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OFFICIAL NEWSPAPER OF **MOBILE WORLD CONGRESS** 2013

IN THIS ISSUE

mobile WORLD DAILY

DAY TWO • TUESDAY 26TH FEBRUARY

Nokia focuses on mass market with device update

By Steve Costello

Nokia unveiled four new devices which Stephen Elop, its CEO, said are designed to "inspire more people, at more prices, and ultimately capture more volume as well as value in the marketplace".

Acknowledging that the company had gone through a transition that "hasn't always been easy", the executive said that it now has the "building blocks" in place to succeed in serving customers across a broad range of price points.

Cont. on P3

CEOs repeat call for lighter regulation

By Ken Wieland

The opening keynote session at Mobile World Congress brought together the chief executives of AT&T, China Mobile, Telecom Italia, Telefónica and Vodafone. Under the theme of mobile operator strategies, talk of digital revolution and unprecedented industry transformation – spurred on by LTE and cloud-based technologies – was dominant.

Randall Stephenson, AT&T's chief executive, claimed the mobile industry was starting a new era. "LTE and cloud is the most powerful technological combination we have ever seen," he said. "Technology innovation is moving at warp speed."

Stephenson anticipates mobile data traffic volumes in the US will increase by an enormous 30,000 per cent between 2012 and 2017, spurred on by access to cloud-based applications over low-latency and high-speed LTE networks. That expansion comes on the back of 75,000 per cent growth during the previous six years, driven by 3G networks and Apple's iPhone. 3G transformed the mobile industry, added Stephenson, but the 'cloud era' will change other industries as well.

But if the rapid development of networks and digital eco-systems is to continue, and help boost GDP in the process, much more investment will be required. Stephenson called for lower taxes to encourage capital investment, as well as for regulators to think through their desired outcomes on spectrum allocation. "There is a choice of rapid adoption of latest technologies and capabilities, and all the downstream economic multipliers that come from that, or there is the other option of hyper competition and the lowest prices possible."

Stephenson echoed the views of Franco Bernabè, chief executive of Telecom Italia and GSMA chairman. "Excess competition in Europe is depressing the market," he said, pointing to around 170 mobile network operators and over 700 MVNOs in the region. "Governments should avoid imposing excessive burdens on the industry in the form of specific taxes and spectrum charges."

César Alierta, Telefonica's chief executive, argued that internet players should help shoulder the burden of operators' network and spectrum costs, claiming that regulators have been giving the likes of Google and Facebook a relatively easy time as they enjoy near-monopoly status. "Nowadays, the internet is dominated by only a few players that restrict our customer choice options," he says. "If the same regulation applied to telcos was applied to other players – to break up monopolies – they would have been obliged to sell devices to competitors at cost with a small margin. There is not a level playing field."

Vodafone's chief executive, Vittorio Colao, said that regulators in Europe have been over zealous in regulating wholesale and retail prices. "These markets are already very competitive," he said.

Qtel rebrands as 'Ooredoo'

By Matt Ablott

Qatar-based operator group Qtel is re-launching itself under a new brand – 'Ooredoo.'

The operator unveiled the new brand – which translates as 'I want' in Arabic – at an exclusive event in Barcelona last night. It was also announced that football superstar Lionel Messi is to become the operator's new global brand ambassador.

All operating companies in which Qtel owns a majority interest will adopt the new brand over the next two years.

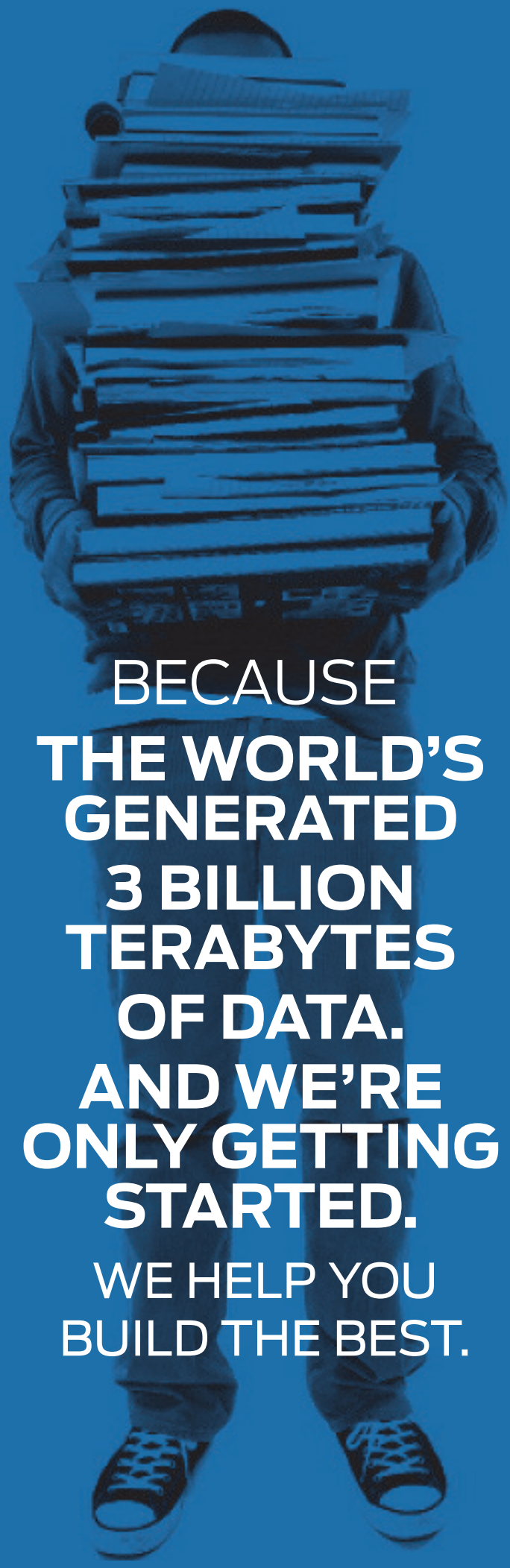
This will see the phasing out of local brands such as Qtel in Qatar, Indosat in Indonesia, Wataniya in Kuwait, Nawras in Oman, Tunisiana in Tunisia, and Nedjma in Algeria.

"The new brand signals our readiness to take the company to the next level," said Group CEO Dr Nasser Marafih.

Qtel claims to have been the world's fastest-growing telco in terms of sales since 2006. It had a global customer base of more than 89.2 million at the end of Q3 2012, generating revenue of $6.8 billion for the first nine months of 2012.

Featuring at last night's launch was GSMA Director-General Anne Bouverot, Cherie Blair of the Cherie Blair Foundation for Women; and Dr Hamadoun Toure, Secretary General of the ITU. There was also an appearance by Qatari Olympic medallist Nasser al Attiyah.

Qtel has also agreed to support the Leo Messi Foundation in return for the Barcelona FC star becoming its new brand ambassador.



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Sony promises "breakthrough" year for mobile business

By Matt Ablott

Sony Mobile is forecasting that 2013 will be a "breakthrough" year for the vendor as it seeks to get back in the smartphone game.

That was the key message delivered by senior execs at a press conference yesterday, which also saw it announce wider availability of its flagship Xperia Z smartphone and tablet devices.

The strategy is based on closely integrating its mobile business with the Japanese giant's other business lines such as music (Walkman), gaming (PlayStation) and photography.

"This means we can offer a proposition that only Sony can deliver," said Sony Corp CEO Kazuo Hirai. He added that "all our resources are going into our mobile business."

The Xperia Z smartphone was unveiled at CES last month. Sony says the device is currently the best-selling smartphone in Japan and is now shipping worldwide. The 10.1-inch Xperia Tablet Z will be available globally next quarter.

The firm also claims to have the largest range of NFC-enabled devices with 35 products either "launched or in pipeline."

It is just over a year since Sony bought out its former handset partner Ericsson for $1.1 billion and rebranded Sony Ericsson as Sony Mobile.

While Sony Ericsson was once the world's third largest mobile phone maker, Sony Mobile is now a minor player in the global smartphone market. According to recent figures from Gartner, Sony Mobile shipped 7.9 million phones in Q4 2012 for a 1.7 per cent global market share.

According to Sony Mobile CEO Kunimasa Suzuki, the firm is gearing up for its "biggest ever marketing campaign" this year. The campaign will be "deployed in more than 20 markets across TV, print, digital, out of home and retail from March 2013."

NOKIA – Cont. from P1

"We are bringing elements of our high-end Lumia flagship devices to more price points and therefore to more people. We are doing this by introducing affordable devices that are themselves also aspirational," Elop said.

At the low end, the company announced the 105, a handset that is being positioned as the "entry-point to the Nokia brand", and a successor to the 1280, of which more than 100 million units have been sold.

With rollout set to start imminently, the device will have a "recommended price of EUR15", making it "an ideal and beautiful first phone" for unconnected users.

This is joined by the more capable 301, which has a "fast 3.5G internet connection" and Nokia Browser preloaded for "90 per cent more data efficiency". It is said to be "the most affordable Nokia device to offer video streaming", and comes with "new smart camera features".

Due for rollout from Q2, it will be priced at EUR65.

Joining the lower end of its Lumia smartphone range are Lumia 520 and Lumia 720.

Lumia 520 is described as the "most affordable Windows Phone 8 smartphone", and features the same digital camera lenses included in the high-end Lumia 920. Rolling out in the near future, it will be priced at EUR139.

Lumia 720 is said to deliver a "high-end camera performance at a mid-range price point", with a f/1.9 aperture and Carl Zeiss optics. It will be priced at EUR249.

Significantly, Nokia said that it will offer TD-SCDMA versions of both Lumia devices for China Mobile, it what was described as a "bold step forward in our relationship".

Telefonica Germany unveils data-centric tariffs

By Anne Morris

Telefonica Germany has claimed a market first with a new range of data-centric tariffs for smartphone users that the operator believes will better prepare it for an LTE future.

Four new O2 Blue tariffs were unveiled at Mobile World Congress on Tuesday and place the focus squarely on data usage: the two premium plans support LTE downlink speeds of up to 50 Mbps and include data allowances of 2 GB or 5 GB at full speeds, as well as one or two extra SIM cards to enable data to be shared between a smartphone and tablet or laptop.

Voice calls and SMS are included on an unlimited basis in all four plans, including an entry-level plan for €19.99 a month, and are now clearly regarded as a commodity by the operator. Bolt-on options are also provided to enable subscribers to add extra data at LTE speeds. The plans will be available to subscribers from 1st March 2013.

"LTE and data are our two big focuses this year," said Telefonica Germany CEO Rene Schuster in an interview with *Mobile World Daily*. "The German consumer is comfortable with paying for quality of service and different speeds with data…and we will make sure that we will cater for this."

Schuster added that 95 per cent of all devices sold by the operator in Germany are smartphones. He would not reveal numbers of tablets sold, but noted that overall tablet penetration in Germany is still relatively low at 11 per cent.

The operator also provided further details of its LTE rollout strategy this year by announcing that Munich and Berlin will go live as "high-speed areas" on 31st March, with Hamburg, Düsseldorf, Duisburg and Essen to follow in Q2.

"In parallel, the LTE network is being strengthened in the already developed high-speed areas Frankfurt, Cologne, Nuremberg, Dresden and Leipzig," the operator said in a press release.

Telefonica group is also demonstrating latest LTE technology developments at MWC: it is showcasing voice handover between LTE and 3G networks using voice over LTE (VoLTE), as well as voice call transfers between LTE and WiFi networks.

I want to jump in

Qtel Group has changed its name to Ooredoo, which means 'I want'. With our vision to enrich peoples' lives, we want to serve all of our 90 million customers across the Middle East, North Africa and South East Asia, from Indonesia to Qatar, from Algeria to Kuwait, even better than before. To help them get what they want out of life.

ooredoo

NEWS IN BRIEF...

New VAS platform for LTE unveiled

Openwave Mobility is announcing its new Integra4 mobile broadband value-added services (VAS) platform. The company claims that the 100 Gbps throughput device is the most scalable and highest-performing mobile data VAS platform available today. The Integra4 uses software-defined networking (SDN) principles of separation of control plane and data plane traffic and is equipped to support mobile operator's plans for SDN and network function virtualisation.

AdaptiveMobile protects 130m US smartphones

Mobile security developer AdaptiveMobile says that over 50 per cent of US smartphone owner use the software to secure then attacks from malware and text spamming. The company attributes this level of market share due to its knowledge of the US operator community, an increase in spam in the US market due to the low cost to text, and a fast-growing rate of mobile application adoption and use.

Spirent launches mobile experience test suite

Spirent Communications has announced its new Live2Lab portfolio of test software that aims to assess the end-user mobile experience in a more realistic and predictive way than has previously been possible in a lab environment. Spirent says that Live2Lab offers the capability to replay data captured on live networks, making it possible to execute repeatable tests with a level of realism not normally seen in a lab-based solution.

Red Bend, Samsung partner on "dual-persona" smartphone

Mobile software management vendor Red Bend Software has partnered with Samsung to conduct enterprise trials of a "dual-persona" version of the Galaxy S3 smartphone. Driven by the bring-your-own-device trend, the device will have separate Android operating systems for work and personal use. The trials will start in the second quarter of 2013.

Spectrum, privacy must be high on agenda – GSMA chairman

By Tim Ferguson

GSMA and Telecom Italia chairman Franco Bernabe said spectrum allocation and privacy must be high on the agenda as the mobile industry undergoes unprecedented change.

Mobile connections are forecast to reach 9.7 billion by the end of 2017, compared to nearly seven billion today, with mobile subscribers growing from 3.2 billion to 4 billion. Mobile broadband connections are forecast to rise from 1.6 billion to 5.1 billion.

"The challenges this exponential growth entails are enormous. Our industry as a whole has to dedicate responsibility to addressing them in order to maximise the potential of the opportunity ahead of us," Bernabe told Congress delegates.

Turning to spectrum, Bernabe noted that LTE requires more bandwidth than earlier technologies, meaning economically viable allocation of spectrum will be increasingly important.

The availability of spectrum must also be harmonised to generate cost efficiencies: "It's not only critical that we acquire additional spectrum but we must focus on reducing the fragmentation across technologies," Bernabe said.

The role operators must play in safeguarding user privacy and identity was also emphasised. "As we move towards digitalisation of everyday tools such as money, keys, identities, tickets and so on the safeguarding to digital information becomes increasingly important."

Bernabe said the increasing importance of privacy is "a substantial opportunity" for operators as they can provide secure access to data, financial and e-government services and support NFC transactions, digital voting and "life event registration such as births and weddings".

"By offering their customers more direct control over the management of their identity, by giving other service providers the opportunity to enrich their offerings to consumers, mobile operators can become central players in the management of safe transactions and secure identity verification," Bernabe said.

GM plans LTE launch in 2014

By Richard Handford

General Motors will introduce LTE connectivity to cars as soon as next year, according to Steve Grisky, GM's vice chairman, speaking in a keynote session yesterday.

The car giant wants to offer the high speed services across a range of its brands in North America in 2014, with Europe to follow next, he said.

"No one will do this as quickly as us," according to Grisky.

The extra speeds are necessary as car manufacturers offer a growing range of mobile services to motorists. The first operator who will partner GM on LTE is AT&T, said Grisky.

The range of innovative services destined for cars include streaming video into rear seats and more sophisticated diagnostics.

The car industry needs to adopt development cycle that is close to the technology industry. Currently, the industry's cycle is three to years, compared to the tech industry's 12-24 months.

"In the tech industry, when a new is installed system we upgrade apps not purchase a new system," said Grisky.

He pointed out that innovation happened in the car industry and quipped about the automobile being "the original device".

GM's range of brands in the US and elsewhere include Cadillac, Chevrolet, Opel and Vauxhall.

And high-speed connectivity is "needed in entry level cars as much as high-end ones", said Grisky, indicating that high-end services could be available across GM's range, not just the most expensive ones.

Women an underserved market for mobile finance: study

By Anne Morris

Women in developing countries represent a significant underserved market and commercial opportunity for mobile financial service providers, according to a new study released by the GSMA mWomen Programme and Visa Inc.

The study led by Bankable Frontier Associates and titled Unlocking the Potential: Women and Mobile Financial Services in Emerging Markets focused on women in Indonesia, Kenya, Pakistan, Papua New Guinea and Tanzania, and was undertaken to gain additional insight into how financial institutions and mobile network operators can better support their complex financial lives.

One of the findings was that women recognise the security and privacy of mobile money: in Kenya, for example, 95 per cent of women using mobile remittances rated them as secure and private.

NTT Docomo preps business model revamp

By Paul Rasmussen

NTT Docomo is planning to shift its business model away from being platform-focused, towards a company providing mobile services. This would include offering support to OTT players so as to build a viable ecosystem.

Speaking at yesterday's keynote session, NTT docomo president and CEO, Kaoru Kato, told a packed auditorium that the operator would look to generate incremental revenues by adopting a new business model that he labelled a 'Smart Life'.

The CEO summed up the new concept as providing support for how its subscribers could manage their daily lives, while offering them trusted services they could rely upon.

"Our existing model can only achieve so much," said Kato. " The service provider model is more about collaboration. While i-mode is based on our platform provider model, we will look to support both."

The new model will focus on eight business sectors, including media, commerce, M2M and finance/payments. The company also announced a joint venture (JV) with Omrom, a major Japanese healthcare provider, that will form the basis of its new mobile 'Wellness' service. The CEO said that this JV will lead to a variety of m-health applications, such as the remote measurement of blood pressure.

Kato also outlined the challenge for the company, saying that he wanted to see revenues from new services rise from $6 billion in 2012 to $11 billion by 2015.

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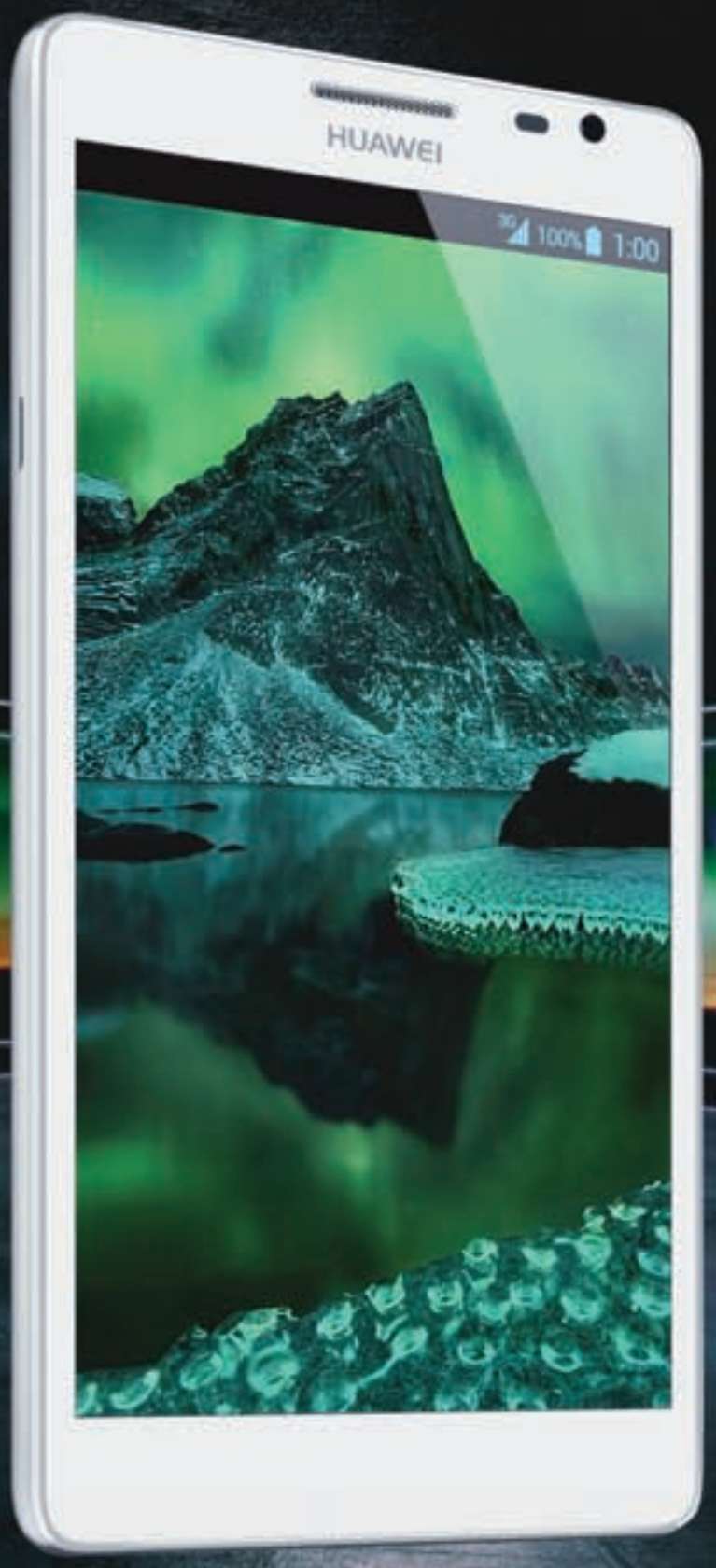


HUAWEI Ascend Mate

THE WORLD'S LARGEST SCREEN SMARTPHONE

Introducing the new Huawei Ascend Mate, with a 6.1" HD screen it is the world's largest screen smartphone, yet small enough to use with one hand. Big, yet small – the perfect smartphone experience.

Find out more, please visit Hall 3, 3C 92 & Hall 1, 1B 300, Fira Gran Via

NEWS IN BRIEF...

Good Technology unveils new mobile security

Mobile enterprise security firm Good Technology has introduced its Good Trust security platform that extends identity and access management (IAM) capabilities to mobile devices and apps. The new software builds on the Good Dynamics app security platform by enabling the customisation of each mobile application experience based on user identity. The company also announced Good Vault for the EMEA region which incorporates IAM capabilities and encryption to Good for Enterprise to improve data protection.

Growth in device recycling surges

eRecycling Corp (eRC) says the number of operator-grade device trade-ins tripled over the past year, reaching seven million. The company claims this upsurge is due to an instant credit facility being integrated into retail point-of-sale platforms, making in-store device trade-ins convenient and rewarding for wireless customers. eRC says that its agreements with operators in Europe and the US saw a rate of almost 20,000 daily trade-ins.

Procera, Tilera co-op on 200Gbps DPI

Procera Networks and Tilera have co-operated to achieve 200Gbps of Deep Packet Inspection (DPI) using Procera's Application Visibility Library (NAVL) on TILExtreme-Gx Duo platform, which supports 288 cores with eight TILE-Gx36 processors. The technology can, according to the two firms, be deployed in a variety of networking settings including network security (IDS/IPS, DPI, DLP), cyber security, network monitoring, data forensics, analytics and Big Data processing.

Mobily becomes Jasper Wireless M2M customer

Jasper Wireless has added Saudi Arabia's Mobily to the growing list of customers for its M2M platform. The deal looks aimed mainly at helping Mobily to serve demand for M2M communications in Saudi Arabia's automotive sector, and should allow it to connect M2M devices across its network "quickly and at low cost".

Free trial of Dropbox for Teams announced for Samsung users

By Ian Volans

Dropbox, the cloud storage service with more than 100 million users worldwide, is offering purchasers of Samsung phones a free-trial of its Dropbox for Teams enterprise solution.

Dropbox for Teams simplifies the sharing of documents and files within a team of people. An administration dashboard gives an enterprise control over access rights and visibility of team member activity, the linked devices, and apps installed on those devices. The service is being positioned as a BOYD management tool.

Samsung purchasers will qualify for a three-month free trial of the service. Normally sold as an annual subscription, a typical account for five users sharing 1TB of storage would normally cost $795 per annum. Dropbox for Teams is currently used by more than 2.5 million businesses including 95 percent of Fortune 500 companies. The Samsung promotion is the first mobile offer for the product.

Lars Fjeldsoe-Nielsen (*pictured*), head of mobile business development, told *Mobile World Daily* that Dropbox's mobile strategy is centered on device manufacturers. The company's consumer proposition was first integrated in the HTC One X, V and S. The Samsung S3 shipped with Dropbox from launch and the partnership with the Korean market leader has since expanded to include the Galaxy Note 2, Galaxy Tab and Galaxy Camera. The new Blackberry Z10 has deployed Dropbox as a virtual memory card.

In contrast to much of the cloud storage sector that competes in "a race for space", Fjeldsoe-Nielsen said that Dropbox has focused on mobile engagement and integrating the service more deeply into handset functions such as picture galleries, emails and camera. "Until our mobile partnerships, Dropbox growth was 100 percent viral," said Fjeldsoe-Nielsen. "Since last summer, mobile has been our largest source of growth."

Fjeldsoe-Nielsen said that the ability to share large files by sending simple URLs is attractive to operators from a network loading perspective. However, as a small company, Dropbox's collaboration with operators has so far been limited to a number of tactical promotions. Looking to the future, the company is interested in exploring opportunities around carrier billing and free-data for specific types of content.

Dropbox has published APIs that are proving popular with developers who want to work across the different mobile OS eco-systems. "Dropbox can be a virtual drive for apps as well as devices," said Fjeldsoe-Nielsen. "We're the Switzerland of the internet."

New eBay division to drive connected commerce

By Ian Volans

Sales through eBay mobile more than doubled in 2012 to $13 billion while the volume of payments at its sister service PayPal mobile more than trebled to almost $14 billion. And eBay believes its early investment in mobile technologies and services is paying off handsomely.

"Where other companies are only experimenting with pilot programmes, eBay is delivering concrete solutions that are global, seamless, and able to solve real-world problems," says Steve Yankovich (*pictured*), vice president of innovation and new ventures. "We never imagined in 2008 when we launched our first mobile app that $20 billion of commerce volume would come from smartphones five years later."

eBay's recently created "Innovation and New Ventures" division is dedicated to developing technology, user experiences, and businesses that focus on the concept of "connected commerce". Yankovich characterizes connected commerce as being both global and person-to-person: "Consumers don't care whether the product they want is at a neighbourhood store, or in a shop halfway around the world," he says. Mobile is the key to playing in a "commerce ocean instead of just the e-commerce pond".

With consumers rapidly migrating to multiscreen commerce experiences, the new group will support both the eBay Marketplaces businesses and eBay at a corporate level, as well as span the mobile, tablet and PC landscapes. "It will touch upon any and all secondary screens and surfaces consumers can, or will soon be able to use. This group will define and create the future of commerce," says Yankovich.

Retail innovation will focus on driving digital, connected in-store experiences for consumers capable of transforming brick and mortar shopping into a companion experience in which storeowners can serve up personalised offers.

ZTE debuts first Firefox OS phone

By Tim Ferguson

ZTE has unveiled the first commercially-available smartphone to run the HTML5-based Firefox OS.

The ZTE Open is an entry-level device aimed at young consumers with a 3.5 inch screen and 3.2 megapixel camera.

The Firefox OS-powered will be launched by Telefónica in the summer, with Spain, Venezuela and Colombia the first markets to receive it before it rolls out further in Europe and Latin America.

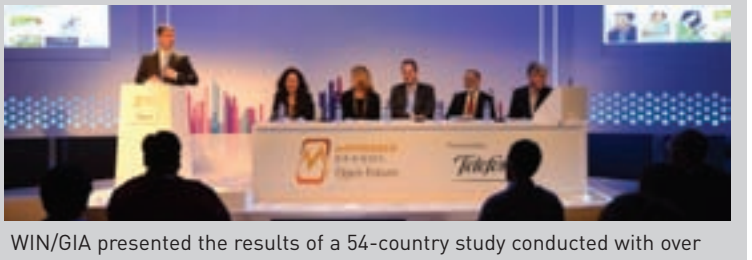
"ZTE has moved very quickly and has worked closely with us to develop a robust Mozilla Firefox OS smartphone," said Mozilla co-founder and CTO Brendan Eich.

"ZTE continues to push the boundaries with the aim of bringing customers the very latest that mobile technology has to offer," said ZTE EVP and head of the Mobile Devices Division, He Shiyou.

The Chinese phone vendor also launched the Android-based Grand Memo smartphone, the first in the world to run Qualcomm's 1.5 GHz quad-core Snapdragon 800 processor.

The Grand Memo runs Jelly Bean (Android 4.1) and features a 5.7 inch screen, 13 megapixel camera and is LTE-enabled.

He Shiyou said the new phone reflects ZTE's design philosophy of 'slim', 'safety', 'screen' and 'speed'. The Grand Memo is just 8.5 mm thick.



WIN/GIA presented the results of a 54-country study conducted with over 54,000 consumers during the mPowered brands Open Forum. A summary of the global findings is available at www.mobileworldcongress.com/mpowered-brands-open-forum/

SoftMobile: Opening the Way for MBB Success

A $2 Trillion Market by 2020

SoftMobile is an on-demand and orchestrated MBB solution to deliver new and innovative business opportunities for mobile network operators. Amid the exponential growth of smart devices, the ability to expand capacity, improve coordination and improve user experience while maintaining the relation between cost and revenues is of paramount importance.

