JULY/AUGUST 2015
Volume 20
Number 2

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JULY/AUGUST 2015
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CONTENTS

Features:

SUBSCRIPTIONS:
Southern African Wireless Communications is a controlled circulation bi-monthly magazine. Register now for your free subscription at www.kadiumpublishing.com
Readers who do not qualify under the terms of control can purchase an annual subscription at the cost of £110.
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Printed in England by Polestar Stones

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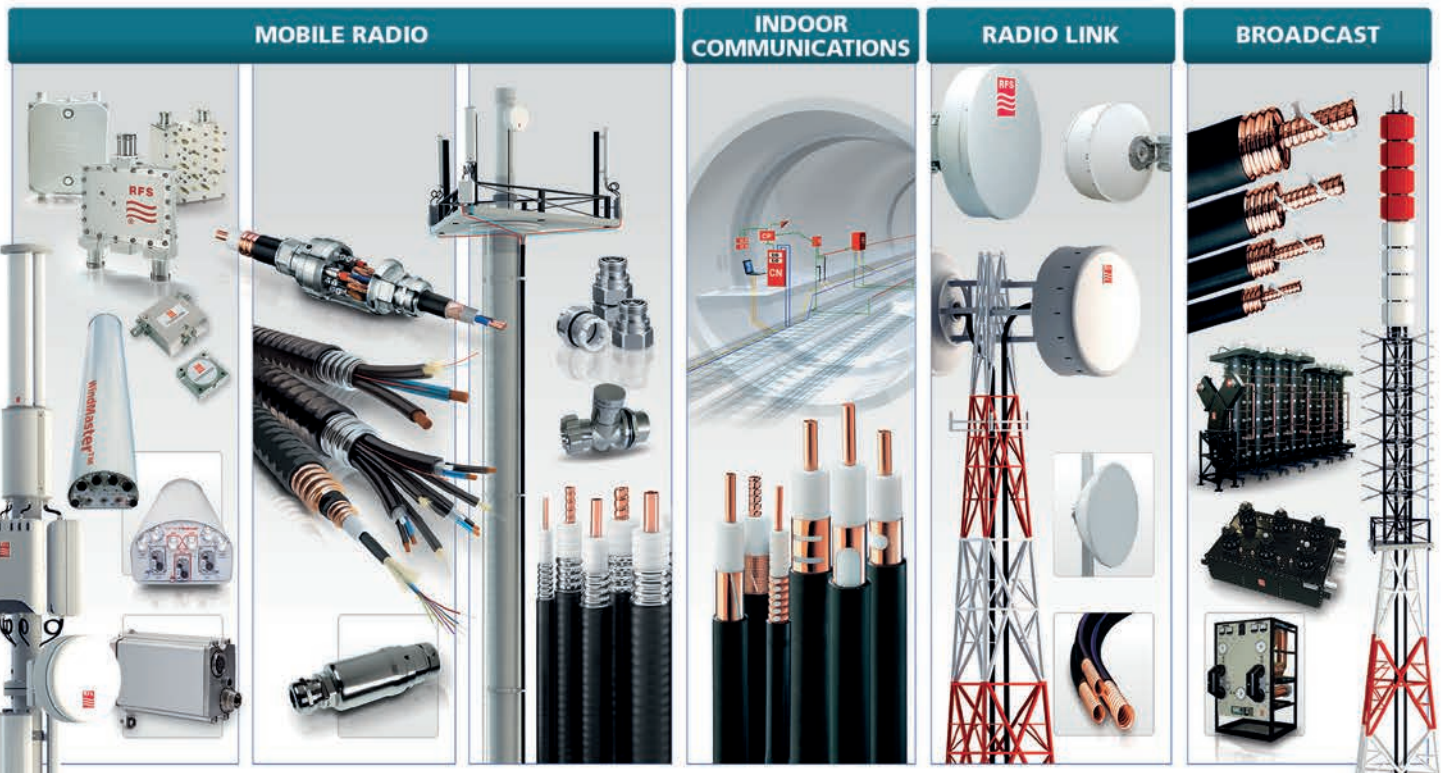

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Liquid and MTN to offer businesses "largest" connectivity footprint

Liquid Telecom and the MTN Group have teamed-up to offer what's claimed to be the largest wireless and fixed network footprint across Africa.

Their partnership covers wholesale, carrier-to-carrier, broadband, enterprise and fixed data services. Each company will be able to access the other's networks in countries on the continent where one of them may not currently have a presence.

MTN's connectivity footprint includes POPs for its global MPLS network which covers 22 countries, while Liquid's fibre stretches 20,000km across Africa and is complemented by its satellite service for rural areas.

The additional countries in which Liquid will now have a presence are: Benin, Cameroon, Congo Brazzaville, Côte d'Ivoire, Ghana, Guinea Bissau, Guinea Republic, Liberia, Nigeria, South Sudan, Sudan and Swaziland. The partnership gives MTN the ability to service its multinational enterprise customers in Burundi, DRC, Tanzania and Zimbabwe.

Together, the two companies say they will be able to provision networks with complex requirements faster, and sell each other's services on the combined network to provide greater choice to all businesses.

Liquid says it will be able to offer enterprise users gigabit speed services accompanied by negotiated SLAs and round-the-clock customer service.

It adds that the collaboration is in response to the increasing demand from enterprises in West Africa for its broadband service. "We have a well-deserved reputation in East, Central and Southern Africa for providing quality broadband to businesses," claims group CEO Nic Rudnick. "We are laying 100km of new fibre every week, but have decided to partner for the time being in West Africa so that we can immediately meet demand from businesses there."

Left: CEO Nic Rudnic claims Liquid is laying 100km of new fibre every week. Right: MTN's Elia Tsouros says customers will be able to go beyond the cellco's current footprint.

According to MTN, the partnership furthers its ambition to be the ICT partner of choice for customers looking to expand geographically. Elia Tsouros, the company's enterprise business unit head of global sales, believes it reinforces MTN's "extensive" service offerings both on a national as well as an international scale.

"We will be able to leverage each other's products and services to improve our offerings to carrier and enterprise customers in Africa, the Middle East and Europe.

"In addition, we have the opportunity to offer our customers services beyond our footprint, thanks to the combined footprints of both companies, as well as those of our partners," says Tsouros.

Upgrade for biggest critical comms network in SA

The City of Cape Town has upgraded its TETRA infrastructure using the latest system from Motorola Solutions.

The city's TETRA network is said to be the largest in South Africa. It serves 11,000 public safety, security and utility services, and also provides communications for 2,500 external users from surrounding municipalities.

Motorola's *Dimetra* system was first commissioned by city authorities to provide coverage across the Cape Metropolitan Area (CMA) in 2000. It was last upgraded in 2008, enabling Cape Town to meet its communication requirements for the 2010 World Cup.

In June 2015, Altech Alcom Matomo upgraded the infrastructure's master switching station using *Dimetra IP 8.2*. Motorola says efficiency, safety and incident response time have all now been improved through enhanced network management, security and new location-based capabilities.

The system is set up so that all communications – across a range of radio groups and interconnected with the telephone network – remain secure and private. Encryption ensures those with police radio scanners cannot listen in on conversations, while real-time GPS tracking and mapping enables the command centre to monitor users and instantly dispatch support to their exact locations.

In addition to public safety, Cape Town's TETRA network extension covers key utilities such as the Wemmershoek Dam.

To complete the project, Altech needs to upgrade the 32 remote repeater sites and dedicated microwave infrastructure that links them to the master switch. This is planned to take place over the next three years.

ATU supports "no change" position for UHF and C bands

The African Telecommunications Union (ATU) will reject proposed changes to certain spectrum allocations that will be discussed at the ITU's World Radiocommunication Conference 2015 (WRC-15) in Geneva this November.

At their final preparatory meeting held in July in Kenya, ATU members agreed a common position which opposes the allocation of the UHF band (470-694MHz) and the C-band (3600-4200MHz) to mobile services. Each of the continent's sub-regional groups, SADC, ECOWAS and EACO, also support this "no change" position.

Europe – which is in ITU Region 1 along with Africa, the Middle East west of the Persian Gulf including Iraq, the former Soviet Union and Mongolia – is also against any changes to the spectra.

Simon Fell, director of technology and innovation at the European Broadcasting Union, said: "We are pleased to see another continent in ITU Region 1 confirm their support for DTT below 700MHz. It is important that we continue to voice our common position to secure adequate spectrum for the broadcasting industry."

But the ATU did agree that the L-band (1452-1492MHz) should be allocated to mobile services, a move welcomed by the GSMA's deputy chief regulatory officer John Giusti.

"WRC-15 will determine what spectrum bands will be allocated for mobile services. These decisions will determine the future of the mobile internet. This is particularly important for Africa, the world's fastest-growing mobile region, where mobile broadband is often the only way for people to access the internet."

Giusti said the L-band for mobile has the potential for widespread global support at WRC-15, driving economies of scale that will benefit consumers in Africa and elsewhere.

But he warned that more work still needs to be done to ensure there is sufficient spectrum allocated for mobile broadband. Giusti believes increased support for an allocation in the sub-700MHz UHF band, which offers good geographic coverage, will be essential for connecting rural communities in Africa.

Reaping the digital dividend – feature pp27-29.

Vodacom's 'data centre on wheels' makes its network more resilient

In what's claimed to be an African first, Vodacom has developed a mobile recovery solution to ensure its network is even more resilient in the case of an unforeseen, catastrophic incident.

The *RAN Mobile Recovery Solution* is essentially two mobile data centres housed on board a lorry. The operator says the solution gives it the ability to restore functionality at any of its South African mobile telephone exchange (MTX) sites which link its RAN to the core network.

"These mobile data centres effectively allow us to recover our site within 48 hours instead of the two years it typically takes to build a new MTX site," says Vodacom network engineering officer Beverly Ngwenya: "We call this a 'hole-in-the-ground' recovery solution because it's used in the very unlikely event that our entire facility's functionality completely disappears."

The mobile data centre carries complete power backup with on-board generators, network equipment, and more.

CTO Andries Delport adds that the majority of Vodacom's infrastructure is built to be geo-located so that its functionality can be picked up by another site based somewhere else in the country if necessary. "Most times this happens without the customer even knowing something is wrong. [But] with the MTX sites this is not possible."

Testing the new solution required the cellco to simulate the recovery of an entire MTX site. It chose Midrand which provides connectivity to hundreds of thousands of customers in the southern and central parts of Gauteng. Vodacom claims the tests ran smoothly and that no loss of service was reported.

To further ensure it is able to meet its 48 hour turnaround time, the company commissioned two solutions. The first, based in Pretoria, services the northern part of the country; the second is in Bloemfontein to ensure quick access to southern areas.

Each recovery solution consists of complete power backup with on-board generators, fire suppression, air conditioning, raised flooring, building management systems, security systems, and network equipment.

Gauteng Broadband Network reaches key milestone

Altech Alcom Matomo says its rollout of the Gauteng Broadband Network (GBN) has reached a key milestone with eight vital core nodes all now connected by fibre.

The GBN consists of 4,500km of transmission fibre and 80km of last-mile fibre running throughout Johannesburg, Tshwane, Ekurhuleni, Sedibeng and the West Rand.

Gauteng's Provincial Government commissioned the network to help bridge the digital divide and ensure greater accessibility to government services. It says broadband will enable it to implement smart initiatives and facilitate ancillary projects such as e-learning, e-government, e-health, telemedicine, etc.

Altech says the eight core nodes can now be used to connect various network touchpoints that will begin servicing government buildings and community centres.

It says that the network will provide 10Gbps connectivity, and will introduce upgradable high-speed fibre optic transmission speeds to give broadband access to provincial buildings, schools and community centres. By the end of 2015, the firm plans to have 263 access sites connected across Gauteng, including all provincial department buildings and several townships. In addition, 24 community centres and 100 schools will also be connected.

Altech says the rollout will transform provincial government service delivery through efficiencies, and will promote the growth of the ICT sector and other related industries. It adds that the provincial government will see "significant" savings estimated at ZAR162m per annum.

Altech Alcom Matomo won the ZAR1.2bn (USD91m) contract to develop the GBN last year *(see News, Jan-Feb 2014)*. Company MD Brett Nash explains that the project is based on a build, operate and transfer methodology.

"Altech Alcom Matomo is responsible for building and operating the network, which will initially provide voice and data services for a significant number of government employees and learners over five years, at which point it will then be transferred to the Gauteng Provincial Government to manage."

Yahsat completes critical design review of Al Yah 3

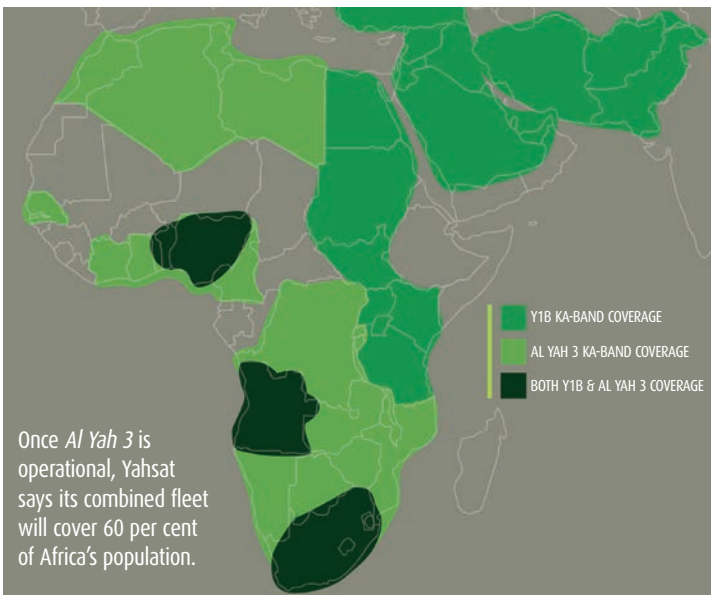
Yahsat says it is now "one step closer" to expanding satellite broadband across the continent.

