

For communications professionals in southern Africa

# SOUTHERN AFRICAN WIRELESS COMMUNICATIONS

JULY/AUGUST 2018

Volume 23 Number 2

- Boosting customer loyalty through network intelligence
- How the agriculture sector is growing with wireless tech
- Why LTE is a “game changer” for the mining industry

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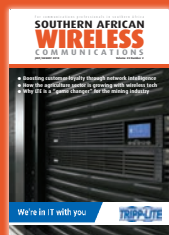
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# Vodacom launches Africa's first commercial 5G service

On 25 August, Vodacom Group announced the continent's first standards-based, commercial 5G service.

Its subsidiary in Lesotho is using 3.5GHz spectrum to initially deliver fixed wireless access broadband services to two enterprise customers.

While the operator has not named the companies involved, a spokesperson said: "[They are] two major customers in the mining and banking industries who were chosen due to their relative size and influence in the country. We are working closely with them to deploy the service based on their requirements." No further details about the number of users involved or what devices they are using were revealed.

Vodacom Lesotho said the immediate benefit of 5G technology for its subscribers includes the quicker deployment of broadband services with "fibre-like" speeds. The company added that with early access to the technology, entrepreneurs and the government will be able to work with it to develop and incubate

innovative applications to power digital transformation in the country.

Meanwhile, the group is claiming another 5G first, this time in South Africa with the deployment of the same standards-based technology as used in Lesotho. This followed Vodacom being granted a temporary spectrum license of 100MHz in the 3.5GHz band to showcase 5G network capabilities in South Africa.

According to the operator, 3.5GHz spectrum is considered optimal for 5G deployments due to its suitability for throughput and capacity. It added that the frequencies are not dependent on the digital migration in South Africa, and that they also have adequate indoor penetration characteristics to support a broad range of applications such as smart factories, augmented reality and autonomous vehicles.

Vodacom South Africa has deployed advanced 5G Massive MIMO to provide improved spectral efficiency and coverage, enabling increased network capacity. It said its network

is delivering speeds in excess of 700Mbps and latencies of less than 10 milliseconds. The company said it will exceed 1Gbps as new software versions and devices become available.

Under an MoU signed late last year, the operator is using Nokia's products to test 5G in South Africa (see *News*, Jan-Feb 2018). But the 5G network will not be available to customers in South Africa until 3.5GHz spectrum becomes available in the country.

Vodacom Group CEO Shameel Joosub said: "What we've accomplished in Lesotho is an example of what can be achieved in Africa, should the requisite spectrum also be made available. Vodacom will be able to make 5G services available to its customers in South Africa once requisite spectrum is assigned.

"Global technological advancements are evolving at a rapid pace and South Africa can't afford to be left behind, particularly when we look at some of the potential use cases for 5G to support critical sectors of our society such as



**Vodacom Group CTO Andries Delpont presents the speeds achieved in the South African trial. The tests were conducted over a live 5G mobile network in Midrand and independently evaluated by test experts MyBroadband and Ookla.**

healthcare and education."

A Vodacom spokesperson also said 5G rollouts in other group operations on the continent would depend on the different infrastructural requirements and the available spectrum in each country.

With this latest announcement, Vodacom has stolen a march on its rival MTN which also started trialling 5G at the beginning of 2018 following an agreement signed with Ericsson at AfricaCom last November (see *News*, Jan-Feb 2018).

## Community networks key to connecting the continent, says Internet Society

Community networks provide a sustainable solution to address the connectivity gaps that exist in underserved urban, remote, and rural areas, according to the Internet Society. It also calls for regulators and policymakers to work more closely with communities to enable such networks.

In its *Spectrum Approaches for Community Networks* briefing document published last October, the society says a community network starts with a local group of people who want to bring communications to their local village or town, or who want to enable communications for other local services.

It says while these networks are often small in scope, usually serving communities under 3,000 inhabitants, some support more than one village or community. For example, The Spain-based guifi.net

community network also has nodes in Africa, Asia, Latin America, and Portugal, and is estimated to serve more than 50,000 people.

The society says that despite internet access continuing to grow in Africa with more than 450 million people now connected, more than 60 per cent of the population still remains offline.

It adds that connectivity gaps are more prevalent on the continent, and that a recent survey identified 37 community network initiatives in 12 countries, of which 25 are considered active.

According to the organisation, the cost to deploy such networks can be low. Often, the technology required is just an inexpensive, locally available wireless router, with networks ranging from WiFi-only to mesh and mobile networks that provide voice and SMS services.

The Internet Society goes on to point out that policymakers and regulators can play a key role in ensuring innovative approaches to making spectrum available for community networks. These include the use of unlicensed frequencies, sharing licensed ones, as well as more innovative approaches, such as a "social purpose" license, for example. This is an exclusive service license granted in rural unserved or underserved areas to non-traditional network operators.

In its briefing document above, the society says: "With 'social purpose' licenses, regulators set aside specific licenses for non-traditional operators, which removes the competitive nature of licensing, and prioritises spectrum use for non-commercial purposes.

"For some of these social purpose licenses, many community network experts believe that reducing



**Enabling communities to actually connect themselves is a "new way of thinking," according to Michuki Mwangi, senior development manager for Africa at the Internet Society.**

spectrum fees would greatly assist community network development in their regions."

Michuki Mwangi, the Internet Society's senior development manager for Africa, reckons enabling communities to connect themselves represents a "new way" of thinking. He says: "Policymakers and regulators should recognise that connectivity can be instigated from a village or a town and that they can help communities to connect themselves by providing an enabling environment with innovative licensing and access to spectrum."



# Avanti signs major distribution agreements for HYLAS 4 in Africa



Avanti says HYLAS 4 will extend its coverage to 1.7 billion people across 118 countries.

Avanti Communications has signed two separate contracts for the distribution of services using its new *HYLAS 4* high throughput satellite in Africa.

In early August, the operator announced a "Master Distribution Agreement" (MDA) with iWayAfrica to provide satellite broadband services across the sub-Saharan region. Under the agreement, iWayAfrica says it will provide "affordable" high-speed satellite broadband to connect homes, SMEs, schools and enterprises, especially in rural and remote locations where terrestrial networks are limited.

iWayAfrica says it has a presence in more than 44 African countries on the continent as well as regional offices for all its wholesale services in Ghana, Kenya, Mauritius and South Africa. It already deploys Avanti's Ka-band services in Eastern and Southern Africa via *HYLAS 2* satellite. With *HYLAS 4*, the company says it will be able to extend its Ka-band offering into new countries across West and Central Africa.

In a separate MDA signed towards the end of the August, COMSAT will also benefit from Avanti's satellite fleet, particularly *HYLAS 4*.

The company, which provides satellite connectivity to the US Department of Defense, says its seven-year agreement with Avanti will enable it to offer "advanced" and comprehensive service packages to customers, with a focus on Africa and the Middle East and on particular high-value deployments currently planned or under way.

For Avanti, the deal means gaining immediate access to US global governmental and military clients that would have otherwise taken several years to gain approval to serve. The company's CEO Kyle Whitehill says: "Our partnership with COMSAT is disruptive in the most positive way. It takes us into new markets, with our highly capable satellite fleet paired to a global leader in satcom innovation."

Launched in early April (see *News*, Mar-Apr 2018) *HYLAS-4*, is due to enter commercial service in September. It features four uniquely steerable HTS beams and a further 64 fixed beams to expand capacity over East and all of sub-Saharan Africa, provide new capacity across West and Central Africa, as well as offer coverage of Europe and Latin America.

## Smart digital payments adoption drive in Zimbabwe

EcoCash and Mastercard have launched what's claimed to be a simple, secure and instant mobile payments solution as part of their efforts to reduce cash usage and increase digital financial inclusion in Zimbabwe.

Powered by Mastercard's *Masterpass QR* system, *EcoCash Scan & Pay* enables subscribers to pay merchants directly from their mobile money accounts. All the customer needs to do is use a smartphone to scan a QR code displayed at the checkout, or enter a merchant identifier associated with the QR code into their feature phone.

The companies say the technology removes the need to carry cash, and frees both consumers and retailers from the costs, security risks and inconveniences associated with cash.

*Scan & Pay* is currently available to EcoCash's five million active



**EcoCash Scan & Pay uses Mastercard's QR system to enable customers to pay for merchant goods directly from their mobile money accounts.**

subscribers, and is already accepted at 3,800 retail locations and businesses in Zimbabwe.

According to Mastercard, SMEs contribute more than 60 per cent of the country's GDP, yet only a fifth are served by formal financial

institutions. With a large proportion of SMEs still transacting using cash, it reckons *Masterpass QR* provides a cost-effective, fast and easy-to-deploy solution, enabling these businesses to safely accept digital payments.

Gabriel Swanepoel, VP of business

integration at Mastercard Southern Africa, says: "*Masterpass QR* is a game-changer as it enables smaller retailers to increase sales, draw new customers into their stores, and open-up new commerce channels with little to no investment."

Mastercard's system can be used at any supported location across Africa. It was first launched on the continent in Nigeria in September 2016 following a partnership with the Ecobank Trans International Group. Since then, *Masterpass QR* has also been rolled out in Rwanda, Tanzania, Uganda, Ghana, Kenya and now Zimbabwe.

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



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# 5G video navigation demonstrated

Ericsson and MTN have claimed a first in Africa by demonstrating 5G mobility in a moving vehicle.

Towards the end of June, the two partners announced they had “validated the technological prowess” of 5G wireless technology in a trial that involved a live feed from a car on a skid pan at the Gerotek testing facility in Pretoria.

The setup comprised four radio units, baseband equipment, a prototype of 5G user equipment with an external antenna installed in an SUV, a 4K video camera, and a VR headset.

All the hardware was connected to a live 5G network using 100MHz TDD spectrum in the 28GHz band. Spectators were able to view the driver's



**During the demo, the driver's windscreen was obscured and he had to rely on a VR headset fed by a real-time 5G signal to navigate.**

surroundings whilst moving around the track, allowing them to experience what the driver was seeing in real-time.

Ericsson says the demonstration was then taken further by fully obscuring the driver's windscreen,

leaving him to navigate the track by using just his VR headset and the live feed from a 4K video camera. The company says this was possible due to a throughput of more than 1.6Gbps and less than 5ms latency

on the connection, and claims this has set a new record of mobile 5G performance in Africa.

This latest trial is one of the use cases that MTN and Ericsson have released following their MoU signed last November. This was followed by the launch of what was hailed as the first 5G trial in Africa in January 2018 (see *World News*, Feb-Mar 2018).

“Using pilots like this, we are not only assessing and preparing our network to roll out 5G in the future, but we are also future-proofing our infrastructure to enrich customer experience and take industries to the next level,” says Wanda Matandela, chief business enterprise officer, MTN SA.

## Avanti leads project to help Kenya deal with disasters

A new satcoms-based project aims to enhance Kenya's ability to plan for and respond to disasters.

Funded under the UK Space Agency's International Partnership Programme, the *Satellite Enablement for Disaster Risk Reduction in Kenya (SaTDRR Kenya)* project is led by Avanti which will provide secure fixed and mobile communications for emergency situations via its HYLAS 2 Ka-band satellite.

Other project partners include consultants from Torchlight Group,

Airbus Defence and Space, Global Radiodata Communications, and the Red Cross Society in Kenya. All will work closely with the Kenyan Ministry of Interior and the National Disaster Operators Centre.

As well as enabling emergency responders and humanitarian organisations to act quickly and effectively on the ground, *SaTDRR Kenya* will also provide Earth observation data. Avanti says this will improve Kenya's pre- and post-disaster strategy

and planning, allowing end-users to access information on large-scale disasters such as floods and droughts.

According to the company, the project will demonstrate how high throughput resilient satellite connectivity and accurate remote sensing data can save lives, as well as reducing the social and economic impact on affected communities.

Avanti adds that access to satellite services will be underpinned by a

capacity building and knowledge transfer programme to embed capability which will deliver sustainable benefits to the Kenyan Government and communities.

Graham Peters, Managing Director of Avanti Government said “Combined with knowledge from our project partners and satellite capacity from our HYLAS 2 satellite, the project will provide Kenya's disaster response teams crucial communication tools and training to plan and respond to disasters.”

## MNOs to play “key role” in next-gen critical comms

Mobile network operators must participate in delivering next generation critical communications solutions, not only for societal but also potential business benefits, according to the TCCA (TETRA and Critical Communications Association).

In a white paper published earlier this year, the organisation says true mission critical comms services have so far been based on dedicated technologies, dedicated networks and dedicated spectrum. It says service operators are typically government-controlled, serving only mission critical organisations such as public protection and disaster relief (PPDR) and related agencies. Furthermore, existing PMR digital technologies such as TETRA are narrowband, and their capabilities to deliver broadband applications are therefore limited.

But with PPDR users looking for new communications capabilities, new applications and new devices, which will improve their operational efficiency, the TCCA says the model of using dedicated networks is being challenged, and commercial mobile networks represent a new option for the provision of critical comms services. As a result, the association says the next generation of critical comms will be based on 4G/5G open standards defined by 3GPP.

Tero Pesonen, chair of TCCA's Critical Communications Broadband Group, says there are many projects either already ongoing or planned for the future where established PPDR service operators are looking to complement their narrowband services with critical mobile broadband offerings.

He says: “Often, the preferred option is to seek collaboration with MNOs. This opens a natural avenue for MNOs to enter the critical communications service market. PPDR service operators have the knowledge of their users' needs, manage the customer interface and operate within the necessary operational and legislative frameworks, while the MNOs bring economies of scale and knowledge of 4G/5G technology deployment.”

The TCCA adds that existing MNO assets can be leveraged to deliver services for users. It says the technology base is the same as for consumer mobile networks so these can be utilised provided that the additional critical requirements on availability, reliability, functionality and security are met.

The association further believes

that securing the network to fulfil such needs will also improve the attractiveness of the network for all users and provide the MNO an opportunity for diverse benefits. Depending on the country, it reckons these can include premium ARPU, access to additional spectrum, or government-financed network hardening and/or extended coverage. “A network with improved coverage and resilience is a competitive advantage not only with public safety users but also with other user segments,” says the TCCA.

**The TCCA's Tero Pesonen says commercial mobile operators bring economies of scale and 4G/5G deployment knowhow.**



# 'One Africa' broadband network agreement

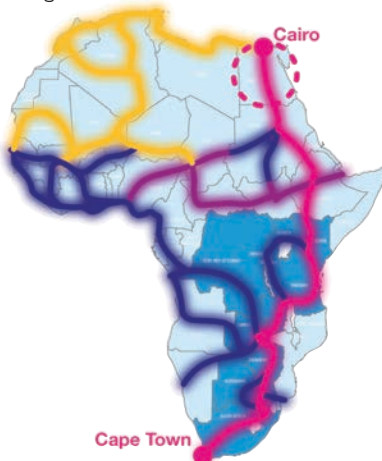
Liquid Telecom and Telecom Egypt will work together to complete the first fibre network stretching from Cairo to Cape Town.

Under an MoU signed in mid-July, Liquid will link its network from Sudan into Telecom Egypt's network via a new terrestrial cross-border interconnection. This will bring together a 60,000km network that runs from Cape Town, through all the Southern, Central, and Eastern African countries, and has now reached the border between Sudan and Egypt.

The Cape to Cairo network, which is also known as the 'One Africa' broadband network – has been in the making for over ten years and serves some of the largest global companies with some of the fastest network speeds on the continent.

Strive Masiyiwa, founder and executive chairman of Econet which owns Liquid Telecom, says: "Completing our vision of building a single network running on land, all the way from Cape to Cairo is a historic moment for the company and for a more connected Africa."

This network not only represents a remarkable engineering achievement that has overcome some of the most challenging distances and terrains on the continent, but it is also supporting the rise of Africa's digital economies."



**Under their deal, Telecom Egypt and Liquid Telecom will bring together a 60,000km network that runs from Cape Town, through all the Southern, Central, and Eastern African countries, and has now reached the border between Sudan and Egypt.**

As part of the strategic partnership, Liquid Telecom and Telecom Egypt will share network infrastructure and explore further areas of collaboration, including joint network services, a peering arrangement and a voice interconnection agreement.

■ In a separate development, Liquid has partnered with AfriLabs to explore new ways to support local startups and promote sustainable innovation across the continent.

Founded in 2011 and headquartered in Nigeria, AfriLabs runs a network of 100 innovation centres across 30 African countries. These technology hubs serve as meeting points and communities for developers, entrepreneurs and investors, and are claimed to now have more than 200,000 community members.

AfriLabs and Liquid will launch a new series of joint programmes designed to accelerate growth within the region's tech startup communities, ultimately helping to stimulate economic growth.

David Sumi,  
Vice president of  
marketing, Siklu  
Communications



## ON THE NETWORK

### Riding the wave for multi gigabit connectivity

Wireless solutions are the obvious choice to extend fibre where it doesn't exist. But until recently, wireless technologies did not have the capacity or were too expensive.