By 2020 the number of smart devices being used worldwide will surpass the number of people on the planet, who will in turn have access to an endless diversity of mobile applications via smart devices we haven't even yet dreamed of. In the face of such exciting and unprecedented avenues for MBB development, SoftMobile provides operators a means of decisively capitalizing on this new era of opportunities.

The new capabilities resulting from SoftMobile build the prerequisites for business development to expand from voice and data services to all kinds of new vertical markets, including healthcare, education and automotive among others. It is Huawei's belief that SoftMobile provides the tools and means for operators to double their revenue by 2020, expanding the total mobile market revenue to $2 trillion USD—more than double the total market in 2012.

Multi-RAT, multi-band and multi-layer coordination

SoftMobile supports expanding market opportunities

ON-DEMAND NETWORKS AND INNOVATIVE BUSINESS

SoftMobile defines MBB networks with a focus on programmability for greater flexibility, enabling business innovation for open network resources, including bandwidth, speed, latency and location.

A common, open API allows third party on-demand access to the network functionality for the rapid creation of innovative services that go far beyond what we see today. This creates potential for a whole new area of user demand. Every device and service from tablets to cars and healthcare to logistics will reach new kinds of customers and generate new revenue streams.

NETWORK ORCHESTRATION

Considering ever-increasing site density, network orchestration is required for more efficient network-level resource usage, intelligent traffic management and maximum utilization of operator assets.

Huawei's SoftMobile solution efficiently manages different types of network coordination. The multi-RAT, multi-band and multi-layer coordination realizes a No-Edge™ user experience and scalable capacity expansion. It supports the building of capacity-heavy HetNets with any combinations of technologies, frequency bands and network layers. Utilizing cloud architecture allows centralized control of network resources for best performance and cost-efficiency.

OCEAN-LIKE BROADBAND CAPACITY

To reach the desired level of capacity, SoftMobile utilizes a modular site architecture that supports different combinations of technologies, frequency bands and network layers for easy site installation, on-demand capacity expansion and evolution, and elimination of network bottlenecks. These redefined products are highly integrated and designed to support growing MBB capacity requirements and smooth evolution for multiple modes requiring only software configurations.

Making SoftMobile Possible

This year, with SoftMobile, Huawei is launching a full range of improvements that expands all three key network capabilities: on-demand networks and innovative business, network orchestration and ocean-like broadband capacity.

SoftMobile is realized within the 3GPP architecture and its interfaces to provide operators with a stable environment and uniquely smooth migration.

The core business benefits of the Huawei SoftMobile solution are centralized management, efficient resource utilization and improved user experience. SoftMobile enables creation of innovative services that go far beyond what we see today, giving operators the tools and means to double their revenue by 2020.

SoftMobile opening the way for MBB success

NEWS IN BRIEF...

E-Band Communications unveils small cell backhaul system

E-Band Communications has launched what it claims to be the industry's smallest package optimized for LTE small-cell backhaul. Dubbed E-Link Mini, the solution sports radio, antenna and switching technologies, and uses a single 250MHz channel to deliver 1,000Mbps capacity in the 71-86GHz band. Moreover, says the company, E-Link Mini provides the highest system gain small-cell backhaul radio operating in 71-86GHz.

AirWatch bags $200M investment

Mobile security player AirWatch secured $200 million in Series A investment, which it plans to use to use to fund strategic acquisitions, accelerate global growth and innovation and drive adoption of its Secure Content Locker content collaboration technology. The investment was led by Insight Venture Partners.

Broadsoft, WIT complete RCS testing

Broadsoft and WIT Software have completed their interoperability testing for RCS-e Hot Fixes services. This move will enable operators to market RCS services using the WIT RCS apps (for Android and iOS) working with BroadSoft's BroadCloud RCS software.

MTN broadens partnership with Tecnotree

MTN Group is to expand its business systems relationship with Tecnotree that will see the software supplier providing enhanced billing and customer management services. The African-based operator said that the software can be installed locally, provided as a cloud service or operated by Tecnotree as a managed service.

Ford drives Ford SYNC into Europe with Spotify partnership

By Ian Volans

A global partnership with Spotify, announced yesterday at Mobile World Congress, heralds a major push into Europe for Ford SYNC, the voice-activated in-car connectivity system, and Ford SYNC AppLink, which enables customers to control smartphone apps safely from the driver's seat.

Paul Mascarenas, Ford chief technical officer and vice president, research and innovation, said that Ford SYNC will feature in 3.5 million Ford vehicles in Europe by 2015. Helping the company reach this target will be the all-new European version of the EcoSport. Unveiled at Congress yesterday, the Ford EcoSport is one of the first Ford vehicles in Europe to offer Ford SYNC AppLink.

The integration of the music streaming service with Ford SYNC AppLink-equipped vehicles in both Europe and North America marks Spotify's first direct collaboration with an automotive manufacturer. With 20 million users and five million paying subscribers, Spotify is currently available in 17 European countries, the USA, Australia and New Zealand.

Pascal de Mul, global head of hardware partnerships, Spotify, said that AppLink will enable drivers to access Spotify songs and playlists using voice commands including: "shuffle", "repeat", "star/unstar track", "choose playlist", "play music", "recently played", and "now playing".

Ford also announced that it is working with three partners on European-tailored versions of AppLink apps previously launched in the US. Kaliki Audio Newsstand provides audible playback of newspaper and magazine articles; Glympse allows Ford drivers to share their location and estimated time of arrival with friends and family; Aha uses the cloud to safely enable internet-based entertainment and information allowing drivers to search for infotainment such as social media feeds, places to eat or stay and weather.

Mascarenas also reported that the Ford Developer Program for AppLink – the automotive industry's first open mobile app developer programme that was launched at CES in January - attracted more than 2,500 registered users within four weeks.

Samsung challenges Apple TV with HomeSync

By Iain Morris

South Korean tech giant Samsung Electronics is taking on Apple TV with the launch of a new home hub that lets family members share content between devices.

Billed as a cloud service, HomeSync includes a 1TB drive for storing videos, photos and apps compatible with the Android operating system. Users can upload and download content from various devices or wirelessly stream content from, say, a Galaxy tablet to a Samsung TV.

HomeSync also includes features that will be familiar to Android users, including a "Jelly Bean media player" and access to Google's Play Store.

The service looks a direct rival to Apple TV, which includes similar storage and sharing features plus access to the iTunes store, although iTunes' domination of the content market appears to give Apple TV a big advantage.

News of HomeSync comes weeks after Samsung said demand for smartphones, tablets, TVs and digital appliances would drop this quarter, compared with the previous three-month period, blaming "weak seasonality" for the projected decline.

Samsung says that HomeSync will support eight separate accounts "to cover a whole family". Through file encryption and user-specific IDs and passwords, users can also store content in a private area on the HomeSync drive that cannot be accessed by others.

The initial launch appears focused on the UK market, with details of availability and pricing for UK consumers to be announced "in due course".

"HomeSync was borne from our experience across multiple markets, including mobile, digital imaging and TV, enabling us to create a single connected media environment, where people's content is accessible at any time through whichever screen they choose," said Simon Stanford, vice president of IM division, Samsung Electronics UK & Ireland.

Q&A

Patrick Fischer,
Consultant, Fischer Consultancy

Mobile Identity: Opportunities & Challenges for Service Providers

Tuesday, 26 February 2013, 14.00 - 15.30
Hall 4 - Conference Village - Auditorium 5

Where do you think the most progress has been made with mobile identity?
Identity and security related topics received intensive media coverage in 2012 and led to a big increase in public awareness regarding the threats of phishing attacks and password theft. As a reaction many big internet players recently made announcements to introduce multi-factor solutions to secure their accounts.

What are the main opportunities for service providers in this space?
Today's ID solutions such as Facebook Connect offer benefits to service providers through their huge customer reach – yet only provide low assurance levels regarding ID-related user information. For that reason ID providers nowadays support two primary use cases. One is to facilitate service sign-up/log-in and thus increase conversion rates. The other is to secure service accounts or transactions through a second-factor authentication. In the future, ID providers with a relevant base of reliable customer profiles will enable secure contract closures or high value transaction authorisations based on eSignature solutions.

What elements of mobile identity need to be given more attention, and why?
Identity communication must evolve from a technical discussion to be more use case oriented. User benefits need to be highlighted.
Furthermore ID solutions should become more user-centric to gather wider acceptance. Especially in Europe, there is a strong tendency for users to want to control the distribution of ID-related information. Users should be enabled to choose what data he wants or does not want to share with service providers.

In what ways can mobile operators, service providers and government organisations help with mobile identity?
Government organisations should provide an appropriate framework. EU requirements for official ID solutions in the past were often focused on the security aspects and have proven to be too complicated to find customer acceptance. Operators will need to work on common standards to provide ID to service providers who are looking for market coverage. Service providers could support by communicating user benefits.

How do you see mobile identity evolving in the future?
Many companies are beginning to understand that identity is all about having or maintaining a customer relationship. A trusted customer relationship is vital for any kind of subsequent service, no matter if it is mCommerce, communication or entertainment.
Thus a fierce battle to be the primary ID for users will evolve in the near future, bringing a whole set of new identity solutions to the market.
Personally I believe that Apple will equip its next-generation devices with a biometric recognitition/finger print sensor to secure its ID and authenticate payment transactions.

Web technologies to flip app economy "on its head"

By Steve Costello

Web technologies are "flipping the apps store model on its head, giving developers the freedom to innovate without having to ask permission", Jay Sullivan, SVP of products for Mozilla *(pictured)*, said.

The company on Sunday announced its Firefox Marketplace, an HTML5 app store which will support the launch of the first handsets powered by its Firefox OS when they reach the market later this year.

"We're giving developers the freedom to hack without gatekeepers, providing them with much greater flexibility to innovate and make money. Web app developers can distribute their apps on their own terms and not be subjected to anybody else's conditions," he told *Mobile World Daily*.

And the use of web technologies will provide consumers with more freedom, "enabling them to buy an app once and use it everywhere they can access the web, while providing access to local content and apps which are highly relevant to their needs," he continued.

While Android and iOS are the platforms with traction on their side, and Microsoft's Windows Phone and BlackBerry 10 are set to provide increasingly competitive alternatives, the fact that web apps use technologies that are already familiar works in its favour.

"The most important thing to realise from the outset is that we're not introducing a new platform. There are millions of developers who already have a great, touch-friendly, app-like mobile web presence", Sullivan told *Mobile World Daily*.

They key benefit of web-based apps is that developers can address the largest possible user base, rather than being forced to port apps between different platforms using native tools.

"Today's app and content developers are under pressure to deliver for multiple platforms, each with their own programming languages, tools and processes. More and more, they are turning to "hybrid" apps, building their apps using HTML5, putting a light native wrapper around them, and submitting them to app stores. So, HTML5 apps are already being widely deployed," Sullivan said.

The changing balance of the app ecosystem will also provide opportunity for operators, who have been "largely marginalised in the mobile apps world, as the customer relationship for apps is generally between the customer and one of the two big app stores," the Mozilla executive continued.

"This means that operators can't leverage one of their biggest assets, the billing relationship with the customer. Mozilla is pioneering payment APIs for the Web, which will appear first in Firefox OS, that allow network operators to play a role again", Sullivan noted.

Twillio: operators facing challenges in wooing developers

By Steve Costello

It is "incumbent" on operators to market themselves to app developers and demonstrate how they can bring value to a partnership, according to Lynda Smith, chief marketing officer of cloud communications company Twillio.

"I'm not convinced app developers see telcos as a partner. They see them as connectivity or a 'dumb pipe'. The value-add and partnership comes higher up the stack – for example the platform like iOS or Android," she said.

"And couple this with the lack of trust developers have for operators relative to commitment to their cause, it's a tough call to think of them as partners," Smith continued.

At the heart of the issue is the fact that operators need to commit to supporting developers, rather than such projects being "a science experiment".

She noted: "Operators have so many lines of business that it is easy, and the evidence is there, for the whole app developer focus to get lost or be a focus de jour – and often for only the person that is passionate about it."

"If an operator decides to be in the business of supporting app developers, then they need to take an outside in approach. They need to fully understand what is important to the developer, like collaboration on cross-carrier, standardised APIs. They need to hire people who get it. And they need to demonstrate long term commitment," Smith advised.

An opportunity for operators to improve their currency with developers will come through RCS, once developers "get out of the 'wait and see' mode" for the technology.

"Creating a standard specification for rich communications functionality that leverages a global network is the right first step. What will also be critical is creating a great developer experience around the usage of this technology in applications," Smith said.

Adding enhanced communications to apps is something that developers are embracing – "once they get a feel for the possible", she noted.

"When there is "democratic" access to technology, distribution, and infrastructure, it's reasonable to expect a surge of innovation using these new tools. And it will take education and inspiration to the possible," she continued.

And developers are also aware of some of the other strengths of telecoms operators.

"As for the potential value, I do think they get the power and influence telcos have, including their reach and brand," Smith noted.

Aepona inks OneAPI deal with US Cellular

By Ken Wieland

US Cellular, a Chicago-based carrier, has signed up to Aepona's OneAPI platform. A GSMA initiative, OneAPI uses cloud-based APIs to make operators' network capabilities – such as billing, location and messaging – available to application developers using Aepona software. US Cellular will also deploy Aepona's AMP (API Monetization Platform), which enables operators to choose their preferred business model for API charging.

Only qualified developers will be permitted to access US Cellular's core network and billing assets. "Trends such as bring-your-own-device are making it increasingly difficult to roll out and manage mobile applications consistently across enterprises," says Will Yapp, Aepona's SVP of sales (Americas), in a prepared statement. "By providing mobile network capabilities, like communications and context as cloud-based APIs, US Cellular can help developers embed rich mobile functionality into a range of business and B2C applications in a device-agnostic manner."

US Cellular says that 61 per cent of its customers have access to LTE, which will increase to 87 per cent by the end of the year.

Nokia talks up apps efforts

By Steve Costello

Nokia said that it is "opening up its APIs in imaging, location and music to encourage developers to build unique and innovative experiences for Lumia".

At its press conference yesterday morning, the company revealed that more than 130,000 applications are now available for the Windows Phone platform.

The recovering handset giant is also continuing its efforts to build the ecosystem for its Asha Touch mass-market devices, launching its Asha Developer Competition, which is designed to encourage developers to create high-quality apps targeting these handsets.

It is open to developers worldwide in categories across music and entertainment; games; utilities and productivity; and news and information, with apps judged on "creativity, user experience and market potential".

Nokia also announced a new set of applications for Lumia and Asha users, "many using unique platform and device enablers to deliver better quality application experiences".

"Quality, tailor-made apps translate into increased consumer engagement, which is the key for ecosystem success," said Marco Argenti, senior VP of developer experience for Nokia.

Companies working with Nokia include Foursquare, which has created two "app variants" for Windows Phone. First to market, and available for all Windows Phone devices, will be a version with voice support, NFC and Nokia maps integration, while a Lumia-exclusive version includes augmented reality.

A "modernised" Foursquare app for Nokia's Asha devices is also in the pipeline.

In addition, WhatsApp will soon offer support for Asha devices with dual SIMs, and "unveil new features that deep link to the platform". WhatsApp will also continue its development for WP8, with "new features and a new user experience".

Nokia also announced an alliance with entertainment company Dreamworks Animations, which will use Nokia's APIs to deliver "rich, interactive entertainment experiences" exclusively for Nokia devices, starting from the second half of 2013.

Qualcomm heralds role of innovation

By Tim Ferguson

Innovation is central to Qualcomm's business model with the company working on various initiatives to boost its efforts, according to Peggy Johnson, EVP and president for global market development at the company.

"New ideas are critical to our continued position as a leader in the global wireless marketplace and Qualcomm fosters an environment where good ideas are heard, developed and brought to market," Johnson said.

R&D expenditure was 20 per cent of revenue in 2012 and Qualcomm's internal incubator, Qualcomm Labs, is a major part of the company's effort to focus on innovation. Johnson said it "serves to transform emerging ideas and technologies into viable businesses that move the wireless industry forward".

In terms of technology, Qualcomm Labs' current focus is on developing businesses working in the areas of context awareness, proximity networks, augmented reality and next generation communication.

The Labs division recently launched ImpaQt, an employee-driven innovation programme to promote collaboration and "inspire innovation in areas of strategic interest to Qualcomm". More than 18 per cent of the employee base has participated in ImpaQt since its launch at the end of last year.

In addition, a partnership with the San Diego-based not-for-profit EvoNexus programme has so far provided seed funding to three companies with the next round of funding applications currently under review.

Research hints at bright future for joyn

By Ian Volans

Research commissioned by Acision, the messaging platform provider, reveals 78 per cent of UK smartphone owners are using a mix of messaging services. IM is the preferred service for many, while SMS is the assured service for all and multiple service usage is now common practice.

Dependence on SMS remains extremely high, with 96 per cent of UK smartphone owners still using the service and 76 per cent stating they cannot do without it.

However, 80 per cent of UK smartphone owners are now using OTT/IM apps which are generating 61 per cent of messaging traffic. Over half the survey respondents stated they don't mind using multiple messaging services as they represent different communities. Nearly half the respondents, 48 per cent, also claimed they cannot do without OTT/IM messaging.

Acision's research shows that consumers set a combination of requirements across cost, rich features and service quality. Today, no single service on the market can provide this, so using SMS with OTT/IM services simultaneously is seen as the best way to cover all bases.

According to Acision, while the GSMA's Rich Communication Suite service is rapidly gaining the attention and investment of operators worldwide, only 6 per cent of UK users polled had heard of the 'joyn' initiative. When the GSMA's Rich Communication Suite was described to users, 78 per cent said they would try 'joyn' if the pricing was right.

"The positive response to joyn and enriched features, is a good gauge that smartphone users want a single service at the right cost, which provides reach, reliability, and richness," said JF Sullivan, chief marketing officer at Acision.

Telcentris launches VoxOx For Operators to "go beyond RCS"

By Steve Costello

Unified cloud communications company Telcentris is using GSMA Mobile World Congress to officially launch VoxOx For Operators, which it described as "the industry's most comprehensive suite of Rich Communication Services (RCS) and over-the-top (OTT) cloud applications and features".

The company said VoxOx For Operators enables operators to immediately access white-label, carrier-grade services, applications and features that "include and surpass" the RCS 5.1 feature set.

Offered using a revenue share model, this is intended to reduce risk by cutting up-front investment, while improving time-to-market.

Bryan Hertz *(pictured)*, CEO of Telcentris, told *Mobile World Daily* that VoxOx For Operators is being developed with RCS compliance in mind, although it will take "a few months" before this is achieved. In the meantime, the company highlighted compliance with standards such as SIP.

And in addition to offering the core RCS features, VoxOx For Operators also offers a set of additional features.

"We feel the RCS feature set is a really good starting point, but we're bringing things to the table that lets operators differentiate," Hertz said. "As the industry catches up in terms of implementing RCS, this is future-proof and they are not leaving anything on the table."

Telcentris is a registered competitive local exchange carrier in the US and has its own proprietary IP-based cloud communications platform, which the executive said gives it additional experience to bring to the table.

"We have the bullet holes of providing services to customers," he said. "It gives us a little bit better idea what customers want, and what their behaviour is."

While Telcentris is using MWC for the official debut of VoxOx for Operators, Pertti Johansson, the company's EVP for global business development, said that the company had had some preliminary talks with operators and had been met with "very, very positive responses".

"We are getting closer with some prospects to getting some deals signed," he noted.

Q&A

Michael Flanagan,
CTO, Arieso

Smaller but Smarter: Making a Success of Small Cell Networks

Tuesday, 26 February 2013, 14.00 - 15.30
Hall 4 - Conference Village - Auditorium 3

How would you sum up the current uptake of small cell networks?
The current uptake of small cell networks is split across coverage and capacity purposes. The uptake in small cells for coverage improvements is enormous: the Small Cell Forum recently announced that there are now more small cells than traditional macro cells worldwide. In contrast, the uptake of small cell networks for capacity improvements is still quite small at present. This is because the recent introduction of LTE and new spectrum are satisfying near-term capacity demands. However, this satisfaction will be short-lived without the proliferation of small cells.

What factors do you think are influencing the level of uptake?
In the coverage case, small cells have proliferated due to the challenges of providing ubiquitous in-home (or in-office) coverage using traditional macro base stations. Zoning constraints make it difficult or time-consuming for a base station to be deployed near many neighbourhoods. But assuming reasonable backhaul in the dwelling or office, a femtocell can be deployed in an afternoon. In the capacity case, small cells will proliferate due to the long-term inadequacy of LTE and new spectrum.

What needs to be done to positively boost use of these networks?
Small cells need to be placed surgically in order to boost use of these networks for capacity objectives. "Shotgun" approaches to small cell deployments will fail because most locations do not have extreme data demand. As a result, a large number of small cell deployments run the risk of being placed in an ineffectual manner. Instead, small cell site locations need to be determined based on actual, localised data traffic demand, precisely where this demand is concentrated.

How can operators get the most out of small cell deployments?
Operators will get the most out of small cell deployments through the surgical placement of small cells and by understanding the interaction between the small cells and the traditional macro network. Each of these tasks is best accomplished by an intense focus on actual customer demands/experiences at specific locations throughout the network under study.

How do you see the technology developing in the future?
The Arieso vision for future small cell technology is centred upon the intense personalisation of the wireless network. In coverage-limited scenarios involving small cells, coverage begins at the home or office and is driven by the needs of a very small number of customers – and often only one. In capacity-limited scenarios, we note that the most extreme 1 per cent of all users are responsible for upwards of half of all data demand. Hence, the surgical placement of small cells is driven by the needs of this very small percentage of extreme users. This intense personalisation of the wireless network turns the previous customer-agnostic, network-centric model on its head, but is required to best serve future data demand.

Kang Jong-ryeol, SVP and Head of Network Strategy Office, SK Telecom

Optimizing Network Infrastructure and Services with Sophisticated LTE Technologies

Nowadays, LTE is the hottest topic in the global mobile telecommunications industry. According to GSA (Global mobile Suppliers Association)'s January report, 145 operators in 66 countries have already launched LTE services and many more have plans to launch LTE in the near future.

In particular, the LTE market in Korea is witnessing a faster growth than any other region around the world. All three mobile carriers in Korea have launched nationwide LTE service and their combined total number of LTE subscribers surpassed 14 million as of November 2012. LTE subscribers in Korea are using much more data-heavy services and have higher expectations in terms of network quality and speeds compared to 3G customers, and their demand for faster and high-capacity multimedia content services is growing rapidly. Against this background, Korean mobile operators are making strenuous efforts to further upgrade their LTE network and create attract services to deliver greater customer value and convenience. Their efforts include developing technologies with which they can optimize their networks, operate them in an efficient manner while saving both time and cost.

ENHANCEMENT OF LTE DATA SPEEDS AND VOICE QUALITY

Mobile operators can provide customers with seamless LTE data service even in buildings and underground by applying femtocell and low power RRU. They can also upgrade the existing SISO (Single-Input Single-Output) type in-building DAS (Distributed Antenna System) to become capable of MIMO (Multi-Input Multi-Output) without changing the cable from single core to dual core.

Meanwhile, mobile operators must be able to provide high-quality packet-based VoLTE service to deliver true benefits of LTE service to their customers. However, since it uses packet network unlike 3G network that provides voice service through circuit network, VoLTE has limitations such as packet delay and loss, as well as mute caused by hard handover in boundary areas. Thus, mobile operators need to develop and apply technologies to maintain stable transmission of data and minimize abrupt mute even in hard handover situations by processing handover signals first. Moreover, they must also seek ways to ensure a certain-level of service quality for VoLTE customers at all times through QoS technologies that prevent heavy users from occupying all the bandwidth.

LTE NETWORK DEPLOYMENT AND TECHNOLOGY OPTIMIZATION

According to Cisco, global mobile data traffic grew 2.3-fold in 2011 and is expected to surpass 10 exabytes in 2016. To accommodate the surging data traffic, mobile operators are making huge network investments, a large share which is currently earmarked for LTE fronthaul. Mobile operators around the world seeking to deploy a LTE network in the most cost-effective manner can apply a ring type of optical multiplexing technology on CPRI (Common Public Radio Interface). The technology enables operators to save both network investment and operation cost as well as deployment time as it enhances the transmission efficiency of fiber-optic cable between DU(Digital Unit) and RU(Radio Unit) unlike the existing network system that requires carriers to install fiber-optic cable from DU Center to each and every RU. Also, the biggest customer benefit lies in that it allows them to enjoy seamless communication service even in times of network failure caused by fiber-optic cable cut or disconnection thanks to the protection switching feature based on the ring topology. Without this technology, users will have no service available until the operator repairs the disconnected cable. (Figure 1 and 2)

Figure 1. Existing Network System

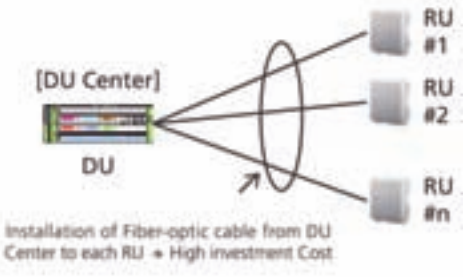
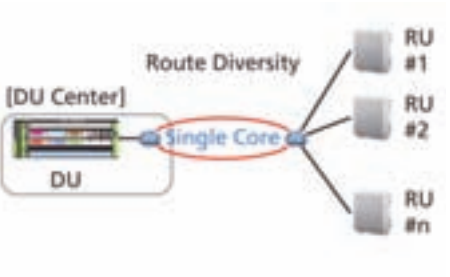


Figure 2. Network System Applied with Ring Topology



Moreover, operators must develop and apply sophisticated network design tools to optimize their networks. For instance, in case of applying MC (Multi Carrier), a technology that boosts data speeds by choosing the faster one between two or more frequency bands, mobile operators will experience quality degradation in coverage boundary areas due to different propagation characteristics of the frequency bands. However, with network design tools, they can conduct simulations to get optimal RRU (Remote Radio Unit) output power and antenna tilt before deploying MC base stations, and adjust system parameters such as handover threshold.

EFFICIENT NETWORK OPERATION

Efficient management of networks becomes even more important for LTE networks as cells are located much closer to each other compared to 3G networks. Mobile operators need to strengthen their networks and offer high quality service by using a centralized SON (Self-Organizing Network) solution that automatically diagnosis and fixes problems immediately. SON solution performs neighbor cell management and PCI (Physical Cell Identity) assignment to prevent collision and confusion between cells. It also improves the quality of handover and paging in boundaries between vendors and between EMSs (Element Management System) by using a feature that automatically allocates paging areas. Furthermore, operators can maintain a stable network quality through features that automatically optimize handover parameters and fix errors in parameter settings.

FURTHER TECHNOLOGY DEVELOPMENTS FOR LTE-ADVANCED

Based on the LTE technologies mentioned above, operators must be able to further upgrade their network quality and customer experience by developing and commercializing innovative LTE-Advanced technologies, thus ushering in the era of LTE-Advanced. With diverse LTE-Advanced technologies such as CA (Carrier Aggregation), eICIC (enhanced Inter-Cell Interference Coordination), and CoMP (Coordinated Multi-Point), operators will be able to provide a solid technological basis for building an LTE-Advanced environment that brings greater convenience and value for customers.

Visa, Samsung in global NFC alliance

By Richard Handford

Visa is joining forces with Samsung in an alliance that is designed to encourage the take-up of mobile payments via NFC-based smartphones.

Financial institutions planning to launch m-payments services can use a new Visa service that securely downloads user's account information to NFC- based Samsung handsets.

The alliance will also place Visa payWave applets on Samsung's next generation of NFC-based mobile devices. The applets enable consumers to make contactless payments in locations such as shops and restaurants.

Visa's global head of product, Jim McCarthy, said "the key to making mobile payments broadly available all over the world" is offering financial institutions "a secure way to provision millions of smartphones with payment account information".

The new service is called the Visa Mobile Provisioning Service.

Visa is in discussions with banks interested in its service but would not reveal any names.

Dr Won-Pyo Hong, Samsung's president and head of its media solution center, said the partnership with Visa "represents a step towards a global mobile payment platform".

The partners claim the alliance is "a first of its kind" between a NFC handset vendor and payment network.

The arrangement is non-exclusive so Visa could strike similar deals with rival vendors (or Samsung could team up with other credit card firms).

Samsung will offer banks the ability to load payment account information over the air to a secure chip embedded in its devices, using Visa's new provisioning service. The service is linked to Samsung's KMS, or key management system, that creates secure data storage domains for card issuers.

The Visa payWave applet will be preloaded onto selected Samsung mobile devices featuring NFC and an embedded secure element.

When purchased, these devices are ready to be personalised with Visa-based payment accounts, which consumers will do with an app provided by their financial institution.

