building penetration compared to 3G or 4G.

Beecham Research CEO Robin Duke Woolley adds that LPWAN is ideally suited to the African IoT/M2M market, where long range, low power and low data rates are typical requirements. "There are vast areas in Africa where it is not cost effective to install cellular but where LPWAN can be," he says. "For example, LoRa can be installed either as part of a public network available to all, or as a private network available only to one company's remote devices. There is also nothing to prevent a private LoRa network from being used by other companies through agreement with the owning party.

"We expect all of that to develop in Africa, particularly for smart farming, land security, tracking and possibly smart metering purposes."

LATEST COMPANY RESULTS

Date	Company	Country	Period	Currency	Sales (m)	EBITDA (m)	EPS (units)	Notes
3/10/15	Sandvine	US	3Q15	USD	27.9	NA	0.019	2% decline in revenues compared to 3Q14, but results were within targets & company remains profitable. EMEA is its biggest market & accounted for 37% of earnings.
13/10/15	IDT Corporation	US	4Q15	USD	405.8	12.4	0.05	4Q15 revenue down compared to $420.7m in 4Q14. Fabrix, which was sold in 1Q15, contributed $5.9m in revenue in 4Q14. Core businesses performed to overall expectations, according to CEO Shmuel Jonas.
22/10/15	Orange	France	3Q15	EUR	10.284 (bn)	3.557 (bn)	0.6	QoQ revenue increase of 0.5% reflects favourable change in mobile services across all regions.
22/10/15	Millicom	Luxembourg	3Q15	USD	1.64 (bn)	560	0.17	Overall revenues down 2% due to currency volatility. Africa fell 5.3% to $241m & EBITDA was $48m, a y-o-y fall of 12% largely due to stronger currency movements in Tanzania & Ghana plus continued difficult trading conditions in Chad.
23/10/15	Ericsson	Sweden	3Q15	SEK	59.2	NA	0.94	10% y-o-y sales growth in sub-Saharan Africa was driven by continued development of professional services business as operators focus on network quality and efficiency. Mobile broadband business was stable.
28/10/15	Eutelsat	France	1Q16	EUR	387.7	NA	NA	Earnings up 2.0% at constant currency. On track to achieve target of revenue growth of 2-3% for FY 2015-16 at constant currency, excluding non-recurring revenues.
29/10/15	Intelsat	Luxembourg	3Q15	USD	580.8	452.0	0.66	CEO Stephen Spengler: "Results are in line with our overall expectations for 2015." Firm now has high hopes for launch of next-generation *Epic* satellites which is just months away.
29/10/15	Alcatel-Lucent	France	3Q15	EUR	3,429		(0.07)	Group revenues, excluding managed services and at constant perimeter, grew 7% y-o-y. At constant exchange rates, revenues down 5%. Proposed merger with Nokia now in its final stages.
30/10/15	SES	Luxembourg	3Q15	EUR	493.5	366.5	NA	International revenues year to date were EUR439.7m – up 11.1% but 7.3% lower in constant forex terms. This was partially offset by growth from new agreements, notably with StarTimes in sub-Saharan Africa and *YahLive* venture.

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Phase 1:

- 3 segments in service:
  - France-Senegal,
  - Senegal-Cote d'Ivoire,
  - Cote d'Ivoire-Sao Tome & Principe.
- 16 countries connected on the coast, 2 landlock countries.

Phase 2, under construction or planned:

- Extension from Sao Tome & Principe to South Africa
- Canary Islands, Benin & Nigeria, Operational May 2015
- Cameroon, Democratic Republic of Congo, Angola, Namibia

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Full potential of mission-critical LTE now 'unlocked' for public safety

Nokia Networks has unveiled a portfolio of products for an end-to-end public safety network using LTE. It says its fully featured public safety LTE voice and data communications solutions are 3GPP compliant, including QoS, high availability, mobility, security and resilient IP connectivity.

MANUFACTURER:
Nokia Networks

PRODUCT:
Public safety LTE network

MORE INFORMATION:
www.nokia.com

The network is built on a wide variety of Nokia products which include its: RAN; EPC; VoLTE platform; IMS; *Core in a Box*; management solutions; self-organising networks; and *Liquid* technology.

At its heart is the vendor's LTE *Network in a Box*, or *NIB*. This offers standard authorised IP connectivity and can be installed in a vehicle, such as an ambulance or a fire truck, to create what's claimed to be a reliable 4G network in minutes in areas without cellular coverage.

Nokia says the *NIB*'s computing capabilities enable the integration of new applications at the edge of the mobile network. These include push-to-talk, group calls and messaging, location tracking, as well as advanced broadband functionalities such as situational awareness and real-time video streaming.

The firm says the entire infrastructure provides end-to-end security for public safety applications, protecting

devices and networks. It adds that the solution is supported by a "comprehensive" partner portfolio including devices, applications, and interworking functions for legacy systems such as TETRA and P25.

Hytera DMR handsets support RFID

Hytera has expanded its portfolio of critical comms devices with the *PD4* series. The new line-up includes two compact handsets, the *PD405* and the *PD415*, which both support conventional DMR as well as analogue radio.

MANUFACTURER: Hytera

PRODUCT: PD4 series

MORE INFORMATION:
www.hytera-mobilfunk.com

One of the key features of the series is an RFID reader module which is integrated into the *PD415* as standard. The radios can then be used in Hytera's *Patrol* system, enabling users such as security guards to scan distributed checkpoints in a building and send their current location to a control room where their positions are monitored in real-time on a digital map.

As well as the *PD415*, the *Patrol* system includes management software, RFID identity cards, and RFID check points. The radio itself also has an open application programming interface for RFID-based third-party developments .

Both the *PD405* and the *PD415* support mixed analogue and digital channel operation, pre-programmed text message transmission, and feature TDMA direct mode which

allows up to two simultaneous calls, even without repeaters. The *PD404* is dust- and waterproof according to IP55, while the *PD415* is IP54 rated.

JMA unveils high power remote for DAS

JMA Wireless has introduced the high-power *UltraWatt* remote unit to its *Teko* distributed antenna system (DAS). It reckons the new unit has a 390W peak power capability, and is ideal for supporting multi-operator, multi-technology applications that serve large, high-capacity environments.

Unlike other offerings currently in the marketplace, JMA says the *UltraWatt*'s EVM (error vector magnitude) performance is 256 QAM

MANUFACTURER:
JMA Wireless

PRODUCT: UltraWatt

MORE INFORMATION:
www.jmawireless.com

ready, and claims it provides robust coverage and capacity with one of the smallest footprints in the industry. It claims the unit represents the best performing high-power remote in the industry with EVM below one per cent.

JMA adds that the *UltraWatt* leverages advanced amplifier techniques that enable the handling of average power versus peak power considerations, thereby optimising for peak to average ratio results.

Ensuring complete control of M2M and IoT services

Starhome Mach says its new M2M portfolio provides operators, system integrators and service providers with new ways to globalise the Internet of Things (IoT), and differentiate service levels on an individual device level basis.

According to the mobile inter-carrier services specialist, IoT/M2M visibility and control is a key requirement that many operators are lacking today. The firm reckons its new OSS/BSS software empowers operators to identify inbound devices and take appropriate action. This ranges from offering the host differentiated service for the device, to steering it away from the network if it is poorly configured or has no commercial value.

Starhome Mach says it provides further differentiation of services with multiple coverage and technology choices. For example, providers can decide upon SIM localisation or optimised roaming routes depending on the enterprise cost profile and quality requirements.

The company provides mechanisms which its claims not only limit risk but also maximise margins for the operator and enhance the service provided to both machines and people.

MANUFACTURER:
Starhome Mach

PRODUCT:
M2M/IoT portfolio

MORE INFORMATION:
www.starhomemach.com

Point-to-multipoint platform for challenging RF areas

Cambium Networks has launched a 900MHz version of its flagship *PMP 450* point-to-multipoint wireless platform. It says the new *PMP 450i* access point allows for deeper frequency propagation to suit the needs of rural broadband deployments, SCADA and sensor data backhaul, and even video surveillance applications.

According to Cambium, the propagation characteristics of 900MHz frequencies "outperform" many others and are ideal for connecting subscribers and sensors that are difficult to reach. It says the *PMP 450i* has the same capacity as its other *PMP 450* radios, and provides the infrastructure needed to deploy networks in non-line-of-sight and remote environments.