Unlike traditional legacy wireless operating in the congested sub-6 band, mmWave (mmW) is different. It is either 'V band' (unlicensed frequencies at 60GHz) or 'E-band' (70/80GHz, lightly licensed).

Recently, there has also been a lot of talk about 5G and mmW in the 28GHz and 38GHz bands. Despite the promotion by Tier 1 carriers who own these licenses, these bands only offer total available spectrum of 1 to 3GHz which is not enough to deliver the gigabit/sq. km. customers are demanding. Often, the solution is to use higher modulation rates such as 256QAM, but this has a major impact on the range and reliability of the links.

E-band is reserved for point-to-point (PTP) operations, supports ranges of several kilometres, and has a total of 10GHz available for deployment. V-band offers 11GHz to 14GHz of spectrum. When combined, this spectrum supports large channel sizes of 1GHz or more and can be used with more robust modulations such as QPSK, delivering capacity, reliability and distance.

For PTP products utilising 70/80GHz, the story gets even better. With beam widths as sharp as 0.5°, multiple links can be deployed on the same channel in close proximity. This narrow beam property, coupled with the massive amount of spectrum, means deployments can be virtually unlimited.

Outlay? 10 years ago, a 1Gbps mmW link might cost USD20,000. Today, vendors are offering 10Gbps full duplex links for roughly USD10,000.

## Telkom critical of ICASA's draft CTRs

The Independent Communications Authority of South Africa (ICASA) has called for all stakeholders to participate in its forthcoming consultation process about the new draft call termination rates (CTRs).

The proposed regulations seek to further reduce mobile termination rates and were published in mid-August. ICASA has been carrying out a review of the 2014 CTRs, and in its findings published last year, it said that the wholesale call termination market still remains "ineffectively competitive".

The draft CTRs propose a number of interventions such as a 'glide path' period where, for instance, a charge for terminating a call on mobile and fixed location would be ZAR0.12 and ZAR0.8 respectively, from October 2018 to September 2019 (see News, Sep-Oct 2017). ICASA has now invited representations from stakeholders in order to determine

reasonable CTR levels for the duration of the glide path and from October 2020 onwards.

However, South Africa's incumbent Telkom reckons the draft CTRs would see it "continue to effectively subsidise" South Africa's larger MNOs. Group CEO Sipho Maseko says: "ICASA's decision to reduce fixed termination rates at a faster pace than the reduction in mobile termination rates would entrench the duopoly of the largest mobile operators and reduce competition. It is also out of kilter with convergence in technology."

According to the operator, ICASA has proposed that fixed termination rates (FTRs) should fall by 70 per cent compared to a reduction of only 31 per cent in base mobile termination rates (MTRs). Maseko says this "small" reduction in MTRs represents a "missed opportunity" to cut the cost to communicate for the large majority

of consumers in South Africa and "disproportionately targets" Telkom.

Telkom believes that the global convergence in technology no longer distinguishes between fixed and mobile. It says South Africa should be working towards symmetry between fixed and mobile termination rates in a manner that enables fair competition and reduces the cost to communicate.

Telkom's counter-proposal is for ICASA to continue to maintain higher levels of asymmetry as it reviews the cost modelling and other regulatory streams.

It adds: "The proposed FTRs require cost reductions that are not feasible within a three-year time frame without significant job losses and do not recognise that the telecoms landscape has changed to such an extent that there is one converged voice market, rather than separate fixed and mobile markets."



## Azercosmos set for launch



Azerbaijan's state-owned satellite operator Azercosmos is preparing to launch further satellite services for Africa. As with its first mission, it has again partnered with Intelsat and will use *Intelsat-38* to offer services as *Azerspace-2*. At the time of writing in mid-August, Arianespace had begun payload processing for the satellite prior to its scheduled launch to 45°E on 7 September. *Azerspace-2* will support DTH, government, and network services in sub-Saharan Africa, the Middle East, central and South Asia as well as Europe.

## The future of regs in SA



The Independent Communications Authority of South Africa (ICASA) will consider future regulations for certain priority markets following an inquiry which is part of its aim to cut the high cost of communications for consumers. They include the retail market for mobile services and the wholesale supply of mobile network services, including relevant facilities, upstream infrastructure markets incorporating national transmission services and metropolitan connectivity, and the wholesale fixed access market.

## AfricaCom turns 21



The organisers of *AfricaCom* have announced details for this year's event which celebrates its 21st anniversary. KNet365 says that over the three-day conference and exhibition, more than 30 thought-leaders will "advance the conversation" around Africa's digital transformation through a series of expert sessions. This year's speaker line-up includes MTN CEO Rob Shuter, Telkom's group executive for regulatory affairs Siyabonga Mahlangu, among many others. *AfricaCom* takes place in Cape Town from 13-15 November. [tmt.knet365.com/africacom](http://tmt.knet365.com/africacom)

# Mediavision expands Africa broadcast platform

Content delivery specialist Mediavision is expanding its broadcast platform in Africa with the help of Asian satellite operator Thaicom.

Mediavision's multiple channels per carrier (MCPC) platform provides broadcasters in Europe direct access to *Thaicom-6* (also known as *Africom-1*) which was launched in 2014 and covers Africa from 78.5°.

European and international broadcasters will also gain access to Mediavision's integrated solutions for linear and non-linear content distribution including IPTV.

"Thaicom and Mediavision are working together to deliver innovative broadcast solutions that enable programmers to cost-effectively expand their distribution network into sub-Saharan Africa," said Thaicom CCO Patompob 'Nile' Suwansiri.

"Thaicom launched its MCPC broadcast platform for Africa in 2016. Now we will be able to

provide European and international programmers with immediate access to the African market and TV households. Our African C-band MCPC platform on *Thaicom-6* is ideal for broadcasters to enter the African market."

Telespazio, a joint venture between aerospace companies Leonardo and Thales, will provide uplink services

for the platform from its teleport facility in Fucino, Italy. With a site that covers 370,000m<sup>2</sup> and featuring 170 antennas, Thaicom says the facility is recognised as the "first and most important" teleport in the world for civilian use. Broadcasters will be able to contribute standard and high definition content from Europe to Africa via Fucino and *Thaicom-6*.



With a huge site featuring 170 antennas, Telespazio's facility in Fucino is said to be regarded as the "first and most important" teleport in the world for civilian use.

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## Arabsat to tighten security with SpaceBelt

Arabsat will work with the Cloud Constellation Corporation to market its space-based cloud data service in Africa, the Middle East, Europe and Central Asia.

Cloud Constellation has developed the *SpaceBelt*, a patented 'Data Security as a Service' (DSaaS) platform that has been designed to secure high-value and highly sensitive data assets. *SpaceBelt* provides storage in space as well as global,

secure managed network services.

It uses a constellation of 12 low Earth orbit (LEO) satellites that are said to be networked with a redundant, self-healing optical ring for high availability. Cloud Constellation says the network communicates with secure access points located at enterprise, government and military facilities connected via GEO satellites. It adds that individual cloud storage satellites and constellations can be offered to

address an organisation's storage and/or sovereignty requirements.

According to the company, Arabsat is the only satellite operator in the MENA region offering the "full spectrum" of broadcast, telecoms and broadband services. It plans to leverage Arabsat's market position and expertise in delivering *SpaceBelt* DSaaS to a broad range of customers throughout the region.

## Kirusa eliminates "exorbitant payouts" to roaming partners in favour of travellers

Kirusa has launched a new smartphone app which it claims can be easily and seamlessly integrated with a mobile carrier's existing infrastructure to circumvent current roaming infrastructure completely.

The company reckons a significant benefit of its *InstaVoice ReachMe* technology lies in eliminating "exorbitant payouts" to roaming partners and passing this advantage to frequent travellers. It reckons this

will enable African carriers to offer low-cost roaming packages and plans to their subscribers.

According to Kirusa founder and CEO, Dr. Inderpal Singh Mumick, Africa is on the brink of a telecoms revolution, driven by data. He says that while subscribers are migrating to OTT services such as *WhatsApp* while they travel, apps like *ReachMe* are launched in partnership with carriers and are the "perfect"

antidote to this problem.

"Roaming teams at mobile carriers have been experiencing a severe decline in revenue as well as attach rates over the years," says Mumick. "Expensive underlying roaming arrangements have resulted in pricing strategies that have [not appealed] to the masses. *InstaVoice ReachMe* disrupts this arrangement by leveraging cloud, to the benefit of operators and their subscribers."

# Safaricom helps Kenyan farmers with Digifarm

Safaricom has been expanding its *Digifarm* initiative across Kenya. Since launching the programme in October 2017, the company claims it now serves more than 670,000 farmers through 18 depots that have been opened across the country.

*Digifarm* is an integrated mobile platform that is designed to offer farmers convenient, one-stop access to a variety of services. These include discounted inputs and advice on input use, financing, and information on crops and animals. Safaricom says its aim is to encourage more smallholder farmers to “transition into an agribusiness by creating opportunities for them to access high quality inputs and sustainable markets”.

Working in partnership with agricultural supply chain expert iProcure, Safaricom says it is helping thousands of farmers buy agricultural essentials such as high quality seeds, fertilisers, animal feeds and chemicals. They can purchase these via M-PESA or credit payable between 30 to 90 days depending on the individual's credit package.

In late June, the operator announced it had opened four *Digifarm* depots in Laare, Nkubu, Mikindori and Meru Town, all in Meru County. They followed the launch of a depot in Burnt Forest town, Uasin Gishu County, during the previous month. Farmers visiting the depots benefit from the availability of inputs throughout the year, especially



**Digifarm depots offer farmers availability of inputs throughout the year, as well as access to technical advice from experts.** © SAFARICOM. ALL RIGHTS RESERVED

during peak season, and access to advisory and technical information from experts stationed at each facility.

For loan processing, the service relies on a ‘Big Data’ model developed by FarmDrive to score farmers for financing, based on historical data on their farms. Previously, farmers have struggled to access adequate financing as formal lenders lack the information to assess them.

“*Digifarm* leverages technology to tackle the challenges faced by farmers and to also empower farmers with solutions to grow their businesses,” says Rita Okuthe, director, enterprise business, Safaricom. “The service is specially tailored to cater to the

specific needs of farmers in each of the counties it is available in, providing localised information and discounted inputs.”

The platform is also designed to improve the collection of agricultural data by registering farmers and allowing them to key in information such as the size of their holdings and the nature of their activities.

FarmDrive and iProcure were among five startups that qualified for Safaricom's USD1m early-stage funding to firms innovating around the mobile phone.

*Harvesting wireless technology – case studies from the agricultural sector, pp27-29.*

## Mobile industry stakeholders “appreciate” OTT players

Adopting OTT services as part of the app economy and innovation needs to be encouraged, according to the Commonwealth Telecommunications Organisation (CTO).

In a recently published study, the CTO found that the majority of stakeholders recognise and appreciate the innovative nature of OTT services and do not want innovation to be stifled as such services offer numerous benefits to consumers.

However, it added that not all commonwealth countries have the scale, market and regulatory sophistication to take advantage of the app economy, particularly by building domestic digital businesses.



**Dr. Martin Koyabe, who led the OTT report research team, presenting the study findings at the CTO's ICT Ministers Forum 2018.**

The CTO also said that given the widely acknowledged role of telecoms in promoting economic development, it is critical that markets focus on attracting infrastructure investment and ensuring MNOs can earn sufficient margins to sustain the rollouts and upgrades that underpin the app economy.

Some of the key OTT challenges identified by the study include issues around licensing obligations, taxation, QoS/QoE, data protection, net neutrality, interconnection, and USF.

The CTO advises further consultation to involve all stakeholders at national level in the countries surveyed, but also at regional and international level, given that the issues raised are not peculiar to any specific state.

It recommends members use the report to create favourable ICT environment in terms of policies, regulations and legislations. It encourages countries to determine suitable frameworks through regional and international considerations; and the developing of national cyber security strategies, to include robust legal structures and governance.

**SIKLU'S MMWAVE 5G FIXED WIRELESS**  
**TAKING MULTI-GIGABIT FARTHER**



# Moving Wireless Forward

Mobile Mark is a leading supplier of innovative, high performance antennas to wireless companies across the globe. We've been in the wireless industry for over 30 years and have our roots in the early Cellular trials. We have grown and evolved over the years, along with the industry.

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

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

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

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

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

## Asset Tracking & RFID

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



**We are now looking for distributors throughout Africa**

## Commercial Fleet Management

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

## Public Transit & Bus Management

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

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

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

In 2017, a fleet of more than 1,500 buses will have Mobile Mark Antennas installed in one of INIT's

current major projects for National Express, West Midlands, UK."

## Remote Monitoring & Surveillance

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

## Mining & Exploration

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

## Smart Cities & Smart Highway

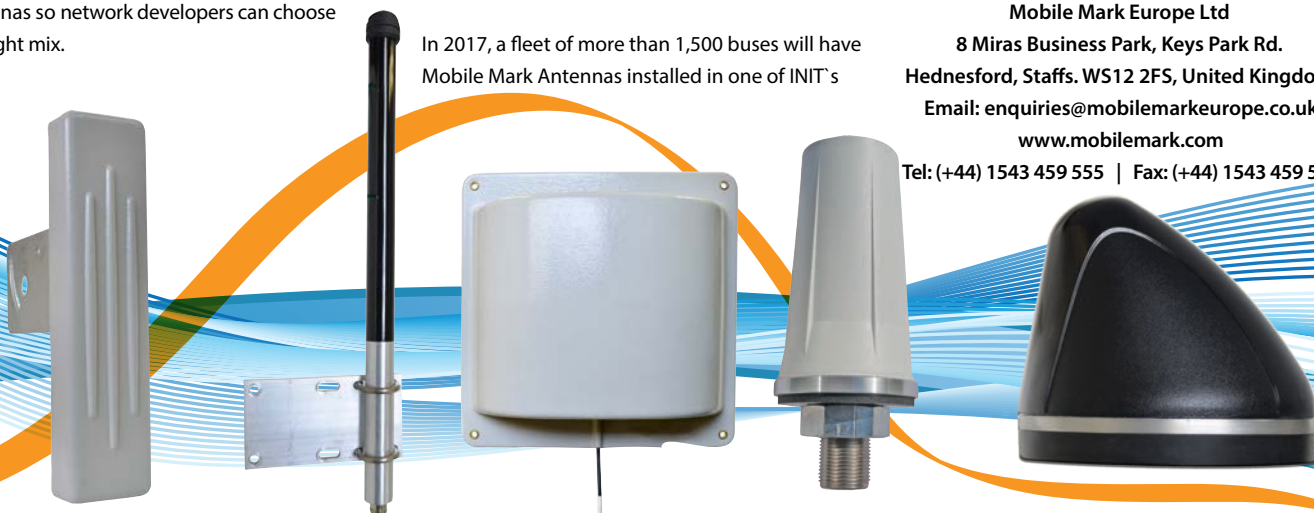
For cities and highways, the lynchpin of a successful "Smart" system will be dependable wireless connections. Companies like Kapsch understand this, and have worked with Mobile Mark to find ideal antenna solutions. Wireless networks must reach seamlessly into hard-to-cover corners of city intersections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

## Let us know how we can help

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

### Mobile Mark Europe Ltd

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# ITC judge says Hytera infringed Motorola Solutions' patents

On 3 July, the US International Trade Commission (ITC) announced that Hytera Communications had infringed four of Motorola Solutions' patents.

The ITC's Notice of Initial Determination follows its lengthy investigation of the patent infringement complaint filed by Motorola on 29 March 2017 against Hytera (*also see Wireless Business, Dec 2017-Jan 2018 issue*).

In the complaint, Motorola alleged that Hytera is unlawfully importing and selling two-way radio equipment and systems and related software and components that infringe four of its patents.

As part of the ruling, administrative law judge Mary Joan McNamara found that all four of Motorola's patents are valid, Hytera has infringed them, and that Motorola met the legal requirement of showing a "technical domestic industry" on three of the four patents (US patent

numbers 7,369,869, 7,729,701 and 8,279,991).

The judge recommended an exclusion order preventing Hytera from importing "certain infringing products" into the US, and a cease-and-desist order preventing further sale and marketing of such products.

The commission is scheduled to issue a Final Determination by 6 November 2018.

Mark Hacker, Motorola Solutions' general counsel and chief administrative officer, said: "Judge McNamara's ruling validates our allegations, upholds the integrity of our intellectual property, and rebukes Hytera for its unscrupulous and unlawful behaviour in wilfully infringing Motorola Solutions' patents. While we consider the Initial Determination an important step, it is only one component of our global efforts to address Hytera's systematic, brazen and egregious theft and infringement of

our intellectual property."