How this new alliance fits with Visa's existing relationships with mobile operators will be interesting. At last year's congress, it announced a payments partnership with Vodafone across the operator's extensive global footprint. Visa also unveiled an alliance with Orange at last year's event, although it focused on payments in emerging markets.

Although the current alliance is slated as being global, NFC-based handsets are usually targeted at wealthier markets in Europe and Asia, as well as the US.

Visa could use the same service provisioning mechanism to work with other industry sectors, for instance transport or home security.

Visa will demonstrate its PayWave applet and new provisioning service during congress.

Vimpelcom, MasterCard in mobile money push

By Richard Handford

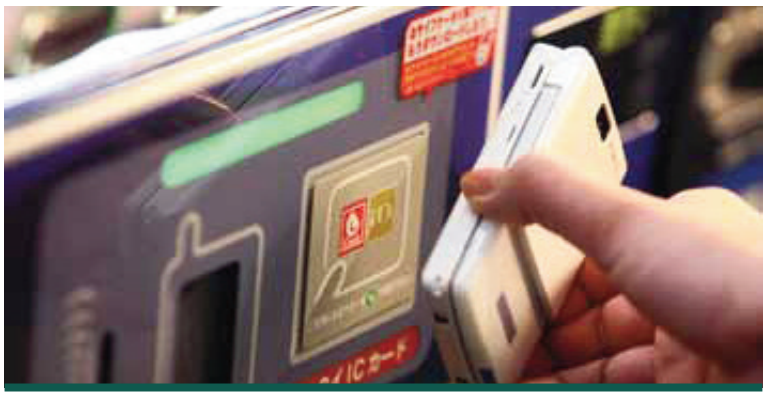
Vimpelcom is teaming up with MasterCard to offer mobile money services to subscribers across its extensive footprint.

The aim is to offer a range of money services for both Vimpelcom's banked subscribers and those without access to conventional bank services.

The operator, which has 212 million subscribers in 18 countries, covers a diverse spectrum of markets including Russia, Italy, Ukraine as well as markets in Asia and Africa.

The partners will first launch a pre-paid money service to subscribers of Wind Italy by working with CartaLis, a local financial institution. This service will be offered later in 2013.

Vimpelcom did not offer a rollout schedule for mobile money in other markets.



The kind of services the operator will offer include money transfer between individual subscribers, bill payments from a mobile device and mobile commerce.

In addition, the credit card giant announced it is to pilot a mobile payment acceptance service in Kenya with the local Equity Bank and Ezetap, a device vendor.

The pilot enables retailers to accept credit, debit or pre-paid card payments via a dongle that is fitted onto a standard smartphone or tablet. It offers cash-only retailers the opportunity to also accept card payments.

MasterCard says this is the first time such a service has been offered in Kenya. It was announced in mid-January.

Kenya has a distinct history in mobile payments because of M-Pesa, the innovative money transfer service pioneered by Safaricom, the country's dominat mobile operator.

Ezetap's service, which has been operational in India for several months, consists of a dongle that plugs into mobile devices, as well as an app. Such services have been widely deployed in other markets around the world.

NXP expands contactless stall

By Anne Morris

NXP Semiconductors is showcasing new contactless applications at Mobile World Congress this week, as the company continues to build on technologies such as NFC and MIFARE.

New applications being demonstrated in Barcelona include a mobile ticketing solution called MIFARE4MOBILE that allows NFC-enabled smartphones to be used for ticketing applications on transport systems. NXP said more than 650 contactless transport systems around the world are based on its MIFARE technology.

Others include the tag-based NFC Shopping solution developed by Think&Go NFC that is currently being used in Casino supermarkets in France, and a smart wireless charging pad that uses NFC to trigger "wake up," thereby achieving true-zero power consumption in standby mode.

The company added that OEMs have currently selected NXP's NFC technology for approximately 200 mobile devices.

Half of over-65s want a smartphone – survey

By Richard Handford

Recent research by handset vendor Doro found that half of respondents aged over 65 are happy with a featurephone, but what the other half want is a smartphone.

In response, the vendor, which specialises in handsets for older users, is attempting to cover both preferences in its latest device – a featurephone that uses cloud-based technology.

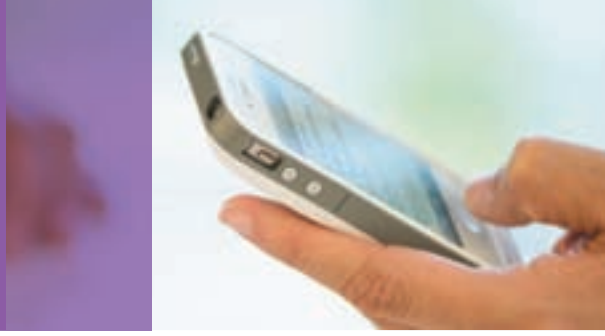
The Doro PhoneEasy 622 is powered by the company's remote device management tool which enables its content and settings to be controlled from a secure online portal by the user, or their family and friends.

Contacts can be added to an online address book from a PC and pushed to the handset. And photos from the handset can be backed up on-line.

Doro describes the new device as its highest level feature phone to date which includes ability such as video record and playback, as well as a weather app on the homescreen,

The handset has a clamshell design with an outside screen for caller identification. Also included are amplified sounds that use wideband audio technology, adjustable text size, a large and bright screen, intuitive menus and the option to hide certain functions, so the user can customise the device.

Citrix **Byte**Mobile



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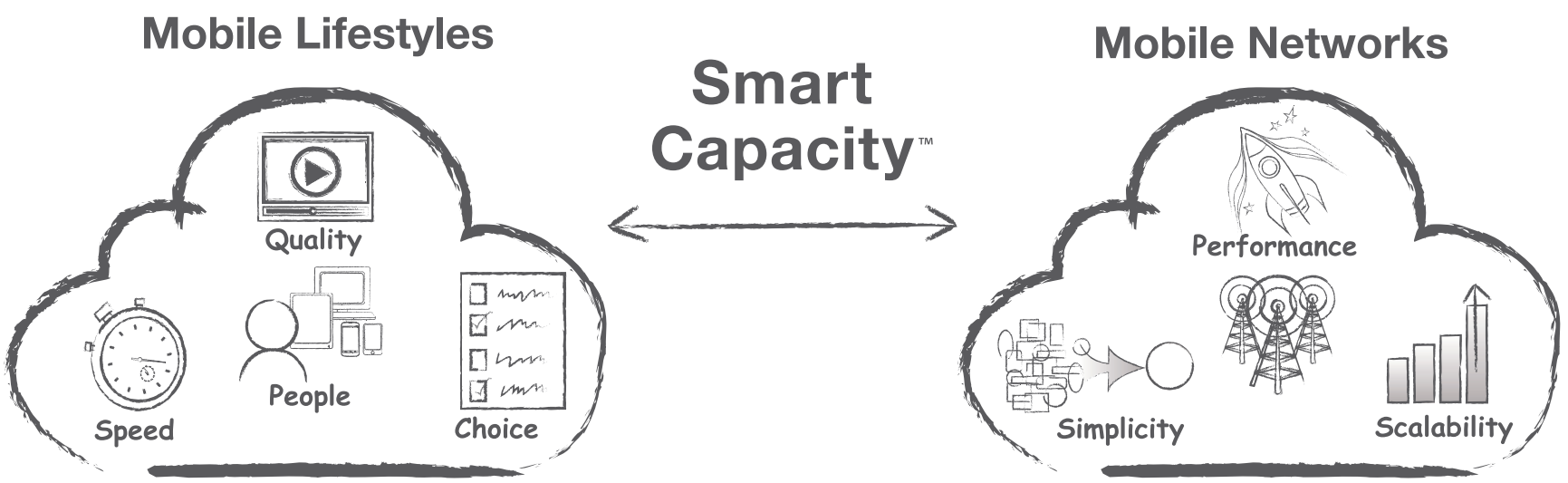

Analyze to deliver the best possible experience

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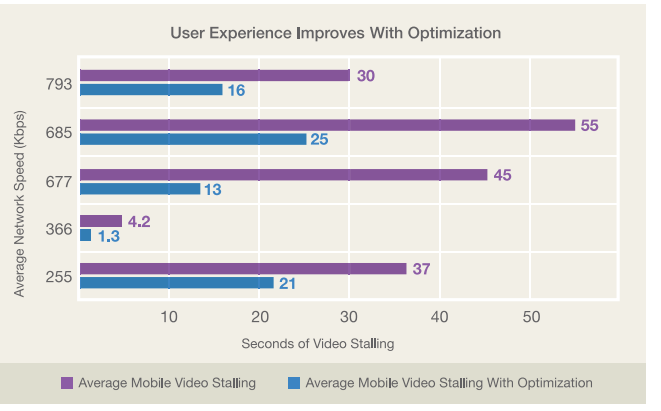
Monetize with differentiated data services

Optimize for network efficiency



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Stereo Bluetooth Audio and Low Latency Applications

The aptX™ coding algorithm was introduced to the Bluetooth® world three years ago and, from an audio perspective, this professional grade codec has brought considerable value to stereo Bluetooth A2DP connectivity. Going forward, it's the ability to service low latency requirements which may stimulate a bigger market opportunity and bring Bluetooth to sectors which it was unable to service before.

Latency represents the time it takes for the audio stream to be sent from the audio source (smartphone, media player, computer, console) to the wireless receiver (speaker, headset).The two use cases where low latency is key are Audio for Video (Lip Sync) and gaming. According to IMS, almost 900 million AV and Audio only products were shipped in 2011. In the same period Bluetooth enabled products accounted for less than 20 million units. Traditionally, Bluetooth could not address the metrics required for lip sync and gaming due to latencies in excess of 100ms. As a result, proprietary based RF solutions (largely requiring dongles) attempted to fill this massive opportunity in the market. However, the recently launched aptX Low Latency, in conjunction with Bluetooth, has now overcome these obstacles by offering a number of important advantages.

aptX Low Latency:

- Uses a standards based RF technology
- Can remove the need for a dongle as Bluetooth is supported on 100% of smartphones, tablets and notebooks
- Can be implemented in existing silicon designs via a software update
- Is 100% Bluetooth compliant

WHAT WAS WRONG BEFORE?

Key to the problem is the lead or lag between audio and video. According to the European Broadcast Recommendation R37-2007, "The relative timing of the sound and vision components of a television signal", the boundaries are: **Sound before picture** ↖ 40 ms and **Sound after picture** ↖ 60 ms.

For stereo audio, the mandatory SBC codec within the Bluetooth A2DP profile is a frame based codec and culminates in an overall latency anywhere between 100ms and 500ms. Alternative algorithms based on psycho-acoustic perceptual techniques which also rely on frame based coding approaches will suffer similarly. This latency is mainly due to two elements:

1. The codec delay: each audio codec has its own internal delay to encode the data before sending it over the air; codec delays up to 50ms have been observed with traditional frame based codecs
2. The transport delay: the A2DP transport layer uses a packetised structure; when populating the packets with SBC or alternative encoded frames, there are two options: either large Bluetooth packets are used to fit a single frame in it, or two Bluetooth packets are split from a single frame. While the first option will reduce the robustness, the second will force the decoder to wait for two different Bluetooth packets to arrive before being able to decode the split frame, considerably increasing the transport delay

Furthermore, SBC and other frame based codecs offer a highly variable audio quality performance based on their bitrate settings. In essence, there is no guaranteed consistency of audio quality through different implementations of the same codec.

The quandary that A2DP presented, should low latency be required, was to accept poor audio performance through either reduced audio quality or robustness. As a result, proprietary RF solutions were used to fulfil the wireless needs of the consumer.

DOESN'T THE NEW A2DP1.3 SPECIFICATION ADDRESS THE LATENCY ISSUE?

The issue of audio and video synchronisation has been partially addressed via the A2DP1.3. The principle being that synchronisation data is passed between sync and source, and a buffer adjusted dynamically (usually at the source side) to compensate. However, whilst this solution may be relevant for some AV use cases where the video can be delayed to accommodate the Bluetooth audio latency, (e.g. films) it won't address a gaming use case where the video cannot be delayed. It's also worth noting that many flat panel TVs support a specific gaming mode where some or all of the TVs video processing is disabled so as to avoid latencies being introduced to the gaming video, so adding delays back in to compensate for Bluetooth transport delays is definitely not recommended.

WHY APTX LOW LATENCY?

The aptX codec has two main advantages over SBC and alternative frame-based A2DP codecs: it has a low codec delay of 1.9ms and, equally importantly, does not use any frame format. As a result, the Bluetooth packets can be populated in an extremely efficient manner while removing the need for a waiting state during the decoding.

Furthermore, being a fixed compression ratio algorithm, aptX always offers the same bitrate over the air, so each aptX implementation will be guaranteed to deliver the same audio quality.

These unique features allow aptX to provide an end-to-end latency of 32ms while maintaining professional audio performance and robustness. The 32ms figure is well within the criteria required for lip sync (i.e. less than 40ms).

Since the introduction of flat screens, there has been a continuous engineering effort to reduce the cabinet depth of a TV. The primary driver for this is the desire to place the TV on the wall of a living room. However, the desire for thinness is directly at odds with audio performance. The acoustics of a speaker are directly in proportion to the cubic capacity, i.e. a lack of depth reduces the audio quality. With flat screens now available in sub-centimetres, there are two options that can be addressed through low latency Bluetooth connectivity:

1. Manufacturers can supply separate speakers with aptX Low Latency built into the TV enclosure and the decoder in the speakers
2. A TV purchaser could use a dongle to stream from Line Out to an existing stereo system which supports aptX Low Latency

While the traditional living room console market is as strong as ever, the mobile gaming market is quickly developing. Modern operating systems and power-efficient, multi-core processors now allow any smartphone or tablet to run 3D games, potentially turning billions of users into gamers.

But it is only a matter of time before these smartphone gamers decide to use their Bluetooth headset to play a game while on the move, and discover the latency problem: the sound through the headset needs to be a synchronised representation of the image on the screen and of the user action. The effect of pulling a trigger and hearing a gun being fired anywhere above 50ms after pressing the button will become noticeable and make the game unplayable.

Again, aptX Low Latency and its 32ms latency can guarantee the audio synchronisation needed by any gamer.

Furthermore, it is also possible to open a parallel audio stream from the headset back to the gaming platform to enable wireless audio chat features, enriching the gaming experience by introducing a team element.

WHAT'S NEXT?

At the beginning of this article it was outlined that due to the inherent latencies resulting from the use of SBC for Bluetooth stereo audio, the AV industry was forced into adopting other proprietary wireless audio options. However, now that these latency issues HAVE BEEN ADDRESSED, manufacturers can now consider Bluetooth connectivity for the complete AV ecosystem, delivering significant benefits for the manufacturer in terms of ease of use, cost (in terms of silicon and system) and future-proofing their offering.

Bluetooth is a standard that has been readily adopted by a myriad of consumer electronics manufacturers. Over three billion Bluetooth chips have been sold in the past 10 years. All smartphones and the majority of feature phones and portable media players include Bluetooth as a feature and offer the A2DP profile for stereo audio. The ability for a user to watch video stored on their smart device while listening to high quality audio via Bluetooth wireless headsets and speakers without the need for dongles is a truly compelling option.

THAT ALL SOUNDS GREAT, HOW CAN I GET APTX LOW LATENCY?

There are two parts to the aptX Low Latency equation i.e. the compression / encoder / source and the decompression / decoder / sink. The encoder is available on a number of options which include Linux, Android's Ice Cream Sandwich and Jelly Bean. The supported Bluetooth stack is generally BlueZ. Once the exact deliverables have been agreed and made, then it may only take a few working days to complete the integration.

Brian Bronson. President and CEO, Radisys

IMS Key to Improved Mobile Profitability

Operators are embracing the transition from legacy mobile technologies to next generation infrastructures. Increasing investments in LTE access networks, and the enhanced packet core, are necessary to satisfy consumers' increasing demand for faster, higher volume, mobile data. To recover these investments mobile operators will need to generate increasing mobile data plan revenues.

The challenge for operators is that mobile consumers are leveraging improved broadband mobile data capabilities to increasingly use free OTT VoIP and video call applications using WiFi hotspots; which are cannibalizing traditional voice service revenues offered by mobile operators. The net effect is that mobile data growth is outpacing mobile operator revenue growth - squeezing operator profitability.

One solution to increased operator revenues and profitability is offering differentiated services like VoLTE, Rich Communications Suite (RCS), mobile video conferencing and other Value Added Services (VAS) using an IP Multimedia Subsystem (IMS) in the cloud. Within the 3GPP standards for IMS is a defined role for the Media Resource Function (MRF) to provide the media processing for real-time voice and video communication services.

VOLTE – THE RESURGENCE OF VOICE

Voice has always been a staple, mass market, service in the operator's portfolio. However, OTT VoIP and video applications are continuing to cannibalize these revenues. And with better data connections, these services will increasingly support HD audio and video services, which will only accelerate this cannibalization.

Operators have responded by expanding their LTE rollouts to also include IMS deployments, supporting cutting-edge IP-based services to defend their voice revenues from these OTT rivals. Currently, many operators are using CSFB, which drops voice calls back to the 3G network, to provide voice over LTE networks. However, CSFB is not a solution which will scale to support a successful, long term, operator business strategy. One problem is a CSFB strategy requires managing two networks in parallel – 3G and LTE infrastructure. A CSFB strategy also defers the ability to re-farm legacy 3G spectrum for LTE access network growth.

Instead, global operators have come to the consensus that the only route to ensuring high quality, reliable voice is through Voice over LTE (VoLTE). VoLTE is based on an IMS architecture, with IP media processing delivered by the MRF. VoLTE is provided, alongside data and video, through a single IP-based converged packet core, driving CAPEX and OPEX savings, while freeing up 3G spectrum for future 4G growth. However, offering VoLTE goes beyond simple point-to-point calling. VoLTE requires transcoding capabilities between the AMR-WB codec used in VoLTE and legacy codecs. It includes supporting audio VAS services in an IP environment, including audio ring-back tones, conferencing, advertising and IVR services. The industry is offering solutions designed to support all these IMS requirements for VoLTE services, with additional differentiators such as our Voice Quality Enhancement (VQE) feature set, delivering echo cancellation, noise reduction and packet loss concealment specifically designed for mobile VoIP services.

THE IMPORTANCE OF VIDEO

More than any other data type, video is driving huge growth in global mobile video traffic. Mobile video also presents a huge opportunity to operators. Services we see today include video sharing or video streaming (i.e. YouTube or Netflix), or early OTT video calling and conferencing services. However, IMS provides the framework to deliver ubiquitous real-time video calling and conferencing services between any mobile devices.

MRF equipment in the IMS will provide the transcoding and transrating between devices using different video codec standards, screen sizes, or dynamically changing bandwidth

Radisys MRF enabled world's first VoLTE deployment at MetroPCS

availability. IMS will also support video VAS services including video ringback tones, interactive voice and video response (IVVR), and HD video streaming with geo-location advertising, allowing operators to leverage their intimate knowledge of their subscriber base and location to differentiate their offerings.

DEFINING MOMENT FOR MOBILE

The introduction of WebRTC (Web Real-Time Communication), driven by Google and Microsoft, is posing yet another challenge to mobile operators. WebRTC enables browser-to-browser applications, with no plugins, for voice calling, video communication and in-game voice chat. It is still unclear how much traffic WebRTC will generate through browsers, or, indeed, how this will impact LTE operators' networks. What is certain is that many companies will have access to WebRTC, so we can expect innovations in this area to increase. IMS MRF equipment will be required to ensure interworking between WebRTC and legacy codecs and communication networks.

The mobile industry is also continuing its response to OTT competition by pushing on with Rich Communication Suite (RCS); and last year JOYN was revealed as the consumer facing brand for RCSe. JOYN will allow customers using any mobile device to chat and enrich their messaging or voice calls by exchanging images or video simultaneously during calls. Real-time services in RCSe and JOYN also will also drive a need for IMS MRF.

While the original 3GPP architects for the IMS likely envisioned deployment in traditional network central office or private data centers; the same IMS architecture is readily applicable to evolving cloud deployment models. Operators choosing a cloud approach will need to ensure carrier-level reliability through QoS-enabled networks, policy enforcement, and distributed load-balancing architectures to ensure a differentiated, superior user experience compared to OTT approaches.

Operator investments in LTE networks without an IMS services strategy is conceding high-margin service opportunities to non-operator players in the industry. It is our belief that incremental investments in an IMS services will improve ARPU and mobile operator profitability. Operators must ensure they have the service delivery strategies and infrastructure to generate service revenues beyond commodity data plans. This ability to future proof mobile industry service strategy will be vital to the mobile ecosystem in fighting competition, and boosting margins, in the progression to an all-IP mobile future.

Radisys MRF

Adapting to the New Era of Communications

This year at Mobile World Congress, my company is announcing the next step in our company's journey. We are announcing a new brand that brings our strategy to life and conveys our customers' hopes and aspirations as well as our commitment to helping people achieve their true potential. This evolution is based on understanding what our customers have in common across our markets and recognizing that we have a role to play in supporting their aspirations.

The new realities that drove this change are apparent in every market. Access to data via mobile devices is increasingly part of the fabric of our lives. In the developing world especially, it is an essential economic lifeline, a technology with the capacity to transform lives.

Look at who are customers are today. Young people view mobile data access as a basic right, and place their mobile at the heart of their daily routine. In the Middle East and North Africa region, for example, mobile devices have become ubiquitous witnesses to an incredible period of social change. Keeping these people connected is an increasingly important social obligation for operators – as well as a business necessity.

Women in the developing world are also changing the way that data is deployed. As we work to close the digital divide, we can see the incredible social changes and benefits that occur as women entrepreneurs harness the power of mobile broadband.

With the huge social impact it offers mobile technology is effectively delivering human growth today. Our companies are playing a bigger role than ever before. However, delivering the experience these customers expect and sustaining profitability is a challenge for us all.

Covering network costs and meeting consumer demand are two of the challenges – the old pricing models, have been rendered redundant by customers who are driving record increases in data traffic, and continue to demand ever-faster network speeds.

EVOLVING TO MEET THE NEEDS OF CUSTOMERS

To meet this changing demand, we will need to focus on how we do things for our customers. Differentiating on customer experience will be the critical success factor in this new broadband environment.

A key element of the service experience is providing easy access for all. Operators need to offer best-in-class platforms, so that device set-up is as easy as flicking the "on" switch. And we should offer direct payment options, so that customers have a one-stop shop experience for all their online needs, and easy-access to self-help services, so that complaints are resolved quickly.

Recognising that customers are creators as well as consumers, we need to open our networks, so they can they have access to relevant tools and create content.

By focusing on serving and managing the entire customer journey, and delivering an exceptional online experience, we will be closer to our customers than ever before. We will become part of the fabric of their daily lives and help them to reach their full potential. Delivering these factors requires partnerships across our industry, particularly as we attempt to address the needs of customers in the developing world.

SMARTER NETWORK MANAGEMENT

The operators who will continue to be successful will be those who understand that capacity is an increasingly precious resource, and prepare accordingly. As the number of data users increase, our technical readiness will be tested, particularly as the next generation of smartphones increases the weight of data applications on our networks.

We will need to be "smarter-broadband" providers, efficiently using different spectrum bands to offer the best user experience. By improving the technology mix, we can rapidly accommodate more traffic, particularly if we address the issues at the customer device level as well as the network layer level.

Dr. Nasser Marafih, CEO, Octopus

COMMITTED TO DELIVERING HUMAN GROWTH

If we are to evolve our network strategies and our approach to customers, we should be motivated by the enormous social transformation that mobile technology has already delivered.

As I said at the beginning of this article, my company, Ooredoo, has announced a major next step for our business.

We are ready to take the whole company to the next level demonstrating the opportunities that our efforts create for our 90 million customers who live, work and play across a geography that spans half the world.

We are signalling that we are not only a communications company – we are a community-focused company, whose work makes a difference in the communities where we operate.

Our vision is based on a strong core belief that we can enrich people's lives and stimulate human growth. Our vision for human growth is very personal and we want to go beyond simply making connections to helping people achieve their true potential.

We believe that every woman should have an equal opportunity to use a mobile phone; that young people should be given the life chances that mobile technology can provide; that underserved communities should be able to come online; and that entrepreneurs and small businesses should be able to access business services tailored to their needs.

We are undergoing more than just a change of identity. My company is evolving to deliver the promise of human growth to our customers. Every operator needs to adapt to the incredible changes shaping our industry and our world. Our new brand, Ooredoo which means I want, demonstrates our customer intimacy and signals our aspiration and commitment to become a global force.

Sun Xinwu, Senior marketing manager Mobile broadband Backaul solution, Huawei

Bridging the Backhaul Gap and getting Ready for LTE-A

2012 marked a milestone for LTE commercialization, as the global tide of LTE deployments rose aggressively. By the end of 2012, 145 commercial LTE networks had been rolled out in 55 countries, with LTE subscriptions reaching beyond 43.7 million, according to the latest statistics from the Global mobile Suppliers Association (GSA).

LTE is changing the way we think about mobile backhaul networks. The emergence of new technologies (such as CoMP, Adaptive ICIC, and eMBMS) is driving backhaul and core convergence and breaking the bandwidth and architectural bottlenecks of GSM/UMTS.

WHAT IS NEW ABOUT LTEHAUL ARCHITECTURE

LTE operates at high frequency bands (for example, 2.6/3.5 GHz) in densely populated urban areas, offering a peak rate ten times faster than that of UMTS. However, this also means that to achieve the same coverage, the number of eNodeBs is up to ten times that of BTSs/NodeBs. In addition, a high-frequency wireless system poses challenges such as hot spot coverage and coverage holes, creating fronthaul requirements.

Fronthaul is the last-mile portion of LTEHaul and used for indoor/outdoor hot spot coverage. Generally, varied access media at street cabinets, such as fiber/copper/PON/GPON, are available for fronthaul. Bearer devices need to support any-media access and clock synchronization to facilitate fronthaul.

Fronthaul = Indoor hot spot coverage + Outdoor hot spot coverage

Indoor hot spot coverage is divided into WiFi and small cell scenarios.

WiFi access is typically required in mobile office areas, cafes, and airports. It is characterized by low mobility, a large amount of data services, and no voice services. Challenges such as varied access media (P2P fiber/copper/PON) and power supply for RRUs require the fronthaul network to support any media access and PoE (remote power supply). Furthermore, to lower the OPEX arising from maintenance of a multitude of remote nodes, bearer devices should be small, easy-to-install, energy-lite, and maintenance free.

Small cell access is mainly for shopping malls. It is characterized by high mobility and a large amount of voice and data services in extensive areas. To ensure quick service provisioning and high-quality service experience, the fronthaul network should support any media access, remote RRU power supply, as well as HQoS. Bearer devices should be easy-to-install, maintenance free, and plug-and-play to reduce TCO.

Atomcell access applies to crowded outdoor scenarios, such as bustling streets, city plazas, and open-air cafes. It is characterized by heavy voice and data traffic. Challenges include site acquisition and varied types of access media. Existing access media need to be leveraged, and bearer devices should be environmentally friendly, supporting zero footprint installation in various outdoor environments (walls/street poles) and adopting surge protection and waterproof designs.

If wireline access media are unavailable, FO (full outdoor) microwave can be used. FO microwave should support quick deployment (with parabolic antennas for quick focusing), quick commissioning (configuration through USB port), and easy maintenance.

CSG BACKHAUL: EVOLVING FROM TAIL-END ACCESS TO TRAFFIC CONVERGENCE

One GSM/UMTS CSG node provides service access for one base station, while an LTE CSG node aggregates traffic from small sites. This change calls for higher system reliability, particularly carrier-grade 1+1 10GE ring protection, 1+1 backup for system control units, and protection against multi-node failures.

The commercial maturity of VoLTE is accelerating the refarming of GSM/UMTS frequency bands to LTE, which, together with LTE-A evolution, is posing network scalability challenges. A blade RRU solution requires CSG nodes to provide multiple service slots (six slots) and large switching capacity (120 Gbit/s), empowering smooth expansion of network capacity. New VoLTE services require CSG nodes to support HQoS, for multi-service scheduling and quality guarantee.

Placed in the same cabinets with BBUs, CSG devices should share power and NMS with BBUs. CSG devices should also support plug and play, enabling quick deployment with base stations.

ASG BACKHAUL: FMC CONVERGENCE AND CO-SITE WITH OLT/SDH DEVICE

Motivated by rapid traffic expansion and the IP evolution of base stations, FMC-enabled nodes for carrier IP are migrating downstream to traditional transmission equipment rooms, which house OLTs/SDH equipment. ASG nodes need to be co-sited with OLTs/SDH devices in 300 mm deep cabinets, and share power supply and NMS with OLTs/SDH devices, facilitating network deployment and saving costs. To enable multi-service FMC backhaul, ASG nodes should feature large capacity (480Gbit/s), integrate BRAS/SR/VPN PE functions, and be ready to support new services (for example, E-MBMS requires multicast/L3/IPv6 features).

