

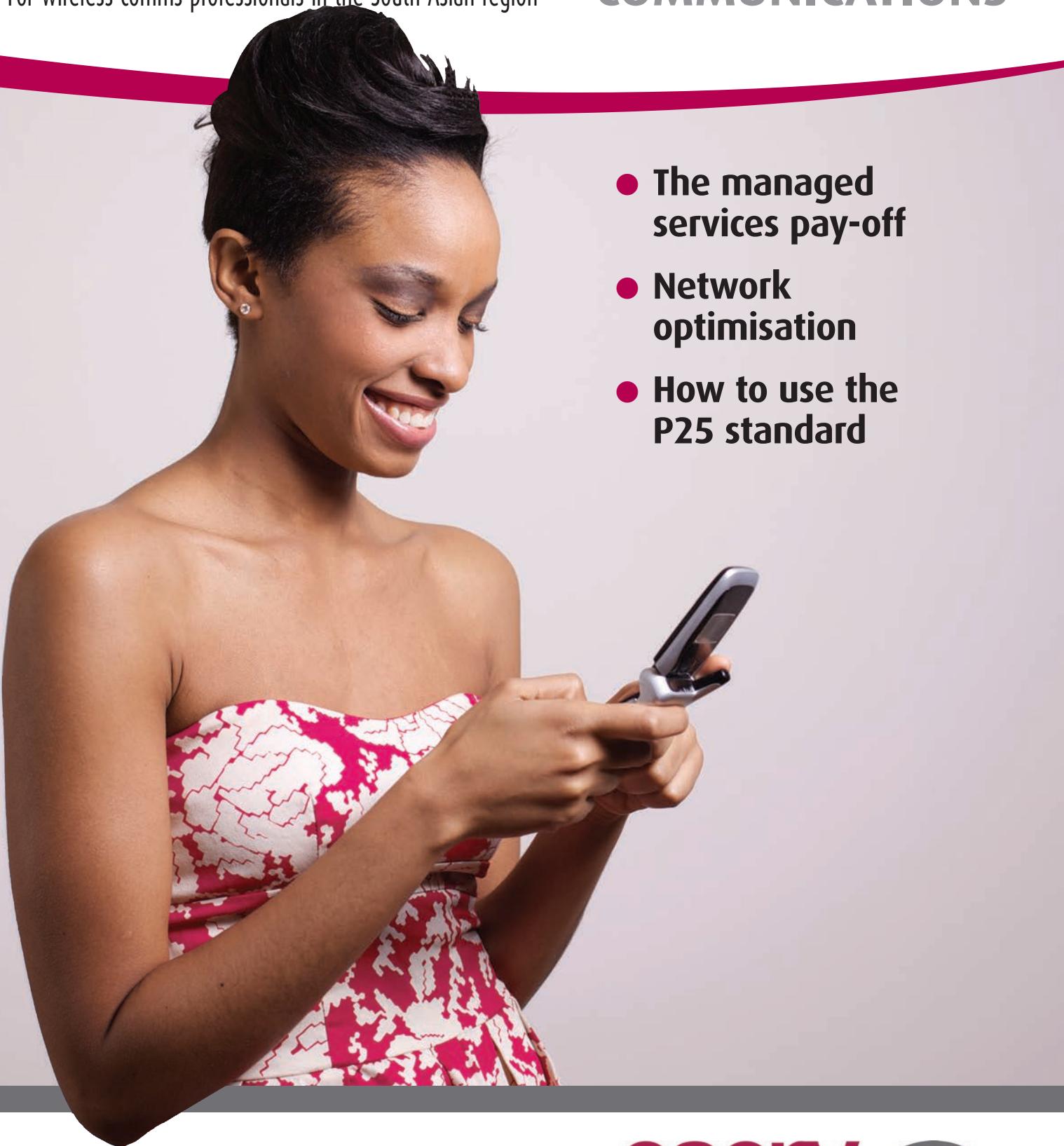
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# wireless

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## COMMUNICATIONS

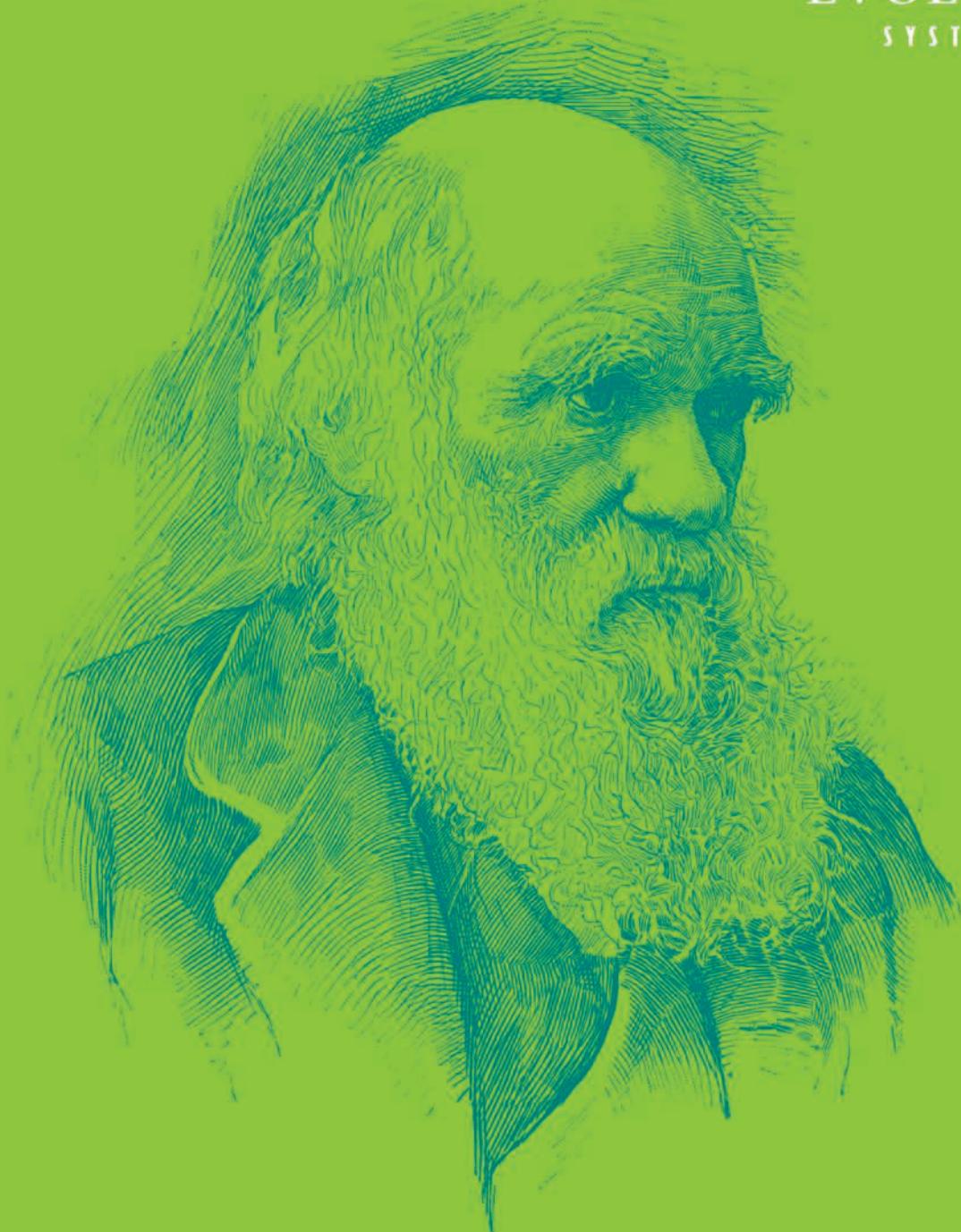
Q4/2011  
Volume 4  
Number 4



- The managed services pay-off
- Network optimisation
- How to use the P25 standard

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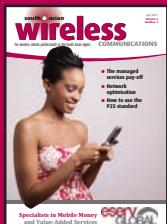
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It is the one that is the most adaptable to change."**

Charles Darwin

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# BSNL wants refund on WiMAX

Increased competition and government pressure are reducing cash-strapped Indian public telco BSNL's capacity to build high speed network infrastructure to support rocketing demand from mobile operators and broadband users.

In an attempt to raise cash BSNL, asked for a refund of INR8,300 crore (USD16.4bn) for the 2.4GHz WiMAX spectrum it holds in 17 of the 22 circles for which it is licensed. But it said it may continue plans to use the technology for a national rural broadband access network.

According to reports, BSNL is unhappy with its 2.4GHz spectrum allocation which is unsuitable for covering large areas. *India Today* quoted a top telecom industry official saying that BSNL would be the only company on a WiMAX platform and would face isolation in interoperability

and roaming. Government reluctance to refund the money could see the operator win some 2.3GHz spectrum, according to analysts. Mobile broadband competitors have largely secured frequencies in the 2.3GHz band, and are opting to use TD-LTE technology to service urban markets.

What's more, BSNL faces serious financial challenges, and its first loss of INR1,822.65 crore (USD3.6bn) in 2009-10 appears to have widened. According to a BSNL spokesman quoted by *India Today*, the telco is now in the red by around INR6,000 crore (USD11.84bn). In addition, it cannot find a way to profit from the INR8,313 crore (USD16.4bn) it paid for BWA licenses last year.

Some of the losses are fees owed by private operators for interconnection and termination. A senior Department

of Telecommunications official has stated that BSNL was due more than INR2,500 crore (USD4.9bn) in carriage charges. The firm has begun actions to recover over INR1,800 crore (USD3.55bn) that is said to be owed.

BSNL has threatened to cut off bad payers, but analysts point out that its 20 per cent market share means this could backfire as private operators could switch suppliers. Meanwhile, the company's CEO has denied reports that it is trying to raise the cost of terminating mobile calls to fixed line numbers to 40-85 paise (USD0.008-0.017) per minute from the present 35 paise (USD0.007) per minute. BSNL pays 20 paise (USD0.004) per call from its fixed lines to mobile numbers.

The firm also faces the withdrawal of INR2,000 crore (USD3.95bn) in subsidies for supplying rural services.

The government (and Western suppliers) are squeezing BSNL to exclude equipment makers Huawei and ZTE from bidding for contracts for almost 100 million GSM lines. The government worries that a Chinese win could compromise security in states that border China and Pakistan.

Meanwhile, private telcos are hoping for a share of the upcoming INR20,000 crore (USD39.5bn) to build a national optical fibre network. The project, to be paid for by India's Universal Service Obligation Fund (USOF), is earmarked for BSNL and other public companies. It will see the extension of the existing optical fibre network from regional cities to towns and villages.

Private telcos argue they contribute to the USOF, so they have a right to bid. If they do, they could double the government's investment, say analysts.

## VSAT to extend connectivity to remote Afghanistan

In a multi-million dollar deal which promises to "change the face of Afghan communications", Wateen Telecom and Roshan Telecom have teamed up to provide VSAT services for the next two years.

In October, the two companies announced they had signed a contract worth USD7.9m. Wateen says the deal will not only help serve the day to day communications needs of millions of Afghans in remote areas of the country, but will also spur the development of local and satellite-based communications networks in the country.



Wateen CEO Naeem Zamindar says telcos should work together to invest in the region's future

Wateen Telecom is owned by the Abu Dhabi Group and provides converged communication services in neighbouring Pakistan using cellular, WiMAX, and fibre technologies. It says that it began exploring the Afghan VSAT market in 2009 when Roshan required a partner to help bring its VSAT services to remote

areas of the country and provide GSM backhauling. Since then, the two companies have worked on the development and deployment of a network which has enabled Roshan to rapidly expand its services to far flung areas. With this latest agreement, Roshan has renewed its contract with Wateen with the aim of "bringing change through the internet".

"This deal demonstrates again the long-term vision that Wateen has for its participation in the region and the confidence it has in Pakistan and its neighbours for the years to come," says Wateen CEO Naeem Zamindar. "Like

Pakistan, Afghanistan is also going through a difficult period, but we at Wateen believe that prospects for the future look bright as long as we work together and invest ourselves in the future of our countries and the region."

As a 'carrier's carrier', Wateen hopes to help make Pakistan a hub for regional communications. It says that it wants to bring services and mechanisms for data transfer that reduce costs and lag, and provide reliable communications in any environment or time.

*Wateen wins funding to develop broadband in Pakistani province – p9*

## Mobile users in Pakistan to top 145 million by 2015

Despite the devastating floods of 2010 and 2011, and the global economic downturn, Pakistan's telecom industry is thriving. According to Business Monitor International's (BMI) latest *Pakistan Telecommunications Report*, the country has seen its largest mobile subscriber growth since June 2008 and this is forecast to reach more than 145m by the end of 2015.

According to BMI, Pakistan had just over 106m mobile subscribers in March 2011. By the end of the year,

growth is expected to be around 10 per cent – higher than the 8.5 and 5.3 per cent rates seen in 2009 and 2010 respectively – but is predicted to fall back to around 6.5 per cent per year as from 2012.

BMI adds that the country's fixed-line markets, including DSL broadband, will continue to decline as a result of the increase in mobile usage which will receive added impetus from the much anticipated 3G auctions (see *News*, Q3/2011).



Carry on talking: Pakistan has not seen a downturn in its mobile subscriber growth rates despite the catastrophic floods and global recession

# Augere picks Ericsson for TD-LTE rollout in India

Wireless broadband networks provider Augere has awarded a three-year managed services contract to Ericsson for a TD-LTE mobile network in the Indian states of Madhya Pradesh and Chhattisgarh.

Augere plans to use the network to provide 4G broadband services in 14 cities under its *Zoosh* brand. It will use Ericsson's latest-generation radio base station, the *RBS6000*, which is said to feature advanced *Evolved Packet Core* technology and microwave transmission.

Under the terms of the deal, the vendor will plan, design, build, operate, and maintain the network.

"India today offers one of the most exciting growth opportunities globally in wireless broadband services," says Augere CEO Lars Stork. "Our global telecommunications experience and strong local partnerships are geared to deliver broadband service in underserved markets, enabling our customers to get high speed and reliable access to the internet."