In August, the UAE-based operator said it had successfully completed the critical design review (CDR) for its third satellite *Al Yah 3 (also see Wireless Business, Sep-Oct 14)*. This means that all specifications and requirements have been captured into the spacecraft's final design, and that its components can now be put together.

As a result, Yahsat says it remains on track to launch the satellite during the final quarter of 2016.

Al Yah 3 is an all Ka-band, high throughput satellite that will be built by Orbital Sciences Corporation using the *GEOStar-3* platform and a hybrid electric propulsion system. Yahsat says it will bring high-speed, affordable satellite broadband services to the African and Brazilian markets, as well as high data rate backhaul links for ISPs and telcos.

Once operational, the operator says its Ka-band footprint will be significantly expanded in Africa. *Al Yah 3* will cover 16 additional markets across the continent and means Yahsat's fleet will cover 60 per cent of the population.



Once *Al Yah 3* is operational, Yahsat says its combined fleet will cover 60 per cent of Africa's population.

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8 West B to cover "vast" region

8 West B is the 25th Eutelsat satellite built by Thales Alenia Space. This photo shows the integration of the satellite's fairing during its manufacturing stage.

Eutelsat has successfully launched its 38th satellite. *EUTELSAT 8 West B* blasted off into orbit on board an *Ariane 5* rocket from Kourou, French Guiana on 20 August.

After a series of performance tests, the new satellite will transfer to 7/8°W and is expected to enter full commercial service in early October.

8 West B is primarily designed to serve DTH TV markets in North Africa and the Middle East.

It is equipped with 42 x 36MHz-equivalent Ku-band transponders and 20 x 36MHz-equivalent C-band transponders. The new satellite will also introduce a C-band mission with 10 physical transponders connected to footprints covering Africa and reaching west to South America.

Eutelsat says *8 West B* enables it to meet the demand to broadcast more digital and high definition content to more than 250 million viewers.

"[It] gives us more coverage options, enabling broadcasters to target their audience," said deputy CEO and CCO Michel Azibert. "These features underpin the 100 per cent success in sales of capacity connected to footprints serving a vast region stretching from Morocco to the Gulf."

Azibert added that *8 West B* is the 25th Eutelsat satellite built by Thales Alenia Space and the 30th launched for the company by Arianespace.

Eutelsat plans to offer further coverage across sub-Saharan Africa later this year. It is leasing capacity on the Russian Satellite Communication Company's new *Express-AMU1* that will be launched to 36°E.

This will provide follow-on and expansion capacity for *EUTELSAT 36A*, and will be commercialised under the name *EUTELSAT 36C*.

MTN joins ACE and will bring cable to South Africa

The MTN Group has become a member of the African Coast to Europe (ACE) submarine cable consortium, and is planning to bring the system to South Africa.

MTN is already a big investor in cable systems such as EASSy, EIG, TEAMs, and WACS which links South Africa to the UK via points along Africa's west coast.

Orange is the main backer in the USD700m ACE system which will cover 17,000km after its second phase is completed by the end of next year *(see News, May-Jun 2015)*. As part of this second phase, the cable will be extended from São Tomé and Príncipe to Cape Town.

MTN has acquired an eight per cent stake in ACE, according to the group's GM for network, IT projects and carrier services, John Unterhorst. He says the operator's involvement will facilitate the extension of the cable to South Africa.

"MTN will build and provide the ACE cable landing station and backhaul in South Africa. Until now, MTN's participation in ACE has been through its subsidiaries in Benin, Liberia and Guinea Conakry."

MTN's investment, which is reportedly worth USD50m, has been committed via the group's wholly owned subsidiary, MTN Dubai Ltd. A rollout is expected during 1Q16.

WACS gets first upgrade

The West Africa Cable System has been upgraded for the first time since it was commissioned in May 2012.

Phase 1 of the upgrade was completed in July and focused on the 'Express Fibre Pair' (Fibre Pair 1) between South Africa and Portugal. It resulted in the addition of nine 100G wavelengths to the existing 24 10G wavelengths.

Phase 2 is now under way and is due for completion by the end of September. It will see the upgrade of Fibre Pair 2 (South Africa-Nigeria-Portugal), Fibre Pair 3 (South Africa-Angola-DRC-Côte d'Ivoire-Portugal), and Fibre Pair 4 (all landing stations). It will add eight 100G wavelengths to the 32 10G wavelengths that currently exist across the three Fibre Pairs.

At the Swakopmund landing station in Namibia, an additional four 100G wavelengths will be added on top of the existing eight 10G wavelengths.

Swakopmund is significant to WACS as it serves as a transiting station for landlocked countries such as Botswana, Zambia, Zimbabwe and Malawi.

Phase 2 will increase the capacity of the upgrading parties from 11 to 45 per cent of their total entitlement of the WACS system design capacity.

Because there has been significant uptake of the system's bandwidth, the WACS consortium says it had to put out a tender for the upgrade. At the end of last year, it appointed Huawei Marine Networks to carry out the work.

Government backs satellite broadband for businesses in South Africa

HYLAS 2 will deliver broadband to over 1,000 SMEs in South Africa including those in remote areas.

The Foundation for African Business and Consumer Services (FABCOS), and its new business incubator programme *Microtelco e-ncubator*, will use satellite capacity from Avanti to deliver broadband connectivity to enterprises in South Africa.

Supported by funding from the country's Department of Trade and Industry, the partners will provide high-speed broadband using Ka-band capacity from Avanti's *HYLAS 2* satellite to more than 1,000 SMEs. Avanti says the programme will be deployed extensively to businesses setting up in some of the remotest parts of South Africa, reaching a number of key sectors including retail, finance and agriculture.

It adds that the delivery of resilient broadband connectivity underpins the South African government's business growth strategy. Citing research from Abor and Quartey in 2010, Avanti says 91 per cent of firms in the country are SMEs, of which 52-57 per cent contribute to its GDP.

Microtelco e-ncubator is an enterprise initiative that offers a variety of programmes and services designed for new and expanding telecommunications businesses.

Alan Campbell, director of ICTGLOBE Technology Encubator and national treasurer general at FABCOS, says: "Our new contract with Avanti is enabling us to deliver resilient broadband at scale to our vast membership.

"Access to broadband has become as important as any other utility for businesses here to succeed. Indeed, it is an integral part of our incubation offering to our members."

Avanti completes funding for HYLAS 4 – Wireless Business, p14

Globalstar now offers pan-continental coverage

Globalstar began working on the construction of its gateway in Gaborone last year, working in partnership with Broadband Botswana Internet.

Globalstar says it can now deliver its satellite-based simplex services across the entire continent, following the opening of its new regional gateway in Botswana. The firm began working on the construction of the gateway in Gaborone in partnership with Broadband Botswana Internet last year (*News, Sep-Oct 2014*).

In June 2015, Globalstar announced that the facility was now live, enabling it to deliver what it claims is "affordable" simplex coverage across Africa, including its *SPOT* portfolio of personal tracking devices. "We see this region as a significant growth opportunity for our low-cost satellite solutions," says Globalstar CEO Jay Monroe. "For the first time, people and industries in this burgeoning region will have access to affordable satellite solutions for personal and asset tracking."

The company says it operates the only complete next-generation satellite constellation in orbit, enabling professional, corporate and government users to take advantage of the capabilities of M2M and the emerging Internet of Things.

According to the firm, Africa-based enterprise, government and consumer users can now take advantage of its new simplex services. These include remote workers who can use its M2M-based *SmartOne* products to monitor machines, or the *SPOT* personal GPS devices for personal safety.

AfDB expands its MPLS network with Hughes

Hughes Network Systems is expanding the MPLS services it provides to the African Development Bank (AfDB).

AfDB has used Hughes' managed services since 2008, and has a primary communications network of broadband satellite terminals installed at 32 of its field offices throughout Africa.

Under a new three-year contract signed in 2013, these managed services were expanded to include MPLS circuits connecting four AfDB sites to its group headquarters in Abidjan via a teleport in Germany.

As part of this contract, Hughes will now further expand MPLS connectivity to an additional seven sites including regional resource centres and key field offices. The network will be used for major applications such as *SAP*, VoIP, video-conferencing and high-speed internet access.

AfDB had stringent requirements for its network, including: high availability; uniform SLA and QoS offerings; a single vendor to provide full turnkey managed services and ongoing system engineering, installation and field maintenance; and a round the clock, multilingual helpdesk.

Using satellite technology to connect banks in Africa – feature, pp18-20.

Porting blocked?

South Africa's Cell C says some rival MNOs are deliberately preventing subscribers from cancelling contracts early by charging them "excessive and unreasonable" penalties. While it doesn't name names, the firm says it's aware of certain instances where customers are being asked to pay full subscription fees for the remainder of their contracts, plus an additional termination charge. Cell C points out that the Consumer Protection Act clearly specifies that penalty charges cannot be an amount which would have the effect of "negating the consumers' right to cancel".

TN suffers vandalism

Telecom Namibia's infrastructure continues to be a target for thieves and vandals. Since August, the operator says 12 poles have been cut down and stolen from the Erongo fibre optic backbone route which links Swakopmund, Henties Bay, Uis, Omatjete, Khorixas, Kamanjab, Outjo, Omaruru, Karibib, Arandis, Usakos and Walvis Bay. The route is also used to transmit internet data to neighbouring countries. TN has called for increased police patrols in the area, and is also offering cash rewards of up to NAD20,000 for information that leads to the arrests and convictions of the perpetrators.

New hubs for Truphone

Truphone has added South Africa as one of five new emerging market business hubs. The UK-based firm – which describes itself as "the mobile network operator without country borders" – offers in-bundle plans across 66 countries. It says these provide multiple international numbers on a single SIM, enabling businesses to make international calls that are treated as local ones, and giving contacts a direct way to get in touch on a local number.

Uros adds Africa to mobile Wi-Fi roaming-free zone

Uros has added a dozen new countries to its *Goodspeed* mobile Wi-Fi hotspot service. The Finland-based company says it now covers the majority of the globe and has enhanced its presence in Africa in particular.

The announcement follows a recent partnership with Vodafone to increase *Goodspeed*'s footprint. The first stage of the deal has now been implemented in 12 new countries which include DRC, Ghana, Kenya, Lesotho, Mozambique, South Africa and Tanzania in Africa, as well as Albania, Malta, New Zealand, Romania and Turkey.

Uros claims its service offers "affordable mobile data, helping companies overcome their connectivity challenges". In the new African destinations and New Zealand, it says *Goodspeed* users can now consume up to 500MB of data a day for a flat rate of USD13.99. It adds that the service's fixed and affordable fees "guarantee" predictable mobile data costs, while a secure personal Wi-Fi connection also ensures company data is kept inside the business even when staff are on the go.

The *Goodspeed* hotspot (far left) can accommodate and switch automatically between ten SIM cards (left).

The service is enabled by the *Goodspeed* hotspot which has been designed to accommodate and switch automatically between ten SIM cards. The device and destination SIMs can be purchased from Goodspeed or its official distributors before travelling.

"By enhancing *Goodspeed*'s offering on such a large scale it is a huge acceleration in our campaign to put an end to mobile connectivity issues," says Uros CEO Tommi Uhari. "We can now offer our service in large parts of Africa which is the fastest growing mobile market in the world, and where roaming fees have been checkered."

MTN Swaziland offers mobile financial services with *Ericsson Converged Wallet*

MTN Swaziland is aiming to quickly introduce relevant, new and differentiated mobile financial services with the help of *Ericsson Converged Wallet*.

It's claimed more than 275,000 MTN Swaziland mobile wallet users and 3,000 agents will benefit from the new platform which serves as a mobile money hub connecting the cellco's operations in several countries.

As a hub solution, Ericsson says the reusability of products and services across regions improves time-to-market and operational efficiencies.

As well as enabling the fast launch of new services, the vendor says *Converged Wallet* will also provide cross-promotion capabilities for improved adoption. By making financial transactions, subscribers are now able to accumulate loyalty points toward MTN services, initiate loan requests and receive money from a range of access channels.

More than 275,000 mobile wallet users and 3,000 agents in Swaziland will benefit from MTN's new platform.

The new platform replaces MTN Swaziland's existing mobile wallet platform and integrates with the operator's charging system.

CEO Ambrose Dlamini says: "With our rollout of *Ericsson Converged Wallet*, we have enhanced the stability and security of our mobile financial services offering, while gaining the ability to deliver better mobile financial services offers and bundles as part of our pre-paid services."

Elitecore platform boosts Wi-Fi networks

Elitecore Technologies' service management platform is being used to support Wi-Fi networks across 10 countries in Africa.

According to the India-based vendor, its platform is enabling the unnamed telcos to extend their data services via a network of Wi-Fi hotspots that integrate with existing 3G mobile infrastructure.

It is being used by one "large telecom group" in Burkina Faso, Congo, DRC, Gabon, Ghana, Niger, Nigeria, Tanzania and Zambia, as well as another operator in Morocco.

Akshat Joshi, Elitecore's VP of Wi-Fi product management, says: "Elitecore's pre-integrated and modular platform seamlessly integrates with the operator's existing IT and network infrastructure resulting in a quick time to market, faster rollout of services, and hence better capex savings."

The Wi-Fi network has enabled the launch of bundled 3G and Wi-Fi plans, allowing all 3G subscribers to access higher throughput via Wi-Fi using their existing 3G balances. Those without smartphones can also access Wi-Fi via OTP-based authentication.

ASN claims subsea data transmission record

The record was achieved at Alcatel-Lucent Submarine Networks' testbed facility in Villarceaux, France.

Alcatel-Lucent Submarine Networks (ASN) claims to have set a new record for data transmission over a distance of 10,000km using real-time processing prototypes of its 300Gbps modulation technology.

ASN, the undersea cables subsidiary of Alcatel-Lucent, reckons its breakthrough will help optimise the performance of submarine cable systems that have already seen the costs of internet delivery and other telecom related services "slashed by almost half" in Africa.