The increasing scale and complexity of LTE networks are posing O&M challenges. ASGs not only aggregate traffic from macro and small sites, but also need to support centralized management of CSGs. The introduction of virtualized access into backhaul simplifies network architecture, configuration and O&M.

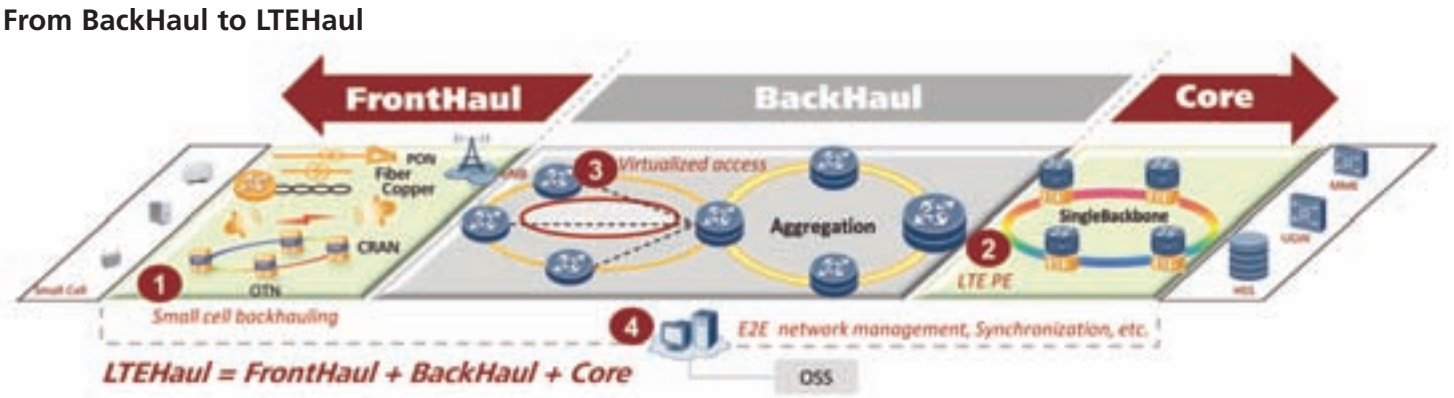
CORE: E2E SERVICE PROVISIONING AND O&M

BSC/RNC divides backhaul and core on GSM/UMTS networks. However, this boundary is blurring in the LTE era, as traditional BSC/RNC functions are distributed in eNodeBs and EPCs. The backhaul and core convergence calls for E2E service provisioning, protection switching, and fault diagnosis on LTE networks.

The traditional back-to-back solution (OPTION A) fails to meet cross-AS protection switching requirements. Segmented service provisioning and fault diagnosis are also time-consuming, failing the service requirements of enterprise private lines, which traverse both backhaul and core. The PE Borderless MPLS+H-VPN solution for LTEHaul supports sub-50 ms cross-AS protection switching and easy scalability between eNodeBs and the EPC. With E2E service configuration and fault diagnosis, this solution offers efficient service provisioning and troubleshooting for enterprise VPN services.

Large-scale commercial deployment of LTE/LTE-A is spawning service opportunities as well as challenges on mobile backhaul networks. Well suited to the preceding new scenarios, LTEHaul solution helps carriers bridge backhaul gap and enables smooth evolution to LTE-A.

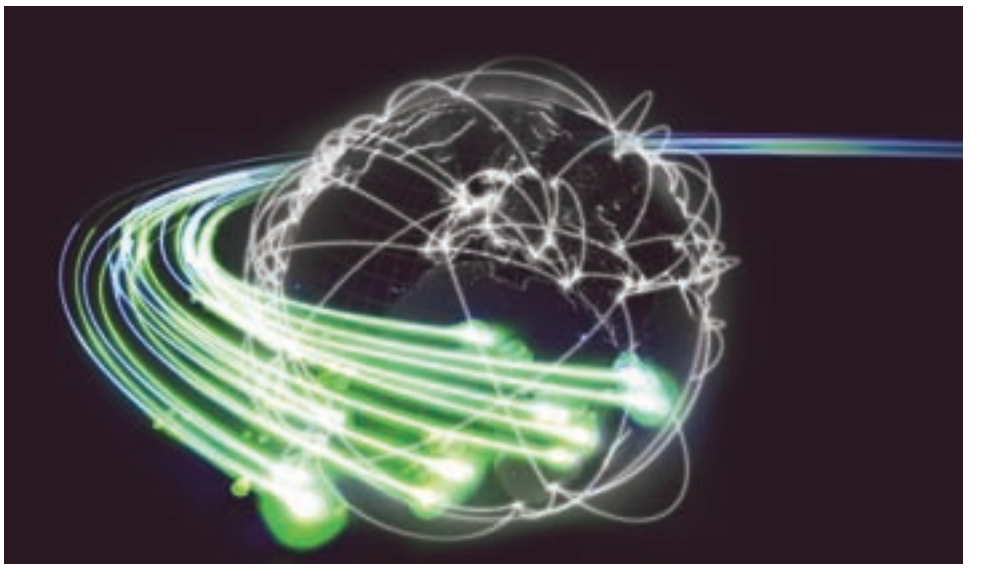
From BackHaul to LTEHaul



Ciaran Bradley, VP Handset Security, AdaptiveMobile

Mobile: The New Frontier for the Borderless Network

Over the last few years, a perfect storm has been gathering. The dawn of the smartphone, the tablet, Wi-Fi, and 3G/4G networks have meant that technology borders have been breaking down creating the borderless network. We can communicate and share with our friends and colleagues from anywhere, any time. However, with this change comes a heightened need to safeguard communications. Unfortunately, not all channels in the borderless network are created equal: there ARE a wealth of products available to protect the 'fixed' networks, but mobile networks and devices have become a very attractive target for spammers and cyber criminals and are the new frontier of the borderless network. This article discusses what individuals and organisations should be doing to combat threats and why this is crucial if the mobile users of the borderless network are to be protected.



THE DAWN OF THE BORDERLESS NETWORK

Why are mobile users such an attractive popular for cyber criminals? It is not just the sheer number of mobile devices in use every day that, unlike PCs, are permanently linked to a billing mechanism be it SMS, voice calls or data. In part it is because of our love affair with our phones - we take them everywhere and consider them to be very personal so we haven't yet learnt to be wary of the content of unsolicited communications in the same way we have with email. This makes us more likely to click on links in SMS spam or ring premium rate numbers, and these higher conversion rates are very attractive to scammers.

Technology also has a part to play. The Industry has been very successful in making advanced technology easy to use by the consumer so it is not surprising that the average consumer may not fully understand the implications of clicking on a web link in an instant message or installing an app from unofficial channels.

Cyber criminals are motivated and inventive – they want to make money just like any other business so they are constantly looking for new opportunities and attack vectors. As an industry we need to occasionally put ourselves in the mind-set of hackers and cybercriminals. Any time a new technology or platform becomes successful and reaches a critical mass the bad guys always go probing for weaknesses they can exploit, or by using it in ways that were not considered by the designers. For example, we are increasingly seeing OTT services being used as a way to deliver SMS spam in telco networks. Mobile is truly the 'wild west' of the borderless network.

POLICING THE NEW FRONTIER

It is a common myth that mobile threats are less evolved and less dangerous than their 'fixed' counterparts. We have seen a number of highly engineered and sophisticated threats spread across mobile networks, including malware, Trojans, social engineering and other problems which can rapidly turn into fraud.

Many threats are simple analogues of their PC counterparts but the sophistication of smartphones today has meant that there are now emerging threats which make the most of the 'unified' nature of smartphones. We have seen integrated threats in North America that start off as spam on instant messaging channels that get converted to an SMS with a link that leads to a phishing website that is optimised for smartphones. Unsuspecting subscribers can end up giving away personal information that can be sold on by scammers, or unwittingly signing up for services with hidden charges.

To give a further example, we have seen a trend in the CIS regions over the last year, where users were sent a number of SMS messages which informed them that they had received an MMS message saying "I love you". This link was designed to look like URLs used by local operators and when clicked automatically downloaded an Android or J2ME version of a fake MMS viewer application on the phone. When opened, the app sent five SMS messages to premium short code numbers without informing the user. The Android version also intercepted and deleted confirmation messages from the short codes to hide the attack.

We have seen distinct kinds of threats come from Europe, China and North America targeting countries in other regions, and the list is by no means limited to these countries and regions. Threats are sometimes explicitly designed to cross borders to dodge legislation or restrictions on mobile usage and reduce the chance of being caught and successfully prosecuted. Each country has its own individual way of using mobile devices and consequently its own vulnerabilities to attack. Operators more than ever need to be aware of the damage that can be done to their reputation by threats emanating from the network.

GAINING PROTECTION

What is required is network-based protection spanning each service bearer, as well as the handset itself, providing network and consumer (subscriber) protection. This enables the operator to both protect users and offer a range of security revenue-generating services across SMS, web, MMS, IM, email and voice. For example, operators can offer customisable parental protection controls to consumers, allowing them to filter illegal and inappropriate content.

By filtering content across the entire network, such a platform allows operators to gain a thorough insight into the threats which are coming through it, protecting and gaining the trust of the consumer.

As the borderless network continues to mature, the security threat will rise in parallel. As hackers develop more intelligent ways of gaining information and consumers continue to rank trust high on their list of priorities when choosing an operator, it is imperative that operators take the lead in protecting subscribers. It is only by providing bespoke security against a range of threats that operators can safeguard the technology landscape, reduce churn, increase revenue and neutralise threats to their own network infrastructure.

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www.twonky.com

Rémi de Fouchier, Vice President Marketing Communications Telecom Business Unit, Gemalto

CONTACTLESS ODYSSEY IN LONDON

Find out what happened when two London tech bloggers swapped cash for contactless payment-enabled smartphones

There are plenty of ways to test out new technologies. Laboratory trials, field tests and focus groups all have their place, but perhaps a more compelling way of finding out if new tech works is dropping two respected technology bloggers in at the deep end and seeing how they get on.

That was the challenge given to *Mobile Industry Review* editor Ewan MacLeod and Jon Choo, who blogs at jonchoo.blogspot.com. In November 2012, Gemalto asked the intrepid duo to complete a series of tasks using pre-paid Samsung Galaxy S III mobile phones fitted with secure contactless micro-SIM cards. The objective was to survive in London for 10 days without cash or credit cards.

Contactless payments are still not as common in the UK as they are in Asia, but the necessary technology and infrastructure necessary is being steadily rolled out, resulting in a surprising range of options. Indeed, the pair of techno trail-blazers successfully completed a number of tasks ranging from buying lunch to sending a postcard using nothing more than their phones, each of which was fitted with near-field communication (NFC) technology.

NFC is the underlying tech that allows users to pay by waving or tapping their contactless-enabled phone or payment card over a reader. The phones used in the challenge were also preloaded with Quick Tap – a contactless payment application developed by Orange (now EE) and Barclaycard that links the NFC technology with the phone's SIM card. Combined, the system allows users to pay for items securely at contactless payment terminals.

As the infrastructure rollout continues, public awareness is the next task facing providers. Describing the Contactless Challenge as a crazy 10 days, Choo noted that uncertainty among users and vendors was a stumbling block. A merchant I spoke to mentioned that he backed out from contactless as the machine was only compatible with Barclaycard, Choo explains, which I am pretty sure isn't true, but who am I to argue?

Choo, the eventual winner of the challenge, also felt the low payment limit was overly restrictive. The £20 limitation proved to be a sore point, he said. While £20 is fine for the majority of transactions, there were times when he would literally tear his hair out in frustration about this arbitrary limitation.

Another obstacle encountered by the duo was a lack of signage and poorly trained staff, which in one instance forced MacLeod to embark on an impromptu training session as he outlined the capabilities of a contactless-enabled terminal to a perplexed barman.

Perhaps not surprisingly, larger chains, such as McDonald's, Subway and Marks & Spencer, were among the first retailers to endorse contactless payments. As our bloggers found out, these chains also had well-trained staff and won business as a result of their early implementation.

Despite being required to inform vendors of the possible applications of NFC, MacLeod says he is looking forward to the freedom of making payments using his phone. "It really is brilliant tapping your phone, grabbing your sandwich and walking away. I love it." He's an example of how the immediate buzz of paying contactlessly can be a positive and empowering experience that, in the age of social networks, can be shared instantaneously. The potential for positive brand association is significant.

Inevitably, this fledgling technology will grow both in visibility and availability, which Choo says can't come soon enough. More retailers are adopting contactless, he says. "I honestly can't wait for the technology to take up. I am convinced by a contactless and cashless future."

After 10 days of living life contactlessly, our two challengers seem convinced by NFC and all it has to offer – although, being as they are at the forefront of all things new, this isn't entirely a surprise. In reality, NFC is being introduced across a wide range of applications, with more than 85 NFC-enabled handset models now available, according to NFC World. This, together with Google's claim that a million NFC-enabled Android devices are being shipped out every week, suggests the ability to make payments without reaching for our wallets could be just around the corner for most people. The potential of this market has led ABI Research to predict that in just four years the annual spend attributed to mobile NFC payments will reach an impressive US$191 billion.

Banks, retailers and transport operators are leading the charge. By 2016, NFC mobile tickets will represent more than 50% of all mobile ticketing revenues, according to Juniper Research. This tally will be bolstered by passengers on London's 8,500 buses, who have been able to pay contactlessly since the end of 2012.

Looking at the travel industry, airline ticketing is going through a similar upsurge, and a number of international hotels have recently introduced NFC technologies in their guest rooms, introducing it to their room keys. Home entertainment giant LG has even announced that NFC could move into the domestic market with the introduction of smart TVs with tag-on features.

Mobile NFC's time has come and it is attracting major players who are keen to exploit the convenience of contactless transactions. The teething problems identified during the Contactless Challenge will ease as uptake grows and the general public becomes more familiar with this new payment routine. It will take time, of course, but already a growing number of businesses are adapting their processes and systems in readiness for what analysts believe will result in an NFC penetration rate of 86% in North America and 78% in Europe by 2017.

Mobile commerce is part of a maturing market, with NFC now providing new business opportunities. The next stage is for contactless payment systems to become a keystone of the mobile industry. Looking at the predictions and the response from our bloggers, that day is approaching fast.

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Joss Gillet,
Senior Analyst, Wireless Intelligence
www.wirelessintelligence.com

Wireless Intelligence

Two thirds of Africans yet to join the mobile revolution

Only one in three of the African population is currently subscribed to a mobile service, highlighting a major growth opportunity for regional operators that are able to extend affordable services into rural areas.

Wireless Intelligence calculates that the total number of 'unique' individual mobile subscribers in Africa stood at 356 million in Q4 2012, representing just 33 percent of the continent's population. The one-in-three figure is about half of Africa's penetration rate when calculated by connections, reflecting the fact that cost-conscious African consumers hold two SIM subscriptions each on average.

Africa's subscriber penetration rate is the lowest in the world. A recent Wireless Intelligence study found that the total number of unique subscribers worldwide stands at 3.2 billion, accounting for 45 percent of the world's 7 billion population.

According to a recent World Bank report, there is still a need to measure the number of persons with access to a mobile phone, notably among households where members could theoretically use the same handset, thereby extending mobile access. The report gives the example of Senegal where connections penetration stood at 57 percent in 2009 but household penetration was estimated at 87 percent, therefore dramatically extending mobile phone access - considering that on average each Senegalese household contains nine people.

Our study highlights that one third of the African population has subscribed to a mobile service and that affordability remains a key challenge for mobile operators. Monthly ARPU stands below US$5 in markets such as Burundi, Rwanda, Uganda and Egypt, while an average rural tea farmer in Tanzania earns just 11p a day. In the latter country, Vodacom noted that future growth will come from rural areas which currently have low connections penetration (25 percent in Q3 2012, compared to 80 percent in urban areas), further adding that "clearly the growth will start with voice and text messages before the rural areas become matured enough to migrate to the Internet and high speed broadband banner."

The Western Africa region contains 103 million unique subscribers in Q4 according to our study – just under half of these residing in Africa's single largest market, Nigeria. Second is the Northern Africa region (101 million), which contains large markets such as Egypt, Algeria and Morocco; followed by Eastern Africa (82 million), Southern Africa (37 million) and Middle Africa (33 million).

Total African connections are currently growing by about 15 percent a year, with year-on-year growth strongest in Middle Africa (23 percent), Eastern Africa (18 percent) and Western Africa (18 percent). However, connections growth continues to be driven largely by multiple SIM ownership.

Africans are calculated to hold 1.96 SIM cards each, on average, above the global average of 1.85. As is common in other parts of the developing world, multiple SIM ownership in Africa occurs mainly due to budget-conscious consumers accumulating prepaid SIM cards in order to access as many low-cost deals as possible.

The impact on connections growth was confirmed recently by the Ugandan regulator. The Uganda Communications Commission (UCC) explained in its 2011/12 half-year Market Performance Review that "robust subscription growth is largely premised on aggressive on-net promotions prevalent during the second half of the year." As a result, "second SIM buyers dominated new subscriptions with marginal first time SIM acquisitions."

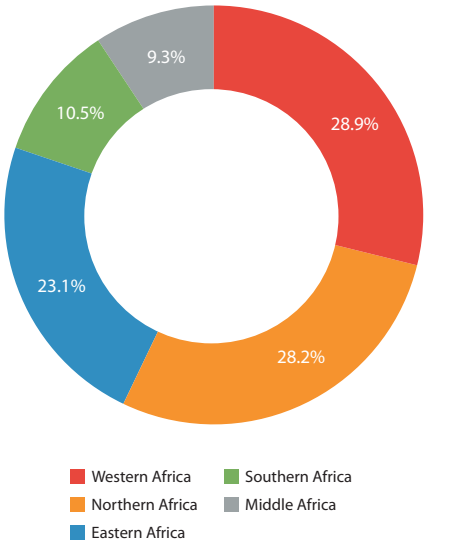
In the Wireless Intelligence study, Nigeria was found to have the highest level of multiple SIM ownership in Africa, at 2.39 SIM cards per user on average – on a global basis second only to Indonesia (2.62 SIMs/user). The country's largest mobile operator, MTN Nigeria, reported in Q2 that "only 25 percent of the gross additions in the market were first time subscribers. The other 75 percent was mainly attributable to rotational churn and multi SIM cards in the market."

MTN says the trend is being further exacerbated by aggressive pricing competition, noting a "multitude of bonuses on [prepaid] recharge, freebies and other promotional activity". It also highlighted the Nigerian government's controversial decision to withdraw fuel subsidies at the beginning of the year, which MTN claims negatively affected telecoms spending.

While African operators are presented with a significant growth opportunity, new subscribers are increasingly likely to reside in rural areas, which may lead to infrastructure challenges.

A new GSMA study that looked at Kenya, Tanzania and Uganda found that 73 percent of the rural population in these three markets had mobile coverage, compared to 100 percent in urban areas. The rural population accounted for 87 percent of the total population in Uganda and 74 percent in Tanzania, explaining the low mobile penetration levels in both countries.

Africa unique subscribers by region[1]



Source: Wireless Intelligence
[1]Wireless Intelligence uses the official UN geoscheme to classify global regions and subregions

Extending coverage into rural areas in these markets "presents the operators with challenges due to unreliability and quality of power supply," the study says. The three countries combined had a total network of 13,225 base station sites as of Q3 2012, of which 9,957 are connected to the commercial grid power supply and the remaining 3,268 base station sites are 'off-grid.' Both types are said to rely on expensive diesel generators due to either poor power infrastructure or limited grid power.

To connect new African subscribers in rural areas, operators must also overcome challenges related to high levels of poverty (classed as those who live on less than US$2 a day) as detailed in the GSMA's Mobile and Development Intelligence initiative. Other barriers to adoption include a lack of basic education skills (literacy, numeracy etc.), though the mobile industry itself is playing a role in addressing this issue via mHealth, mLearning, mAgri and other initiatives.

ABOUT WIRELESS INTELLIGENCE

Wireless Intelligence is the definitive source of mobile operator data, analysis and forecasts, delivering the most accurate and complete set of industry metrics available. Relied on by a customer base of over 800 of the world's leading mobile operators, device vendors, equipment manufacturers and financial and consultancy firms, the data set is the most scrutinised in the industry. With over thirteen million individual data points (updated daily), the service provides coverage of the performance of all 1,140 operators and 1,153 MVNOs across 3,505 networks, 65 groups and 236 countries worldwide.
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Pardeep Kohli, CEO, Mavenir

First among equals – in the race to all-IP networks and rich new services

One of the reasons for the success of the GSM ecosystem, and parallel initiatives such as RCS, is that by creating a level playing field they enable operators and vendors to work together to introduce new services and applications that can be common across all networks. But having a standardised technology approach doesn't have to hold back competition, as MetroPCS has ably demonstrated.

In Europe, the launch of RCS-based services has been founded on a country-wide, pan-operator model. The GSMA's "joyn" initiative is perhaps the best known example. The big five European operator groups have all backed RCSe and have helped to bring those services to life.

But for MetroPCS, the fifth largest carrier in the US with close to nine million subscribers, introducing new services based on the RCS platform was less about the cross-operator platform, and more about being first to market and establishing a relationship with its customers for providing the rich new services that will eventually become the norm in an all-IP network world. MetroPCS is not interested in being a commodity provider of data services; it is looking to establish its value proposition for advanced new operator services today.

VOLTE

In fact, MetroPCS has history when it comes to being first out of the blocks with advanced new services. In August last year, the carrier became the first in the world to launch commercial VoLTE services –. Again, the drive behind its first-to-market launch was strategic and business-led. With limits on its existing spectrum, MetroPCS needed the capacity boost that LTE provides for its voice services almost as much as for its data. In order to continue its impressive growth, Metro PCS needed not just LTE now but VoLTE now as well.

That foundation for the future didn't take long to manifest itself in another world-first when, less than 90 days later, MetroPCS became the first operator in the world to launch RCS 5 services.

RCS 5

The GSM Association's senior director, Attilio Zani, welcomed the launch of the RCS 5 services and added: "One of the benefits of the GSMA's joyn accreditation process is that it allows operators to deploy a robust set of services with the knowledge that they will interoperate seamlessly around the world."

Of course, Attilio is right, that is a benefit of the accreditation process; but MetroPCS didn't believe in waiting for the other operators in their territory to "joyn", so to speak. They went ahead and launched.

Let's consider for a moment the environment and the pressure s the operators are facing. Network data traffic demands are rising, especially for video. Last year, Cisco predicted an 18-fold increase in data traffic by 2016; what's more, the fastest growing segment – video – will by then account for 70 per cent of the traffic.

Meanwhile, as operators fight to deliver the network quality that consumers demand, the well-known social networking and Internet providers are winning their customers hearts, minds and loyalty, and in some cases, wallets.

All of which means that revenues are under threat or declining, and yet the demands on the network and its investment needs have possibly never been higher. There are not many industries where falling revenues and increasing costs add up to a happy picture. Yet there is some light at the end of this tunnel.

It is clear that operators – faced with ongoing declines in ARPU - are looking at ways to transform their networks and introduce new services and ideas to monetize that investment, while creating a competitive edge that will help them compete against the over-the-top vendors and their other rivals in their marketplace.

The move to a cloud-based IMS core can help reduce network operating costs and be a springboard for new services – and, RCS 5 offers so much more than VoLTE and enhanced messaging. It is an open platform enabling the development of new services and the creation of an application developer community providing services for particular market segments or vertical industries – all under the operator brand with trusted levels of service.

And whatever stage an operator has reached on their network transformation and LTE investment path, RCS 5 is ready for an all-IP world and can be deployed today to help provide those new services with an immediate return on investment. In particular RCS 5, which uses VoLTE as standard, can offer an immediate benefit by enabling operators to introduce services from a lower cost base.

The move to all-IP networks is really a journey for mobile carriers and RCS 5 is a key staging post on that journey, opening the doors for forward thinking operators such as MetroPCS to move quickly to offer new services that raise the bar on what could be described as the foundation services – the advanced features and services that are native to the handset for that particular operator. After all, on any journey, someone has to be first off the bus.

Indeed, MetroPCS is clearly demonstrating that the early introduction of RCS 5 services enhances the relationship with its customers by providing the rich new services that will eventually become the norm and becomes the bedrock of new and advanced features that improve consumer experience, encourage greater customer loyalty and boost revenues.

"Operators can launch services which mirror and improve on the offers from the OTT players but come with the guaranteed levels of service that customers associate with their trusted operator friend, increasing customer loyalty."

The opportunity exists for operators to make a variety of moves with the innovations of today. Operators can launch services which mirror and improve on the offers from the OTT players but come with the guaranteed levels of service that customers associate with their trusted operator friend, increasing customer loyalty. And as MetroPCS has shown that is an opportunity that can be taken very quickly.

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Simplify mobile data monetization with Hosted Policy Management Q&A with:

John Landau,
Senior Vice President, Technology and Services Evolution, Tata Communications

Vin Costello,
VP & General Manager, Allot Communications Americas

Joe Hogan,
Founder & CTO, Openet

Service innovation platforms are required to drive revenues, meet evolving customer requirements and improve competitive differentiation. Policy Management has emerged as the core enabler for operators to monetize the huge demand for smart phones and data services.

According to Shira Levine, Market Analyst, Infonetics, "While the benefits of investing in next-generation policy management are clear – including more efficient use of network resources and the ability to create and deliver more innovative, personalized services – the cost and complexity of implementing these solutions remains a deterrent to many operators, particularly those in markets where capex spending remains constrained. A hosted solution offers a faster and more efficient way to get new services to market while also providing a more predictable cost structure. This is an appealing proposition to those operators that lack the resources or the budget to embark on a more traditional deployment of policy control and enforcement solutions."

The evolution of policy management software allows for a scalable and repeatable cloud-delivered platform to reduce upfront investment and accelerate time to market for new data offers. Let's discuss some of the challenges facing operators, and how the hosted policy platform can help to overcome them in a real world scenario.

Q1: WHY CHOOSE A BEST OF BREED HOSTED POLICY MANAGEMENT SOLUTION?

John Landau: Currently, service providers have two primary models to implement policy management within their network - either to work with "best-of-breed" vendors for specific functional components requiring costly custom integration, or to purchase a more limited pre-integrated "best-in-suite" end-to-end solution.

A best-of-breed approach delivers the most advanced and future-proof policy management capabilities for key functions such as application identification, policy configuration and information analysis and reporting. As the best-of-breed policy management function is designed to sit outside of the network core, utilization is improved on key network elements such as the GGSN or packet gateway, and common and consistent policy control and enforcement can be applied to heterogeneous access networks, such as 3G, 4G, WiFi and fixed broadband for both home-network and roaming users. The accumulated experience of our market-leading partners, Allot Communications and Openet, allows our hosted approach to provide rich functions with a "light" integration into existing infrastructure—less "fork lift" is required.

Q2: WHAT CHALLENGES ARE MOBILE OPERATORS EXPERIENCING TO DEPLOY POLICY MANAGEMENT CAPABILITIES?

Joe Hogan: We are constantly looking to improve how our systems are deployed and managed. There are a lot of different operators out there all with different networks, so we work very hard to ensure that the deployment of our systems is suitable across a diverse range of networks. Deploying complex network systems creates the challenge of how to decrease the time and cost of deployment and to ensure that the management of these systems is not onerous.

Vin Costello: For smaller MNOs, total cost of ownership has been a barrier to deploying a Policy and Charging Rules Function (PCRF) in the network. They've simply done without. Their challenge is finding an affordable way to get into the policy management game so they can elevate their service offering, control network use and generate new revenues.

For large MNOs, scalability is the issue. The typical ROI model of making an up-front investment in network equipment and getting a return over time is out of synch. The pace of data growth is so fast that policy management equipment needs to be upgraded frequently, requiring yet another round of up-front investment. Their challenge is to achieve a positive ROI in as short a time as possible.

Q3: WHAT OPTIONS ARE AVAILABLE TO REMOVE THE OBSTACLES OF IMPLEMENTING THIS NEEDED CAPABILITY?

Joe: There has been a convergence of technologies and environments which makes new policy deployment models feasible. Firstly, the advent of virtualization and cloud based technology in general means that it is possible to design, build, and manage systems in a more efficient manner than was previously possible. It also eases the challenges of scaling for large systems. Secondly, we have seen the policy market mature in recent years, and as the global leader in developing policy solutions, we feel that we are extremely well placed to select the functionality best suited for our customers and deliver it to them.

Vin: Allot Communications has been working with partners to create what we call the "Digital Lifestyle ecosystem," where vendors and providers collaborate to develop the functionality required for modern mobile networks. A pre-architected and pre-integrated policy core consisting of PCRF, Subscriber Profile Repository (SPR), as well as Deep Packet Inspection (DPI) and Policy and Charging Enforcement Function (PCEF) has huge benefits because Policy and DPI have a synergistic relationship. DPI provides very rich traffic intelligence which enables the PCRF to make more flexible policy decisions. As a result, network operators have more flexibility and control when it comes to planning, scaling and modifying their networks. And best of all, it can be implemented largely in the cloud.