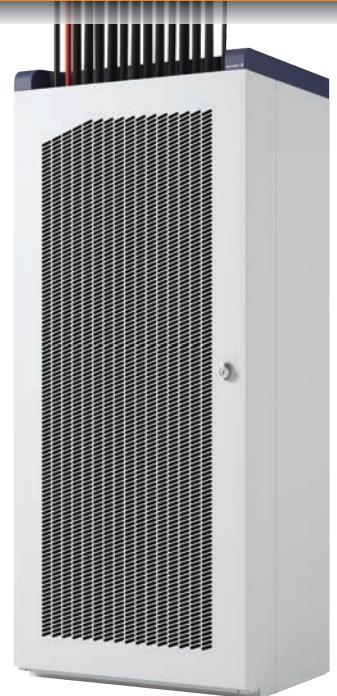
The rollout of services is expected to start from next year, with a soft launch planned for the early part of the second quarter.

Ericsson completed its first LTE tests using 2.3GHz frequencies in July 2010. At the time it said that LTE will

"revolutionise" Indian wireless broadband access, providing a wider audience with access to the internet and "unleash the huge business potential to provide a plethora of services and applications."

The head of Ericsson in India, Fredrik Jejdling, adds that mobility and broadband are among the main elements of his company's vision of a networked society. "With LTE and TD-LTE, the mobile broadband experience will reach the next level."

Based in the UK, Augere currently has access to spectrum in Pakistan and Bangladesh, as well as in Rwanda, Uganda, and Tanzania.



Ericsson's RBS 6000 TD-LTE base station will power Zoosh's 4G broadband network in two Indian states

## ZTE will help Bharti Airtel build its first 4G network

India's leading cellco Bharti Airtel is to spend an estimated USD300m with ZTE on its first TD-LTE-based 4G network in Kolkata.

If successful, local reports say that the Chinese equipment maker is likely to be the front-runner for Airtel's LTE networks in

Maharashtra, Karnataka and Punjab. Last year, Airtel spent some INR3,314.36 crore (USD750m) for Broadband Wireless Access (BWA) licenses in the four states.

The Kolkata network is initially expected to include 850 sites. It will use unpaired frequencies rather than

the more usual paired frequencies. Despite warnings from analysts that TD-LTE could put service levels at risk as the network becomes more congested, the technology is expected to become the main mobile 4G platform in India and China – more developed markets

are likely to prefer FD-LTE.

Experts say that network quality also depends on backhaul capacity, and in India this is mostly done via microwave rather than fibre. As a result, some analysts fear that this may lead to a higher than expected degradation in service levels.

## USF to use existing networks for telemedicine project

The Pakistan Government's Universal Service Fund (USF) has awarded a contract worth PKR59m (USD680,00) to Oratier Technologies to establish telemedicine networks in Rawalpindi, Karachi and Multan, using existing broadband infrastructure.

Prime Minister Syed Yusuf Raza Gilani says that the network should include flood-affected districts such as Nawabshah, Mirpur khas, Umerkot and Sanghar. Other cities, such as Bahawalpur, Rahimyar Khan, Rajanpur, DG Khan, Qadirpur, Shuja'abad Mianwali and Kharian, will also be included.

Based in Lahore, Oratier Technologies specialises in developing IT-based automating solutions for government departments and enterprises. With this latest initiative, it will help the USF to demonstrate that existing broadband and fibre



In a pilot project, three major city hospitals will be connected to 12 remote sites for testing the telemedicine networks

PHOTO: H CAUX/UNHCR/US AID

networks can be easily used for providing e-healthcare facilities. In a pilot project, Jinnah Postgraduate Medical Centre in Karachi, Nishtar Medical College in Multan, and Holy Family Hospital in Rawalpindi will be connected to 12 remote sites for three test telemedicine networks.

The remote sites include Thatta, Dadu, Badin, Nowshehro Feroz, Chakwal, Talagang, Murree, Domail, Vehari, Khanewal, Lodhran and Muzaffargarh.

Each site will be equipped with telemedicine facilities such as digital stethoscopes, digital derma-scopes,

portable ultrasound and digital ECG machines. They will also have customised telemedicine software which will enable video consultations with specialists in the three hospitals.

The USF initiative was established by the Government of Pakistan in 2010. It is funded purely by contributions from operators (1.5 per cent of adjusted revenues) and aims to spread telecoms throughout the country including unserved and under-served areas. 256 previously unserved towns now have more than 334,000 USF-funded broadband connections.

Subsidy winning service-providers are also obliged to provide free broadband internet to all higher-secondary schools, libraries, and colleges in their areas. As a result, 943 such educational institutions have so far been covered.

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# Etisalat and OpenArc partner for first mobile banking in Sri Lanka

Etisalat and OpenArc Systems Management are to introduce *SkyPay*, Sri Lanka's first secure and complete mobile banking solution.

Since 1991, OpenArc has been developing and implementing enterprise software solutions in the country. Specialising in the banking and financial markets as well as enterprise resource management, the firm recently unveiled a complete mobile and internet banking platform for all prospective clients in Sri Lanka. Etisalat will be the first telco to use the system.

Daya Hettiarachchi, OpenArc chairman and CEO, points out that mobile banking in Sri Lanka is still on a learning curve. "Many solutions

that are widely published and offered are not truly secured mobile solutions but SMS messaging systems. [These] are not only inconvenient to customers but also not complying with Central Bank guidelines.

"As a solution, OpenArc offers the *SkyPay* total mobile and internet banking platform that can be used by any bank, finance company, or any commercial establishment connected with a customer base."

OpenArc says its system is secured via USSD instead of single channel SMS technology, making it safer and easier to protect. It is compatible with any handset and uses a common interface irrespective of the financial institution or the mobile carrier.

Using *SkyPay*, it's claimed that subscribers will be able to make deposits, withdrawals, and payments via their mobiles from anywhere and at any time. Remittances can be made between individuals, companies, banks, or accounts.

Etisalat currently has more than 3.5m subscribers in Sri Lanka and offers mobile internet services via its 3.75G network. Its CEO, Dumindra Ratnayaka, says the partnership with OpenArc is "game-changing" as it will shift the way banking practices are perceived by Sri Lankans.

"Providing mobile phone connections alone was in the past – the future is about telcos providing complete solutions to the mobile



Etisalat CEO Dumindra Ratnayaka says telcos now need to do more than just deliver mobile connections

population. That is what we are providing with our high speed connections, and mobile banking is the next step in this paradigm."

## Tribunal to Qualcomm and Indian DoT: 'stop squabbling'

A telecoms tribunal has urged Qualcomm and the Indian Department of Telecommunications (DoT) to resolve their differences regarding an operational license.

Last year, the US chipmaker paid about USD1bn for Broadband Wireless Access (BWA) spectrum in the Delhi, Mumbai, Haryana and Kerala circles. According to reports, this was to ensure that

rival WiMAX operators were excluded in favour of Qualcomm's preferred TD-LTE technology.

But the company has so far been unable to exploit its BWA permits. DoT claims that Qualcomm has made procedural errors in its application and has refused to grant the ISP license that would allow it to use its frequencies to provide broadband services.

Among its objections, DoT says that Qualcomm had missed the deadline for applying for the ISP license and that it applied for four separate licenses instead of just one. The department has threatened to make the company forfeit the license fee.

Qualcomm has already said that it would sell the broadband business, but added that this would

be easier if the ISP license was part of the package.

The company has taken the matter to the Telecom Disputes Settlement and Appellate Tribunal to have DoT's decision set aside. R Chandrashekhar, Telecoms Secretary, has told local reporters that the license would be given to a single Qualcomm unit that could act as the nominee for all four zones.

## Mobilink to launch Pakistan mobile money services

Mobilink looks set to offer mobile banking services in Pakistan. In mid-September, the State Bank of Pakistan awarded a microfinance banking license to Orascom, Mobilink's parent company. The bank stipulates a minimum investment limit of PKR1bn (around USD12m) before it issues a microfinance bank license, and Orascom has complied with this.

Mobilink now plans to rival Telenor and Tameer Bank's *Easypaisa* system which has so far been Pakistan's only mobile banking system. Nadeem Hussain, CEO and president of *Easypaisa*,



Since 2008, Telenor and Tameer Bank have monopolised mobile banking in Pakistan with their *Easypaisa* platform. Mobilink now looks set to be a challenger, and this is seen as welcome competition by *Easypaisa*.

has reportedly welcomed the news. According to *ApnaTime*, he said:

"The unbanked population in Pakistan is so large that any one

entity cannot cater to it. More players in the market mean that the bonus of educating people will be divided and growth in the market will be good for everyone providing mobile financial services."

Mobilink is currently offering some financial services offering subscribers a way of paying their utility bills. But the transactions are not conducted via the mobile network as bill payers are required to pay in person at a Mobilink customer care centre or authorised agency. Upon successful payment of a bill, customers merely receive a confirmation SMS.

# Shopping mall connected by indoor DAS

Inorbit's new shopping centre in Hyderabad, India, is using a distributed antenna system (DAS) to boost indoor cellular coverage.

TE Connectivity's *FlexWave Prism* system has been deployed in the 1.6 million square foot mall to provide uniform coverage and capacity for three major mobile operators. It is said to support four frequencies to deliver both 2G and 3G services.

The system was designed and installed by local in-building solutions provider, Global Rural Netco. The company's sales president Kumar Chakravarthy says: "With such a large area to cover we wanted to

avoid long runs of coaxial cable where we would lose signal strength over the distance of the run. The active *FlexWave Prism* DAS ensured that the system would deliver maximum power at every antenna point for multiple operators, and it could be deployed utilising a single equipment room and thus took up less space."

TE Connectivity says its DAS makes it easy and cost-effective to cover indoor areas like the Inorbit mall. It claims that by using just a few remote antenna units, it can cover a large area with high mobile capacity and consistent signal strength.



TE Connectivity's distributed antenna system is being used for Inorbit's 1.6 million square foot Hyderabad mall

Inorbit Malls CEO Kishore Bhatija adds: "In this age where connectivity is extremely important, the *FlexWave Prism* DAS installed at Inorbit Hyderabad will ensure there is uninterrupted network and premier browsing speeds at any place within our premises." The company says its aim is to set new

benchmarks in India's retail market. It opened its first shopping centre four years ago in Mumbai. Since then, it has also built malls in Vashi, Cyberabad, and Pune, and plans to expand its footprint to Bengaluru and Vadodara.

*TE Connectivity launches new Prism system – p17*

## Wateen Telecom to help bring broadband to Balochistan

The Pakistan Government's Universal Service Fund (USF) has awarded Wateen Telecom a PKR2.4bn (USD24m) project to develop an extensive optical fibre network in the south-west province of Balochistan.

The USF *Balochistan Package 4 (BP-4)* project will entail the laying of more than 1,100km of an optical fibre network in the northern part of the province. USF will provide a subsidy of PKR1.97bn (around

USD22m) while the rest of the cost will be borne by Wateen.

The new network will connect twenty unserved cities and towns including: Gulistan, Musakhel, Barshor, Duki, Harnai, Ziarat, Sinjawi, Zhob, Sherani and Qamardinkarez. Wateen says that the project will provide "state-of-the-art" digital infrastructure in remote areas of Balochistan, and could be further exploited to build IT, telecom,

education, health, and business services in the area.

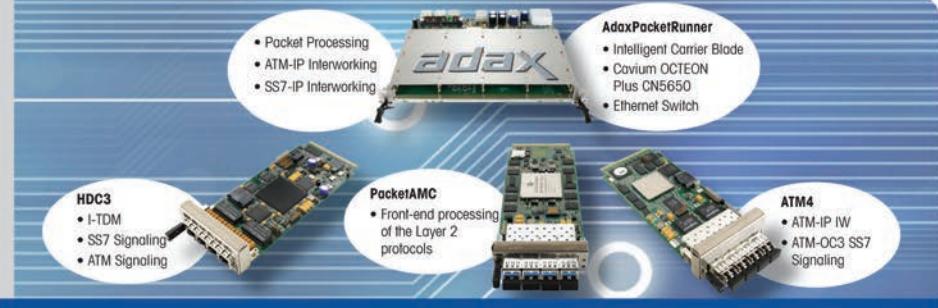
Wateen is already working with the USF on four broadband and three optical fibre projects in underserved areas of Balochistan, Punjab, and Sindh. It says that these existing projects involve optical fibre networks spanning more than 3,300km, 94,500 broadband subscribers, 246 Education Broadband Centres, and 72 Community Broadband Centres.

Wateen CEO Naeem Zamindar says the *BP-4* project is the first step in a "long journey" that aims to take Pakistan into the 21st century by ensuring digital access for every citizen. "We believe that broadband internet possesses the capacity to influence our lives and create dynamic social change – not only in the way we connect with one another, but also how we consume media and perceive the world at large."

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## Nepal and Qatar links

 Nepal Telecom (NT) and  Qatar Telecom (Qtel) have signed a deal aimed at improving telecoms links between the two countries. Qtel will establish and manage a multi-service hub so that calls between both countries and other Gulf states will be clearer, with data connections faster and more effective. The new hub will carry voice and internet from Doha and the wider region to NT's landing base in Mumbai and then into Nepal. NT offers GSM, CDMA, and fixed-line services.

## No 4G for top cellcos?

 Bharti Airtel and Vodafone India may miss out on 4G spectrum. According to the GSMA's *Mobile Business Briefing*, the Telecom Regulatory Authority of India (TRAI) has said it is restricting bids for 700MHz spectrum to companies which do not already hold 800MHz or 900MHz frequencies as a way to "establish a level playing field" in the country. TRAI also noted that the ability to "refarm" the 800MHz and 900MHz spectrum to support more advanced services should be explored. Operators who miss out in the first round of 4G auctions will subsequently be able to buy 700MHz frequencies at a price in line with the previous issue.

## New CEO for Telenor

 Lars Christian Iuel has been appointed as Telenor Pakistan's new CEO. 47-year-old Iuel will take over from Christian Albech who has now retired after 20 years with the group. Iuel is no stranger to Pakistan and has previously served as Telenor's CMO there. Before returning to the country, he was head of marketing at the group's Asia office in Bangkok. He has also worked with Namibian mobile operator Cell One (now known as 'Leo').

# Tata renews microwave network with NEC kit

Tata Teleservices Limited (TTL) is to use NEC's *iPasolink* microwave platform to refresh its backhaul mobile transport network and introduce hybrid radio for its TDM and IP networks.