The ruling is a blow for Hytera which has been embroiled in various legal disputes with its US-based critical comms rival. In a statement issued online, the company said: "Hytera is disappointed with this initial determination. We will ask the commission to review and reverse this decision. We believe our products do not infringe our competitor's asserted patents and will seek to demonstrate this to the commission."

The statement went on to point out that Motorola Solutions had originally asserted seven patents in its complaint but later withdrew three of them. It also said that McNamara only found a "limited" number of claimed infringements in the four remaining patents.

According to Hytera, the judge also determined that none of Motorola Solutions' products have used one of the four remaining patents. As a

result, it said that its US rival does not satisfy the "industry requirement" as to that patent, and that Judge McNamara did not therefore find a violation of the statute.

Hytera believes that since the ITC has yet to issue its final decision, there is currently no ban on the importation or sale of its products.

In a statement issued on 17 July, Hytera said that during proceedings in the case, before the period for factual discovery ended, it had presented documents and source code related to several new designs for the court to consider.

Tom Wineland, VP of Hytera Communications America (West), said: "Hytera is confident that our designs for our next-generation DMR product portfolio do not infringe any of the asserted patents of MSI [Motorola Solutions, Inc.]. MSI did not oppose our new designs based on six of the asserted patents."

## Cell C "on track" to benefit from strategy implementation

South Africa's third-largest telco Cell C says it is "on track" to deliver "substantial" growth thanks to strategic initiatives it put in place following its re-capitalisation (*also see Wireless Business, Sep-Oct 2017*).

In its 1H18 results released in late August, the company reported a net loss of ZAR645m (around USD42.5m), an improvement of 33 per cent compared to ZAR968m (around USD63.8m) during the previous year. Forex and financial instrument exposure are said to have contributed to the net loss.

Despite "difficult" economic conditions, Cell C said it managed to increase its total active subscriber base by 600,000 customers to 16.3 million, an increase of four per cent. It said this resulted in total revenue increasing five per cent to ZAR7.8bn (around USD513m) from ZAR7.4bn the previous year.

Data revenue also increased by 20 per cent, with YoY data traffic up 62 per cent. Cell C said data revenue now makes up 52 per cent

of its mobile revenue compared to 46 per cent in the previous year. The company added that this is despite the effective price of data per MB decreasing by more than 28 per cent YoY.

The operator continued by saying its MVNO strategy delivered strong growth in the wholesale division, specifically driven by customer data usage which generated the bulk of the revenue growth. Wholesale revenue increased by 51 per cent to ZAR486m (around USD32m) and MVNO subscribers increased by 31 per cent from 1.3 million to 1.7 million.

CEO Jose Dos Santos said: "Our strong performance in service revenue has offset the voice traffic revenue, which declined by six per cent for the period. This was expected as consumers continue to switch to alternative voice services resulting in a 10 per cent decline in voice traffic."

Earlier this year, Cell C said it signed a "far reaching" roaming agreement with MTN to provide customers with wider 3G and 4G coverage, as well as automatic and seamless roaming access. "This

means that where a customer is on a call that happens to switch from a Cell C tower to a MTN tower, the call will not be dropped," said Dos Santos. "This agreement allows us to now increase our capital investment during H2 in areas where we've chosen to build coverage and capacity."

The operator said the rollout of the multi-billion-rand long-term roaming agreement was already under way, and areas currently benefiting include Witbank, Middelburg, Secunda, Ermelo and Standerton.

The implementation is expected to conclude by November. As a result, Cell C said 4G access will increase from 33 per cent population coverage to 80 per cent. It added that 2G and 3G population coverage is currently at 99 and 96 per cent, respectively.

## Mobile ecosystem to add USD150bn to SSA economy

More than half the population of sub-Saharan Africa will be subscribed to a mobile service by 2025, according to the GSMA.

In *The Mobile Economy: Sub-*

*Saharan Africa 2018* report published in mid-July, the association forecasts that there will be 634 million unique mobile subscribers across the region in the next seven years. It says this is equivalent to 52 per cent of the population and is an increase from 44 per cent (44 million subscribers) at the end of last year.

However, while sub-Saharan Africa has been the world's fastest-growing mobile region in recent years, the GSMA says growth is slowing as the industry faces the challenges of affordability and a youthful population. Citing figures from the World Bank, it says around 40 per cent of the region's population is under the age of 16, "a demographic segment that has significantly lower levels of mobile ownership than the population as a whole".

The GSMA adds that the region's current mobile penetration rate of 44 per cent is "significantly" below the global average of 66 per cent.

John Giusti, the organisation's chief regulatory officer, says: "More needs to be done to extend connectivity to the remaining



unconnected and underserved populations across sub-Saharan Africa, but this will require a focus on long-term industry sustainability that can only be achieved through investment-friendly policies and supportive regulatory frameworks.”

Despite the challenges, the report reveals that smartphone adoption continues to increase rapidly thanks to lower device costs, which is serving to accelerate migration to 3G/4G mobile broadband networks and services.

It predicts that mobile broadband will account for 87 per cent of mobile connections in SSA by 2025, up from 38 per cent in 2017. Moreover, nearly 300 million new subscribers are expected to use their devices to access mobile internet services over the next seven years.

The report also calculates that the mobile ecosystem will add more than USD150bn in value to SSA's economy by 2022 which equates to 7.9 per cent of regional GDP. Last year, mobile technologies and services accounted for 7.1 per cent of GDP across SSA, a contribution that amounted to USD110bn of economic value added.

The region's mobile ecosystem also supported three million jobs in 2017 and contributed almost USD14bn to the funding of the public sector in the form of general taxation as well as sector-specific levies on the consumption of mobile services.

## US government lifts ZTE ban

The US Department of Commerce has lifted the trade ban it imposed on ZTE earlier this year.

On 13 July, secretary of commerce Wilbur Ross announced that the Chinese company has placed USD400m in escrow at a US bank. Shortly after the deposit, the department lifted the denial order on ZTE pursuant to a June settlement agreement that included the harshest penalties and strictest compliance measures ever imposed in such a case (see *Wireless Business*, May-June issue). The escrow funds are in addition to the USD1bn penalty that ZTE paid to the US Treasury in June.

“While we lifted the ban on ZTE, the department will remain vigilant as we closely monitor ZTE's actions to ensure compliance with all US laws and regulations,” said Ross.

The firm will be required by the new agreement to retain a team of special compliance coordinators selected by and answerable to the department's Bureau of Industry and Security (BIS) for a period of 10 years. Their function will be to monitor, on a real-time basis, ZTE's compliance with US export control laws.

The new agreement once again imposes a denial order that is suspended, this time for 10 years, which BIS can activate in the event of additional violations during the probationary period. The USD1.4bn paid under the new settlement is in addition to the USD892m in

penalties ZTE has already paid to the US government under a March 2017 agreement. The company said that it has also replaced its entire board of directors and senior leadership teams.

## Nokia expects to earn EUR3 for each 5G mobile phone

Nokia says the licensing rate for mobile phones that use its 5G SEP standard essential patents (SEPs) portfolio will be capped at EUR3 per device.

In a press statement issued in late August, the company described itself as a “long-term innovator” in the development of fundamental technologies for wireless communications, and said it has made “significant” contributions to the development of related standards for more than two decades.

According to Nokia, this R&D investment has resulted in a significant portfolio of SEPs which it has committed to license on FRAND (fair, reasonable and non-discriminatory) terms, in line with the applicable IP rights policies of relevant standard setting organisations.

“Our innovation continues in 5G, where significant parts of the emerging 5G standards will be based on Nokia innovations, and Nokia expects to have a significant position in SEPs once the standards are finalised later in 2018,” stated the firm.

Beyond mobile phones, Nokia believes that there will be an

“unprecedented” variety of end user devices that will use its innovation.

For these other categories of devices, the company said it will determine its licensing rates separately and will engage in dialogue with relevant industry participants to define the models best suited for those industries.

## Netstar to track vehicles for eThekweni Municipality

Altron subsidiary, Netstar has been awarded a three-year contract by the eThekweni Municipality in South Africa for the supply, integration and maintenance of a vehicle tracking technology solution for 7,000 vehicles.

The multimillion rand deal, which will involve technology being deployed across the entire fleet, enables the municipality to track, monitor, communicate and respond in real-time.

Skills transfer forms part of the contract, and Netstar has committed to ensuring both skills development and female empowerment. The company runs an 18-month technician apprenticeship programme which entails training eThekweni's female employees as technicians within the Fleet Systems and Monitoring division. They have studied electrical engineering with support from the city, Altech Netstar, and on-site mentors.

Suben Govender, senior manager at the municipality's City Fleet

## INVESTMENTS, MERGERS, ACQUISITIONS

Date	Buyer	Seller	Item	Price	Notes
6/7/18	Sterlite Tec	Metallurgica Bresciana	Company	EUR48.7m	Metallurgica designs & manufactures precision optical fibre & specialised copper cables. Sterlite hopes its all cash acquisition of the Italian firm will “significantly” expand its European market presence.
23/7/18	G+D	Various financial institutions	Bonded loan	EUR200m	This is the first time Giesecke+Devrient has placed a bonded loan. The issue was placed with a greater number of savings banks & co-operative institutions as well as the German commercial banks, and comprises terms of between five & 10 years. Proceeds will be used for general business financing as well as supporting operational growth in the areas of payment, connectivity, identities, & digital security.
23/7/18	Infinera	Coriant	Company	USD430m	Infinera will pay around \$150m in cash at closing, plus estimated additional amounts of \$25m in two quarters post-closing, & \$55m over a period of years. It will issue around 21 million shares, which when combined with the cash consideration, results in total transaction consideration of around \$430m. Infinera says proposed acquisition positions it to capitalise on the next wave of global network spending as operators transform their networks to transition from 4G to 5G, from OTN to packet, & from closed to open architectures.
9/8/18	Es'hailSat	Eutelsat	Stake in EUTELSAT 25B	EUR135m	Eutelsat & Qatar's Es'hailSat jointly launched EUTELSAT 25B/Es'hailSat 1 in August 2013 to serve users across MENA & Central Asia. Eutelsat says its share of the satellite generated FY2018 revenues of c.€16m in video application, adding that the sale has no impact on its revenue objectives.
27/8/18	Nokia	European Investment Bank	Loan	EUR500m	Nokia will use financing to further accelerate its R&D into 5G. Loan has an average maturity of approximately five years after disbursement, which can take place at any time during the next 18 months. The EIB transaction is supported by the European Fund for Strategic Investments (EFSI), a key element of the EU's <i>Investment Plan for Europe</i> (also known as the <i>Juncker Plan</i> ).



# We're in IT with you

## Tripp Lite: Your Key Partner for Infrastructure Solutions

Outstanding product reliability and exceptional service have been Tripp Lite trademarks for over 95 years. Tripp Lite manufactures more than 4,000 products to power and connect the servers, networking equipment, and electronic devices that form the foundation of our connected world. At Tripp Lite, "We're in IT with you" is more than just a slogan—it is our philosophy. Not only are we dedicated to manufacturing quality IT solutions, we strive to provide you with exceptional sales support to meet your needs now and into the future. Headquartered in Chicago, Tripp Lite maintains a global presence with offices and partners worldwide, including a robust presence throughout Africa.

## Enabling Latency-Sensitive IoT Applications

The growth of the Internet of Things has reached a tipping point. Costs are lower, technology has matured, devices are smaller, and our ability to capitalise on collected data has increased. IoT is no longer just a buzzword – it is a significant business driver.

Management consulting firm McKinsey & Company estimates that IoT will have a yearly economic impact up to ZAR 158 trillion (USD 11 trillion) by 2025 – more than 10 percent of the world economy. The average consumer may think of smart home devices when considering IoT, but home applications account for less than three percent of that estimate. Commerce, industry, government, transportation, and applications outside the home account for the majority.

For home applications, IoT devices typically communicate with the cloud over a wireless LAN and the public Internet. For mission-critical commercial and industrial applications, however, the cloud or core data centre may be too far away from the point of data

generation. The response time of the cloud seems fast to human beings, but latency can cause poor performance or make an application unworkable.

The most feasible and cost-effective solution for reducing latency to acceptable levels is usually to install essential data processing resources in an edge node, either on-site or nearby. This edge node, also called a fog node, might be one server in a wall-mount rack or an entire self-contained micro data centre. The edge node still communicates with the core data centre, but time-sensitive data processing takes place closer to the point of data collection, and latency remains within tolerance.

## Tripp Lite's Edge

Tripp Lite is a leader in providing edge computing infrastructure, with a strong presence in more than 80 percent of Fortune 500 companies. IT and communications professionals worldwide choose Tripp Lite for reliable and cost-effective IT infrastructure solutions in installations of all sizes. Key Tripp Lite infrastructure solutions for edge nodes include racks, PDUs, UPS systems, KVMs, cables, and cooling.

Working with an experienced partner is essential to optimising an edge installation. Edge sites typically have a small footprint available, so solutions must maximise server density without compromising reliability. Edge nodes may also be located in rugged industrial locations not originally intended for IT equipment, requiring special rack cabinets and other measures. Tripp Lite can even customise rack solutions to fit the site, the application, and the environment's specific challenges.

In addition, remember that edge nodes are not near the core data centre by definition. IT staff are less likely to be on-site, so remote management is important to ensure reliable operation and avoid

downtime. In the case of a PDU, being able to monitor loads over the network is a tremendous time- and cost-saver. Even better, some PDUs allow remote outlet control, so an IT manager can reboot an unresponsive server without making a trip.

When you choose Tripp Lite to provide infrastructure for mission-critical applications, our experienced application specialists can help customize a solution to fit your unique requirements. We evaluate the environments and provide actionable recommendations to ensure solutions provide the availability, manageability, efficiency, and affordability you need to meet technology goals on schedule and within budget. Our experience providing solutions to micro data centre and small data centre clients makes it the perfect source for any infrastructure.

*"Tripp Lite understood our needs and worked closely with us to ensure those needs were met."*

**– AMD Engineering Services Group Manager  
Frank Spagnuolo**

## We're in IT with You!

Choosing the right IT solutions is important, but the company behind them is even more important. When you make an IT infrastructure investment, you may need it to last 10 years or more. Tripp Lite is a long-established partner you can rely on to stand behind your investment and provide the expertise, experience, and personalised service you deserve for years to come.

## Learn how Tripp Lite can help you with your next project!

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department, says: "In our previous model, we had appointed a service provider to handle the maintenance of our tracking systems but there was little to no skills transfer. It is imperative that the youth are empowered so that they become employable."

## Push-to-talk over cellular market forecast to increase significantly over next eight years

The global push-to-talk over cellular market (PTToC) is expected to grow at a CAGR of 8.5 per cent from 2018 to 2026, says Persistence Market Research (PMR).

In its *Push-to-Talk Over Cellular Market – Global Industry Analysis 2013-2017 and Market Forecast 2018-2026* report published in early August, the researcher says the PTToC market was worth USD2,741.4m in 2017 and predicts this will "grow significantly: to reach USD5,658m by 2026.

PMR believes this is due to a worldwide increase in demand for next-generation LTE networks.

It also says that the increasing penetration of IoT devices in various industry verticals is encouraging mobile device manufacturers to integrate PTToC

software into their hardware. As a result, PMR says the software subsegment in its study is projected to register more than 30 per cent of global market share at the end of 2018.

Moreover, it says the software segment is expected to grow at a relatively higher CAGR as the demand for PTToC software is growing rapidly in various countries such as India due to an expanding mobile workforce.

Apart from this, the services segment is also expected to witness a high growth rate during the forecast period as the demand for integration and deployment services and maintenance & support services for PTToC solutions is growing rapidly in various developing countries around the world.

## Smartphone sales see decline in EMEA markets

The value of smartphone markets in EMEA hit record levels during 1Q18 despite a slowdown in unit shipments, according to IDC.

In mid-June, the market-watcher said the total value of smartphone sales across the region was USD29.967bn while unit volume was 86.523 million.

IDC said that as well as continuing to contract in Western Europe, the smartphone market is also "surprisingly" shrinking in Africa. Here, it said that the continent was down 4.4 per cent while the Western European smartphone total dropped to 29.213 million in the quarter, 8.2 per cent lower than the year before. But the firm added that the Middle East and Central Europe markets were both up at 1.5 and 5.6 per cent, respectively.

"Overall mobile phone shipments in EMEA declined year-on-year in unit terms, and it may well be that the market is beyond the peak levels registered in 2017," said Simon Baker, programme director, mobile devices, IDC CEMA. "This is because the resurgence in feature phones in emerging markets, mainly in Africa, seen from the second half of 2016, is now



**IDC analyst Marta Pinto reckons all eyes are now on Xiaomi as it continues to expand beyond China.**

beginning to ebb. The 1Q18 feature phone market was the smallest in six quarters."

According to IDC, the top five smartphone brands in Africa are Samsung, Tecno, ITEL, Huawei and Infinix, while the top five feature phone brands include ITEL, Tecno, Nokia, Alcatel, Samsung and X-Tigi.