John: The flexibility of our rich hosted platform allows our customers to provide very different offers to their subscribers and compete strongly with each other. At the same time, hosted policy management provides a common platform across multiple group operators for a consistent approach and easily shared best practices for policy management. It also allows for commercial flexibility through a "pay-as-you-grow" OpEx pricing model with support for burstable numbers of subscribers. It allows operators to enhance both policy management functions and scale as their networks grow and revenues increase.

All of this makes hosted policy management a great new approach - simpler deployments with rich functionality. We bring the build on our experience and expertise from operating leading global networks and managed services for service provider communities to ensure success with the hosted model. this pioneering hosted solution.

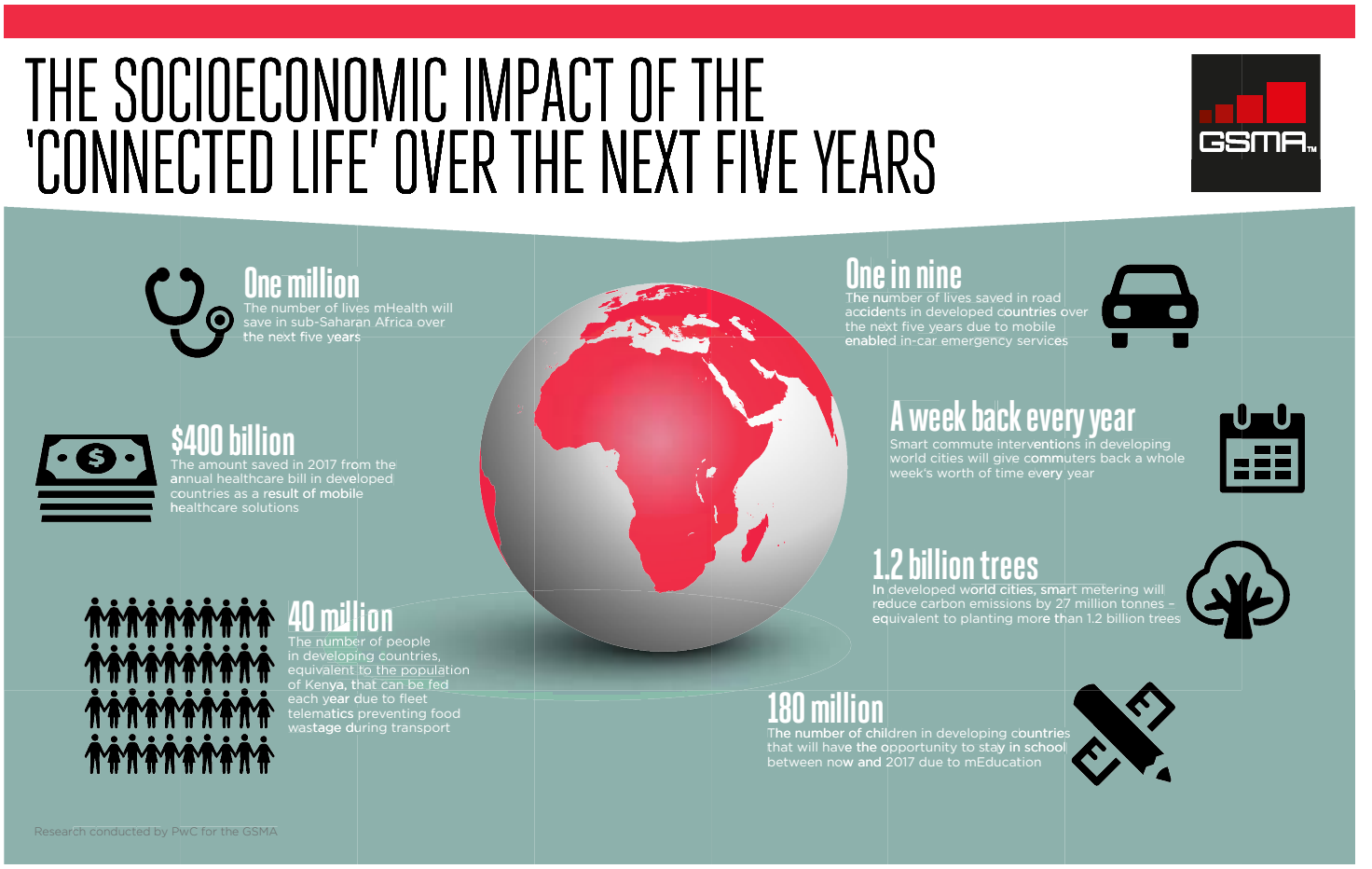
Michael O'Hara,
Chief Marketing Officer,
GSMA

How Mobile Connectivity is Changing the World

In the fight against malaria, TB, HIV and perinatal conditions, greater use of mobile connectivity could save more than one million lives in sub-Saharan Africa over the next five years. In Europe, the U.S. and other developed countries, mobile healthcare solutions could shave a massive $400 billion off the annual healthcare bill in 2017.

These are two of the findings of a new GSMA and PwC study into the potential impact of the Connected Life – weaving mobile connectivity into people's daily lives and the broader economy. Once connected, electronic devices, machines and vehicles can be monitored and controlled remotely, saving people, companies and governments time and money.

Although millions of new devices and machines are connected to mobile networks every month, we are still just scratching the surface of what is possible. In fact, mobile connectivity could, with the right support, help the human race address many of the greatest challenges it faces today – extending access to healthcare and education, lifting people out of poverty, fighting hunger, combating climate change and fuelling economic growth, among many others.



NOW IS THE TIME

And this isn't blue-sky thinking or a vision of the distant future. Over the next five years, the mobile industry, working in partnership with other industries and governments, should be able to dramatically improve the quality of life of hundreds of millions of people around the world.

Here's another striking example from the GSMA/PwC study: An extraordinary 240 million tonnes of food spoils during transit and storage every year in developing countries. The use of mobile connections to track trucks and monitor the temperature of storage facilities would save enough food to feed more than 40 million people annually – equivalent to the entire population of Kenya.

Mobile handsets and mobile connected e-readers and tablets can also be used to provide much broader access to educational materials. The GSMA and PwC estimate that mobile connectivity will provide 180 million children in developing countries with the opportunity to stay in education between now and 2017. This would have a major impact, as education is one of the most potent weapons we have to fight poverty.

Mobile technology can also make travelling safer; in developed countries, one in nine of the lives lost in road accidents could be saved by in-car connectivity that calls the emergency services automatically in the event of a collision, providing accurate location information and other relevant details. In cities, intelligent transport systems, which monitor traffic flows and direct drivers accordingly, can ease congestion, reduce commuting times, lower stress levels and keep the economy moving. In developing cities, the GSMA and PwC estimate that mobile-based traffic management and public transport enhancement could reduce commute times by up to 35 per cent, enabling drivers to reclaim an entire week of their lives each year.

Shorter commutes would also cut exhaust emissions and reduce pollution. Moreover, connected energy meters and smart grids can help utilities companies to reduce waste, save money and lower greenhouse gas emissions by 27 million tonnes in developed nations in 2017 – equivalent to planting more than one billion trees.

THE CONNECTED CITY

Here at Mobile World Congress, you can go and see the Connected Life in action. Building on the success of the Connected House at last year's Congress, the GSMA and its partners are showcasing the Connected City in Hall 3. This isn't a model – this is a full-size city street complete with a car showroom, office, town hall, department store, mobile shop, apartment, electrical store, hotel and café.

The Connected City brings to life the very latest connected solutions, such as the world's most advanced connected road bike, the Aston Martin One-77, which uses sensors embedded into the cranks and frame to display more than 100 channels of information including speed and atmospheric pressure as well as calculated inputs such as rate of climb and rider power. You can also experience how AT&T's Digital Life solution enables homeowners to manage their energy consumption and household security, while Korean operator KT is showcasing an "edutainment robot", a smart home phone, an eco food bin, "cloud CCTV" and many other cutting-edge products and services.

Telenor Connexion and long-standing customer Volvo are demonstrating connected car services, while Deutsche Telekom and IBM have teamed up to show how mobile connectivity can enhance urban services, such as public transport, parking, energy, security and water management.

You can also see an array of smart city, smart home and smart mobility solutions from Vodafone, including the use of mobile connectivity to monitor solar energy production and to remotely control street lighting and digital signage.

Hopefully, our Connected City will whet appetites and inspire even more innovation. It is also designed to show both the public sector and the private sector what is possible. Mobile operators can't deliver the Connected Life on their own – they need to work with other industries and with local and national governments. Let's change the world, one connection at a time.

Jorgen Nilsson, CEO at Acision

The Revolving Messaging Market: Making the rich, richer

THE REVOLVING MARKET

The current mobile landscape has changed significantly over the last few years, with progressively faster networks, smarter devices and advancing technical innovation being the catalyst for the launch and adoption of many new services and applications. As part of these evolving dynamics, we are seeing a mobile messaging revolution, spurred on by the rise and rise of the smartphone, the game-changer to traditional messaging as we know it today.

What was once a space predominantly led by the traditional mobile operators, providing services such as SMS & MMS, the messaging world has now been infiltrated by internet players, device manufacturers and application developers, who all see a value in messaging and want a piece of the pie. We have reached an inflection point where, not only have the key messaging players changed but a raft of new over-the-top (OTT), richer messaging services have come to the fore, all competing for share of market and mind. These players have all developed their own messaging services – capitalising on the Smartphone capability as a personal internet access device.

Alongside this, consumer's behaviours, expectations and overall perceptions of messaging have all evolved, with mobile users now looking for a richer messaging experience to communicate and connect. Today's consumers message more over a number of different platforms and via multiple devices, moving from basic text and file transfer (SMS & MMS).

This so-called "schizophrenic" messaging, where consumers jump from one service to another, depending on shifting trends and usage of contacts, has instigated a fragmented market where traditional messaging services, such as SMS, are competing against OTT services, which are marketed and perceived as 'free' – although in reality a user is always paying for their data plan and are dependent on internet access. However, as consumers adopt new messaging applications and experience a breadth of new features, it is clear they have an appetite for an enhanced and enriched messaging experience – a trigger to this messaging revolution!

Remaining relevant and at the forefront of tomorrow's messaging services in today's fast paced, services-orientated world is a challenge for all players. To survive means to carve out a niche role in rich messaging, providing a service which is a step ahead of the rest.

ENRICHING THE RICH....

Today, operators are in a unique position as the owner of the end-to-end mobile lifecycle and infrastructure – the one-stop-shop for mobile. The operator generally provides the handset, the unique identifier (the mobile number), owns the package/contract with the end user, will receive an income based on the network connection, owns the network infrastructure (including LTE), owns the billing, customer relationship and intelligence, as well as can tailor, deliver and drive the quality of experience that meets consumer's needs. While OTT services grow in popularity they are reliant on a broadband connection, with the mobile network bandwidth owned by the operator or wifi supported. Without cross platform connectivity today, the OTT providers also need to compete for mindshare and consumer loyalty in an environment swamped with choice. The more features they deliver to make the service attractive, the more bandwidth they require over the internet channel, which is shared with other OTT providers and can impact quality of service – a best effort approach.

Today, exploring several avenues, operators are starting to launch their own IP, rich messaging services, such as RCS based on GSMA's standards and branded as "joyn™". They are in an exclusive position to exploit the potential of IP/LTE networks and Smartphones while having full control over the customer experience, content delivered, insight into traffic analytics and network performance – enabling an optimum service which works anywhere, at any time and across any network. However, while operators are making moves in the right direction they are still struggling to differentiate themselves from alternative efforts and are looking for a rock-solid strategy which enables them to seamlessly introduce new forms of rich messaging, creating value for users, which can be monetised and gives them the competitive edge by developing a new ecosystem.

With this in mind, operators need to consider a new commercial model for all messaging services, while retaining the same trust and success factors of SMS with Rich Messaging – Ubiquity, Reach, Simplicity and Security with the added Magic factor – built right into the design with the quality experience that sets them apart from the rest. All in all, this is ubiquitous rich messaging made easy – one model for:

- Rich Messaging: providing consumers with all their favourite messaging features including (group) chat, social presence, voice and video calling, image and video sharing - standardised to work across all networks and devices, just like SMS
- Transparency: no need to select a messaging application first, it just works
- Reach: messages will always reach the recipient on any type of messaging service and device
- Follow me capability: forwarding messages to any device
- Chat memory: always presents a single history of conversations on any devices and services
- Interworking with existing services (SMS & MMS): a key differentiator for mobile operators – enabling interaction with users that are not yet using RCS.

The consensus across the mobile industry is that direct revenues from rich messaging services may be uncertain. Therefore, Rich Messaging/RCS are considered fundamental platforms and a strategic investment to assure relevancy, improve customer experience and provide a totally new retention mechanism. In terms of incremental income, RCS will be a relevant platform for revenue generating applications, services and trustworthy notifications, enabling a different ecosystem for value added services across the mobile industry.

Whether the magic factor of SMS will also be realised in RCS is yet to be seen but trial and error will support operators in getting that magic factor right. The key is if Rich Messaging/RCS is built into the mobile network, operators will have full control over the user experience, and can ensure always-available connectivity underpinned by SMS.

By combining current capabilities with future technology, operators can deliver on the promise of reaching 'anyone', 'anywhere', on any device through a ubiquitous service. This approach will ensure operators are in a position of power to lead the IP Messaging revolution and ecosystem by example, enhance and enrich messaging and bring new, monetisable services to market faster.

> ***"Operators need to ensure that any rich messaging experience is provided at the 'price' associated with OTT messaging services, with the scale and reliability of SMS which can be used on all devices and over any network."***

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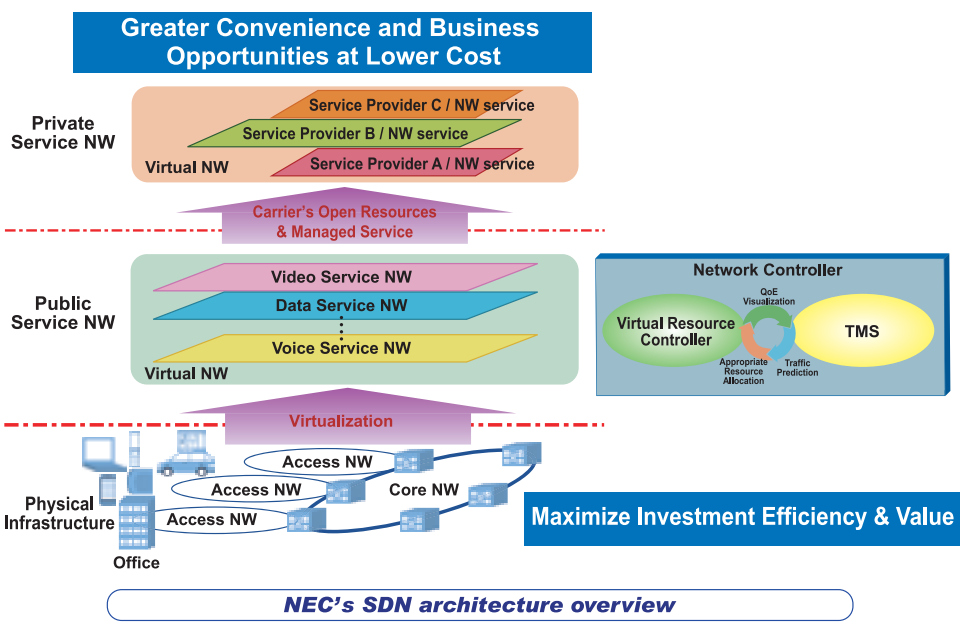
NEC

SDN: Virtualise, economise, monetise



NEC's SDN architecture overview

Software-Defined Networking (SDN) has captured the attention of the world as a promising and viable solution to some of the increasingly urgent bottlenecks facing network operators today such as how to boost network capacity swiftly and flexibly and how to ensure smooth connectivity across increasingly complex networks and clouds for global users who are often on the move. Not only that, but, as networks are used for more and more tasks of varying complexity, all of this needs to be done in a more efficient and cost-effective way. SDN is a form of network virtualization that separates the control plane from the data plane and implements it in a software application. To date, NEC has concentrated its efforts on accelerating the development and adoption of SDN solutions for data centers using OpenFlow technology based ProgrammableFlow. NEC believes that SDN can achieve high value added networks through the use of virtualization techniques.

Network operators have to contend with a much broader range of issues these days. Naturally, financial considerations are vital and operators must seek to reduce capital and operating expenditures. Operators must fulfill their social responsibilities by ensuring energy-efficient systems and effective disaster relief functions, while pursuing technical innovations that can boost network speed and capacity. At the same time, they must provide the flexibility and scalability for increasing value-added services to boost profits and monetize user traffic. There are basically two broad factors here: first, the need to boost the efficiency of network equipment, and, second, the need to carve new revenue-generating and value-added mechanisms. SDN virtualization has emerged and evolved as a means of fulfilling these two needs.

In recent years, internet protocols have become increasingly integrated and now the need to respond to the rapid increase in data traffic has compelled operators to seek ways to further advance and evolve their networks. This underlying need is fuelling the development of high value-added networking such as SDN virtualization—networking solutions that can achieve the sophisticated functionality and high efficiency required to offer and support high value-added services. By applying network virtualization technology, operators can allocate resources more effectively in order to meet the demands of users and service providers and also boost the efficiency of their equipment. Optimizing and visualizing user traffic also makes network operations more stable by smoothing congestion and connectivity control. Furthermore, if you can visualize users' quality of experience then you can also generate new sources of revenue by improving convenience for the user and monetizing traffic. NEC's ProgrammableFlow is a leading solution that is already able to visualize networks and virtualize servers and is currently being introduced commercially into corporate networks and data centers. A broad-based introduction of SDN would facilitate the expansion of virtualization technology and the creation of value-added business.

Developing an SDN business involves the deployment of physical infrastructure, a network controller and a telecoms operating management system which combines operation and business support systems. The network controller is central to SDN with two main functions: virtual resource control and traffic management systems (TMS). The network controller can create a programmable, logical network that allocates resources within the physical network (access and core networks) in the most dynamic way without needing to know the actual infrastructure topology. In so doing, the operator can build the most appropriate virtual network offering multiple services. For our part, NEC has opted to pursue an integrated business solution, combining the physical infrastructure and network controller functions of SDN with a telecoms operating management system (TOMS) incorporating both operating support systems (OSS) and business support systems (BSS).

NEC believes that SDN offers multiple benefits for network operators including substantial increases in equipment efficiency and the carving of new profit-generating opportunities. Broadly speaking, we can summarize the additional value generated by SDN in three key areas.

The first is the achievement of appropriate network control. Using network controllers, you can build a virtual network that can optimize traffic and respond to multiple service needs by employing existing server and network resources more effectively. The control function also enables operators to visualize traffic and provide a smoother, more stable service by controlling congestion and connectivity, as well as to visualize users' quality of experience.

The second additional value generated by SDN is cost reduction. By building a virtual network that employs server and network resources more dynamically and flexibly, you can reduce idle equipment capacity substantially and consequently capital expenditure. You can also reduce operating costs by automating a network design to suit user utilization.

The third additional value that SDN offers is potential expansion of profits. By utilizing the information generated by traffic visualization, operators can make the network more convenient for service providers and end users and also satisfy their various demands more readily. In particular, this feature could help boost profits by carving new services for network carriers.

Given its potential advantages in terms of efficiency gains, SDN business can be developed aggressively on a global scale. NTT Communications offers global cloud services and NEC's SDN solution is already being used commercially as a platform for NTT Communications' Biz Hosting Enterprise Cloud. This system can help customers reduce their capital and operating expenditures and also carve new profit-generating avenues. Many carriers from around the world have shown interest in this form of network virtualization technology and have approached NEC as an aggressive promoter of OpenFlow. As data traffic continues to rise at a rapid pace, operators will have to navigate an increasingly complex yet more integrated network and determine the best technology to ensure the optimum promotion and usage of their particular services. SDN network virtualization can help smooth the rocky passage that is network evolution.

www.nec.com/sdn

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Wireless Intelligence

Lessons learned from handset subsidy cuts in Spain, one year on

Last year we reported on the removal of handset subsidies, notably in Spain, and the impact this phenomenon could have on mobile operator market shares and profitability. One year on, what are the lessons we can learn from this brave operator experiment?

Deteriorating macro-economic conditions in Spain have been in the spotlight over the past 12 months with the country's mobile operators feeling the impact on their bottom lines. According to the OECD, GDP in Spain was falling more than twice as fast as the European average by mid-2012 with unemployment reaching 25% and inflation rising faster than the eurozone average.

Amid these challenging conditions, market-leader Telefonica Movistar replaced its handset subsidies with a 'pay-by-instalments' facility a year ago – a bold move that risked leaving the firm vulnerable to cost-conscious subscribers churning to rivals. Yet the operator managed to sustain its customer market share at around 38% during 2012, while the removal of handset subsidies to new customers also led to "significant savings in commercial costs".

Based on Telefonica's experience, the first lesson to learn is that removing handset subsidies comes with a short term sacrifice. Telefonica's revenue from handsets in Spain halved between January and September 2012 (to EUR149 million) while its mobile data revenues dropped by EUR13 million over the same period (to EUR400 million). Yet, despite this short term hit, the operator's OIBDA margin increased from 42.8% in Q1 2012 to 47.5% in Q3 2012 as its recurring mobile revenues increased by 4.8% between January and September 2012 to EUR1.4 billion.

Telefónica's COO, José María Álvarez-Pallete stated that "we are basically out of subsidies in Germany, the Czech Republic and in Spain and it has not been affecting our contract commercial activity".

The second lesson is that the removal of handset subsidies should be paired with a robust contingency plan to manage subscriber acquisition and retention. Telefonica concentrated on convergent offerings – introducing its Fusión product last October that bundles its fixed, broadband, TV and mobile services at competitive prices under a single monthly bill. The service topped 430,000 customers in its first month.

Finally, any operator entirely removing handset subsidies should not assume that competitors will follow suit. In a recent report, Vodafone CEO Vittorio Colao stated that, in Spain, "there was a lot of excitement about elimination of subsidies. We followed. Clearly not the whole market followed and it didn't really work". This is in contrast to comments by Telefonica Europe CEO, Eva Castillo, who recently claimed that "[competitors] are not so much using the subsidy in handsets anymore".

Last summer, Vodafone actually re-introduced handset subsidies on a promotional basis, which helped to regain momentum in customer acquisition and brought their market share of net additions to 104% in Q3 2012, compared to 50% at Movistar, and -18% and -36% respectively at Orange and Yoigo. Nevertheless, the operator's Spanish mobile service revenue has been falling on a quarterly basis over the past 12 months (albeit stabilising in Q3 2012) while customer costs increased to one third of total revenue in Vodafone's FY2011/12 (up from 30% a year ago). This served to further eat into the EBITDA margin, which has fallen from 30% to 25% over the last two financial years.

Despite Vodafone Spain unveiling its own version of Fusión just a week after the Telefonica product was launched, the operator has said that "the real issue in Spain" is consumer pricing and the best approach is to replicate the tariffs introduced in the US aimed at encouraging data use and stablising ARPU.

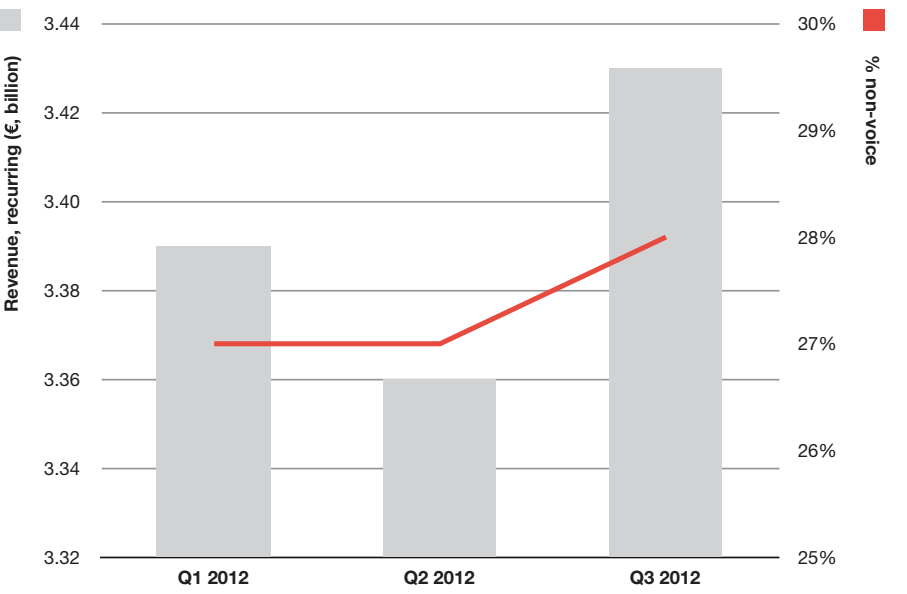
"This is about clearly providing customers with unlimited voice and unlimited SMS," claimed Colao, while allowing consumers to identify "what price is for the service and what price is for the handset or what is the intrinsic cost of the handset" while giving larger data allowances and freeing up usage.

According to Vodafone, "it's more about the choice and the pricing levels than an ideology of taking out or leaving in subsidies".

The Spanish situation highlights the issues that can arise when one operator withdraws subsidies and others do not. Generous subsidies may weigh heavily on operating costs but they are always a useful tool for building market share and stimulating data revenue growth. By not re-implementing subsidies (as Vodafone has done), Telefonica appears comfortable in trading improved profitability at the expense of handset and data revenue.

For European incumbent telcos struggling with large debts such as Telefonica this makes a lot of sense, but it leaves the door open for domestic competitors to make an impact if they can get their tariff offerings right.

Spain: revenue, recurring and % non-voice revenue



Source: Wireless Intelligence

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Adriana Nugter, Operations Manager, Global Certification Forum

Times are changing, but interoperability still matters for M2M

More and more companies from outside the traditional mobile sector are investigating how they might take advantage of mobile connectivity.

Some companies want to enhance their competitive position by increasing the functionality of their core proposition. For example, real-time telematics and diagnostics allow a vehicle manufacturer to proactively recommend lower cost preventative maintenance before a latent problem becomes critical, dangerous or more expensive to repair. In-vehicle wireless broadband connectivity opens up opportunities for new enhanced navigation, road traffic information or multimedia entertainment services

Other industries recognise that wireless connectivity can help them comply with public policy initiatives. One example is smart metering. The European Union is just one administration looking to exploit smart metering to reduce the overhead of meter-reading visits and conserve energy by modifying consumer behaviour to mitigate climate change risks. Back in the automotive sector, wireless connections are essential components of proposed eCall/e911 regulations.

Operators, who have historically played a very active role in bringing new handsets to market, have typically required that devices they support are certified. Certification has helped handset sales grow to 1.774 billion units† a year. Certification is equally relevant to the long-term success of M2M and the alternative distribution models that are emerging for connected consumer devices.

GCF Certification is widely respected as a benchmark of both interoperability and conformance with relevant standards. It gives operators an assurance that a new device will deliver appropriate levels of service to users while not adversely impacting their network or their other customers. The scheme allows operators to focus in-house acceptance testing resources on their own differentiated service offerings. The assurance of interoperability given by certification also gives operators increased confidence that a device supports international roaming – considered vital by many high-ARPU users.

From the handset manufacturer's perspective, because certification is accepted by so many of the leading operator groups, it cuts their own testing costs and enables them offer new devices to multiple national markets simultaneously. Expanding the size of the manufacturer's addressable market improves economies of scale.

GLOBAL BRANDS NEED M2M TO CROSS BORDERS

While mobile operators are typically licensed on a national or regional basis, global brands need connectivity solutions that can be deployed across borders if they are to achieve the scale required to remain competitive in their global markets.

International operator groups are responding by creating dedicated business units to develop cross-border offerings. Recognising that a device has a greater probability of remaining connected if it is able to roam onto any available network, operators are creating roaming SIM propositions to meet the needs of large scale M2M applications.

Devices that can be "installed and forgotten" are essential to the economics of many M2M applications. Compared with the typical lifespan of a couple of years for a handset, a connected car or smart meter will have a life-expectancy of a decade or more. Networks can evolve significantly over such a period and M2M device design needs to anticipate possible changes.

However, certification can provide confidence that an M2M device will continue to provide service even if operators completely swap-out their networks for equipment from other infrastructure vendors. Equally, for a multi-mode M2M device, certification can give an assurance that it is capable of accommodating future re-farming of spectrum to another wireless technology.

The need for roaming and long device life cycles make interoperability a critical attribute for M2M devices.