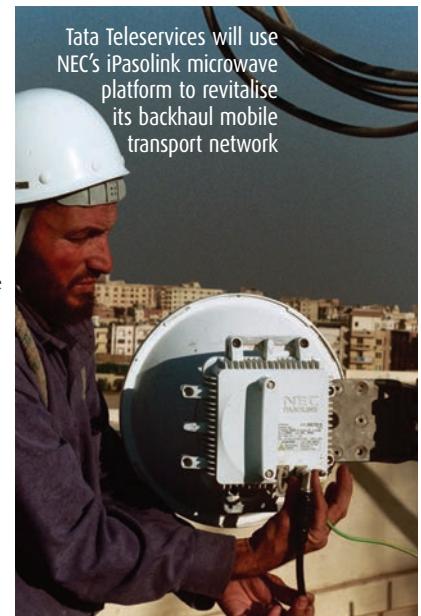
TTL offers mobile services, wireless desktop phones, public booth telephony, and fixed-lines to more than 85 million customers via some 45,000 towers across India. It has a long-standing relationship with NEC and has used its microwave equipment for backhaul for some years. The operator's executive president for enterprise business and technology, A G Rao, says: "TTL is now expanding its network for both coverage and capacity in the mobility and enterprise business segments, which will require backhaul of both

TDM and IP traffic. Our requirements, therefore, necessitate the deployment of hybrid radio in the network."

NEC claims that its latest equipment is designed to support the transition from today's hybrid TDM and Ethernet backhaul towards full IP transport, while reducing the cost of ownership.

Its senior vice president, Takayuki Morita, adds: "As the Indian mobile communication market continues its rapid expansion, operators face the challenge of making significant investments in order to provide next generation mobile broadband services while managing capex and opex."

Tata Teleservices will use NEC's *iPasolink* microwave platform to revitalise its backhaul mobile transport network



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## Pakistan tablet sellers need PTA approval

The marketing and sales of tablet PCs with wireless connectivity in Pakistan will now need to be approved by the PTA (Pakistan Telecommunication Authority).

In September, PTA director Sardar Mahmood Gul said: "It has been observed that several manufacturers, importers and service providers are marketing and selling different types of PCs in Pakistan having Wi-Fi, HSPA, UMTS, GSM, EVDO, WiMAX, etc, facilities without obtaining type approval."

At the time, the PTA had said that the deadline for compliance would be by the end of September, but this has since been extended to 20 December 2011. The authority says that any IT equipment dealers, OEMs, and wireless operators who fail to comply will face "strict actions" according to the directives issued in the Type Approval Regulations 2004.

The type approval certification process largely involves safety testing from accredited labs as well as the submission of a product's

detailed specifications and manufacturing records. But according to local reports, the PTA has also extended the type approval regulations in order to establish and maintain a database of PC tablets as a way of showing the government's commitment to fighting terrorism in Pakistan.

*ApnaTime* says that there is currently no such database in the country, and that increasing tablet sales is fuelling fears that they may be used for future terrorist activity.

## Broader horizons for India's airwaves

Delhi-based Voicecom Technologies has entered a joint venture with the UK's One Horizon group to sell the *Horizon* bandwidth optimisation package in India.

According to One Horizon, its *SmartPacket* technology enables VoIP calls using only 2kbps compared to around 8kbps from other VoIP platforms. It adds that *Horizon* also optimises data applications by compressing email, and accelerating web browsing and instant messaging. The system is said to be compatible

with digital telecommunications standards, can connect any phone system over IP, and is deployable in satellite, mobile, and fixed markets. Voicecom director Vijay Sharma claims that this makes it ideal for South Asia's markets where bandwidth is in short supply. "Horizon represents a significant opportunity for telcos and service providers to minimise the volume of data their subscribers consume."

According to the latest report compiled by the Telecommunications

Regulatory Authority of India (TRAI), the number of mobile phone users in the country is growing at 34 per cent a year, and has now reached 852 million – a penetration rate of 71 per cent.

TRAI adds that there has been an increase in the number of cells with more than three per cent dropped calls – an indication of congestion in the networks. It also says that Indians spend almost 192 million minutes making internet calls.

*Surge in regional connections – p14*

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## Go bananas at app store

 Mobilink has launched Pakistan's first online mobile apps store. 'Jazz Bananas' features thousands of free and paid-for apps such as games, ringtones, and music, which are compatible with Symbian, Java and Android-based handsets. The service is exclusive to all Mobilink pre-paid and post-paid customers. Local content developers can also take advantage of the 'Bananas Factory' which enables them to create, share, and sell content through the store.

## Farmers get credit access

 Members of Afghanistan's Eastern Region Fruit Growers Association (EFGA) will be able to use the *M-Paisa* mobile banking system to repay loans. It will allow farmers to make their repayments easily, on time, and across distances, and it's hoped this will help develop the agricultural sector which is a key contributor to the Afghan economy. *M-Paisa* is operated by Roshan and this latest move is the result of the telco's recently signed agreement with the Agricultural Development Fund – a Ministry of Agriculture initiative aimed at providing local farmers with access to credit.

## Mobile office

 PCCN Bangladesh has contracted Grameenphone to provide complete communication facilities. The company, which is a subsidiary of the Norwegian polymer concrete giant, will use the telco's Business Solutions for voice, text messaging, mobile data, and internet services. The operator will also supply its complete *Mobile-Office* solution which includes mobile email, mobile high-speed data access, and internet access. Grameenphone says this will give PCCN's workers the freedom to work from anywhere within its wide coverage area.

# Wireless cellcos get wired

Idea Cellular and Tata Teleservices are replacing their copper RF cabling to smoothwall coaxial infrastructure. In two separate deals, CommScope says that each operator will use its *Heliax FXL* cabling for their base station sites in India.

Idea Cellular is the country's third largest wireless operator and will use *Heliax FXL* to replace most of the traditional corrugated copper cabling in its network. Meanwhile, Tata will deploy the coaxial cabling at its new base station sites throughout India.

A G Rao, executive president for technology and enterprise business at Tata Teleservice, says: "CommScope's smoothwall cable will modernise our wireless systems. This will allow us to offer our customers the best wireless solutions cost effectively."



Idea Cellular and Tata Teleservices will use *Heliax FXL* at their BST sites in India

By switching to smoothwall coaxial cabling, both operators hope to benefit from "significant and immediate" cost savings over corrugated copper cable.

CommScope says that its cable is already installed in more than

100,000 sites throughout India. Compared with traditional all-copper cables, it claims that *Heliax FXL* is more durable with greater flexibility. It reckons that the cable is built to ensure higher performance, a consistent quality connection, and is more energy efficient as it requires less electric power and fuel to manufacture and transport.

"Deploying *Heliax FXL* smoothwall cable enables us to evolve our wireless networks while remaining conscious of its energy footprint," says Idea Cellular CTO, Anil Tandan.

CommScope adds that with its aluminium outer conductor, the cable is less prone to the theft issues that affect network components made entirely from copper.

*Heliax FXL* is manufactured locally at CommScope's facilities in Goa.

## UN Commission sets broadband targets

The UN's Broadband Commission for Digital Development has agreed on a set of new targets that countries should strive to meet in order to ensure that their populations fully participate in tomorrow's emerging knowledge societies.

As part of its *Broadband Challenge*, the commission says that communication is "a human need and a right". It calls upon governments and private industry to work together to develop the innovative policy frameworks, business models, and financing arrangements needed to facilitate growth in broadband access.

It urges governments to avoid limiting market entry and taxing ICT services unnecessarily, and encourages them to promote coordinated international standards for interoperability, and to address the availability of adequate RF spectrum.

"It is essential to review legislative and regulatory frameworks, many of which are inherited from the last century, to ensure the free and unhindered flow of information in the new virtual, hyper-connected world," states the *Broadband Challenge*.

In addition, it stresses the need to stimulate content production in local languages and enhance local

capacity to benefit from, and contribute to, the digital revolution.

Four new targets have been agreed, all to be achieved by 2015: (1) all countries should have a national broadband strategy or include broadband in their Universal Access/Service Definitions; (2) entry-level broadband services should be made affordable in developing countries through adequate regulation and market forces (for example, they should amount to less than five per cent of average monthly income); (3) forty per cent of households in developing countries should have internet access; and (4) user penetration should reach 50 per cent in developing countries and 15 per cent in Least Developed Countries.

"These targets are ambitious but achievable given the political will and commitment on the part of governments, working in partnership with the private sector," said Dr Hamadoun Touré, ITU secretary-general, and also co-chair of the Broadband Commission alongside Rwandan President Paul Kagame.

The ITU will undertake responsibility for measuring each country's progress towards the targets, producing an annual broadband

report with rankings of nations worldwide in terms of broadband policy, affordability, and uptake.

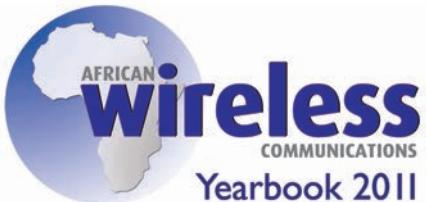
The commission endorsed the new targets during its fourth meeting which was held in Geneva as part of ITU Telecom World 2011 in October.



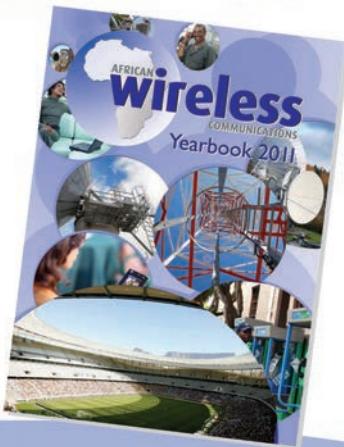
ITU secretary-general Hamadoun Touré admits that the targets are "ambitious" but adds that they are "achievable" over the next four years

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## ON THE NETWORK

### Are you ready for 'volume shock'?

Since the launch of 3G in India, data uptake has grown at a tremendous rate, with subscriptions reported to be over 121m halfway through 2011. Operators shouldn't underestimate the impact that this has on data mediation which is an essential foundation for revenue assurance. It is critical that mediation systems are able to handle rapidly growing traffic loads in a cost-effective, accurate and timely manner. If they cannot keep up, increasing data loads will result in 'volume shock'.

As other markets have shown, when more capacity comes online, subscribers and content providers rush in to use it. And so volume shock will become a greater risk. Data revenue per unit is widely forecast to decline, so service providers must minimise the cost of processing each transaction.

They can control the costs of offline charging by evaluating application flexibility, platform expenditures, and staffing costs. These factors are governed by the design of the mediation system. Firstly, future-proof offline charging systems are flexible enough to accommodate evolving networks cost-effectively. Next, they minimise the hardware resources needed to process growing event volumes without losing pace. Lastly, next-generation applications are easy-to-use for daily operations and ongoing business evolution.

Operators are finding that incumbent mediation systems cannot handle their anticipated data growth. Many are replacing legacy platforms with offline charging solutions which revolutionise the economics of supporting rising data volumes and the latest requirements for all-IP networks like LTE. So investing in next generation offline charging now will ensure cost effective capacity for future consumer demand and safeguard revenues.

# Wataniya ramps up value-added services

Maldives operator Wataniya Telecom has launched an SMS-based international mobile credit transfer facility as well as support for Research in Motion's (RIM) BlackBerry services on the islands.

The cellco is working with TransferTo on the international credit transfer platform which is claimed to be a first in the Maldives. Wataniya says that its pre-paid customers will be able to take advantage of the service to instantly top-up mobile phones used by friends and family overseas with a simple request via SMS.

The company's commercial director Mohamed Rifau Ibrahim says: "Within our communities, we often have our family and loved ones living overseas. With TransferTo, Wataniya customers can now transfer credit to remote mobile phones and make it even easier to keep in touch."

TransferTo adds that Wataniya subscribers, especially expatriates working in the Maldives, will benefit from the service as it enables small



Maldives vice president Dr Mohamed Waheed Hassan Manik speaking at the Wataniya launch of BlackBerry services in the island state

value transfers to complement their usual money remittances.

Subscribers can use the system to send top-up credit via operators in Bangladesh, India, Nepal, Sri Lanka, Indonesia, Malaysia, Philippines and Thailand. To do so they simply send the destination mobile number (including the country code) to a four-digit Wataniya number and follow instructions sent via SMS.

In a separate announcement, Wataniya is installing a BlackBerry

Enterprise Server to support BlackBerry handsets for corporate customers. It says that this will provide "easy wireless access" to email, phone, organiser, web, multimedia, as well as other business and lifestyle applications.

The BlackBerry services are primarily aimed at corporate customers who need reliable, manageable and secure wireless access to enterprise resources. But the operator says they will also be available to its post-paid customers.

## Global mobile connections to reach six billion – APAC will "account for half"

In November, the GSM Association (GSMA) predicted that global mobile connections will reach six billion by the end of the month, with the Asia Pacific territory accounting for half.

According to the association's *Asia Pacific Mobile Observatory 2011* report, mobile penetration in the region will reach a landmark three billion connections in Q1 2012 – nearly two years earlier than predicted in the 2009 report. By 2015, it is expected that Asia Pacific will reach 4.1 billion connections, growing at twice the rate of Europe and North America, and will account for 40 per cent of mobile data traffic worldwide.

The GSMA says that this extensive growth in penetration – from just 12 per cent in 2002 to 78 per cent in

2011 – is largely due to operators in the region's major markets investing an average of 16.3 per cent of their revenues into capital expenditure. It says that this is "significantly higher" than their counterparts in other parts of the world.

However, as impressive as Asia Pacific's mobile connectivity growth has been, the GSMA points out that its largest countries by population, China and India, have penetration rates at just over 60 per cent. This means that approximately one billion people in these two countries alone are still without a mobile connection.

Meanwhile, other markets in the region, such as Pakistan and Bangladesh still have mobile penetration rates below 60 per cent.

The report also has found that the majority of Asia Pacific countries still lack sufficient spectrum which is preventing a full range of voice and data services being made available for consumers across the region.

In addition, the GSMA is calling for mobile industry taxes to be reduced in order to drive further mobile penetration and, ultimately, increase the total tax intake for governments.

For example, it says that Bangladesh's mobile sector is one of the most heavily taxed amongst developing nations, where no less than six different taxes are in place. According to the GSMA, this has resulted in a mobile penetration rate of just 49 per cent – one of the lowest amongst key Asia Pacific countries.

