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# wireless

For communications professionals in southern Africa

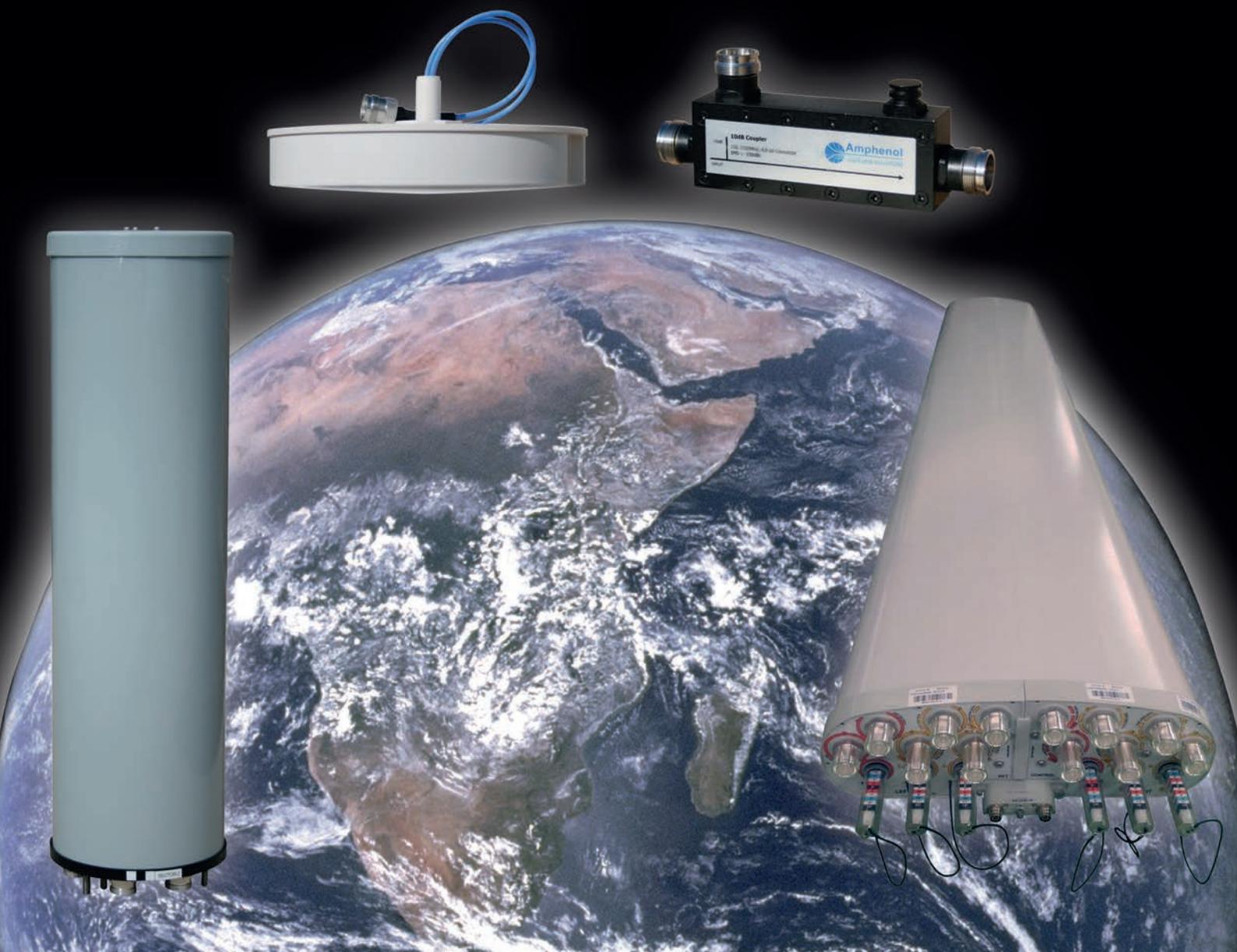
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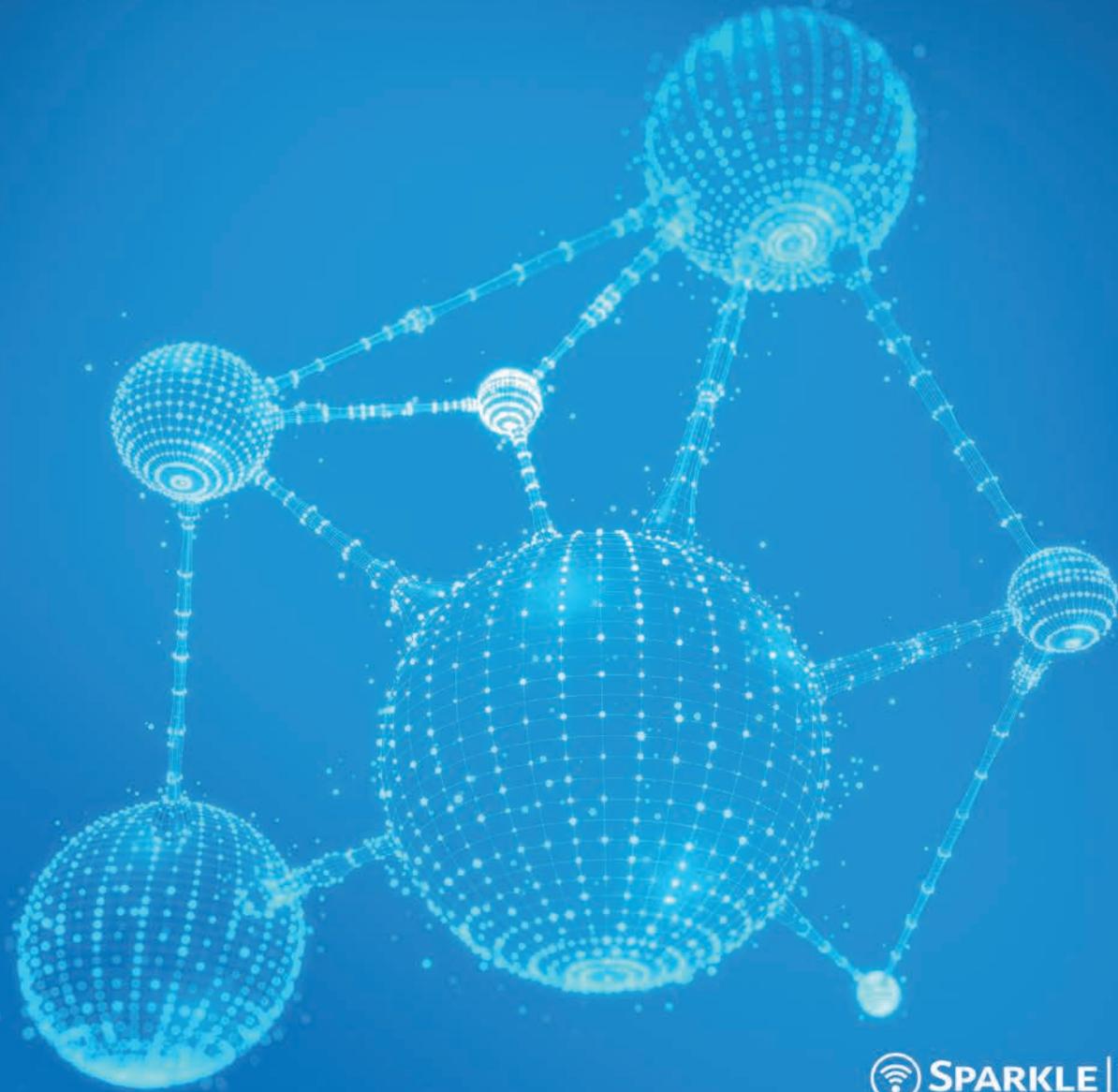
Number 6

- What you need to know about network security
- How wireless comms are boosting education
- HTS: hyperspace connectivity or just hype?



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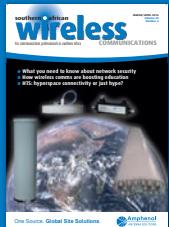
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 about Amphenol Antenna Solutions

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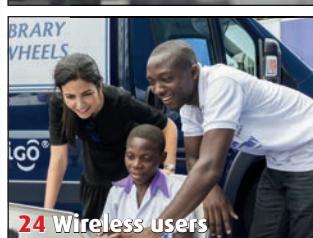
**6 News**



**16 Wireless solutions**



**20 Network security**



**34 World news**

**News review**

- > Namibia claims first with LTE-AdvancePro
- > VAST mall Wi-Fi network deployment
- > Cell C unveils LTE-A in South Africa
- > Cable system to connect Angola and Brazil
- > Vodacom launches managed cloud service
- > Unique 'RAN' helps protect rhino
- > Avanti approval for C-COM mobile antenna
- > Watly delivers power, water and connectivity
- > Orange unveils USD40 smartphone

**13 Wireless business**

- > More than four billion SIMs shipped in 2015

**16 Wireless solutions**

- > DC generator claims to cut off-grid costs

**Features:**

**20 Network security**

- > DAVE HOWELL on how to prevent hackers and fraudsters from killing your billing.

**24 Wireless users**

- > Mobile technologies are playing a key role in helping educators across Africa.

**28 Industry view**

- > Do HTS platforms now represent the future for satcoms in Africa? DAVE REHBEHN finds out.

**30 World news**

- > Gogo for first GEO/LEO shared network
- > Connected cones protect road crews
- > Sri Lanka buys into Project Loon
- > Market leaders miss out in Thai 4G auction
- > XL Axiata and Indosat Ooredoo share 4G RAN

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# Namibia claims African first with LTE-AdvancePro

Namibian operator MTC has commercially launched LTE-A, and also claims to have inaugurated the continent's first 4.5G trial which has delivered unprecedented mobile speeds of almost 1Gbps.

During a closed trial held in mid-April and attended by dignitaries such as the country's president Dr Hage Geingob, the operator worked with Huawei to demonstrate 4.5G or LTE-AdvancedPro.

Huawei claims it came up with the concept of 4.5G in 2014, and says it has already become a "major player" in developing the technology with 20 commercial and trialled networks

deployed around the world.

According to the vendor, 4.5G is the natural evolution of 4G and a necessary transition to 5G. Compared to 4G, it says 4.5G has much better network performance in terms of bandwidth, capacity and latency, and will allow for speeds of up to 1Gbps over mobile and latency of less than 10 milliseconds. Huawei adds that 4.5G will be better for developing the IoT with its ability to support up to 100,000 connections per cell.

Huawei said it will continue to work closely with MTC to provide a faster and better broadband network to Namibia. Wallace Yin, MD, Huawei

Namibia, said: "As an ICT advisor to many governments around the world, we also look forward to sharing our global expertise and solutions with the government of Namibia, in order to promote ICT development and boost digital economy here."

As well as trialling LTE-AdvancedPro, MTC also successfully demonstrated LTE-A with speed tests reaching close to 300Mbps. The operator said its LTE-A network is already commercially available in several parts of Windhoek, and following the release of additional spectrum it will be rolled out to all towns and cities that have LTE technology.

## VAST mall Wi-Fi network deployment

VAST Networks has successfully deployed what's said to be the largest shopping centre Wi-Fi installation on the continent. The company says consumers and retailers can now benefit from "a reliable and fast Wi-Fi experience" throughout the 130,000m<sup>2</sup> Mall of Africa in Johannesburg which opened towards the end of April.

Formed last year, VAST Networks brought together the Wi-Fi assets of MWeb and Internet Solutions, and claims to be the first open-access network provider in Africa (see *News, Jan-Feb 2016*).

The company collaborated with



VAST Networks CEO Grant Marais said Wi-Fi on this scale has never been delivered before in Africa.

partners including Ruckus Wireless on the Mall of Africa deployment. They planned the rollout for more than a year, with technicians working

on the site for nearly six months to make sure the Wi-Fi network would work without any glitches once the mall opened for business.

VAST said the teams installed more than 1,000 "highly advanced" APs together with the network backbone to deliver a solution that could not only handle the capacity requirements of more than 300 shops and thousands of anticipated daily visitors, but also cope with ever growing data demand.

VAST Networks CEO, Grant Marais, added that a deployment of this scale is a "massive undertaking by world standards and an African first".

## Towerco secures Tanzania financing

Helios Towers Tanzania (HTT) has secured a USD95m equivalent upsizing of its syndicated term loan facility led by Standard Bank.

Since the launch of the Helios Towers Africa subsidiary in 2011, the number of BSTs in Tanzania has grown by around 5,500, whilst the number of towers has only increased by 2,900 due to increased sharing.

HTT believes this highlights the impact it has had on driving efficiencies and reducing the environmental impact of delivering the telecoms services needed to facilitate development in emerging economies.

"The continued support of our lenders re-emphasises the appetite of investors for this market," said Helios Towers Africa CEO Kash Pandya. "The new facility in Tanzania will help us expand tower sharing solutions across the country and meet new demand for tower sharing, benefiting both the citizens and the environment."

Over the last five years, HTT states that it has acquired and upgraded 2,068 operator towers for colocation, and built more than 1,000 multi-tenant towers in Tanzania.

*New software helps Eaton Towers raise USD350m in equity funding – Wireless Business, p15.*

## Emcom sets up DMR system for Lesotho Electric Company

The Lesotho Electricity Company (LEC) is using a nationwide digital mobile radio (DMR) system, designed and deployed by South African-based PMR specialist Emcom Wireless.

Prior to implementing DMR, LEC's communication system was said to be not only costly but often cumbersome. The company used a combination of standalone analogue repeaters, cellular systems and landlines for communications between its management, centres and field staff that are all scattered across the mountainous kingdom.

LEC's GM Seitlheko said: "When a problem arose in the field, it often took several days to get a maintenance team

to pinpoint the location on the grid and a further couple of days to get communication to head office to despatch a team with the correct spares for repair."

Emcom's project team, led by sales director Tony Sibanda, began by carrying out a detailed field study that involved extensive travel across the entire country. Sibanda said: "Our initial scoping days involved trekking up some of the wildest terrain in Africa in search of suitable summits to mount repeaters, and we had to face snow, lightning and rain as challenges in determining the best locations."

This gave Emcom a valuable insight into what LEC needed as a solution.



Emcom's Tony Sibanda (right) experienced some of Africa's "wildest terrain" when scoping the project. Also pictured is LEC CEO Mots'oikha.

It selected DMR Tier 3 products from Tait Communications, and then spent

a year designing, building and testing the system under different conditions.

One notable aspect of LEC's DMR network is its integration with a RediTALK dispatcher loaded with Google Maps. This enables the operations team at head office to have real-time location visibility of all radios and vehicles on the network, talk to specific radios when required, and monitor elements such as standing time, speed and distance from an incident, all on one screen.

The new system has allowed LEC to identify and resolve maintenance issues much faster, as well as given it constant control of the utilisation of its resources.

# Cell C unveils LTE-A in South Africa

Cell C has commercially launched LTE-A in three of South Africa's largest cities: Cape Town, Johannesburg and Pretoria. Over the coming months, it also plans to start rolling out services in KwaZulu-Natal and expects to complete this during the third quarter.

Cell C's LTE-A and existing LTE footprints overlap, meaning customers that have LTE-A capable

devices in LTE areas can experience data download speeds of up to 100Mbps.

According to CEO Jose Dos Santos, the launch of LTE-A on such a large scale in South Africa is the latest in a series of firsts from the company. As well as offering free access to OTT services such as Facebook and WhatsApp, he said Cell C was the first and currently

only operator to offer *Wi-Fi Calling*. This gives customers an affordable alternative to international roaming by turning any Wi-Fi hotspot into a "mini Cell C base station" (see *News, Sep-Oct 2015*).

In a separate development announced earlier in April, Cell C has now made *C-Fibre* FTTH service commercially available. The company covers a footprint offered by open

access fibre network operator Vumatel, and is also in discussions with other firms to provide an end-to-end service elsewhere across South Africa.

*C-Fibre* will initially be available in packages offering 20, 50 and 100Mbps. Each one offers unrestricted symmetrical data, and includes installation, connection and a Wi-Fi router with LTE failover, all for free.

## SES will provide high-speed connectivity to Facebook

Facebook will use satellite technology to provide high-speed broadband services to Africa as part of its *Internet.org* initiative to connect the world.