The record was achieved during a simulation of a 10,000km network at ASN's lab-based test bed in France. It combined the 300G 8QAM technology of the firm's *1620 SOFTNODE* platform with its second-generation *Coherent Submarine Fibre 2* cable. According to Alcatel-Lucent, 8QAM technology can optimise both existing and new undersea systems, enabling operators to deliver more than 15Tbps per fibre pair on transoceanic systems – that's equivalent to 2.25 million HDTV channels streamed simultaneously, says the firm.

ASN adds that the timing of its technology "seems appropriate" for Africa as most countries are currently migrating their broadcast systems from analogue to digital.

Ericsson to manage LTE for Smile

In what's claimed to be the first 4G managed services deal in sub-Saharan Africa, Smile Communications has contracted Ericsson to handle all operations and maintenance for its LTE networks in Uganda, Nigeria, Tanzania, and later in the DRC.

Ericsson is the sole vendor for Smile's 4G networks. Under the five-year agreement, it will provide a fully managed end-to-end service that includes network operations, performance, optimisation, field support and maintenance.

Smile group COO Tom Allen says: "We regard Ericsson as more than a vendor. We are long-term partners focused on delivering on the Smile promise to be the broadband provider of choice in Africa and to ensure that our customers fully benefit from the internet world."

Ericsson adds that the partnership enables Smile to focus more on the core business of delivering products and services that cater to the needs of its subscribers, whilst at the same time improving operational efficiency.

South Africa leads global M2M rise

More than 35 per cent of businesses in South Africa have now implemented machine-to-machine projects, and a further 26 per cent are planning deployments in the next 12 months, according to Vodafone's recently published 2015 *M2M Barometer Report*.

In its third annual survey of the worldwide M2M sector, the operator found that more than a quarter of all companies are now using the technology, up from 12 per cent in 2013. South Africa's uptake is therefore higher than the global average.

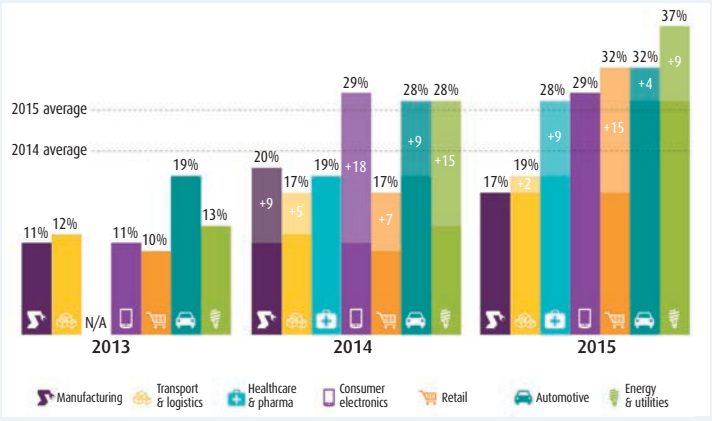
"The Internet of Things is transforming more businesses faster than ever before," says Tony Smallwood, executive head of M2M and vertical industries, Vodacom Business. "This is particularly true for South African businesses which are embracing M2M faster than our global counterparts."

The research findings suggest this is primarily driven by the opportunity M2M brings for innovation and the ability to automate processes.

For 69 per cent of South African businesses, Vodafone says the key factor prompting investments into M2M was the opportunity for innovation, while 73 per cent said they were using solutions for automating processes. Fifty-three per cent said they see M2M as an opportunity to make process and productivity improvements.

Worldwide, the fastest growth is in the retail sector which is up 88 per cent year-on-year. According to the barometer, typical M2M applications here include in-store digital signage, smart payment systems and supply chain optimisation. Smallwood says Vodafone's M2M platform is able to provide point-of-sale communication in 12 countries in Africa.

But he adds that while the retail sector has been reaping the benefits of the platform for some time now, the company is also seeing interest in M2M technology expanding into vertical areas such as water, asset management and security solutions.



Global adoption of M2M by industry 2013–2015: the energy and utilities sector leads, closely followed by automotive and retail. SOURCE: VODAFONE M2M BAROMETER 2015

Other growth sectors identified by the research include: healthcare (up 47 per cent) where M2M is used for applications such as remote patient monitoring and medical record systems; and utilities (up 32 per cent) which is driven by the global expansion of smart metering systems to enhance energy efficiency.

The automotive industry was an early adopter and continues to embed M2M as a core technology in new vehicles. The accelerated production of connected cars was a major contributor towards a 14 per cent year-on-year global increase in M2M adoption in the sector.

Vodafone's study was based on interviews with 659 business and IT executives around the world, and was carried out by Circle Research.

As well as South Africa, it surveyed respondents from: Australia, Brazil, Canada, China, Germany, India, Italy, Japan, Netherlands, New Zealand, South Korea, South Africa, Spain, UK and US. This year's barometer also included SMEs for the first time.

Convergence Partners ICT fund to drive broadband penetration

Convergence Partners has successfully closed its communication infrastructure fund (CIF). With capital of more than USD200 million, it's claimed it retains its position as the largest fund dedicated solely to ICT infrastructure in Africa.

The company says the CIF has a "strong pipeline", notably in West Africa where it is opening a local office in Nigeria. It anticipates that capital from the fund will be used to back portfolio investments to improve access to technology as well as communication and broadband services on the continent.

Convergence Partners CEO Brandon Doyle says the demand for services such as M2M and the Internet of Things is exploding across Africa, but points out that in order to realise this potential what's needed is reliable and ubiquitous broadband. "This forms part of [the] CIF's vision and our commitment to transforming the African ICT infrastructure landscape," he says.

Convergence Partners CEO Brandon Doyle says the fund will transform Africa's infrastructure landscape.

Investments that currently form part of the fund include wireless network deployment and solutions company Comsol, and FibreCo, a national longhaul network provider. Both firms are in South Africa. Synergy Communications (SynCom) is another beneficiary. This is an investment platform for enterprise and wholesale communication services providers which amalgamates fixed and wireless technologies across sub-Saharan Africa. SynCom is currently invested in two corporate ISPs – Skyband in Malawi and IS Mozambique.

The CIF reached its final close with capital commitments from the Public Investment Corporation which is a regionally focused fund of funds acting on behalf of the South African Government Employees Pension Fund. Additional investors include: Convergence Partners (as sponsors); the International Finance Corporation; European Investment Bank; Dutch Development Bank (FMO), Development Bank of Southern Africa; and the CDC Group.

African operators lead mobile money boom

The global market for mobile money transfer services is forecast to be worth USD4bn annually by 2018, according to data released by Juniper Research in June. It said that represents a 50 per cent rise from the USD2bn revenues they are expected to bring in this year, and that Africa is the leading market.

Juniper said that several of the continent's MNOs, such as MTN Uganda and Vodacom Tanzania, are now generating more than 10 per cent of their revenues from mobile money. It added that Safaricom's *M-PESA* service posted mobile money revenues of more than USD330m in the latest financial year, making it the "most successful" mobile or online money transfer service worldwide.

According to the researchers, recent surges in both transaction volumes and values are being driven by increased implementation of both cross-border and intra-national remittance interoperability.

For instance over the last few months, MTN has agreed to interconnect its mobile money services with Safaricom and Vodafone; Millicom's *Tigo Pesa* is now interoperable with Airtel, Vodacom and Zantel in Tanzania; and Airtel claimed a "landmark" last year when it signed a deal with MTN for cross-border remittances between Burkina Faso and Côte d'Ivoire.

Juniper's study also highlighted a shift in service provider requirements. It said most of them are now looking to implement applications in tandem with USSD/IVR mobile money solutions in anticipation of greater smartphone adoption.

But the analyst also warned that while inadequate regulation still constrained growth in a number of markets, low adoption or activity rates in many cases could be attributed to "poor decision making" by service providers.

For example, in Nigeria Juniper found a number of services had failed

to gain repeat usage because of the high cash-out fees, while savings accounts in other markets had withdrawal fees that were "inappropriate" for low-income users and savers.

"There are too many instances where service marketing is inappropriate or incorrectly targeted, where the message simply isn't reaching the desired audience," said study author Dr. Windsor Holden.

Avanti finalises funding for HYLAS 4

Avanti has completed financing for its forthcoming *HYLAS 4* satellite.

In line with a previously announced plan, the company has successfully placed USD125m in senior secured notes due 2019 under its existing indenture. They will be issued at a small discount to the current trading price of Avanti's existing notes and will have a coupon of 10 per cent.

At the same time, the firm has also issued 3,592,781 new ordinary shares as part of an equity capital raising that brings in around GBP7.2m (USD11.3m) net of expenses in order to satisfy demand from bond investors. The new ordinary shares will represent around 2.47 per cent of the firm's issued ordinary share capital.

Avanti says *HYLAS 4* remains on track for launch in early 2017 and will complete its coverage of EMEA. The majority of the satellite's capacity will serve high-growth markets in Africa. Chief executive David Williams claims the company now offers more high throughput satellite capacity to its telco customers on the continent than any other operator.

Airtel now ranks as the world's number three mobile operator

Airtel is now the world's third-largest mobile operator, according to the latest data published by the World Cellular Information Service (WCIS).

With 303.10 million customers across 20 countries in Africa and South Asia, the company has now moved up a position in WCIS' global rankings. China Mobile remains at the top with 626.27m subscribers, followed by the Vodafone Group which has 403.08m.

In its full year report for 2015, Airtel says its global networks carried more than 1.23 trillion voice minutes and over 333 petabytes of data. The company also claims to have the widest 3G and mobile commerce networks in Africa, and says it is the continent's largest operator in terms of a geographical footprint that currently covers 17 countries.

In 2010, the cellco purchased most of Zain's African operations in a USD10.7bn deal that was described at the time as the largest-ever telecoms purchase by an Indian firm. The acquisition instantly made Airtel one of the five largest mobile operators in the world *(News, Mar-Apr 2010)*.

Other operators in the WCIS top five include China Unicom which has 299.09m customers, and Latin American telco America Movil which has 274.14m.

Capitalising on disruptive tech in Tanzania

South African-based ICT services provider Business Connexion believes Tanzania is set for "tremendous" growth opportunities thanks to the emergence of disruptive technologies.

Citing data from the World Bank, the firm says the country's economy is set to grow by an estimated 7.2 per cent this year, and that the government's significant investment in national fibre optic cable is creating opportunities to leapfrog technologies.

Business Connexion has operated a subsidiary in Tanzania since 2000 and claims to have a strong focus on financial services, telecoms, energy and mining, and the public sector.

The firm warns that as customers become more connected, their demands change and organisations have to evolve or face being left behind by their competitors.

As an example, Business Connexion says that through the "creative" use of technology and a partnership with the UmojaSwitch Consortium, it provides access to a secure, shared payment infrastructure for 28 banks and 200 ATMs in Tanzania.

Group COO Jane Canny says: "The infrastructure is integrated with five payment switches within East Africa to allow for international transactions, three major mobile operators to enable mobile payments, and various government institutions to facilitate electronic payment collections."

She adds that as technology continues to evolve, so will the way in which customers interact with their service providers. For example, Canny believes that in the next five years, NFC will be used throughout Tanzania to enable mobile retail and bill payments.

Worldbox launches company database for Africa

Worldbox says it now offers complete identification company records for Rwanda, Tanzania, Mauritius, Uganda and Madagascar, with extended business data for 25 other African countries.

The global business intelligence specialist claims its database currently contains the complete identifications of registered companies across 56 per cent of the continent's countries, and is continuing to grow each month.

Worldbox began developing an online database of African companies in 2009, and says that since then there has been intense interest in emerging markets from international investors. This has led to a boom in the numbers of domestic firms setting themselves up to service these investors.

The Worldbox Africa Business Records Database aims to list and offer information on all of these domestic businesses, as well as the international businesses they work with.

NEW APPOINTMENTS

Date	Name	New employer	New position	Previous employer	Previous position
16/6/15	Bret Griess	CSG International	President	CSG International	EVP & COO
22/6/15	Karen Schmidt	Intelsat	VP marketing	Comcast	VP of business marketing
1/7/15	Alexander Matuschka	VimpelCom	Group chief performance officer	Nokia Networks	Chief transformation officer
6/7/15	Ahmad Farroukh	–	–	MTN South Africa	CEO – resigned
13/7/15	Mteto Nyati	MTN South Africa	CEO	MTN Group	Chief enterprise officer
15/7/15	Kash Pandya	Helios Towers Africa	CEO & director	Aggreko International	MD
15/7/15	Chuck Green	Helios Towers Africa	Executive chairman	Helios Towers Africa	CEO
15/7/15	Jos Baart	Flexenclosure	VP of sales & marketing	Flexenclosure	Sales director
20/7/15	Jonathan McKay	CBNL	Chairman	Ubiquisys	Chairman
23/7/15	Abdelkrim Benamar	Astellia	COO & executive committee member	Alcatel-Lucent	VP EMEA
28/7/15	Nitin Madhavan	Neural Technologies	Sales executive for India & Africa	Connectiva Analytics & Insights	Sales
31/7/15	Bart Morselt	VimpelCom	Group head of investor relations	Swisscom	Head of investor relations
11/8/15	Jeremy Povey	Dialogue Group	CFO	Capita Integrated Business Solutions	Finance consultant (interim)
17/8/15	Judd Cain	Tait Communications	Regional manager for EMEA & UK	Tait Communications	Head of global services
24/8/15	Mats Granryd	GSMA	Director general (as from Jan 2016)	Tele2 Group	President & CEO

IN BRIEF...

Vodacom has finally won approval from South Africa's competition commission for its acquisition of Neotel. Vodacom first began talks to acquire Tata-owed ISP Neotel for around USD550m two years ago *(see Wireless Business, Sep-Oct 2013)*. Antitrust regulators have approved the deal on the proviso that Vodacom safeguards all jobs and promises to invest ZAR10bn (USD821m) in Neotel by 2020. The deal now goes up before a competition tribunal.