# O3B NETWORKS BRIDGES THE BANDWIDTH GAP

## BREAKTHROUGH SATELLITE FLEET TO DELIVER AFFORDABLE BROADBAND TO EMERGING MARKETS

Global IP traffic is expected to increase four fold over the next five years. O3b Networks is dedicated to driving down the per megabit cost of connectivity to enable the broadband boom across the emerging markets of Asia, the Middle East, Africa, Latin America and beyond.

In parts of India, a nation of more than 1 billion people, Internet access is slowed by a crumbling infrastructure and sluggish broadband speeds of 256 kilobytes per second. Just twelve percent of India's Internet users have broadband, including little more than 250,000 high-speed connections across rural regions of the country.

O3b was developed to deliver fast connectivity to the world's unconnected and underserved markets. More than one-third of the capacity across O3b's initial constellation is already sold out a year away from the launch of its first eight Medium Earth Orbit (MEO) satellites in early 2013.

"O3b has the high-speed capacity at lower latencies and costs capable of making the Internet a truly global experience," said Steve Collar, CEO of O3b Networks. "The O3b system will ultimately enable emerging market businesses to grow and allow millions of people to get a better education and enjoy a better way of life."

### More Bandwidth, More Opportunities

O3b's new IP Trunking solution, O3b Trunk is a tiered, bundled offering designed to deliver affordable, fiber-like capacity anywhere within 45 degrees of the



O3b's gateway and tier one antennas during factory tests at ViaSat in Atlanta



equator. "O3b Trunk provides the ubiquitous reach of satellite combined with speeds ranging from 100Mbps to 1.2Gbps with very minimal latency," explained Collar. "The arrival of O3b will unleash the full power of the Internet in isolated inland countries across Asia, the Middle East, Africa and other emerging markets."

O3b is boosting its growing fleet from eight to twelve satellites and nearly doubling capacity after raising an additional \$137 million from confident investors.

"O3b has the capacity to fuel our customers' networks and position them to meet the increasing demand for bandwidth and connectivity around the world," noted Collar. "Our O3b Trunk solution delivers extraordinary bandwidth flexibility and scalability that allows providers to ramp up their services as market demand expands," Collar added. "Our offering of more bandwidth, lower latency and cost is eliminating the primary barriers to connectivity and growth in the emerging markets."

There's no need for cell towers or fiber infrastructure with O3b. Operators can quickly and easily expand into new markets with everything from broadband to 3G and 4G services, using O3b's mobile backhaul and IP trunking solutions. Featuring steerable antennas, O3b satellites offer tailored beams that can be moved virtually anywhere service providers need to deliver connectivity.

### Fiber from the Sky

Etisalat is among the growing number of telecom operators and ISPs that have already secured a stake of O3b capacity worldwide. O3b is providing Etisalat with mobile backhaul, trunking and next generation services across Asia and the Middle East, enabling Etisalat's regional offices to deliver on customer connectivity demands. The needs for capacity are as varied and diverse as the cultures and regions being served. Netcom Africa, for example, will deliver high-speed connections to oil and gas rigs off the coast of Nigeria. In South Africa, Mavoni Technologies is connecting more than 2,000 rural schools.

"O3b is delivering amazing and empowering technologies, the equivalent of having fiber optic-

cable dropping from the sky," said Jules Maher, CEO of Telecom Cook Islands, the country's provider serving the remote Pacific nation of the Cook Islands. Fast, affordable Internet access is out of reach across the remote country, including the main island of Rarotonga – until now.

Like Etisalat, Netcom Africa and many other telcos, Telecom Cook Islands has secured a large chunk of bandwidth from O3b Networks to provide speedy web access and mobile data services. "The days of restricted download speeds and very slow user experiences are numbered in many emerging markets, as O3b prepares to launch its initial fleet," said Collar.

### Countdown to Launch

O3b's highly-skilled technical team is working across three continents to develop and deploy the hardware and software designed to deliver on O3b's mission to make the Internet accessible and affordable for all. O3b is shipping its first three gateway antennas to Greece this month and installation at the teleport will start in January.

"2012 will certainly be a year full of important O3b milestones leading up to the launch in early 2013," said Collar. "It's exciting to know that soon our gateways and satellites will be delivering the high-capacity, IP bandwidth that will ultimately play an integral role in transforming the emerging markets," Collar added. "We're counting down to the launch of something very special."

For more information about O3b Networks or O3b Trunk, visit [www.o3bnetworks.com](http://www.o3bnetworks.com)



Steve Collar

CEO of O3b Networks

ADVERTORIAL

# Smart Wi-Fi system can tackle density concerns caused by mobile devices

Ruckus Wireless has unveiled a new Smart Wi-Fi system which includes the ZoneDirector 5000 (ZD5000) and the latest version of its ZoneFlex software.

**MANUFACTURER:**  
Ruckus Wireless

**PRODUCT:**  
Smart Wi-Fi system

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

Ruckus says the platform has been developed to add essential hardware and software capabilities to scale, simplify, and secure large Wi-Fi networks.

It claims that the ZD 5000 is the industry's first controller-based system that can be flexibly deployed either in-line, or out of the data path, supporting up to 20,000 clients, 1,000 access points, and 2,048 WLANs within a single, easy-to-use platform.

Ruckus says that it has also increased the client capacity of its



ZoneFlex dual-band access points to support 256 concurrent clients per access point (256 clients per radio). It reckons that this makes them the "ideal" Wi-Fi solution for high-capacity, dense user environments where reliable Wi-Fi services and extended coverage are essential.

Version 9.2 of the Ruckus' ZoneFlex Smart/OS software system includes a variety of enhancements. For example, administrators can now create AP groups for bulk configuration and simplified WLAN management, smart mesh enhancements that increase overall network performance and reliability, IPv6 support for virtually "limitless" IP addressing, and remote packet capture on Ruckus APs to streamline troubleshooting and network analysis.

## Satellite modem "balances" efficiency and latency

Newtec has added a low rate modem for IP applications over satellite to its range. It says that the ZN461 LDPC satellite modem addresses applications

**MANUFACTURER:** Newtec

**PRODUCT:** ZN461

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

from 1.2kbps to 29.5Mbps and has been designed to offer efficiency as well as value.

The ZN461 features BPSK/QPSK/OQPSK/8PSK/8QAM/16QAM, and serial/10/100 Base-T Ethernet interfaces. It offers 'Automatic Uplink Power Control' and Newtec says its fastest acquisition time is 71ms at 64kbps QPSK. The modem's lowest latency is said to be <15ms at 64kbps (75 per cent QPSK), and it



has a 10MHz reference input/output and 70MHz IF-band (50-90MHz).

According to the vendor, the modem brings a "perfect balance" between spectral efficiency and low latency. It claims that through various configuration options for modulation, rate, and block size, an operator can now set up its satellite to maximum

efficiency in no time. A variety of options include: 140MHz IF-band; L-band; internal BUC and LNB power; and on-board acceleration.

The ZN461 also offers remote in-band management, support for symmetric and asymmetric operations, and compatibility with modems from other manufacturers.

## Compact outdoor packet solution for 4G backhaul



Wireless backhaul specialist Ceragon Network has launched FibeAir IP-10C. The integrated, ultra-compact solution has been designed to deliver 1Gbps of IP traffic on a single radio channel. Ceragon says it is able to withstand harsh weather conditions and can be easily installed. It also says the device has low power consumption.

It's claimed the IP-10C will enable mobile service providers to add more backhaul capacity to networks with a fast time-to-market, and that it provides an "excellent match" for IP/MPLS backhaul in 3.5G and 4G/LTE networks. It includes

asymmetric traffic delivery for higher download capacities, a complete range of frequencies from 6 to 42GHz, wide range of channels extending from 3.5 to 56MHz, and adaptive coding and modulation for increased spectrum usage and backhaul capacity.

**MANUFACTURER:**  
Ceragon Networks

**PRODUCTS:** FibeAir IP-10C

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

## Operators could use cloud to launch new services

Mobile data services specialist Acision has launched a platform designed to enable operators to deliver VAS from within the cloud.

The software as a service *Cloud Services Delivery Model* will leverage Acision's IPR. This, according to the firm, is its already proven technology in the cloud and includes "enhanced" personalised messaging services such as group messaging, black and white listing, auto reply, auto signature, and message copy. Acision says it has also developed a "clear roadmap" of services that will be launched over the coming months, ensuring the ability to continually add value through its new service delivery mechanism.

By using the cloud model, the vendor says that operators will be able

to select services on demand from a central location, which connects to their existing network infrastructure. This will enable them to deliver new, differentiating services faster while having the ability to scale and adapt to evolving market demands.

Acision adds that operators will be able to offer new VAS from the cloud cost effectively while maximising their revenue-generating potential.

**MANUFACTURER:** Acision

**PRODUCT:** Cloud Services Delivery Model

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

# Indoor DAS uses existing coax cabling for 3G and 4G delivery

TE Connectivity's *FlexWave Prism IRU* is an indoor version of its *FlexWave Prism* distributed antenna system. It aims to bring mobile coverage and capacity to users in enterprises,

**MANUFACTURER:**  
TE Connectivity

**PRODUCT:**  
*FlexWave Prism IRU*

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

colleges, and urban/suburban macro networks.

The new system uses rack-mountable, indoor remote units and works with coax cable direct to service antennas. TE says this makes it ideal for passive indoor wireless system upgrades or venues that want to deploy a system quickly by leveraging existing cabling.

*FlexWave Prism IRU* incorporates 100Mbps in-band Ethernet for



carrying surveillance camera traffic, alarming, Wi-Fi access points, or other applications. It offers support for 2G/3G/4G services with SISO or MIMO implementations, digital simulcast, a 26dB optical budget, digital fibre transport, and high power amplifiers. TE says that its solution requires fewer elements to provide comparable coverage relative to other solutions in the market.

## ALSO LOOK OUT FOR

### Mobile IP Node "guarantees" message delivery for mission-critical services

Global security solution specialist Cassidian has developed a technology programme to improve the ability of emergency and military services to communicate using voice, data and video in a wide variety of scenarios, including terrorism and disasters.

Cassidian says that during peak traffic times or in extreme weather conditions, the multiple wireless networks used by such services can become congested, restricting the flow of traffic and impeding operations. Its *Mobile IP Node* programme has been designed to take a holistic view of all routes from sender to audience whilst considering external conditions, message file size, priority, security level and physical location. User-defined decision engines are then utilised to select the optimum route.

"In the case of streaming video or other messages that use large volumes of bandwidth, file size can be downscaled automatically or manually to guarantee delivery for the first time in the history of secure wireless communication," says Cassidian. "Based on network quality, the solution can drop file size further by sending still images or just audio. Once network quality improves, the message can be further optimised to yield better quality information."

*Mobile IP Node* can be used with radios that connect via satellite, VHF, HF, etc. The node itself does not have radio capability built-in but is said to optimise and maintain a wireless network seamlessly without technical intervention.

The current version of the system is housed in a case measuring 90 x 320 x 200mm. This is said to make it "truly mobile" in comparison to previous offerings in the market.

## GPRS modem routers "simplify" M2M connectivity

The *RM6000* GPRS modem routers from Radio Data Technology (RDT) are now available following successful field trials in the water and traffic management industries.

Available in DIN rail, IP67, and bare board versions, RDT says the *RM6000* is the simplest GPRS modem router to deploy as it integrates intelligence and interfacing. According to the firm, this in-built interfacing and control system means that even legacy equipment and simple standalone sensors can readily be provided with full two-way remote communication

and alarm capability either to the internet, or point-to-point.

The device itself features RS232, Ethernet and USB interfaces as standard. The USB port allows live configuration and real-time monitoring of data without interrupting the link. In addition to the modem functionality, the *RM6000* can generate email or SMS alerts and manage the upload of data via FTP. There are expandable digital I/O for direct interfacing to sensors and alarm functions. An SMA connector is also included for a choice of external antennas.

## Making m-banking safer when using smartphones

New optical authentication technology by Kobil Systems claims to improve security when using mobile banking services on smartphones, tablets, etc.

With its new *SecOPTIC compact* and *SecOPTIC elegance* devices, Kobil says it has created a platform that supplements classic optic technology to include the transaction data signing procedure. Because *SecOPTIC* works offline to generate the next valid transaction number (TAN) on the basis of the financial transaction data, it deflects attacks such as

phishing, man-in-the-browser, and man-in-the-machine.

The devices combine one-time password technology via optical interface for the transaction signing procedure. This means that e-banking clients will confirm transaction data on an offline device display, which is previously transmitted from a smartphone or PC to the *SecOPTIC* device via an optical interface before a TAN is generated. This TAN is then entered back to the used device to authorise the financial transaction.



**MANUFACTURER:**  
Kobil Systems

**PRODUCT:**  
*SecOPTIC compact/elegance*

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



# Looking out for new business?

Managed services are rapidly becoming the norm, especially in emerging markets. For vendors it means new business opportunities. But what's in it for the operators? RAHIEL NASIR finds out

Building connections: no two operators have the same managed service requirements. It's therefore important for vendors to offer tailor-made options

**A**ccording to Ericsson, network sharing can create value for operators, whether they own infrastructure, lease infrastructure or capacity, or are looking to deploy new equipment. The firm says it has experience from more than 300 managed services contracts around the world, and has found that telecom operators who are looking to increase efficiency, decrease costs, and reduce environmental impact are increasingly considering network sharing.

"Historically, sharing has mainly occurred during the build-out phase" says Ericsson. "Currently, an increasing number of established operators are considering consolidation by collapsing existing networks and sharing with peers."

The vendor says that a variety of network elements can be shared to varying degrees, from passive site infrastructure to active infrastructure, such as backhaul or the RAN. Ericsson says that it can facilitate the sharing of such assets and technology, substantially reducing the cost of ownership for customers and freeing up capital for other investments. Its managed services portfolio

comprises four areas: operations, field maintenance, operational readiness and shared solutions. These include managed capacity services where it often works with a third-party investor. For example, it can offer customers the possibility to divest their passive infrastructure, such as sites or towers, and lease the capacity back from Ericsson, typically under a 10-15 year SLA. The concept is based on two (or more) operators committing to share passive infrastructure under the Asset Company Service model.

Additionally, when two or more operators form a joint venture or a network company, Ericsson says it can assist in the consolidation of the network and take the role of service provider for the new entity.