Cambium says users of its *PMP 100* systems can now upgrade and unlock 900MHz capacity with the *PMP 450* platform. "We expect to achieve three to four times the amount of available bandwidth in the same channel size, even in the same noisy and interference-prone environments," claims the firm.

The *450i* is said to offer 100Mbps subscriber capacity in a 20MHz channel. It is 802.3at compatible, includes an auxiliary port, and customers can re-use the 30 VDC power supplies common to the *PMP 100*.

MANUFACTURER: Cambium Networks

PRODUCT: PMP 450i

MORE INFORMATION: www.cambiumnetworks.com

Ka-band antenna aims to flatten costs

C-COM Satellite Systems is planning to launch a new COTM (comms-on-the-move) flat panel antenna. It says the *iNetVu inMotion* leverages the broadband speeds offered by high throughput satellites (HTS) in Ka-band to provide low-cost, always-on connectivity into a moving vehicle.

The Canada-based company says COTM antennas are traditionally "expensive, elaborate and difficult to support". It says most are available mainly in Ku-band, and are equipped with pricey, high-powered transmitters that deliver limited amounts of bandwidth.

C-COM hopes its new antenna will open up land-based COTM markets such as buses, trains, military vehicles and many others that require broadband internet via satellite while on the move.

The *iNetVu inMotion* will use next-generation HTS which are capable of delivering significant amounts of bandwidth at a fraction of the price. C-COM claims it will cost significantly less than a Ku-band COTM antenna and deliver significantly more bandwidth to users such as governments, broadcasters, oil and gas companies, first responders, etc.

Full production of the *iNetVu inMotion* antenna system is expected to begin in 2Q16 following type approvals on Ka-band services for use of the system across the globe.

MANUFACTURER: C-COM

PRODUCT: iNetVu inMotion

MORE INFORMATION: www.c-comsat.com

Access point and backhaul in a single unit

Proxim Wireless has combined a WLAN access point with a carrier class wireless point-to-point backhaul radio and integrated them into a single ruggedised enclosure for outdoor deployments.

The *ORiNOCO QB-9100* features Proxim's *ORiNOCO* 2.4GHz AP and *Tsunami Quickbridge* 5GHz PTP backhaul radio. The company says combining the two functions into a single unit is designed to reduce hardware footprint, capital outlay, and recurring site rental costs.

QB-9100 products can all be centrally managed using *ProximVision Advanced*, Proxim's hybrid controller-network management system. The firm says this gives network administrators "great" flexibility and control of individual units in hetnet environments. It enables rapid deployments by automating configuration processes, exhaustive software-based device configuration capabilities, and easy upgradability.

With its very high throughput 866Mbps data rate, jumbo frame support, and IEEE 1588v2 synchronisation, Proxim says the *QB-9100* products provide all the necessary features and capacity for backhauling small cells. Moreover, the integrated 802.11n AP enables the offload of data to Wi-Fi.

MANUFACTURER: Proxim Wireless

PRODUCT: ORiNOCO QB-9100

MORE INFORMATION: www.proxim.com

ALSO LOOK OUT FOR

Perpetual power using energy harvested from RF signals

A UK company has launched what's claimed to be revolutionary new technology that turns RF waves into usable electricity to charge low-power devices.

'Freevolt' was developed by an international team from Drayson Technologies and Imperial College, London. It harnesses the unused wireless energy generated by transmission signals on mobile, Wi-Fi and broadcast networks.

Paul Drayson, CEO and chairman of Drayson Technologies, says Freevolt solves the problem of harvesting usable energy from a small RF signal. "Companies have been researching how to harvest energy from Wi-Fi, cellular and broadcast networks for many years. But it is difficult because there is only a small amount of energy to harvest and achieving the right level of rectifying efficiency has been the issue – until now."

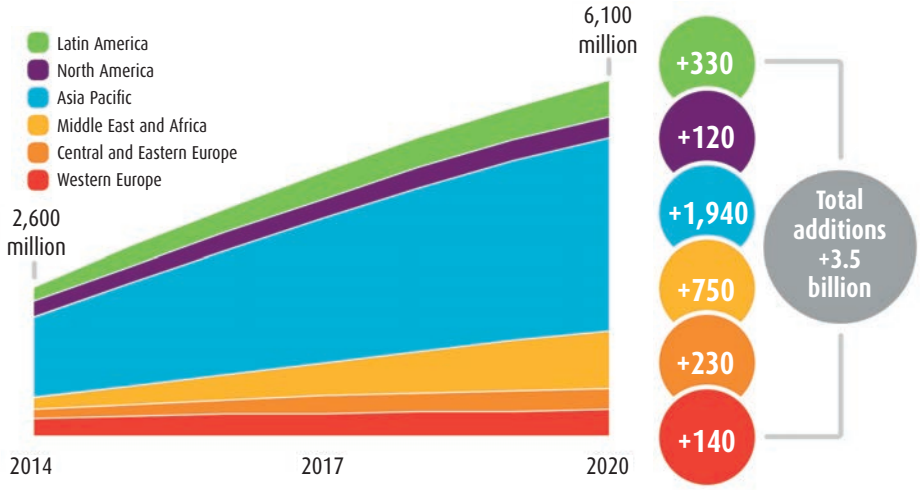
The Freevolt harvester comprises a multi-band antenna and rectifier which is said to be capable of absorbing energy from multiple RF bands at almost any orientation. It's claimed the small, lightweight design is scalable and suitable for a range of uses, such as low-energy devices in the Internet of Things which can be perpetually powered.

Drayson will be the first company to market the patent-pending technology which is now commercially available for license to the international developer and business communities.

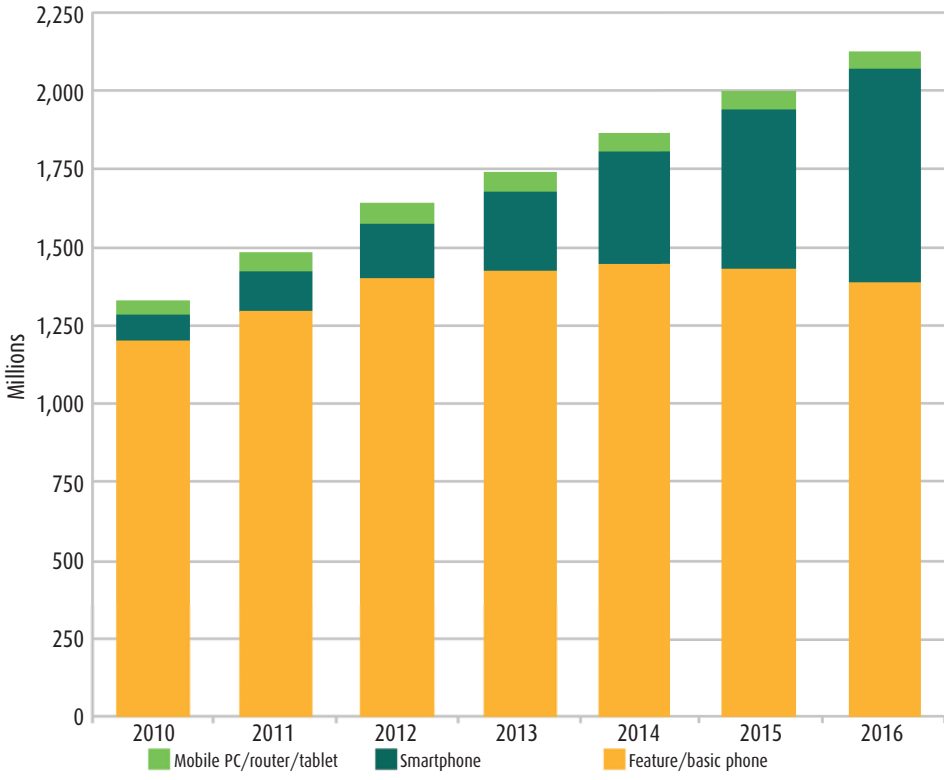
The first commercial application of Freevolt is the *CleanSpace Tag*, a totally portable personal air pollution sensor that was co-developed with the PA Consulting Group. The idea behind *CleanSpace* is to create a crowd-sourced network of personal air sensors, initially across the UK before expanding to major cities across the world. The aim is to start a social movement where people can connect and work together to reduce air pollution.

Smart operators

With more MNOs now relying on data revenues to prop up flagging ARPUs, RAHIEL NASIR looks at what the continent's smartphone market has to offer.