MTN has abandoned its proposed partnership with South Africa's incumbent telco Telkom following a rejection by the Competition Commission. According to reports, Telkom wanted to extend an existing roaming agreement with MTN to include bilateral roaming and the outsourcing of its mobile network. MTN would have also purchased infrastructure from Telkom, and have access to its spectrum for the rollout of a 4G network.

NEC Europe has invested in sub-Saharan ICT group XON. The two organisations will combine their local sales expertise to accelerate growth in the telecoms, government, enterprise and energy sectors. Eugene Le Roux, NEC Africa president and MD, says: "Benefits of the deal include the reinforcement of our South African B-BBEE credentials to level 3, and our customers in the region gaining use of XON's network and security operations centres. There is also a wider regional synergy around sharing IP and security competencies across Europe, Middle East, Africa and Russia."

Microsoft reportedly plans to write off the USD7.4bn it paid to Nokia for its mobile phone business in 2013 and cut 7,800 jobs. According to sources, Microsoft CEO Satya Nadella wrote to employees and told them the company is refocusing its effort in mobile phones. *Bloomberg* said Microsoft still plans to release new handsets, but only at a rate of one or two devices per year.

Small cell specialist ip.access has received investment from Zouk Capital. The undisclosed amount will be used to fund the firm's business growth and to accelerate development of its next generation 2G/3G/4G multi-mode small cell products. Malcolm Gordon has been appointed as ip.access' CEO. Gordon was most recently COO of IPWireless and CEO of General Dynamics Broadband. Samer Salty and Andrew Whiting of Zouk Capital will also join the board and support the management team in taking the company to the next level.

LATEST COMPANY RESULTS

Date	Company	Country	Period	Currency	Sales (m)	EBITDA (m)	EPS (units)	Notes
30/6/15	Eutelsat	France	FY 14-15	EUR	1,476.4	1,131.7	1,590	Total revenues are up 4.0% YoY. Targets revenue growth of 2-3% for FY 15-16, & will continue to focus its investment policy on high growth markets in Africa, Latin America, Middle East, Asia-Pacific & Russia.
17/7/15	Ericsson	Sweden	2Q15	SEK	60,671	20,135	0.64	41% rise YoY in sales across all divisions in sub-Sahara Africa is in contrast to a weak 1H14. The firm says regional increase is driven by strong data growth as well as positive development of managed services.
21/7/15	Millicom International	Luxembourg	2Q15	USD	1.7 (bn)	561	0.05	African revenue grew to $240m, a QoQ organic growth rate of 15.3%. EBITDA was $52m, a YoY fall of 17.5%, mainly because of difficult trading conditions in Chad & adverse currency movement, particularly in Tanzania.
24/7/15	SES	Luxembourg	1H15	EUR	999.1	740	0.68	Revenues & EBITDA up 6.4 & 6.7% respectively. O3b Networks, in which SES has a 45% interest, has made a productive start to its first full year of commercial operations. Of around 40 committed clients, 25 are now live on the system.
28/7/15	Orange Group	France	1H15	EUR	19.557 (bn)	5.807 (bn)	0.2	4.5 million net additions to mobile customer base in MEA. Began talks in July with Airtel to acquire its operations in Burkina Faso, Chad, Congo Brazzaville & Sierra Leone.
5/8/15	MTN Group	South Africa	1H15	ZAR	69,210	30,274	4.8	Group revenues down 4.9% but subscribers up 3.4% to reach 231m. Difficult regulatory environment & weak macro-economic conditions continue to impact overall performance.
12/8/15	Gilat Satellite Networks	Israel	2Q15	USD	44.3	(2.5)	0.21	EBITDA for 2Q15 was a loss of $2.5m compared with an income of $3.9m in 2Q14. Interim CEO Dov Baharav blamed weaker performances in defence sector & Colombian market.

INVESTMENTS, MERGERS & ACQUISITIONS

Date	Buyer	Seller	Item	Price	Notes
23/6/15	Redknee	Orga Systems	Company	EUR38m	In an all cash deal, Redknee says Orga's technology & expertise will enhance its real-time monetisation & subscriber management platform for communication service providers & the Internet of Things.
1/7/15	Public Investment Corporation	South African Government	Vodacom stake	USD2.3bn	The government had been considering selling its 14% stake for some time as part of plans to raise funding for ailing state power firm Eskom Holdings.
28/7/15	SpeedCast International	SAIT Communications	Company	NA	SAIT Communications specialises in providing L-band satellite services in the southern European maritime market, particularly Greece & Cyprus.
28/7/15	–	IBM	Education training	USD60m	IBM will fund training initiatives over three years in Africa to develop stronger regional capabilities in cloud services, Big Data & analytics.
13/8/15	Keysight Technologies	Anite	Company	USD600m	Keysight says the acquisition strengthens its wireless portfolio & helps expand its software offerings as it transitions to a software-oriented solutions company.

Outdoor bridge system can extend Wi-Fi connectivity to more than 20km away

Ruckus Wireless claims its *ZoneFlex P300* is the industry's first long-range outdoor Wi-Fi bridging system.

Supporting RF capacity up to 867Mbps, each bridge has a specially designed 5GHz, dual-polarised directional antenna system that provides up to 14dBi of gain. There are also external antenna connections to increase effective distance.

It's claimed the system offers hundreds of megabits of performance at line-of-sight distances up to 8km via the internal antennas, and over 20km using external antennas.

According to Ruckus, by combining the signals received across two distinct polarisations (vertical and horizontal), and across high-gain directional antenna elements, *P300* bridges can maximise the received S/N ratio, resulting in more reliable connectivity and the highest-possible performance between two or more points.

The system can provide 30° of coverage from one root bridge with internal antennas to handle many receiving bridges, or 360° of coverage with external antennas. In addition, it features a dedicated sniffer radio for radar avoidance pre-scan.

Measuring 18 x 15 x 8.6 cms and weighing 2.5kg, each bridge can be wall- or pole-mounted. Ruckus says automatic pairing and precision alignment via LED-based aiming software between bridges provides easy installation. Root bridges can support up to 10 node links, and multiple networks can be segmented by VLANs. Each bridge is secured using AES encryption.

MANUFACTURER: Ruckus Wireless

PRODUCT: ZoneFlex P300

MORE INFORMATION: www.ruckuswireless.com

Easier microwave links with upgraded design tool

With *iQ.linkXG v9.5*, Comsearch believes it's created the first microwave link design tool tailored for small cell backhaul, where non-line-of-sight (NLOS) conditions often apply. The upgraded version is also said to make it much easier to configure microwave links powered by adaptive modulation radios.

According to Comsearch, small cell planning can involve both LOS and NLOS paths, the latter of which presents a special challenge to designing networks where signal loss predictions are critical.

The firm says it has developed unique and proprietary models that look at the true obstruction environment along a path to better calculate losses. It says these models have been validated with a major radio vendor using existing network designs and integrated into the latest version of *iQ.linkXG*.

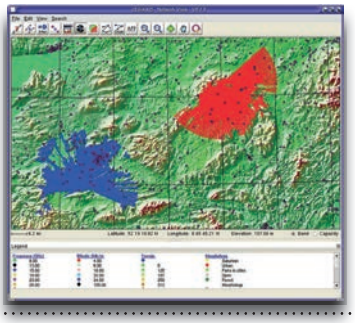
In addition, Comsearch says the use of adaptive modulation radios has made it difficult for link designers to quickly engineer microwave paths. It says power, fade margins and predicted performance must be evaluated for all the modulations configured for a path, not just one.

In order to simplify the design of microwave links with such complex radios, Comsearch has come up with what it describes as a "highly intuitive" GUI that takes guesswork out of the equation. It reckons engineers can now easily configure power levels for their radios by using the simplified interface, and instantly see the impact on path performance.

MANUFACTURER: Comsearch

PRODUCT: iQ.linkXG v9.5

MORE INFORMATION: www.comsearch.com



Advantech ups the power on latest generation BUC

Advantech Wireless says its second generation *Super Compact TT Series C-band BUC SSPA/SSPB* offers a 60 per cent RF power increase, while reducing energy consumption by 30 per cent.

In terms of linear power, it's claimed the 300W unit is the equivalent of a previous 500W SSPA, and of a 750W TWT. The new version is also 45 per cent lighter and smaller than its 200W predecessor. Advantech says the new units are specifically designed for maritime applications where bandwidth demand has increased exponentially, and where the high temperature in the radome is always a challenge.

It adds that improved GaN reliability and the smaller form factor enable "perfect integration" into ship stabilised antennas for better balancing, and where heat generation has to be reduced to the minimum.

MANUFACTURER: Advantech Wireless

PRODUCT: TT Series BUC

MORE INFORMATION: www.advantechwireless.com

Wireless networks 10,000 times more energy efficient

GreenTouch has revealed new tools, technologies and architectures which it claims can improve energy efficiencies of mobile networks by more than 10,000 times.

Two tools are now publicly available. *GWATT* is a web-based interactive application that provides a complete view into the entire GreenTouch portfolio of technologies and their end-to-end energy impact.

Flexible Power is said to be an advanced power model and software tool that provides realistic power consumption values for a variety of current and future cellular base station types, configurations and scenarios.

GreenTouch consortium members have also demonstrated technologies which include a number of previously unannounced innovations. For example, *BCG2* architecture uses densely deployed small cells with intelligent sleep modes, and completely separates the signalling and data functions in a cell network.

MANUFACTURER: GreenTouch

PRODUCT: Various

MORE INFORMATION: www.greentouch.org

Traffic Steering Manager boosts network capacity

Nokia Networks reckons it has solved the complexities of coordinating the dozens of load balancing and traffic steering features available in mobile broadband networks.

MANUFACTURER: Nokia Networks

PRODUCT: Traffic Steering Manager

MORE INFORMATION: www.nokia.com

The firm says its *Traffic Steering Manager (TSM)* is the first all-inclusive solution to automatically direct traffic to the most effective radio network layer. This ensures more efficient use of existing infrastructure, and its claimed cellcos can effectively increase network capacity by 10 per cent.

The centralised system is said to combine all radio technologies, including Wi-Fi, macro and small cells, as well as the core network to dynamically orchestrate network capacity utilisation. Nokia says it coordinates a multitude of load balancing and traffic steering functions in networks to use all the capacity available in multi-technology, multi-layer and multi-vendor hetnets.

Traffic is steered according to network conditions. Other criteria, such as device capabilities and SLAs, can also be taken into account when planning efficient service delivery and network utilisation

Nokia adds that if capacity limits are reached, the value-based traffic steering enabled by the *TSM* ensures that the network is used according to business priorities.

Flex accelerates in-flight broadband connectivity

Intelsat has introduced a new service for the commercial air transport market. *IntelsatOne Flex* is described as an enterprise grade, customisable, 'wholesale Mbps' managed mobility service. It enables Intelsat's distributors and their aeronautical customers to access bandwidth when and where it is needed the most, without the complexity of managing multiple beams and satellites.

MANUFACTURER: Intelsat

PRODUCT: IntelsatOne Flex

MORE INFORMATION: www.intelsat.com

The service aggregates Intelsat's global satellite fleet and terrestrial network into a simplified ecosystem.

The company says it will enable its partners to maintain control over their network by allowing them to continue to manage the customisation, contention and prioritisation of individual airborne terminals without the overhead of multiple network builds and inefficient use of bandwidth.

IntelsatOne Flex enables users to leverage wide beams for broadcast applications to the plane and spot beams for high throughput data. They can also customise QoS for 'wholesale Mbps' procured on a region-by-region basis to provide access to pre-defined zones.

Intelsat says this can be done with guaranteed SLAs and committed information rate (CIR) plans.

The new service can also streamline capacity management for geographic expansion and surge. Intelsat says it provides flexibility across multiple satellite beams, resulting in a more predictable cost structure directly matched to revenue generating activities.

iBuildNet offers vendor-free DAS solution

Ranplan has developed *iBuildNet DAS*, the latest addition to its range of vendor-independent software tools for indoor and outdoor wireless network planning, design and optimisation.

The software is billed as an "advanced" solution for designing and optimising networks that use distributed antenna systems (DAS). It supports multi-system technologies to deliver what's said to be a seamless network environment.

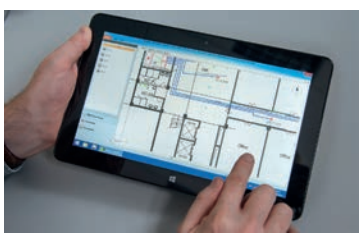
MANUFACTURER: Ranplan

PRODUCT: iBuildNet

MORE INFORMATION: www.ranplan.co.uk

Ranplan says the tool significantly reduces the time it takes to plan and deploy complex DAS systems. It claims *iBuildNet DAS* uses advanced 3D modelling, fast and accurate 3D ray-tracing, and powerful analytics to optimise antenna location type, power, and channel assignment.

iBuildNet DAS can also be used with Ranplan's *iBuildNet Tablet*



Planner (pictured). The company says this is an automated on-site tool designed to enable installers to quote, plan, deploy and optimise a network to deliver maximum coverage and QoE in the shortest possible time, and at the lowest possible cost.

ALSO LOOK OUT FOR

CRT optimises use of scarce spectrum

Cognitive radio technology (CRT) developed under the EU-funded *QOSMOS* project could help to meet the future challenges of using limited spectrum resources for increasing data demand.

CRT dynamically optimises radio spectrum use by accessing under-utilised portions and sharing it across devices.

Michael Fitch of British Telecom, which coordinated QOSMOS, says the idea is to break down silos: "Every new service and technology needs a new spectrum, and silos are formed when there are umpteen different devices that use umpteen different parts of the spectrum."