The company will use three satellites from SES: *ASTRA 4A* which covers sub-Saharan Africa from 5°E; *ASTRA 2G* which covers West Africa from 28.2°E; and *ASTRA 3B* which covers North Africa from 23.5°E.

Facebook will also deploy the operator's customised *Enterprise+* broadband services. SES says this utilises its satellite, data centre and implementation services with integrated features such as security, protocol enhancement and hosting.

The solution includes Gilat Satellite Networks' *X-Architecture* which runs on its *SkyEdge II-c* platform. It's claimed this will enable Facebook's local African partners to deliver internet services to under-connected and unconnected communities using the social networking company's *Express Wi-Fi* access product.

SES CCO Ferdinand Kayser said: "An agreement such as this with Facebook, where we designed a whole new customisable, flexible and scalable solution, is another step SES has taken to satisfy the fast expanding broadband connectivity market in Africa."

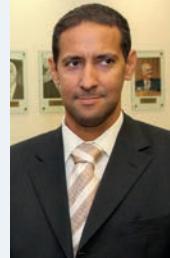
## Cable system to connect Angola and Brazil

Angola Cables and NEC will build the southern hemisphere's first subsea fibre optic cable system to link Africa and South America.

The USD160m *South Atlantic Cable System (SACS)* will connect Luanda to Fortaleza in Brazil 6,200km away. From there, it can join the 17,800km *America Movil Submarine Cable System-1 (AMX-1)* which stretches to Miami, enabling Africa to connect directly to the USA.

It's claimed the system will feature the latest optical technologies to provide the most advanced submarine telecoms system. It will also be integrated with a control plane based on SDN technology to serve bandwidth-intensive applications.

*SACS* will have an initial design capacity of 40Tbps (100Gbps x 100



Angola Cables CEO António Nunes said SACS will support the region's expanding data requirements both for today as well as into the future.

wavelengths x four fibre pairs) and is expected to go live by mid-2018. Angola Cables says it will enable high-speed and large capacity international data transmissions, and also help to boost global trade and growth in both continents.

"Our main objective is to improve the quality of communications between Africa and the Americas," says company CEO António Nunes. "[We will create] a totally new route

in the south hemisphere, providing term and peak capacity product offerings and support for the region's expanding data requirements of today and for tomorrow."

The project will be partially co-funded by the Japan Bank for International Cooperation and Sumitomo Mitsui Banking Corporation with the support of Nippon Export and Investment Insurance through the Banco de Desenvolvimento de Angola.

Founded in 2009, Angola Cables' core business is selling capacity in international circuits for voice and data through submarine cables connecting Africa to Europe and the Americas, and also between South America and North America. It also runs a data centre in Luanda which hosts the Angonix, Angola's largest IXP.

## Gazprom supports satellite news gathering services across the continent

Telemedia will use Gazprom Space Systems' *Yamal-402* satellite to provide SNG (satellite news gathering) services to markets across the continent.

Since 2014, the South Africa-based media specialist has been regularly using capacity on *Yamal-402* for broadcasting African channel packages and Angolan state TV. It recently signed an agreement for further capacity for the SNG services it develops to support political events, elections, sport competitions, etc.

Launched to 55°E at the end of 2012, *Yamal-402* features various Ku-band beams and is said to provide "optimal" coverage of sub-Saharan Africa, as well as the availability of an Africa-Europe cross-connect.

Using the satellite's powerful capacity

Telemedia uses a range of vehicles with flyaway antennas and portable satellite equipment to provide SNG services.



of more than 10kW with its fleet of flyaway vehicles and portable satellite communication stations, Telemedia says it will quickly and efficiently organise occasional use broadcasting and TV contribution both in Africa as well as from Africa to Europe.

In separate news, Gazprom Space

Systems has strengthened a partnership that has so far lasted more than ten years with IABG. The German technology and science service provider will also leverage *Yamal-402* capacity on an occasional use basis for the organisation of television and other content transmission in Nigeria.

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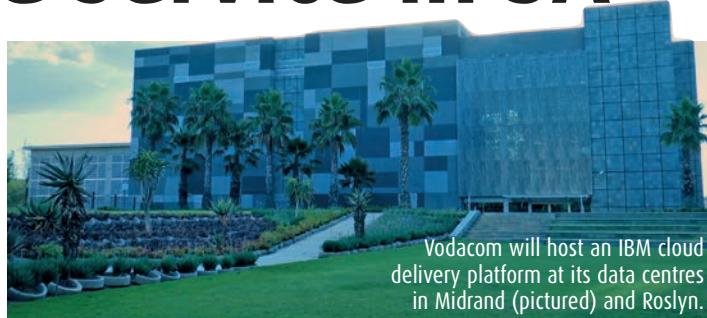


# Vodacom offers first cloud managed service in SA

Vodacom claims it will become the first company in South Africa to offer cloud managed enterprise products such as IaaS and SAP-certified PaaS.

The operator will host a fully redundant IBM *CMS Cloud* delivery centre for Africa in its Midrand and Roslyn data centres. This is the first *IBM Cloud* centre to be rolled out in the Africa and Middle East region. The cloud service will be linked via Vodafone's global IP VPN network to IBM's CMS platform in multiple locations in Europe.

Vodacom will work with IBM to launch the solution to South Africa's enterprise and multinational market. The cellco says customers will benefit from "significant" savings in investment costs and skills as the



Vodacom will host an IBM cloud delivery platform at its data centres in Midrand (pictured) and Roslyn.

partnership with IBM will deliver a solution offering the same world-class standards, skills and services as other *IBM Cloud* centres across the world.

Vodacom adds that the new service will enable businesses to run critical applications in the cloud with integrated access to a broad array of applications, such as enterprise mobility, security and IoT. It says

the service will also offer faster network speeds along with improved performance and reach to end users.

Vodacom Business chief officer Vuyani Jarana believes the upsurge of enterprise cloud computing on the continent is being driven by large enterprise and multinational organisations expanding their presence and IT requirements across Africa.

## Ooredoo and Arabsat satcoms partnership

Ooredoo and Arabsat will work together to develop new satellite services for customers. Under the terms of a strategic partnership agreement signed around mid-April, the two companies will review the current satellite projects they have in progress. They will then collaborate on technology and design, and on future projects to deliver cutting-edge satellite services, particularly VSAT.

Qatari-based Ooredoo offers mobile, fixed, broadband internet and corporate managed services across markets in MENA and South East Asia. Its mobile operations in Africa

include Algeria and Tunisia. The company also aims to be a leading integrated ICT provider and is said to offer one of the most advanced portfolio of satellite services of any operator in the region.

Arabsat (Arab Satellite Communication) owns and operates six satellites at three orbital positions that can cover Africa. It is also planning to launch *Arabsat-6A* to 30.5°E in 2018, and is in discussions with multiple potential partners to launch a joint satellite to 44.5°E.

■ Ooredoo's Global Services wholesale division and Sparkle, the international

services arm of Telecom Italia, have signed an MoU to collaborate on a range of joint initiatives and services.

The agreement will enable Ooredoo Global Services (OGS) to leverage Sparkle's IP-MPLS backbone and the strategic positioning of Sicily as a hub for telecoms services, particularly for Africa, the Middle East and the Mediterranean basin.

OGS offers a single point of contact for global wholesale carriers across the Ooredoo footprint and is said to offer one of the largest internet peering networks in the Middle East, North Africa and South East Asia.

## Eutelsat to use SSL EPS platform for EUTELSAT 7C



An artist's impression of EUTELSAT 7C which will be Eutelsat's fifth satellite to use an all-electric propulsion system.

Eutelsat Communications has commissioned Space Systems Loral (SSL) to manufacture a high-power broadcast satellite to serve markets in Africa, Europe, the Middle East and Turkey.

*EUTELSAT 7C* will be based on SSL's *1300* platform. It is the fifth all-electric satellite ordered by Eutelsat and will enable the company to take advantage of reduced launch mass while retaining payload performance.

The new satellite will be located at 7°E which is one of Eutelsat's fastest-growing video neighbourhoods. It is

used to broadcast more than 370 channels, and serves several anchor clients such as the Azam, Montage and Muvi TV platforms in sub-Saharan Africa.

Due to be launched in third quarter 2018, *EUTELSAT 7C* will be equipped with 44 Ku-band transponders and co-positioned with *EUTELSAT 7B*, releasing *EUTELSAT 7A* to another orbital location.

"This improved two-satellite constellation will enable it to optimise resources across both satellites, with enhanced coverage flexibility and connectivity

## MTN targets SMEs with BCSG cloud

Within weeks of Vodacom's announcement left, the MTN Group revealed it had selected UK-based cloud specialist BCSG to deliver SaaS and IaaS solutions to enterprise customers.

Using BCSG's *Cloud Management Platform*, the operator has initially launched its MTN Business Cloud Services platform targeting SMEs in Swaziland, Rwanda, Uganda, Ghana and Cameroon. It is expected to go live in all MTN markets by the end of 2016.

All the applications and services are available from a single web portal and will be offered across a variety of MTN channels. The operator said there will be one log-in to access all the services, managed through a "user-friendly" dashboard, wherever the business has an internet connection and by using any device.

Debbie Minnaar, acting executive of MTN Group's enterprise business unit, said the platform was developed to address some of the "pain points" experienced by its business customers, especially SMEs.

"While the benefits of cloud services for SMEs are numerous, the process of accessing and purchasing such services can be daunting," she said. "Through the MTN Business Cloud Services platform, the emphasis is on simplifying this process and meeting customers' needs – essentially we are putting control in our customers' hands."

set to take the 7° east neighbourhood to a new level," claims the company.

It adds that by almost doubling capacity over sub-Saharan Africa from 22 to 42 transponders, it will also make room for several hundred additional digital channels to support the region's fast expanding TV market.

*EUTELSAT 7C* will also be equipped with a beam providing enhanced capacity for government services over Europe, the Middle East and Central Asia, and a beam that can be steered to cover any region visible from 7°E.

# Unique 'RAN' helps protect rhino

In what's believed to be the first technology solution of its kind, Cisco and Dimension Data have teamed-up on an initiative aimed at dramatically reducing the number of rhinos being poached in South Africa.

As part of the *Connected Conservation* project, the two companies are deploying a sophisticated monitoring system in a private game reserve adjacent to the Kruger National Park to track individuals from the time they enter until they exit.

During phase one, which has now been completed, Cisco and Dimension Data gathered information from the game rangers, security personnel, and control centre teams. They then installed wireless hotspots around key points to create a secure, point-to-point radio 'Reserve Area Network' (RAN) using Cisco's Wi-Fi and LAN technology



Whether it's through cutting fences, being dropped onto the ground by helicopters, or simply driving in through the entrance gates, any rhino poachers entering the reserve illegally will be caught out.

combined with Dimension Data's range of remote network monitoring, routing and switching, and managed services.

Phase two will incorporate CCTV, drones with infrared cameras, thermal imaging, vehicle tracking sensors, as

well as seismic sensors on a highly secure intelligent network. Information is collected on every individual entering the reserve. This includes biometric data, along with the scanning of ID numbers and visitor passports, and the

capture of vehicle registration plates.

Dimension Data says that over time the solution will be replicated in other reserves in South Africa and beyond, and will help protect other endangered species including sea creatures.

■ Liquid Telecom provided the Wi-Fi at the inaugural Space for Giants summit that was held at the end of April in Kenya. The event aimed to help raise the profile of elephant conservation across the continent, and was one of the largest gatherings of African political leaders, philanthropists, celebrities and conservationists.

Liquid Telecom Kenya's broadband services supported live video links with global celebrities such as Leonardo DiCaprio and Lupita Nyong'o, and also helped the international media to deliver uninterrupted streaming of events.

## Airtel Zambia transforms its RAN infrastructure with the help of Ericsson

Ericsson has extended its partnership with Airtel Zambia with a new contract to upgrade the operator's RAN infrastructure in every major region of the country.

The deal covers equipment, software and range of professional services, including project management, systems integration and support. It also includes the transformation of existing 2G infrastructure and the swap out of existing 3G sites.

Airtel will use equipment from

the *Ericsson Radio System* range.

According to the vendor, the system is "flexible" to changing demands on the path to 5G with multi-standard, multi-band and multi-layer technology. Ericsson claims the flexibility inherent in the architecture is made possible by targeted software deployment, which enables fast and efficient rollout of new capabilities.

The company adds that all this will enable energy-efficient and cost-effective operations while allowing Airtel to meet growing subscriber

demands for better and faster mobile internet connectivity.

"We are committed to offering our customers the best user experience," said Airtel Zambia MD Peter Correia. "Partnering with Ericsson, who are performance and technology leaders, to upgrade our network ensures that we continue to deliver a wide selection of best in class customised services with excellent quality to our customers, transforming the way they live, work and play."

## Tigo nano lending scheme

Tigo Tanzania has added what's described as an easy to access nano lending product to its range of mobile financial services (MFS).

*Tigo Nivushe* offers immediate access to unsecured small loans to *Tigo Pesa* users. According to the operator, the new product is transparent and will enable customers to build their own credit history.

Head of MFS Ruan Sawnepoel adds that *Tigo Nivushe* has been designed to encourage responsible lending: "Previous mobile behaviour is used to determine suitable limits for loans and customers will only be able to have one loan at a time. Protection against life shocks is included as everyone will be automatically insured for the loan amount against death or permanent disability."

Sawnepoel adds that because the product is fee-based, no interest can be accumulated in the event of default, and acquiring a loan will not affect mobile or *Tigo Pesa* accounts in any way.

Tigo says the average amount loaned is TZS10,000 (USD5) and funds are transferred directly to the customer's mobile wallet within minutes.

## Avanti approval for C-COM mobile antenna

C-COM Satellite Systems has received type approval for its *iNetVu Ka-1202G* antenna system from Avanti Communications.

In a test performed by a European C-COM partner Primetech UK, the

1.2m auto-deploying mobile antenna, along with its new advanced 7710 auto-acquire controller, delivered more than 10Mbps upload and up to maximum modem capacity 59Mbps download rates using an iDirect X7 satellite router with a 3W transceiver.

C-COM says the system was tested using three-axis motorisation allowing the user to operate within the same Ka-band beam or to roam to adjacent beams with auto-polarisation switching function.

The company adds that the system performed well even during a substantial

hailstorm, where SNR marginally dropped from 17.8dB to 14.5dB.

"Our resellers in Europe, Middle East and Africa now have more choices on the size of antenna and associated broadband speeds they can offer their customers," says C-COM Satellite Systems CEO Leslie Klein.

The *Ka-1202G* is C-COM's third vehicle-mounted antenna to be approved for operation on Avanti's *HYLAS 1*, its first Ka-band satellite launched for Europe in 2010, and *HYLAS 2* which went up two years later and provides services across Africa from 31°E.

C-COM says its *iNetVu Ka-1202G* drive-away is a simple to operate auto-deploy VSAT terminal suitable for the most demanding applications.



## TCRA owed billions

 The Tanzania Communications

Regulatory Authority (TCRA) has said some companies have failed to pay their license fees on time. Despite sending several public notices to the offenders, it said that TZS19.1 billion in fees remained outstanding as at the end of March 2016. While the TCRA has not publicly named any companies, it said that if they didn't settle the debt "stern measures" would be taken against them, including cancelling their license and further legal action.

## Search for licensees

 The Independent Communications

Authority of South Africa (ICASA) has launched an enquiry into the existence of some licensees that are not traceable. This follows a number of futile attempts to trace the activities of four companies, and their non-compliance with the terms and conditions of their electronic communications licenses. The firms include: Sundial Telecom; Karel Greef; Mystic Blue Trading 55; and SBS Telecoms. At the time of writing, they each had until the end of April 2016 to inform the regulator that they were active licensees.

## New global cable links

 The AAE-1 cable consortium will use Xtera's high-capacity,

long-haul optical transport solutions to equip the three terrestrial segments in its 25,000km network connecting Asia, Africa and Europe. They comprise crossing Egypt to connect the Mediterranean and Red Seas; crossing the Thailand peninsula to minimise the latency for the landing sites in East Thailand; and crossing Malaysia to connect the cable landing station north of Kuala Lumpur to Singapore. All three are based on two physically diverse fibre routes in order to maximise network availability.

# Machine delivers power, water and connectivity

A clean-tech start-up company claims to have developed a solar-powered machine that can bring internet connectivity, clean water, and electricity to communities across Africa.