The data consumption profile of most M2M devices is likely to be very different from that of a smartphone or USB modem. The signalling traffic required to manage an M2M device can be significantly greater than the actual user data that needs to be transmitted back to the application's back office system.

Under certain circumstances, this signalling overhead, replicated across thousands of devices, could threaten network stability. If re-booting the back-office system were to force all the connected M2M devices to attempt to re-register, the spike in signalling traffic could cause significant disruption to other network users. If the M2M devices were effectively roaming and attempted to re-register via an alternative network, disruption could spread to other operators. Neither users nor regulators are likely to tolerate such scenarios.

3GPP has recognised these risks and is actively adapting the core mobile standards to provide operators with additional tools to manage "Machine Type Communications" (MTC). A series of new features and enhancements are scheduled for introduction from 3GPP Release 10 onwards, and are likely to be candidates for consideration as certification requirements.

MULTIPLE STAKEHOLDERS

M2M is intrinsically more complex than the traditional tripartite mobile eco-system of operator, handset manufacturer and customer.

Organisations that commission M2M applications are likely to work with M2M platform providers and/or systems integrators as well as device manufacturers. One of the parties will have to have to forge a relationship with an operator.

The device manufacturer has a key responsibility. Wireless can be a demanding environment. If connectivity is given insufficient priority, the financial and reputational cost of having to recall or re-engineer thousands of devices could be substantial.

CONNECTED DEVICES

Alternative distribution models are also gaining prominence in new connected consumer device segments. 3G or LTE tablets can increasingly be bought without a SIM as well as through traditional operator channels. Consumers can download content to 3G e-readers without necessarily being aware that they are using, or paying for, mobile network access.

Consumers expect a connected device to connect even if it hasn't been bought through an operator-branded distribution channel. Product returns can cause distribution costs to spiral out of control. In the connected world of social media, consumers will rapidly share their dissatisfaction with products that fail to live up to expectations.

As innovative companies and brands investigate how mobile communications can add value to their products and services, the discipline of certification can focus attention on interoperability during design and development and so lay the foundation for successful M2M and connected devices.

† Source: Gartner Worldwide Manufacturer Sales to End Users of Mobile Terminal Devices for 2011

> ***"M2M is intrinsically more complex than the traditional tripartite mobile eco-system of operator, handset manufacturer and customer."***

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European LTE rollouts hampered by lack of digital dividend spectrum

European operators were among the first in the world to launch LTE, but delays in the allocation of 800 MHz spectrum is now hampering rollout in the region.

Despite operators in the European Union (EU27) being among the first in the world to launch 4G-LTE networks in a variety of bands, the next-generation network technology currently accounts for less than 1% of total mobile connections in the region. The lack of digital dividend spectrum allocation in the 800 MHz band is hampering network coverage expansion as existing spectrum bands used for LTE services (mainly in 2600 MHz bands) do not allow operators to efficiently deploy the new technology outside of the main urban areas.

Based on the current LTE frequency landscape in the region, which includes delays in the allocation of 800 MHz frequencies, we estimate that just under 20% of total mobile connections in the EU27 region will have migrated to LTE by 2017. Germany will remain the largest LTE market in the region over the next five years, as operators there have rapidly deployed the new technology in the digital dividend band in rural areas (under licence obligations); Vodafone, for instance, making it available to 53% of the population as of Q4 2012.

A recent GSMA study explains that, under rural conditions, mobile service provision in the digital dividend band benefits from the larger cell radius and requires a reduced number of base stations for transmission, meaning that good rural LTE coverage can be achieved with relatively low capital expenditure.

Under the European Commission's Radio Spectrum Policy Programme (RSPP), all 27 EU member states should have made the 800 MHz band available for mobile broadband services by 1 January 2013. However, at the time of writing, only nine countries have confirmed that the digital dividend spectrum has already been assigned, with the remaining 18 countries having announced that they would not meet the deadline, most of them requesting policy derogations. Such delays are hindering LTE network rollouts in these 18 countries, which together represent almost half (48%) of total mobile connections in the EU27 region.

Among the countries yet to assign the digital dividend, eight expect to allocate 800 MHz spectrum during the second half of this year; five will do so during the second half of next year, while three countries do not plan to do so until late 2015. In addition, Bulgaria has announced that it will continue to use the 800 MHz band for military purposes until the equipment is phased out around 2017, while Estonia has not communicated any plans to date.

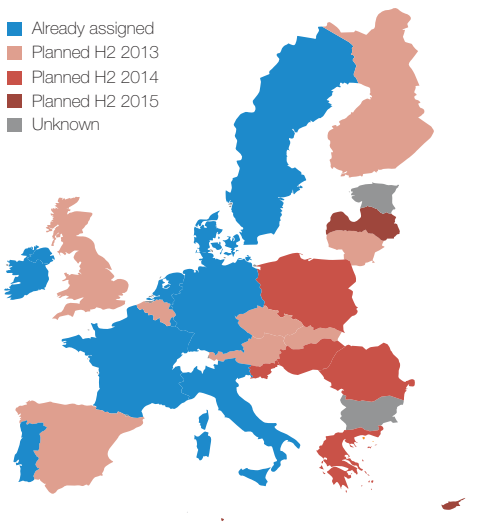
Among the justifications for policy derogation requests, member states invoked the need for EU and non-EU border coordination, notably to solve intra-frequency interference issues; continuation of analogue or digital TV broadcasting; continuation of military emission and transmission in the 800 MHz channels; operator network investment; and market competition related issues.

As a result, the digital dividend band is unlikely to support a significant share of LTE deployments across the European Union over the next two years. Today, the 800 MHz band is used in less than 10% of commercially launched LTE networks in the EU27 region (mainly in Germany and Sweden). Commercial LTE services will remain largely focused on the 1800 MHz and 2600 MHz bands in the region until 2015, which implies coverage limitations as these bands only allow operators to efficiently cover the main urban areas where data traffic is dense.

Austria is a good example of this. Both T-Mobile (Deutsche Telekom) and A1 (Telekom Austria) launched their respective LTE networks in Q4 2010, followed by 3 (Hutchison) in Q4 2011. All three operators deployed LTE in the 2600 MHz band which is only economically viable to cover Vienna and a limited number of other cities, resulting in only a quarter of the Austrian population being covered by LTE networks to date. This phenomenon has in turn led to low adoption of LTE services by end users; the local regulator (RTR) reported that LTE connections stood at a mere 223 in Q1 2012 and 287 in Q2 2012 for one 'unnamed' Austrian operator.

Both operators and regulators in Austria concur that the deployment of LTE in the 2600 MHz band has led to "limited" and "incomplete" network coverage, resulting in a situation where "LTE tariffs are not that attractive to consumers" since they are "much higher than the average UMTS tariffs". Ultimately, consumers do not see any added value in paying an LTE premium if LTE data speeds cannot be guaranteed on their dongles or smartphones country-wide.

European Union (EU27) digital dividend assignment plan (as of 1 January 2013)



Source: European Commission, Wireless Intelligence

Across the European Union, LTE smartphone portfolios are equally limited to a few compatible devices – such as the Samsung Galaxy SIII – as LTE offers remain mainly dongle-centric. In contrast, the aggressive LTE network rollouts in the digital dividend band in the US fuelled the rapid development of attractive smartphones, with these devices representing two thirds of US operators' smartphone portfolios.

Operators in Austria tell us that there is a dual coverage-capacity challenge behind LTE deployments in the country and that the situation regarding low LTE adoption rates today is unlikely to change until additional capacity is allocated via digital dividend auctions planned for Q3 this year. Until 800 MHz frequencies are allocated, operators will continue to focus on existing HSPA offers as, under these market conditions, it will take time for 4G LTE services to challenge the level of maturity that 3G/HSPA services currently enjoy.

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Half of all mobile connections running on 3G/4G networks by 2017

3G and 4G technologies will account for half of all global mobile connections in five years, according to Wireless Intelligence forecasts.

We calculate that 3G/4G connections combined will account for about 4.25 billion of the 8.5 billion connections forecast by 2017, or 50 percent (40 percent 3G + 10 percent 4G). This is up from a combined 1.7 billion of the 6.5 billion total this year (26 percent).

2G connections are forecast to decline by over half a million over the next five years (down from 4.8 billion) as users migrate to next-generation 3G/4G networks and devices.

In the 3G space, HSPA will continue to account for the vast majority of connections; the technology is forecast to make-up over 30 percent of the global total by 2017, almost double the 16 percent share today. The share of 3G CDMA technologies (EV-DO) will remain flat over the period at about 4 percent, but will grow in absolute terms.

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Most WCDMA operators have now upgraded their networks to HSPA and many have deployed dual-carrier HSPA+ in order to offer download speeds on a par with 4G. Our data shows there are currently 260 HSPA+ networks live in 123 countries.

In a report earlier this year, we identified a significant decline in the number of WCDMA-only devices in operator portfolios over the last two years as these were replaced by HSPA-enabled devices. Moreover, almost all data devices (dongles, tablets, mobile hotspots, laptops) are now 3G compatible, with nine out of ten HSPA-enabled.

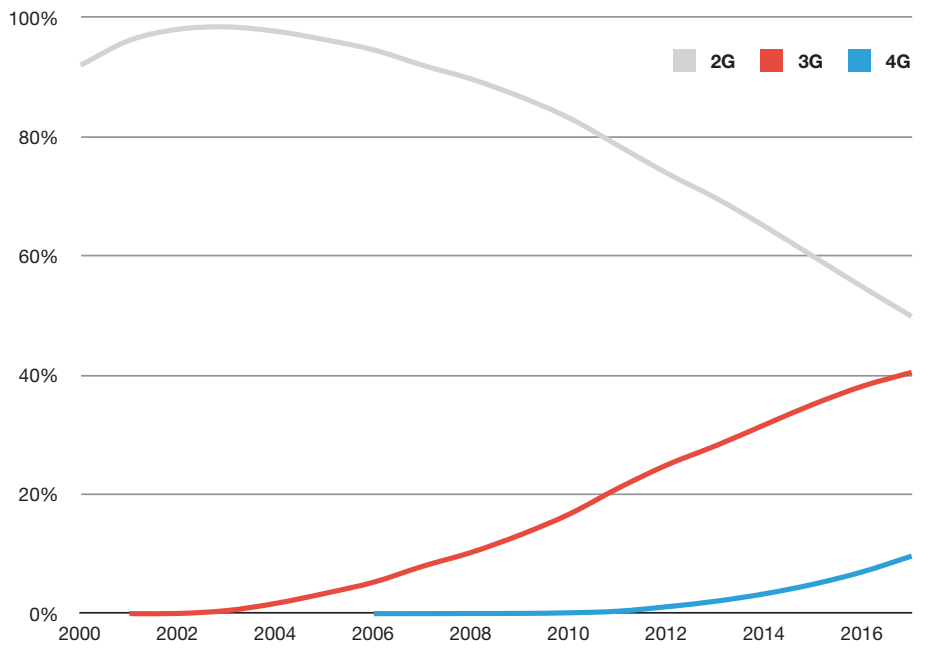
As of Q4 2012, 3G networks have been deployed by more than 500 operators across 185 countries, meaning that mobile users in more than three quarters of the world's markets now have access to 3G services. The number of 3G networks worldwide has doubled over the past five years, driving the corresponding increase in 3G market share from 8 percent to 25 percent during the same period, supported by the proliferation of smartphones, tablets and mobile broadband devices. The rapid adoption of 3G networks is a driver of economic growth and is also playing a critical role in developing countries where fixed internet penetration is low. For instance, China Unicom's 3G customer base overtook its fixed broadband base in August this year - and the operator's 3G base is growing more than four times faster than fixed broadband.

4G technologies such as LTE, TD-LTE and WiMAX currently account for just 1 percent of the global total but are forecast to account for 10 percent by 2017. The most common implementation of LTE (FDD) is expected to account for about 85 percent of all 4G connections by this point, with TD-LTE at 14 percent.

To date there are currently 117 live LTE networks across 56 countries. An increasing number of attractive LTE-enabled devices are now available, notably Samsung's flagship Galaxy S3 and Apple's iPhone 5.

The migration away from 2G networks is most evident in mature regions such as Western Europe where the split between 2G and 3G/4G connections is already roughly equal.

Global connections by technology generation, 2000-2017



Source: Wireless Intelligence

2G technologies still account for over 80 percent of connections in China and more than 90 percent in India, the world's two largest mobile markets. However, in highly advanced markets such as Japan and South Korea, migration to 3G/4G has reached a stage where the 2G networks are now being switched off. 2G connections make up less than a quarter of the respective totals in mature markets such as the US and Australia.

Operators in the developed world have achieved the fastest migration from 2G to 3G/4G networks, especially in Eastern Asia where more than 90 percent of connections in Macao, Japan and South Korea are on 3G/4G networks (some 27 percent of South Korean connections are now LTE). The rate of migration has been such that operators including NTT Docomo in Japan and SK Telecom and KT in South Korea have now switched off their 2G networks to free up spectrum for more 4G capacity.

In the developing world, just 16 percent of total connections are currently on 3G/4G networks, compared to 61 percent in the developed world. However, we expect 3G/4G penetration in the developing world to rise to 42 percent in 2017, driven by increasing mobile broadband demand in large countries such as Mexico, Brazil, Indonesia, Russia and China, which will all have more 3G/4G connections than 2G connections by that time.

A recent study by the GSMA and Deloitte has attempted to ascertain the economic value of network technology migrations.

It calculates that a 10 percent shift from 2G to 3G penetration increases GDP per capita growth by 0.15 percentage points; while a doubling of mobile data use leads to an increase of 0.5 percentage points in the GDP growth rate.

Countries characterised by a higher level of data usage per 3G connection – such as Russia, the UK and South Korea - have seen an increase in their GDP growth of up to 1.4 percentage points. Meanwhile, in developing markets, a 10 percent expansion in mobile penetration is said to increase productivity by 4.2 percentage points.

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Wireless Intelligence

European operators feel the heat at home

Europe's large operator groups are increasingly being required to look outside of their home markets in order to sustain sales.

An analysis of Q3 2012 data from Europe's four largest incumbent operators shows a decline in domestic sales across the board, though this trend was offset by revenues generated by their international operations.

Based on Q3 group sales, Europe's top four operators are Spain's Telefónica (€15.5 billion), Deutsche Telekom (€14.7 billion), France Telecom (€10.8 billion) and Telecom Italia (€7.3 billion). This is excluding UK-based Vodafone Group on the basis that it is not the fixed-line incumbent in its domestic market.

These European heavyweights are being eclipsed by operator groups in Asia and Latin America in terms of revenue growth. This should not come as a surprise. Incumbent players in Western Europe operating in largely saturated markets have for some years been pursuing value rather than market share; they will also point to strong growth in data revenue and rising smartphone penetration as proof that they are succeeding in transitioning subscribers to next-generation networks and services. Vodafone said that its European smartphone penetration has topped 30 percent overall, and almost 50 percent in its contract base in Q3 2012. Service bundling and integrated offerings are also being deployed to extract value from customers and build customer loyalty.

The negative tailwinds from low-cost competition and regulatory moves on termination and roaming rates can be felt in most markets, but the macroeconomic impact is, as expected, most visible in Southern Europe. Telefónica has been under pressure in its domestic market since taking the bold move to withdraw handset subsidies at the beginning of the year; one of several measures aimed at cutting costs. At a group level, the firm is determined to pay down debts and all of its assets appear under review. Meanwhile, Telecom Italia's board is poised to make a decision soon on whether to spin-off its legacy fixed business, a move that could transform the debt-laden operator into a smaller but more dynamic player.

Telefónica is the least reliant of the big four on home revenue; Spain contributed just 23 percent to group sales in Q3. The group's Latin American unit reported quarterly revenue of €7.6 billion (up 3.8 percent year-on-year), exceeding for the first time that of the European business, which posted revenue of €7.5 billion, down 6.8 percent. Brazil alone now accounts for 22 percent of group sales (compared to the 23 percent via Spain).

Previously a standalone unit, Spain was rolled into Telefónica's Europe division in 2011 following a group restructuring. Spain weighed heavily on the Europe numbers in Q3, with revenue decreasing 15.3 percent to €3.64 billion. The Spanish mobile unit (Movistar) was particularly affected, with sales falling 19.8 percent to €1.57 billion – a decline blamed on lower handset sales, cheaper tariffs and mobile termination rate cuts.

The contrasting trends of Telefónica's Latin American and Europe divisions are also evident in the subscriber counts; the mobile customer base in Latin America increased by 10 percent year-on-year in Q3 to 175 million, while the European customer base shrank by 2 percent to 70.4 million

The combination of a weakening Spanish economy and a €56 billion debt burden has forced Telefónica to take steps to reduce its exposure to Europe's volatile financial markets. The firm has decided to sell equity via IPOs in O2 Germany, its second-largest European market valued at about €8 billion, and in Latin America where its total portfolio is worth more than €40 billion.

By contrast, domestic sales at Deutsche Telekom have remained relatively stable during the eurozone crisis, helping the group offset weaknesses elsewhere in its European businesses – notably in Greece where it owns 40 percent of the country's incumbent operator OTE.

Group revenue was down just 0.1 percent to €14.7 billion, on the back of better-than-expected German sales of €5.7 billion, which were down 1.3 percent and represented 39 percent of the total. Sales in the Europe segment (which excludes Germany) declined 5.7 percent year-on-year to €3.7 billion, primarily due to a 11.3 percent decline in Greece to €825 million. US sales (T-Mobile USA) were up 6.3 percent to €3.9 billion.

France Telecom suffered the largest year-on-year sales decline of the four operator groups in Q3 (down 3.5 percent), blaming "a deteriorating macroeconomic outlook, strong competition in the French mobile market [via Iliad's Free Mobile] and continued regulatory pressure." It does not expect the situation to improve until 2014.

French sales fell 5.4 percent to €5.43 billion, accounting for 48 percent of the group total. With declines at France Telecom's next two largest markets, Spain (down 1.0 percent) and Poland (down 5.5 percent), growth came via the group's Rest of the World division, which increased revenue by 0.6 percent to €2 billion.

This included strong growth at France Telecom's Africa and the Middle East unit, which increased sales by 4.6 percent, led by Côte d'Ivoire (up 20.9 percent), Egypt (up 2.0 percent) and Niger (up 33.9 percent).

Like Telefónica, Telecom Italia benefited from strong sales in its Latin American markets. However, revenue growth in Brazil (up 8.0 percent) and Argentina (18.2 percent) only partially offset a 7.9 percent contraction in organic terms in Italy. Group profit for the period was €681 million, down 13.4 percent, while group revenue was down 3.3 percent to €7.27 billion.

Unlike its more diversified peers, Telecom Italia is present in just three markets with its domestic unit accounting for 60 percent of sales in Q3.

Selected European operator group revenue, Q3 2012

	Total €billion	% YoY change	Domestic €billion	% YoY change	% Total
Telefónica	15.5	-1.6	3.6	-15.3	23.2
Deutsche Telekom	14.7	-0.1	5.7	-1.3	38.8
France Telecom	10.8	-3.5	5.3	-5.4	49.1
Telecom Italia	7.3	-3.3	4.4	-7.9	60.3

Source: Wireless Intelligence, company data

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Over time, Sony has changed how you hear, capture and see the world around you. Now all our screen, camera and design expertise has gone into our new smartphone **Xperia™Z**

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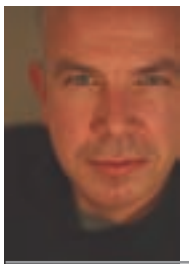
XPERIA



Mark Bole, CEO, Mesaplexx

Delivering LTE Coverage and Capacity Gains – Why Radio Filters Matter

Unprecedented growth in mobile data traffic continues to increase expectations on LTE technology. The pressure is on the operator and supporting vendor community to maximise spectrum efficiency to recoup substantial financial investment and sustain profitability. However, few industry experts expect LTE to carry the data burden in isolation; with many pointing to a collaboration of supporting technologies and techniques, to drive spectral efficiency and maximise network coverage and capacity to meet rising demand.

Active antenna systems (AAS), small cells and other compact radio systems are good examples of these supporting technologies. All are focused on generating additional network coverage and capacity and targeting it towards congested areas of the network. These technologies will become commonplace across next generation networks as part of a heterogeneous network layer.

Given the complexities of next generation network architectures, technologies such as AAS and carrier grade small cells must overcome some technical challenges if they are to reach their full potential. This means removing some of the existing limitations that stem from their existing radio components, and in particular, their radio filters.

RADIO FILTERS CRITICAL IN ACHIEVING SPECTRAL EFFICIENCY

All filters share the same purpose and function – driving spectral efficiency. In the radio access node or base station, the filter selects which signals, in which band, reach the radio receiver, whilst rejecting unwanted frequencies. They achieve this by enabling radio systems to share the same spectrum within the same geographic area. Filters enable mobile operators to partition available spectrum and reduce the need for guard bands to be used to protect against interference caused by adjacent bands. By achieving this, and by blocking spectrum at the band boundaries, filters can maintain a greater number of channels in the band, thus maximising spectrum usage.

THREE KEY CHALLENGES FACING FILTER DESIGN – SIZE, WEIGHT AND PERFORMANCE

Equipment vendors are striving to improve the performance of their radio systems whilst making them smaller, lighter and more efficient. Other system components are being successfully miniaturised but infrastructure vendors continue to struggle when it comes to effectively shrinking radio filters. This is a significant obstacle in creating system architectures that meet the needs of the market. This is especially true given that the filters may have to offset any deficiencies caused by the miniaturisation of the other radio components.

Existing filters in AAS and small cells are too large and too heavy. AAS require multiple transceivers to facilitate advanced beam steering techniques and support multiple network technologies on multiple bands (multimode). This means several filters need locating in the antenna housing, and to achieve this without increasing the overall size and weight of the antennas, they need to be made smaller and lighter. It is also critical that filters do not absorb too much signal power. Doing so increases loss and weakens critical signal strength while generating too much heat. Many of these challenges also apply to small cells, limiting performance, coverage and capacity.

A BREAKTHROUGH IN RADIO FILTER DESIGN

The challenge of effective filter miniaturisation has now been overcome. A new compact, cool running, low loss, high isolation filter has now been developed that improves sensitivity and handles much more power than existing technologies. This filter uses multimode resonators, joined together by sophisticated coupling techniques to optimise performance. In fact, these coupling techniques effectively enable the re-use of the same resonator many times. This dramatically reduces the size of the filter.

INCREASING CAPACITY AND COVERAGE

The technology will enable operators to enjoy significant capacity improvements. This is achieved by reducing the insertion loss of filters and duplexers, reducing interference and improving the signal to noise ratio. By reducing insertion loss, the filter also improves network coverage by maximising the power amplifier throughput radiated from the base station, increasing the downlink range. It also improves the sensitivity of the system and the maximum range at which a mobile signal can be received and the range at which a device can be used. Handsets will also be able to negotiate a higher throughput at any given range or be able to reduce their transmitted power, thereby extending battery life. This enables better signal strength across wider distances, reducing the number of small cells and macro base stations required.

POWER - DELIVERING MORE WITH LESS

Conventional compact filter technologies are often unable to handle more than a few watts of power. This is unsuitable for a significant proportion of cellular networks, including many carrier grade small cells. However, increasing the amount of power causes unwanted heat within the system. This heat can limit overall performance and be expensive to remove. The latest filter technology is capable of reducing this heat by up to 50 per cent - it dissipates a much lower proportion of its input power (just 20 per cent) as heat. This not only leads to an increase in base station capacity but also increases power handling capability and reduces the cost and complexity of dissipating heat. By wasting less of the input power, more power is transmitted in the network. This enables power amplifiers to operate more efficiently, enabling cleaner, greener and more efficient networks and devices.

"Given the complexities of next generation network architectures, technologies such as AAS and carrier grade small cells must overcome some technical challenges if they are to reach their full potential."

The ability to successfully miniaturise radio filters has significant implications for the vendor and operator community. The commercial reality at present is that existing radio systems are suffering from a variety of issues that can all be traced back to the performance of the filter. Some face heat challenges, while others are struggling with power output or achieving true multi-band capability. New filter innovation enables network vendors to achieve the best possible network architecture by simultaneously solving a variety of challenges. The benefits include increased network coverage or capacity, improving power handling, enhancing sensitivity, reducing heat, lowering power usage, enabling multiband capability and delivering lighter, more environmentally friendly systems. These filters give the mobile industry real cause for optimism.

Matt Ablott,
Senior Editorial Analyst, Wireless Intelligence
www.wirelessintelligence.com

Wireless Intelligence

'T-Metro' looks to corner US low-cost mobile market, prepares 4G focus

The proposed merger between Deutsche Telekom's T-Mobile USA and MetroPCS will create a strong, value-focused player in the US market, but also creates a platform for the combined company to make a major play in 4G services.

The combination of the current number four and number six operators in the country comes amid a flurry of M&A activity in the US market.

In the aftermath of last year's overly-ambitious AT&T/T-Mobile merger discussions, some form of consolidation was inevitable in the US market in 2012 – the only question was which firms would be involved? Deutsche Telekom has been searching for a solution to turnaround its ailing – but strategically important – US unit for some time, so will be satisfied with the MetroPCS deal. Shareholders at MetroPCS were initially less keen, but the firm is confident of approval, having seemingly studied every other alternative M&A option.

According to regulatory filings, MetroPCS discussed tie-ups with as many as eight different firms before inking the deal with T-Mobile. One suitor to miss out was Sprint Nextel, which subsequently struck a $20.1 billion deal with Softbank, selling a 70 percent stake to the Japanese firm and receiving $8 billion in fresh capital.

Wireless Intelligence data shows that, on a pro forma (Q3 2012) basis, the tie-up between T-Mobile and MetroPCS (dubbed 'T-Metro') would consolidate T-Mobile's existing number four position on 42.3 million connections, giving it an overall market share of 13 percent, behind Sprint on 56 million (16 percent).

US mobile connections & market shares by operator, Q3 2012

Operator	Connections (millions)	Total share	2G share	3G share	4G share	Revenue (US$M)	EBITDA (US$M)
Verizon Wireless	111.9	32%	26%	33%	48%	$19,024	$8,084
AT&T	105.9	31%	12%	42%	11%	$16,632	$6,083
Sprint Nextel	56	16%	21%	16%	3%	$8,042	$1,118
T-Mobile	33.3	10%	22%	6%	0%	$4,893	$1,226
MetroPCS	9	3%	7%	0%	4%	$1,259	$466
'T-Metro' (pro forma)	**42.3**	**13%**	**29%**	**6%**	**4%**	**$6,152**	**$1,692**
Clearwire	10.5	3%	0%	0%	34%	$314	($38.3)
US Cellular	5.8	2%	3%	1%	0%	$1,140	$205
Leap Wireless	5.6	2%	3%	1%	0%	$774	$132
Other	7.6	2%	6%	1%	0%	n/a	n/a
	345.5						

Source: Wireless Intelligence, company data

However, T-Mobile's large installed 2G-GSM base, which accounted for almost two-thirds of its total connections in Q3, coupled with MetroPCS' 2G-CDMA base (about 80 percent of its total) will give T-Metro a dominant 29 percent share of the country's 2G market.

We also calculate that the merged entity will control over 20 percent of the US prepaid market, putting it on par with Sprint, which operates several prepaid brands: Virgin Mobile, Boost Mobile and Assurance Wireless. The strong 2G and prepaid standing underlines T-Metro's initial goal of becoming a "value leader" targeting "fast growing no-contract services".

Regulators are expected to look kindly on a deal that promises to extend low-cost deals across the country, while continuing to sustain four nationwide networks. Sprint's tie-up with Softbank should also get the regulatory nod on the basis that it will allow the number three to better compete with Verizon and AT&T, which are increasingly viewed as a duopoly in some high value segments.

Meanwhile, the T-Metro merger is also designed to bolster the spectrum position of the enlarged operator, allowing it to compete more effectively in the 4G space. MetroPCS was the first US operator to launch LTE (in September 2010) and expects to have covered 97 percent of its CDMA footprint with LTE by the end of 2012. Meanwhile, T-Mobile does not plan to switch on LTE until next year, making it the last of the US 'big four' operators to do so. It is deploying the new network using AWS spectrum and has increased its spectrum holdings in this band significantly this year: it received a chunk from AT&T due to last year's aborted merger between the pair, and another from Verizon Wireless, a condition of the market-leader's purchase of additional spectrum from a group of cable companies.

Unlike in the 2G space, where T-Mobile and MetroPCS run different technologies (GSM and CDMA, respectively) their 4G spectrum holdings are largely complimentary allowing them to work towards what they called "one common LTE network." Over the next three years, the merged entity plans to redeploy T-Mobile's current HSPA services in the PCS (1900 MHz) band, freeing up the AWS (1700/2100) spectrum for LTE. All of MetroPCS' CDMA customers are to be converted to LTE by the end of 2015, while GSM will be retained for "roaming, M2M and legacy devices."