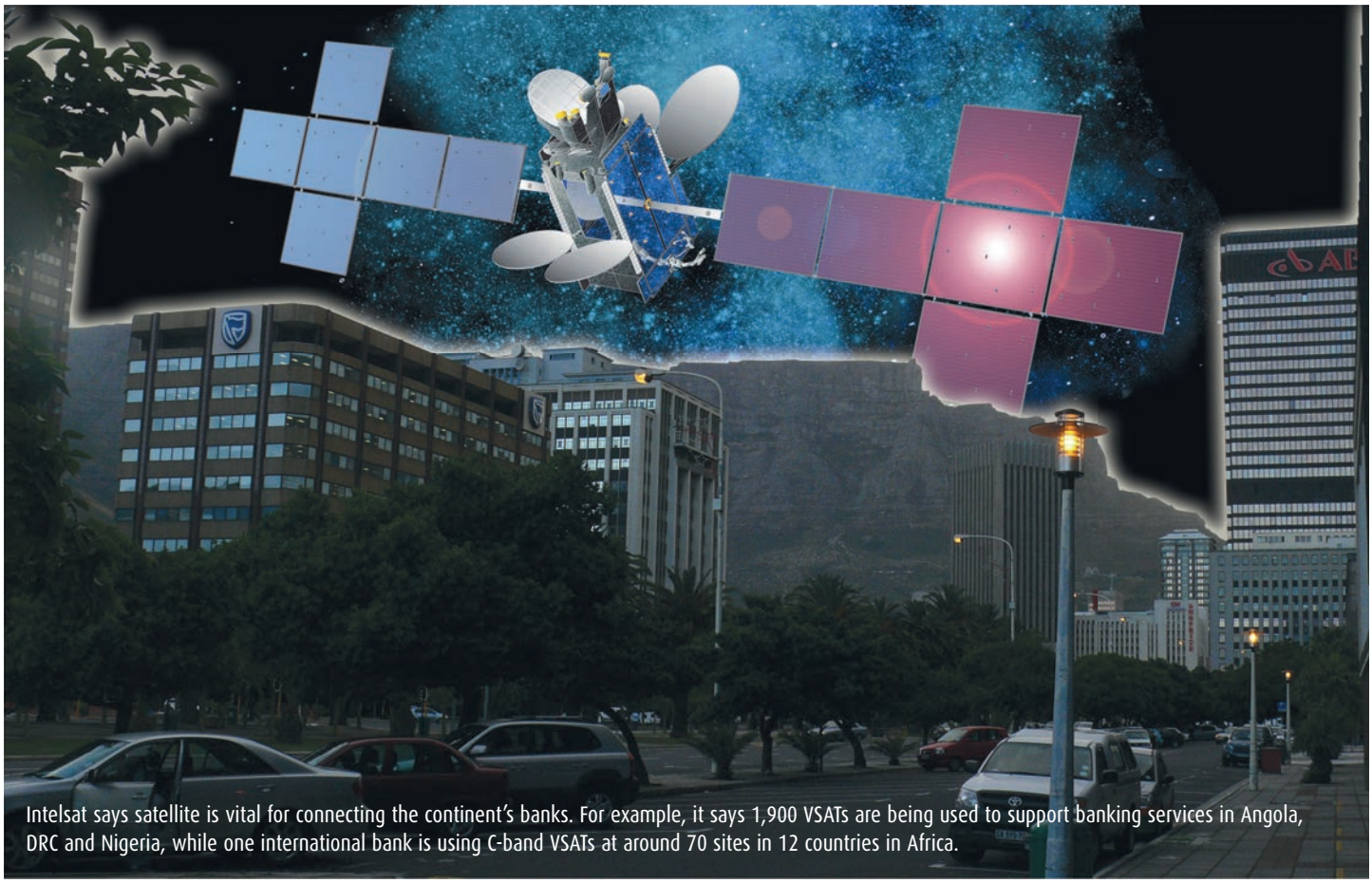
Project partners developed three technologies: a central manager that controls the spectrum 'portfolio' in real-time for a region or country; a resource manager that allocates the spectrum to individual systems and senses the environment; and a cognitive radio terminal.

They also developed a prototype transceiver to generate filter bank multi-carrier transmission (FBMC) waveforms. With FBMC transmission, spectrum is carved out in rectangular blocks so that it is tightly packed for more efficient use. The technology is expected to replace OFDM which is more commonly used today.

Members of the QOSMOS consortium also conducted a value chain analysis and developed business use cases that compared the costs of accessing under-utilised spectrum against that of buying new spectrum.

They identified the areas where CRT could be commercialised. For example, existing owners of spectrum could rent out their assets for short periods of time, while network managers could offer premium spectrum management services.

As a result, QOSMOS members believe an entirely new market in micro-trading spectrum could develop over time.



Intelsat says satellite is vital for connecting the continent's banks. For example, it says 1,900 VSATs are being used to support banking services in Angola, DRC and Nigeria, while one international bank is using C-band VSATs at around 70 sites in 12 countries in Africa.

Satcoms rising at African banks

While satellite technology has always had a unique place in connecting the oil and gas sector, Africa's banks are also cashing in on the technology, as RAHIEL NASIR finds out.

Reliability: it's the one word that repeatedly comes up when you ask why companies in Africa's banking and oil and gas sectors should use satellite for their connectivity needs.

UK-based Hermes Datacomms, which was acquired by SpeedCast earlier this year, specialises in providing wide area VSAT communications for the energy industry, and claims to cover 92 per cent of the world's oil and gas reserves zones. Its CEO Giles Middleton says reliable communications are vital for oil and gas exploration and production.

"Modern ways of working mean that a geologist in Houston can be providing input to real-time decision-making on drilling offshore Luanda, and stringent health and safety rules will mandate shutdowns if comms are not reliable. A drilling campaign can cost several million dollars per day, which can be imperilled if the communications aren't right."

While satcom is often the obvious choice in the energy sector where oil and gas companies have remote outposts, why should Africa's banking sector use the technology?

Onlime offers enterprise solutions in Africa and the Middle East through the combination of CET Teleport in Germany and the developing world experience of the Limeline Group. Onlime CEO Paul Ziegler says Africa's banks are currently

facing similar challenges to the energy and mining sectors in expanding their reach.

"They need to move out from the major cities and more into the rural areas which have, particularly in Africa, limited to virtually no connectivity at all. From our side as a service provider that's where we see the opportunity to provide them with satellite-based services.

"What we have seen in the past 18 to 24 months is a stronger demand whereby some of the larger banks are starting to move out of their home territory. For example, some of the Nigerian banks are starting to move out to some other West African countries. In doing so, they are moving into the larger cities to start off with and then going to the towns, and after that going further out and expanding their footprint."

Rhys Morgan, Intelsat's interim MD of Africa sales, agrees. As in every region of the world today, he says that the current trend in Africa's banking and energy sectors is for more connectivity in more places. "For banks throughout Africa this trend is manifesting in applications such as video conferencing with remote branches, customer applications such as mobile ATMs that bring services to communities, as well as a move toward online transactions.

"Satellite brings connectivity to remote sites where other technologies cannot reach, and also provides the best solution to meet businesses' growing need for real-time data."

Spacecom, the operator of the AMOS satellite fleet, supports this view. The company's SVP of West Africa Amir Carmeli says the banking industry's stringent security requirements ensure that branches, ATMs and credit facilities are fully connected and secure round the clock. He believes that due to distances and geographic challenges, this can only be done via satellite.

"The banking sector's focus on the transfer of data is conducted primarily on their VPN infrastructures. While they also have external internet connections for outside data, and employees that use the internet for gathering information and conducting outside business, a bank's VPN performance requirements is the most important element of its consumer and enterprise businesses. Because VPNs are naturally more secure than regular internet (via fibre lines, ADSL or other means), satellite is the answer."

But is that still true given the advancements in cellular, microwave and mission-critical PMR technologies, as well as the advent of fibre in Africa?

Like his peers, ABS' Africa MD Flavien Bachabi agrees that the number one factor for banks is reliability. But he adds that with satellite they can have more than 99 per cent availability while with other systems, particularly fibre, it's around 95 per cent.

"This is not inherent to fibre – it's just the way people lay down the cable in the ground. Usually the roads in African countries are not stable in terms of their design. Today, you can have a single carriageway road and tomorrow it can become a two lane road and you will find cable in the middle.


Flavien Bachabi, MD, Africa, ABS

"Satellite is the only technology where you can start with a small link and upgrade over time without having to replace the whole equipment."

Or they will cut the cable just to widen the road or sometimes just to extend a building. Because of that, fibre is not reliable for a banking system."

Bachabi is also critical of microwave because it relies on towers every 35km or so, and lacks reliability: "If one tower goes down, that's it for the link."

He continues by saying the second reason why banks are looking at satellite is flexibility. "Satellite is the only technology where you can start with a small link and upgrade over time without having to replace the whole equipment. So you start with a satellite router, let's say 512 kilobytes, and upgrade to two meg depending on how your traffic grows.

"Furthermore, you can easily move your antenna if you move your bank agency. Banks do that often. They rent a building to set up their operations and then they build their own building. So when they do that, all they have to do is just move their old antenna. With other systems it's more complex for them. We speak to banks like Ecobank and Nedbank, for example, and if they move their branch they can re-connect it on the same day."

He adds that from a the perspective of physical security, it is also safer for banks and energy companies to use satellite because criminals or insurgents will need to have access to an organisation's premises and damage the antenna if they want to take down its comms link. "With fibre you can just cut the cable somewhere and then they will be out of communication."

Pricing and spectrum

So given satellite's strengths in terms of its reliability and unique abilities to connect remote outposts, why isn't the technology the default option for the banking sector?

Bandwidth costs are usually regarded as the number one obstacle. Bachabi says: "Price is a challenge because all customers are price sensitive today. So we as a satellite operator have to make sure that we design satellites that can live longer and can amortise those satellites in a longer period."

As an example he talks about *ABS-3A* which was launched earlier this year and is one of the first satellites to use a more cost-effective electric propulsion system *(see Jan-Feb 2015)*. It recently completed all in-orbit test procedures successfully and went live on 1 September with an initial estimated operating life of 22 years.

Technological developments can help reduce satellite costs, and ABS is also working with ground infrastructure manufacturers like Comtech and Newtec to design high-efficiency modems as part of its efforts to bring connectivity prices down close to fibre.

Intelsat's Morgan adds that the introduction of next generation high throughput satellite (HTS) technology, such as the *Intelsat EpicNG* platform, will mean improvement in bandwidth efficiency and the potential to significantly reduce the cost per bit for customers.

The second challenge that Bachabi says needs to be addressed concerns frequencies. "In some countries, parts of the satellite C-band (such as 3.5GHz, for example) is allocated to other systems such as WiMAX. We ran into such a problem in Congo, but fortunately we were able to talk to the regulator and our channel partners were listened to."

Issues surrounding spectrum are not just confined to a national level. At WRC-15 later this year, the ITU is planning to discuss the possible re-allocation of C-band frequencies. Naturally, this is causing great concern in the satellite industry, and operators such as Intelsat are leading the campaign to protect the frequencies for space use. Morgan says: "C-band spectrum is an essential part of the banking and energy sectors, particularly in regions such as Africa where the terrain is difficult for terrestrial operators or where rain fade can affect the delivery of critical services."

He goes on to cite several significant use cases in Africa which include: an international bank that uses C-band VSAT in approximately 70 sites in 12 countries; 1,000 sites in Angola, DRC and Nigeria which enable connectivity for mining, oil and gas operations; and 1,900 C-band VSATs in those same countries that support banking services.

Morgan adds that there are also millions of small businesses that are catalysts for economic growth and employment who rely on the cost-effective and reliable broadband that satellite C-band provides.

"These are just a few examples where C-band service plays a daily role in improving the lives of millions in Africa. It is also critical for the delivery of many government services.

"With our global satellite fleet and *IntelsatOne* terrestrial network, Intelsat provides the capacity and solutions that enable carrier- and enterprise-grade services. We sell either wholesale connectivity or managed services, which our customers leverage in their infrastructure. For telcos and private network users, the ubiquitous reach of satellite capacity, integrated with operationally efficient hardware, can accelerate the expansion of broadband connectivity into remote and low-density regions."

Making the connection

Will other wireless/wired technologies ever displace satellite in the banking and energy sectors in Africa? Speak to anyone from the satcoms industry and you are very unlikely to hear that the future of enterprise connectivity lies totally in space.

For instance, Spacecom developed a satellite-cellular service in 2013 which it has now launched in Africa. Carmeli claims this hybrid solution is driving new business for AMOS. "Although it is primarily for internet access at the consumer level, we do see it being able to bring consumers closer to their banking representatives and assist energy workers to more easily contact their offices or homes."

He goes on to explain that the service is based on a satellite broadband downlink and GSM uplink, and enables a low-cost, entry-level setup. "A user sends a request to the cloud via a GSM modem and all the information is accessed from the satellite with a high throughput data link. This is a great solution for bringing affordable broadband internet to more users who require excellent service at a cost-effective price."

Having said that, Spacecom reckons nothing can touch satellite when it comes to servicing Africa's huge expanse and dealing with its geographic challenges. "It is a large continent with massive communication requirements and there is no other technology that can provide the service, price and geographic extent that satellite does. We do see some aspects of communications applications going towards fibre or other technologies, but nothing that will replace satellite," says Carmeli.

But others disagree here. For instance, Ziegler says Onlime is focused on providing business communication solutions which take into account hybrid solutions. "For us, it's about delivering solutions that include satellite, fibre, wireless technologies, etc., as potential components. We are open to what media should be used to deliver the right solution to the customer.

"There are pros and cons of each technology, but at the end of the day it's about identifying the right solution for the particular location that has to be served by the communication need the customer is looking for."

Bachabi echoes this view to a certain extent and views fibre as both a competitive and complementary technology to satellite. "To serve customers in some places you need hybrid solutions to make it cost effective. At ABS, we intensively use fibre and submarine cable because, for example, we have a teleport in Munich and have to connect to the Telehouse North data centre in the UK, or the internet backbone in New York."