*Watly* uses a combination of photovoltaic and thermal energies to power the *Watly 3.0* thermodynamic computer which, according to its developers, can sanitise more than 5,000 litres of contaminated water (including ocean water) a day, as well as generate electricity and Wi-Fi connectivity. The machine uses solar heat collected by super efficient vacuum-tubes to vaporise and therefore sanitise the water. This process also includes the use of graphene technology.

Photovoltaic panels located on the



*Watly 3.0* was developed after the successful trial of a smaller machine in Abenta Village, Ghana.

roof generate off-grid electricity to power *Watly*'s internal electronics, and can also be used for recharging external devices such as mobiles.

Each *Watly* can be deployed as standalone infrastructure, but multiple machines can also be used

as part of a, "Energynet" which, it's claimed, "can power entire cities and countries". They can all communicate with each other and be controlled with the *Central Network Management* platform via radio links, existing 3G or 4G networks, and/or satellite.

*Watly* has been funded from Horizon 2020, the European Union's programme for innovation. The development of the system follows the successful trial of a smaller machine, *Watly 2.0*, in the village of Abenta, Ghana.

The firm is now launching a crowd funding campaign that will be used to create another *Watly 3.0*, with contributors being allowed to decide where the first model will be placed, with the options being Nigeria, Ghana, or Sudan.

## Mobile tech helping children with HIV

Global specialist HIV company ViiV Healthcare has launched the Mobilising HIV Identification and Treatment (MHIT) programme in Lesotho.

MHIT is a multi-million dollar, three-year initiative led by the Vodafone Foundation through the Vodacom Lesotho Foundation, with financial contributions from the private and public sectors. Its supporters include the Elton John AIDS Foundation, ELMA Philanthropies and USAID.

The programme's goal is to double the number of children in Lesotho in care and on treatment

within three years, thereby ensuring that their health and futures are not compromised or cut short through lack of access to HIV services.

The Vodafone Foundation is deploying mobile clinics to rural areas and hard to reach communities, providing primary care services including antenatal checks and immunisation. The clinics will also search for individuals living with HIV to provide them with better access to treatment, using mobile money-based transport vouchers so they can reach clinics or hospitals.

The use of mobile technology also

enables the management, coordination of services and communications to support the implementation of the programme.

"Vodacom Lesotho Foundation and Vodafone Foundation are bringing money, marketing, management and mobile technology to challenge paediatric HIV," said Vodacom Lesotho MD Rishaad Tayob. "Partnership is critical, and by working with private funders and the Government of Lesotho and USAID, we aim to double the number of children on treatment and in care. We are already saving lives."

## Orange to launch USD40 smartphone deal

Orange has signed a deal with Google to increase access to mobile internet across Africa and the Middle East.

Services will be targeted particularly at young people, with content covering fashion, sport and music, as well as everyday tools such as Google Search, YouTube and Google Maps. Local services and content will be added later.

Offers will be rolled out during the second quarter of this year, with tariffs starting at USD40, for a high-specification smartphone and a communication bundle with voice, SMS and data.

"As the first pan-Africa and Middle East mobile partnership with Google on this scale, we are able to bring direct value to our customers by offering the best access and services to ensure they get the most out of the mobile internet," says Yves Maitre, EVP of connected objects and partnerships at Orange.

The deal will launch on the *Orange Rise 31 Special Edition*, a new and exclusive Orange-branded 3G device. It runs on *Android 6.0 Marshmallow*,



has a four-inch screen, and comes with the latest version of Orange's *Experience* software suite.

The operator is also planning an educational campaign to show customers how to take advantage of *Google Search* and *Google Maps*.

The first device that will be launched under the partnership is *Orange Rise 31 Special Edition*, a new and exclusive 3G smartphone.

# Digitata Expands Product Offering in Africa

Digitata provides solutions for mobile operators that enable them to achieve sustainable customer growth and profitable revenue generation in competitive environments, while enhancing the value of the mobile experience for their customers.

Digitata CMO, Conal Lewer-Allen said, *"The exciting times continue for Digitata. Following the acquisition of Rorotika Technologies, the company has extended its product portfolio and grown in size."*

*We recently launched our new dynamic data bundle offering along with an updated version of our SnapTariff mobile app."*

## dynamic tariffing™

**Dynamic Tariffing™**, the established face of Digitata, with the first and leading dynamic tariffing solution for voice, SMS and data, allows mobile operators to dynamically change the price of calls, SMS and data based on network elasticity, in order to offer subscribers better value and protect the network while maintaining or improving revenue.



Dynamic Tariffing™ is accompanied by a mobile app, **SnapTariff** that allows subscribers improved visibility of the dynamic pricing as well as better control of their data spend.

**Digitata Insights**, the fun face of the company, provides innovative mobile media solutions focusing on mobile engagement mechanisms that incorporate gamification and content strategies to create extended, emotional and valuable customer engagements.

Digitata Insight's **MeMe** provides an innovative premier media channel and content solution that geo tags and enriches existing mobile messages based on a subscriber's location, allowing subscribers to discover new content and engage with new services.

Digitata Insight's **USSD Games Arcade** allows both mobile operators and brands to unlock revenue and actively engage with their customers in emerging markets. For mobile operators, Digitata Insight's mobile gaming unlocks revenue opportunities by using the USSD bearer to create a mobile, multiplayer, highly engaging and ubiquitous "gaming arcade in their subscribers' pocket". Digitata Insights is already working closely with a large South African mobile operator, and offers a catalogue of classic, multiplayer and social games.

For brands, Digitata Insight's USSD Games Arcade incorporates fun and competition into mobile marketing campaigns to create a more emotional connection with their audience, which leads to a longer relationship. For example, a sponsored game (free to the consumer) was developed for a major South African bank, to improve and enhance their reach of financial education, product and service awareness, and general engagement with their brand. Such games offer an unprecedented 38 minutes of active engagement with your brand.

A screenshot of a web-based network management interface. At the top, there are tabs for NetCM, Networks, Virtual Group, Policy, Reports, and Activ. Below this is a navigation bar with Configuration, Errors, and Changes. The main content area is titled "Network 3" and contains a table with columns for Parameter, Region 1 (Current, Previous), and Region 2 (Current, Previous). The table includes rows for BSCs, 2G BTS, 2G Cells (highlighted in blue), 2G TRXs, RNCs, NodeBs, 3G Cells, MSCs, and SGSNs.

**Digitata Networks** offers a vendor-agnostic network configuration management, performance monitoring and self-organising network product suite to transparently monitor, control and automate all major mobile technologies (2G, 3G, LTE, Wi-Fi) across multi domains (Core, RAN, TX).

The Digitata Networks solution offers operators cost savings through improved efficiencies gained by automating network auditing, planning, optimising, configuration and operational activities.



[www.digitata.com](http://www.digitata.com) ~ [info@digitata.com](mailto:info@digitata.com)



# Amphenol Antenna Solutions – Global Brand / African Flexibility

Amphenol was founded in 1932; the company is listed on the New York Stock Exchange under the ticker APH. The 2015 turnover for the company was US\$5.5 Billion; this is a ten-fold growth over the last 25 years. The Company has been the standout performer in the interconnect solutions industry for more than 10 years, achieving a nearly 12% compound annual growth rate, approximately three times more than the industry average. Impressive facts and figures indeed, but what does this mean in terms of how we operate in the telecommunications market on the African continent?

Amphenol commenced direct operations on the African continent in 1999. Today we have operational locations in Johannesburg, Casablanca and Lagos. The principle from day one was to develop a global brand, which is an industry standard and market leader in the traditional geographic strong holds of North America and Europe, into a leading brand in the numerous unknown, diverse and growing African markets. In the same period Amphenol has evolved from having an insignificant presence in the wireless telecommunication market to becoming a global leader in this sector. The acquisition of key brands including Jaybeam, Antel USA, Procom, Skymasts Antennas, Fuyang and Times Microwave Systems enabled Amphenol to offer customers a diverse product line to fit all applications.

The convergence of Amphenol's range of products for telecommunications applications enables us to be a strong partner in the Cellular Base Station, In-Building Solutions and Private Network applications:

#### **Cellular Base Stations**

Amphenol Antenna Solutions (AAS) range of antennas offer a complete solution in terms of the increasingly complex requirements of cellular operators. We offer more than 6000 products to service customer requirements.

#### **SlimLine Series – Panel Antennas**

This range of low visual impact multiband antennas are designed for very low wind loading while integrating 2G, 3G and 4G technologies in a compact package.

#### **UltraLine Series – Multi-Band Technology**

This evolutionary antenna configuration can allow up to five different bands in one compact arrangement. This range is the perfect solution for future-proofing a base station site.

#### **TwinLine Series – Site Sharing Technology**

The leading solution for site or technology sharing. These Quad antennas with two side by side multiband arrays are housed in an optimally designed package for low wind loading. This is an ideal solution for tower management companies looking to increase tower usage and revenue while not compromising on network quality.

#### **TriSector & CylLine – Concealed Site & Small Cell Applications**

Amphenol has been at the forefront of meeting the increasing site acquisition obstacles confronting mobile operators. The TriSector range is a Three-Sector antenna inside a small, low visual impact cylindrical enclosure while The CylLine range offers Single-Sector solution. These antennas can be discretely deployed as flag poles, roof-top vents, street lamps or telephone poles.

#### **Integrated RETs**

The entire AAS antenna range uses our patented integrated Remote Electrical Downtilt (RET) units. This range of RETs are fully interoperable with all major BTS equipment vendors. Antennas can be specified with or without RET units as this system is retrofittable on site.

As wireless networks evolved so has the company and today AAS offers OEMs and operators the convenience of a single source, not only for quality antennas, but for transmission line products like Feeder Cable, Hybrid Fibre, Surge Arrestors and Connectors as well as RF peripherals like TMAs, Combiners, Couplers and Splitters.

#### **In-Building Solutions (IBS) / Distributed Antenna Systems (DAS)**

AAS is a single source for wireless infrastructure offering not only antennas for Small Cell and Distributed Antenna Systems, but also Passive Components like Couplers, Power Splitters and Attenuators. A wide selection of antennas gives you the coverage you need for your in-building network and the passive components complete the system.

#### **Private Networks**

Amphenol Private Networks incorporates the brands Procom, Jaybeam and Skymasts Antennas. The premise is to create a single source for Antennas, Filters, Combining systems, Duplexers, RF cables and connectors to the critical communications, TETRA and PMR market sectors.

#### **Local Partnership**

Amphenol has further recognized that a key requirement of the African market is to offer local, turnkey installation of Cellular Base Stations and In-building Solutions, in doing so we have established partnerships with key regional partners who offer BTS & IBS / DAS design, installation and commissioning. This single source to key customers continues to be our fastest growing market sector.

To summarize – Amphenol can offer the African telecommunications market the dual benefit of large volume production in 10 dedicated facilities across 3 continents while remaining flexible in servicing customer's specific requirements. Global Brand / African Flexibility.

**"Amphenol can offer the African telecommunications market the dual benefit of large volume production in 10 dedicated facilities across 3 continents while remaining flexible in servicing customer's specific requirements."**

Paul Eveleigh  
Business Development Manager



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**One Source. Global Site Solutions.**

 **Amphenol**  
ANTENNA SOLUTIONS

# More than four billion SIM cards were shipped globally in 2015

Worldwide shipments of SIM cards increased 0.3 per cent to reach 4.7 billion in 2015, according to the SIMAlliance. While those figures are based on numbers reported by its members, the organisation estimates that the total available market last year was 5.3 billion compared to 5.2 billion in 2014.

The SIMAlliance's membership represents around 88 per cent of the global market, and includes well-known vendors such as Gemalto, Giesecke and Devrient, Oberthur Technologies, amongst others.

Members reported significant advances in a number of key markets and regions, including Africa and the Middle East which saw shipments rising from 861m units in 2014 to 982m units in 2015.

The organisation said this year-on-year increase of 14 per cent demonstrates the "strong" growth potential of the region's markets.

It believes the increases are due to three factors: the ongoing penetration of smartphones, which is seen particularly in emerging markets thanks to more affordable models leading consumers to upgrade from feature phones; continued subscriber acquisition; and a sharp rise in LTE card shipments as 4G networks start rolling out across African markets.

LTE was also the biggest technology driver of growth in the worldwide SIM market in 2015. According to the alliance, the continued migration to 4G led to every market in every region reporting at least double digit growth in LTE card shipments.



The SIMAlliance is now leading cross-industry efforts to define 5G security needs, says chairman Herve Pierre.

"Globally, an exceptional 88.5 per cent growth in shipments of cards that can be used in LTE networks was observed, driving volumes of this type of SIM to exceed one billion units for the first time," stated the alliance.

In other regions, India now has the highest shipment volumes in Asia and saw a 25 per cent year-on-year market increase; shipments in the Americas jumped six per cent from 738m units

in 2014 to 781m in 2015; and Europe saw a return to growth with year-on-year shipments increasing one per cent from 440m to 444m units.

Looking ahead to 2016, SIMAlliance chairman Herve Pierre believes a key priority for the industry is to continue evolving and adapting SIM technologies in line with changing market requirements.

He said: "The association is already leading cross-industry efforts to define security requirements within 5G. From our initial findings, it appears that there could be a role for dedicated tamper-resistant hardware across the four segments identified for 5G: massive IoT; critical communications; enhanced mobile broadband; and network operations."

## Africa Internet Group adds Orange to its list of big backers

Orange Group has purchased a EUR75m equity interest in the Africa Internet Group (AIG), joining AXA, Goldman Sachs and longstanding investors MTN Group, Millicom and Rocket Internet.

Orange will help Jumia and other websites run by AIG to accelerate their growth and seize development opportunities on the continent. The operator says its investment will be accompanied by a series of strategic partnerships between the subsidiaries of the two groups.

Jumia offers an online platform for businesses to market their products and services to Africa's emerging middle class. Since its creation in Nigeria in 2012, AIG says Jumia has seen significant and continuous growth



Orange Group chairman and CEO Stéphane Richard says the investment gives the firm the capacity to play a leading role in e-commerce.

with ten online consumer businesses now operating in 23 African countries, enabling more than 50,000 local and international companies to do business with the continent's consumers.

Other services offered by AIG include an e-commerce marketplace (Kaymu), websites offering food delivery (Hellofood) and hotel booking (Jovago), online classified ads for general merchandise (Vendito), and others.

The company says that by combining Orange's support and expertise with that

of its existing shareholders, it will be able to further improve its service offerings and the customer experience, while continuing to invest in infrastructure.

Orange Group chairman and CEO Stéphane Richard adds that the strategic investment gives Orange the capacity to play a leading role in Africa's fast-growing e-commerce market.

"This acquisition is combined with the signature of several important partnership agreements that will create value for all parties," he says. "In particular, across the twelve countries where we have a common presence, this investment will enable us to significantly develop our ability to market products and services developed by Orange Middle East and Africa over the internet."

## Worldwide job losses at Nokia

Nokia has started the process of

reducing its global workforce. As a result of its acquisition of Alcatel-Lucent last year (see *Wireless Business*, Mar-Apr 2015), the company is targeting EUR900m of opex cuts to be achieved in 2018.

The job losses will occur over the next two years. As previously outlined last October, Nokia says they will largely be in areas where there are overlaps, such as research and development, regional and sales organisations, and corporate functions.

Processes and timelines will vary from one country to another. Around mid-April this year, Nokia met with its two European Works Councils and similar meetings and consultations with employee representatives are due to take place in almost 30 countries during the coming weeks.

Nokia President and CEO Rajeev Suri says: "We know that our actions

## INVESTMENTS, MERGERS & ACQUISITIONS

Date	Buyer	Seller	Item	Price	Notes
9/3/16	KORE Wireless Group	Wyless Group Holdings	Company	NA	According to KORE, its all-cash transaction to buy Wyless creates the only truly global, independent, multi-platform, IoT services company.
4/4/16	Brocade	Ruckus Wireless	Company	USD1.5bn	Brocade says acquisition will mean it can add Ruckus' higher-growth wireless products to its enterprise networking portfolio.
11/4/16	Telit Communications	Novatel Wireless	Various assets	USD11m	The IoT specialist will buy several cellular module product lines, related IP & related assets for an initial cash price & conditional earn-out consideration, which is expected to be non-material.



Nokia president Rajeev Suri said the company will provide "transition and other support for impacted employees".

will have real human consequences and, given this, we will proceed in a way that is consistent with our company values and provide transition and other support to the impacted employees."