Almost 80 per cent of smartphone subscriptions added during 2015–2020 will be from Asia Pacific, the Middle East and Africa. SOURCE: © ERICSSON (JUNE 2015)



Mobile subscriptions split per device in Central Europe, Middle East and Africa. SOURCE: © ERICSSON (JUNE 2015)

Global mobile penetration reached 99 per cent in the first quarter of this year, according to Ericsson's latest annual *Mobility Report* published in June. Smartphones accounted for almost 75 per cent of all mobiles sold worldwide during 1Q15, compared to around 65 per cent in 1Q14. "2014 saw more than 700 million [new] smartphone subscriptions, due to the addition of new subscribers and existing subscribers exchanging their basic phones for smartphones," said the report. "It took over five years to reach the first billion smartphone subscriptions, a milestone that was hit in 2012, and less than two years to reach the second billion."

Ericsson believes that greater affordability in developing markets such as Africa will mean smartphone subscriptions will surpass those for basic phones by 2016. This looks likely. In its *Mobile Phone Tracker* data for the second quarter of the year released in August, International Data Corporation (IDC) forecasts that smartphone shipments in the Middle East and Africa will reach 165 million units by the end of 2015. The global technology consulting firm said more than 41.9 million units of smartphones were shipped in the MEA region during the quarter, representing a year-on-year increase of 60.2 per cent (compared to 2Q14).

In Africa, 54.1 per cent of the handsets shipped during 2Q15 were smartphones. IDC said this was at the expense of feature phones which suffered year-on-year declines of around 25 per cent in Africa and 24 per cent in the MEA region as a whole.

Kenya, Nigeria and South Africa contributed significantly to the overall growth seen in Africa, with year-on-year growth of 46, 99 and 49 per cent respectively. Together, IDC said these three countries accounted for 27 per cent of all smartphone shipments across the continent during the second quarter.

GENERATION	UNITS SHIPPED		SHARE %	
	2Q14	2Q15	2Q14	2Q15
2.5G			41.8	31.9
2G			26.0	23.5
3G			27.2	35.6
4G			5.0	9.0
TOTAL	39.0m	43.5m	47.3	52.7

Mobile phone shipments in Africa according to cellular technology. SOURCE: IDC MOBILE PHONE TRACKER, 2Q15

The tracker also revealed that Samsung, Tecno and Huawei are currently Africa's top smartphone vendors with a combined 44 per cent share of shipments. Huawei has now replaced Apple from the top three list in the previous quarter.

In terms of total mobile shipments which include feature phones as well as smartphones, Samsung, Tecno, Nokia, Alcatel and Huawei currently represent the top five vendors in Africa with a combined market share of 53.9 per cent. The remaining 46.1 per cent is made up of other vendors. Nabila Popal, IDC's *Mobile Phone Tracker* research manager for MEA and Turkey, said: "Africa is witnessing a huge growth in many new vendors that did not exist a year before, such as Lenovo, X-Tigi and Condor Electronics, each now shipping over half a million units a quarter. There is rapid growth of 89.5 per cent in volume from Q2 2014 in the smartphone market. This has resulted in smartphone penetration on the continent to increase to 54.1 per cent from just 31.8 per cent a year ago in Q2 2014."

Like Ericsson, IDC said the region's smartphone growth is largely being driven by the emergence of low-priced devices. These are primarily powered by Google's *Android* operating system. In Africa, the platform currently represents 92.6 per cent of the market while the others have shown declines – *Windows Phone* now accounts for 3.3 per cent, Apple *iOS* 2.8 per cent, and BlackBerry 1.3 per cent.

Android is said to be particularly dominant in the low to mid-priced market – just over 45 per cent of smartphones shipped across Africa in 1Q15 were below USD100, while almost 75 per cent were under USD200. Popal reckons this price bracket seems to be the 'sweet spot' for most vendors launching in the region, as well as for established ones looking to increase their shares by targeting the lower end of the market.

"This has resulted in phones priced under USD200 accounting for about 36 per cent of the Middle East smartphone market, while at the other end of the spectrum the USD450+ price band has seen its share fall from 25 per cent in Africa and 48 per cent in the Middle East a year ago, to 14 and 34 per cent [respectively] today," she said.

Ericsson's report stated that the total number of global mobile subscriptions in 1Q15 was around 7.2 billion and are growing by 1.5 per cent quarter-on-quarter. Seventy-five per cent of that growth in the first quarter came from Africa and Asia, and Ericsson expects this pattern to continue to 2020. It said the strong growth particularly in MEA is due to a young and increasing population, as well as rising GDP. Africa's current mobile penetration rate of 78 per cent, the lowest compared to other regions, also indicates room for growth.

"Africa is witnessing a huge growth in many new vendors that did not exist a year before... This has resulted in smartphone penetration on the continent to increase to 54.1 per cent from just 31.8 per cent a year ago."

The report added that 80 per cent of mobile subscriptions in Africa were GSM/EDGE-only in 2014. Of the rest, most were WCDMA/GSM while a small proportion were just CDMA. In sub-Saharan Africa, Ericsson said GSM/EDGE-only subscriptions will remain predominant up to 2020, due to the high number of lower income consumers using 2G-enabled handsets. However, it predicts that over the next five years, WCDMA/GSM will fall to 55 per cent as LTE/WCDMA/GSM and LTE/CDMA begin to rise.

In September, the Global mobile Suppliers Association (GSA) confirmed that worldwide LTE subscriptions continue to grow faster than any other mobile communications system technology. It said there were 755 million LTE subscriptions globally by the end of June 2015. But while APAC leads with around 390 million LTE subscribers as at 2Q15, MEA trails at around 25 million. That's despite most African countries either having seen the launch of commercial LTE networks or still progressing/piloting deployments. According to GSA data, some notable areas where there currently seems to be no LTE activity include parts of Western Africa such as Mali, Mauritania and Niger, as well as Eritrea and Mozambique in the East, and CAR and Congo Brazzaville in Central Africa.

Nonetheless, IDC's Popal said there is currently a boom in 3G- and 4G-enabled devices on the continent, with 3G increasing in volume by almost 45 per cent and 4G increasing by 100 per cent from 2Q14 to capture a 35.6 and nine per cent share respectively *(see Mobile shipments in Africa according to cellular technology, previous page)*.

The cost of network expansions aside, it could be argued that a lack of affordable devices as well as locally relevant online content hinders the rollout of mobile broadband technologies such as LTE. Or should operators take the approach of 'if you build it, they will come'? That's what Dhiraagu, for example, has done in the Maldives. Earlier this year the MNO launched the first commercial LTE-A service on the islands while admitting that there were very few handsets in the country's market that supported the technology. Dhiraagu, which claims to be the largest telco in the Maldives, said its aim was to be a "front runner" in introducing the latest mobile broadband technologies.

Spoilt for choice

Of course in Africa there is certainly no lack of handsets. With all the world's major vendors beating a path to the continent's markets, as well as devices developed especially for the region, it could be argued that local consumers have never had it so good when it comes to new mobiles.

For example, established in Hong Kong nine years ago, Tecno Telecom is now one of world's largest mobile phone makers, and in 2008 it made a decision to focus on Africa as its key market. As testified by IDC above, Tecno continues to be one of the continent's top three mobile phone brands and the company is aiming to consolidate its position with the recent launch of its flagship handset, the *Phantom 5*.

The dual SIM smartphone uses *Android 5.1* and supports 4G (LTE-FDD Band 3/7/20) and 3G (WCDMA 900MHz/2100MHz). It has an internal 3GB RAM as well as a 32GB ROM, a 5.5-inch full HD screen, an eight megapixel front camera plus a 13 megapixel back camera. The *Phantom 5* also features a fingerprint scanner

Left: the *Phantom 5* is Tecno's latest flagship device for Africa.
Middle: the *Style* from Johannesburg-based AG
Right: the Samsung *Galaxy S6 edge+* with its innovative edge touchscreen.

which means users don't need to set a password to protect their privacy.

TECNO has also introduced its *Camon* range of phones which include the *C8* that is designed to capture "perfect" pictures even in low light, and the *C5* which is additionally 4G-enabled.

Another firm focusing on the continent is Johannesburg-based AG Mobile. It was setup in 2007 by a group of South Africans with a vision to offer mobile devices and smartphones "for Africans by Africans". The company says: "Our handsets hold their own among devices of their class, each manufactured according to high-level specifications, which make them not only good-looking but highly functional too."