Once the transaction is complete, T-Metro will have 76 MHz of spectrum covering the country's top 25 metro areas. This compares to Verizon's 109 MHz, AT&T's 97 MHz and Sprint's 54 MHz – the latter excluding spectrum held by Clearwire.

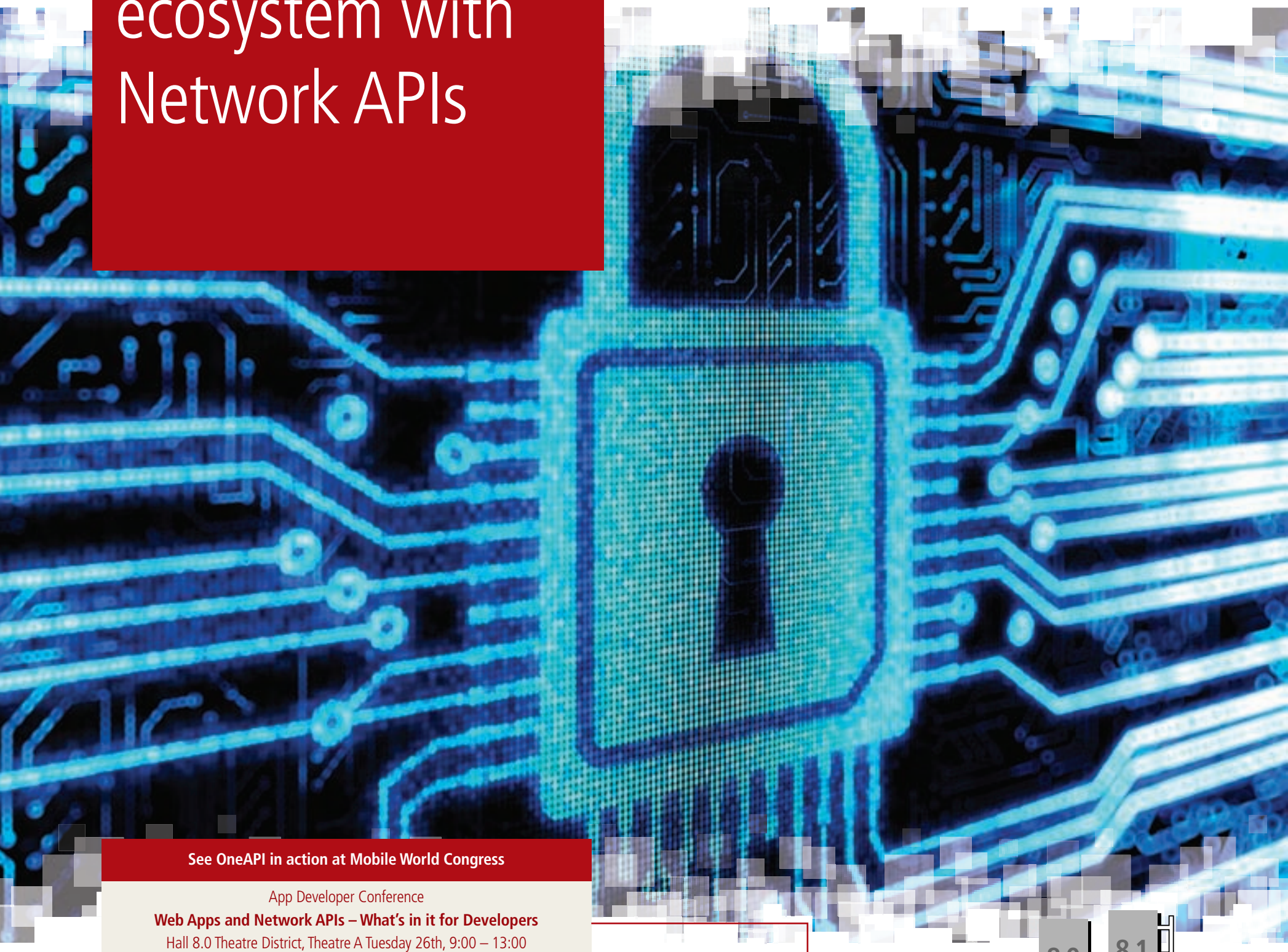
T-Metro accounted for 4 percent of the US 4G market in Q3 (pro forma), all of this relating to MetroPCS' 1.1 million LTE connections. However, the combined firm is aiming to reach 200 million of the US population with LTE coverage by the end of next year.

T-Metro will instantly become a major player in the low cost segment, but it will require an effective 4G strategy to curb costly contract customer losses (at T-Mobile) and declining ARPU (at MetroPCS, despite its LTE rollout). The 4G push will allow the pair to settle on a single technology in a common spectrum band. LTE deployments in the US have settled round a few bands (including the AWS bands), allowing domestic operators to avoid the spectrum fragmentation issues seen elsewhere in the world. T-Metro's relatively late arrival to the 4G party also guarantees a wide selection of attractive 4G devices. But the key to success will depend on it becoming an effective 'value leader' in the 4G era with the ability to lure customers away from larger rivals.

Unlocking value in the mobile ecosystem with Network APIs

OneAPI is a global GSMA initiative to create a common set of application programming interfaces (APIs) that enable applications to exploit mobile network capabilities. The core vision of OneAPI is to unify access to network functionality and by this allow global reach and unlock revenue opportunities.

Come and find out more or visit **www.gsma.com/oneapi**



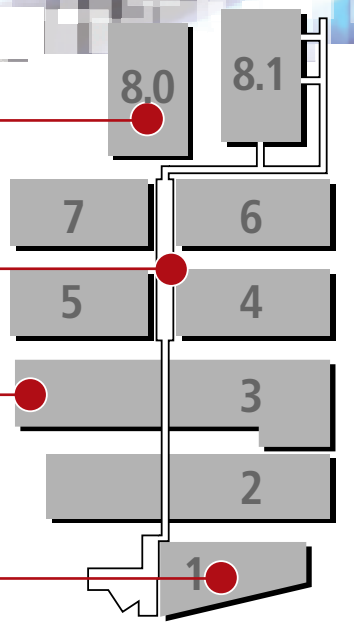
See OneAPI in action at Mobile World Congress

App Developer Conference
Web Apps and Network APIs – What's in it for Developers
Hall 8.0 Theatre District, Theatre A Tuesday 26th, 9:00 – 13:00

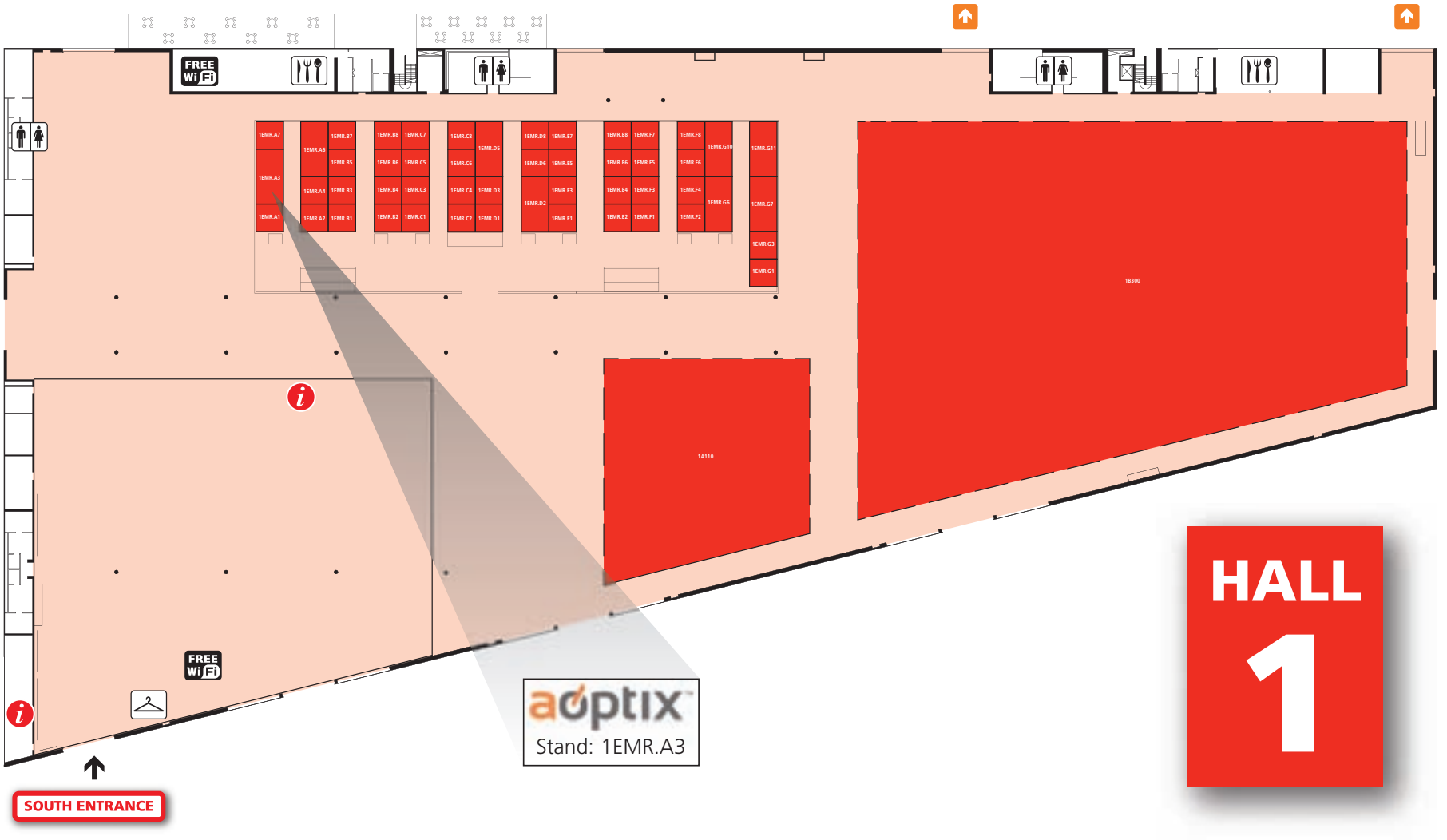
OneAPI at the **GSMA Pavilion** Hall Congress Square Stand CS80

OneAPI at the **GSMA Connected City** Hall 3 Stand 3B2 and 3C2

GSMA OneAPI Seminar
Unlocking value in the mobile ecosystem with Network APIs
South Entrance. Room CC1.1, Thursday 28th, 9:00 – 10.30



GSMA OneAPI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1A110
adoptix
Stand: 1EMR.A3
SOUTH ENTRANCE
HALL 1


FREE Wi Fi
VIP NETWORKING LOUNGE (LEVEL 1)
BUSINESS CENTRE (LEVEL 1)

HALL 2

NEW TRENDS IN MOBILE PHONES UNLOCK OPPORTUNITIES FOR EMERGING PLAYERS

ST Liew, Smartphone Business Group President, Acer Inc.

2012 was a challenging year for legacy mobile phone players. Moving into 2013, new tides are rising in the infinite ocean of mobile phone markets. Where will they take us?

SIGNIFICANT SHIFT FROM FEATURE PHONES TO BRANDED SMARTPHONES

Based on Jefferies & Company's data at the end of 2012, the market position of feature phones leading smartphones will start to transit in 2013, and by 2015, smartphone volume will exceed feature phone volumes, and eventually replace them in a 10 year time frame. While currently most feature phones are sold in emerging markets, it's not hard to tell that that's where the main growth of the smartphones will come from. A study from Informa also predicts that just over half -- 52 percent -- of all smartphones will be priced below US$150 by 2017, in part because of huge demand for entry-level smartphones in emerging markets. Currently non-tier players or local brands dominate the sub US$150 price segments in those regions. However, following the massive introduction of turn-key solutions toward smartphones, affordable choices increase and phone purchasing behaviors will evolve beyond price point. Consumers in emerging markets will start to look for global trusted brands, which provide affordable offerings with better quality assurance. This opens the field for new entrants from other industries, such as IT, social networks, retail chains and more to participate in the pervasive smartphone trend.

"NO-CONTRACT" PHONES OPEN UP CONSUMER CHOICES OF BRANDS

In mature markets, a notable changing dynamic is the shifting toward "no-contract" phones. Starting in Western Europe, consumer frustration of bonded contracts with operators has been growing for years, and a preference for a no-contract phone appears. Canalys reported that phone volume share sold through open channel has increased from 35% in 2010 to 42% in 2012. In France, Free Mobile's offering has become an increasingly popular alternative for consumers changing their old phones. This also leads to smartphone sales growth in open channels and opens up consumers' choices of phones other than the typical smartphone brands. An evident example is that Acer launched its mid-range Liquid Gallant E350 in Q4 2012, leveraging on the trend of open channel growth, and became the #2 best-selling brand in the e-tail channel[1]. It is worth observing the future potential of this trend, especially among players from the IT side of the market, who have strength in the open channel to leverage.

PHABLET[2] GROWTH AND STRONGER SMARTPHONE COMPUTING POWER CHALLENGE THE DEFINITION OF PHONE USAGE

Still recall the days when cellular phones resembled enormous slabs of grey plastic? The increasingly larger new smartphones of today might seem like déjà vu. But "phablets", bigger-than-a-phone, smaller-than-a-tablet hybrid, are zeroing in on how people actually use their mobile devices. ABI research predicts that 208 million phablets will be shipped globally in 2015, increasing by a factor of 10 from 2011 to 2012 alone, creating a new breed of smartphone on its own.

Separately, the computing power in smartphone has moved into a new era, and the dream of the smartphone as a "pocketable PC" is finally arriving. With evolution in ARM multi-core technologies, and Intel's return with powerful x86 architecture, the new smartphones are delivering drastically faster performance developments, no less than a tablet, even a notebook. At the same time, the architecture is developed with power consumption as a key consideration from ground up. Hence the smartphones can have prolonged battery life.

So what do these new technology developments mean to day-to-day phone users like you and I? Looking around us, we no longer hold the phones next to our ears the second we pull them out of pockets. Instead, we hold it in our palms to browse, to text message, etc. Gradually we start to use the phone like a mini computer, resulting in a faster evolution in screen size and computing power. This trend also enables players with IT industry background with good opportunities to deliver unique propositions across PC, tablet and smartphone.

EMBRACING TRENDS FROM EXPERIENCE IN AN ALTERNATIVE DOMAIN

Staying true to its long-term mission of "Breaking Barriers between People and Technology", Acer's goal in product design is to empower "Modern Day Exploration" — the idea that technology is meaningful to people for the new experiences it presents in their lives; to be curious; to be progressive; and to create the potential to achieve even more.

Acer is exploring and embracing mobile phone trends and presents a new line of Liquid smartphones, which are designed to fit seamlessly into people's lives, with unique experiences and features to fulfill their different needs. With the company's PC base, users could expect both PC productivity and entertainment to be offered in Acer's upcoming phablets and smartphones. The entry smartphone offering, together with the success of its PC branding in emerging markets and strength in open channels, enables Acer to capture this rising trend in the value segment. Based on this observed screen size and usage segmentation, Acer will be offering Liquid S, C, E and Z series in 2013.

AFFORDABLE SMARTPHONE EXPERIENCE AND "DIGITAL CAMERA CAPABILITIES"

Exploration starts here: Designed for first time adopters looking for the smartphone and digital camera experience, this segment features 3.5" to 4" screen, 1 GHz fast processor and 3 to 5MP cameras, latest OS features with balanced smoothness and efficiency. Coming to you in March with Liquid Z2, Acer will be positioning their Liquid Z series in this area.

MAINSTREAM OFFERING WITH "IMMERSIVE MEDIA EXPERIENCE"

Enrich the everyday: In this mainstream segment, where the lead is taken by successful long-living, initially high-end devices, whose price erodes with time - Samsung Galaxy SII is one of the most famous in its various iterations, just re-launched in CES 2013 as Galaxy SII Plus - the accent is around the multimedia experience. Bigger 4.3" to 4.7" are a must, with faster dual-core processors and some unique features distinguishing the category. This product category is addressed by Acer with the Liquid E and Liquid C Series, where E series will be delivering the excellent multimedia experience and C series the ideal micro-computing experience.

THE ADVANCED SMARTPHONES: PHABLETS AND "CROSS SCREEN EXPERIENCE"

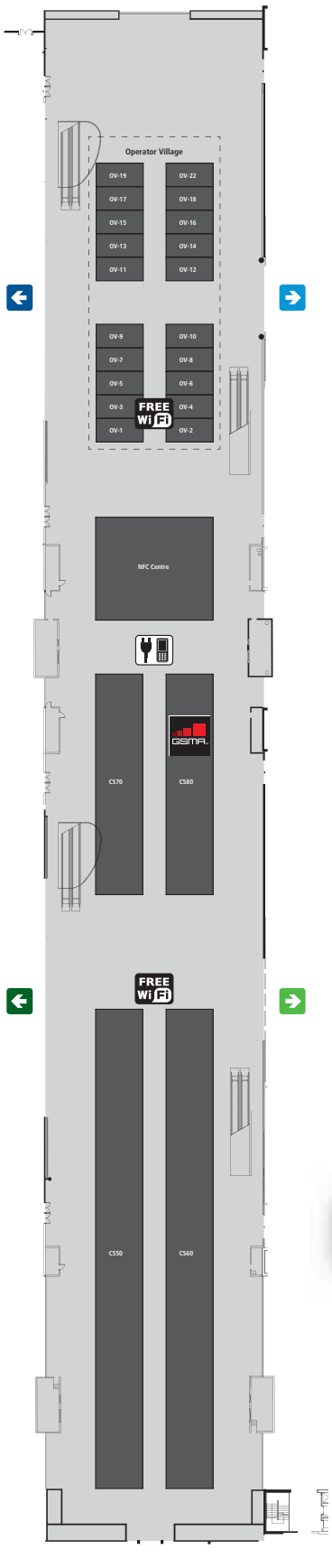
Unlimited exploration: the line between tablet and phone is blurring, a new breed of smartphone, the Phablet, is an irreversible trend to create new lifestyles. With above 4.7" and quad-core+ processors, those giants offer extremely high resolution for multi-tasking, gaming, browsing and more. Connected with other devices by third party software, or a vendor's own solution – Apple's iCloud, Samsung's AllShare or Acer's AcerCloud, to name but a few - deliver continuous cross-screen experiences in various ways. Acer will launch its Liquid S series as part of this growing segment.

In this run towards the bigger and faster, it will be interesting to see where users are going to place their maximum tolerance regarding the screen size. Very promising to challenge their perception and disrupt the consumer's product segmentation are the flexible screen technologies, coming soon.

[1]Based on GfK France Weekly Report, Week 43 2012

[2]defined by ABI research as a device with touch screen between 4.6 and 5.5 inches