He goes on to say that the fibre landing on African shores, or the terrestrial cable connectivity offered by the likes of Liquid Telecom, are actually working in ABS' favour.

"Some banks are asking us to give them satellite bandwidth on demand. They have Liquid Telecom providing them with fibre and they want satellite for backup. So to offer enterprise users a cost-effective solution, it has to be hybrid."

For Hermes Datacomms, developing hybrid solutions was not a choice but a must. Middleton says that in order to ensure that no single point of failure threatens smooth operations for its oil and gas clients, the company had to evolve multiple redundant systems incorporating fibre, microwave and satellite.

"This is true throughout the oil [industry] and particularly so in Africa where communications can be challenging not just to remote well sites, but also to shore bases and even city offices. Any organisation is only as strong as its weakest link, so a fibre cut in downtown Luanda can do as much damage as an accident offshore."

He also points out that the challenges of the African environment go well beyond designing highly reliable technology. "Many countries operate restrictive visa regimes and also have challenging import regulations. This means that effective support of operations in those locations requires us to recruit and train local technicians, and to maintain warehouses locally with stocks of spares for rapid deployment and replacement units."

According to Middleton, having the right people on the ground with the right equipment is absolutely critical, and as a result SpeedCast has invested in locations such as Angola, Nigeria, Kenya and Mozambique. "Our teams with the right safety certifications, training, tools and spare parts are ready to travel within demanding time limits, which we back up with financial guarantees."

Too much satcoms?

Africa's banking and energy sectors are a part of the region's booming growth and will continue to spark greater economic activity. But are there too many satellite operators chasing too few clients in theses sectors on the continent?

Bachabi agrees that there are, and says this is because the rest of the world sees Africa as the next frontier. He also believes that operators are chasing banks not because they necessarily have huge capacity requirements, but because they are good, reliable customers who pay up. "We are expecting to see growth here, and in particular you see the deals between banks and mobile operators offering mobile financial services. Take Safaricom in Kenya as an example – as they sign deals with banks they ask for more capacity."

Carmeli concurs, adding that even with the advent of banking applications on digital networks, satellite will remain a strong part of the sector's backbone because the data packets sent by banks do not generate heavy bandwidth traffic.

However, one thing that worries Onlime's Ziegler is a possible threat to the satellite service provider's business: "On the one hand you've got your traditional operators, and on the other you've got people like us who are the service providers. We're seeing a good mix of service providers who are going out and pursuing the enterprise sector, and that's good for us in terms of competition which motivates us as a business. But one disturbing element is that you now get satellite operators who are also now trying to tap into that space where we as service providers are adding value to the supply chain. If a satellite operator goes direct to an end customer versus us who use their capacity, there are different conditions that can be played with."

Amir Carmeli, SVP West Africa, Spacecom

"We do see some aspects of communications applications going towards fibre or other technologies, but nothing that will replace satellite."

Ziegler's concerns are reminiscent of those expressed by some in the industry when big name infrastructure vendors such as Alcatel-Lucent, Ericsson, Huawei, Nokia, *et al*, began offering managed services to telcos. Smaller firms specialising in BSS, OSS, network management, etc., feared they would be put out of business by the move. But this has not turned out to be the case – in fact in some cases it has led to consolidation with the bigger fish swallowing the minnows who have done fairly well out of the deals.

No one would dispute that Africa is well suited to satellite technology and all agree that there's still plenty of room for it on the continent. Quoting data from Euroconsult, Intelsat estimates that satellite traffic demand in sub-Saharan Africa could jump from 38Gbps in 2014 to 193.2Gbps in 2024, with HTS capacity accounting for 115.1Gbps of that total by 2024.

"But it is not just about building high-throughput, high-performance satellites," says Morgan. "We are focused on the total cost to the customer of operating a satellite-based solution. Combining technological innovation with inherent advantages such as reach, ubiquity, reliability, point-to-multipoint economics, fast deployment and security, satellite will play a larger role in addressing the needs of multiple customer segments in Africa, including energy and financial services."

As Bachabi concludes, satellite won't be Africa's only means of connectivity: "But going forward, I definitely foresee that companies, be it banks or mining firms, must have these solutions. And satellite is the most cost-effective way to give solutions to those customers." ■

Going for growth in Africa

Africa is an exciting market for telecoms companies. While other continents worry about stagnation or decline, African telecommunications look primed for impressive growth. Economic, political and technological factors are becoming aligned across the region to provide a host of opportunities for those prepared to work hard for growth.

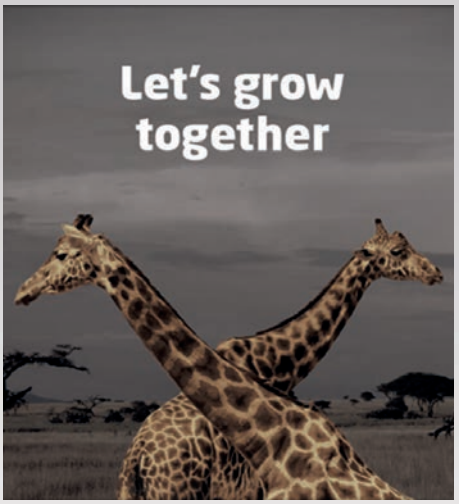
North Africa in particular, will continue to offer growth opportunities for those who are prepared to bring value to local telecoms markets. This requires international companies to develop a true partnership with African operators. A partnership that delivers business benefits for both parties.

At IDT, we've seen significant growth in Africa, driven by our large retail footprint and our relationships with operators enabling us to collaborate on strategic deals. Our approach is to develop both local and global relationships to deliver strategic partnerships. These partnerships aim to deliver mutual growth whether that growth is in minutes, revenue or margin and more usually in all three.

Voice has been the largest contributor of our growth as greater connectivity and market developments expand the international calling market. Greater connectivity has been driven by new technologies, improved "old" technologies and a more conducive regulatory environment. These have all helped to make it easier and cheaper to keep in touch with the ones you love, an essential human need.

We've seen rapid growth in areas such as international airtime top-up (IATU) as an inexpensive, easy and safe way for consumers to transfer value across borders and in doing so, generate new revenues for Africa operators. The African willingness to take on the threat posed by Over-the Top (OTT) operators has also meant that we've begun to see growth taking off for our white label mobile calling app and our new messaging propositions.

As with all our African activity, our product plans are very much driven by



insight and helping current and potential African partners meet the business challenges they are now and will be facing in the future. We know that the OTT operators present a potential threat to current African operators, so we'll continue to launch a series of services that will help them flourish – not just defend themselves. Our IDT Beyond Mobile App delivers an own branded Android/ iOS international calling app so African operators can increase traffic, customer loyalty and revenue that could otherwise be lost to competitors.

In our core market of voice, we'll continue to launch new initiatives to drive collaboration with mobile operators to gain revenue from voice traffic that they've traditionally lost to "grey routes". This means using our strong consumer brand, Boss Revolution, to help maximize corridors of traffic and using that increased traffic to offer better rates/ transit fees, which in turn can generate even more volumes. We've started working with some African mobile operators to offer promotions to our Boss Revolution customers, for example in the US and the UK. This doesn't just encourage diaspora communities to call more but also encourages them to tell their loved ones back "home" to use our partner's SIM.

We're also increasingly seeing demand for managed voice solutions, addressing grey market traffic and reducing costs through managed gateways.

Africa is powering ahead with its connectivity revolution. The connected continent of Africa will change many things in the voice market. End user demand for more and longer conversations will increase, creating more demand for high quality services. Improved connectivity will enable Africans to engage in voice conversations in a much more convenient way. We can expect to see more players entering many African voice markets. Anyone that has a connection to an end user, whether that is via an app, hardware or network, will have the capability to offer voice services. As both fibre and satellite technologies advance, voice and data networks will also converge as technologists realize they cannot ignore voice and its importance in generating revenue, customer satisfaction and sustainable profits.

IDT is determined to help our African partners grow. That growth will be of many forms: growth by tapping onto their large diaspora communities throughout the world; growth in their voice business by delivering better quality services to their customers; or growth in their revenue by quickly launching new services using IDT's proven platforms. As the American Business Man, James Cash Penney Jr said "Growth is never by mere chance; it is the result of forces working together." At IDT we're determined to work together with our African partners to ensure that growth isn't down to chance.

Alessandro Frigerio,
Director of Business Development
Voice Services, EMEA
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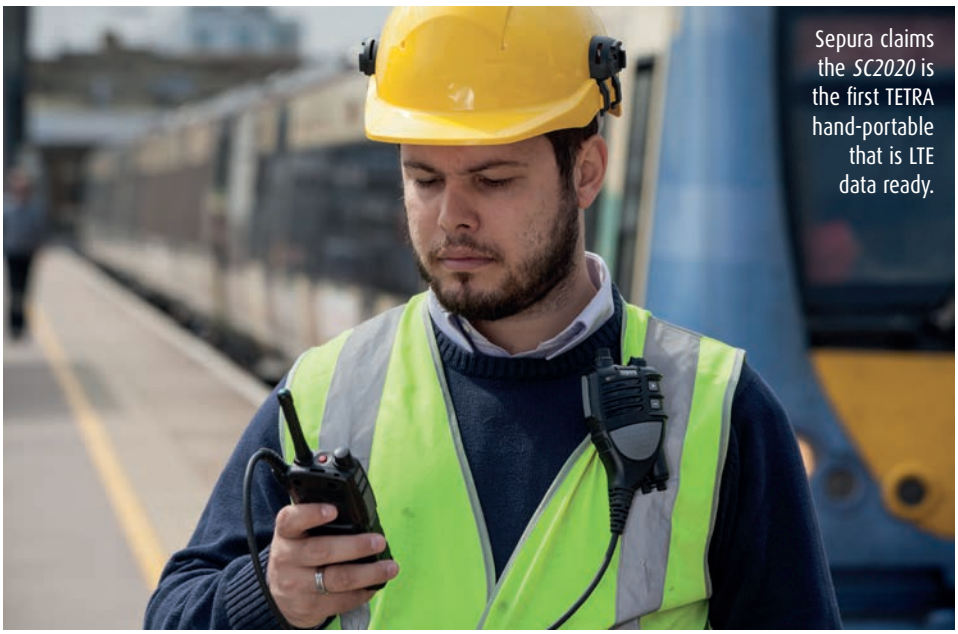
A fresh look at critical comms



Sepura claims the *SC2020* is the first TETRA hand-portable that is LTE data ready.

RAHIEL NASIR rounds up some of the latest products and solutions for professional mobile radio users.

The installed base of narrowband active radios in Africa and the Middle East is forecast to grow from around three million in 2014 to 3.4 million in 2019, according to research by IHS Technology. It says despite a high analogue installed base, digital narrowband technologies such as TETRA, P25 and cost optimised technologies (DMR, dPMR and PDT) are projected to achieve significant growth and will account for 65 per cent of the installed terminals base by 2019 *(also see African Wireless Communications Yearbook 2015, p107).*

Elizabeth Mead, senior analyst for critical communications at IHS, says that with half a million active radios installed at the end of 2014, cost optimised technologies represent the largest proportion of digital technologies in the region.

"IHS forecasts less economically developed countries will adopt cost optimised digital technologies for public safety use, rather than build out nationwide networks based on high-end standards," says Mead. "There is potential for an increase in DMR Tier III/dPMR Mode 3 networks in the region, and for PDT [Professional Digital Trunking] orientated solutions from Chinese companies, especially in Central Africa."

There has certainly been some evidence of one particular Chinese vendor growing its presence on the continent. Earlier this year, South African operator Altech Fleetcall announced it was upgrading its analogue radio trunking network using DMR systems from Hytera Communications *(see News, Jan-Feb 2015).* And in Nigeria, Briscoe Technologies is also working with the company on the upgrade of its TETRA network.

Hytera could claim that innovation is helping to give it the technical edge when it comes to winning new contracts in Africa and elsewhere. One of its recent products is the *XPT (Extended Pseudo Trunk).*

According to the firm, centralised trunking requires all activities to be coordinated via a dedicated control channel which may be difficult to obtain under some regulatory commissions. It claims the *XPT* solves this problem by using innovative distributed digital trunking technology.

XPT is designed to enable two-way radio users to use limited spectrum resources to double their channel capacity without using a dedicated control channel. Hytera says a single *XPT* system can support up to eight 12.5kHz repeaters at one site and provide up to 16 traffic channels, supporting up to 1,200 users. Each traffic channel can be customised to transmit voice or data.

The firm explains that the repeaters broadcast the system's status information in each frequency via a beacon signal which informs the radio of available channel resource. The radio can then switch to an available channel and slot to communicate.

At the end of last year, Hytera also unveiled the *DS-6500*, a complete DMR dispatcher solution in one chassis. It comprises a computer with a multi-channel sound card that is used as the platform for Hytera's *SmartDispatch* software. This is used to adapt the company's radios to the users' environment (frequencies, call numbers, etc.), and all standard functions are immediately available, such as voice communication, GPS-based services, short messages and system-wide voice recording.

The standard version of the *DS-6500* includes two Hytera radios. One *MD785* is also available upon request, and up to two additional *MD785*s can be connected to the rear of the chassis to expand capacity by up to eight time slots.

Critical Communication World (CCW) held in May in Barcelona saw a number of clever products unveiled from several manufacturers, including the *BS422* outdoor base station from Damm Cellular Systems. The Denmark-based specialist says this unique cross-technology solution offers TETRA, DMR Tier III, TEDS and analogue technologies in one integrated system.

Damm hopes the *BS422* could "potentially revolutionise" the way critical radio and broadband communication is deployed. It says the base station enables users to simply choose the technology to match their current needs and scale anytime – including migrating from analogue to digital – to meet changing voice and data demands with a simple click.

The unit uses *TetraFlex*, Damm's open and de-centralised architecture which it says is based on a "true" IP backbone making it easy to scale. "You can not only scale freely in coverage, but also in redundancy and number of carriers," states the firm.