As well as the redundancy programme, Nokia says it is shifting resources to future-oriented technologies such as 5G, cloud and the IoT. The company also continues to target worldwide savings in real estate, services, procurement, supply chain and manufacturing.

### French court unfreezes RSCC's Eutelsat receivables

The High Court of Paris has lifted the attachment from the receivables owed by Eutelsat to the Russian Satellite Communications Company (RSCC).

Earlier this year, France froze around USD1bn of assets as part of a USD50bn award against the Russian state for dismantling the Yukos Oil Company. This was once Russia's biggest oil producer but its founder and owner, Mikhail Khodorkovsky, was a vocal critic of Putin's Government.

According to reports, the funds include USD300m owed by Arianespace to Roscosmos for Soyuz rockets and USD400m owed by Eutelsat to RSCC. A final decision on all the sums frozen by France is expected around the end of the year.

However around mid-April, the High Court decided to lift the attachment from the receivables owed by Eutelsat to RSCC under their current contracts, obtained earlier by Cypriot company and former Yukos shareholder Hulley Enterprises. The court has held that the attached assets did not belong to the Russian Federation but were the property of RSCC.

"We are satisfied with the equitable decisions of the French court," said RSCC DG Yuri Prokhorov. "We are looking forward to further successful

cooperation with our strategic partner, Eutelsat, in satellite communications and digital broadcasting."

### Ericsson overhauls structure

Ericsson is reorganising in an effort to drive growth and profitability.

"We will create a leaner, more fit for purpose organisation, to cater for the needs of different customer segments and to faster capture market opportunities," says Ericsson president and CEO Hans Vestberg. "As 5G, the Internet of Things, and cloud drive the next phase of industry development, the time is just right to make these changes."

As from July, the company's new structure will comprise five business units (BUS). These include two that cover the company's networks business. Headed by Fredrik Jejdling, BU networks services focuses on managed services, network rollout and customer support; while BU network products combines radio and transport, and is led by Arun Bansal.

The other units include two that focus on IT and cloud products and services, and a dedicated customer

group for industry and society.

Vestberg reckons the changes will make it easier for customers to do business with the company, whether they are an operator, a media company or from another industry.

This latest restructure follows on from a number of key strategic decisions made by Ericsson in recent years. This includes exiting the handset and modems businesses, an enhanced partnership strategy on IP (such as the tie-up with Cisco announced last year), and investments to build targeted growth areas with strong focus on software and professional services.

### Yahsat promises 18 new African markets for IEC

Yahsat has signed an MoU with the IEC Telecom Group to look at the possibility of new joint opportunities in Africa. The agreement comes ahead of Yahsat taking delivery of its third satellite, *Al Yah 3*, which is currently being built in the US by Orbital ATK.

The launch of the satellite during the first quarter of next year will

## LATEST COMPANY RESULTS

Date	Company	Country	Period	Currency	Sales (m)	EBITDA (m)	EPS (units)	Notes	
26/2/16	SES	Luxembourg	FY15	EUR	2,014.5	1,494.2	1.30	YoY revenues up 5% (-3.2% at constant currency). Will launch seven new satellites between 2016 and end-2017 to add to the 52 in orbit as at December 2015. Schedule includes SES-9 & SES-12, both for APAC.	
3/3/16	MTN	South Africa	FY15	ZAR	146,353	59,125	131.0	Weak macro-economic conditions, increased competition, greater regulatory pressures (notably in Nigeria) & operational challenges in some markets resulted in a lower than expected performance. Reported basic headline earnings per share (HEPS) declined 51.4% to 746 cents. This was largely due to Nigerian fine which had a 402 cents negative impact on HEPS.	
1/4/16	Huawei	China	FY15	CNY	395,009	NA	NA	Carrier, consumer & enterprise divisions all reported increases. In EMEA, rapid growth in wireless & fixed networks, plus increased share in smartphone market, yielded CNY128,016m - a 27.2% increase in revenue over 2014.	
6/4/16	ZTE	China	FY15	RMB	100.19 (bn)	NA	0.78	Revenue growth reflected increased sales from 4G system & optical access products. High-end routers & handsets in the international market also saw significant growth.	
14/4/16	Arianespace	France	FY15	EUR	1.433 (bn)	NA	NA	Turnover increase of 2.4% beat previous all-time high of €1.399bn in 2014. Attributed to a record number of 12 launches last year. 33 contracts worth €2.5bn signed during 2015, increasing order backlog to €5.3bn.	
19/4/16	C-COM Satellite Systems	Canada	1Q16	CAD	2.433	NA	0.0125	Compared to 1Q15, revenues are up 10.5% but net profits are down 18.0%. Company ended quarter with cash position of more than \$15m & continues to be debt free.	
25/4/16	Millicom	Luxembourg	1Q16	USD	1.53 (bn)	550	0.22	In Africa, organic revenue growth grew 11.9% to \$220m with service revenue rising 12.1%. All countries with the exception of Rwanda reported double digit growth. EBITDA grew strongly, 11.8% on Q4 and 13.5% year-on-year to \$57m at a margin of 25.8%. DRC now a discontinued operation.	



Yahsat CCO David Murphy (left) with Erwan Emilian, CEO of IEC Telecom Group.

make Yahsat's broadband product, *YahClick*, available in 18 new African markets. The company says this will almost triple its existing presence across the continent, covering 60 per cent of the population.

IEC Telecom provides mobile and fixed satcoms services, and its MoU with Yahsat will explore ways for it to offer *YahClick* broadband products, services and value-added solutions to support the satellite operator's increased coverage across Africa.

"We will look at potential ways to build on our long and valued history

with IEC Telecom, which dates back to the pre-launch of our second satellite, *Y1B*, in 2012," says Yahsat CCO David Murphy. "Building on our existing partnership would ensure *YahClick* delivers on its promise to have an unmatched service area, and provides constant connectivity to aid the socio-economic development of the region."

According to Yahsat, IEC's customers will benefit from the "high-performance and excellent look angles" for Africa offered by *Al Yah 3*. With the uplink based in Athens and Luxembourg, it says clients will be able to land their traffic directly into Europe, Middle East and Africa, taking advantage of high-speed interconnection throughout these regions.

IEC believes the prospect of adding 18 additional markets with *Al Yah 3* will "enhance and strengthen" its portfolio in the professional Ka-band VSAT marketplace.

Erwan Emilian, the company's CEO, adds: "With Yahsat, we would be able to continue meeting our goal of providing our enterprise, government, humanitarian, O&G, mining, education

and health customers [in Africa] with enhanced Ka-band HTS connectivity backed by an unmatched network reliability and consolidated by our added-value services."

#### **Accounting software makes Eaton look more attractive to investors**

Eaton Towers has implemented Adaptive Insights' software to consolidate financials across seven countries, transforming its financial reporting and driving business expansion.

The deployment is said to have enabled Eaton to accelerate its monthly reporting by 100 per cent. Adaptive says the software also facilitated the towerco to raise USD350m in equity funding last year which was critical to its expansion from three to six markets in less than a year.

Eaton now has 5,000 towers in seven African countries. Adaptive says the firm is using *Consolidation* to give it visibility into the performance of each region, and *OfficeConnect* to allow "easy, professional reporting" of that performance to both current and potential investors.

"The delivery of affordable mobile communications requires that we carefully manage our own financial performance and expenses," says Peter Cannan, Eaton's group financial controller. "At the same time, we are on a fast-growth trajectory and needed software that I could set up myself and would be easily understood by our users with very little training. Adaptive Insights' software fit the bill, and today we are rolling up and reporting on substantial amounts of data – sometimes with the simple click of a button."

According to *Adaptive Insights' CFO Indicator Q3 2015* report, one-third of CFOs predict the amount of data they manage will increase by more than 50 per cent within the next five years. Additionally, 41 per cent of finance teams manage data from three to five source systems, and 22 per cent pull from as many as five to 10 systems.

The vendor says the increase in both data and data sources has a significant impact on finance teams of all sizes and across all industries looking to consolidate and report performance.

## NEW APPOINTMENTS

Date	Name	New employer	New position	Previous employer	Previous position
25/2/16	Dr. Edmund Kong	MEASAT	CTO	Orbital ATK	Product line chief engineer
1/3/16	Pascal Menezes	MEF (Metro Ethernet Forum)	CTO	Microsoft Skype for Business	Principal
9/3/16	Mike Coffey	KORE Wireless Group	COO	Wyless Group	CEO
17/3/16	Skot Butler	Intelsat General	President	Intelsat General	VP of satellite networks & space services
17/3/16	Yona Ovadia	Gilat Satellite Networks	CEO	Amdocs	Group president
30/3/16	Yolanda Zoleka Cuba	Vodafone Ghana	CEO	Vodacom Group	Strategy & new business director
30/3/16	Daniel Loria	Millicom	EVP of HR	Syngenta North America	Head of HR
5/4/16	Philippe Vallée	Gemalto	CEO	Gemalto	CCO
5/4/16	Olivier Piou	-	-	Gemalto	CEO – retiring as from August 2016
5/4/16	Zhao Xianming	ZTE	President	ZTE	EVP
8/4/16	Brent Dippie	Zetron	President & CEO	Zetron	COO & SVP
8/4/16	Ellen O'Hara	Zetron/EFJohnson	Chairman/board member	Zetron	President & CEO
8/4/16	Elie Lobel	Orange	CEO of healthcare	ASIP Santé	Director, national e-health projects unit
11/4/16	Olof Lindberg	CCS (Cambridge Communication Systems)	VP sales	Coromatic International	VP worldwide sales
19/4/16	Emmanuel Saint Dizier	RFS	VP, strategy & portfolio	RFS	Product manager
21/4/16	Fredrik Jejdling	Ericsson	SVP & head of network services	Ericsson	Head of sub-Saharan Africa
21/4/16	Jean-Claude Geha	Ericsson	Head of sub-Saharan Africa	Ericsson	Head of managed services
25/4/16	Andreas Teuber	Signalhorn	Sales director	Prolifics Deutschland	Sales director Germany

# Controllis claims to cut off-grid costs with DC generator

What's described as a "breakthrough" generator promises to transform the way telcos supply power to their off-grid sites. According to UK-based Controllis, the new *Basic48-10* brings the total capital cost of off-grid DC power systems below that of an equivalent AC generator-based system.

The *Basic48-10* features the vendor's

**MANUFACTURER:** Controllis

**PRODUCT:** BASIC48-10

**MORE INFORMATION:**  
[www.controllis.com](http://www.controllis.com)

*DCPrimePower* technology and RSC-HMU hybrid remote management and control system, enabling operators to use a range of different charging regimes including float and hybrid battery.

Controllis says the generator has been designed to significantly reduce fuel consumption in site operation. It says these are accomplished by its very high efficiency *DCPrimePower* permanent magnet alternator, mounting the generator directly on the engine fly wheel thus negating the need for alternator coupling or bearings, and precisely varying the engine speed according to site loads.

The *Basic48-10* has been designed to easily integrate with renewable energy solutions. It can be supplied with optional 48V solar PV charging controllers for up to 12kW of solar capacity, and the controllers are integrated with the *RSC-HMU* via MODBUS to provide full remote visibility of the entire system, including solar output and battery status.

Controllis says when power demand is not met by the solar output or the battery bank, the *Basic48-10* automatically switches itself on and takes over the charging role until the renewable source can again provide sufficient energy to meet site needs.



The *RSC-HMU* monitors and manages a wide range of critical engine and fuel system parameters as well as generator site security. It communicates directly to the *Controllis Remote Management Server (RMS)* which provides comprehensive configuration, alarm management and delivery. The server integrates into any operator's NOC via SNMP or MOD/TCP-IP, and interfaces back to the RMS via its internal 9BandUMTS/GPRS modem, any other IP or RS485 interface available on site.

## Digi hardens router for industrial LTE connections

Digi International has developed a ruggedised version of its

**MANUFACTURER:**  
Digi International

**PRODUCT:** TransPort WR11 XT

**MORE INFORMATION:**  
[www.digi.com](http://www.digi.com)

commercial-grade *WR11* cellular router. It says the temperature hardened *TransPort WR11 XT* provides a secure and reliable LTE connection for industrial and retail applications in harsh environments.

The new router builds upon the capabilities of the *WR11*. Digi says these include global cellular carrier certifications, license-free enterprise software, PCI-ready security

features, small form factor, dual SIM capabilities, and what's claimed to be "advanced" network management via the *Digi Remote Manager* system.

The *TransPort WR11 XT* features a ruggedised aluminium enclosure and DIN-rail form factor, an increased operating temperature range from -30°C to +70°C, flanges for shelf- or wall-mounting, and a screw-down SIM cover.

The device comes with Digi's license-free enterprise routing and security software, and models are available that offer support for LTE, LTE with 3G fallback, as well as global HSPA+.



## Lenovo unveils new way to connect

Lenovo has launched a new global wireless roaming service. A long-time MVNO, the company will now offer *Lenovo Connect* which it describes as a "seamless" communication service that works across devices, networks and borders for customers in China and EMEA.

The company says the new service eliminates the need to buy a separate SIM and offers benefits such as low-priced global roaming by leveraging



Lenovo's  
Big Data  
and cloud services.

While in China the service is available via an app on selected devices, in EMEA the company is working with channel partners to bring *Lenovo Connect* to customers using a variety of *ThinkPad* devices. Initially available in 45 EMEA markets, its claimed customers will be able to take advantage of secure data connectivity at competitive rates.

Lenovo adds that the service will be supported by customised data plans designed to support both domestic and international roaming use in more than 110 countries globally.

**MANUFACTURER:** Lenovo

**PRODUCT:** Lenovo Connect

**MORE INFORMATION:**  
[www.lenovo.com](http://www.lenovo.com)

## "100 per cent accurate" revenue assurance platform

Risk management and analytics expert Neural Technologies reckons the latest version of its revenue assurance platform offers a complete end-to-end rating engine, meaning it is 100 per cent accurate "down to the cent".

*Minotaur 10* is designed to offer customers an "enhanced" value proposition with 5G and Big Data-ready functionality. It also features real-time data processing, smartphone and tablet data entry/incident reporting capabilities, integrated test call generation, and introduces NoSQL.

Neural says its improved rating capabilities and the ability to connect directly to any data source in the OSS or BSS stack remove the need for any intermediary software,

meaning operators will experience lower complexity, faster integration, and fewer third-party costs.

The firm believes this direct connection simplifies connecting of new devices and networks which will grow enormously as a result of the IoT. It adds that customers will experience faster operational speeds because of the direct connection from data sources to the platform.

**MANUFACTURER:**  
Neural Technologies

**PRODUCT:** Minotaur 10

**MORE INFORMATION:**  
[www.neuralt.com](http://www.neuralt.com)

# First DVB-S2X VSAT modem launched

Newtec describes the *MDM5000* as its most advanced VSAT modem to date. It is said to be the first to support wideband DVB-S2X, and is capable of receiving forward carriers of up to 140MHz and processing more than 200Mbps of throughput.

With forward symbol rates from 1 to 133 Mbaud and coding up to 256APSK, it's claimed the *MDM5000* will boost efficiency and performance on legacy satellites while "fully unleashing" the potential of next-generation high throughput satellites (HTS). On the return channel, Newtec says the device supports SCPC,



TDMA, and its unique *Mx-DMA* technology for up to 75Mbps.

It is designed to handle a wide range of services, including internet access, VoIP and backhauling, along with video contribution and multicasting.

As with Newtec's previous *Dialog* modems, the *MDM5000* incorporates Layer-3 routing, advanced QoS, TCP acceleration, pre-fetching, compression and encryption.

It also supports a new Layer-2 mode, facilitating integration with

various networking topologies and routing protocols, like MPLS and BGP. Dual demodulators for "seamless" beam switching on future HTS networks are also included.

**MANUFACTURER:** Newtec

**PRODUCT:** MDM5000

**MORE INFORMATION:**  
[www.newtec.eu](http://www.newtec.eu)

## CCS unveils self-organising backhaul solution with integrated small cell

CCS (Cambridge Communication Systems) has adapted its *Metnet* self-organising backhaul solution to host a small cell in a single, compact design.