A key customer in the region is Bharti Airtel, which is said to be one of the largest telecoms operators in the world with close to 100 million subscribers. Ericsson reckons that Bharti sees almost 100,000 users join its network every working day, but it faces competition from 11 other operators and needs to work hard to maintain its successful position. As a result, it

saw outsourcing as an important tool to maximise efficiency, and turned to Ericsson with whom it has a long working history. Jagbir Singh, group CTO of mobility networks for Bharti Airtel India, says: "We recognised that through outsourcing we could capitalise on the strengths of our partners. Ericsson's in-depth domain knowledge, economies of scale and ability to attract talent are all areas which can really benefit our business. Our overall objective is to combine cutting-edge technology with capex and opex optimisation and grow our market share profitably."

The operator's infrastructure consists of a range of technologies including GSM and WiMAX which are managed simultaneously to simplify operations and reduce opex. Ericsson says that it now delivers "full-scope" managed services to Bharti including network design, optimisation, operation and field maintenance.

As part of its managed services offering, the vendor runs a Global Network Operations Centre (GNOC) in India which provides end-to-end management of network operations for customers

in more than 20 countries. The firm claims that its GNOCS offers operators efficient management of multi-vendor and/or multi-technology environments, fast and cost-effective launch of new services, and improved and predictable network performance. It adds that the process is complemented by standardised tools which enable full automation of delivery processes and integration across international boundaries.

The centre itself employs more than 800 people and is said to manage a total of 100 million subscribers, including billing and charging for 85 million pre-paid customers. The company adds that each month, the centre responds to around 12 million alarms, dealing with 250,000 trouble tickets, and 20,000 change requests.

## Pioneering managed services

While many big name infrastructure vendors are now offering managed services, Nokia Siemens Networks (NSN) is regarded as a pioneer of the model. It currently manages networks for 158 service providers around the world, and says that it expects a 100-times growth in global network traffic at ever lower cost over the coming years.

According to NSN, the majority of this growth is expected to come from emerging markets like India. Here, it claims to have an installed base of close to 150,000 BST sites and says that this is increasing at the rate of more than 5,000 per month. NSN arguably has the top market share in managed services in the country and works with operators such as Aircel, Bharti, BSNL, Tata, Uninor, Videocon and Vodafone. It says that one of the main benefits of managed services for such operators are "guaranteed" savings – in some cases, this could mean up to 30 per cent of opex over the course of a contract, which amounts to an average annual saving of around USD11 million.

The company believes that the pressure to reduce operating costs and improve network efficiency and quality are big drivers in most cases as networks become more complex and the business environment becomes more challenging. It says that the market is already witnessing a surge in the uptake of data services and as operators move towards 3G and 4G, having a managed services partner to support them will become a key requirement. "By outsourcing non-core activities, operators can control costs and focus their resources on differentiating themselves. With the surge in broadband penetration and demand for always-on connectivity, service quality and experience are emerging as key differentiators," says NSN.

Research by Forrester has found that the managed services opportunity in India will be USD8.7bn by 2013, with a total CAGR of 19 per cent. Other recent industry reports reveal that almost 40 per cent of Indian businesses outsource their infrastructure managed services. This in turn is attracting telecom equipment vendors who want to cash-in on their existing competencies and take on new roles in the value chain, covering activities such as network build, planning and design, field

operations, NOC operations, application and service development, and billing. Operator awareness of managed services is said to have increased significantly over the last few years, and it is now beginning to be a standard element of an operator's procurement processes. What's more, service providers are looking to outsource almost every aspect of their network operations.

For example in November, in what's described as the first implementation of its kind in India, Bharti Airtel announced the deployment of a customer experience management (CEM) platform into its network. The platform, which is being deployed by NSN, aims to maintain and store real-time experience metrics for every subscriber in the operator's GSM, EDGE and 3G networks enabling it to proactively cater to customer needs.

Bharti's Singh says: "It will enable us to identify the root cause of a problem and rectify the same before the subscriber experiences any impairment in service delivery. This will clearly help us maintain an edge in the mobile broadband arena."

By using the platform Bharti will, for instance, be able to proactively correct device settings without any intervention from its customer care team. Sandeep Girotra, head of NSN India, adds that the system can also assist Bharti's marketing division by providing new insights into subscriber behaviours and preferences, and hence enhance the operator's capabilities to "create customer delight".

Meanwhile, in a separate deal, another Indian mobile operator is aiming to fast-track its pre-paid subscriptions through managed IT services. Said to be one of the country's largest cellcos with a presence in all 23 telecom circles, the unnamed operator has awarded NSN a contract to manage its pre-paid operations.

The vendor says that while the operator saw India's rural markets as a source of new pre-paid subscribers, its penetration efforts in 12 of the most important geographical areas for subscriber growth, covering most of the core of the country's rural and semi-urban subscriber base, had only been marginally successful. The vendor explains that the challenge lay in providing consistent operations for millions of subscribers over the operator's extensive multi-vendor network, which is based on its own technology as well as that from Comverse and Ericsson. "The CSP had to operate and maintain more than 1,600 nodes deployed across 12 distributed sites – no mean feat when it was also working to capture the lion's share of new pre-paid business with new and innovative value-added services that had to be rolled out as quickly as possible."

NSN has now taken over the management of the operator's pre-paid operations. It handles all the operator's pre-paid services for voice, data, VPN, calling card, and personal numbers. The agreement has allowed the cellco to concentrate on its core activities of customer acquisition and retention, especially in its target markets, and as a result of the outsourcing, NSN claims that the operator's pre-paid subscriber base has grown by 40 per cent over four years.

Other benefits include reduced time-to-market for new and low-cost value-added services (VAS) which are segmented and focused, thus leading to increased customer loyalty. The operator is also said to have experienced "significant" opex reductions through consolidation of resources which include end-to-end business operations, configuration of the three vendor platforms, and managing all third parties to resolve issues as required.

## FROM TECHNICAL PARTNER TO BUSINESS PARTNER

In what's claimed to be the industry's first combined outsourcing contract, Nokia Siemens Networks (NSN) will not only manage, operate and maintain Vodacom Tanzania's network, but also its energy resources.

Under a five-year contract announced in March, NSN will take over responsibility for Vodacom Tanzania's existing Network Management Centre and its operations across radio, transmission and core networks. It will handle network planning and optimisation, and 124 Vodacom employees will transfer to the vendor as part of the agreement.

NSN will also deploy its hybrid energy solutions at 338 sites and remotely manage them via its 'green energy' control service. This is designed to ensure optimal use of field resources, and includes monitoring of all energy sources as well as corrective and preventive site maintenance.

Ranjith Cherickel, NSN's head of Global Services Sales for Africa, says that the deal means his company is no longer just Vodacom Tanzania's technical partner, but its business



partner. "A record speed of 10 days for the 3G rollout and implementation of the 22 base stations and 120 sites was the turning point in this partnership," says Cherickel.

He adds that managed services will play an important role in developing regions because of operators focusing on connecting rural areas, reducing operating costs, and improving network efficiency. "As operators seek to roll out new networks or expand existing ones, they will have to be efficient in order to do more with less."

## Delivering more for less

While the most common managed service models are aimed at network management, the approach can also be applied to other aspects of an operator's business – such as value-added services. Comviva says that providing a diverse and engaging range of VAS can stretch an operator's resources, but the "ultimate" way to drive efficiencies and grow revenues is to adopt the managed VAS model.

"With competition becoming increasingly fierce in this segment, and the need to innovate and launch new services constant, the ability to deliver 'more for less' is critical," says the firm's regional VP, Mayank Sharma. He reckons that with managed VAS, operators can experience up to a 20 per cent reduction in manpower opex costs. "Managed VAS is fast emerging as the fourth variation in the evolution of managed services – the first three being managed contact centres, managed IT services, and managed network

services. However, since most of the VAS ecosystem is highly fragmented (having no uniformity in services delivery, security, backup standards, etc), its management is what the CEOs are concerned about the most."

Indian operator Bharti Airtel once again features here. It has signed a five-year contract with Comviva which will manage all VAS nodes and provide services across the cellco's 16 operations in Africa. Sharma says that this is only the start. "The managed VAS services market is nascent in Africa but growing. And the potential is that all operators, whether greenfield or established, could adopt a managed VAS services model to ensure delivery of a uniform customer experience, driving service usage and revenues."

Other elements that can be outsourced are the billing and operational support systems (BSS/OSS). Subex COO Sudeesh Yazhuval says that these are complex and sophisticated systems that require skilled experts and constant attention to get the best from them. He says: "Take a fraud

**Mayank Sharma,  
VP for Africa,  
Comviva**



**"Managed VAS is fast emerging as the fourth evolution of managed services."**

management system as an example. If the fraud detection rules are not updated regularly with emerging fraud types, or a revenue assurance system not tuned to detect new forms of leakages, the returns from investing in these systems reduce over time. And who knows how to optimise these systems' performance better than the ones who developed the products?"

Yazhuval says that most vendors offer managed services when their customers start to suffer from the decreasing values of their installed systems. Often, it is then that operators realise they do not have the product expertise to optimise OSS/BSS performance.

"Consider the case of one of our customers whose inventory system was just 60 per cent accurate," he says. "The inaccurate inventory naturally resulted in order fallouts, re-work, and resultant costs. While generalist managed services providers could have improved processes to stem this loss for some time, we utilised our *ROC Data Integrity Management* to not just correct the inventory, but also maintain it accurately with our managed services experts. As a result, the operator's inventory accuracy went up to 80 per cent in one year and its MTTR improved by 20 per cent."

Subex says that it offers a range of services from managing BSS/OSS applications to providing skilled staff to operate the complex systems, and the consulting expertise needed to migrate these operator functions up the maturity level.

Yazhuval concludes that the communications markets in emerging regions favour managed services immensely. But he warns that operators have to be cautious about selecting the right partner: "A partner that not just transforms their business, but also complements day-to-day operations. It is extremely important to maintain the right balance of outsourcing and strategic control in a managed services engagement. At the same time, it is better for operators to engage managed service providers early in the cycle." Thankfully, operators in developing regions have the benefit of learning from their peers in other markets. ■

## 'JACK OF ALL TRADES, MASTER OF NONE'?

Many experts agree that managed services are a must for emerging markets. But are infrastructure vendors turning to this business model because there are now fewer greenfield opportunities for them to sell their hardware? And aren't the individual aspects of such services better left to specialists who can offer years of experience in their particular chosen fields?



**He Chong, ZTE**

"Managed services arise from the needs of telecom operators, rather than being mere alternatives to selling hardware. Telecom operators need hardware vendors to provide customised solutions that add value and enhanced services to the network. Managed services are an important part of a comprehensive solution needed to enhance subscriber experience."

need for end-to-end network visibility and manageability becomes even more important. Managed services is not about short-term fixes, but about a methodical working relationship ensuring a consistent network which is able to evolve with an operator's customer needs."



**Sudeesh Yazhuval, Subex**

"Vendors such as Subex, which have acquired skills from hundreds of implementations of their solutions across various types of operators, can add more value to operators through managed services.

"Operators increasingly prefer best-of-breed specialists over generalist managed services providers. They realise that having best practices in operations will provide great one-time returns but is not sustainable. It is only when these best practices are burnt into technology, and operated by experts, that these benefits are sustainable.



**Ranjith Cherickel,  
Nokia Siemens Networks**

"Managed services is not about handling 'individual' aspects, but actually managing the entire network – end-to-end – and it requires a holistic approach and a comprehensive view of network and service management. If operators outsource individual aspects, it will defeat the entire purpose of having an overall expert and single point-of-contact who will enable them to focus on their core activities, i.e. retain their existing customers and acquire new ones."

"Also, operators need experts who are capable of handling multi-vendor equipment. Moreover, as network complexities grow and different kinds of services are made available in the market, the



**Peng Song, Huawei**

"With increasing competition in the marketplace, communication firms need 'solutions' for their challenges as end users have a demand for good services. It means telecom suppliers are expected to provide not only reliable technology but also a full set of services that can deliver 'value' to customers.

"Managed services is the broad combination of methodologies, best practices, competencies and tools to help firms achieve their goals. Instead of 'vendor' or 'supplier', Huawei wants to be seen as a long-term partner sharing with customers our experience of running networks across the globe."

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BelAir Networks' 100SP picocell base station combines cellular and Wi-Fi. The vendor says that in order to increase data capacity and prevent network meltdown, it expects to see the emergence of a new network model based on small cell architectures that augment licensed spectrum with unlicensed spectrum

# Keeping up with demand

**Wireless operators need to maintain their networks to ensure optimum performance. But their infrastructure is under increasing strain from data-hungry customers, as JOHN OSBORNE explains**

Wireless networks are not 'fit and forget' affairs. They need constant attention and updating if they are to give their best. If a mobile operator is planning to launch new value-added services (VAS) and offer mobile internet access, it needs to ensure that its network is capable of delivering all this.

The pressure on mobile networks is so serious that the ITU says governments need to take urgent action now in order to support mobile broadband growth. Secretary-general Dr Hamadoun Touré adds that accelerated fibre rollout and greater spectrum availability will be imperative if network bottlenecks are to be avoided.

According to the ITU, smartphone users already consume on average five times more data capacity than users of ordinary mobile phones. It says that with the number of smartphones set to rise from a recent global estimate of 500 million handsets in use, to almost two billion by 2015, operators are already having to employ multi-pronged strategies to keep up with demand – and not all are succeeding.

"Mobile operators have been investing billions to upgrade and improve the capacity and performance of their networks," says Touré in an ITU report, *Trends in Telecommunication Reform 2010/2011: Enabling tomorrow's digital world*. "But

in some high-usage cities, such as San Francisco, New York and London, we are still seeing users frustrated by chronic problems of network unavailability. Robust national broadband plans that promote extra spectrum and the faster rollout of the fibre networks which are essential to mobile backhaul are vital to support the growing number of data-intensive applications."

As mentioned, the pressure is coming in the shape of data-hungry mobile devices. Many consumers in developing markets have now gone from sharing a laptop in an internet café to owning their own powerful hardware. "The social applications are driving demand because they are status symbols," says Steve Bowker, CTO of Aircom, which specialises in network management tools and services. He adds that the solution to easing networks is relatively simple: "A lot more of the capacity needs to be measured in terms of the bandwidth and also the ability of the network to handle it."