The company adds that users could even "go hybrid" and combine multiple technologies into one integrated system. The *BS422* enables them to run, for example, one carrier in TETRA, the second in DMR, and a third in TEDS. It is also possible to use different technologies at different sites and combine them into one network with a single, centralised subscriber register.

Hytera' says its *XPT* doubles 2-way radio channel capacity without using a dedicated control channel.

Motorola Solutions' *LEX L10* uses a unique version of *Android* to enhance safety for frontline officers.

The *BS422* outdoor base station from Damm offers TETRA, DMR Tier III, TEDS and analogue technologies in a single integrated system.

Sepura's *ULTRA CSM* is an IP67 rated all-weather controller speaker microphone. It can withstand 180ºC and is said to be highly durable thanks to its polycarbonate casing – the same material used for riot shields.

LTE in critical comms

IHS says the demand for data in critical comms is increasing in a number of regions as more users expect more sophisticated and high-bandwidth applications on their networks. Mead says: "In the short- to mid-term, LMR technologies including TEDS and P25 overlay systems, will gain traction, with options potentially created to move to private LTE at a later stage. IHS projects that LTE will gain traction in some African nations in the mid-term."

Many of the big name critical comms vendors are hoping to capitalise here. For example at *CCW*, Motorola Solutions launched the *LEX L10* LTE handheld which supports multiple LTE bands as well as 3G UMTS bands and quad band GSM (2G).

The device uses Motorola's *WAVE Work Group Communications* system and is said to provide instant voice interoperability with any broadband device or LMR system. While its operating system is based on *Android*, Motorola is keen to point out that its capabilities go far beyond consumer-grade smartphones. The firm says the *LEX L10*'s 'public safety experience' (PSX) "uniquely transforms" *Android* to enhance safety and efficiency for front-line officers.

Manuel Torres, Motorola Solutions' SVP for Europe, Africa, Latin America and the Caribbean, says: "With the combination of the *LEX L10* and PSX, we can harness the power of broadband mobile data, smartly adapting and streamlining information so that officers receive only information that is relevant to them in a critical moment."

The company adds that a growing number of specialised apps are also available for the *LEX 10*. For example, users can gain access to dynamic resource mapping via Motorola's *Intelligent Data Portal*, take remote control of a two-way radio, securely stream real-time video for situational awareness, fly a drone, and more.

Sepura also had LTE in mind with its *SC2020*. The firm says the "smart" handheld combines TETRA's mission critical advanced performance with an optional second high-speed data network such as Wi-Fi or LTE. It is equipped with the vendor's new Class 3 TETRA engine as well as a new receiver that is said to "surpass" the ETSI specification.

Featuring a 2.4-inch QVGA display, Sepura also claims the *SC2020* offers the largest high-resolution screen on the market today. It says this is viewable in all light conditions, including direct sunlight, and enables easier deployment of existing and future applications via high-speed data.

The firm adds that the radio's 2W audio capability is enhanced by unique water-porting technology, and remains clear even in continuous heavy rain. It has an IP67 environmental protection rating which means it is completely dust-proof and submersible in water.

Tait Communications has developed a patented approach to bridging land mobile radio and LTE networks. It says its *UnifyVoice* system integrates and provides the benefits of push-to-talk (PTT) over cellular and LMR, giving office and field staff the ability to communicate via either technology as well as Wi-Fi to fill blackspots, extend capacity, and improve resiliency.

Tait partnered with PTT over cellular specialist SLA to power the client software for *UnifyVoice* using the *ESChat* SDK. It says the operational benefits of unifying critical comms start with providing access to real-time, accurate information to provide a number of advantages such as agency interoperability, simplified ICT, cost reductions, improved situational awareness, and more. ■

CREATING 'BUBBLES' OF LTE COVERAGE

Quortus has developed a field-ready 4G tactical cellular solution for public safety organisations. Combining an embedded 3GPP compliant EPC, the UK-based firm claims *ECX Tactical* operates with any LTE radio access technology.

The solution is based on Quortus' *EdgeCentrix* technology which implements core network functions in software that can be run anywhere in the network. In the case of *ECX Tactical*, the company says the core is embedded directly on an LTE radio system-on-chip from any of its partners, supporting x86, ARM and MIPS64 CPU architectures. It is tightly coupled with 4G or Wi-Fi for backhaul and cell-to-cell communication.

According to Quortus, this combination delivers the advanced features required in the tactical market, such as localised VoLTE calling, multicast/broadcast communication, ad-hoc node meshing, and traffic relaying between vehicle nodes.

The company reckons the small footprint of *ECX Tactical* makes it ideal for deployment in next-generation emergency service requirements in vehicles, unmanned drones, or even in a backpack.

"It allows the creation of 'bubbles' of 4G coverage, with each bubble able to move and 'mesh' with adjacent nodes, creating larger, resilient and sanitised private communications networks for key personnel, exactly where and when they are needed," states Quortus.

It adds that the system supports localised services such as command and control information, video surveillance, and access to local voice services or PBX features 'at the node'. This is said to include in-session continuity during user mobility to ensure integrity of sensitive user data.

The platform is designed so that nodes can be meshed or autonomous, and each one can effectively function as its own private 4G network, even in the absence of a backhaul connection.

In addition to special features provided for the tactical communications market, Quortus says *ECX Tactical* also makes use of many of the benefits of mainstream cellular technology, such as allowing first response teams to use standard handsets, and support for SMS.

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Reaping the dividend

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

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

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

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

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

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

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

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

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

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

Having said that, the continent became the first region to offer any kind of harmonisation plan after 47 sub-Saharan countries agreed to clear both 700MHz and 800MHz frequency bands for mobile telephony in 2013 *(see News, Sep-Oct 2013. Also see this month's news on p5)*.

Could white space fill the void?

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

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

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

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

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

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

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

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

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

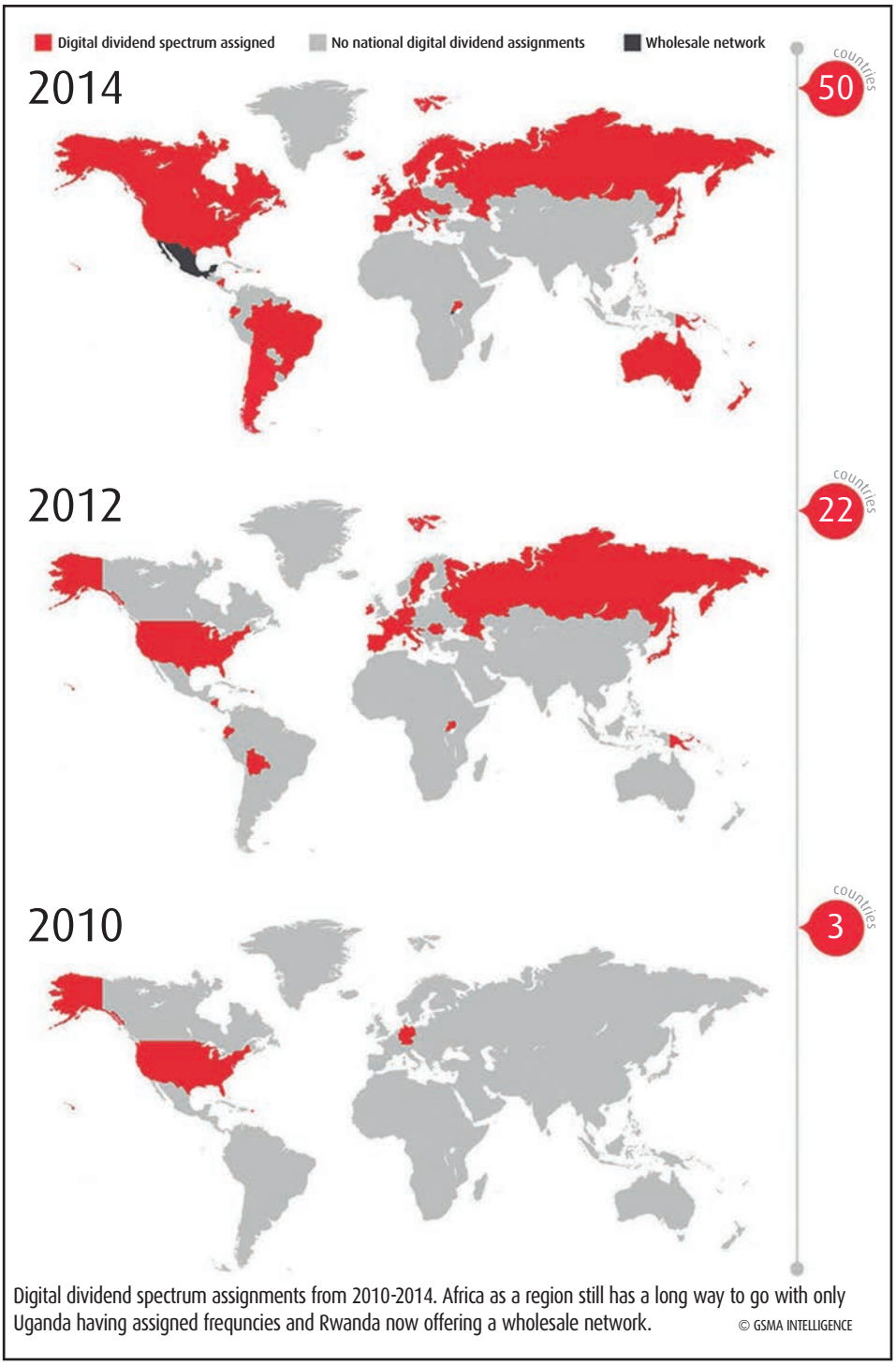
Despite the work Microsoft has been doing using TVWS, Steve Blythe, director for spectrum strategy at Orange, believes the technology has remained in the R&D phase for a number of years, and that there have so far not been any significant deployments.

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

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

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

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



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

Connection challenges

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

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

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

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

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

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

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

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

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

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

Slow progress on faster networks

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

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

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

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

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

THE OPERATOR'S VIEW

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

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

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

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

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

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

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

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

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

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

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

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

ICT and the fight against Ebola

Inveneo, the US-based non-profit social enterprise, has delivered 100 new high-speed internet connections in Sierra Leone and Liberia as part of the joint *Ebola Response Connectivity Initiative*.

ERCI aims to establish sustainable infrastructure for high-speed internet access in remote parts of the two countries. Inveneo says this plays a key role in preventing and/or mitigating future disease outbreaks while helping organisations respond more effectively to community needs.

Inveneo launched ERCI earlier this year in partnership with Facebook, the Paul G. Allen Family Foundation, Cisco, EveryLayer, and NetHope. It says it reached the milestone of 100 connections in less than five months.

Executive director Bruce Baikie adds that the commitment and close collaboration of all the partners was essential in the success of the rollout. "The true stars of this project were the field teams, which included staff from Inveneo and Damsel, [our] certified partner in Sierra Leone," he says.

"The field teams were just incredible, scaling rooftops and towers up to 175 feet high to install equipment underneath the blazing hot West African sun, six or more days a week in the realisation that every connection counts to help save a life and create a more resilient healthcare system."

As part the ERCI project, Inveneo is running a tower team climbing safety course at a training site in Freetown, Senegal. Here, delegates are shown how to rig for haul and rescue.

Gilat to power China's first Ka-band HTS network

Gilat Satellite Networks has teamed up with Space Star Technology Co (SSTC) to jointly provide the satcoms network for *Chinasat 16* (also known as *16 Zhongxing* or *ZX-16*), the first Ka-band, multi-spot-beam, high throughput satellite (HTS) in China.

Under what it describes as a "unique" partnership, Gilat will provide multiple network segments and VSAT terminals using its *SkyEdge II-c* technology. It says this will create a network enabling high-speed mobile and fixed services, including airborne, maritime, train and land mobility, to be delivered via satellite throughout the country.

Additionally, the firm says it will share its expertise and experience with SSTC to develop satellite-enabled applications to improve the quality of life for citizens in remote locations.

Chinasat 16 is being built by the China Academy of Space Technology and is due to be launched to 110.5ºE in 2017.

Dov Baharav, Gilat's interim CEO and chairman, says the agreement represents a "momentous opportunity" not just for his company but also for China. He adds: "China [will] be at the forefront of next-generation fixed and mobile satellite services, while providing consumers, businesses and government organisations across with valuable high-speed broadband services."

Gilat will deliver multiple network segments and VSAT terminals using its *SkyEdge II-c* platform.

TETRA swims to victory at the largest international aquatic sports event

Danish TETRA specialist DAMM provided secure and reliable communications during the recent FINA World Championships held in Kazan, Russia during July and August.

The company supplied various products and services including a 16-site *TetraFlex* system with an intelligent decentralised network design and full redundancy, as well as its built-in applications such as the *Dispatcher* and *Log Server*.

The TETRA system was integrated into the Emergency and Fast Response Centre, providing location data to the emergency dispatchers.

DAMM says the infrastructure was built using its "compact and rugged" IP65 encapsulated outdoor base station which provided coverage for more than 1,000 radios.

Users included event organisers, emergency responders, security, police, ambulance, press, the power distribution company, and others.

Said to be the largest international water sports event, the championships are organised by the Fédération Internationale de Natation (FINA), the world governing body for swimming, diving and water polo. This year's games brought together more than 2,400 athletes and 1,800 officials representing 190 nations.

DAMM adds that *TetraFlex* was used at the event as it had already proved itself in Kazan. The system was initially installed in the city for the 27th World University Summer Olympics in 2013.

© DAS BURO FOR TEAM DENMARK

Over 2,400 athletes, including Denmark's Jeanette Ottesen seen here, participated at the event which was covered by DAMM's *TetraFlex* system.

LG Uplus launches VoLTE roaming service

Syniverse has helped South Korea's LG Uplus launch the world's first commercial VoLTE roaming service featuring HD voice.

The new service will enable the operator's subscribers to roam on to KDDI's network in Japan, and will also allow LG Uplus to expand coverage to additional markets in the future.