Among the company's latest devices is the *AG Style* smartphone which has a MediaTek *MT6582* quad-core 1.3GHz processor, and pre-loaded apps such as *WhatsApp*, *Facebook*, *WeChat*, *Instagram*, *BBM* and *Playstore*. It will also be one of the first devices to support the new *Wi-Fi Calling* service launched by South African MNO Cell C.

With 3G connectivity and *Android 4.4 KitKat*, the *Style* features an 8MP back camera, a 2MP 'selfie' camera, and a five-inch FWVGA display. It offers 10 days of standby time and four hours of talk time.

The big news from Samsung's mobile phone division is the *Galaxy S6 edge+* and *Galaxy Note5*. With increased 4GB RAM, the manufacturer claims its new smartphones offer the "most powerful" capacity and processing power on the market. Both devices also feature a curved 5.7-inch Quad HD Super AMOLED screen to provide what the company describes as a "more immersive" multimedia experience as well as "more productivity on-the-go".

The *Galaxy S6 edge+* has Samsung's new 'Apps edge' which allows users to access their favourite apps by swiping the edge display. There's also 'People edge' – from the edge screen, users can quickly find their preset contacts and call or send messages to them directly.

The *Galaxy Note5* includes an all new *S Pen* that is said to offer improved writing capabilities and a variety of practical applications. Users can now quickly jot down ideas or information when the screen is off without even unlocking the phone. They can also annotate PDF files and capture lengthy web articles or long images simultaneously via a 'scroll capture' feature.

Both devices support 4G, use *Android*, and have 32GB or 64GB storage options. They also offer 4K (Ultra HD) video filming and 'Live Broadcast' which lets users instantly stream live, full HD video, straight from the phone.

Other features include Samsung's fast wired and wireless charging technology. With wired charging, the company says the devices can be fully charged in approximately 90 minutes, while using its latest wireless charger each can be fully powered in around two hours.

Dealing with the pressure

Huawei reckons its new flagship device ushers in a "new era for human-machine interaction" as it redefines how touch technology is incorporated into smartphones. The *Mate S* features *Fingerprint Sense 2.0*, an upgraded version of the advanced chip level security and single-tap unlock technology used on Huawei's *Mate 7*. It's claimed this is now faster, more sensitive, and has more accurate self-learning functions to improve recognition speeds by 100 per cent. In the *Mate S*, the fingerprint sensor is used for more than just privacy. It allows users to control notifications, scroll through photos, take selfies, answer calls, and even dismiss alarms quickly.

The smartphone also uses an advanced version of Huawei's *Knuckle Sense* technology, providing a host of new features and functionality at the tap of a knuckle. For instance, users can quickly switch between apps by drawing a shortcut letter on the screen, such as a 'c' to activate the camera, 'm' to listen to music, or 'e' to surf the internet. Personalised knuckle shortcuts can also be created.

Huawei says another innovative feature is the *Mate S*' pressure sensitive touch technology (available in selected markets to be confirmed). This perceives different levels of pressure on the screen allowing the user to complete different actions – such as zooming into a photos or launching an app – by applying increasing pressure. Huawei expects more new and unique pressure sensitive touch applications to become available.

Separately, the company has teamed up with Google to unveil what's claimed to be the "ultimate" premium smartphone. The *Nexus 6P* has *Android 6.0 Marshmallow*, Google's latest operating system for mobile devices, as well as the latest version of the octa-core Qualcomm *Snapdragon 810 v2.1* processor.

The device is equipped with the reversible USB Type-C port, and Huawei claims the included Type-C fast charger gives up to seven hours of battery life from a 10-minute charge.

The two partners reckon the *Nexus 6P* offers the best all-around camera which is ideal not only for outdoor photography but also in conditions where the lighting is less than ideal. They say the larger 1.55um pixels capture more light even in the dimmest conditions to produce "stunning details and sharp images". The device is also capable of recording 4K and high-frame-rate slow-motion videos.

A fingerprint sensor, 32/64/128GB storage capacity, 5.7-inch WQHD AMOLED display, and an 8MP front facing camera with Google's HDR+ technology are also included.

ZTE is also including pressure sensitive devices as part of its latest flagship series of smartphones. The new *AXON* range includes the *mini* which was claimed to be the world's first smartphone with the enhanced touchscreen functionality when it was first unveiled in July.

With a body made from Boeing 787 aircraft-grade aluminium-titanium alloy, ZTE says the *mini* has both a "premium look and feel". The handset is 3.5mm thin and 70mm wide, and has a 5.2-inch Super AMOLED full HD curved-edge screen.

Other features include a Qualcomm *Snapdragon 616* octa-core processor and *Adreno 405* GPU, 3GB RAM, 32GB ROM, and support for three different biometric authentication options: fingerprint, voice control and eye-scan.

Apple unveiled its latest *iPhone* models earlier this year, and at the time of writing they were expected to make their debut on the continent with MTN South Africa in mid-October, and Cell C, Vodacom and other operators following soon.

Like Huawei's *Mate S* and ZTE's *AXON mini*, the *iPhone 6s* and *iPhone 6s Plus* also feature pressure sensitive technology which Apple calls '3D Touch'. They also introduce *Live Photos* which, according to the manufacturer, brings "still images to life", although some critics have joked that this is called video and has been available on phones for years.

The new *iPhones* feature Apple's A9 chip which the company claims is the "most advanced" ever in a smartphone, delivering faster performance and "great" battery life.

It adds that the devices are designed with the "strongest" glass on any smartphone, as well as *7000 series* aluminium – the same alloy said to be used in the aerospace industry. ■

Top: Huawei's *Mate S*. Right: the ZTE *Axon*. Far right: Apple's latest *iPhone 6* and *iPhone 6 Plus*.

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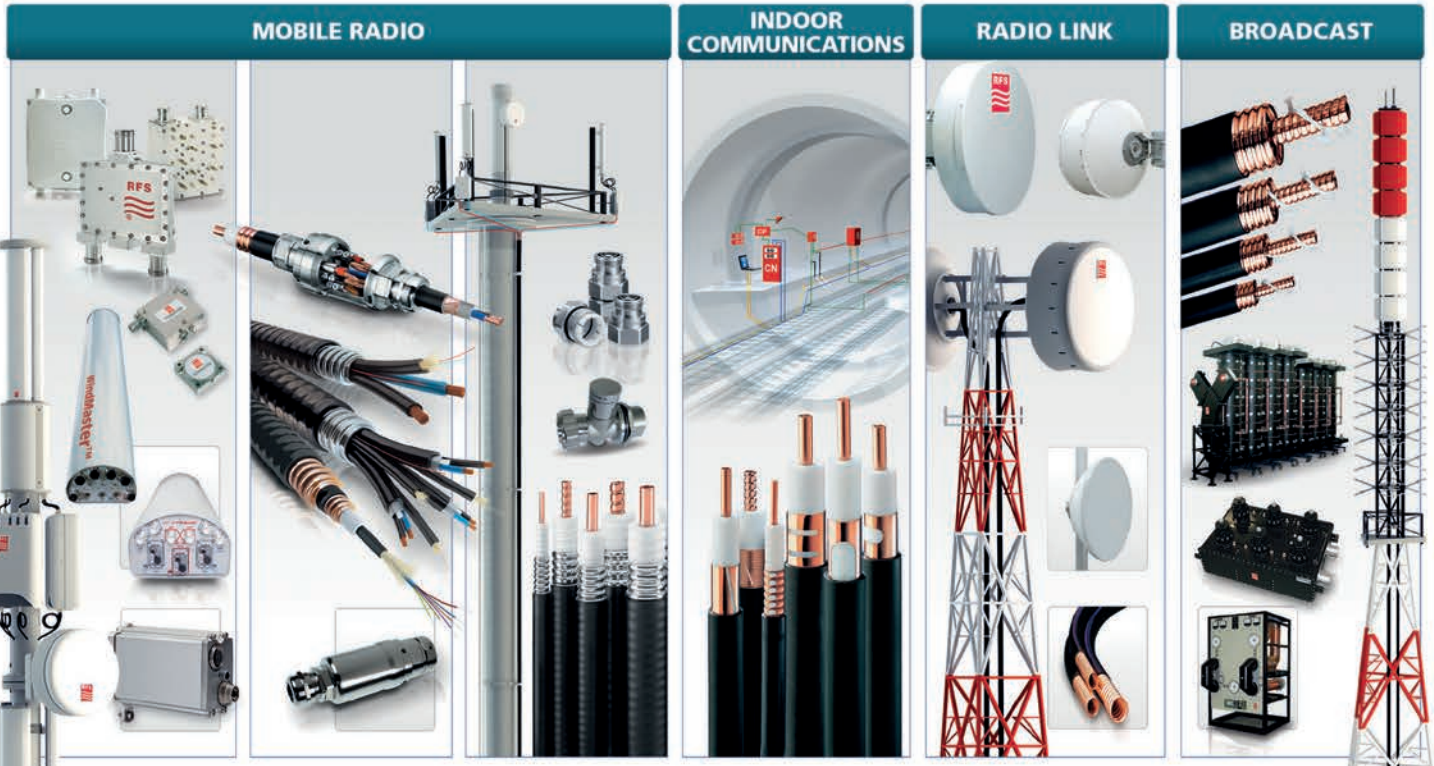

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Reaping the dividend

The Mawingu Project in Kenya uses TVWS technology to create Wi-Fi hotspots. It now covers around 50 locations throughout Nanyuki including five schools.