## LTE will 'not be able' to cope

LTE has been designed to deliver much higher mobile data rates. But Tadashi Onodera, president and chairman of Japanese telco KDDI, warns that the technology will not be able to cope

with anticipated demand for high bandwidth services. As a result, operators will face unprecedented pressures in the coming years.

Speaking at the GSMA Mobile Congress last year, Onodera estimated that mobile data traffic will multiply 15 times by 2015, placing an enormous strain on existing and future LTE network capacity. He thinks LTE will not be sufficient to cope with such huge data demands



so operators will also need to use other technologies such as WiMAX – and even Wi-Fi.

Stephen Rayment, CTO of Canadian supplier of mobile technology solutions BelAir Networks, says that the “vast surges” in data traffic fuelled by the introduction of bandwidth-hungry devices has already taken its toll on operators’ networks.

“In order to increase data capacity and prevent network meltdown, we expect to see the emergence of a new network model based on small cell architectures that augment licensed spectrum with unlicensed spectrum,” says Rayment. “Essentially, this network model brings equipment down from the mountain tops to the ground and combines cellular and Wi-Fi technology.

“This unlicensed spectrum will play a major role in ensuring future networks are able to meet the capacity demands of mobile data – which are already set to exceed the capabilities of new LTE networks. Moreover, adding Wi-Fi to the connectivity mix now will ensure any country is on the right track to meeting its future broadband infrastructure needs.”

While South Asia may trail well behind Europe and North America in regards to *iPad* sales, there are signs that mobile operators and consumer electronics manufacturers are feeling optimistic about uptake of tablets across the continent.

An example is the Pakistan Telecommunication Company Limited which launched the country’s first 3G-enabled tablet with built-in wireless broadband from in August. According to local reports, the 3G EVO Tab has so far been a big hit because it is user-friendly, offers on the go connectivity, and is affordably priced with bundles available from PKR8000 (USD92). The seven-inch touchscreen tablet features wireless mobile broadband connectivity and can be used on the EVO network in more than 100 cities.

Meanwhile Wi-tribe, which provides broadband services in the country via WiMAX, recently gave customers who purchased from it a Dell Streak,

HTC Flyer, or Samsung Galaxy Tab P1000



a free Wi-Fi connection plus one month’s free line rental.

Affordable tablets may be one of the answers to extending wireless access to much wider communities. But before that happens, service providers are well advised to re-examine their approach to backhaul design and operation in the light of such data-hungry devices entering the market. The challenge is that many wireless network technologies are established and viable but mobile data traffic is not uniform and even. High data volumes may be generated at one cellsite while little or nothing comes from another. A minute later, that position could reverse. This has significant implications for the backhaul network and means that the networks have to intelligently allocate bandwidth according to demand.

The alternative is to arrange for the network to cope with the maximum potential data rate – but this an option that can prove to be highly inefficient and capital intensive.

If we all keep taking the tablets, the networks will suffer. A multitude of data-hungry devices are now flooding the region’s markets. For example in Pakistan, the PTCL has launched the 3G EVO Tab (top left), while WiMAX broadband provider Wi-tribe is offering special hardware and connection bundles on the HTC Flyer (top right), Dell Streak (bottom left), and Samsung Galaxy Tab (bottom right).

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## Keep it real-time

Jan Tjurin, head of network planning and optimisation at Nokia Siemens Networks, says that the data explosion has resulted in more sophisticated methodologies. He says that the starting point for network optimisation is to collect data from both the network and subscribers' handsets revealing traffic distribution and potential issues in the system.

Billions of measurement reports are generated in an average-size network. Based on this data, the performance is measured against pre-defined KPIs such as the dropped call rate (circuit switched and packet switched), the internet throughput, and the handover performance between technologies such as GSM to WCDMA.

Tjurin says that the network is optimised where it benefits the largest number of subscribers or provides the best return on investment. The intelligence feeds into a range of GSM and WCDMA network planning and optimisation methodologies. How the network is optimised depends on the data, says Tjurin. As examples, he says that cell borders can be adjusted so that they are not situated where a large number of subscribers cross them; antennae can be tilted differently to enhance coverage or capacity; or the data might be used to expose hidden hardware issues. The objective is to enhance subscriber satisfaction and increase the capacity and coverage of the network.

When deploying optimisation solutions he says it is essential that data is collected in real-time so that problems are spotted quickly and action can be taken immediately to resolve issues before they affect users. A structured approach to network optimisation is crucial as networks constantly need to adapt to shifting populations, emerging traffic patterns, and new hotspots. Real-time adjustment to these patterns is necessary as utilisation falls out of balance, capacity is wasted, or cells are overloaded. If a network is left alone, these issues can impact subscriber retention.

Tjurin also points out that new infrastructure elements, more devices, and newer technologies also have to be added to the network without degrading the service experience. Monitoring and improving the network is therefore essential if an operator is to make the most of its network resources and get the best return on investment.

## Policy control

While all those represent the basic principles of optimisation, specialists also recommend that operators deploy policy control.

"Policy control is a relatively new network technology (known by 3GPP as a Policy and Charging Rules Function or PCRF)," says Randy Fuller, director of business development at mobile networks solutions provider Tekelec. He says it allows operators to dynamically control bandwidth, charging, consumption, and other network factors for a subscriber's entire data session or for one or more particular applications.

Policy controls are applied based on rules defined by the operator which take into account subscriber, network, and application conditions, as well as other factors such as time of day. In order to apply control services, the PCRF gets requests from a system or application, processes the policy rules for that particular type of request according to the conditions at the time, and then instructs one or more other network systems to change the behaviour of the service if needed. In this way, network performance, billing, allowed consumption, and each parameter for an individual user can be customised according to their chosen services.

Fuller says the initial applications for a PCRF have typically been for bandwidth control and notification alerts for heavy use subscribers. However, a growing number of operators are now using the function to manage specific applications such as video, VoIP, and peer-to-peer. He says that the main advantage of a standards PCRF-based approach over earlier static provisioning of services is the ability to selectively manage a wide range of network treatments to deliver the best service possible to the maximum number of subscribers given a certain set of network constraints.

Ann Hatchell, director of Solutions and Partner

Marketing, Bridgewater Systems, agrees that policy control software is a viable solution. "There has been a tremendous demand for dynamic policy solutions, especially in the last three years. Operators are investing in 3G and increasingly 4G. We can control how subscribers are managed, how much bandwidth can be used, and how operators manage that globally. Eighty per cent of the traffic on the network is created by 15 per cent of the customers. [Operators] are looking at specifically targeted plans based around social media."

Bridgewater says that service providers can increase the total value of their networks by ensuring they have the capability to support new technologies with intelligent business models. It points out that fixed-mobile convergence is on the rise, and mobile service providers are increasingly looking to IP-based infrastructures, and that the ability to intelligently manage different types of traffic will be central to profitability and meeting subscriber demands. "With intelligent subscriber-centric policy management, different usage-linked pricing plans can be developed, and with the insight on data costs per user and application, ROI can be accurately measured and cost reductions found," says Bridgewater.

## WHAT NEEDS TO BE OPTIMISED?

Celcite CTO AJAY KHANNA says operators should focus on their radio access networks



Celcite specialises in radio access network (RAN) optimisation software solutions, managed services, network assurance, and wireless engineering services. Its CTO, Ajay Khanna, says

that all aspects of the network need to be constantly monitored and regularly upgraded to keep up with the latest user trends, newest handsets, and the requirement for large data volumes and high data throughputs. "For example, the 3G speeds of 128/384kBps that were introduced about eight years ago would not satisfy the demand from today's customers."

Khanna says that while it's very difficult to identify the most significant part of the network, the RAN is the area that needs the most attention and is the most time consuming to optimise.

"Networks are increasingly complex and some have GSM/DCS, 3x3G carriers and LTE. NodeBs/eNodeB will need capacity upgrades, extra H/W, additional carriers, extra transmission, etc. There are considerations like LAC borders, RAU borders, 2G/3G borders, MSC borders, and finally there are all of the neighbour relations, SHO, IRAT, IFHO to maintain and optimise."

"The air interface is the most time-consuming part of the network – it needs constant monitoring and optimisation. There are thousands of

parameter settings to trial and balance to provide the best service possible. There are hundreds of KPIs and thousands of counters, most of which should be monitored on a daily basis. As the sales of smartphones and dongles increase, operators will see increased congestion across the network and must deal with this quickly.

"As the capacity of the RAN increases, the operator must ensure that the RNCs, MSCs, and packet core nodes have sufficient capacity to deal with this extra traffic. Packet core upgrades can be time consuming to plan and complete, and so the capacity requirements must be identified 12 months in advance, and forecasts must be checked and verified every month."

"Operators need to have an excellent rollout strategy with minimal downtime. During the rollout phase it is important that the operator maintains KPIs for existing services – for example, 99 per cent voice CSSR should be maintained."

"They should perform a detailed trial of the new services and comprehensively assess the overall performance. Operators should also hire staff with excellent experience and records to teach engineers how to monitor and optimise the new technologies, or consider outsourcing this to a company who has these skills. And they should keep up with optimisation trends; for example, most operators are moving away from using drive-testing as the main optimisation tool."

## Think cloud

A totally different way of approaching the problem is to deploy a cloud platform. Jonathan Bell, VP of Product Marketing at Open Cloud, says that his company's technology is designed for use by an operator within its network to provide services – be they cloud, Telco 2.0, or classic. He claims that it is based on off-the-shelf hardware and software rather than customised telecoms kit. What's more, he reckons that Open Cloud's solution delivers a much better performance than traditional platforms and at a much lower price. In addition, Bell says that it is built for the modern, multi-party, multi-service, multi-technology era where services are varied and changing continuously as providers innovate and compete with each other.

"Traditional systems cannot cope with this type of situation, having been designed for the simple telecoms provider subscriber model of a few, fixed and non-changing services," he says. "Open Cloud is a particularly practical way of providing an optimised network in emerging markets where there is usually no or poor legacy fixed infrastructure. So in order to communicate, users leap on mobile service providers as the universal answer to all their connectivity needs (web, messaging, voice)."

Bell says that as the region is relatively poor, the price-points anyone can pay are much less than in Europe and North America. "Traditional equipment is expensive and designed with precepts of the price-point in mind as well as a limited set of services – so legacy providers cannot provide what is wanted and certainly cannot meet the sort of price-point that is required."

Location-based services (LBS) constitute another tool which network optimisation specialists say could be more widely used. However, there is some debate about its usefulness. "In the US it is mandatory," says Vick Mamlouk, MEA VP for Andrew Solutions. "When you dial the mobile it must give you the location. In Europe it is still not mandatory. In other regions, we are working with a number of potential customers."

But Mamlouk adds that mobile users usually do not want to be located because they want privacy. Also, he says operators are reluctant to deploy LBS because there are no revenue opportunities – although he goes on to point out that there could be opportunities if the operator teamed up with a partner such as a shopping mall owner, for example.

Arieso's CTO, Michael Flanagan, doesn't agree LBS is a 'necessary evil', and says operators *should* be using such technology. "Operators must know where data subscribers are located with unprecedented accuracy because of the limited ranges offered by Wi-Fi, micro cells, and other cost-effective solutions to the problem of high data demand. As noted in recent Arieso research, aggregate data volumes continue to climb steadily with each new generation of data device."

Flanagan recommends that operators optimise their data networks by determining where data subscribers are located and by measuring their

location-specific data demands. "The challenge is that this is a moving target: the overall data demand is growing rapidly, but radically more so in some locations than in others."

In his view, the successful operator will identify these radical hotspots by using subscriber-centric network engineering products to determine where limited opex optimisation resources need to be focused and where capex needs to be "surgically applied". And if that holds true, ensuring the subscriber is at the heart of these opex and capex decisions is the key to maximising quality of experience and minimising churn. ■

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# Project 25 ready for take off



P25 has gained worldwide acceptance for use in public safety networks in addition to applications in many other industries such as air transportation

The recent completion of the P25 TDMA trunking standard will now enable development, testing, and implementation of interoperable equipment that uses this mission-critical communications technology

**T**he TIA-102 suite of standards are used for the design and manufacture of interoperable Project 25 (P25) communications products for mission critical operations. P25 has gained worldwide acceptance for public safety and public service in addition to many other industries such as utilities, airports, transit, petroleum and chemical companies.

The Common-Air-Interface (CAI) is one of the most widely deployed P25 interfaces and enables interoperable communications between compatible radios, and between compatible terminals and P25 infrastructure, regardless of the manufacturer. The new P25 TDMA trunking suite of standards adds TDMA voice service to the existing P25 FDMA trunking voice and packet data services that are already defined.

Systems that take advantage of the standards will use the P25 FDMA control channel for both FDMA and TDMA call requests. This allows them to support FDMA as well as TDMA calls. The P25 TDMA CAI is an addition to the P25

standard and does not replace the FDMA CAI.

P25 TDMA capable systems will also use FDMA packet data service to support P25 OT AR, P25 Location service, POP25 (OT AP), and text messaging. It is therefore important that P25 TDMA capable system continue to support P25 FDMA features and operation.

P25 TDMA trunking operation meets the 2013 FCC equipment certification requirement for 6.25kHz channel equivalence mode in UHF and VHF bands and the 2015 FCC equipment certification requirement for 6.25kHz equivalence mode in 700MHz band plans. It will also meet the 6.25kHz channel equivalence 2017 FCC regulatory requirement for operation in the 700MHz band.

Organisations will have the flexibility in how they leverage their current frequency allocations. So, for instance, a seven-channel system implementing P25 TDMA could double system capacity (*see figure 1*), or users could opt to keep the voice capacity the same and free-up channels for data operations.

## Approval steps

There are basically three steps for approval:

**STEP 1 Approval to Move to TR-8:** A document is sent to the appropriate TR-8 sub-committee to determine if additional work is required or if it is suitable for ballot. Once the document is balloted and approved, it will move onto the next stage, "Approved for TIA Publication". It may take up to an estimated six months to advance to step 3.

### STEP 2 Approved for TIA publication:

A document is determined to be complete. The chair of the TR-8 sub-committee forwards the document onto TIA for publication. It takes around one month to move to step 3.

### STEP 3 Published BY TIA:

A document is published as a TIA-102 standard document.