All eyes are now said to be on Xiaomi as it prepares for an IPO and continues its global expansion. According to Marta Pinto, senior analyst at IDC Western Europe, the Chinese vendor's expansion has largely been in markets with open distribution. She says: "Xiaomi's expansion has largely been in markets with open distribution and its approach often involves opening own brand shops. It is not used to focusing on operator relationships."

IDC predicts that Africa's mobile phone market will reach around 218 million units in 2018 of which around 45 per cent will be smart devices. That figure is forecast to hit 50 per cent in 2022.

## CETel and SatADSL partner for VNO services

CETel and SatADSL have joined forces under a partnership which they claim will deliver "cost-

## NEW APPOINTMENTS

Date	Name	New employer	New position	Previous employer	Previous position
7/5/18	Paul de Leusse	Orange Group	Deputy CEO for mobile financial services	Indosuez Wealth Management	Deputy CEO
28/6/18	Junaid Munshi	Cell C	CCO	Vodacom Group	Managing executive: CBU & M-Pesa, international division
18/7/18	Ahmad Mokhles	Liquid Telecom	Group COO	Airtel Nigeria	COO
21/7/18	Stephane Duproz	Africa Data Centres	COO	Global Switch	Group director for Europe
1/8/18	Bill Venter	-	-	Allied Electronics Corporation (Altron)	Non-executive director & company founder – retiring
4/9/18	James Frownfelter	ABS	CEO	ABS	Will also continue role as board chairman. Joined ABS in 2010 after serving as president & COO of Intelsat
4/9/18	Sam Wong	ABS	President & CFO	ABS	CFO
4/9/18	Dee Schwalb	ABS	COO	ABS	EVP of business development
4/9/18	Carmen Gonzalez-Sanfeliu	ABS	CCO	Intelsat	Regional VP of Latin America & Caribbean
4/9/18	Stephen Salem	ABS	General counsel	Aerojet Rocketdyne	Deputy general counsel
4/9/18	Ron Busch	ABS	EVP, network services	ABS	VP, network services
4/9/18	Justin Derksen	ABS	SVP, business development	Morgan Stanley	Executive director, media & communications investment banking team
4/9/18	Patrick French	ABS	SVP, global business development	ABS	VP, global business development
4/9/18	Jason Miller	ABS	VP, sales support & market research	Intelsat	Head of business development, Asia Pacific

effective” virtual network operator flex services across Africa and the Middle East.

The two companies plan to deliver an expanded range of services in Ku- and C-band across the region. SatADSL will provide CETel with its Cloud-based Service Delivery Platform (C-SDP) which it described as a “complete OSS/BSS carrier-grade, fully redundant platform”. It says this will enable CETel to deliver cost-effective VNO

flex services to serve customers in the enterprise, energy, mining, construction, CSP, maritime, government and NGO sectors.

SatADSL co-founder and CEO Thierry Eltges said: “We have extensive knowledge of the African market and experience of overcoming the challenges of connecting remote areas that will boost CETel’s offerings even further.

“Our C-SDP platform also complements CETel’s tailored

approach to providing flexible connectivity across challenging sectors in some of the most remote areas of the world.”

CETel says it provides a full range of fixed and mobile satellite services from its own teleport based near Cologne in Germany. The company claims to offer turnkey solutions and value added services over Ku- and C-band to ensure reliable connectivity across the world.

MD Guido Neumann says the tie-

up with SatADSL will complement CETel’s product and services portfolio with volume-based vouchers and flexible, cost-effective VNO services.

“This will enable us to keep costs low and service quality high,” he said. “The demand for these services is growing in Africa, and thanks to SatADSL’s solutions, we can guarantee access to reliable and constant connectivity via satellite across a range of industries.”

## LATEST COMPANY RESULTS

Date	Company	Country	Period	Currency	Sales (m)	EBITDA (m)	EPS (units)	Notes
26/4/18	Orange Group	France	1Q18	EUR	10,082	2,605	NA	1% QoQ increase in revenues mainly driven by: France, which reported growth for the fourth consecutive quarter (+2.1%); Spain, where growth remains steady (+4.3%); & Africa & Middle East which is up 6.2%, following an increase of 5.2% in the 4Q17.
3/5/18	Motorola Solutions	US	1Q18	USD	1,468	NA	0.69	YoY sales increased 15% driven by growth in all regions. Around \$49m of revenue growth was related to acquisitions, including \$22m from the acquisitions of Airbus DS Communications & Avigilon.
14/5/18	Helios Towers	UK	1Q18	USD	89	42	NA	Earnings increased 7% from USD83m in 1Q17. Company reports YoY increase in tenancies of 4% to 13,063 (1Q17: 12,617). In February 2018, the group’s Managed Services division was awarded a 15-year contract with the newly merged Airtel-Tigo business.
15/5/18	IHS	Netherlands	1Q18	USD	85,293	52,099	NA	Compared to USD101.9m in 1Q17, income decreased by 16.3% for the Nigerian towerco. It says decrease driven primarily by adoption of the NAFEX rate which resulted in translation of NGN360.3=USD1 during the quarter, compared to NGN305.1=USD1 in 1Q17. Added 425 lease amendments and 87 tenants during the period.
18/7/18	Ericsson	Sweden	2Q18	SEK	49.8 (bn)	NA	-0.58	Sales as reported & sales adjusted for comparable units and currency both decreased by -1% YoY. MEA sales declined slightly YoY. Networks sales were negatively impacted by monetary restrictions in a few markets in the Middle East; decline partly offset by growth in Digital Services. Overall Networks segment showed sales increases of 2% YoY, with strong growth in North America.
24/7/18	Vodacom Group	South Africa	2Q18	ZAR	20,653	NA	NA	Group service revenue growth, excluding currency translation effects, up 5.2% (reported up 4.2%). Added 2.5 million customers during the quarter, 1.5 million in South Africa & one million in international operations to reach 76.5 million across the group – a YoY rise of 10.3%.
26/7/18	Nokia Corporation	Finland	1H18	EUR	5.3 (bn)	NA	0.03	On a constant currency basis, net sales down 1%. Results consistent with company’s view that the first half of the year would be weak followed by an “increasingly robust” second half.
26/7/18	SES	Luxembourg	1H18	EUR	981.4	621.1	0.45	0.5% decline in reported revenue at constant forex. CEO Steve Collar said: “We have delivered a strong first half of 2018, fully in line with our expectations & continuing our momentum from the first quarter. It is pleasing to see that our underlying revenues are growing again, fuelled by sustained performance from our Networks business & in particular from our aeronautical & government customer segments.”
31/7/18	Intelsat	US	2Q18	USD	537.7	408.5		Results represent net loss of \$46.8m for the quarter. Network services revenue was \$198.5m (37% of total revenue), a decrease of 8% compared to 2Q17. But revenues from Media and Government divisions were both up at five & 15% respectively compared to 2Q17.
1/8/18	Eutelsat	France	FY17-18	EUR	1,408	1,076.09	NA	Revenues down 1.9% like-for-like (-4.7% reported). Konnect Africa project remains on track for commercial launch in August 2018.
2/8/18	Motorola Solutions	US	2Q18	USD	1,760		1.05	18% YoY sales increase driven by growth in all regions. Around \$154m of revenue growth related to acquisitions. Americas & EMEA led Products & Systems Integration segment growth of 14%, & Services & Software segment growth of 27%. For FY18, company now expects earnings growth of around 14.5%, up from prior outlook of 14% including \$40m of unfavourable currency impact.



# Convergence

## The Potential of Hybrid Narrowband & Broadband Networks



### Hytera LTE-PMR Convergence: The potential of hybrid network

Basically PMR technologies, like DMR and TETRA, are voice and narrowband data. So with traditional PMR devices, customers can enjoy widely-used typical PMR functionalities, such as group calls and dynamic assignment of resources, and image transfers as well. But nowadays they are far from enough for customers who are looking for broadband offers, like video and more interactive applications, especially those from the public safety and emergency services sectors.

Indeed, LTE, based on 3GPP standard, has the potential to revolutionize the PMR industry, but the feasibility of LTE

network infrastructure in the critical communications world has long been debated. The reason is that instant and reliable communications lies in the coverage and resiliency of the network, especially in remote and rural areas.

The convergence between PMR and LTE technologies becomes the first choice. Hytera is a global provider of a full portfolio of LTE-DMR/TETRA convergent communications solutions and embraces the convergence in terms of devices, infrastructure and applications.

Regarding to devices, Hytera officially

announced at 2017 CCW in Hong Kong the multi-mode terminals that can work simultaneously over narrowband and broadband networks, and also can communicate with smartphones and interphones.

Regarding to infrastructure, Hytera convergence solution supports connectivity to various PMR networks and also provides access to comprehensive data functionalities over broadband network. By far, Hytera LTE-PMR convergent networking solution has been in commercial use in several provinces and cities in China.

Regarding to applications, Hytera

"I believe Hytera has led the field moving in to the LTE-PMR hybrid era. In line with the fast development of infrastructure in francophone African regions, Hytera innovative convergent solution enables our customers to improve connectivity and data analytics by facing increasingly complex and demanding communications situations, especially in mission critical moments."



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SmartOne Dispatching System allows seamless scheduling and management of resources for users across multiple networks. To crack down criminal events, the SmartOne System provides "Swift 110" to make sure that the police officers can arrive at the crime scene within one minute.

When natural disasters occur, the infrastructure fails and the power grid stops working. To deal with that, Hytera provides customers with emergency communication products.

The IBS (integrated Base Station) integrates the functions of three parts: eTC (enhanced Trunking Core), BBU (Baseband Unit) and RRU (Remote Radio Unit). In emergency situations, IBS can be deployed on the communication vehicles with the power supply, ensuring communications network coverage.

To satisfy the needs of video transmission, Hytera offers iMesh, a high-performance ad-hoc wireless solution based on 5G technology. That allows communications

to be set between each two points.

When the distance between two points exceeds the signal range, Mesh will automatically select other nodes as its relay transmission. As an emergency communication device, Mesh is designed to quick response and work without installation. Through Mesh link, 10 HD real-time video stream can be transmitted simultaneously. At present, Mesh has been widely used in public safety and emergency rescue all over the world.

### Excellence Through Convergence: A Hybrid LTE Network for limitless communications potential

For the foreseeable future then, the best option for PMR end user organizations looking to harness broadband multimedia services is to deploy a hybrid network.

Taking the example of a power utility company again, a PMR system provides a resilient voice network to direct its field staff. The PMR system ensures that the user organization does not have to rely on the limitations of mobile phone networks, especially in an emergency situation.

It also allows managers and other staff who do not have a radio to communicate with staff equipped with PMR terminals via their mobile devices.

Staff can gain access to databases and back office systems away from the office or control center, while real-time location apps combined with mapping facilities make it easier to manage and co-ordinate resources in the field. Images, video clips or streamed video can be sent to and from personnel in the field.

New PMR/LTE multi-mode devices with large display screen, such as the new Hytera Multi-mode device, means staff do not have to carry two separate device to access the



### Hytera Multi-mode Advanced Radio



best in modern voice and data technology. Converging different types of communication networks makes a lot sense. It enables businesses to benefit from both technologies-retaining the

field-proven resilient voice technology of DMR and TETRA, while accessing new fast 4G LTE broadband technology, which is becoming a necessity in an increasingly data-driven world.



[www.hytera.com](http://www.hytera.com)



# IP-based capability accelerates interconnection of TETRA networks

The ETSI standard for the TETRA Inter-System Interface (ISI) has been revised and now includes IP connectivity.

The ISI is the mechanism that enables separate secure TETRA networks to interconnect. For example, first responders need communications continuity if working in regional or national cross-border areas.

Up until now, interconnection of individual TETRA networks via the

ISI required a dedicated E1 link. According to the TCCA (TETRA and Critical Communications Association), this can be expensive and sometimes impossible to lease because providers no longer support circuit switched connections.

To ensure that the new IP option for ISI is included in interoperability process testing and certification, the TCCA's ISI working group

has been working in parallel with the ETSI revision process. The group has written new ISI TETRA interoperability profiles (TIPs) which form the basis for testing.

Each TIP is based on ETSI TETRA standards. They primarily constitute a clarification of the standards and may impose limitations in order to achieve a range of fully compliant and interoperable TETRA equipment

available to the market.

TCCA contracts Istituto Superiore delle Comunicazioni e tecnologie dell'Informazione, an Italian Ministry of Communications lab, as the independent certification authority responsible for supervising the testing sessions.

The new TIPs are now available in the members' area of TCCA's website. [www.tcca.info](http://www.tcca.info)

## Inseego unveils new range of IoT devices

Inseego has launched a new line-up of industrial-grade 4G IoT solutions as part of its *Skyus* product range.

The firm says its expanded portfolio includes gateways, routers and USB devices that provide "affordable, reliable and secure" cellular connectivity for fixed or mobile deployments.

For quick, plug-and-play deployments, Inseego claims the globally certified *Skyus SC* series of devices offers a lower cost USB connectivity solution built to withstand extremely harsh operating environments.

Packaged in industrial grade aluminum, the devices are available in LTE Cat-M1, NB-IoT, Cat-1 and Cat-4 variants, and include features such as an onboard app for space and connection management. Inseego reckons the *Skyus SC* (pictured left) simplifies the integration needed to provide basic connectivity to any IoT custom computing solution or as a primary or failover solution. It adds that the solution is well suited for use in agriculture, manufacturing, metering and enterprise SD-WAN environments.



For deployments that rely on a combination of cellular, Wi-Fi, Bluetooth networking and GPS for tracking purposes, Inseego says the *Skyus 100* series edge gateways (pictured) target numerous IoT use cases and enable seamless machine connectivity with a wide variety of equipment.

The platform is said to offer numerous connectivity options and industrial-grade reliability at an economical price point. The initial offerings feature Cat-1 and Cat-4 LTE speeds with GPS and a 12-hour backup battery to address specific IoT applications.

They include the *Skyus 110* family which offers various LTE Cat-1 gateways with Wi-Fi, Bluetooth, Ethernet, USB and four-pin interfaces to enable use cases with low data demands.

[www.inseego.com](http://www.inseego.com)

## Compact APs can squeeze into most enclosures

Ruckus Networks has launched two new 802.11ac Wave APs designed to provide Wi-Fi coverage in space-constrained sites and hard-to-reach areas.

They include the *E510* which is said to be the industry's first embeddable enterprise AP. Ruckus says it features an innovative two-element design that minimises the aesthetic or physical impact at deployment sites such as outdoor digital signage, street furniture, kiosks, lighting fixtures and stadium seats. Measuring just 21 x 14.2 x 3.3cm, it's claimed the base unit can "squeeze into most enclosures", including cylindrical light poles, to expand the reach of any Wi-Fi network.

The *E510* is equipped with Ruckus' weatherproof *BeamFlex+* antenna module. The company says this "diminutive" 17.5 x 8 x 8cm module is built for outdoor stealth placement and can be positioned up to three metres away from the radio. It adds that with 2x2:2 spatial streams, MU-MIMO support, and a data rate of up to 867Mbps, the *E510* delivers "sustained throughput



for demanding users and applications".

Meanwhile, the new *M510* offers mobile Wi-Fi with LTE backhaul for expanded coverage and redundancy. It is designed for use wherever supported LTE service is available, and is said to be ideally suited for use on buses, trains and in temporary locations where Ethernet connectivity is absent, unreliable or cost-prohibitive. Ruckus adds that the device can be used anywhere (WAN) redundancy is desired.

According to the firm, the *510's* integrated LTE modem allows network designers to create Wi-Fi hotspots at will, and to implement redundant backhaul to improve Wi-Fi service reliability and/or to help ensure that SLAs are maintained. Sustained downlink throughput is said to be up to 150Mbps when using LTE backhaul.

[www.arris.com](http://www.arris.com)

## 'Unique' ULTRAMAX antenna features multiple Wi-Fi ports

Airgain has released an antenna which it claims is the first of its kind to include six dual-band Wi-Fi ports inside a single enclosure.

The company says its *ULTRAMAX* MIMO 9-in-1 antenna will help improve public safety and fleet solutions with enhanced Wi-Fi capability. It is equipped with nine

ports and features 6x6 MIMO Wi-Fi, dual LTE, and multi-GNSS technology antennas to provide support for full HD streaming video as well as other high bandwidth applications.

With a single compact footprint, Airgain reckons the *ULTRAMAX* promotes ease of installation, avoiding multiple mounting and

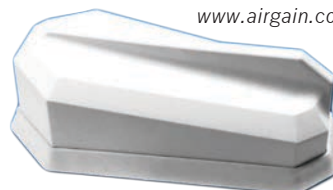
cable entry points associated with existing solutions.

It says the antenna includes high rejection GNSS technology with coverage for multiple satellite systems including GPS, GLONASS, Galileo and BeiDou.