As Africa switches from analogue to digital broadcasting, will this create an opportunity to rollout low-cost wireless broadband, especially to remote users? DAVE HOWELL finds out.

On 17 June, the ITU deadline for the switchover from analogue to digital terrestrial television broadcasting for 119 countries belonging to ITU Region-1 – which includes Africa – was reached *(see News, Jun-Jul 2015)*. The transition creates the so-called 'digital dividend' as the UHF/VHF spectrum that was previously assigned to analogue broadcasting can now be re-used for other applications.

According to the ITU, digital dividend spectrum is located between 200MHz and 1GHz. It says these frequencies possess superior signal propagation characteristics compared to those at, for example, 2.4GHz. This means less infrastructure is required to provide wider mobile coverage, resulting in lower costs for communication services, especially in rural areas.

The union adds that the amount of spectrum to be released in the switchover depends on the geography and topography of a country, the degree of penetration of cable and/or satellite television services, requirements for regional or minority television services, and spectrum usage in neighbouring countries. The amount also depends on the digital television technology being implemented to replace analogue services.

So while individual nations are at liberty to re-use digital dividend spectrum as they see fit, some believe it can be best deployed for the cost-effective rollout of wireless broadband, especially to remote and rural users. In Africa, many countries such as Egypt, Namibia, Nigeria, South Africa, amongst others, have government-led digital strategy plans in place. The question is whether these governments will take the opportunity provided by the digital dividend and use the freed spectrum to improve wireless connectivity.

In addition, last year's ITU-hosted spectrum allocation conferences agreed that mobile services would adopt both the 700MHz and 800MHz bands.

Prof. H. Sama Nwana, Executive director, Dynamic Spectrum Alliance

"Inane public officials in control of TMT policy at ministries and regulators must truly realise what a brake they are on our African countries."

However, there are clear differentials across service providers in Africa when you you consider the entire sub-1GHz band which therefore doesn't offer the interoperability or an ecosystem of wireless services that the digital dividend could deliver.

Having said that, the continent became the first region to offer any kind of harmonisation plan after 47 sub-Saharan countries agreed to clear both 700MHz and 800MHz frequency bands for mobile telephony in 2013 *(see News, Aug-Sep 2013)*.

Could white space fill the void?

The push to deliver more services to an existing user base across Africa is continuing at pace. LTE is expanding, but it's how operators and governments across the continent approach the expansion of mobile access that is now at a critical point.

The potential earnings, however, could be vast. Speaking at the Commonwealth Digital Broadcasting Switchover Forum 2015, Mortimer Hope, the GSMA's director of spectrum for Africa, said that the digital dividend could deliver a USD49 billion contribution to GDP by 2020.

Africa has experienced the fastest growth in mobile broadband services, expanding by 800 per cent in the last five years. But penetration levels remain low at 17.4 people for every 100,000

consumers in the region. The digital dividend clearly has the potential to change that.

However, using the spectrum to deliver fast wireless broadband on the continent is further complicated by another broadcast technology: TV white space. This leverages the 'buffers' in the frequencies below 800MHz that were previously used to guard analogue TV channels against interference from one another.

Broadband signals delivered through TVWS technology can travel longer distances (around 10km), are able to penetrate obstacles such as trees and buildings, and are more robust compared to other wireless internet delivery methods. TVWS spectrum is unlicensed, but in order to use it devices must communicate with a regulator database to obtain a list of currently available white space channels and ensure other users of the frequencies are protected.

Under its *4Afrika* initiative, Microsoft has been championing TVWS technology across the continent for several years. It has worked with various project partners on trials in countries such as Botswana, Ghana, Namibia, South Africa and Tanzania.

A number of deployments have taken place in Kenya, most notably a project dubbed 'Mawingu' (the Kiswahili word for 'cloud') in Nanyuki, a market town in Laikipia County. It started three years ago in collaboration with the Global Broadband and Innovations Alliance, a partnership between USAID and NetHope, and was the first time TVWS frequencies were combined with solar-powered base stations to deliver low-cost broadband to a rural area that lacks even basic electricity.

Mawingu's TVWS internet signals are converted into ordinary Wi-Fi hotspots, and the plan was to cover 50 locations throughout 2014. The project now connects eight customer sites, five schools, the Laikipia County Assembly office, Laikipia District Community Library, Red Cross and the Burguret Dispensary healthcare clinic.

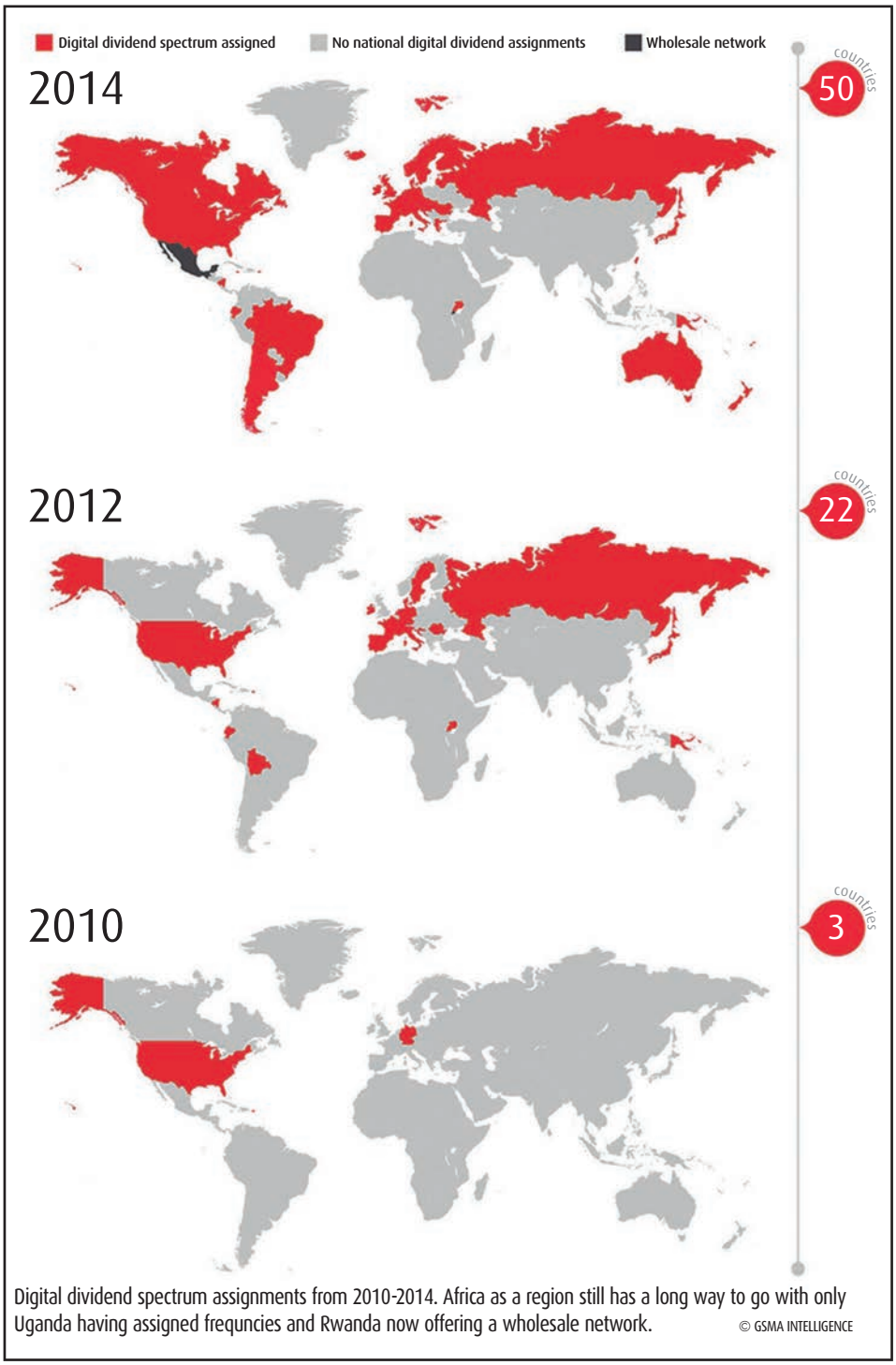
Despite the work Microsoft has been doing using TVWS, Steve Blythe, director for spectrum strategy at Orange, believes the technology has remained in the R&D phase for a number of years, and that there have so far not been any significant deployments.