TDMA Trunking TIA-102 standards documents can be segmented into two main categories – the Core Definition Documents are those TIA-102 Standards documents that enable manufacturers to develop and implement interoperable P25 TDMA

trunking equipment; and the Testing TIA-102 Documents are used by manufacturers to verify that their product implementation adheres to the Core Definition Documents. The latter include the following: (1) the TDMA Physical Layer Document which standardises modulation and data rate for P25 TDMA operation in a 12.5kHz channel; (2) the TDMA CAI MAC Layer Document which standardises protocol, messages, and procedures for the P25 TDMA air interface; (3) Control Channel Updates which standardises control channel messages and procedures to enable P25 TDMA radio registration and call assignment; (4) Encryption Updates which standardises voice/data encryption synchronisation on a P25 TDMA channel; and (5) Half Rate Vocoder Annex which defines lower bit-rate vocoder for the higher spectral efficiency of a TDMA air interface.

The Testing Documents include the following: (1) TDMA CAI Conformance Tests which define the standard MAC protocol tests; (2) Phase 2 Two-Slot Time Division Messages and Procedures Conformance Tests which define the standard MAC messages and procedures tests; (3) Phase 2 Two-Slot

Time Division Transceiver Measurement Methods which define the standardised test methods for measuring transmitter and receiver performance; (4) TDMA Interoperability Tests which define the standard tests for interoperability between radios and infrastructure; and (5) Phase 2 Two-Slot Time Division Transceiver Performance Recommendations which are the standardised performance specs for the transmitter and receiver measurement methods.

### Software upgrade to TDMA

The P25 TDMA Trunking Testing documents are approved for TIA publication, and manufacturers now have the information necessary to build and verify interoperable P25 TDMA trunking kit.

Motorola says that it currently has 16 contracts for P25 TDMA trunking systems based on its *ASTRO 25 Release 7.11* platform which optionally features P25TDMA trunking functionality designed to the TIA-102 Suite of Standards. In support of the standard, the company says it has already implemented enhancements specified in the P25 TDMA TIA-102 documents such as the dual rate

vocoder in the *APX* subscriber portfolio and in its *MCC 7500* console. The firm adds that key system components in *ASTRO 25*, such as the *G-series* stations, controllers and comparators, and the *MCC 7500*, are software upgradeable to TDMA.

Communication between P25 TDMA and P25 FDMA resources is a key priority of Project 25. In addition to the communication between P25 TDMA and P25 FDMA resources outlined, Motorola's system offers *Dynamic Dual Mode* which is designed to enable improved ease of use and system operation. Using this mode, it's claimed that calls in an *ASTRO 25* system are dynamically assigned as FDMA or TDMA depending on the resources available. When all the resources (i.e. stations and subscribers) are TDMA-capable, the call is processed as TDMA. If any resource is only capable of FDMA, then the call is processed as FDMA. Motorola says that *Dynamic Dual Mode* is part of the core call processing application – it is transparent and requires no intervention from users or network operators.

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## P25 FDMA SYSTEM: 7 CHANNEL TRUNKING SYSTEM WITH UP TO 6 VOICE CALLS



## P25 TDMA SYSTEM: DOUBLE VOICE CAPACITY WITH UP TO 12 VOICE CALLS



Figure 1: increased voice capacity with TDMA. Utilising a P25 trunking system with TDMA operation can double an organisation's voice capacity. Users can go from having up to six simultaneous voice calls using P25 FDMA trunking operation, to the ability to have up to 12 simultaneous calls using P25 TDMA trunking operation

## P25 FDMA SYSTEM: 7 CHANNEL TRUNKING SYSTEM WITH UP TO 6 VOICE CALLS



## P25 TDMA SYSTEM: 6 VOICE CALLS AND 3 DEDICATED DATA CHANNELS



Figure 2: same voice capacity plus additional data capacity with TDMA. Organisations can use the additional capacity of a P25 TDMA trunking operation to maintain the same number of simultaneous voice calls and add data channels providing advanced data functionality such as OT AR, location service, OT AP, and text messaging



For consumers, having an interoperable strategy in place may change the way in which they view mobile money. This could have a positive knock-on effect for the wider eco-system

# Interoperability: the fate of mobile money?

PANKAJ GULATI discusses the importance of interoperability in mobile commerce and the impact that this will have on the mobile industry in developing markets

**M**obile commerce (or mobile money as it's commonly known in emerging markets) is taking the mobile industry by storm, and the uptake in emerging markets in particular is accelerating at a rapid pace. Mobile money is a compelling prospect for the unbanked. In countries suffering

from under-developed infrastructure, where a number of the population are living in poverty, mobile phones are creating opportunities for commercial growth and individual empowerment by giving people the access to basic financial services. According to a report by Mobile Insights, the number of new users of

mobile banking soared over 100 per cent in 12 months in countries as diverse as China, Brazil and Kenya, as banks leap-frogged traditional service models and moved directly to mobile.

Despite being a far-reaching vision that promises to improve financial inclusion for many developing markets, as well as having an

impact on the banking system in those countries that are viewed as developed, there are still questions surrounding mobile money and its real value to businesses, consumers and to society as a whole. Interoperability in the mobile commerce eco-system is one of those questions and is a controversial topic that is constantly being debated within the industry.

At the moment, very few users are able to transfer funds between mobile wallets or even pay bills to companies that are associated with different brands. Mobile commerce service providers, such as banks and credit card companies, are reluctant to collaborate with competitors fearing a decline in market share and some mobile operators and telecom companies often see this collaborative approach as an attack on their assets and their businesses.

However, cast your mind back to when SMS was launched and the picture was very similar. For the first seven years there was a severe lack of interoperability between mobile operators and users were only able to send text messages to other mobile users who were on the same network and in the same country. It has been long since discovered that subscribers are best served by making sure they can send and receive messages to/from anyone, even if they are on a different network or abroad – an approach which service providers need to consider if mobile money is going to experience a similar success story to that of mobile messaging.

## Making a Splash

Mobile operators in a few countries have taken this on board, despite an uncertainty as to how this could affect their business. *Splash Mobile Money* is an example of a network neutral/interoperable service that is currently in practice in some developing markets. In Sierra Leone for example, *Splash* was the first network neutral mobile money service to launch and is now operating nationwide across all three mobile operators. Customers from all networks in the country can participate in the service and soon customers from all the nation's banks will be able to participate too, making it one of the few completely ubiquitous eco-systems in the world.

*Splash* still has a way to go before it becomes a great success story. What it now needs to do is build trust in its brand and become a preferred method of payment for merchants, businesses and consumers. However, what it has already achieved thus far is remarkable.

It is difficult for competing companies to decide to work together on key, profitable aspects of their business, as originally witnessed with the introduction of SMS. While that may be understandable, a more cooperative approach lends itself to creating a more enhanced service for both consumers and businesses. And what's more, interconnecting at an early stage can help to reduce deployment costs for all and jump-start network effects.



Pankaj Gulati,  
CEO,  
MoreMagic

**"At the moment, very few users are able to transfer funds between mobile wallets or even pay bills to companies that are associated with different brands."**

It has been suggested that it is in an operator's best interests to implement interoperable strategies as soon as possible. This will dramatically increase the number of mobile money transactions, as transaction volume in any network is proportional to, and driven by, the number of interconnections possible between subscribers. Thus, with a less restrictive service the uptake is going to be greater.

Similarly, in order to reap the benefits in the medium term, service providers must start planning their interoperability strategies now. By implementing an interoperable approach, the risk of monopoly dominance is reduced. Even those firms that have a chance of gaining dominant market power stand to realise benefits from sharing. For example, if banks are independent of one network operator and request several of them to join their platform, a larger audience could be reached and prices better controlled. Therefore, a wider eco-system (with multi-MNOs, multi-banks and multi-merchants) needs to be created for mobile money to reach its full potential for all parties, including consumers.

## The customer's view

For consumers, having an interoperable strategy in place may change the way in which they view mobile money, and this will have a knock-on effect for the wider eco-system. In most cases, consumers are not aware of what mobile network their friends, family, or colleagues are using, and in the case of money transfer the ability to transfer funds to who you want to, irrespective of what network they're using or where they live, is invaluable. In fact, it could be seen as a necessity if this is going to be a success. Going back to *Splash* as an example, approximately 40 per cent

of its peer-to-peer money transfers today represent cross network transactions. Furthermore, it is also essential that a customer of any mobile money service be accepted at any cash merchant, regardless of which service they are with. This is something which is only feasible when an interoperable approach is in place.

As we have established, mobile money is leap-frogging the traditional banking system and this not only provides benefits for the consumer but also for the retailer. By allowing consumers to purchase goods at an outlet no matter what mobile network they are on or what bank they use is extremely advantageous to retail outlets.

POS devices, such as credit card machines, are expensive, easily costing around USD300-500 for basic models. Given the number of merchants in these developing markets and the high proportion of those that are informal or very small, this cost is not recoverable by either the merchant or the bank through transaction fees. For example, the average transaction sizes for daily payments are very low – far lower than in developed markets. These lower transaction values make the standard card association pricing (which includes a flat fee plus a percentage of the transaction) prohibitively expensive for the retailer.

Similarly, having a network neutral/interoperable service is going to be instrumental to the success of mobile money for business, corporate, government, or bulk purposes. Offering common payment interfaces to bulk users so that employers, utilities, and governments are not forced to negotiate with and integrate into each mobile money scheme separately would be beneficial. Businesses in Sierra Leone are using this approach. For example, the largest microfinance institution in Sierra Leone is using *Splash Mobile Money* for loan disbursements and repayments and the largest provider of satellite television in the country has enabled its customers to use the service to make monthly subscription payments.

## Key area of focus

Mobile money is a key area of focus, particularly in the developing markets, for mobile operators, banks, and the consumer. But all the stakeholders concerned need to find a way of working together to allow each to be profitable and to gain market share. And at the same time, they all need to offer their customers the best service and subsequently increase customer loyalty. An interoperable market is certainly beneficial for everyone. Yet with regulations and concerns from operators and service providers, how this will pan out remains undecided. ■

*MoreMagic specialises in mobile commerce and financial services technologies. Its aim is to enable a global mobile financial eco-system that links operators, financial services organisations, retail distributors, NGOs and other businesses and stakeholders.*

# BGAN brings banking to rural Ghana

 A new mobile banking solution is using BGAN to bring secure financial transactions to villages across Ghana.

The system has been deployed by Opportunity International Savings and Loans which is part of a global coalition of organisations dedicated to providing services for people in less developed countries.

Opportunity already has 14 branches operating in towns and cities in Ghana, but says that banks in the country have avoided serving people in rural communities because of the high cost of processing small transactions. It has now developed a micro-financing system that delivers small banking solutions to villagers.

Opportunity has deployed two mobile banks on a test basis using bullet-proof vans housing ATM machines and a teller kiosk. The BGAN platform has been delivered by Inmarsat service provider NSSL. One of its uses is to store and transmit customers' fingerprint scans to ensure personal bank details are kept secure. The data is transmitted to Inmarsat's satellite access station in the Netherlands before being re-directed via a terrestrial connection to the bank's HQ in Accra. A Thrane & Thrane *Explorer 500* terminal is installed in each van to establish a secure VPN link via a Cisco router to Accra, and all financial traffic is encrypted before being sent via BGAN. To keep the link with the mobile bank live, NSSL has set-up an always-on data session and says that a bank server generates 200 bytes of 'heartbeats' that are sent continuously to the ATM machine. It adds that the average traffic generated for 50 transactions is about 438kB.

"The trial shows mobile banking can be successfully conducted using just one BGAN unit per banking unit," says Inmarsat senior business developer Issa Odtallah. "A typical transaction of three kilobytes takes less than 30 seconds to complete. By contrast, it takes well over 100 seconds to settle the same transaction using a terrestrial or cellular network."

# UK sees first 1Gbps Ethernet network to support cellcos



Virgin Media Business (VMB) is to roll out the UK's first 1Gbps synchronous Ethernet network to support Mobile Broadband Network Ltd (MBNL).

VMB will build 14 regional aggregation networks that will collect mobile calls and data from Orange, T-Mobile, and Three customers for backhaul on its high speed national fibre network. The eight-year deal is worth more than GBP100m (USD160m) and will also allow VMB to challenge British Telecom (BT) for Ethernet fibre backhaul business.

VMB's head of mobile and



VMB's George Wareing says the extra fibre will decongest mobile networks while taking on BT in the Ethernet backhaul market

broadcast George Wareing says the deal means installing a lot more fibre, both for the aggregation networks and to new cellsites. "This is already well under way, starting with the aggregation networks, and the first three will be completed by the end of this year. This will put us in a very

strong position to take on BT and target a large share of the UK's Ethernet backhaul market," he says.

The extra fibre will help the mobile operators cope with an explosive growth in mobile data traffic, which has led to the increased demand for fixed wire off-load capacity

MBNL, the infrastructure network operator for mobile operators Three and Everything Everywhere, is to be the first to roll out VMB's Sync-E technology running at 1Gbps up and down the network. This will also prepare MBNL for the rollout of 4G/LTE services which are expected in 2013.

## Show us your evidence, Huawei tells US



Huawei has asked the US government to show evidence that it is not to be trusted, following a Department of Commerce decision to exclude the Chinese equipment maker from bidding for a national wireless emergency communications network.

The move, reported by the London *Financial Times* (FT), is the latest in a series of fights between Huawei and the US government which has blocked a number of the firm's acquisitions.

The FT quoted William Plummer, Huawei's vice-president of external affairs, as saying: "Stop the manufactured fear. If you have something to say, substantiate it."

This latest development marks an escalation in the rhetorical war between Huawei and the US, which alleges that the firm essentially acts as a front for the Chinese military.

Other governments have also questioned the security risk of having Huawei equipment at the heart of national communications networks.

For instance, the UK's security standards body CESG has previously refused to green light British Telecom's (BT) 21CN network for all types of government traffic because it used Huawei equipment. BT is presently scaling back 21CN in favour of its high-speed broadband rollout.

In August, Huawei hired John Suffolk, the UK government's former chief information officer, as its cyber security boss. The appointment was said to be aimed at allaying fears of its ties to the Chinese security forces.

## Espial to power Vodafone Iceland IPTV



Aiming to provide a TV-anywhere service, Vodafone Iceland has geared up with an IPTV on-demand platform from Canadian specialist Espial.

Vodafone Iceland's IPTV system provides broadcast channels, TV on-demand, catch-up services, and video-on-demand (VOD) to more than 25,000 customers, as well as mobile, fixed-line, and ADSL/IPTV services to both consumers and businesses.