The company adds that the *ULTRAMAX* MIMO 9-in-1 is the only

single unit antenna that complements Cradlepoint's *IBR1700* fleet router, and supports all six of its Wi-Fi ports.

[www.airgain.com](http://www.airgain.com)





# Comprion eases introduction of eSIM and RSP technology

Comprion says many MNOs believe that over the next few years, there will be hardly any devices holding traditional SIMs and that eSIMs will be used instead.

Using its new *Remote SIM Provisioning (RSP) Consumer Devices Platform*, the firm says service providers, network operators and manufacturers can test their real components against a simulated, GSMA-conforming system to make sure that RSP works.

The software-based platform emulates the consumer devices infrastructure defined by the GSMA in a test environment. This infrastructure



consist of back-end servers (SM-DP+, SM-DS), eSIM and mobile devices, as well as the communication interfaces to be used.

Comprion claims the simulated system can be deployed with only a few clicks and within just minutes. It adds that the simulations only

incorporate the component features needed for testing RSP functionality. As a result, the firm says the process becomes simpler, problems can be detected more quickly, and business processes can be optimised.

It is also possible to test dedicated operative components of the infrastructure by replacing the simulated component with the component under test. Comprion reckons it then becomes “very easy” to set up various error scenarios by changing the parameters of the remaining simulated components and seeing how the component under test reacts. [www.comprion.com](http://www.comprion.com)

## LAN tester upgraded for 5GHz demand

IDEAL Networks has introduced a new dual band USB Wi-Fi adapter for its *LanXPLOER Pro* network troubleshooter and also upgraded it with updated software.

The vendor says the USB antenna offers enhanced functionality to support both 2.4GHz and 5GHz Wi-Fi testing in accordance with the 802.11a/b/g/n/ac international test standard.

IDEAL claims the free software updates have also improved Wi-Fi testing capabilities and accuracy by enabling the *LanXPLOER Pro* to display new RF parameters such as signal strength (dBm) and signal to noise ratio. The company reckons this makes the tester an effective, time-saving tool for integrators and technicians that need to test

all their devices and have the Wi-Fi access they need.

As well as testing Wi-Fi, IDEAL says the multifunction *LanXPLOER Pro* also offers a wide range of network diagnosis capabilities, from testing the copper and fibre cables that serve the wireless APs, to troubleshooting problems in Ethernet devices that may be reducing network performance.

The new software update also includes an extended list of wiremap templates for common Ethernet cable types including Cat6A/7A/8 and non-Ethernet cable, such as Profinet 4 and ISDN. IDEAL says user-defined custom wiremap templates are also available for “maximum versatility and accuracy”

when testing proprietary cabling systems.

The *LanXPLOER Pro* can be used with the company’s free *AnyWARE* app. This is designed to enable technicians to quickly and easily share pass/fail test results with clients. IDEAL says detailed PDF and CSV reports can also be transferred via the app or shared with colleagues off site to improve collaboration and productivity and reduce network downtime.

[www.idealnetworks.com](http://www.idealnetworks.com)



## Qualcomm claims first with 5G New Radio

Qualcomm Technologies says it has introduced the industry’s first 5G NR (New Radio) solution targeted for small cells and remote radio head (RRH) deployments.

The company says the new *FSM100xx* builds upon its existing *FSM* platform for 3G and 4G small cells, and will support 5G NR in both mmWave and sub-6 GHz frequencies. The device also includes a software defined modem, and is designed to enable original OEMs to reuse both software and hardware designs across sub-6 and mmWave products

to comply with future 3GPP releases.

Qualcomm says the *FSM100xx* supports various options for interface splits between a central unit and the RRH, providing OEMs and operators with the flexibility to use a 5G RAN architecture.

According to the firm, small cell densification, which is already under way for 4G, is also expected to be a critical component of 5G network deployments. Given the propagation characteristics of 5G NR’s higher frequencies (especially mmWave), it says solutions are needed to

support delivery of uniform 5G experiences, especially indoors where most data is consumed.

The *FSM100xx* has been designed to scale and address outdoor small cell performance requirements, such as support for MIMO implementation and multi-gigabit throughput, as well as support indoor requirements such as compact form factor and PoE.

The solution is expected to begin sampling in 2019 and Qualcomm is already working with early access customers.

[www.qualcomm.com](http://www.qualcomm.com)

### Also look out for...

## Successful tests for C-COM’s phased array Ka-band antenna

C-COM Satellite Systems has successfully tested its 16x16 subarray phased array antenna using 4x4 transmit and receive building block modules.

The Canada-based company has been working on a research project to develop a fully electronically steered phased array mobile satellite Ka-band antenna since 2016 (*also see feature, Guaranteeing a great reception, Jan-Feb 2017 issue*). Its panels have been developed and tested in partnership with the Centre for Intelligent Antenna and Radio Systems (CIARS) at the University of Waterloo in Ontario.

CIARS director and research team leader Professor Ali Safavi-Naeini says: “Measured lab results have demonstrated the high performance of the small modular scalable intelligent transmit and receive antenna modules and validated our simulation model for larger panels. We also achieved good beam steering up to 70° from a boresight, a significant achievement.”

C-COM explains that the developed system uses a unique adaptive control technique in such a way that a prescribed quality of polarisation can be guaranteed over the entire scan range.

Furthermore, it says the beam-processing unit and the antenna intelligent module can generate more than one radiation beam simultaneously and support multi-beam-tracking. C-COM says this is functionality “highly desired” in emerging LEO mobile networks.

The company goes on to say that by utilising a unique blend of low-cost but flexible/reconfigurable hardware and highly intelligent software, the modular technology platform developed at CIARS provides the most cost-effective evolution path towards any antenna system configuration with prescribed performance for a wide range of low-end to high-end applications.

It adds that the platform can be “easily” extended to the rapidly emerging mmW 5G and complex radar systems.

# Getting smarter with subscribers



Openet claims its Data Fabric provides a unified intelligence platform to enable the integration of all data sources into a single system. The company says it's designed to only source the relevant data required to realise value outcomes for the operator.

Using 'Big Data' to gain insights into customer behaviour is now vital for all mobile operators. But why is it so important and how should they go about it? RAHIEL NASIR finds out.

**T**he idea of analysing 'Big Data' to see how subscribers use network services is certainly not new in the industry. But there does seem to be mounting evidence that the need to do this is no longer a 'nice to have' but a 'must have' for mobile operators in their ongoing battles to reduce churn and boost customer loyalty.

For instance earlier this year in March, roaming specialist Mobileum (formerly Roamware) and Juniper Research published a report about how predictive analytics can quickly unlock revenue streams whilst improving the experience of roaming subscribers.

In *The New Rules of Roaming and How Mobile Operators Should Play to Win*, Mobileum said: "In the context of falling ARPU, operators need to take action to reduce their costs by introducing operational efficiencies and increasing revenue streams..."

Big Data and predictive analytics are one hugely promising way to reverse the trend of diminishing ARPU, which is why operators are moving to it."

The report particularly looked at the so-called 'silent roamers' – those who used any mobile services when travelling outside their home network for fear of high charges and 'bill shock'. Here, Mobileum said that there is a need to understand the customer's experience whilst roaming, and to understand their requirements, needs and purchase history.

"As many travellers do not utilise roaming services, there is a significant opportunity in this untapped non-user market," stated the report. "Globally, Juniper estimates around 60 per cent of mobile roamers to be silent data roamers in 2022; in comparison silent voice roamers will be just 22 per cent."

It continued by saying after identifying who the silent roamers are, MNOs can then target those customers with bundles to tempt them into using roaming services.

Mobileum said that while calculating the most effective price point for roaming solutions can be difficult, using analytics to determine the optimum price point should increase revenues. Tim Moran, the company's SVP for product and offering, added: "With the increasing amounts of both network and traveller data available for interpretation and analysis, operators who ignore trends face customer dissatisfaction or customers simply turning off data altogether."

Meanwhile in a separate study published in May, IHS Markit said that as subscriber growth "hits the brakes", service providers are increasingly turning their attention to providing the best customer experience to minimise churn.

For its 2018 *Digital Transformation Strategies Service Provider Survey*, IHS said it polled service providers that account for one-third of the world's telecom revenue and capex. It found that enhancing customer experience is the top digital transformation project for 75 per cent of them, followed by automation (44 per cent) and 'cloudification' (38 per cent).

"In this saturated world, subscriber growth is non-existent – and without customers, service providers have no business," said Stéphane Téral, executive director for mobile infrastructure and carrier economics research at IHS Markit. "With nowhere to go to find new 'human customers', providers need to pay serious attention to their existing customer base."

## The data "gold mine"

So how exactly can service providers gain insights into what their customers are doing whilst using the network? In its report referred to above, Mobileum pointed out that the task of understanding

customer analytics is "too great" for any team of professionals to perform without technological assistance from expert vendors.

One such company is France-based data analytics specialist Intersec Group. Its CEO Yann Chevalier points out that MNOs sit on a "gold mine" of data, be it technical information from their network or customer data from their CRM and billing systems. He believes operators should cross these data to enhance customer experience (CX), smoothen business processes, and anticipate user issues.

"Having a 360 degree customer view in real-time is now mandatory to deliver great customer interactions. CX is both about ensuring high quality of service/quality of experience, and smartly proposing tailored offers at the right time and place."

Chevalier adds that the same data sources are of great value to build and develop new B2B revenues streams for operators. "From LBA (location-based advertising) to geo-statistics, IoT and safety, business opportunities are endless. They allow MNOs to address a wide range of enterprise customers with high value propositions in the fields of smart cities, urban planning, advertising, tourism and hospitality, logistics, industry, banking and finance, governments."

Ireland-headquartered mobile software provider Openet warns that without actionable data insights to truly understand how their network is performing, cellcos will be unable to fully realise ROI for their digital transformation efforts that have been brought about by the accelerated move to 5G and evolution towards NFV and SDN.

"MNOs are undergoing a great deal of change to evolve their networks towards a far more complex and dynamic service delivery environment," says marketing manager Julia Hogarty. "All of this has



been driven by the need for MNOs to now compete in a very different competitive arena than before – one that pits traditional operators in direct competition with far more nimble internet-type business models.”

According to Hogarty, these players have been able to gain advantage in service innovation and customer engagement practices due to the fact that they do not have to resolve how the service itself is delivered. Despite this, she says the significant transformations to network architectures and service delivery mechanisms present a “huge” opportunity for mobile operators to be far more insightful as to how to deliver a better service at a lower operating cost going forward.

Magnus Moller Petersen, EVP of sales and marketing at Swiss company Sicap, also believes network insight is “crucial” for a mobile operator business, adding that the ability to automate processes to react in real-time upon the data provides countless benefits.

He gives a number of examples here, such as enabling operators to grow sales through better market segmentation, as well as automated, targeted and personalised offers and promotions.

Another example is helping operators to deal with fake phones. “10 to 30 per cent of mobile devices in Africa are counterfeits. They cause significant revenue losses for operators and regulatory bodies, and reduce tax incomes for African countries. Network intelligence can be used to identify and handle those handsets appropriately to avoid economic losses, for instance, by ensuring that the devices have been imported to the country using the correct channels.”

Petersen says MNOs will also be able to provide better customer support at lower opex by utilising real-time network intelligence for delivering proactive care precisely when subscribers typically encounter problems.

For example, he says Sicap has found that because of the low penetration of mobiles with over-the-air configuration capability (“as low as 50-60 per cent of handsets on a typical African network”), device configuration is a common root cause for connectivity problems, call centre contacts, and customer complaints. He goes on to describe two instances of how network intelligence could be applied to reduce this problem:

“A user switching from a feature phone to a

smartphone often encounters difficulties in setting up or using the new smartphone. To prevent the user contacting an operator’s call centre, IMEI code switches could be monitored on the network. Based on that insight, operators can automatically deliver such users correct online self-care help for the new handset model.”

In another instance, Petersen says switching SIMs between devices is not only a common practice in Africa, it is also a common root cause for connectivity problems. “Again, identifying such problem situations is easy by monitoring SIM and IMEI combinations on the network. An automatic device configuration guide can be automatically sent over SMS upon each switchover event detected.”

## African challenges

So far, all of that certainly sounds plausible and convincing. But do mobile operators truly understand the significance of investing in the platforms needed to extract network and subscriber intelligence?

Petersen says that, in general, operators in Africa do see the potential benefits but do not value the gains high enough to warrant an investment.

Chevalier also points out when it comes to monetising the intelligence gleaned from analysing Big Data, many operators come up against internal challenges before they can start. He reckons their “siloe” organisations act as an “impediment” to the design of offers that are not purely telco in their nature in order to make the most of the data monetisation.

“Seeing what to do with their huge amount of existing data is very tricky,” says Chevalier. “Even with a concrete idea, managing heterogeneous sources of data and cross-analysing them to get the right insight is a major challenge.”

As a result, he says MNOs need solutions to collect and filter data, compute and cross-analyse them, and deliver actionable insights. “They are torn between solutions from small, niche [providers] and IT giants. The first one doesn’t scale and only addresses a single use case. The second leads to a very long [time to market] and high costs for development and customisation – that take ages.”

Chevalier says another challenge for Africa, which remains a predominantly pre-paid mobile market, is the need for real-time interaction where rapid execution of a promo campaign that is based on data analysis is paramount.

“The insights you get from Big Data can be invalidated in a short time (e.g. a top-up, data bundle purchase, etc.). Moreover, African MNOs tend to have less CRM and BI data, which are well-known aspects of pre-paid markets.”

Petersen also picks up on this latter point: “Operators lack availability of valuable and up-to-date data. Sourcing of data from multiple locations including the CRM, billing, CEM and the standard mobile network elements in an automated and real-time manner requires a lot of resources and skills in integration of databases, network components and IT systems.”

Hogarty supports this view when she says that the “most critical” challenge is in resolving the

effective management and interrogation of data on the network. She says: “Due to the myriad data sources and data format types propagated across today’s often converged networks, it is becoming increasingly complicated to not only ingest all network and usage data but also to aggregate and correlate disparate data into actionable data sets.

“These data sets, or data insights, must be driven by applicable value outcomes to the business in order to deliver actionable insights to downstream applications and consumption channels. Appropriating data in this way to realise business relevant insights is no easy feat.”

Given the complexity of the entire process do African cellcos have the personnel needed to analyse the Big Data created by their networks’ usage – indeed, given that data scientists are in short supply even in developed markets, does any MNO have the talent needed to be successful in all this?

“Lack of sufficient numbers of skilled resources is a bottleneck for African operators, and they need to enlist either direct resources or establish partnerships with experienced vendors,” says Petersen. “The ability to process and analyse Big Data is essential now and will become crucial during the coming years with the advance of AI and machine learning.”

Hogarty echoes this and reckons a shortfall in dedicated personnel does not have to be an obstruction to effective data analysis, particularly when you consider the role of automation in data processing and analytics today.

She adds: “As evidenced by the pronounced role of the chief data officer, it is clear that the centralised governance of data management and analytics is becoming increasingly critical to competitive success. Having said that, it is true that some MNOs are perhaps less mature than others in the resourcing of this function.”

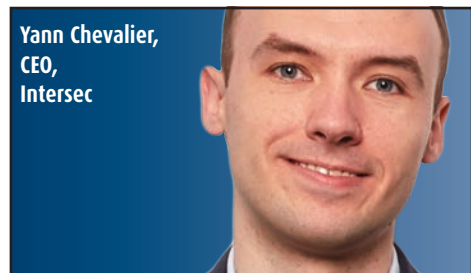
## Overcoming the challenges

Sicap was founded as a spin-off from Swisscom in the late 1990s and now specialises in four areas: customer insights and engagement; device and SIM management; device knowledge; and mobile security.

Petersen says that to help operators overcome the problems in automated data sourcing, integration and processing, the company’s solutions provide a range of ready-made interface connectors to many commonly used databases and network elements used in telecoms. “Additionally, Sicap’s solutions provide the automation logic needed to collect, process and mash-up data from different sources. To overcome the lack of data intelligence resources, [the company] offers its data analyst team for operators.”

Hogarty believes that a “data fabric” approach helps overcome many of the challenges MNOs face when it comes to gathering network and subscriber intelligence. She says this represents a “significant evolution” towards a truly strategic approach to comprehensive data management, data processing and data governance.

“As described by IDG, the concept of a ‘data fabric’ is an approach to help MNOs better deal



**“Having a 360 degree customer view in real-time is now mandatory to deliver great customer interactions.”**

with fast-growing data, ever changing application requirements and distributed processing needs,” says Hogarty. “The term references technology that creates a converged platform which supports the storage, processing, analysis and management of disparate data. In short, a one-stop-shop to resolve the data challenges of today’s networks.”

So when it comes to network and subscriber intelligence, what actually needs to be monitored?