According to the company, site acquisition for outdoor small cells is currently a slow and difficult process

**MANUFACTURER:** Cambridge Communication Systems

**PRODUCT:** Metnet

**MORE INFORMATION:**  
[www.ccs.com](http://www.ccs.com)

as separate small cell and backhaul units often exceed the size, weight and single-attachment restrictions for planning approvals. *Metnet* combines a small cell and, as a result, CCS says it is smaller and more acceptable to local planning departments which considerably speeds up deployment.

The company says its system operates in a single frequency channel with no radio planning required. It adds that each unit has a wide 270° field of view and supports multiple connections, so there's no need for manual alignment and only one is required per site. Each node is also capable of providing

GPS-derived local master synchronisation, with distributed timing recovery in the event of GPS failures.

The *Metnet* backhaul platform will host small cells in a universal design that utilises licensed or unlicensed spectrum, including LTE-A, LTE-U, MulteFire, Wi-Fi and ultimately 5G variants.



## Viavi cuts costs for cell site installations

Viavi Solutions (formerly JDSU) has added baseband unit (BBU) emulation to its *CellAdvisor* base station analyser to enable comprehensive testing during RRH installations at sites. The company reckons the new feature dramatically reduces the need for repeat site visits and tower climbs

**MANUFACTURER:** Viavi

**PRODUCT:** CellAdvisor

**MORE INFORMATION:**  
[www.viavisolutions.com](http://www.viavisolutions.com)

to speed up deployment times and significantly reduce opex.

Viavi says that traditionally, cell site installation is segmented into two parts performed during different visits. First, a technician climbs the tower to install the RRH, and conducts sweep testing and fibre inspection. Second, the BBU is installed on a separate visit, where the RRH is put on air, and a comprehensive cell site test can occur.

By adding BBU emulation, the vendor says *CellAdvisor* opens up a more comprehensive cell site test to identify and address problems on the



first visit. Following installation of the radio, technicians can now put it on the air to verify performance of, or identify problems with equipment (radio, antennas, coaxial cables) or the radio environment, including external interference, noise or passive inter-modulation.

## ALSO LOOK OUT FOR

### New antennas promise low cost in-flight broadband

A UK university professor says passengers will soon be able to use low-cost mobile broadband on planes, following his acclaimed research into developing a new generation of antennas.

Yang Hao, professor of antennas and electromagnetics at Queen Mary University of London, recently won the prestigious GBP300,000 Institution of Engineering and Technology A F Harvey Engineering award for his work which focused on antennas with better aesthetics and fundamentally novel designs. It's claimed this will allow them to be used in "new and exciting" ways, particularly in satellite communications for many industries including aviation and aerospace.

One element of his work looked at the use of high-throughput satcoms that will enable passengers to take advantage of low-cost broadband internet services when they travel by plane. While air passengers currently have to switch their mobile phones to 'flight mode' and pay an additional charge to access data on their device, it's claimed Hao's research will enable a "seamless broadband experience" from land to air, at no additional cost.

The IET said Hao was awarded the prize in recognition of his research achievements in microwaves, antennas and, in particular, metamaterial antenna innovations which draw inspiration from transformation optics.

"The IET A F Harvey Engineering Research Prize will push the boundaries of our research to the next level, out of the lab towards real engineering applications and industry," said Prof. Hao. "Our goal is to make low cost smart antenna systems, an engineering reality that can be enjoyed by everyone, from professionals in satellite communications to air passengers who want to stay connected on their mobile phone or devices."



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# Security matters

As mobile operators expand their networks and launch new consumer services, experts say they need to adopt more integrated approaches for enhanced security.

With criminals targeting mobile networks, widespread use of SIMboxes, and increasing global cyber crime, the issue of security remains a major concern for operators. DAVE HOWELL reports

**A**s smartphone ownership expands across Africa, the issue of security continues to be a priority for MNOs throughout the continent. While the Communications Fraud Control Association (CFCA) estimates global telecom fraud losses of USD38.1bn in 2015 or approximately 1.69 per cent of revenues, cyber security in general continues to have a high profile as the digital economy and its users come under attack.

According to Trustwave's latest *Global Security* report published earlier this year, the majority of compromises in regions outside North America were in online sales. "E-commerce environments were compromised in 70 per cent of cases in Europe, the Middle East and Africa, with 35 per cent of mobile applications tested having critical security vulnerabilities," said the provider of cyber security solutions which was acquired by Singtel last year.

It will come as no surprise that greater mobile connectivity and broadband access will lead to more cyber crime. For instance, the Kenya *Cyber Security Report 2015* said telcos are a "prime target" for cyber criminals as the country's reliance on technology continues to grow, and all organisations,

such as banks and government, depending on internet connectivity from telcos.

The report stated: "Cyber criminals are targeting these organisations because of three main reasons: they control and operate critical infrastructure; they store large amounts of sensitive customer information, and they facilitate mobile money services in the country."

However, while Africa's MNOs are clearly aware of the threats to their networks and the services that they offer, the level of deployment of security systems in both the private and the public sectors to combat cyber crime is low.

Singapore-based Cataleya specialises in IP networking technology including systems for analysis, visibility and intelligence. It believes that given Africa's explosive growth in mobile penetration over the past few years, the main telecom expense management system vendors are now able to offer the same level of security platforms in the region as they do in other continents.

Miguel Lopes, Cataleya's VP of product line management, says: "Before, security systems were expensive and cumbersome to deploy.

But nowadays in the age of NFV/SDN, these technologies are available at reasonable prices, offer flexible deployment models, and are now mostly part of the network by default."

But he goes on by saying that when it comes to fraud, the continent's mobile growth comes with a price: "No operator is an island. African MNOs must quickly adapt to protect their own subscribers from domestic, continental and global fraud attacks. The learning curve generated during this adaptation is the threshold from where fraudsters can act undetected."

## Security management

The rapid expansion of mobile services into a consumer environment that has not had the benefit of developing robust security protocols has meant that Africa has become the new focus for cyber crime. One of the most common security breaches is SIMbox fraud (see 'Killing your billing' right). This isn't surprising as the continent now has close to a billion subscribers, making it a very attractive target for this kind of network fraud.

The cellcos are fighting back. For example, after being hired by Ghana's government to track the use of SIMbox fraud, Accra-based consultancy Afriwave Telecom revealed it had seized 300,000 SIMboxes which would have reportedly cost the country's operators more than USD100m in lost revenues. And in a bid to tighten how SIMs are obtained, in March 2016 MTN announced it would only process cards during working hours. In May 2016, the company will begin to further tighten SIM card security by requesting an additional phone number and an email address to verify identity before a module swap is authorised.

While the main types of mobile fraud in Africa are likely to revolve around illegal SIMboxes and terminations, Lopes warns that domestic fraudsters are becoming increasingly sophisticated, and the arrival of international fraudsters also now presents a major threat. "New types of fraud such as the 'Wangiri' attacks, false answer supervision and others [see 'Killing your billing' below], are occurring quite undetected. Africa's MNO's growth is attracting global fraudsters attention to a new market."

The vast market that the continent represents is of course commercially attractive for cellcos, and they also continue to innovate in order to provide competitive services to retain and gain subscribers. This has come at a cost, as such services are developing faster than the comprehensive security platforms that are needed to prevent fraud and cyber crime.

However as Andy Gent, founder and CEO of Revector, points out, most threats are the same worldwide and it really comes down to local

dynamics such as the termination rates. "Where these are high we see more SIMbox fraud. So for example in the US (where international interconnect is rare), SIMbox fraud is virtually non-existent – the opportunity is simply not there. This is also true within EU countries. But in Southern Africa, where there are many countries, the opportunities for termination bypass are much higher."

## Fighting the fraudsters

With a range of security threats across the mobile space, mobile operators have had to be equally innovative when combating fraudsters.

Approaches vary and include post analysis of CDR data. These report-based systems detect anomalies across a network, looking for unusual patterns that could be fraud. They are however, only effective after the fraud has taken place.

What is really needed are systems that can learn an MNO's systems and use machine learning and even AI to identify potential instances of fraud. As MTN points out, networks will be subjected to continuous vulnerability assessments as threats will continue to evolve. Hitesh Morar, the group's executive of IT and innovation, says operators will have to continue to ensure robust processes are in place to continuously identify, prevent, detect, respond and recover from threats.

"The advent of new technologies and the shift to all IP networks and services, as well as the shift to cloud services, brings with it a new dimension in security requirements that were previously only prevalent in the internet world.

**Miguel Lopes,  
VP product line  
management,  
Cataleya**



**"No operator is an island. African MNOs must quickly adapt to protect their own subscribers from domestic, continental and global fraud attacks."**

"The rise of digital services, such as m-banking, m-commerce and online service, requires security that extends beyond just prevention of DDoS attacks and encryption, and also addresses message authentication, filtering and digital signing."

Understanding the kind of mobile fraud that is being perpetrated is only one element of a solution. As Jacqueline Fick, chair of the GSMA Africa fraud forum explains, a change in attitude is also needed: "Cyber crime activity has become more focused on mobile platforms. But we have noted that our mobile security mindset is still that of using a phone and not a sophisticated device that contains valuable information similar to that stored on our computers;

## KILLING YOUR BILLING

In its 'Fighting Voice Fraud with Big Data Analytics' white paper, Cataleya identified the following common types of fraud for MNOs.

### False answer supervision

Early answer is caused by one of the interconnect parties sending a false answer signal. This causes all the previous switches to start billing even when the called party has not answered the call.

### Wangiri fraud

Also known as 'robot dialling + callback'. The objective of the fraudster is to call thousands of users and hang up after one ring. Unsuspecting mobile users will return the call paying a premium rate per minute to a number which will be heavily disguised as a local one.

### International revenue share

Fraudsters take advantage of certain premium rate country terminations such as Somalia or Sudan, for example, and inflate traffic into these countries. The fraudsters can play a role in the origination side by gaining access to a fraudulent SIM or hijacking a PBX system, or on the termination side by colluding with content or IVR providers in the countries with premium termination rates.

### PBX hacking

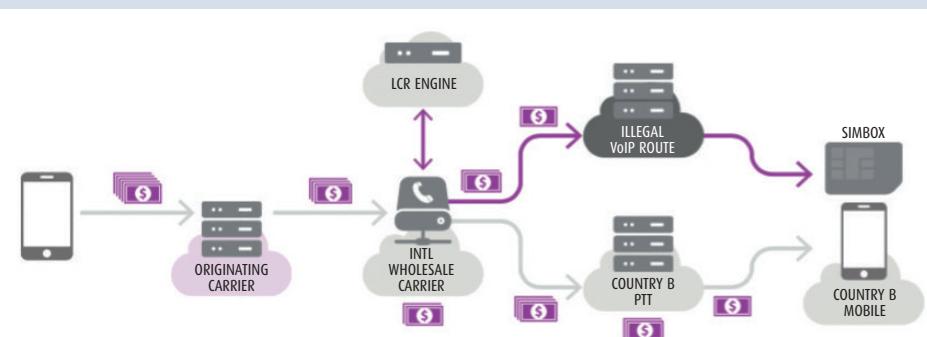
Cases are generic and involve the bypass of a legitimate carrier in the delivery path of the call. SIMbox fraud (see below) is a of a typical case here.

Another case is location routing number (LRN) fraud. This is where the fraudulent operator sneaks in a LRN via a low-cost route and then sends it to the wholesale provider where it tries to terminate the call to the indicated network. But the call does not go through, and a 're-dip' has to be done to the LNP server which provides the correct termination network on the

highcost route. The wholesale operator ends up bearing all the termination costs.

### Subscriber identity theft (SIMbox fraud)

This is particularly rampant in countries with high numbers of incoming international traffic where SIM availability is loosely controlled and law enforcement is lacking. The fraudsters mainly use pre-paid SIMs where the ownership and address is hard to detect. There are many variations of SIMbox fraud and methods of detecting them therefore also vary.



a device that has to be secured in the same way as we have now learned to do with our computers."

A change of mindset is only one component of developing a comprehensive approach to security. Carlos Marques, head of product marketing for business assurance specialist WeDo Technologies, also points to regulation: "Regulatory bodies can prove valuable in protecting against fraud, taking on a range of responsibilities including regulating prices, fighting against fraud and the fair distribution of telecoms revenue to different parties. However, due to the continual evolution of the industry, regulators need to be resourceful and forward-thinking to ensure they're able to successfully execute on their duties."

What is clear is that as the threats to mobile networks expand and increase in complexity, operators will have to move away from a general piecemeal approach to combating cyber crime in all its forms, to more integrated and intelligent systems. Here, cloud-based services are coming online from vendors that can offer an additional layer of protection to mobile networks.

## Evolving threats

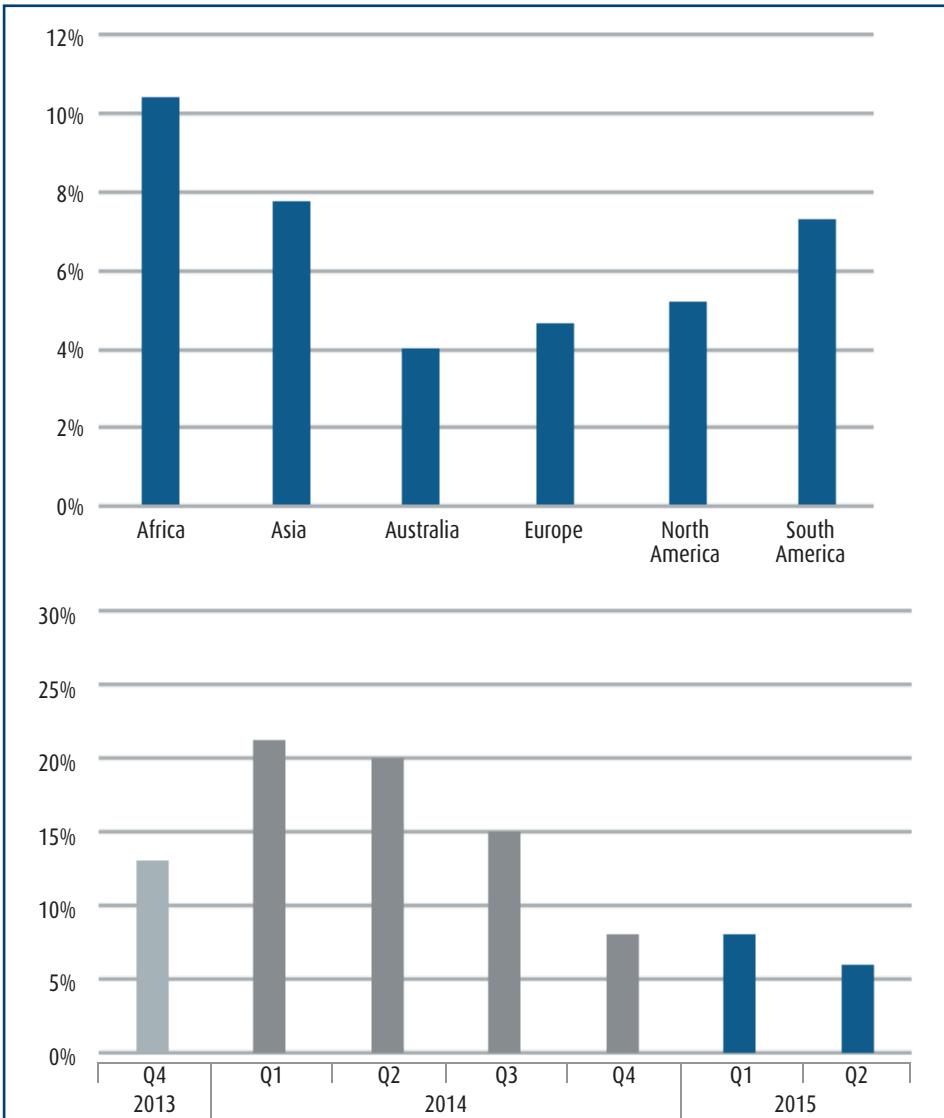
Clearly, the future will mean more security. But this must not be at the cost of eroding the services being delivered to consumers, as Simeon Coney, chief strategy officer with network security platform provider AdaptiveMobile, warns. "Carriers today are faced with the challenge of protecting the integrity of their networks, securing A2P messaging revenues, whilst future-proofing their investment in the next-generation of security architectures as NFV becomes a reality.

"Furthermore, there is an opportunity for carriers to play an important role in securing networks as we move closer to a hyper-connected future that requires new security architectures to protect 5G, IoT and beyond."