"There are a number of reasons why this has been the case: issues around the development of the cognitive techniques used; concerns about the viability of data stored in the interference management databases; and the real-world experience that would be deployed. The first two points need further clarification before proceeding as ensuring that the primary licensee for the spectrum, within which sit the white spaces, is not affected in any way," he says.

Adam Denton of Coleago Consulting supports this view. Despite the deadline for the analogue switchover in ITU Region-1 having come and gone, he says the reality is that in many African countries the transition to digital TV has yet to be completed. Denton also points out that the 800MHz spectrum identified for mobile at the World Radiocommunication Conference 2007 (WRC-07) has yet to be released.

"Given the complexity of managing the digital TV transition, it is probably unrealistic to simultaneously deploy white space solutions in the UHF band. As a result, it is likely to be quicker and easier to release the 800MHz spectrum for mobile than to setup the spectrum databases, the policy frameworks and the interference management regime needed to manage white space solutions."

The GSMA's Hope also believes that a number of uncertainties remain in terms of the deployment of TVWS technology. He adds: "TVWS should not disrupt international harmonisation efforts that have gone into identifying spectrum for mobile services – particularly in regards to digital dividend spectrum. Right now, the focus should be on preparing for WRC-15 this November in Geneva."



Digital dividend spectrum assignments from 2010-2014. Africa as a region still has a long way to go with only Uganda having assigned frequncies and Rwanda now offering a wholesale network. © GSMA INTELLIGENCE

Connection challenges

There is no doubt that the digital dividend could transform how mobile broadband is delivered to a mass audience across Africa. The harmonisation of projects and decisions about where investments should be made is hampering the rollout of faster wireless connection services. Kenya and Rwanda for instance are looking closely at more wholesale usage of LTE.

Prof. H. Sama Nwana, executive director at the Dynamic Spectrum Alliance, says ensuring the digital switchover across Africa in order to release the digital dividend will be a good start. But he adds that this needs political will, funding and a good telecommunications, media and technology (TMT) strategy.

"Secondly, inane public officials in control of TMT policy at ministries and regulators must truly realise what a brake they are on our African countries. There is usually neither urgency, strategy, funding or competence with these officials. This sort of culture must go and new competencies developed."

Nwana goes on to say that what Africa needs are visionary ministers, regulators and TMT leaders who have the commitment and management skills to execute projects of national importance such as DSO, fibre, 3G/4G – and all whilst addressing affordability and accessibility concerns.

"Thirdly, political will and funding is required. The business case is simple: for every 10 per cent growth in broadband subscriber numbers, there is a 1.3 to 1.4 per cent growth in GDP in sub-Saharan markets (World Bank); for every doubling of mobile data use, there is a GDP increase of 0.33 to 0.6 per cent. So it makes simple sense to build these 4G and Wi-Fi networks, and keep doubling the speeds."

While there are also practical challenges such as power and electricity sources to consider, delivering new services across Africa will clearly require more bandwidth.

"Low frequency spectrum (sub-1GHz) is an essential element to providing cost-efficient mobile coverage as a direct result of its propagation advantage," says Orange's Blythe. "This benefit is true in all regions, but especially so in Africa where many countries are geographically large with significant areas of low density populations. This makes the delivery of mobile services in a cost-efficient manner a challenge."

Blythe believes that this is why the digital dividend is essential; it is sub-1GHz spectrum and has been fully standardised for use by LTE.

"The deployment of 4G networks across Africa has been limited to date and is well behind other regions. There are a number of reasons for this but a key factor has been the limitations on the use of spectrum, i.e. the lack of availability of spectrum bands that would facilitate a cost-efficient deployment.

"700MHz as well as 800MHz spectrum will be a key enabler that facilitates the delivery of 4G. These deployments will then enable the delivery of high-speed mobile broadband in areas that are currently without internet services due to the lack of fixed networks and the cost of satellite."

Slow progress on faster networks

While few would dispute the benefits of using digital dividend frequencies to accelerate mobile broadband rollouts, many countries in Africa do not seem to be in any great rush to harness the spectrum. Indeed as said before, most countries on the continent have missed the deadline that was set for their digital switchover. Those such as Tanzania, Namibia and Mauritius are making progress and could show the way for others, but it's clear that there isn't the urgency that is necessary to push through tangible change on a regional basis.

And as Blythe has already pointed out, the deployment of 4G has been hampered by the availability of suitable spectrum. He adds that Africa is three times the size of Europe, but has only one and a half times the population. "So one of the key questions is how can wide area coverage be delivered to such a large landmass, where the population density is low, with good customer experience in an economically viable way?"

In its latest report into broadband provision, the GSMA states that national spectrum management policies also play a critical role in realising the potential of mobile broadband: "Governments and regulators must do their part particularly by the timely releasing of spectrum to accelerate mobile broadband deployments, such as the digital dividend, that can play an important role in facilitating faster and efficient network deployments."

The report adds that the 700MHz and 800MHz lower frequency bands in particular offer the broadest geographical coverage and are therefore more cost-effective for wider areas.

With fibre still having some way to go in connecting the continent, does Africa have a wireless broadband future? There are green shoots of success and a level of tangible progress, but more needs to be done and at an accelerated pace. How the region achieves this is as yet unclear. The digital dividend that is now available is slowly being exploited – but not quickly enough for many. ■

THE OPERATOR'S VIEW

MTN is Africa's biggest mobile operator. So what are its plans for the digital dividend? BERTUS EHMKE, the company's senior manager for spectrum strategy, says internet connectivity is not the goal.

"MTN has already launched LTE in several countries in Africa. However, these networks operate mainly in re-farmed 1800MHz and 2600MHz spectrum. Coverage is challenging with these high frequencies. Also, the specific re-farmed 2600MHz bands are not always well supported on devices, leading to slow take-up.

"Since MTN's radio networks throughout Africa are all modernised, the introduction of LTE in the digital dividend band will be a very quick, largely software-enabled, switch-on. This will drastically and rapidly extend coverage beyond the dense city centres currently covered.

"However for MTN, simple internet connectivity is not the goal. It serves as the enablement layer in order to deliver a digital lifestyle to the consumer. The goal is to engage the consumer in every avenue of his/her life, through entertainment, commerce and transactions, information and education."

Does Ehmke (*pictured below*) believe the digital dividend is the chance Africa has been waiting for to rapidly develop wireless broadband services? "It would be a little myopic to say that the digital dividend is the one and only key to providing rapidly developing wireless broadband services in Africa. However, it is a formidable building block.

"Realistically speaking, it really only delivers 30MHz of paired spectrum, which may deliver throughputs sufficient for today's online engagements. However, at the pace that internet traffic grows, Africa will also need to look further 'south' for more capacity – regulators should also look lower in the band, specifically at 'digital dividend 2' (700MHz) and further bands becoming available."

So does he also think that regulators are a stumbling block here? What is standing in the way of using digital dividend spectrum that has been freed? "Analogue TV currently occupies the 800MHz band earmarked for LTE, and the analogue switch-off will enable the digital dividend, also known as LTE Band 20.

"However, one needs to understand that several African countries also run CDMA networks at 800MHz (Band 5). Some of these licenses have significant tenure left and it is possible that operators may want to keep running these networks for a few years still. Only then will the band be fully usable as Band 20 for LTE."

How could TV white space (TVWS) technology fit into the development of wireless broadband across Africa?

"As a rule, terrestrial TV transmissions carry fewer channels in African countries than their European counterparts, implying that there is an opportunity to allocate more white space spectrum in between these channels.