“The type of data to be monitored is mainly determined by each operator’s needs and goals, whether it is about mobile marketing, proactive customer care, or perhaps handling of counterfeit devices, explains Petersen.

“For example, when an operator wants to increase revenues through higher top-up frequency, by selling bigger bundles or faster 4G subscriptions, data points such as minutes of usage, location of residence, ARPU, data consumption, handset type (4G or non-4G) become crucial for market segmentation and more targeted promotions.”

According to Sicap, 4G penetration across Africa is still extremely low, with between three to 20 per cent of all devices on a typical network supporting LTE. Petersen says: “Gaining detailed device type data in real-time from the network would allow operators to automatically send customers more relevant and targeted offers – to first increase 4G device adoption, then ramp up 4G subscriptions, and finally grow the appetite for bandwidth-intense applications and services.”

Hogarty reckons there are a myriad of metrics that can be monitored using the data fabric approach that she mentioned earlier. “[Metrics] which are called upon and proactively monitored depend greatly on each network ecosystem. While this can be informed by the downstream applications in place, the hyper interoperability of a data fabric allows for a complex and highly dynamic operational environment to be managed and monitored to deliver on the strategic objectives of the MNO business at a given time. Such applications may include congestion control, revenue assurance and audience measurement, to name but a few.”

Intersec, highlights three areas that need to be analysed in order to gain intelligence about subscriber behaviour. Chevalier says these include: customer consumption (calls, messaging, data, mobile money and additional services); customer experience (QoS, network KPIs, calls to customer service, past customer journey); and customer profile and history (contract, tariff plans, recharges, services subscriptions, interests). He adds that all these are enriched by data about subscriber locations, demographics and CRM.

When asked what operators need to watch out for when it comes to choosing a platform that enables all this, Chevalier advises them to avoid “hard-coded” solutions.

“MNOs should be looking for solutions that enable multiple use cases within a single platform and yet remain open to new needs and use cases. They should offer the ability to scale in terms of dimensions (i.e. number of subscribers, devices, events, data fields, etc.).”

He also recommends going for proven products that can be delivered in the timeframe needed rather than selecting platforms for *ad hoc* projects, and highlights the importance of seeking references.

According to Chevalier, Intersec offers a whole suite of applications specifically designed for MNOs to make the best out of their data.

“Our *GeoIntelligence* suite proposes a rich set of products based on mobile subscribers or devices geolocation, both real-time and history-based. It includes: *GeoInsights* (vertical studies based on anonymous location data); *GeoReach* (location-based advertising campaign manager with brands and budget management); *GeoSafe* (public safety and warning); and *GeoTrack* (business care for mobile and IoT/M2M asset tracking).

“Our *Contextual Marketing* suite focuses on developing customer engagement. It includes *Iris Contextual Marketing*: that features triggered actions for customer engagement; *GeoTravel* for welcome SMS/push roaming pass; loyalty and community management; and inbound marketing for the next best action.”

Like Chevalier, Sicap’s Petersen also advises operators to avoid systems that require fully customised and hard-coded data connectors, interface plug-ins and data processes. He says they should select a product that is essentially fast to deploy, easy to integrate and easily solves the operator’s issues.

Hogarty highlights two important aspects to consider when evaluating such solutions.

Firstly, she says operators should look for a platform that has a modular design in order to fulfil the interoperability requirements needed to interwork and optimise existing network assets and cloud infrastructures.

A second, and perhaps “more critical” evaluation criterion according to Hogarty, is to see if such a platform delivers on integration through an open API approach.

“The hyper dynamic nature of today’s networks necessitates a move away from monolithic solutions and vendor lock-in. Interoperability is key, along with the need to embrace open source architectures. Those who are successful will



**“The ability to process and analyse Big Data is essential now and will become crucial during the coming years with the advance of AI and machine learning.”**

avoid a platform which demonstrates a restrictive design as the very definition of a data fabric requires an open approach both to upstream data ingestion and downstream consumption channels, whether these be MNO or third party.”

Hogarty claims that the *Openet Data Fabric* provides a unified intelligence platform to enable the integration of all data sources into a single system. She says it features the intelligence to only source the relevant data required to realise value outcomes for the business.

“The platform incorporates Openet’s *Digital API Gateway* to provide extensive interface intelligence to allow for integration across all data source types and formats. [It] accelerates the delivery of insights by automating key processes for increased agility, while giving business users more autonomy in the data preparation process.

“All data consumers, whether MNO or third-party applications, are optimised as a result of the data quality achieved through this 360 degree approach to data management.”

### Is future intelligence all artificial?

Artificial Intelligence is one of the big buzzphrases of the moment and Chevalier says Intersec is currently working on introducing the technology into its products to amplify the scope and power of the company’s algorithms.

In the meantime, Petersen says Sicap has already developed an AI/machine learning enabler solution called *AI Engine*. “This is a generic software framework that enhances the capabilities of Sicap’s solutions such as *TargetMe*, *Device Management Centre* and *Online Smartphone Support*.”

Sicap launched its AI Engine in 2017 with a *Churn Prediction and Prevention* solution as its first application. More recently in August 2018, the vendor announced a new product in its *Device Knowledge* solution line to give operators access to the data needed for self-care, chatbots and AI-powered customer services.

“At Sicap, future R&D spending continues to be allocated to building the ability to utilise the captured network and subscriber data in a more valuable way,” says Petersen. “Whereas today the data is mainly used for gaining a better business insight and for simple reactive actions based on the data, in the future more advanced data-driven process automation will deliver operators higher business value.

“As an example, by combining Sicap’s device knowledge data and self-care help content with chatbot technology and the Big Data that identifies commonly encountered device problems, we believe that most of call centre and customer centre work could be fully automated.”

For operators and service providers, it is ultimately all about developing a long-term relationship with the customer. As Chevalier concludes: “MNOs are a trusted third party for their subscriber and they need to build upon this to monetise even more the tremendous amount of data they have without compromising their subscribers’ trust in keeping their personal data safe.” ■



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# Reaping the rewards of wireless tech

One Acre Fund provides credit facilities to more than 600,000 smallholder farmers in Burundi (pictured), Kenya, Malawi, Rwanda, Tanzania and Uganda.

PHOTO: ONE ACRE FUND



## How farming communities and those working in Africa's agricultural sector have been benefitting from wireless communication systems.

One Acre Fund (OAF) provides farmers with credit facilities to purchase essential supplies, such as seed and fertiliser, along with training in modern agricultural techniques that help improve crop yields. After first starting in Kenya in 2006, the organisation says it now serves more than 600,000 smallholder farmers across Burundi, Malawi, Rwanda, Tanzania and Uganda.

But until recent years, farmers could only make their loan repayments using cash. They gathered once a week at group meetings to hear their loan balances and pay their instalments. The cash was given to an OAF field officer (FO) who took the funds to a district office where they were deposited in banks. Statements were then reconciled at two different times with receipts before loan balances were updated. The whole process took around two weeks.

All of this presented a number of challenges.

For instance, as OAF grew, the task of processing and reconciling large amounts of cash became increasingly difficult. Each district employed a bookkeeper and a treasurer who worked full-time to count cash and reconcile it with receipts. The revenue and the receipts often did not match, requiring double-checking and more counting. In the meantime, OAF could not deploy its revenue for up to two weeks.

FOs also had to spend significant amounts of time collecting and holding cash, which limited

their ability to provide agricultural education. Officers also became targets for robbery as they were known to carry large amounts of cash.

Furthermore, the large and frequent cash collections also created a temptation for some farmer group leaders, FOs and others, which led to significant levels of repayment fraud.

These were some of the factors that were restricting OAF's effectiveness and programme growth. So in 2014, it shifted loan payments at the FO level to mobile money. The officers still collected cash from farmers, but instead of delivering it in person to district offices, they remitted it via Safaricom's *M-PESA* service.

While this solved the cash-counting problem, reconciliation still took too long, and client funds remained vulnerable to theft or misuse. Working with Citibank's Kenya and Inclusive Finance units, OAF started piloting a system where farmers could make direct mobile loan repayments in an effort to reduce leakages and increase farmer confidence in the programme.

In March 2016, OAF's 208,000 farmer clients in Kenya received supply packages that included enhanced maize seed, fertiliser and tree seeds, as well as other products such as solar lights or stoves. Each farmer had made a KES500 (USD5) deposit at the end of 2015, and then began making payments on their nine-month loans. FOs gave farmers step-by-step instructions on how to make mobile bill payments. OAF says the

*M-PESA*-based system proved quick, effective and 100 per cent satisfying for all farmers involved. Instead of waiting for weekly meetings, they can now make repayments whenever they have funds.

And the service is free for farmers, thanks to a flat rate Citibank and OAF negotiated with Safaricom. OAF was able to absorb fees on all bill payments because of the savings made from digitising payments, which in turn eliminated customer fees.

Field officers also now have more time available for farming education as they spend less time on repayment processing. What's more, OAF's reconciliation and revenue process has been considerably streamlined. Instead of taking around 16 days as with the previous system, payments are now processed and credited toward a client's balance within two to four days. Farmers receive SMS notifications confirming their payments together with their updated balances.

OAF says perhaps the most dramatic impact has been on misappropriation of funds. In 2015, the organisation identified 50 cases of repayment fraud which cost it KES1.8m (around USD17,500). In 2016, it says the number of cases fell to 24, and the value lost was "just" KES293,000 shillings (less than USD3,000).

While *M-PESA* has existed since 2007, OAF says one of the reasons it did not get rid of cash sooner was a lack of rural mobile money agents who could transform cash into e-money. But as the increasing volume became evident,



Safaricom responded by adding agents in rural areas who could operate closer to farmers, attend farmer meetings, and help to expand the digital payments ecosystem.

In August 2016 alone, OAF says it received 327,198 payments on *M-PESA*, with an average amount of just USD10. One full-time agent said OAF had “significantly improved” his business, with more than 100 farmers providing liquidity balance through their regular cash-ins.

The organisation says its entire system is now automated and is well positioned for deployment in other countries. OAF adds that it is introducing digital solutions to efficiently scale programmes in other countries, including Rwanda, Tanzania and Zambia.

## IoT helps to solve water crisis

A clean and fresh water supply is essential for all communities, and especially those whose livelihoods depend on farming.

According to non-profit organisation The Water Project, 783 million people worldwide still don't have access to clean water. Furthermore, while water systems are continuously installed, 65 per cent are said to break within the first two years as there is no sustainable method of maintaining them.

eWATER aims to provide a sustainable solution by using mobile technology for the transparent and accountable collection of user fees to ensure sustainable maintenance. It has developed a pre-payment smart tap that fully integrates mobile money, IoT and NFC technologies to manage the provision of clean, low-cost water, which is accessible round the clock.

Whilst a solar powered pump, filtration system, tanks and local water distribution system is being installed or repaired, eWATER trains local engineers to maintain the system and upgrade communal taps. The upgrade includes replacing handpumps or leaky unreliable outlets with a smart card reader, communications hub and solar powered electronic valve.

To use the new tap, anyone can present an eWATER NFC tag. Upon reading the tag, the valve will open, allowing the flow of clean fresh water. Tags are available from local shops and can be charged with credit using a smartphone that includes NFC functionality. Since many eWATER

customers may not have a smartphone, the system has been designed to allow anyone in the village to become a local distributor for eWATER credit. This is likely to be a shopkeeper who will purchase water credit in bulk using the integrated mobile money platform (*eWATERapp*). Anyone can then purchase water credit from the seller for cash, by touching their *eWATERtag* to the seller's phone.

To make sure its system was working and maintained, eWATER required a method of collecting functionality information from the taps to ensure repairs could be made as quickly as possible. It needed a communications system to give confidence to investors and their global team that 100 per cent of the usage and performance data would be communicated to the servers in a timely manner. Even more important was to provide every customer with the confidence that the taps were working and able to supply clean fresh water whenever needed.

Scalability was also essential. Fundamentally, the taps need to be installed wherever a community requires them and so reliable wireless communication was essential and without the need for any additional infrastructure to be installed and maintained.

While eWATER has skills and experience ranging from system architecture and the design of electronics and software, its engineers realised that to get the level of IoT connectivity needed, external expertise was required. The company turned to UK-based global IoT specialist Eseye. It delivers what's described as “highly secure and resilient” cellular data services through its *AnyNet* SIMs. Eseye says its modules provide “unique” zero-touch, highly secure, remote device provisioning with the ability to roam across more than 440 worldwide mobile networks.

Customising its *Hera 100 Communication* node, and working closely with eWATER's engineering team, Eseye says it was able to get trial units in the field within weeks. The company says water flows that had only been visible after site visits through collected historic data, can now be viewed in real-time. It adds that water flow information can even be updated as a customer is still filling their water tank.

Using Eseye's IoT technology, the taps are connected to *eWATERcare*, a cloud-based application that receives information on the tap's functionality, flow rates and sales in real-time. This allows any unusual behaviour to be highlighted and passed to the local maintenance engineer who can quickly visit the affected tap to carry out repairs.

160 eWATER systems have now been installed in Tanzania, Ghana and Gambia serving 25,000 people. Eseye says the solutions it has helped provide mean they have access to clean water 24/7 by ensuring maintenance companies receive up-to-date information on the state of the taps, and so can repair them promptly.

Over the next five years, eWATER forecasts that up to 10 million people will benefit through the installation of 100,000 more taps. The company says it has several more contracts in the pipeline which, in Africa, include Sierra Leone.

## Crop monitoring from space

Food insecurity is a continuous challenge in South Africa. Despite the agricultural sector being responsible for around seven per cent of formal employment and being crucial to the country's overall socio-economic stability, the industry is faced with increasing uncertainty and low investment incentives. Key challenges include population growth, limited water availability and droughts, as well as other environmental factors such as pest damage and disease.

The country's farmers are increasingly looking for new monitoring capabilities, as it is often difficult to acquire the right near real-time information on crop conditions.

According to Airbus, using a satellite-based solution offers several key strengths, such as objectivity, wide area coverage and frequent data updates. Recent developments in the capabilities of satellite instruments support this approach, as they allow frequent, wide area observations to be made with improved spatial and spectral resolutions, enabling images of greater detail and better quality to be captured from space.

Working with the South Africa National Space Agency (SANSA), with part-funding from the UK Space Agency, Airbus has designed and implemented the *Crop Watch for Africa* system.

As well as stimulating economic and societal benefits in South Africa (and more widely across southern Africa), the partners' main goal was to develop and demonstrate a set of stress assessment tools that use satellite data and agronomical information to optimise the monitoring of field crop areas in both irrigated and dry land production systems.

*CropWatch* project activities included three key steps:

- Acquisition of optical satellite images of two areas of interest in South Africa taken at frequent repeated intervals
- Implementation of an automated production workflow to enable routine generation of a range of biophysical parameters – such as the moisture content of vegetation – from the satellite images
- Development and implementation of an integrated model which combines the biophysical parameters (generated from satellite images) with complementary non-satellite datasets to enable crop stress to be modelled

South Africa has a number of invasive species which pose a threat to the production of healthy crops. These pests can cause up to 100 per cent damage.

*Crop Watch for Africa* provides a portal to valuable information and features a crop stress assessment tool that uses satellite imagery to optimise monitoring of both irrigated and dry-land productions.

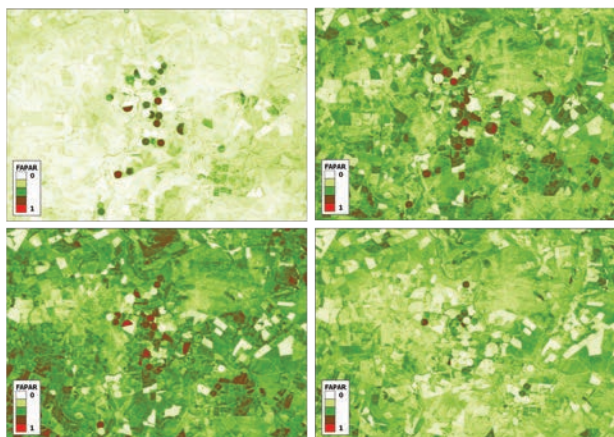
All data within the project (with the exception of field boundaries and ‘ground truth’ information) was derived from satellite imagery, with the DMC Constellation tasked to provide the primary dataset.

The DMC Earth observation satellite is a 22m spatial resolution multispectral spacecraft. Its



**Left: eWATER's solar powered smart tap fully integrates mobile money, IoT and NFC technologies. Right: the tap dispenses clean fresh water after reading a user's pre-paid eWATER NFC tag.**





**Crop Watch uses high resolution time series images provided by the DMC Earth observation satellite as well as other spacecraft. The imagery is then analysed using Airbus' Overland software. The four photos here show the change over time in the fraction of absorbed photosynthetically active radiation (FAPAR) of crops and surrounding vegetation.**

IMAGES © AIRBUS DS 2016

640km sweep across the planet is said to enable it to acquire significantly larger images than other satellites of similar resolution – ideal for wide area agricultural monitoring. Its fast revisit time is another key strength, allowing the delivery of a dense time-series. The European Space Agency's *Sentinel-2*, *SPOT 6* and *SPOT 7* satellites, together with the US government's *Landsat-8* provided additional imagery to complement the DMC Constellation time series.