2015 saw near-exponential growth in all areas related to cyber security. In fact, Kaspersky Lab has seen a strong growth in detected threats in African countries. Dirk Kollberg, senior security researcher in the company's global research and analysis team, says: "The continued increase in threats and cyber security matters certainly shows that African countries are a growing target for cyber crime and, as a result, countries like Nigeria need to pay attention to this reality and the future trends and predictions in this space."

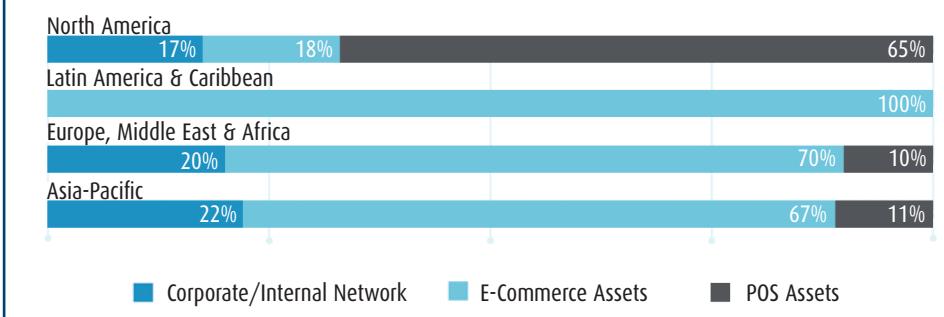
The massive growth of the mobile industry across the continent with new products developing means a multi-tiered approach to security is needed. New services mean new security threats as cyber criminals jump onto the next popular product to exploit.

"Africa is largely a pre-paid market and highly competitive on retail rates thereby challenging fraud resources to be on the constant lookout for arbitrage opportunities," says the GSMA's Fick. "LTE rollouts are accelerating, bringing increased demand for data and a host of new vulnerabilities associated with data environments."



**Top:** Mobile malware infection rates declined about one per cent per region during the second quarter of 2015, with the exception of Africa which was unchanged and North America which dropped almost four per cent. **Above:** Global mobile malware infection rates.

SOURCE: McAFFEE



Distribution of forensics investigations by region and type of environment compromised.

SOURCE: TRUSTWAVE

She adds that SIMbox and termination fraud will remain a concern in countries where the cost of terminating an international call is considerably higher than that of a national one.

So the challenge that Africa's MNOs face is two fold: they need to continue their programmes of network development as demanded by their subscribers, and roll out these services with robust

security; but at the moment the security foundation that many of these services are built upon isn't as strong as it could be. The answer is likely to come from an integrated approach that includes new legislation, strong security protocols that can effectively combat cyber crime pre-emptively, and a change in attitude that places network security at the top of the mobile operator's agenda. ■

# Fraud is here and here to stay...

Neural Technologies, a leading global software provider of OSS/BSS solutions including fraud, risk and revenue assurance products undertook a survey via an independent third party. The objective was to see how the telecommunications industry perceive risk today and what will be the potential threats in the coming years as new and innovational services and technologies are launched and the competitive landscape adapts and evolves.

Luke Taylor, Chief Commercial Officer at Neural Technologies, commented 'the survey results were from over 110 individual respondents and were from different levels of management within service providers evenly distributed in size and geography that would indicate an unbiased survey. The survey is freely available on request from our website but if we focus on some of the findings for the Africa region in particular (which represented approximately 20% of respondents) it is somewhat interesting, including:

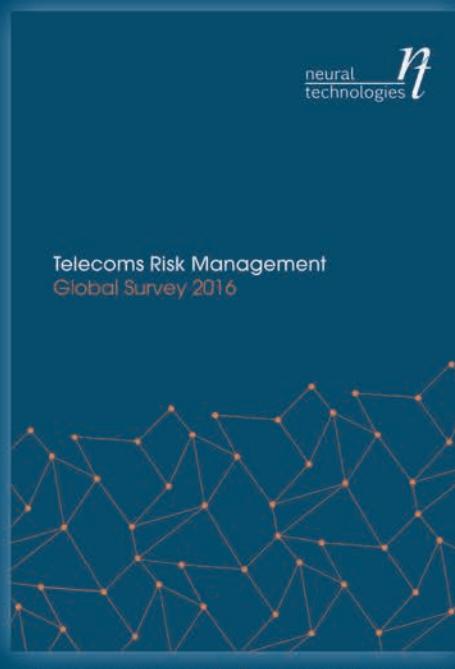
1. When it comes to managing risk, sharing knowledge and experiences with the team or peers is seen as important as the underlying systems.
2. The CFO is the most senior individual responsible for Fraud, Credit Risk and Revenue Assurance in more than 50% of companies surveyed.
3. The average level of lost revenue is over 13% (with the Africa region estimated at nearly 17%)
4. Fraud and other true losses like invoicing systems errors account for nearly 7% (with the Africa region estimated at 4%)
5. Mobile money being the highest saturation in the Africa region with over 60% of operators implementing branchless banking/contactless/e-wallet that was driven solely by customer demand
6. With nearly 90% of respondents in the region citing fraud and money laundering being the largest risks for mobile money

The responses from the survey were also enlightening and confirmed some of our own thoughts, experiences and opinions from being in this business domain for over 15 years. Talking to our customers and presenting and attending numerous industry events around the world we have garnered an in-depth knowledge of the telecom industry as well as an in-depth understanding of the risk domain.

One of the particular questions in the survey I want to highlight today was:

**Did the respondents expect the level of loss from identified issues in the survey increase, decrease or remain the same?**

Interestingly out of the many choices, the only one risk that respondents recognised to continue to increase and be a significant threat was Internal Fraud. Internal fraud can be interpreted in many ways from employees defrauding the company, disreputable dealers falsely claiming sales commissions, mobile money agents working in collusion with CSP's employees, or



simple opportune theft of devices, etc. Internal fraud is not unique to the African continent, it is perpetrated globally, but Africa with its diversity of wealth, growing/maturing economies, rapid new technology adoption and aspects like mobile money as witnessed with the huge success of M-Pesa in Safaricom, means more opportunities for such frauds to occur.

Neural Technologies have worked with Safaricom in Kenya for a number of years, protecting their services and subscribers including the M-Pesa mobile money service. Neural Technologies products monitor for fraud and possible money laundering as well as utilising the data analysed within these systems to assist and support the identification of other crimes perpetrated including poaching terrorism and money laundering. Safaricom are very keen to ensure that they stop internal fraud quickly and efficiently and have no hesitancy in publicising arrests and prosecutions. With M-Pesa being such a high revenue earner for Safaricom, corporate reputation is crucial to ensure consumer confidence.

Through continual discussions with our customers and other peers in the fraud and revenue assurance industry, it is clear that Fraud, Revenue Assurance and Risk professionals were once seen as an insurance policy within the corporation, a necessary

evil shunned by IT/network departments for highlighting revenue assurance issues and disregarded by marketing departments for hindering commercial progress. However, this is steadily changing and it is heartening to hear that service provider group initiatives looking at Fraud, RA and Risk are now being developed and successfully implemented to overcome the challenges of multi-site tenancy, geography, language, legacy infrastructure and internal politics that come with large continent-wide operations. Support from senior management and board-level is crucial to take what has been seen as a cost centre, to being recognised as a key part of the corporate business. This is witnessed by our own customers such as MTN, Vimpelcom and Zain proving such directives can work. These departments are also starting to 'rebrand' as Business Assurance, cost saving and supporting revenue generation initiatives including data monetisation where the rich datasets analysed for fraud, risk and revenue assurance can add money to the top line while still ensuring the bottom-line.

Luke Taylor continued: 'Fraud is here and here to stay, it is important that although it can never be eradicated, it can be managed through successful process, resources and systems working cohesively together and constantly adapting and evolving to the constant changes that are seen in the telecommunications industry. Neural Technologies are proud to be working with the likes of Telkom South Africa, MTN South Africa and Safaricom, Kenya to assist in their strategies to mitigate risk and revenue loss. We are in an exceptionally dynamic market and we have to ensure we stay one step ahead of the fraudster and be fully aware of the services and technologies being offered or launched, it could mean the difference from a service provider surviving in this extremely competitive marketplace, where every dollar and cent needs to be protected or maximised.'

If you wish to have a copy of the survey, then please go to:  
[www.neuralt.com/globalsurvey2016](http://www.neuralt.com/globalsurvey2016)

If you want to talk to us about how to address the problems and opportunities in this survey or contribute to future surveys, then please contact Luke Taylor via info@neuralt.com.

We look forward to hearing from you.



Luke Taylor,  
Chief Commercial Officer,  
Neural Technologies Group.

analyse • identify • act

# Furthering education

From creating innovative connectivity solutions to philanthropic CSR initiatives, wireless companies play a key role in helping educators across Africa.

**A**ccording to the *eLearning Africa 2015* report, the worldwide electronic learning market was expected to reach USD107bn by the end of last year, compared to USD56.2bn in 2014. Others have predicted that by 2018, the global market will be valued at USD169bn. In Africa, it was valued at USD5.3bn in 2012, forecast to reach USD8.7bn in 2015, and is expected to hit USD12.2bn by 2018.

Speaking in the run-up to this year's *eLearning* conferencing event that will be held in Cairo in May, *eLearning* founder Rebecca Stromeyer said new opportunities for expanding education and training are being created across the continent.

"Technology is helping people to learn new skills, and in many sectors, such as farming, it is beginning to make a huge difference. Technology-assisted learning has begun to make a significant contribution to economic growth in many countries. The pace of change is only going to quicken over the next decade and the effect will be astonishing. We really are going to see a new Africa, a transformed Africa."

Citing unnamed education experts, Airtel says that as we progress in the 21st century, online learning will constitute 50 per cent of all learning and education. The mobile operator believes that the rapid rise of learning on the internet will occur not because it is more convenient, cheaper or faster, but because cognitive learning on the internet is better than learning in-person.

"This hands-on tool allows students to relate their interests on a personal level, which is believed to motivate students to do better in school," states the cellco. "Many educators believe it can encourage the type of independence students need to progress in their learning process."

Airtel is one of many wireless communication specialists that are playing their part in the e-learning revolution across the continent. Like many big name operators, it is investing in initiatives as part of its CSR programme. More of that below. Other companies are developing innovative education solutions for Africa. For instance, Gilat Satcom has come up with a solution that aims to provide everything a rural African school needs to deliver both face-to-face lessons and remote e-learning.

The *Digital Classroom In A Box* comprises a fully insulated and decorated shipping container powered by solar electricity. It features VSAT connectivity, a Wi-Fi router with 500m radius, a management and billing system, a projector, interactive screens, sound system, computers and tablets, and even tables and chairs.

Gilat developed the classroom in collaboration with Intelitek, a US-based provider of learning technology solutions. It came up with an e-learning content platform specifically developed to meet the needs of Africa's rural communities and also supplied a large number of ready-to-use syllabuses.

Eran Yoran, Gilat Satcom's CMO and head of business development, says: "The *Digital Classroom* provides a complete solution. Content can easily be emailed through to teachers whilst our high-speed satellite connection enables high-quality video conferencing."

The company came up with the idea as the e-learning component for its '*Smart Village*' portfolio. This is said to enable rural villages and remote communities in Africa to be a part of the continent's digital future. Launched last year, it aims to deliver IP services over a private satellite network with prices for connectivity for individual villagers starting from a dollar a month.

The *Smart Village* platform can be provided by governments, NGOs, telcos, ISPs, etc., to a community of users which act as the 'village'. They can choose to deploy one or all of three components, ranging from a basic business setup of two tablet devices for internet browsing, VoIP or video over IP services, to Wi-Fi and full GSM services integrated with a local MNO and provided via a base station that can be solar powered.

Via Afrika has also used shipping containers to house digital classrooms. Established in 1949, the company publishes a comprehensive range of educational materials for schools and colleges in South Africa and Botswana. The company also has publishing experience in Namibia, Mozambique, and Zambia.

The *Via Afrika Digital Education Centres (VADECs)* are converted shipping containers filled with 15 tablets, a computer, Wi-Fi internet access with Via Afrika sponsored data, more than 400 Via Afrika ebooks, apps and other digital content, as well as printed books. The company is listed as a Vodacom education partner, and its centres have been given 15GB of data per month for an initial period of two years.

Via Afrika says the aim of the *VADECs* is to provide teachers and learners in rural areas the opportunity to work with technology and experience e-learning. It adds that it also uses the centres to trial and improve its digital material, and establish the level of training and intervention required for a meaningful e-learning experience to take place.

Working in partnership with Breadline Africa and the Nelson Mandela Foundation, the company has donated *VADECs* to three schools in the Free State, Limpopo, and Mpumalanga. The teachers in the schools where the centres are located have been



Tigo's mobile library in Ghana gives schoolchildren the chance to not only see, but also interact, discover and learn with ICT.



Left: the *Via Afrika Digital Education Centres* are converted shipping containers. Right: each unit is equipped with various learning materials along with computers and 15GB per month Wi-Fi internet access.

trained on how to use technology, how to plan and present a lesson incorporating digital material, and how to facilitate and manage the use of technology in the classroom.

Belgium-based SatADSL provides IP connectivity via satellite in areas with difficult or no web access. In Africa, its solutions have been deployed by corporate users operating in remote areas in more than 45 countries.

As well as serving many organisations in the private and public sectors, SatADSL says it has also gained multicasting experience in the broadcast markets. This has led the company to develop a combination of services aimed at delivering e-learning applications in rural areas.

SatADSL claims its complete and innovative solution for e-learning brings education in a seamless way to the most remote schools in Africa thanks to sophisticated technology.

The solution is based on connecting two distinct types of sites: a studio that is generally located in the main city; and the schools which are spread out nationwide in remote locations and not well served by traditional terrestrial communication means.

In the studio, a teacher conducts lessons in front of a digital camera with a microphone. This produces a video stream that is sent to the video-conferencing server. The studio is connected via a traditional terrestrial link such as fibre, radio local loop, etc. This carries a 768Kbps video stream from the studio to SatADSL's service delivery platform in Belgium. Further on, the stream is brought to the company's satellite sub where it is uplinked and delivered to the schools thanks to satellite multicasting technology.



A teacher in a studio broadcasts live lessons to remote schoolchildren using video-conferencing technology and SatADSL's satellite network.



At the school, SatADSL sets-up a VNO that mutualises the bandwidth. This allows the operation of the video-conferencing application as well as providing internet access in both the studio and classrooms across the entire territory that is to be served. Each school is equipped with solar panels and a micro-VSAT that enables the real-time uplink and delivery of teaching using very high quality audio and video. Schools also have a PC loaded with educational content, as well as a chat room that supports real-time interactivity between teachers and pupils.

In addition, SatADSL says it can provide a hotspot application allowing each school manager to offer a cybercafé style service to the local community, selling volume- or time-based vouchers for internet access. This allows each school to develop a small and sustainable business.

SatADSL says the availability of the connections for the e-learning service is more than 99.5 per cent. It is supported by the company's large network of local partners who provide the necessary access to licenses and take care of the installation and maintenance of the equipment in remote locations.

## Connecting classrooms in Kenya

According to the ICT Authority of Kenya, internet access has been widely tipped to be the key differentiator in economic performance, creating at least 1,000 jobs a month in the country's business process outsourcing sector since 2013. Recent efforts, driven by public-private partnerships, are expected to raise internet access further, from the current 52.3 per cent, as reported by the Communications Authority of Kenya.

One such partnership is the public-private partnership between the Nakuru County Government and Liquid Telecom Kenya. This has seen the rollout of a free, fast and reliable public access Wi-Fi network, enabling rapid access to information vital for economic and educational advancement.

Under the partnership, Liquid designed and launched a high-capacity network that covers a 10km radius from Nakuru's central business district. Initially, the network was connected to a 200Mbps pool that is upgradable to 1Gbps based on demand.

The free public network has given all users with Wi-Fi-enabled devices open access to the internet with the exception of unlawful activities

such as streaming or downloading of offensive content or content that violates copyright.

Speaking at the time of the deployment last year, Liquid Telecom Kenya CEO Ben Roberts said the most important aspect of the Wi-Fi network's design was ensuring adequate capacity and seamless connectivity through the use of equipment that will deliver on user experience.