Espial is providing its *Evo TV Service Platform*, *Evo* set top box (STB) client, and the *Espial MediaBase VOD* platform. The firm says all these integrate with Vodafone Iceland's



Vodafone Iceland prepares for TV everywhere with Canadian help

management systems and existing STBs that have been upgraded. In addition, Vodafone will use the *Espial* STB client to drive its next-generation STBs which are supplied from Amino.

It's claimed that *MediaBase* provides a single platform for multi-screen services, unified content delivery networking, and a combined HTTP/RTSP streaming solution.

The system will allow Vodafone Iceland to introduce "TV Everywhere" services for customers with tablets, mobiles, and PCs, and to manage its on-demand video library, including movies and catch-up TV.

# Market trends and success factors in Mobile Money

**T**oday, mobile phones reach over 75% of the global population with over 5 billion connections. However, only 1.5 billion people around the world have access to formal financial services, leaving an estimated 3.5 billion adults with no ability to save, spend or send their money outside of the cash economy.

eServGlobal has been providing mobile money and recharge services to mobile operators and financial institutions for over twenty years. CEO CRAIG HALLIDAY gives some insight into this rapidly expanding market place.

## How do you see today's mobile money market?

With over 100 deployments now live, the industry has developed quite rapidly in just a few short years. The mobile phone is changing the way people live their lives and mobile money has the potential to impact and enhance lives the world over, as has already proved the case in a few countries. At this point in the journey, I think we have reached a more interesting point than ever before. We are now witnessing real traction with mobile money, especially for unbanked populations, and we are gathering precious knowledge from the experience of early adopters.

## Are we close to seeing widely available mobile money services?

There really isn't a straight forward answer. Mass market adoption is going to depend on many factors and these are going to vary in each market. In developed countries, m-commerce services will be an extension to e-commerce with additional features related to the mobility experience. In developing countries, mobile money will be a new service that can change people's lives and, as such can spread rapidly if the adequate infrastructure, ecosystem and marketing are in place.

eServGlobal CEO,  
Craig Halliday

## Are we seeing enough progress in the ecosystem?

There is certainly no lack of innovation. If you consider the rate of adoption for new technologies in recent times, such as mobile internet, social networking etc, each one has experienced more rapid acceptance than the last, and mobile money is no exception. The nature of the mobile money business involves many stakeholders in complex relationship combinations. In addition to this challenge, a whole eco-system of merchants, agents, marketers, etc is evolving and will come to maturity.

## What are the most important elements to ensure the success of mobile money services?

Customer trust, user experience and interoperability are the three key success factors for mobile money services. Trust comes from the operators' brand and the existing financial relationship that they have already built with their customers. User experience must be fluid, quick and easy regardless of how complex the transaction is. And finally, in order to have a wide adoption, people should be able to use mobile financial services without restrictions relating to which operator networks are involved. Interoperability will be the key driver to mass adoption of Mobile Money services.

## How does eServGlobal fit within this competitive market?

eServGlobal has evolved from the early days of prepaid voucher recharge, through the full dematerialization of mobile payment methods. We successfully implemented electronic mobile recharge which has brought a real difference to our customers and directly impacted their bottom line. It is on these foundations that we have built the concept of an end-to-end mobile money service offer inside our PayMobile solution. Let's take the example of agent management features that are required for mobile money, these are already deployed by our solutions and are handling more than 230,000 agents for one of our customers in the Asian region. This focus on the end-to-end spectrum naturally lead us to mobile international remittance. In cooperation with our strategic partner BICS, we successfully deployed the HomeSend service. It is currently the only live mobile-centric international remittance hub endorsed by the GSMA and already gaining traction in key markets such as South Asia, Africa, the Middle East and Europe.



## What did you see as major areas of growth on the horizon for mobile money?

Emerging markets and the unbanked will continue to be a significant growth area. Of the over 100 live deployments reported today, 88% are in unbanked markets. This trend is predicted to continue for deployments in the pipeline. With a worldwide population of over 1.5 billion people in possession of a mobile phone but without access to any traditional bank services, there exists a real opportunity to provide services of value to both operators and users.



Following on from this, I believe we will see a continued increase in mobile centric international remittance. In 2010, the World Bank reported that remittance flows exceeded \$440 billion. From that amount, developing countries received \$325 billion, a 6% year on year increase. This is an impressive figure in light of the global economic climate. Combined with the ubiquity of the mobile phone, this can only lead to a dramatic increase in the reliance on mobile as a way to transfer money internationally.

# ZTE lands multi-10Gbps contracts in the Philippines

 ZTE has won two major deals to develop metro networks for Smart Communications, the largest mobile carrier in the Philippines. It has been contracted to build metro Ethernet transport networks as well as a national fibre carrier network to support them.

The Ethernet networks will cover Metro Manila, Great Metro Manila, and provincial areas such as Luzon, Visayas, and Mindanao. ZTE says that these will act as aggregators for

the fibre bearer network. It's claimed that both will offer multiple 10Gbps channels with options to increase capacity as needed.

ZTE will use its next-generation ZXCTN 9008/9004 IP transport products for several core and convergence rings to bear the services of different performances and capacities over the metro Ethernet.

These are designed to support layered, automatic fault detection for fast protection switching, performance

monitoring, fault locating, and signal integrity, while the key modules and power supply incorporate redundant back-up for extra reliability.

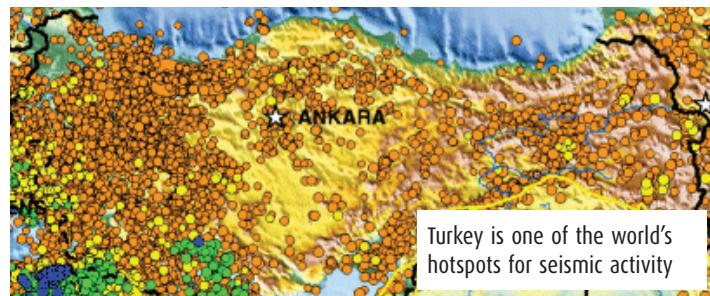
Smart Communications is a wholly-owned subsidiary of the Philippine Long Distance Telephone Company. It operates a variety of services throughout the country including mobile banking, fixed wireless broadband access, and mobile satellite, and is said to have around 50 million 2G/3G subscribers.

## Hughes to provide Turkey quake warning

 Satellite operator Hughes Europe is to help Turkey monitor earthquake activity and provide backup digital voice and data communications if terrestrial services are knocked out by a natural disaster.

Hughes says it is working with local partner Gate Elektronik on a project to provide satellite communications support to the Istanbul Seismic Risk Mitigation and Emergency Preparedness (ISMEP) project currently under way in Turkey.

Hughes Europe and Gate Elektronik will provide full VoIP and data connectivity via Hughes' HX satellite communications platform. The satellite will link a Hughes network operations centre in Istanbul



to an initial 12 offices in the surrounding region. This will provide backup if earthquakes or floods damage the primary terrestrial or GSM mobile infrastructure. The satellite will also transmit seismic data between offices to provide early warning of earthquakes.

Funded jointly by the World Bank

and European Central Bank, ISMEP aims to implement best-practice principles of disaster management in the earthquake-prone country.

Building work is under way in both Istanbul and the outlying locations and Gate Elektronik is expected to complete installation of the Hughes system by the end of 2011.

## Deploying cdma2000 femtocells

 3GPP2 and the Femto Forum have published a best practice guide for cdma2000 femtocell and small cell deployments. It is said to offer a detailed insight into the full capabilities of cdma2000 femtocells thereby going beyond the features encompassed in the current standard.

It's claimed that the guide provides essential advice to operators on key issues such as effectively managing handoff, how to phase the rollout of small cells with expanding feature sets, using a shared carrier, and how best to mitigate interference. 3GPP2 says that these are applicable not just for residential implementations but also for the wider range of applications including enterprise, rural femto, and metrocells.

3GPP2 announced the formal publication of comprehensive specifications for femtocell devices that incorporate cdma2000 1x and HRPD (EVDO) radio access technologies in March 2010.

The specifications describe all aspects of a SIP/IMS-based femtocell architecture for highly-scalable deployment of femtocells. They allow the integration of existing mobile devices, enhanced femtocell-aware mobile devices, femtocell devices, security gateways, and femtocell convergence servers from multiple vendors.

## Airwave creates comms "bubble" for Olympic mall

 Blue light voice and data radio communications specialist Airwave has completed an indoor installation at the new Westfield Stratford shopping mall to improve secure police communications.

According to the developers, the new GBP1.8bn (USD2.6bn) east London shopping centre next to the 2012 Olympic Park is the largest in Europe at 1.9 million square feet.

With three-quarters of next year's 10 million Olympic visitors expected to walk through the centre on their way to the games, the network's capacity has now been doubled.



The new Westfield Stratford mall with the London 2012 Olympics stadium in the background

Airwave UK's network services director, Martin Benke, says the original plan was to reduce capacity after the games, but the London riots in August have led to talks about

maintaining the extra capacity.

Benke explains that the centre needed in-building coverage for better policing. Airwave already provides external coverage but could not

guarantee in-building coverage. He says that Airwave's digital trunk radio network operates around the 400MHz frequencies which gives "pretty good" penetration in buildings. "But Westfield Stratford is just so big we installed its own base station to drive the indoor access points."

This has created a "bubble" that covers all the shopping floors, car park, and back-of-house areas.

Having largely saturated the market for secure public safety radio comms, Airwave says it is now looking at the smart meter/smart grid market, which could be worth upwards of GBP4bn.

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## Free French femtocells

 French mobile operator SFR is to offer free femtocells to its 10+ million 3G customers. The femtocell costs EUR49 (USD68) which is refunded automatically on activation. A European first, the scheme follows SoftBank Mobile in Japan. SFR is using UK-based Ubiquisys' femtocell technology. The femtocell is a standalone device that connects to standard ADSL routers, and for users of SFR's *Neufbox Evolution* ADSL box, Ubiquisys' *SFR Femto* converts into a click-on USB accessory, preserving a one-box solution with no extra cables.

## First for LTE TDD/FDD

 Poland's Aero2 mobile broadband operator is using Huawei's *SingleRAN LTE* technology to provide what's said to be the world's first converged LTE TDD/FDD network. By 2012, a quarter of the population in over 200 urban and rural areas will have mobile internet access with claimed downlink speeds of 134Mbps and uplink speeds of 124.8Mbps. To date, Huawei says it has deployed over 130 commercial *SingleRAN* networks, which are capable of evolving into LTE.

## Hytera buys R&S PMR

 Chinese mobile radio manufacturer Hytera Communications has bought Rohde & Schwarz's Professional Mobile Radio division (PMR) for an undisclosed sum. Hytera plans to keep current staff and projects, and will make PMR its operational centre for Europe. PMR develops and implements TETRA-based professional mobile radio systems and applications for industry and public safety organisations. Hytera says PMR's products will enable it to offer complete TETRA system solutions to customers.

# Operators will need to spend "billions" to grow backhaul

 Network operators face a USD840bn bill over the next five years to build the backhaul capacity needed to meet rocketing demand for mobile broadband, says market analyst Juniper Research.

The rapid uptake of subscriber data services and advances in data capacity in the radio access network mean operators urgently need to reassess their mobile backhaul requirements

and ensure that current or future backhaul network offerings fulfil those requirements, says Juniper.

It found that existing legacy technology backhaul networks are incapable of supporting a predicted 30 times growth in both data users and data traffic.

The report says that microwave and fibre will dominate the backhaul market, with microwave accounting

for over 60 per cent of the global mobile backhaul capacity by 2016. Emerging markets such as Latin America, central and eastern Europe, the Indian sub-continent, and Asia Pacific will drive microwave backhaul, while operators in the Far East and China will mostly opt for fibre backhaul. Juniper adds that fibre would steadily replace copper in North American access networks.

## G&D NFC cards fuel payments for petrol

 The first commercial near-field contactless payment system in the Russian Federation will rely on personalised SIM cards from Giesecke & Devrient (G&D).

From November, G&D will manufacture and personalise NFC-capable SIM cards for Russia's leading mobile operator, Mobile TeleSystems (MTS). The cards will allow its subscribers to use their mobiles to pay for fuel at petrol stations operated by Lukoil, said to be the country's biggest oil company.

To take advantage of the service, customers will need an MTS-activated NFC-capable SIM card which features an integrated NFC antenna. The SIMs can be used with handsets from HTC, LG, Motorola,

Nokia, RIM, Samsung, and Sony Ericsson. Users can then pay for their fuel by simply holding their cellphones against a card reader at a Lukoil filling station. This debits the invoice amount via an electronic cash function on the SIM card.

MTS will initially launch the system in the city of Perm in the Ural region before a commercial rollout later in November.

G&D spokesman Willem Bulthuis says that the Russian project is "another important milestone" in boosting acceptance of mobile devices in electronic cash applications.

NFC is finally beginning to gather pace in Europe. NFC-enabled devices



MTS is using NFC-enabled SIM cards from G&D. Subscribers will be able to use compatible devices to pay for fuel at Lukoil petrol stations

communicate wirelessly over a short range which makes them suitable for applications such as mobile payments or providing access to premises.

## 'White space' radio tunes in to broadband

 UK company Neul is working with California-based Carlson on a 'white space' radio to provide wireless broadband internet access in poorly-served areas.

By the end of the year, the two companies say they will jointly develop and market a new white space radio networking system that will bring affordable broadband to millions of under-served people around the world.

The new radio will use the 'white spaces' between TV channels in the UHF band as a transmission medium. In September, the UK telecoms regulator Ofcom said that there

would no charge for white space licenses. It's claimed that this will reduce the total cost of white space equipment and services compared to fixed line and mobile technologies.

The Neul/Carlson system will be designed to give WISPs more than 100MHz of radio spectrum in the UHF band (i.e. between 300MHz and 3GHz). Carlson CEO James Carlson says the "groundbreaking" technology is especially effective in sparsely

populated areas and rugged terrain. "It gives rural communities real-time access to the business opportunities and educational resources the internet has to offer," he says.

Neul is active in the Cambridge White Spaces Consortium and currently has several wireless data trials under way in the UK. Its aim is to "unify the fragmented world" of M2M with the world's first white space radio system and an M2M communications standard.



Neul's white space equipment released earlier this year: it's estimated to offer 8Mbps at 8km for white space internet access

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