After pre-processing by the Airbus team, satellite imagery was analysed using *Overland* software. Developed by Airbus, this tool bulk processes a range of optical imagery in what's claimed to be a "highly automated" fashion. The company says its software is able to calculate and output several biophysical parameters, including fraction of green leaf cover (analogous to NDVI), leaf area index, fraction of absorbed photosynthetically active radiation, and chlorophyll-a. Soil parameters, such as fraction of soil cover and surface humidity were also generated.

These datasets were subsequently added to the time series and provided to SANSA, where additional processing was applied to output and map information on crop anomalies: areas where growth is not progressing as expected.

This collaborative approach, with parts of the processing chain belonging to both organisations, is said to have allowed SANSA to benefit from Airbus' satellite and processing capabilities, whilst also having the flexibility to adapt the system to provide bespoke products specific to the agency's requirements.

By providing reliable, wide area observations at a suitable frequency, the DMC Constellation can observe trends and changes in crop phenology and condition over extensive areas. Monitoring threats to food production using satellite imagery has allowed South African farmers to make more informed decisions on the health of their crops, therefore mitigating any negative effects and improving their overall yield.

The next step is to look at how to effectively distribute the *CropWatch* products, with customers likely to include government departments, agricultural businesses (such as banks and insurance companies) and financial institutions. The products are likely to be made available online, with a browser front end and processing based in the UK and South Africa.

Airbus claims that the results of the project

should ultimately enhance the sustainability and resilience of the South African agri-business sector, and support improved food security and social stability in the country.

Airbus developed *CropWatch* for Africa with the help of funding from the International Partnerships in Space Programme (IPSP). Set up in 2014, this was a two-year, GBP32m pilot programme established and led by the UK Space Agency. Its aim was to open opportunities for the UK space sector to share expertise in real-world satellite technology and services overseas, and develop international partnerships for mutual benefit.

Separately, Avanti Communications also received an IPSP grant and worked with several partners including SANSA for its *SBAS-AFRICA* project.

The South African government's agricultural policy aims to drive efficiencies across the sector's value chain by increasing production, therefore supporting rural economic transformation.

According to Avanti, some of the country's largest farms already use high accuracy GPS services to control input costs and maximise production. However, these services are expensive, leaving many small and mid-size farms unable to afford them. A solution was therefore needed to provide a cost-effective GPS service that could increase productivity and cost savings for farmers.

Providing accuracy up to a metre, satellite-based augmentation systems (SBAS) services can be used to improve precision farming activities and tractor guided operations. While many GPS systems are already fitted to agricultural vehicles that can receive SBAS signals, Avanti says new systems can be purchased for a minimal cost.

*SBAS-AFRICA* provides satellite-based augmentation systems (SBAS) leveraging the operator's *HYLAS2* Ka-band orbiter which, says the company, guarantees reliable high performance data communications for the infrastructure. Farmers can take advantage and switch to a free signal.

It's claimed that the *SBAS-AFRICA* project has the potential to deliver ten per cent cost savings on fuel, fertiliser and pesticides. SBAS services can also be used in conjunction with drones to survey land and monitor crops, and valuable agricultural equipment and machinery can be tracked.

Overall, it is estimated the use of SBAS could generate an additional 170,000 tonnes of cereal crops per annum, cost savings of ZAR300m (USD22.5m), and increased sales of ZAR200m (USD15m).

## DMR connects farms

Flour Mills of Nigeria (FMN) was incorporated in 1960. Throughout its history, the company claims to have remained at the forefront of wheat milling in Nigeria, and its shares are now listed on the country's stock exchange. Today, FMN is said to have a rated milling capacity of more than 8,000 metric tons used to provide flour and other wheat-based products per day, making it one of the world's largest single site mills.

The company owns extensive milling infrastructure to maintain its competitive advantage. In northern Nigeria, it has three farms located in Niger State: Sunti Golden Sugar estate, Sunflag and Kaboji. Sunti Golden Sugar and Sunflag are around 30km apart, while Kaboji is located further away at around 120km.

In 2014, Sunti and Sunflag farms asked for a solution that could enable them to communicate and cover their operational areas. Any solution would have to provide a minimum signal coverage distance of about 30km away from the bases on each farm.

In May 2014, a system was deployed on both farms that featured Hytera's DMR *IP Site* connecting solution, *RD98X* DMR repeater station, and 20 of its handheld DMR radios that included *PD60X* and *PD78X*. A microwave radio link from Cambium Networks was used to connect *IP Site*.

Hytera says coverage was exactly what the users had anticipated, and in January 2015 they increased the number of radios in use to more than 40 units. Two months later, Kaboji was invited to join the network to enable overall communications between all three farms. The system was therefore extended with one Hytera *RD98X* repeater system and 20 *PD60X* radios.

According to the vendor, DMR products provide enhanced voice quality even at the edge of the farms. It adds that the *PD60X* and *PD78X* radios are strictly compliant with IP67 standards, and claims that even under harsh environments such as heavy rain and dust, the devices radios "work well and provide outstanding performance".

Hytera also says that with the application of TDMA technology, a single *RD98X* repeater supports two traffic channels with the same frequency. Compared to an analogue system, its says DMR helps users save frequency resources and reduces total ownership cost. ■



**Flour Mills of Nigeria employs more than 12,000 people such as this worker seen here at Kaboji, one of three farms it runs in Niger State. The company says agriculture was the mainstay of Nigeria's economy before oil was discovered, and at one time it accounted for almost 70 per cent of the country's GDP.**



LTE is emerging as a popular choice for providing connectivity in the mining industry because of its inherent qualities such as low latency, ultra high-speed data and interoperability with existing technologies.

LTE technology provides robust communications deep underground in mines, and enables improved efficiency and safety, as LUX MAHARAJ explains.

**T**he mining industry is a significant driver of economic development in certain African nations. For example in South Africa, it accounts for seven per cent of the country's GDP or ZAR312bn in value terms, and directly employs around 460,000 people, with a further 4.5 million dependent on the industry.

However, the mining sector is facing a number of challenges. With increasing excavation, mineral deposits on the upper surfaces are getting used-up, and now the miners are forced to dig deeper to find new seams. Unfortunately, the deeper they mine, the higher the safety concerns. In South Africa, 86 workers lost their lives in mining-related accidents in 2017 compared to 73 in 2016. Clearly, there is a need

to enhance safety measures in order to protect the miners.

Further, the industry needs to digitise and automate its processes to enhance operational efficiency and bring down expenses. Fluctuating commodity values mean that the mining companies are continuously under pressure to bring down the prices. Automation and better management of operations will help the firms in improving their returns.

To ensure the safety of the miners and assets, and also to digitise and automate the operations the mining industry needs to use the latest and the best-in-class communication technology. The traditional LMR (land mobile radio)-based communication system, which transmits only voice and not data,

is incapable of meeting the connectivity needs of a modern-day mine. With ubiquitous voice and high-speed data coverage, companies will be able to better manage their operations as well as enhance the safety of their workers in any corner of an underground or open mine.

### Hitting gold with 4G

LTE is emerging as a technology of choice to enhance communication systems in mines. With a peak data transfer rate of 100Mbps (download) and 30Mbps (upload) together with low latency, LTE is best suited to meet the mining industry's evolving connectivity needs.

Many service providers in Africa have now launched



LTE networks, including those in South Africa who introduced the technology some time back.

It is perhaps hard for 4G consumers to think of LTE as a robust and secure technology that plays a key role in saving miners' lives, given the fact that many commercial network users have often faced problems like call drops and inadequate coverage.

However, the fact is that the 4G network used by you and me is vastly different from the 4G private networks that are deployed specifically for the mining companies. While commercial 4G networks are used by millions of subscribers, LTE for mines is deployed in a much smaller area for fewer users. The performance of your commercial 4G network is thus not a reflection of the 4G network that is deployed for the mining industry.

LTE is proving popular as a connectivity technology for mining firms because of its inherent qualities such as low latency, ultra high-speed data and interoperability with existing technologies. These qualities meet the mining industry's requirements for mission-critical operations and enable it to benefit by adopting automated applications to improve overall management of the mining operations.

According to ABI Research, the mining industry globally is forecast to spend more than USD2.9 billion, or 1.5 per cent of total mining capital expenditure, on private wireless broadband networks by 2022. LTE stands to attract a significant chunk of this investment primarily because it will enable firms in the mining industry to deploy networks that provide high-speed mobile broadband connectivity in remote and harsh areas of underground or open mines.

LTE signals transmit better than other wireless technologies especially in challenging locations like the inside of a mine. LMR or TETRA-based communication systems are unable to track the location of the miners or 'things'. Furthermore, these legacy systems are unable to transmit data and video in real-time, which is a key requirement in unfortunate cases of disaster.

LTE, on the other hand, enables the tracking of people and vehicles to an accuracy of 1cm. The mining industry is also on the threshold of adopting digitisation, and LTE systems aid this transition, enabling enterprises to be future-ready.

4G mobile technology also provides better coverage in both indoor and outdoor environments, which ensures better connectivity to miners who spend a considerable amount of time underground.

## Private and safe

Private networks built on LTE technology can provide end-to-end solutions to the mining industry and help it in its push for automation.

The technology comprises base stations, mobile core network and associated voice solutions, plus handsets and modems. With this technology, mining companies can create a whole communication infrastructure that can help in the automation of all the processes, from inside the mines to ports.

Coupled with virtualisation and software-driven technologies, LTE allows mining companies to build application-specific networks which score high in terms of privacy, security, and reliability.

The deployment of private LTE network is already paying dividends for many mining companies. For example in 2017, South Africa-based Gold Fields installed a private LTE Network in one of its mines in Australia. The deployment helped the company to improve its safety standards and efficiency.

An improved communication system reduces risk and enables a safer mining operation. Location tracking and remote monitoring of operations plays a key role in bringing down mining accidents. This is possible with LTE technology which ensures reliable tracking and real-time monitoring of the different aspects of mining operations.

LTE enables a number of IoT use cases, which help the firms execute operations without manual operations. For instance, a fleet of vehicles can be managed remotely by a single operator, thus leading to improved safety and greater mining efficiency.

In addition, LTE-powered 'Bring-Your-Own-Coverage' (BYOC) technology can be a lifesaver in the event of an accident.

In BYOC technology, the LTE base-station can be put in a miner's backpack or a truck ensuring connectivity in the deepest and furthest corner of the mine. LTE gives real-time access to the miners' locations, thus making it easier to reach them in case of a problem. Better connectivity which enhances their safety brings down response time in case of an emergency, and can literally be the difference between life and death.

The concept of BYOC is a step ahead from a basic private LTE network. While current solutions are bulky, expensive and difficult to deploy, an LTE-powered BYOC solution – with its self-organisation, self-healing and self-configuration

**Lux Maharaj,**  
Director –  
Africa sales,  
Parallel Wireless



capabilities – is ideally suited to meet the mining industry's growing needs. It is not just easy to deploy and manage, but the self-optimisation and traffic prioritisation capabilities ensure that the user is always connected.

## 'The Internet of Mines'

The IoT can enable Africa's mining industry to adopt automation and improve production efficiency. According to Inmarsat's *The Future of IoT in Enterprise* report published in May 2017, 70 per cent of mining businesses globally believe that the IoT will provide them with a significant advantage against their competitors. This is especially relevant if one considers that mining firms are under constant pressure to bring down their operating costs since there is a constant pressure on margins.

Using IoT-enabled applications can help the mining industry to better manage the transportation and autonomous infrastructure. Further it can also help in increasing speed across the mining process and thus helping the mining firms to improve production by reducing the average cycle time.

Mining is a labour-intensive industry. It is often a challenge for the mining companies to find trained staff to stay in harsh and remote locations for a longer period of time. Automation of the processes can enable them to bring down dependence on human resources. Automation of processes can further help the mining companies to carry out round-the-clock operations and also enhance overall security of the mining operations.

Since LTE networks use low frequency spectrum bands to offer data and voice services, they allow a better propagation than any other available technology. LTE technology enables a robust IoT connectivity allowing the mining industry to leverage the benefits of automation.

LTE networks allow the use of IoT sensors and devices to monitor, operate and collect data throughout the mining site. A number of IoT applications, including emergency notification system, remote management of mining machinery, air quality monitoring, access control systems, among others, can be installed for an improved management of the mines. BYOC is also helping digitisation of the mining industry by supporting IoT devices and automation.


LTE is revolutionising the mining industry by boosting automation and digitisation and, in doing so, it is making the industry much safer and operationally efficient. For a country like South Africa, where mining forms such an essential part of the economy, faster adoption of LTE-powered communication system for mining industry can only spur economic growth. ■



**Parallel Wireless Converged Wireless System can act as a small cell in a hetnet system and can be used in vehicles to support 'Bring Your Own Coverage' capabilities.**



# Orange claims cloud RAN trial first

 Orange has completed a network trial in Poland to validate the benefits of cloud-optimised RANs for the smooth evolution to 5G technologies.

It's claimed that the trial, which was carried out on a live network carrying commercial traffic, was the first of its kind in Europe that used an operator's own infrastructure.

It took place from March to the beginning of May with radio sites in the city of Chelm. The virtualised part

of the baseband was running around 70km away in a data centre in Lublin.

Orange used its NGPop cloud infrastructure together with Nokia's equipment such as the *AirScale* virtual cloud base station for 4G and 5G.

Orange says it worked with Nokia to test cloud RAN technology to prepare for the eventual introduction of a distributed cloud architecture for 5G. Nokia claims *AirScale* provides capacity where needed and paves the way for 5G access technology as part



**Nokia's AirFrame data centre platform features pre-integrated racks with ultra-dense servers (pictured), high performance switches, and software defined storage.**

of a multi-layered architecture.

According to the vendor, its base station architecture splits baseband processing functionality across the

cell sites and data centre. Time-critical functions are performed at the cell site and connected via Ethernet fronthaul. Nokia says this allows the operator to use its existing transport network, while centralised software hosted at the data centre "cost-efficiently" performs non real-time functions.

The company claims its cloud base station provided "equally strong" network performance on both its reference cloud infrastructure as well as on Orange's own cloud environment.

## Sudatel aims to be Africa's "most admired" ICT provider

 Sudatel has begun trialling 4.5G, 4.9G and 5G technologies along with fixed FTTH in an effort to boost mobile and residential broadband in Sudan. Under its *2020 Strategy*, the company is focused on transforming its fixed access and mobile service offerings.

The operator will conduct several different use-case tests using Nokia's fixed and mobile technologies in the vendor's labs in Finland and Belgium.

With an initial focus on enhancing mobile data services in Khartoum, Sudatel will evaluate how Nokia's *AirScale* RAN portfolio can increase capacity and speeds today while providing a path to 5G in the future.

In July, Sudatel also started trialling high-speed fixed technology in Khartoum, using Nokia's PON fibre solutions for residential broadband. Sudatel Telecom Group president

and CEO Tarig Hamza Zain El Abdein said: "Bringing Nokia's technology expertise and innovations to Sudan is very strategic for us in the execution of our vision of becoming the most admired ICT provider in Africa."

El Abdein also hopes that working with the vendor for the development of ultra-broadband services will contribute to enhancing Sudan's ranking in the UN's *Broadband Development Index*. This measures how much progress member states have made in terms of increasing access to ICT and the internet.

In the 2018 index report published in July, Sudan's sustainable development goal global rank is given as 143 (out of 156). The proportion of the country's population using the internet is 28 per cent, while mobile broadband subs per 100 inhabitants is 25.8.

## Telenor Group to coordinate pan-European 5G project

 The EU has given Norway's Telenor Group coordination responsibility for its new project to accelerate the uptake of 5G.

The 5G Verticals *INNOvation Infrastructure (5G-VINNI)* initiative comprises 23 partners including major operators, academia and industry vendors. It is designed to ease uptake of 5G in Europe by providing an end-to-end facility that validates the performance of new technologies, and explore solutions for vertical industries such as public safety, e-health, shipping, transportation, media and entertainment, and automotive.


The EUR20m project will be run for three years at four main sites located in Norway, UK, Spain and Greece. In addition, experimental sites will be established in Germany and Portugal. Open APIs will be

provided in order to ensure easy access to the 5G-VINNI facility.

The facility in Norway will be run by Telenor Research, Telenor Norway and Telenor Satellite. It will be hosted in two locations: Kongsberg, the first city where Telenor will pilot 5G in Norway; and another unnamed site in the greater Oslo area. Ericsson and Huawei will supply 5G radios and core, Cisco will deliver a distributed IoT data fabric service, while Nokia will provide the virtualisation platform and end-to-end orchestration.