"Liquid Telecom has put in place outdoor Wi-Fi nodes which are designed to carry huge capacities with the ability to withstand harsh climatic conditions to guarantee maximum and uninterrupted speeds while surfing," said Roberts. "With the built-in meshing technology incorporated in the network systems, users in Nakuru will not experience service interruptions when moving from one point to another within the areas covered in the town."

The network was built around the strategic points accessed by the highest proportions of the town's population. With 51 nodes installed, it serves users in the streets and open public areas such as stadia and parks.

Academic institutions, including JKUAT Nakuru Campus and Mount Kenya University in Nakuru, and Egerton University in Njoro, are also benefitting from free Wi-Fi. Liquid said this is expected to increase the use of e-learning, which in turn increases information retention among students by up to 60 per cent, according to the Research Institute of America. "With the uptake of e-learning by various colleges and universities in Kenya, and the wealth of knowledge available online, internet access in academic institutions has fast become a defining factor in the quality of education that students receive," said Roberts.

Airtel runs various education initiatives in Africa. For instance, Sigweng Karuoth Secondary School is one of 150 learning institutions in Kenya that has so far benefited from its *Internet for Schools* programme.

Since November 2014, pupils at the school have been enjoying free 24-hour access to the internet, allowing them to benefit from unlimited amount of education information available online. As a result, the operator says students have been able to access relevant materials such as revision papers, literature books and sample analysis, helping them learn and reinforce concepts learned in class.

In June 2015, Airtel announced a tie-up between *Internet for Schools* and the LEAP Hubs

entrepreneurship programme. Working with the Chandaria Foundation and Global Peace Foundation, it is supporting 41 schools in Kenya with free internet connections.

Launched in March 2014, LEAP Hubs are dedicated space within secondary schools where students are incubated and nurtured to be creative, innovative and be able to launch sustainable business ventures and social enterprises.

Through the partnership, Airtel is offering free internet connection to students within the programme who use the internet to access online resources and tools that help nurture and develop their business ideas.

Students participating in the LEAP Hubs programme continue to go through leadership and entrepreneurship training focusing on business plan development, financial literacy and critical 21st century skills that will empower them to be self-reliant job creators as opposed to job seekers.

By mid-2015, the programme had so far reached out to 15 schools in Nairobi, Kiambu and Machakos County, and was expected to expand to other parts of the country in the coming months with an expected growth of 40 schools.

Meanwhile, Avanti Communications has also been working in Kenya to deliver connected education to marginalised children. According to the pan-African satellite operator, Over one million children in the country do not regularly attend school, marginalised by societal issues including poverty and distance.

Led by Avanti and its partners – UK Aid, sQuid, Whizz and Camara – Project iMlango is said to be a first of its kind e-learning partnership, created to deliver improved educational outcomes in maths, literacy and life skills for marginalised children. The name is derived from the Swahili word ‘iMlango’ which means doorway or portal.

The project combines: high-speed internet connectivity to rural and remote schools; provision of tailored online educational content; electronic attendance monitoring with a conditional payment to families to improve non-attendance and drop-out rates; in-field capacity in technology and support resources; and real-time project monitoring/measurement.

At the heart of the initiative is a dynamic internet learning platform, accessed through high-speed satellite connectivity, where partners provide students with interactive educational content.

Deployed via Avanti's HYLAS 2 satellite,



Broadband connectivity via Avanti's HYLAS 2 satellite powers Project iMlango to ensure e-learning is successfully implemented across Kenya.

broadband connectivity powers Project iMlango to ensure e-learning is successfully implemented in 195 remote and rural schools across Kenya. Over a two-year period, the project aims to provide improved education outcomes to more than 50,000 marginalised girls across 195 Kenyan primary schools, supporting 150,000 pupils in total.

## Mobile operators help build schools

Over the years, Tigo Ghana has been reaching out to deprived communities to support various educational projects in order to improve standards of living. In 2015, the mobile operator prioritised education in its CSR agenda under the banner #Shelter4Education.

Working with various heads of territories for Tigo and using their local knowledge, the initiative began with the identification of various schools that existed as poor, makeshift structures. Some of the factors to be considered in the initial selection of #Shelter4Education schools included network connectivity, Ghana Education Service (GES) accreditation, the pupil-to-teacher ratio, etc.

Once six schools had been identified, a close partnership was set up with community and opinion leaders, as well as the GES and the local government administration. The GES provided site plans while the communities provided local labour for the construction of each school. In addition to each school, Tigo also provided a headmaster's office, staff common room and kitchen, and toilet facilities.

Part of the sustainability plan for #Shelter4Education includes providing the children with their first digital experience through the Tigo Mobile Digital Library van which is fitted with

computers and tablets. Tigo experts are on hand to provide the pupils with introductory classes on ICT.

In a separate initiative, Airtel also runs an education programme under which it has so far adopted around 38 primary schools across rural areas in 17 African countries. Working closely with the governments in these countries, its flagship *Our School* initiative aims to improve the quality and delivery of education to children in underprivileged communities. It also works towards building community and employee engagement with the adopted schools.

Under the programme, the operator says it has so far supported more than 18,000 underprivileged children in the adopted schools. As well as delivering ICT and broadband connectivity, Airtel's support includes infrastructural refurbishment of classrooms, and the provisions of furniture, uniforms, books and teaching aids.

The cellco has worked in various schools across its footprint, including in Malawi where it adopted the Salima School for the Blind which is in Daniel Village, around 100km from the capital Lilongwe. The school has 2,063 pupils, some of which are visually impaired. There are four dilapidated school blocks which house eight classrooms but due to insufficient space, five of the classes learn under a tree.

Airtel helped Salima with its immediate needs which included double seater desks, exercise books, Braille paper, pencils and pens, uniforms, sunburn lotion for Albino pupils, and school bags. It also rebuilt two blocks, constructed additional blocks, toilets, a water pump for the community, 20 teacher's houses, and is providing monthly food supplies for visually impaired boarders. ■



The Obeng Yaw basic school in Adesio, Ghana, before and after Tigo carried out reconstruction as part of its #Shelter4Education initiative.





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# New heights in connectivity

Operators such as ABS, Avanti, Eutelsat, Intelsat, Spacecom and Yahsat have either launched HTS platforms for Africa or plan to do so soon. Hughes will launch its own *EchoStar XIX* (pictured) this year although its beams will not point to the region.

Do HTS platforms now represent the future for satcoms in Africa? DAVE REHBEHN reckons that when it comes to solving the region's connectivity problems, we should all look to the skies.

When it comes to the market for satcoms, Africa has been long on potential but short on results for decades. Its populations, huge distances, and limited fixed and mobile terrestrial infrastructures create ideal conditions for the technology to take hold. In addition, there is growing demand throughout the continent for applications such as distance learning, DTH, internet services, video distribution, enterprise networking and cellular backhaul.

However at the same time, the economic constraints of conventional satellites have limited deployment of satcom services in many

geographies and application areas. The cost-per-bit delivered by conventional satellites is often too high to support affordable data plans in many areas, in particular making it difficult to meet consumer demands for throughputs.

High throughput satellite (HTS) infrastructure globally is rapidly expanding with the launch of geostationary orbit satellites across all continents. And within the next five years, they will include global LEO (low earth orbiting) and MEO (middle earth orbiting) constellations.

Availability of high capacity, lower priced bandwidth will fundamentally change the

cost paradigm, and will undoubtedly help turn Africa's enormous untapped potential into reality. HTS' lower cost of delivering Mbps is the key to substantially increasing the range and quality of services available to consumers and businesses who are currently on the far side of the digital divide.

## Africa's HTS growth

The number of providers investing in African HTS capacity is the best testimony to the technology's potential. The continent already has significant HTS capacity and can expect a steady increase

over the next several years with the launch of new GEO satellites as well as global MEO and LEO projects such as O3b and OneWeb [see News, May-Jun 2015 issue].

Yahsat and Avanti are the major HTS service providers in Africa today. Both are planning to add HTS bandwidth in 2017. Yahsat's *Al Yah 3* is expected to be operational in early 2017, extending more high throughput capacity to countries throughout Africa. Avanti's *HYLAS 4* is on track to be launched during the first quarter of 2017, further extending the company's coverage of the continent.

Other providers are moving aggressively into the region's HTS market. For instance, Arabsat launched *BADR 7* in November 2015, and Spacecom is scheduled to bring on additional capacity this year with the launch of *AMOS 6*. Facebook and Eutelsat (partners in the former company's Internet.org venture) have purchased the entire HTS capacity on *AMOS 6* to provide internet access to various regions of sub-Saharan Africa. Eutelsat has also ordered another HTS to service the region which is expected to be launched in 2019.

Meanwhile, Intelsat's *Epic IS-33e* is coming online in 2016. Gilat Satcom is already offering HTS-priced Mbps plans on conventional satellites to spur demand for high throughput services on Intelsat's *Epic* platform. While much of the planned HTS capacity for Africa is in Ka-band, *IS-33e*'s capacity will be implemented on Ku-band. This will enable current users of Ku capacity to easily migrate onto more cost effective HTS payloads.

## HTS advantages

High throughput satellites are designed and optimised for data communications. They achieve very high capacities by utilising small spot beams and extensive frequency reuse.

Conventional satellites employ wide-area beams – as much as several hundred kilometres across. Conventional satellites were really designed and optimised for video broadcast which is why, when used for data communications, they typically yield capacity of only several Gbps. A large HTS dedicated to data can deliver hundreds of Gbps over a wide area at a lower cost per bit than a conventional satellite.

As satellite operators replace their fleet, a common practice is to add an HTS 'payload' onto their new spacecraft. The capacity of these payloads typically range in the tens of Gbps, and enable the satellite operator to incrementally introduce HTS capacity into its service region. This also allows the operator to effectively serve



Satellite has a variety of applications in Africa. For example, Hughes' technology has been used to connect schools (1) as well as bring voice connectivity (2). In the DRC (3 and 4), it is being used to deliver cellular backhaul services for a major operator in the country.

DRC PHOTOS: SUSAN SCHULMAN

the data market segment with the HTS capacity, and the more conventional video and enterprise markets with the conventional capacity.

HTS has several technical advantages over conventional satellites. The cost per delivered bit is lower as the satellite itself will deliver much more capacity while roughly having the same price as a conventional satellite. In addition, its powerful spot beams enable smaller antennas and radios. This lowers the capex cost per VSAT. HTS' higher capacity enables service providers to offer service plans with throughputs of multiple MBps and multiple GBs of monthly capacity.

However, some of those capabilities come at a price. HTS smaller spot beams are less effective for multicasting than the broad beams offered by conventional satellites. Similarly, large distributed enterprises that could be served with a single conventional satellite beam might require several HTS beams to link all of their facilities.

HTS network architectures can also pose regulatory issues for applications such as satellite backhaul. HTS gateway stations are often not located in the countries where cellular traffic originates – many national regulators require all cellular traffic to be routed locally. Similar issues can arise when bringing enterprise traffic back to headquarters.

## The outlook

HTS is clearly on the near horizon to expand Africa's addressable satellite market. It is the crucial missing piece in the elusive goal of

connecting the entire continent, providing the price-to-performance ratio satcoms need to offer viable services to business and consumers.

The technology's potential impact on Africa's satellite markets rides largely on the target application or vertical industry. Those with the greatest potential for the region include:

- ❖ Internet access, including digital divide projects as well as Wi-Fi hotspots
- ❖ Cellular backhaul
- ❖ Government health, education and economic development projects, as well as classic enterprise including banks mobility and aviation

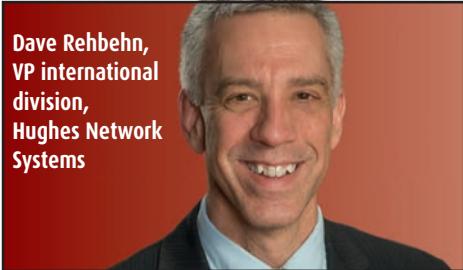
Undoubtedly, wherever HTS capacity is available, it will be the most cost-effective alternative for satellite internet access.

The choice of HTS service for cellular backhaul, as well as enterprise traffic, will depend on whether the available capacity can land the traffic within the original country of each service provider. If not, then conventional capacity will be used for cellular backhaul because of its ability to always land the traffic within the country of origin, versus routing through a gateway located in another country.

Mobility services – aero, maritime and land – will likely require a hybrid combination of satellite and terrestrial wireless capacity, with economics of HTS capacity favouring it over conventional, though the latter will fill gaps in HTS coverage.

With HTS capacity growing year over year, high-speed satellite internet service will soon help close the digital divide across most of Africa and change lives for the better. ■

**Dave Rehbehn,  
VP international  
division,  
Hughes Network  
Systems**



# Gogo is anchor tenant for world's first GEO/LEO shared network



Gogo is partnering with Intelsat to leverage the first shared GEO/LEO satellite network for in-flight connectivity. The company will use multi-layered Ku-band capacity on Intelsat's *Epic* high throughput geosynchronous satellites combined with OneWeb's planned low earth orbit (LEO) satellite constellation.

The *Gogo 2Ku* airborne terminal is designed to be compatible with

multiple networks. The company's network infrastructure will initially include the use of traditional wide beam services and Intelsat's HTS *Epic NG* platform which is expected to enter service later this year.

When the network is fully deployed with the launch of OneWeb's LEO satellites in 2019 (see *News*, Jun-Jul 2015), Gogo says its *2Ku* systems will be able to dynamically route traffic across

a fully global 10Tbps shared network based on coverage, latency, throughput and other performance criteria.

The firm says customers will benefit from the continuous planned upgrades of the shared network, including up to 250Mbps per plane on Intelsat's *EpicNG* fleet. It adds that One Web's LEO satellites are expected to be the first to enable high-performance services at high latitudes and on polar flights.

"OneWeb's unique constellation will enable broadband connectivity in the polar-regions and at high latitudes," says Gogo CTO Anand Chari. "It will also have low latency because the satellites are much closer to Earth. By using this shared network, Gogo's *2Ku* solution will be capable of delivering hundreds of Mbps per aircraft over every part of the globe."

## Teltronic provides critical comms for Rio



Teltronic has been chosen to provide critical communications at this year's Summer Olympic and Paralympic Games.

As part of the EUR10m contract with the Public Security Secretary of Rio de Janeiro State, the Spain-based critical comms specialist will cover several areas. These include the Barra da Tijuca, Copacabana, Deodoro and Maracanã competition venues, two airports as well as several key transport routes in the Olympic area.

This latest agreement for Teltronic (which is now part of the Sepura Group) will see an extension to the traffic capabilities of its existing network currently used by the Rio police. The existing network was originally provided for the Pan American Games in 2007 and, after some upgrades,



Teltronic will upgrade and extend its existing TETRA network at Olympic venues.

now supports more than 100 dispatch operators and over 18,000 radios.

As part of the upgrade for the Olympics, the company will install more of its *Nebula* base stations to provide additional coverage for the state police, emergency services, and the Olympics organisation workforce.

The deployment will also feature: two extra TETRA carriers for each site to update the capacity of the existing

network; BSTs with up to 12 TETRA transceivers to support high traffic loads throughout the event; Teltronic's *CeCoCo Control Centre* to accommodate a further 50 dispatch operators; and an additional 6,000 terminals with the vendor's *Synchronous Data Manager* application to pare down the GPS refresh time in AVL applications. Teltronic will also provide round-the-clock support during the games.

## Connected cones protect road crews



A European Union-funded project is leveraging the Internet of Things (IoT) to help save lives during roadworks in the UK.

Using motion sensors that are placed on existing traffic cones, highways contractors can monitor the location and status of the cones on a map, as well as receive alarms when one has been struck and workers may be in danger.

'Intellicone' is the result of a unique collaboration between New Wave Innovation, Highway Resource Solutions, ETI Software Solutions, Philips, Elides, and Colas which is a major contractor for highways maintenance in the UK.

ETI's Beamfly software is used to manage Intellicone. The remote



Intellicone is claimed to be easy to deploy because it operates in conjunction with existing traffic cones.

device management system provides a web portal which logs the status of each device as well as its location and displays this on a map in real time.

The vendor says remote monitoring and automatic reporting

features make it simple to obtain accurate time and date stamps for any incidents, as well as providing a rich data set to report on deployments.

Most importantly, ETI says alarms are instantly activated when a cone is struck, improving the ability of workers to move to safety. In addition, near misses can be investigated in further detail to improve future working conditions.