"But for TVWS to function effectively, standardised technology as well as regulatory competence is needed. The technology is highly reliant on real-time databases which guide operators as well as equipment to which bands they should attempt to use. The upkeep and management of such a real-time database, is a highly specialised – and expensive – ongoing initiative. It is doubtful whether African regulators and departments of communication will be able to allocate such generous resources to this, given all of their other responsibilities.

"This may easily see private entities rising to fulfil this function. But this is where clashing of interests may come into play – will private entities serve the aspirations of the country as a whole without being tempted into favouring themselves or third parties?"

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Alliances unite to expand spectrum for unlicensed technologies

The Wireless Broadband Alliance (WBA) and the Dynamic Spectrum Alliance (DSA) will work together to promote and support the development of unlicensed wireless technologies, including TV white space.

The WBA focuses on driving next-generation Wi-Fi and its role in public services such as the IoT, Smart Cities, 5G, etc., while the DSA advocates laws and regulation that will lead to more efficient and effective spectrum utilisation. The organisations plan to combine their efforts to drive forward, innovate, and promote the use of unlicensed wireless technologies at both the technical and regulatory level. They aim to expand the available spectrum as well as co-develop guidelines that ensure interoperability within the ecosystem.

WBA CEO Shrikant Shenwai says the growing appetite for data, both for consumer use and increasingly in voice and IoT deployments, means innovative solutions need to be explored to maximise the efficiency of wireless spectrum use.

WBA CEO Shrikant Shenwai says effective spectrum utilisation is "the oxygen" needed for future innovation.

"The combination of Wi-Fi and other unlicensed wireless technologies require effective spectrum utilisation to provide the oxygen of future innovation," he says. "The work undertaken by the WBA and the DSA will expedite the availability of a new generation of internet access."

The alliances say radio technologies in unlicensed spectrum, such as Bluetooth, Wi-Fi and ZigBee, have been widely adopted over the last 20 years. The DSA adds that the Wi-Fi ecosystem is "invaluable" to connecting the next four billion consumers in emerging markets. It believes the work it will do with the WBA will support governments with their economic growth, and enable a new wave of startups to bring innovations in the unlicensed wireless ecosystem to the top of the agenda.

DMR to sit alongside TETRA in Mongolia

Sepura has made its debut in Mongolia with the Municipality of Ulaanbaatar selecting its critical comms technology for public safety organisations.

The vendor's DMR system will replace the municipality's legacy analogue infrastructure, and is being deployed as part of a major initiative by the city authorities to address and improve risk prevention and disaster management in the capital.

The DMR solution will run alongside an existing TETRA system supplied in 2010 by Teltronic – the Spanish critical comms specialist acquired by Sepura earlier this year.

Global Telecom, Sepura's channel partner in Mongolia, will oversee the migration from analogue to digital communications for the entire municipality. The specialised network integrator will be responsible for the complete installation and deployment of the new system, and will deliver training to the public safety user teams operating in Ulaanbaatar.

With their "crystal-clear" audio, Sepura's radios are expected to perform well in Ulaanbaatar's noisy streets.

Batgerel Chuluunnast, Global Telecom's GM, says: "Sepura radios will be beneficial to users operating in the city's noisy streets thanks to their crystal-clear audio, and will allow clear and uninterrupted communication which is a vital requirement in emergency situations."

With a population of more than 1.3 million people, Ulaanbaatar is Mongolia's largest city. It is the centre of the nation's road network and is connected by rail to both the Trans-Siberian Railway and the Chinese railway system. The Municipality of Ulaanbaatar is independent and not part of any province.

Teledensity surpasses 100 per cent in Nepal

The Nepal Telecommunications Authority (NTA) says teledensity in the country is now at 101.4 per cent with mobile subscribers using multiple SIMs.

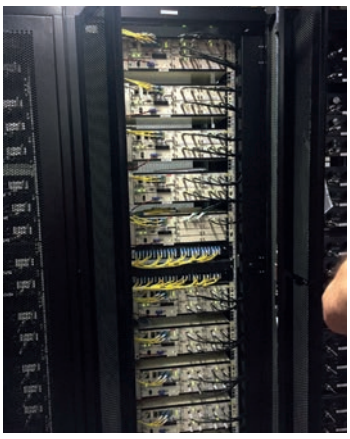
The country's population stood at 26.49 million in 2011, and, according to the NTA's latest management information systems report, mobile penetration is now at 90.4 per cent. There are 24 million mobile subscribers, two million who use satphones or limited mobile connectivity, as well as around 840,000 fixed line users.

The authority reckons that only around 75 per cent of total subscribers are active, but plans to look into the market to determine the exact number.

Nepal's mobile market is populated by six operators which include Smart Telecom, UTL, Nepal Satellite Telecom and STM Telecom Sanchar. But it is dominated by state-owned Nepal Telecom which has around 12.5 million fixed and mobile users, and Ncell which has roughly 12.3 million mobile customers.

Data penetration has also increased in the country to hit 41.3 per cent by mid-April. Most mobile internet customers use GPRS, EDGE or W-CDMA networks.

DAS supported European Games crowds



TE Connectivity's DAS headend at the Baku Olympic Stadium supported 40GB of download traffic during peak usage.

A distributed antenna system (DAS) supported capacity crowds at the first European Games held in Azerbaijan earlier this year.

Local system integrator Mikrolink Azerbaijan used TE Connectivity's *FlexWave* digital DAS to provide wireless services at the 68,000 seat Baku Olympic Stadium in June. The system supports 2G, 3G and 4G services for three mobile operators with 32 sectors of 900MHz, 1800MHz and 2100MHz.

TE Connectivity claims it ensured that the capacity crowds at the games received "strong and consistent" mobile services throughout the event. The deployment included 42 remote units that deliver coverage and capacity for the stadium bowl, back-of-house areas, and car park. At peak usage, TE says the system handled 40GB of download traffic, 15GB of upload traffic, and 4,000 simultaneous users on 3G for one carrier alone.

The vendor reckons its *FlexWave Prism* transport and high-capacity, high-power remote units provide a robust, multi-operator wireless solution that's a cost-effective investment for large public venues. Tamer Pakel, GM of Mikrolink Azerbaijan, adds: "TE's digital DAS gave us the performance and flexibility we needed to deliver high-quality wireless services to our mobile operator customers."

Drones used for network planning

Nokia Networks has used drones to analyse du's network in Dubai. In a proof of concept carried out at the city's International Stadium, remotely piloted aircraft (RPA) carried smartphones loaded with Ascom's TEMS network testing applications to gather data and provide KPIs.

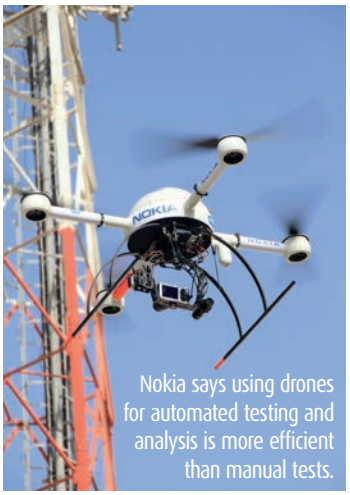
According to Nokia, using drones for automated testing and analysis is more efficient than traditional manual walk tests as they can cover a desired area more quickly. The company adds that the test data is automatically sent to a central server so that it can be instantly processed for immediate reporting and any necessary actions to improve network performance.

The RPAs were also used for tower inspections where Nokia says they provided unique and detailed panoramic and top-down views of the lattice tower captured in one pass.

Other applications included radio planning and line of sight testing. Here, engineers were quickly able to find out if a frequency used was impacted by trees, if there was sufficient power to cover the distance, what the simulated latency would look like, and what performance over such a connection could be expected.

Nokia points out that the use of RPAs also reduces climb times for technicians, which is especially important when weather conditions make scaling a tower too dangerous. Furthermore, it says drones can help supervise the quality of an installation with remote monitoring via wireless video streaming.

Although Nokia's trial was a proof of concept, this is not the first time drones have been used to test wireless networks. Earlier this year, Nambia's regulator carried out audits of 25 broadcast transmission towers with the help of RPAs and German-based RF specialist LS Telcom.



Nokia says using drones for automated testing and analysis is more efficient than manual tests.

TI Sparkle expands IP backbone with new POP

TI Sparkle, the international services arm of the Telecom Italia Group, has expanded its worldwide IP backbone with a new point of presence in Sweden.

The POP is located in Bromma, western Stockholm, at Telecity's data centre which is claimed to be Sweden's first independent carrier neutral facility. The data centre aims to address the increasing demand for IP transit services coming from the Nordic countries which are said to be experiencing double digit growth in internet traffic.