VP of Telenor research Patrick Waldemar will manage the project. He says: "Being one of three large-scale test platforms for Europe, 5G-VINNI will help propel the development of 5G. Our aim is to make it as easy as possible to utilise and test the platform and we now call on industry players to engage with the project."

## Internet of Things helps to make truck tyres smart

 Continental claims it is helping to make the world's roads safer with Vodafone's support through a new digital tyre monitoring platform that uses the IoT.

The *ContiConnect* platform is currently deployed in Malaysia and Thailand, as well as in North America with more markets in Asia and Europe to follow in 2018 and next year.

*ContiConnect* is connected to Vodafone's mobile network. Special Continental sensors continuously monitor tyre pressure and temperature data and transmit this information to a receiver unit. This then sends the data in real-time to a



**Fleet managers can check truck tyre pressure and temperature levels from anywhere in the world using Vodafone's mobile network and ContiConnect.**

central web portal where a software program analyses it. It sends alerts via e-mail or SMS to fleet managers if tyre pressures or temperatures deviate

from the defined value, and suggests corrective measures where necessary.


According to Continental, the regular data streams that are sent

to the managers help them plan tyre changes and maintenance far more efficiently, improving the operational performance and lifespan of the tyres.

It adds that pressure monitoring also contributes to protecting the environment because tyres that are operated at optimum pressure save fuel and reduce a commercial vehicle's CO2 output.

For example, the company says a tyre operating at just 80 per cent pressure uses around 0.9 litres more fuel for every 100km. Over an average distance covered of 120,000km per year, that adds up to 1,080 litres more fuel consumed for each tyre.

## Afghani ISP to deploy Isotropic's terminals

 Neda Telecommunications has ordered 2,000 of Isotropic System's innovative broadband terminals to extend its national network in Afghanistan.

Neda was founded in 2003 as the country's first licensed ISP and then moved into wireless broadband services. It's claimed the company quickly established itself as Afghanistan's leading ISP with a presence in most major cities and plans for further rollouts.

Neda is working with Isotropic to develop self-installing, all electronic scanning terminals to extend its single channel per carrier (SCPC) broadband capabilities for enterprise, government and consumer users nationwide.


Isotropic says it will deliver an "out-of-the box consumer web experience" for Neda that eliminates the need for skilled installation, and allows for remote repointing to alternative satellite capacity services when required. The firm says maintaining precise pointing accuracy is uniquely needed for Ka-band systems to optimise the efficiency of the links in the service provider's network.

Isotropic has come up with a high throughput terminal that bends light to create new structures and highly adaptable form factors. It says this results in 90 per cent lower power consumption compared to conventional designs and fewer active feeds. The company adds that most importantly, the terminals are expected to be manufactured at 75–90 per cent lower cost than conventional phased-array and flat-panel antennas.

"The innovation that Isotropic Systems provides is allowing us to install the flexibility to work with the best available capacity options at every point in time," says Neda CTO Artem Belotski.

"[We] recognise the advancements of HTS, creating sweeping changes across the industry; our strategy is to embed Isotropic Systems technology into the network to allow ourselves the freedom to offer customers the best capacity at highly affordable pricing."

## UK's "smartest" street showcases IoT

 Mosley Street in the city of Newcastle, north-east England, is said to have become the UK's smartest street following an IoT deployment to showcase the possibilities of smart city technologies.

The project combines live and historic data on the street from several sources, including Newcastle University's Urban Observatory which is said to house the UK's largest set of real-time urban data.

The smart city applications being showcased include: using data trends to predict whether drivers will be able to find a parking space; using predictive analytics to enable power companies to manage energy consumption more effectively and improve safety with lighting; collecting and analysing environmental data

to help find the causes of pollution; amongst others.

All of the applications are facilitated by the *Cisco Kinetic for Cities (CKC)* platform which is said to securely connect data from all kinds of devices, sensors, cameras, applications, etc., in an open standards-based infrastructure.

Connexin has designed and built the infrastructure to support the solutions in Newcastle. It has integrated sensors and cameras onto the network, providing a dashboard via *CKC* where data can be tracked and monitored.

Other partners include Mayflower which has supplied its *Central Management System* to provide remote control, monitoring and energy measurement of street lighting over a wireless interface (ZigBee/GPRS).

As the integration and AI partner




**There are five of Clarity's AQ air pollution sensors deployed across the city as part of the IoT showcase.**

for the project, Quantela will utilise its *Atlantis* platform to deliver descriptive, predictive and prescriptive analytics for domain specific and cross domain use cases.

In 1879, Mosley Street became the world's first street to be lit by an incandescent lightbulb. According to Cisco, it will now achieve another feat as the UK's smartest street.

## Nationals hit a home run with DAS

 A new wireless network can now support more than 41,000 spectators at Nationals Park, home to the Major League Baseball (MLB) team, the Washington Nationals.

MLB sponsor T-Mobile led the effort to ensure that previous communication issues would be resolved by using JMA Wireless' *TEKO* distributed antenna system (DAS). This has replaced two older DAS networks that were not meeting the growing needs of the venue's staff and patrons.

JMA says the newly expanded


24-sector wireless system was deployed throughout the venue within 65 days during the off-season, and has several new capabilities including MIMO functionality and faster LTE speeds.

According to the vendor, *TEKO* is designed to support four carriers along with multiple bands ranging from 700MHz to 2.5GHz, as well as LTE, CDMA, EVDO and UMTS. It says the modular platform completely fits into the room at the head end, ensuring the minimum amount of

valuable onsite real estate is used for housing technical equipment.

JMA worked with New Jersey-based indoor wireless infrastructure specialist Multipath Communications Group on the deployment which included the installation of more than 400 antennas. Additional antennas were required in the upper seating areas, and to meet stringent requirements, JMA says it provided smaller, customised antenna enclosures that were approved by the MLB.

## DAMM provides comms for Maldives force

 The Maldives National Defence Force (MNDF) will use a mission-critical communication system from Danish TETRA specialist DAMM.

The company will supply a TETRA network that will cover more than 300km<sup>2</sup> and nearly 1,200 islands, grouped in 26 atolls. The system will be used by the country's coastguard, marine corps, special forces, service corps and engineer corps for mission-critical tasks such as security and rescue operations, and border patrol.

The MNDF is responsible for defending the security and sovereignty of the Maldives. Due to the country's



location in the Indian Ocean, many of the force's activities take place at sea, making their operations expensive and logistically challenging.

With an IP65 encapsulated TETRA base station, DAMM says it offers a system that is "ideal" for the Maldives' climate which is char-

acterised by high heat and salty air.

The firm has supplied the equipment in collaboration with its system partner Waves Group. UAE-based Waves specialises in delivering mission-critical communications to customers in the public safety, military, transport, utilities and commercial sectors.



## Space debris mission starts



A spacecraft that will demonstrate a range of technologies to clean up space debris has now been deployed from the International Space Station. The RemoveDEBRIS mission will perform four experiments, including the first harpoon capture in orbit and a net that will be used on a deployed target. The team will also test a vision-based navigation system that uses cameras and LiDaR technology to observe CubeSats that will be released from the main spacecraft. RemoveDEBRIS will also deploy a large sail that will drag space junk into the Earth's atmosphere where it will be destroyed (see *World News*, Sep-Oct 2017 issue).

## Dominating broadband



Fibre and cable are dominating the global broadband market, according to Point Topic. It says that as at the end of 2017, the technologies serviced 77 per cent of fixed subscriptions worldwide. Point Topic research director Dr. Jolanta Stanke believes customers across most regions increasingly prefer faster broadband services delivered over fibre and cable platforms as opposed to ADSL. She adds: "This trend will continue as more bandwidth-hungry young consumers become paying decision-makers, even though superfast 4G and 5G mobile broadband services will compete for their wallets."

## 4G launch in Bangladesh



Grameenphone has launched 4G in selected areas of Dhaka and Chittagong, marking the beginning of its nationwide rollout of LTE services in Bangladesh. In mid-February, the operator said 4G was now available in the Basundhara, Baridhara and Gulshan areas of Dhaka, along with Dampara, Khulshi and Nasirabad in Chittagong. It added that it planned to roll out its network in the "fastest and widest manner" possible, and cover all district headquarters in six months.

# True promises IoT coverage across Thailand



True has proclaimed itself as an Internet of Things leader and says its narrowband network will cover Thailand in the third quarter of this year.

The telco started testing its NB-IoT network in 2016. The company claims it has conducted a study on how to find the right technology and build the "most integrated and comprehensive" ecosystem for IoT services, coupled with the "strength" of the TrueMoveH 4G+ network which offers nationwide coverage.

True says it now has NB-IoT base stations in 928 administrative districts, and that its LTE Cat-M1

IoT network is being expanded to cover the whole country later this year. The company adds that its IoT platform is strengthened by partnerships with leading global players such as China Mobile, Ericsson, Huawei, OceanConnect, OneNET, amongst others.

True currently has more than 120 affiliates covering a wide range of smart services for health, home, office and lifestyle. It has also established a research community to expand knowledge to support manufacturers, product developers as well as startups. This includes labs at 12 major universities, the

Huawei Open Lab, open spaces at Siam Square, and the True Digital Park which is expected to be completed in late 2018.

Songtham Phianpattanawit, IoT MD at True Corporation, says: "From now till 2020, the global IoT market is expected to grow at an average rate of 28.5 per cent annually, and there will also be a heavy investment in a number of IoT related businesses like hardware, services and IoT network under the Thailand 4.0 policy. As a result, many sectors pay more attention to using IoT technology moving forward."

## Police in Paraná join Brazil's TETRA network



The Federal Highway Police (Polícia Rodoviária Federal, PRF) in Paraná state, Brazil, has joined the TETRA communication system that Teltronic is currently deploying. The nationwide network comprises 600 base stations and offers coverage to twelve different states as well as the main Federal District.

Teltronic says its system gives Paraná State PRF higher security thanks to the use of encrypted technology that makes it difficult for outsiders to intercept communications between the officers.

At the official opening of the new



**The TETRA network has been described as "a significant advance" in the police's operational capabilities".**

PRF unit in the city of Cascavel in western Paraná during early May, Brazil's public security minister Raul Jungmann said that the arrival of

digital radio to police communications was "a significant advance in integration, technology and operational capabilities". Jungmann was the first to use the new system with a radio call to public security national secretary, Carlos Alberto dos Santos.

Separately, Teltronic says the state of Acre on the border with Peru and Bolivia also has a new digital radio system that enhances communication quality for users. Acre Public Safety delivered the digital radios to both civilian and military police in the area, as well as to the fire department.

## Tenda extends Wi-Fi reach with Nova mesh



Tenda Technology reckons the days of boosting Wi-Fi using powerlines and extenders are finished thanks to its Nova MW3 mesh system.

The China-based equipment maker, which was founded in 1999 but is only now beginning to expand into other regions such as Europe, is hoping to bring its so-called "smart" Wi-Fi system to the masses in Ireland following a recent deal with Dublin-based distributor and integrator, EurAsia.

Tenda says the Nova MW3 is a 1200Mbps dual band distribution mesh system and claims it can provide whole house Wi-Fi coverage as well as a fast and stable internet connection. The company says a pack of three units

provides up to 300m<sup>2</sup> coverage, while a pack of two provides up to 200m<sup>2</sup>.

It adds that MW3s are compliant with IEEE 802.11v and IEEE 802.11r seamless roaming protocols, and also support automatic network optimisation and automatic routing selection. Tenda says they create a self-healing mesh network that uses Wave2 MU-MIMO technology that enables the use of multiple devices at the same time without any lag, interference or signal dropouts.

Users can customise and manage the network with features such as parental control, guest access and UPnP, using a dedicated app that can be downloaded onto Android and iOS devices.

"The Nova MW3 brings smart Wi-Fi technology to every home user and modern smart home," says Jason Zhao, general manager of Tenda UK&RoI. "We're demonstrating that the era of powerlines and extenders is over, as Mesh Wi-Fi is now available at better value with a better experience."

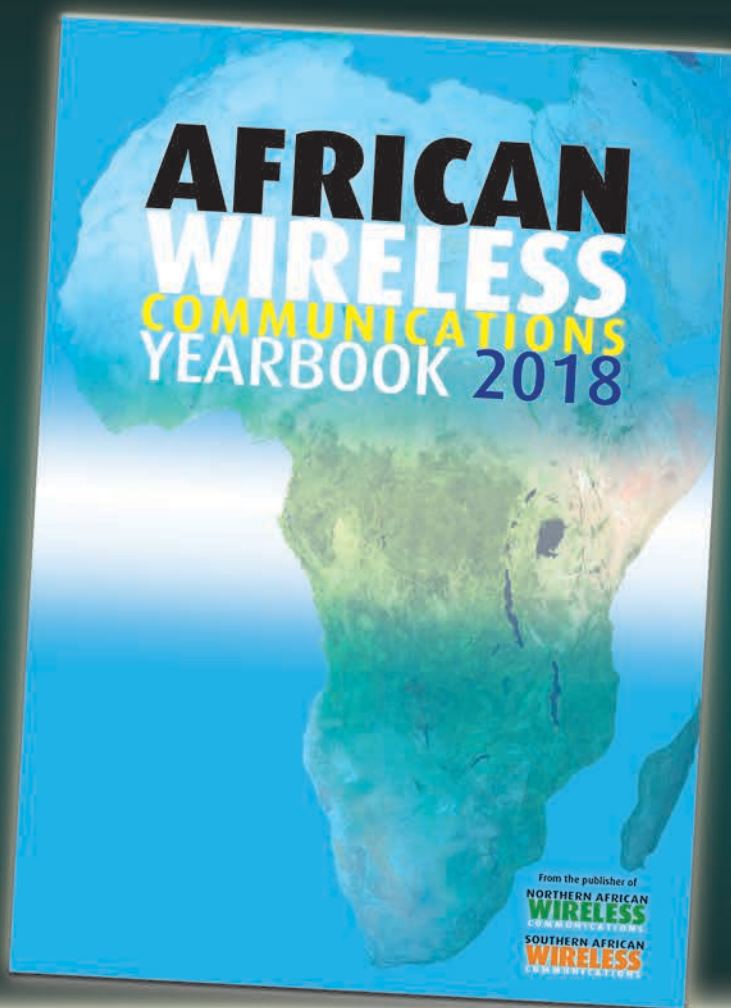
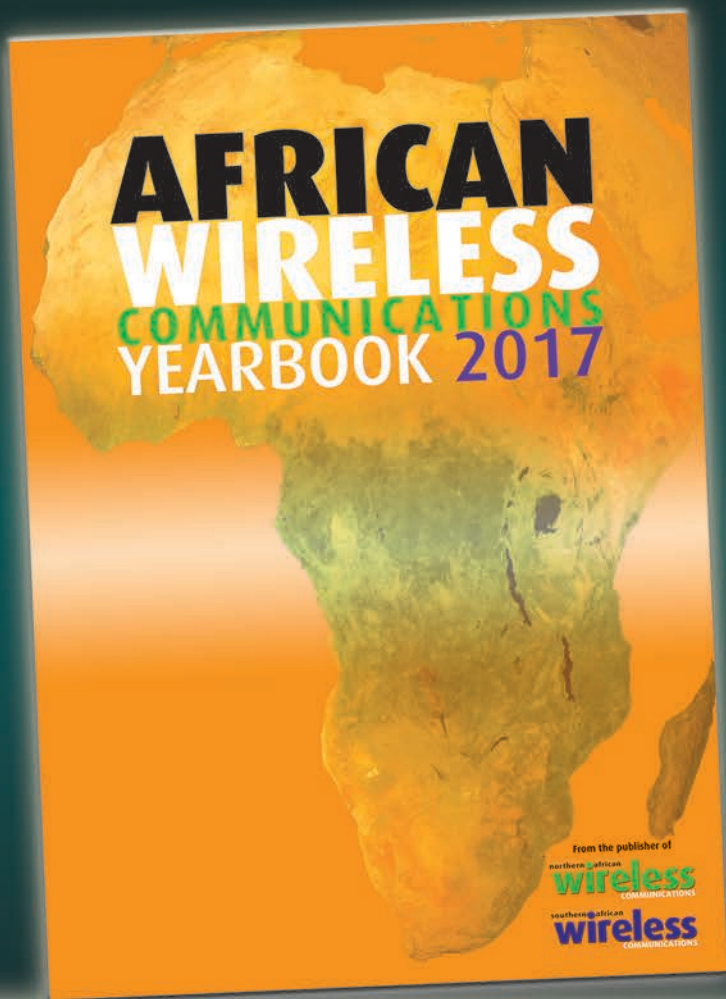
**It's claimed that three Nova MW3 units provide robust, reliable and fast Wi-Fi coverage across homes of up to 300m<sup>2</sup>.**



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