"This is a timely example of how the Internet of Things can impact an industry," says Nick Wilcox, CEO of the UK division of ETI Software. "It is more than making a 'dumb' traffic cone 'smarter'; it's the ability to use the data collected to affect the greater good."

## HGC deploys mobile fronthaul



Hutchison Global Communications (HGC) will use Infinera's *TM Series* system to provide mobile operators with high-capacity active mobile fronthaul services in Hong Kong.

As well as offering fixed line and IT services, HGC is a carrier and one of the country's largest-scale Wi-Fi service providers. The company is said to own an extensive fibre optic network in the Hong Kong region, and its four cross-border routes integrate three of mainland China's tier-one telcos with an international network.

With the rapid deployment of 3G and 4G, Infinera says mobile operators such as HGC's sister company 3 Hong Kong are transforming their networks by driving fibre to the cell tower and moving to a centralised or cloud-RAN architecture using fronthaul. It adds that this new architecture prepares HGC and its mobile operator customers not only for the growth of 3G and 4G, but also for a smooth transition to 5G services.

According to Infinera, the *TM Series* mobile fronthaul system supports all of the CPRI (common public radio interface) and open base station architecture initiative rates, with HGC's initial services in Hong Kong ranging from 2.5Gbps to 10Gbps.

The vendor believes that with these services, HGC's customers can reduce their opex while improving RAN performance.

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## World's first bike lock with IoT connection

 Dutch firm Mobilock has created the world's first bike lock that is connected to the Internet of Things (IoT).

In big cities such as London, New York, Paris, Hangzhou and others, public bike sharing systems play an important role in attempts to make transport more sustainable. To simplify these systems, Mobilock has developed a bike lock that uses a smartphone app as a key. It says the lock can be used without check-out stations, parking docks or storage facilities.

The locks integrate low power, long range (LoRa) WAN technology. Mobilock says because LoRa chips and sensors need little power, the system hardly uses energy. It adds that a device connected to a LoRa network is able to send data and commands for fifteen years, using only two penlite batteries.

The firm says the use of the technology enables bikes to be localised and monitored in real-time, even when they are in use.

Mobilock co-founder and MD Walter Nieuwendijk says: "Thanks to LoRa, rental companies can locate their bikes at any time and see who's riding it."

"Also, the system barely needs energy, while old GPS systems – for instance used in cars – need a lot of power. With this addition, Mobilock becomes the most complete and compact bike share system in the world."

In the Netherlands, Mobilock uses a LoRa network provided by Dutch telco KPN.



The Mobilock bike lock uses a smartphone app as a key.

## Sri Lanka buys into Project Loon



The Sri Lankan government has bought a stake in *Project Loon*, the Google initiative that aims to deliver broadband to underserved areas using mesh networks created by balloons floating in the stratosphere.

In February, Sri Lanka's telecommunications minister Harin Fernando said the government will have a 25 per cent stake in a joint-venture setup with Google in return for the spectrum that will be allocated for the project.

He added that there would be no other state-funded investment into the initiative, and that 10 per cent of the joint venture will be offered to the

country's existing telcos. Fernando told local reporters: "Our objective is to extend coverage so that the entire island will be covered. With competition, tariffs will also come down."

According to the minister, most of Sri Lanka's ISPs support *Project Loon* as a way of extending their coverage and offering lower prices for data services to consumers. This latest move follows last year's announcement that Indonesia's three biggest operators also plan to begin testing *Project Loon* later in 2016.

In Sri Lanka, testing the giant helium-filled balloons (each one measures 12 metres tall and 15 metres



Local villagers and police found the wreckage of a Google balloon and its equipment in Gampola.

wide) and equipment needed for the project has already begun, and could last up to a year.

According to a widely reported incident in mid-February, one of the balloons crashed during its maiden test flight. Locals found the balloon with its electronic equipment in a tea plantation in Gampola, central Sri Lanka. The country's ICT Agency, which is working with Google, claimed the landing was planned and controlled.

## Satellite-based IoT combines driver safety system with 'black box' capabilities



South Korea's PLK Technology will use a Telit GNSS IoT module to deliver positioning functionality for *Optian*, a new product that combines the features of an advanced driver assistant system (ADAS) and a high-end automotive black box.

PLK was established in 2000 as an in-house venture firm as part of Hyundai Motor Company but was spun off in 2003. Its ADAS uses camera image sensors to recognise lanes, vehicles, light sources, traffic

lights and pedestrians. The company claims it was the first to develop a lane departure warning system based on colour image recognition.

Its new *Optian* system takes the functionality of a typical black box capable of post-processing accidents, and adds ADAS capabilities. PLK says this enables it to implement accident prevention measures, delivering lane departure warning and forward collision warnings, as well as front car departure alert functions. It does this by using Telit's *SL869-V2*

module to sense displacement from which it derives speed and distance between cars to warn the driver about the risk of collision.

According to UK-based IoT specialist Telit, the *SL869-V2* is a sub-miniature multi-satellite receiver module that can be installed in vehicles, industrial, wearable and portable digital devices. It's claimed to deliver a high level of stability for navigation applications by tracking GPS and GLONASS at the same time, relaying accurate and fast-refreshing positioning data.

## Market leaders miss out in 4G auction



Thailand's top two operators did not do as well as expected in the long-awaited 4G auction which brought in a record total of THB151.86bn (USD4.22bn) for the government.

In the sale of 900MHz spectrum last December, market leaders AIS and Dtac lost out to True Move, the country's third-largest cellco, and local service provider Jasmine International.

Backed by Chinese funding, True paid THB76.3bn for 10MHz of 900MHz spectrum while Jasmine paid THB75.56bn for its 10MHz block – significantly higher than the

reserve price of THB12.8bn that had been set by the regulator. Analysts reportedly said the combined bids represented a world record for prices paid per megahertz.

True now has two blocks of 4G spectrum. In an earlier auction of 1.8MHz frequencies conducted in November 2015, it gained 15MHz with a bid of THB39.8bn, while AIS fared better here and also won with its bid of THB41bn.

Meanwhile, despite being outbid in these latest auctions, Dtac says it will now invest the THB70bn it had budgeted for a 900MHz license in expansion and marketing for its *Super*

4G network. The Telenor-owned operator claims this will enhance the quality of its networks to offer customers three times the speed of 4G.

Telenor currently has a license to use 1800MHz spectrum although this is due to expire in 2018. It plans to increase 4G bandwidth on these frequencies to 20MHz and says this will cover 77 provinces by the second quarter of this year. The operator will also add another 5MHz to its 2100MHz spectrum which will cover all 878 districts in Thailand by Q3.

Thailand's 4G auctions were delayed by more than a year after the military seized power in May 2014.

## ABS-3A now in Brazil

 ABS has been granted landing rights to operate its first satellite in Brazil. The revolutionary *ABS-3A* is now available to serve a wide range of verticals in the country, including mobile backhaul, rural broadband, video, oil and gas, and mobility applications. Launched last year, *ABS-3A* is the first commercial all-electrical propulsion satellite, and features an innovative design and wide beam coverage that enables it to support applications on both sides of the Atlantic Ocean. It provides 720MHz in C-band and 21MHz in Ku-band over Latin America, Europe, the Middle East and Africa.

## TETRA thin in Germany

 German Federal security forces will be equipped with what's claimed to be the world's smallest TETRA radio. Measuring 116 x 55 x 19mm and weighing 160g, Airbus Defence and Space says its *THIn* is easy to carry in a jacket pocket or on a belt, and is particularly suitable for covert operations. Under a framework agreement signed with Germany's Federal Ministry of the Interior, the vendor will provide an undisclosed number of handsets, along with software and maintenance until the end of 2017.

## NS upgrades train Wi-Fi

 Dutch train operator Nederlandse Spoorwegen (NS) is upgrading its on-board Wi-Fi and passenger information services systems. The company has recently extended its contract with Nomad Digital, the specialist provider of wireless connectivity and ICT solutions to the rail sector. Under a new five-year framework agreement, NS will upgrade its on-board technology platform on intercity trains already using Nomad Digital's systems. This will deliver a common on-board technology platform across NS' fleet.

# Floating hospitals connect in Bangladesh with VSAT

 SES has launched the first maritime VSATs on three hospital ships run by NGO Friendship in Bangladesh. With local technical help from Square Informatix, it installed the terminals on board the *Lifebuoy*, *Emirates* and *Rongdhonu* (formerly *Rainbow Warrior II*).

Using the SATMED satellite-based e-health platform (see *World News*, Jun-Jul 2014), Friendship will be able to establish communications with national and international doctors from remote areas, and provide medical counselling to marginalised communities through telemedicine.

"After implementing SATMED platform tools and services, the ships – via

The Emirates Friendship Hospital is one of three vessels equipped by SES.



satellite connectivity – will be able to support and facilitate work in the areas of e-care, e-learning, e-surveillance, e-health management, and digital imaging," said Gerhard Betschneider, MD of SES Techcom Services.

During the inauguration ceremony held in early March, two doctors

consulted with patients from a remote island in Bangladesh known as a 'char' through teleconferencing directly from Europe.

Friendship says such a facility would have been previously "inconceivable" to the country's poor and marginalised people.

## VimpelCom begins to virtualise networks

 VimpelCom plans to build a complete virtual network infrastructure providing 4G, 3G and 2G mobile data services to customers across five markets in 2016.

It will use ZTE's virtual Evolved Packet Core (vEPC), and started implementing the technology in Laos and Kyrgyzstan in February. Following these markets, the operator plans to introduce fully virtualised networks in Uzbekistan, Armenia, and Tajikistan during the course of the year.

Once virtualised, ZTE says VimpelCom's operations in the five countries will move from a legacy-

heavy network made up of separate elements to a common, software-driven and lean infrastructure.

VimpelCom Group CTO Yogesh Malik adds: "The reinvention of the current network to one that is software-driven and asset-light plays an important part in our digital transformation, and is a leap forward in bringing the digital world to customers as they navigate their digital lives."

In separate news, ZTE has helped AIS, Thailand's largest mobile operator, migrate 38 million customers from their existing home location registers to a new platform.

Before going live with the system, ZTE says its *Universal Subscriber Profile Platform (USPP)* was fully vetted in a series of strict proof-of-concept tests conducted with AIS.

This included overloading protection capabilities with up to nine times normal traffic, simulating a 30 per cent packet loss in IP network transmission, repeated plugging/unplugging and switching of single board computers and hard disks, and other "extreme" tests and verifications.

According to ZTE, its *USPP* simultaneously supports all GSM and UMTS subscribers, and "smoothly" achieves VoLTE and VoWiFi services.

## XL Axiata and Indosat Ooredoo share 4G RAN

 Indosat Ooredoo and XL Axiata have launched a Multi Operator Radio Access Network (MORAN) as part of a 4G network cooperation agreement in Indonesia.

"This plan has been discussed for the past two years," says Indosat CEO Alexander Rusli. "We hope with this collaboration we can deliver even better services to our customers by giving a wider network service across Indonesia."

Both operators are now running a 4G network in several cities, including Banyumas, Surakarta, Batam, *et al*, and plan to extend their core network sharing to other cities to support the country's digital economy agenda.

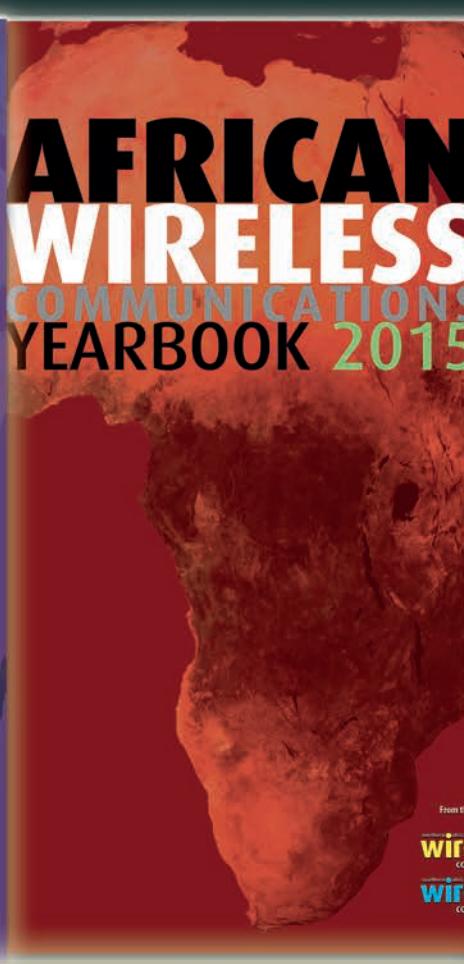
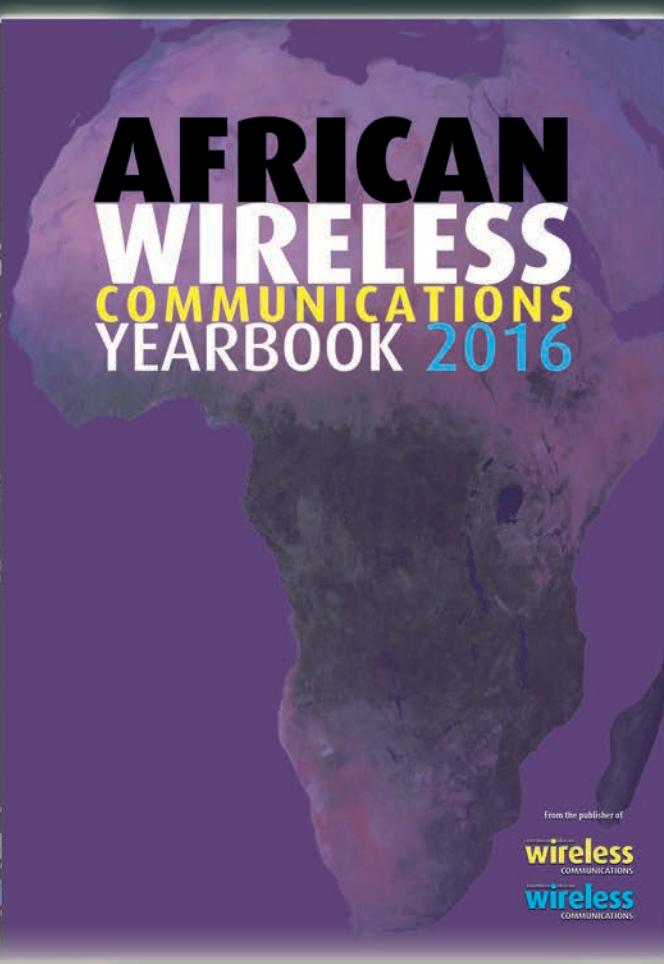
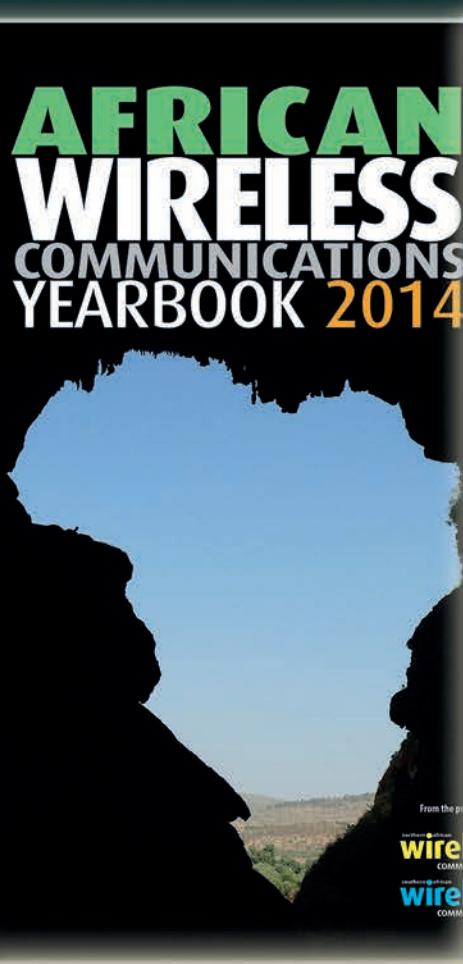
Rusli adds that the initiative helps support the Indonesian Government's effort to reduce imports in foreign currencies, and also allows Indosat to be more efficient, reduce equipment imports, and focus on its investments within the country.



In what's claimed to be a first for Indonesia, Indosat Ooredoo and XL Axiata are now sharing a 4G RAN.

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