Syniverse installed the VoLTE solution using its IPX network. The firm says this interconnects many of the world's networks to make LTE roaming possible, and claims it has nearly 800 LTE roaming routes reaching more than 200 operators in 44 countries.

LG Uplus' general manager Hong Jun Choi says: "Because LTE roaming is the pre-requisite to launch VoLTE, Syniverse's reach to nearly every operator that has launched LTE roaming enables us to achieve the critical reach and coverage our subscribers will demand."

According to Syniverse, the three key emerging VoLTE implementation models being implemented by operators include: VoLTE through S8 home routing; local breakout; and VoLTE interconnect.

LG Uplus' VoLTE service uses Syniverse's S8 home-routed platform. It's claimed this allows operators to rapidly deploy VoLTE by leveraging their existing LTE data roaming connections.

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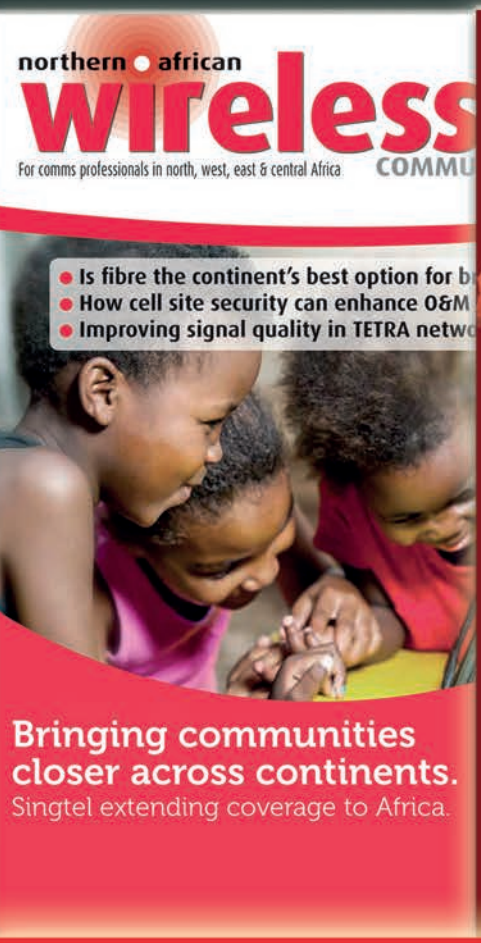

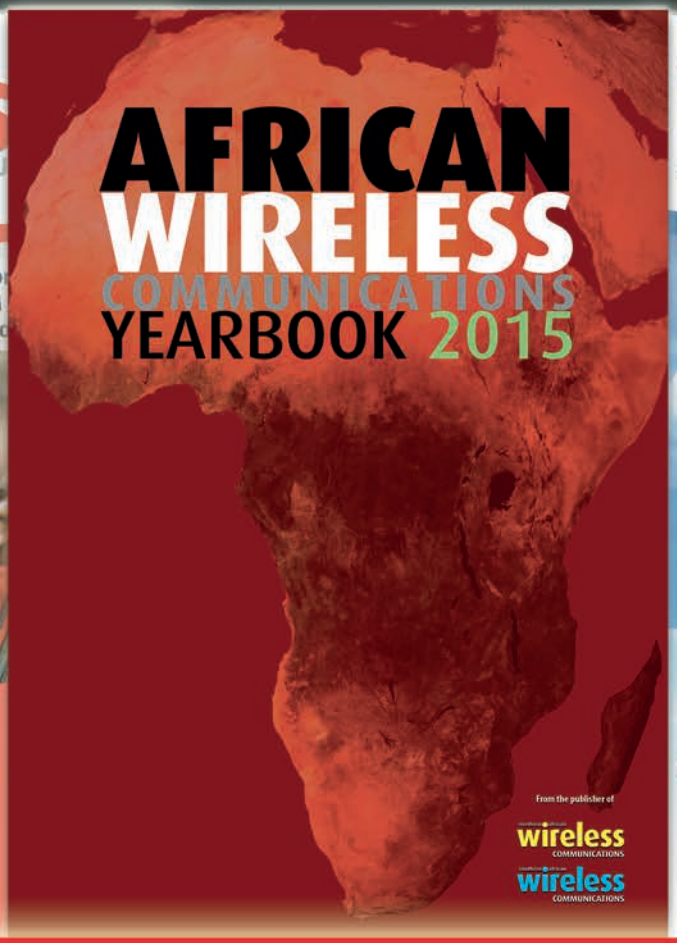

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"Unprecedented" images of the planet expected from new satellite

The European Space Agency (ESA) has begun its "most ambitious" Earth observation programme to date. Its *Copernicus* mission is based on a constellation of two identical satellites – *Sentinel-2A* was launched in June from the agency's spaceport in French Guiana, while *Sentinel 2B* is scheduled for mid-2016.

Once launched, both satellites will cover all land surfaces, large islands and coastal waters every five days, optimising global coverage and data delivery for numerous applications.

ESA says each satellite's payload includes an innovative high-resolution camera with 13 spectral bands for a new perspective of the planet's land and vegetation.

"The combination of high resolution, novel spectral capabilities, a field of vision covering 290km, and frequent revisit times will provide unprecedented views of Earth," says the agency.

Amongst its applications, *Copernicus* will provide information for agricultural practices, helping in the management of food security. Images of floods, volcanic eruptions and landslides will contribute to disaster mapping and help humanitarian relief efforts.

The *Sentinels* will also benefit from the ESA's European Data Relay System. This is creating a network for the continuous relay of low-orbit satellite information, and will enable data to be transmitted faster using laser links.

Sentinel-2A was launched in June via the ESA's spaceport in French Guiana.

Indosat and Smaato claim mobile advertising first

Indonesian operator Indosat and Smaato have teamed up to launch what's claimed to be the world's first digital exchange platform for mobile advertising with real-time bidding.

The Indonesia Mobile Exchange (IMX) provides local and global advertisers with a portal to connect directly with leading publishers in Indonesia and create more personal advertisements for consumers.

To achieve this, it links mobile usage behavioural patterns with existing information processing technology, creating what's described as a "powerful tool" to reach people consuming content on their mobiles.

Smaato is an independent global company specialising in mobile ad real-time bidding. It is said to have partnered with more than 80,000 mobile publishers around the world and is connected to more than 340 partners through its Smaato Exchange (SMX).

IMX will initially partner with the Indonesian Digital Association to reach mobile customers across the country. Indosat says the OTT platform will leverage a variety of mobile networks, including its own, working directly with content owners and providers through leading local publishers such as Kompas Gramedia and OkeZone.

IMX will be supported by Indosat's digital services unit, which also focuses on mobile commerce and mobile payment solutions. Indosat's existing mobile advertising offering, *i-klan*, which currently sits within the unit, will become part of the joint venture with Smaato.

GSM-R system upgrade for Europe's fastest railway

Spain's railway operator has awarded a EUR339m (USD377m) contract for the upgrade of the GSM-R system on its high-speed train networks. Under a 10-year deal, Administrador de Infraestructuras Ferroviarias' (Adif) will work with Nokia Networks, Siemens and Thales.

Nokia will provide its GSM-R core network for geo-redundancy and greater reliability. The firm will supply its *Subscriber Data Management, Network Directory Server*, HLR and *NetAct* management systems.

It will also maintain the comms system, including transport and radio networks, video surveillance, fixed telecoms, and remote power systems. In addition, Nokia will supply services for system integration, network operations and care, as well as remote management from its NOCs.

Siemens will be responsible for maintaining the energy SCADA system of the total network and fixed comms on the Madrid-Seville line. It will also upgrade the remote terminal units for the switchgear control.

Thales Spain will maintain and modernising the fixed comms and CCTV system on various parts of the high-speed rail network, including the link connecting Madrid, Barcelona and the French Border.

Adif has been offering high-speed rail services in Spain since 1992. The country is said to have the longest high-speed railway network in Europe, and the second-largest in the world after China.

Adif says its network now stretches more than 3,100km across Spain, with 300 high-speed trains running every day at an average speed of 222kph.

Bolivian Space Agency certifies Newtec modems

Agencia Boliviana Espacial (Bolivian Space Agency) says it's successfully conducted trials of transmitting more than 500Mbps using 120MHz Ka-band spectrum.

The tests used Newtec's *MDM6000* series modems. As well as being able to transmit up to 425Mbps bi-directionally, the vendor claims its modems operate at much lower rates as required for multi-carrier applications, and also offer support for different standards.

The demos showed how the firm's equipment can be used for applications such as mobile backhaul. During one test, 2Mbps was transmitted over 1MHz bandwidth using a 1.2m antenna and a 4W hub. It was carried out from the remote to a hub station in Amachuma in Bolivia's La Paz region, and at an elevation of over 4,000m above sea level.

In another demonstration, 153Mbps was achieved over 36MHz from the hub to the remote station using the same hub and antenna, as well as with a 9m antenna and 200W hub in a set-up typical of VSAT operators. Newtec says the hub to hub (9m and 200W to 9m) test recorded a result of 257Mbps into 60MHz, an arrangement appropriate for IP trunking, and optical fibre restoration or backup.


ABE's Amachuma teleport is 4,000m above sea level in Bolivia's La Paz region.

Improving experience at the individual level

JDSU is helping Japan's SoftBank Mobile (SBM) to improve customer satisfaction by using location intelligence data from its network. The operator will implement the vendor's *ariesoGEO* platform and *GEOperformance* application across its 3G and LTE networks in Tokyo.

JDSU says its geolocation solution is designed for customer-centric RAN planning, optimisation and troubleshooting. The vendor claims *ariesoGEO* is the only solution that supports 2G, 3G and LTE radio access generations.

JDSU's Sue Spradley says SoftBank will now be able to maximise the value of geolocated customer data.

SBM will leverage the platform's location intelligence features to provide information in near real-time about the customer experience down to the individual subscriber level. This in turn will enable efficient segmentation and the ability to focus on VIP customer groups, such as corporate accounts.

Sue Spradley, SVP and GM of JDSU's network and service enablement business segment, says: "We will ensure that SoftBank Mobile is able to rapidly adopt new working practices, helping it to maximise the value of geolocated customer data and achieve expected business benefits quickly and seamlessly."

Dutch renew TETRA service

Critical communications specialist Hytera Mobilfunk has reached a deal with the Netherlands government to renew the country's C2000 emergency services network. C2000 is believed to be one of the first nationwide TETRA networks in Europe, and much of its hardware and software is now reaching its end of life. The renewal consists of three parts: the voice network between control rooms and emergency workers; the paging network for the alarm system; and the radio control for the operations centre.

Small cells in Bahrain

Batelco is deploying public access 3G enterprise small cells across the Kingdom of Bahrain. As part of a multi-million dollar deal with end-to-end solution provider ip.access, the operator is also covering residential and SoHo indoor deployments across the region. In addition, Batelco has started a 4G trial with the aim of rolling out ip.access LTE small cells later this year. "Small cells provide coverage exactly where our customers need it and mean we can maintain high quality service levels at all times and in all locations," said the operator's CEO, Muna Al Hashemi.

Telenor ends 3G in 2020

Telenor Norway will shut down its 3G network in 2020, five years before it plans to close 2G. Speaking to investors in early June, CTO Magnus Zetterberg said Telenor's 4G network, which was established in Norway in 2012, now accounts for 60 per cent of all data traffic in the country. He said the company is now targeting a data centric model, and its long-term view is to "dismantle" legacy networks and have 99 per cent of the population covered by 4G.

Telefónica and FIEB to apply Internet of Things to biodiversity research

The Internet of Things (IoT) will be used to protect wildlife and ensure animal welfare in Spain as part of an agreement between Telefónica and the Fundación para la Investigación en Etología y Biodiversidad (FIEB; Research Foundation for Biodiversity and Ethology).

Under the partnership, FIEB says it will be able to deploy the most advanced M2M technologies to monitor and analyse the behaviour of the animals kept in its facilities just outside Madrid.

An extensive network of surveillance cameras and numerous environmental sensors will continuously provide the foundation's experts and other researchers with data relating to living conditions, temperature, humidity, sounds, etc. They will also be able to remotely observe the physical conditions, typical behaviour, and daily habits of all the animals that live in their enclosures.

FIEB will implement a network of surveillance cameras and environmental sensors to monitor animals kept in its facilities just outside Madrid.

Telefónica says that as well as ensuring the animals are kept in ideal living conditions, the systems also keep direct human contact to a minimum. This is said to be a very important factor for certain species, especially if the ultimate aim is to release them into their natural environment.

FIEB president Alejandro Fernández says he wants 2015 to be the year in which the foundation starts to deploy the newest technology and make it available to researchers and conservationists.

"At FIEB we believe that new technologies are one of the greatest allies in the search for research excellence in ethology and biodiversity protection. This goal is made possible, thanks to the agreement reached with Telefónica."

Slovenia telco launches triple play via 4G

Telekom Slovenije has developed a solution to provide subscribers with internet, fixed line services and television over its 4G network. The telco launched the solution in areas in Slovenia where broadband cable connections are not possible but LTE is available.

Telekom Slovenije says it is one of the first operators to offer such a solution. Its in-house experts created the entire architecture for the platform, including the network for content provision, systems integration, and the backend systems for service and content management.

To take advantage of the new service, subscribers will receive a modem with SIM-card, an IPTV set-top box, and what's described as a "powerful" set of outdoor antennas. The telco says the user experience will be comparable to that of using its fixed network, with internet access rates of up to 10Mbps for downloads and 2Mbps for uploads.

Telekom Slovenije adds that its aim is to provide 'hybrid coverage'. It say this means it will offer services via a range of paths, both wired and wireless, while the user experience will remain the same, regardless of the technology supporting it.

"Technological advance requires ever greater network convergence," says Matjaž Beričič, director of convergent core network. "The objective of this type of development is to provide reliable, simple and excellent user experience in accessing the desired services – anytime, anywhere – regardless of the technology and network, which can either be fixed or mobile."

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