TI Sparkle says its POP will support major ISPs, OTT players and global content providers that have already established their presence in the area. The company will also provide IP connectivity to Russian service providers who consider Stockholm as one of their main European hubs.

With a global fibre network of around 570,000km, TI Sparkle says it offers a "full range" of connectivity solutions to CSPs and telcos. It says the Stockholm POP will increase its global IP backbone network in Northern Europe, as well as further improve the performance of *Seabone*, its Tier1 IP transit network. According to the operator, *Seabone* is strengthening its regional positioning globally, especially in Africa and Asia where it now leads.

'Wringing every last drop' of Wi-Fi access at hotels

OneAccess Networks will use Passman's application performance management (APM) software in its routers to optimise the delivery of Wi-Fi guest access services for hotel customers across Europe.

Established in 1995, Passman specialises in IP-based services and Wi-Fi guest access in the French hospitality sector. The firm has equipped more than 3,200 hotels, and says its partnership with OneAccess will offer a new level of network visibility and control to hotel guests.

Its software can act upon insights generated by *OneAPM*, OneAccess' proprietary APM software, which operates from inside the router and monitors traffic flows generated by the hotel's customer-facing and administrative applications.

OneAPM's intelligent load balancing and traffic routing capabilities are designed to enable dedicated bandwidth to be assigned to high-priority applications such as customer web-surfing. It's claimed this optimises the available bandwidth and, as a consequence, the user experience.

"The need to apply innovative network management solutions that contain costs and wring every last drop of performance from their connectivity has never been more apparent," says Bertrand Meis, CEO, OneAccess Networks.

Anite to help GrameenPhone fine tune its network

GrameenPhone will use test equipment from Anite to enhance its network.

The operator, which is the largest in Bangladesh and part of Telenor, will use Anite's *Nemo* series of products to analyse wireless voice quality and network data. *Invex II* and *Walker Air* will be deployed to benchmark wireless broadband networks, both outdoors and indoors, while the *Xynergy Drive Test* module will be used for automated processing and the centralised online management of collected data.

Invex II is a mobile benchmarking, measurement and optimisation system. Anite claims it combines intuitive software and scalable military-grade hardware designed to create a "superior" benchmarking solution for wireless broadband networks.



The Anite *Invex II* (above) and portable *Walker Air* (right) benchmarking tools.

Walker Air is a portable tool for indoor benchmarking and multi-technology measurements. The *Android*-based system enables extensive synchronised measurements to be performed, and comprises a master tablet and up to seven test terminals connected via Bluetooth.

Meanwhile, *Xynergy* is described as a "powerful, scalable, and easy-to-use" web-based enterprise-level platform for analysing drive tests, OSS call trace, small cell/DAS, and network management data.

Siddharth Dash, sales director at Anite's network testing business, says: "With this suite of integrated products, GrameenPhone will be able to efficiently measure the quality of end-user experience, effectively analyse the results, automate data processing, and make it instantly available online. This will enable them to effectively fine-tune the network – all to the benefit of the end-users."

Spectrum refarmed

Vinaphone will use ZTE's help for spectrum refarming, service optimisation, and future network planning in central Vietnam. The MNO, which is the country's third largest, will re-allocate some of its GSM 900MHz frequencies to provide UMTS services, and expand network capacity in the 2100MHz band. It will use ZTE's distributed software-defined radio base stations, unified *MicroTCA* platform, as well as new RRUs, a unified hardware platform and network management system. The project is expected to complete in 2016, involving networks that cover around a third of Vietnam's area and about 20 million users.

'Super Wi-Fi' covers Kabul

The Afghan Wireless Communication Company (AWCC) has launched *Super WiFi* in Kabul City. Subscribers can now use more than 350 hotspots strategically positioned throughout the city to access mobile and fixed high-speed internet access at homes or offices. AWCC is also using the new Wi-Fi network for data offloading. The operator says subscribers can use their 3G bundles to take advantage of faster Wi-Fi services in areas where its 3G Accelerator is available. It adds that they will also benefit from what AWCC calls its "Super Secure" login protocol.

M2M in Indonesia

Indosat and Ericsson have set up the *Device Connection* M2M platform in Indonesia."Our cloud-based M2M service delivers a higher, faster level of support and more agile service for business customers," says Ooredoo Group CEO Dr. Nasser Marafih. "The platform will play a key role in speeding up the implementation of smart city technologies." Indosat is the first member of the Ooredoo Group to launch the platform, with Qatar, Algeria and Tunisia scheduled to follow this year.

"LTE bubbles" connecting U.S. military in the field

SES Government Solutions (SES GS) has demonstrated a cloud-based solution that delivers real-time data using 4G mobile devices and O3b satellites.

During a recent trial for U.S. Government customers, SES combined O3b's satellite broadband connectivity and the field deployable 4G *nanoLTE* system from RIVA Network. It's claimed the setup delivered real-time HD video feeds and image files stored in the cloud to individual remote field team members. The same link also allowed the teams to collect and send raw sensor and video data back to command centres for offsite analysis.

During the demonstration, SES says mobile phones and tablets outside of Wi-Fi range could be used to transport real-time video through the "LTE bubble", and stream the footage without delay over O3b satellites back to a cloud server located in Ashburn, Virginia.

The company says the mission-critical technology is compatible with any smartphone and paves the way for an increased use of mobile devices for military operations. "In essence, each soldier, sailor, airman and marine can be a sensor providing vital information to deployed units through the O3b system," says SES.

It adds that the system can be scaled by adding multiple *nanoLTE* nodes, with ranges up to 22 miles possible depending on the exact network configuration.

SES GS president Pete Hoene says: "The U.S. Government can now integrate smartphones into remote field operations and create a mobile workforce without facing any delays in communication, and with full connectivity all the way back to U.S.-based analysts and decision-makers."

Channel layering boosts connectivity at centre

The Convention Centre Dublin (CCD) is now using a 802.11ac Wi-Fi network from Meru to support the high density of mobile devices used in its facilities.

The CCD includes 22 purpose-built meeting rooms, a 2,000-seat auditorium with full theatrical stage and fly tower, and 4,500m^2 of exhibition space. Since opening in 2010, it has hosted more than 1,000 events that have attracted visitors from around the world. Meru says they make extensive use of the internet, email, VoIP and other voice and video applications during concerts, exhibitions, shows, etc.

All this presented a challenge when delivering ultra-high density, high-speed and reliable connections in difficult areas with large numbers of simultaneous users.

Working with its local partner, IT Group, Meru replaced the CCD's existing Cisco WLAN using *AP822* access points and its *Network Manager*. As part of an initial trial, the vendor introduced the centre to its virtual cell technology and unique concept of "channel layering". Meru says that by using only a single channel for coverage, the other channels can be layered to provide capacity for high-density areas.

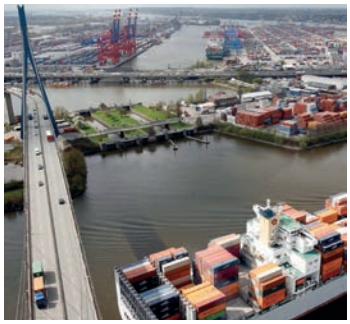
The CCD's unique glass-fronted atrium runs the full height of the building and houses a variety of zones that presented a challenge for the Wi-Fi network.

Port takes the smartROAD to success

The Port of Hamburg in Germany is aiming to become smarter with the implementation of Europe's first *smartROAD* initiative from Cisco.

smartROAD uses an Internet of Everything (IoE) approach with real-time data and analytics to improve resource management, traffic flow, infrastructure condition and environmental management. The port authority is piloting an integrated concept of the IoE for the first time, with various relevant use cases running on a real infrastructure.

For example, structural sensors provide real-time data on the condition of movable infrastructures such as the Kattwyk Lifting Bridge, enabling the technical maintenance department to precisely and predictively plan maintenance and repairs. Sensors are also used to deliver data to improve analysis of the port area's environmental situation.



Hamburg's *smartROAD* proof of concept is a result of a deal signed in 2014.

Other solutions deployed as part of the *smartRoad* proof of concept include smart lighting, and the management and monitoring of all road traffic. All data is processed by analytics software, and findings are made available via a centralised, integrated dashboard.

Cisco says all sensors and systems are connected by a highly secure network infrastructure. The firm says it has also put in place a "comprehensive" security framework for the whole installation that gives visibility into safety and security, and enables the port's management to take actions in real-time.

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