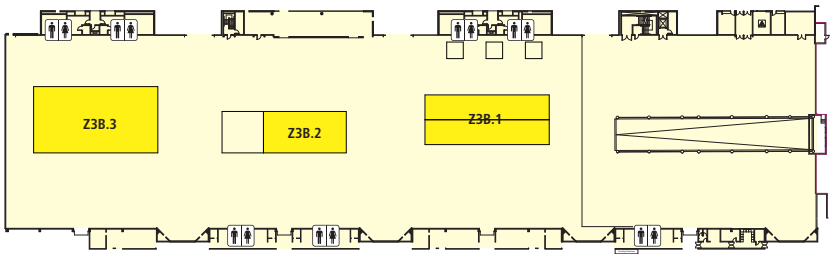
airwatch
Stand: 3B34



HALL 3

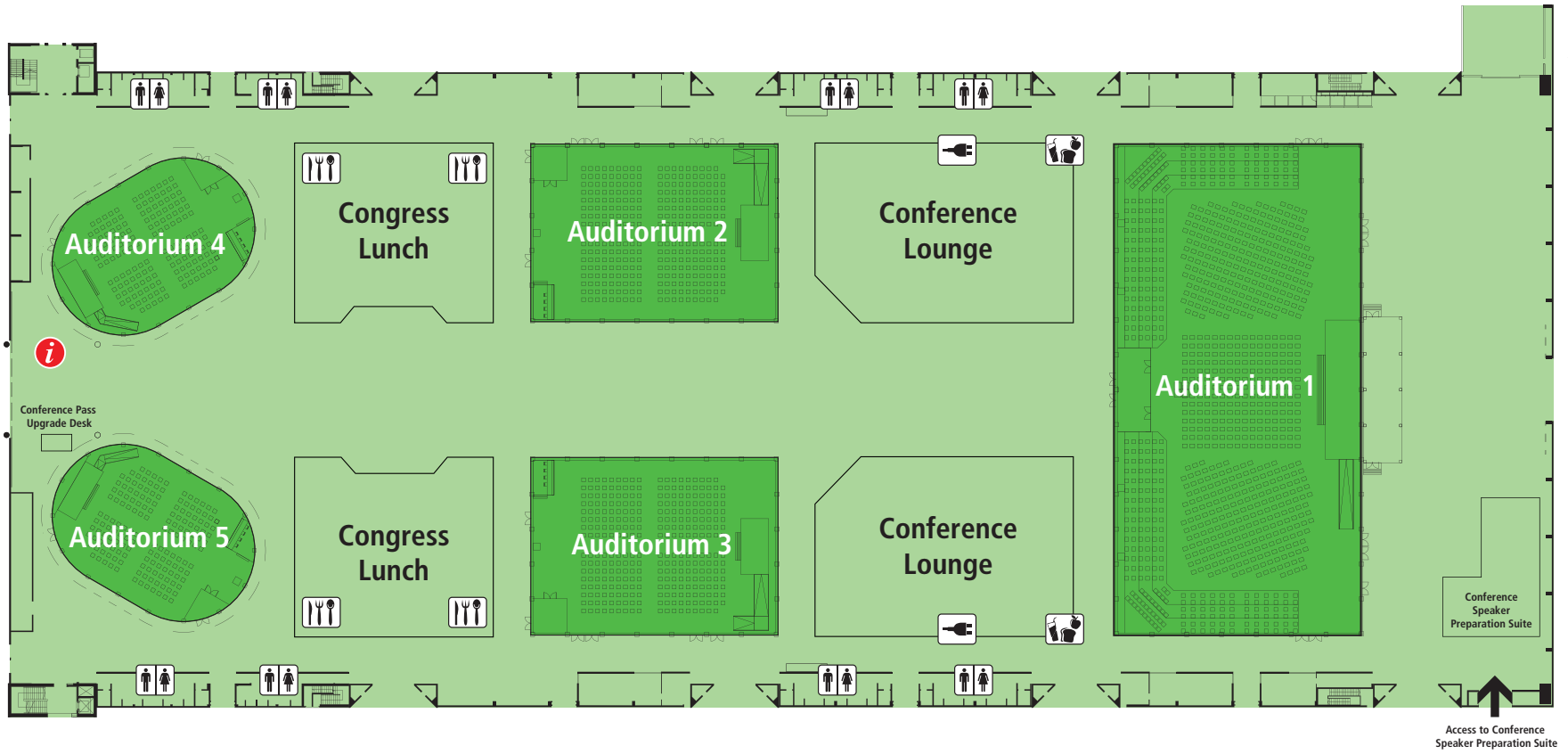
ZONE 3A

ZONE 3B



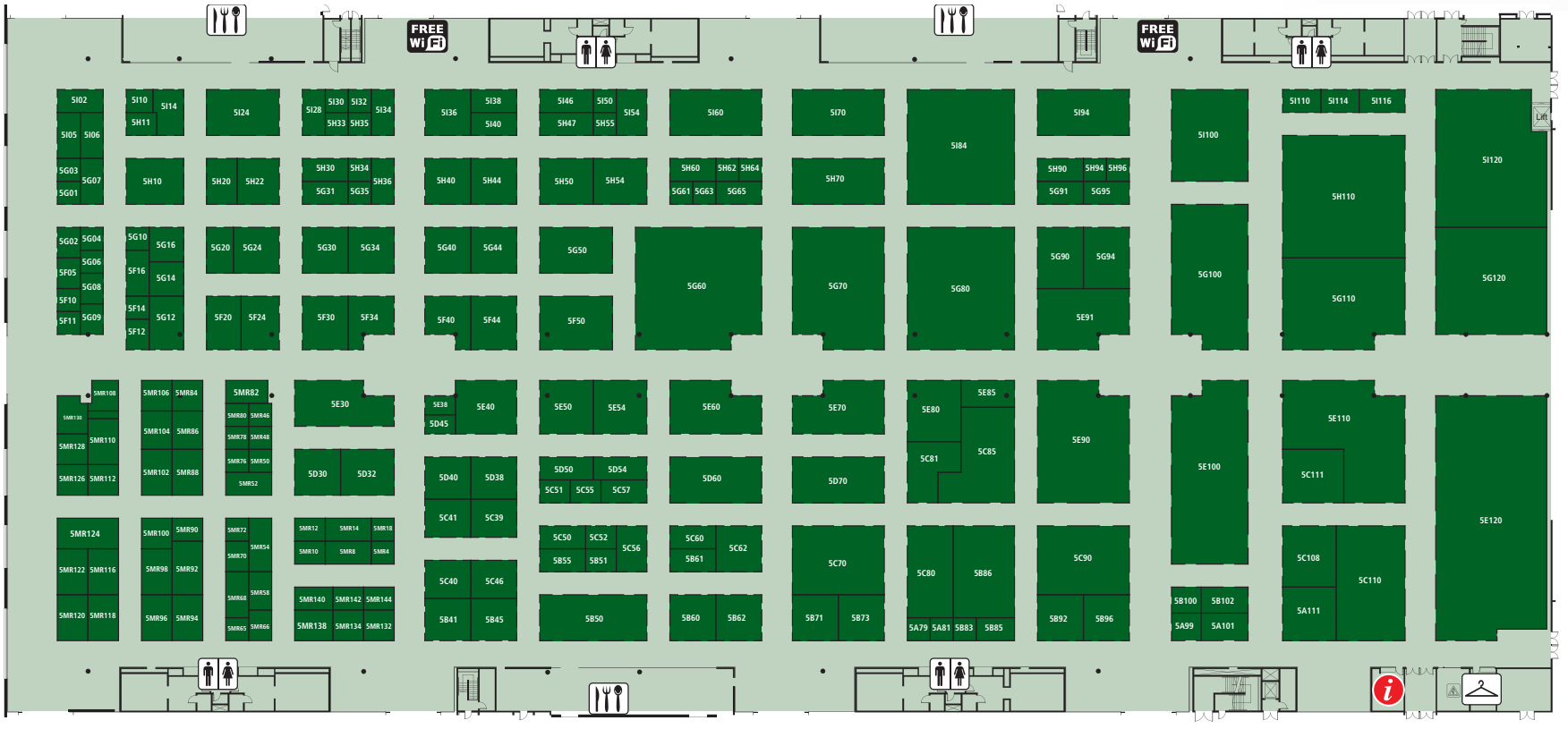
CONGRESS SQUARE

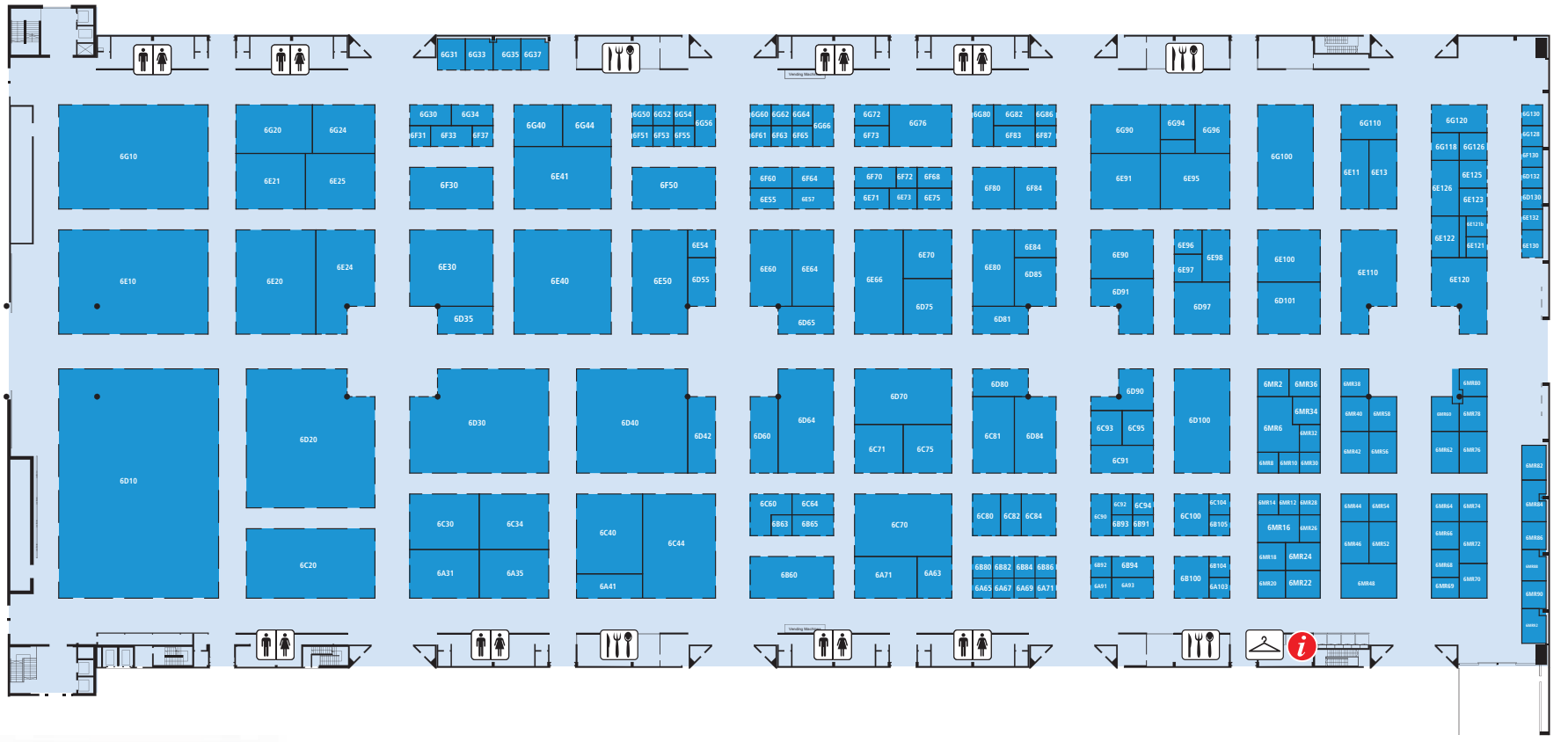
FLOORPLANS | HALLS 4 & 5



HALL 4
CONFERENCE VILLAGE

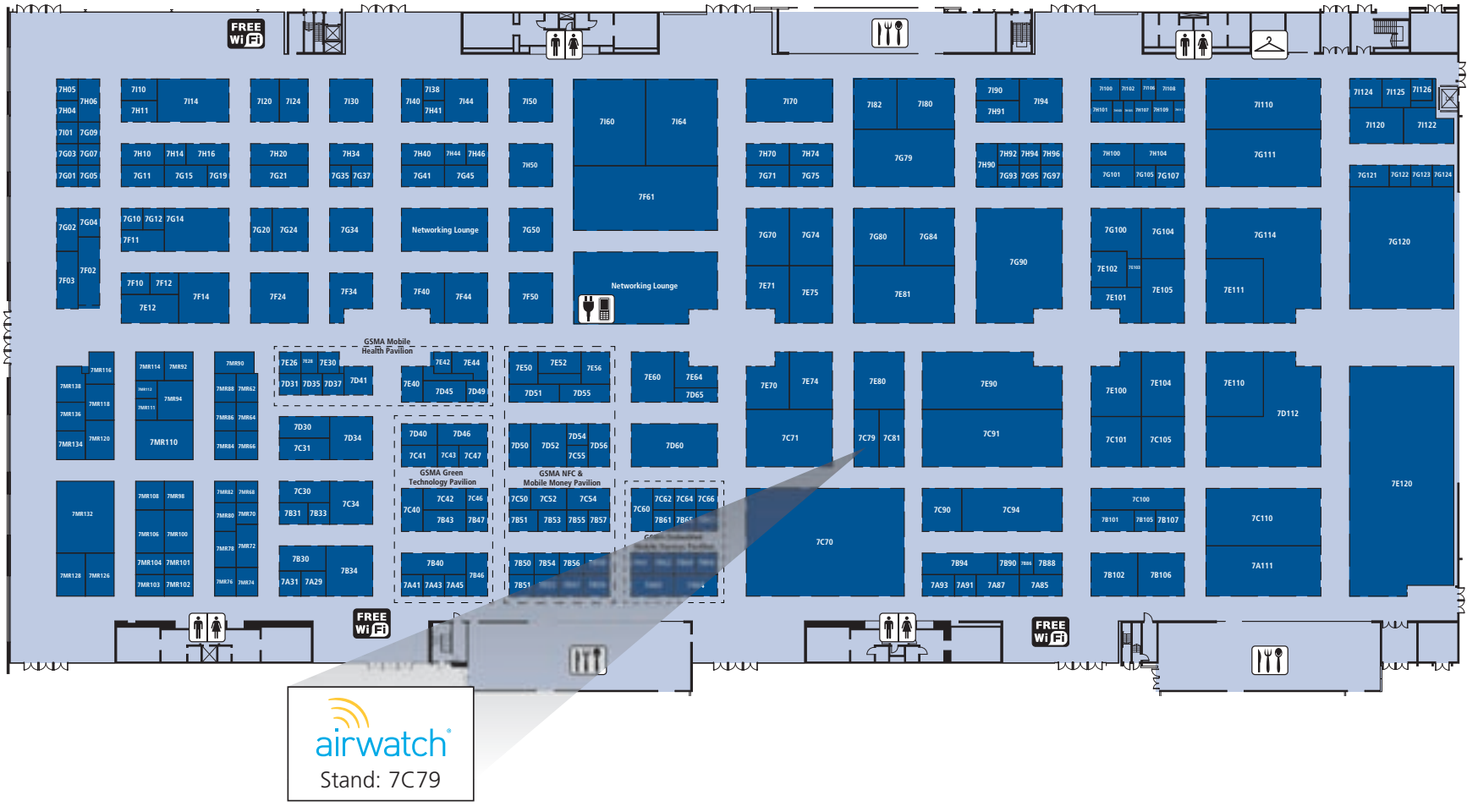
HALL 5





HALL 6

HALL 7



airwatch®
Stand: 7C79

FLOORPLANS | HALLS 8.0 & 8.1

HALL 8.0

HALL 8.1

TRADEMOB
Stand: 8.1D26

EXHIBITOR LISTING

COMPANY NAME	STAND
HALL 1	
Access Network Technology Ltd	1EMR.B4
Altera Europe Ltd	1EMR.B3
ANYMODE Corporation	1EMR.B7
AOptix Technologies	1EMR.A3
Baidu	1EMR.E4
Bluwan	1EMR.E6
BroadSoft, Inc.	1EMR.E2
Capgemini	1EMR.B6
Citibank N.A.	1EMR.D8, 1EMR.D6
Compound Photonics	1EMR.F3
Cypress Semiconductor Corp	1EMR.A2
Deloitte	1EMR.B2
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First Data	1EMR.C6, 1EMR.C8
Future Technology Enterprise Ltd	1EMR.B8
Huawei Technologies Co., Ltd.	1B300, 3C92
Intelligent Energy Limited	1EMR.F5
Lenovo Mobile Communication Technology Ltd	1EMR.A4, 1EMR.A6
LG Electronics Inc	1A110, 3B118
Mesaplexx Ltd	1EMR.A1
Microtel UK Plc	1EMR.E7
MontaVista Software, Inc	1EMR.F8
NMI	1EMR.B5
Openwave Mobility	1EMR.E8
RealNetworks Inc	1EMR.F4
Samsung Electronics Co Ltd	2B130, 3B84, 3B94, 1EMR.C2, 1EMR.D1, 1EMR.D5, 1EMR.D3
Sonus Networks	1EMR.F1
Sprint	1EMR.E1, 1EMR.E3, 1EMR.E5
Symantec Corporation	5C85, 1EMR.F2, 5MR58
TEOCO	1EMR.C4
TIBCO Software SL	1EMR.F6
Ubiquisys	1EMR.C1, 1EMR.C3, 1EMR.C5, 1EMR.C7
Unisys	1EMR.B1
Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd.	1EMR.D2
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ACCO Semiconductor	2MR168
AdaptiveMobile	2MR74
Adfonic	2MR20
Affirmed Networks	2MR228
Airvana LLC	2MR134
Amobee	2MR122
ANADIGICS	2MR124
Aricent Group	2B104
ASSIA Inc.	2MR136
ASUS Technology PTE. LTD	2C70
Audience	2MR92
Audyssey	2MR194
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CTDI GmbH	2A75
Definiti Media	2D50
Devicescape	2A105
Dialogic Inc.	2C61, 5D54
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UK Trade & Investment (UKTI)	7E100
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AppDisco, Inc.	8.1M22
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Have you tapped into Mobile NFC Services?

Discover how GSMA's Mobile NFC Services Programme can help accelerate the momentum for SIM-based NFC Services across key industry sectors

GSMA Mobile NFC Services Programme

As of 31st January 2013 more than 45 of the world's leading mobile operators have committed to support and implement SIM-based NFC solutions and services. At Mobile World Congress this year, the GSMA is holding two Mobile NFC Seminars looking at NFC in retail and transportation services. Both these seminars will combine insights from relevant industry sectors, the mobile industry, as well as those government and associations key to the success of implementing such services.

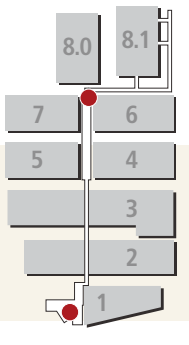
Near Field Communication: Can mobile NFC enrich transportation services?
Tuesday 26th February 2013, 17:00 - 19:00

Near Field Communication: Can mobile NFC expand the horizon for retail?
Wednesday 27th February 2013, 13:00 - 15:30

GSMA Seminar Theatre, Fira Gran Via Exhibition Centre, Room CC 1.1

In the GSMA Pavilion, GSMA's SIM-based Mobile NFC Services programme will be hosting interactive demonstrations themed around an 'NFC airport' from Adelya, Etisalat, Nexperts, Razorfish, SITA (in collaboration with Orange Business Services and Air France) and Tag-A-Bag. To see these in action and find out more, visit the GSMA Pavilion in Congress Square, Stand CS80 or visit ww.gsma.com/mobilenfc or email **nfc@gsma.com** for more information.

GSMA Mobile NFC



The GSMA NFC Centre Congress Square, Stand CS90

GSMA Seminar Theatre Hall 1. Room C1.1

Polystar Partners with Qosmos to Deliver Mobile Data Intelligence Solution

Polystar, a leading supplier of Service Assurance, Network Monitoring and Test Solutions for the telecom market partners with Qosmos to deliver enhanced customer analytics and in-depth visibility of service quality. Polystar has embedded Qosmos ixEngine into its product portfolio, enabling mobile network operators and service providers to gain enriched feeds for Big Data analysis on high-speed mobile data, to better understand subscribers' behaviour and further improve service assurance and customer experience for their clients. By enhancing its portfolio with mobile aware DPI, Polystar's customers will benefit from even stronger Big Data analysis to make better sense of the information goldmine, and as a result will be able to successfully monetise their data assets and provide the best possible subscriber experience.

Skype Goes Live With MACH Direct Operator Billing

Skype now supports a new mobile payment option for Skype Credit in Canada, Russia, and soon the U.S., using MACH's direct operator billing service. With this new payment option, Skype users can now purchase Skype Credit from their mobile devices through a browser-based transaction that is secure, seamless and convenient.

Michael De Jongh, Global Head of Sales, Mobile Billing & Payments, MACH, said: Using MACH's service, Skype is enabling its users to pay for Skype Credit as part of their monthly mobile phone bill or using their pre-paid account balance. This alternative payment method lets Skype deliver a frictionless user experience."

Come and visit us at stand 7G34 or contact us via: info@mach.com

Protect your network from signalling storms - introducing Jinny's Diameter Signalling Control Solution

Jinny Software to demonstrate its Diameter Router at Mobile World Congress 2013

DUBLIN, February 18, 2013 - Jinny Software, a leading global supplier of messaging, call completion and rich communications today announces the launch of it's Diameter Signalling Control solution - Jinny's latest addition to it's broad portfolio of innovative and scalable solutions.

Jinny's solution experts will be showcasing demonstrations of our Diameter Signalling Router User Interface aswell as Messaging, Rich Communications, Value Add Services and Cloud Manager demos at Mobile World Congress in Barcelona, February 25th through March 1st 2013.

These demos will take place in Jinny Meeting rooms located in Gran Fira Hall 2 Meeting Room 2MR140 and 2MR142

Embedded photovoltaic power supply system of Zonergy Company Limited

Having become the most economic and feasible new mode of energy conservation and emission reduction in base station power supply system

It is reported that the system adopts DC power supply. Only photovoltaic components and controller are required to be added to the original power supply system. No inverter is needed and the conversion efficiency reaches up to 98%. Moreover, the installation is easy and convenient and the energy saved and the emission reduced can be calculated directly based on the power generated. The efficient controller for maximum power point tracking of the system with independent intellectual property right has already obtained the national-level certification of China. The system has created the most economic and feasible mode for energy conservation and emission reduction in power supply system of base communication, which will become the best plan for energy conservation and emission reduction in global communication base station.

TeleCommunication Systems Introduces Cloud-Based High Volume Two-Way Messaging Platform

From automotive manufacturers to educational institutions, organizations of all types are leveraging messaging on a large scale to enhance situational awareness and real-time communication. Handling more than 700 billion messages per year, TeleCommunication Systems (TCS) is ideally positioned to provide carrier-grade messaging platforms for a variety of uses, all in the cloud. TCS' Cloud Messaging Platform delivers high-volume two-way messaging over LTE, 2G and 3G networks to support a range of applications and functionalities. Offering an end-to-end interoperability network with all core components, the Cloud Messaging Platform allows wireless operators and enterprises to minimize capital expenditures on hardware and software as well as reduce costs associated with non-stop operation.

For information on TCS' Text Messaging solutions, visit Booth 3B15 or www.telecomsys.com

Procera Networks' NAVL OEM DPI Engine

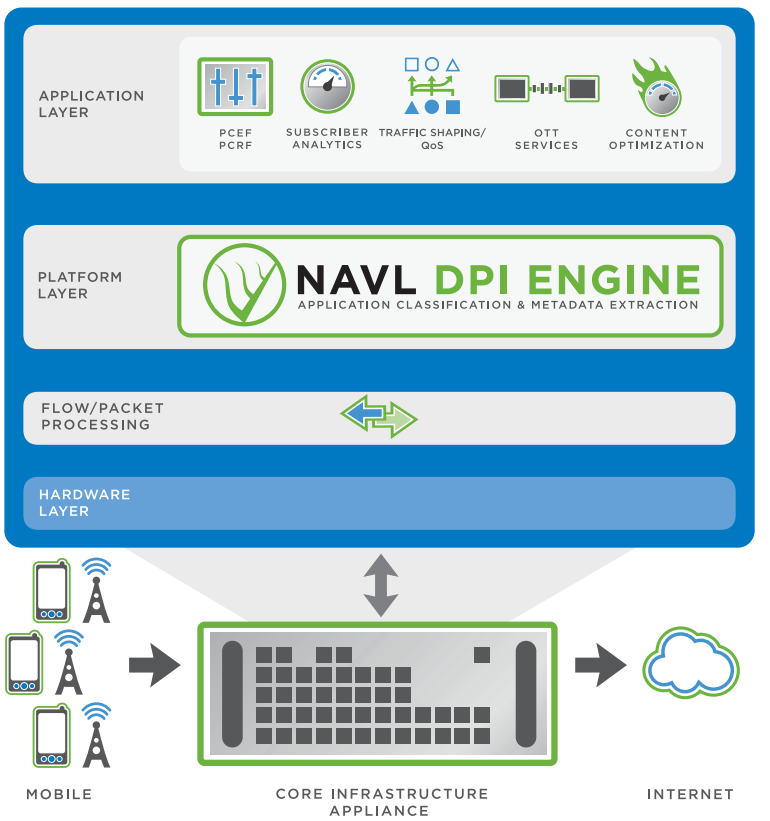
Procera Networks' OEM DPI Engine, NAVL, is an easily integrated software package, providing real-time, Layer-7 classification of network application traffic. NAVL enhances telecommunications providers' abilities to provide a variety of application-aware functions to ensure equitable access to resources by all users and to create tiered classes of service for billing:

Integrate NAVL with Your Solution to Gain:

- Layer 7 classification of today's most relevant applications and protocols
- A steady stream of new and updated application and protocol signature plug-ins
- Scalability to 100Gbps and beyond on common hardware platforms
- Metadata extraction across hundreds of key applications and protocols

The Benefits of OEM Integration

While critical, development of a DPI engine is also difficult, and costs more in time, money and engineering resources than most companies care to commit.



Contact Procera Networks for more information at www.proceranetworks.com

Wireless Intelligence

Wireless Intelligence is the definitive source of mobile operator data, analysis and forecasts, delivering the most accurate and complete set of industry metrics available. Relied on by a customer base of over 800 of the world's mobile operators, device vendors, equipment manufacturers and leading financial and consultancy firms, the data set is the most scrutinised in the industry. With over 13 million individual data points - updated daily - the service provides coverage of all 1,140 operators and 1,153 MVNOs across 3,505 networks, 65 groups and 236 countries worldwide.

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To sign up to our free service simply register your details at www.mobileworldlive.com/subscribe

CONFERENCE PROGRAMME

Day 2 Tuesday, 26 February

09:00-10:30

Keynote 3: Connecting the Next Billions to the Internet

Hall 4 – Conference Village – Auditorium 1

MODERATOR

Guy Zibi
Head of Consulting
Pyramid Research

09:00-09:15 Presentation

Manoj Kohli
MD & CEO (International)
Bharti Airtel Ltd

09:15-09:30 Presentation

Gary Kovacs
CEO
Mozilla

09:30-09:45 Presentation

Stephen Elop
President & CEO
Nokia

09:45-10:00 Presentation

Nasser Marafih
Group CEO
Qtel

10:00-10:30 Panel Discussion
All Speakers

11:00-12:30

Keynote 4: Future of Communications

Hall 4 – Conference Village – Auditorium 1

MODERATOR

Michael O'Hara
CMO
GSMA

11:00-11:15 Presentation

René Obermann
CEO
Deutsche Telekom

11:15-11.30 Presentation

Hans Vestberg
President & CEO
Ericsson

11:30-11:45 Presentation

Suk-Chae Lee
CEO
KT Corp

11:45-12:00 Presentation

Talmon Marco
Founder & CEO
Viber

12:00-12:30 Panel Discussion
All Speakers

14:00-15:30

Smaller but Smarter: Making a Success of Small Cell Networks

Hall 4 – Conference Village – Auditorium 3

MODERATOR
Caroline Gabriel, Research Director, Maravedis Rethink

14:00-14:15 Presentation
J.R. Wilson, Chairman, WBA

14:15-14:50 Panel Discussion
Mike Schabel, VP, Wireless Division, Alcatel-Lucent
Michael Flanagan, CTO, Arieso
Shayan Sanyal, CCO, Bluwan
Sadayuki Abeta, Director, Radio Access Network Development Department, NTT DOCOMO

14:50-15:05 Group Presentation
Manish Singh, CTO, Radisys
Geun Hwangbo, Tech Leader, Network Engineering Office, SK Telecom
Il-Hyun Sohn, Director, R&D Center, SK Telesys

15:05-15:30 Panel Discussion
Simon Brown, CEO, ip.access
Mike Gallagher, CEO, Spidercloud
Chris Gilbert, CEO, Ubiquisys

Marketing: Brands Go Mobile

Hall 4 – Conference Village – Auditorium 2
Tweet Comments - #MWC13MKT1

MODERATOR
Anna Bager, VP & GM, Mobile Marketing Center of Excellence, IAB

14:00-14:30 Presentation
Keith Weed, CMO, Unilever

14:30-14:45 Joint Presentation
Evan Gerber, VP, Mobile Design & Emerging Interactions, Fidelity Investments
Velia Carboni, VP, Mobile Channel Management, Fidelity Investments

14:45-15:00 Presentation
Maïte Oonk, Manager, Mobile Commerce, KLM

15:00-15:15 Presentation
Michael Menis, VP, Web & Interactive Marketing, IHG

15:15-15:30 Presentation
Edward J. Kaczmarek, Director, Innovation & Emerging Technology, Mondeléz International

Mobile Identity: Opportunities & Challenges for Service Providers

Hall 4 – Conference Village – Auditorium 5
Tweet Comments - #MWC13MDT

MODERATOR
Dave Birch, Director, Consult Hyperion

14:00-14:10 Presentation
Harm Jan Arendshorst, Head of Identity & Privacy Services EMEA, Verizon Enterprise Solutions

14:10-14:20 Presentation
Sabine McIntosh, Director, Global Head of eBAM & Identity Management, Global Transaction Services, Citi

14:20-14:30 Presentation
Douglas Daberius, Head of Identity Solution Management, Nokia Siemens Networks

14:30-14:40 Presentation
Patrick Fischer, Consultant, Fischer Consultancy

14:40-14:50 Presentation
Daniel Gurrola, VP, Consumer Mobile Strategy, Orange Group

14:50-15:30 Panel Discussion
All Speakers

Future of the City: Smarter Cities, Smarter Living

Hall 4 - Conference Village – Auditorium 4
Tweet Comments - #MWC13CTY

MODERATOR
Mark Newman, Chief Research Officer, Informa Telecoms & Media

14:00-14:15 Presentation
Michael Halbherr, EVP, Location & Commerce, Nokia

14:15-14:30 Presentation
Erik Brenneis, Head of M2M, Vodafone

14:30-14:45 Joint Presentation
Barbara Flügge, Ph.D., Director, Business Services, SAP AG
Uwe Kubach, VP, SAP AG, Next Business & Technology, SAP

14:45-15:00 Presentation
Manel Sanromà, CIO, Barcelona City Council

15:00-15:30 Panel Discussion
All Speakers

16:00-17:30

Whose Network? Emerging Network Business Models

Hall 4 – Conference Village – Auditorium 3
Tweet Comments - #MWC13NWK

MODERATOR
Emin Gürdenli, Chairman, Azenby

16:00-16:12 Fireside Chat
Gabrielle Gauthey, EVP, Global Government & Public Affairs, Alcatel-Lucent

16:12-16:24 Fireside Chat
Eduardo Duato, CTO, Orange Spain

16:24-16:36 Fireside Chat
Magnus Mandersson, EVP & Head of Global Services, Ericsson

16:36-16:48 Fireside Chat
Nicolas Ott, MD, Mobile, Government & Enterprise, Arqiva

16:48-17:00 Fireside Chat
Evan Kaplan, President & CEO, iPass

17:00-17:30 Panel Discussion
All Speakers

Marketing: How Not to Build a Mobile Campaign

Hall 4 – Conference Village – Auditorium 2
Tweet Comments - #MWC13MKT2

MODERATOR
Russell Buckley, Mobile Marketing Investor, Advisor & Mentor, & Partner, Ballpark Ventures

16:00-16:10 Presentation
Mike Zarrilli, VP, International, The Weather Channel Companies

16:10-16:20 Presentation
Dave Gwozdz, CEO, Mojiva, Inc.

16:20-16:30 Joint Presentation
Helen Thompson, Mobile Product Manager, BBC Worldwide
Stephen Upstone, CEO & Founder, LoopMe Media

16:30-16:40 Presentation
Stéphanie Hospital, EVP, Orange Digital Audience and Advertising

16:40-16:50 Presentation
Victor Malachard, CEO & Co-Founder, Adfonic

16:50-17:00 Presentation
Brian Wong, Co-Founder & CEO, Kiip

16:50-17:30 Panel Discussion
All Speakers

Regional Focus: Sub-Saharan Africa

Hall 4 – Conference Village – Auditorium 5

MODERATOR
Bradley Shaw, Managing Editor, Africa Telecoms

16:00-16:25 Panel Discussion
Manoj Kohli, MD & CEO (International), Bharti Airtel Ltd
Sifiso Dabengwa, Group President & CEO, MTN Group

16:25-16:35 Fireside Chat
Her Excellency Mrs Omobola Johnson, Minister of Communication, Federal Ministry of Communication Technology, Nigeria

16:35-16:45 Fireside Chat
Lars Linden, Head of Ericsson, Region Sub-Saharan Africa, Ericsson

16:45-16:55 Fireside Chat
George Ferreira, COO, Samsung Africa

16:55-17:05 Fireside Chat
Nic Rudnick, CEO, Liquid Networks

17:05-17:30 Panel Discussion
All Speakers

Mobile Entertainment: The Rise of the Digital Global Event

Hall 4 – Conference Village – Auditorium 4
Tweet Comments - #MWC13ENT

MODERATOR
Justin Springham, Managing Editor, Mobile World Live, GSMA

16:00-16:15 Presentation
Alex Balfour, Consultant, Alex Balfour Consulting

16:15-16:30 Presentation
Phil Fearnley, GM, BBC News & Knowledge, BBC

16:30-16:45 Presentation
Ian Carrington, Mobile & Social Advertising Sales Director, NACE, Google

16:45-17:00 Presentation
Derek McManus, COO, O2

17:00-17:30 Panel Discussion
Gustavo Mansur, Senior Manager, Mobile & New Business, Abril
Alex Balfour, Consultant, Alex Balfour Consulting
Ian Brown, CEO, Axell Wireless
Phil Fearnley, GM, BBC News & Knowledge, BBC
Derek McManus, COO, O2

18:00-18:45

Mobile World Live Keynote

Hall 4 - Conference Village - Auditorium 1

MODERATOR

Geoff Blaber
Director of Devices & Platforms
CCS Insight

KEYNOTE SPEAKERS

Marc Dillon
CEO
Jolla

Mitchell Baker
Chairperson
Mozilla Foundation

Mark Shuttleworth
Founder
Ubuntu

Conference Information is Correct at Time of Printing

SHOW IN PICTURES

"The place is bigger and you can easily go to any place."

Giza Systems

"Fira Gran Via is more accessible, less of a traffic jam. There is also better stand distribution."

Jan Seung

"Companies are well distributed; open area designs are great. Decorations and bright and creative. Organised."

Carol, Accenture

GSMA Spam Reporting Service - Securing the future of Mobile Messaging

www.gsma.com/srs

Mobile spam is threatening network operators and subscribers around the globe. These unwanted messages seek to defraud the recipients and consume valuable network resources. Luckily, the GSMA and its experts are keen to prevent these attacks from degrading the valuable services provided by our members. By adopting the GSMA Spam Reporting Service, mobile operators can empower customers to easily report spam without engaging in lengthy service calls. Once reported, the service analyses the message and quickly provides the information necessary to take decisive action to protect the network and subscribers from further harm. Because this is a GSMA service, operators have the additional benefit of learning of other attacks happening on other networks. This intelligence helps them to keep known attacks off their network and keep spammers from eluding detection.

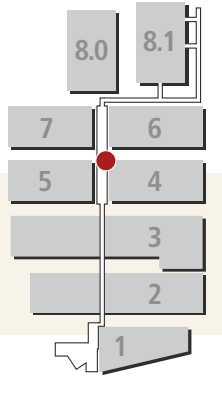
The GSMA SRS offers the powerful combination of customer reporting, data analysis and intelligence sharing that is a key element of effective network security.

To find out more, contact our team at **srs@gsm.org** or visit our website at **www.gsma.com/srs** or visit us at the GSMA Stand: Congress Square Hall CS80

GSMA Spam Reporting Service

Protected by CLOUDMARK®

Visit the GSMA Spam Reporting Service at the GSMA Stand: Congress Square Hall CS80.

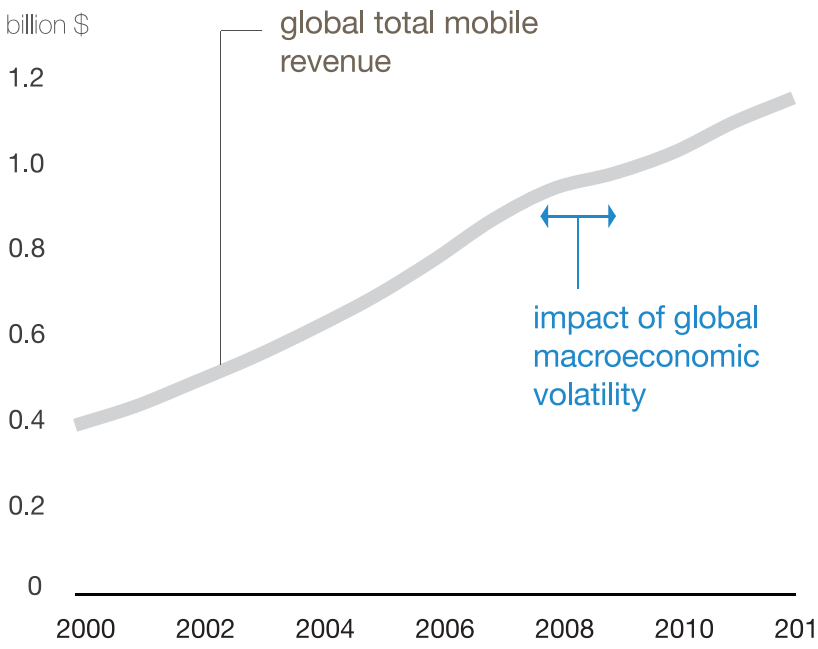


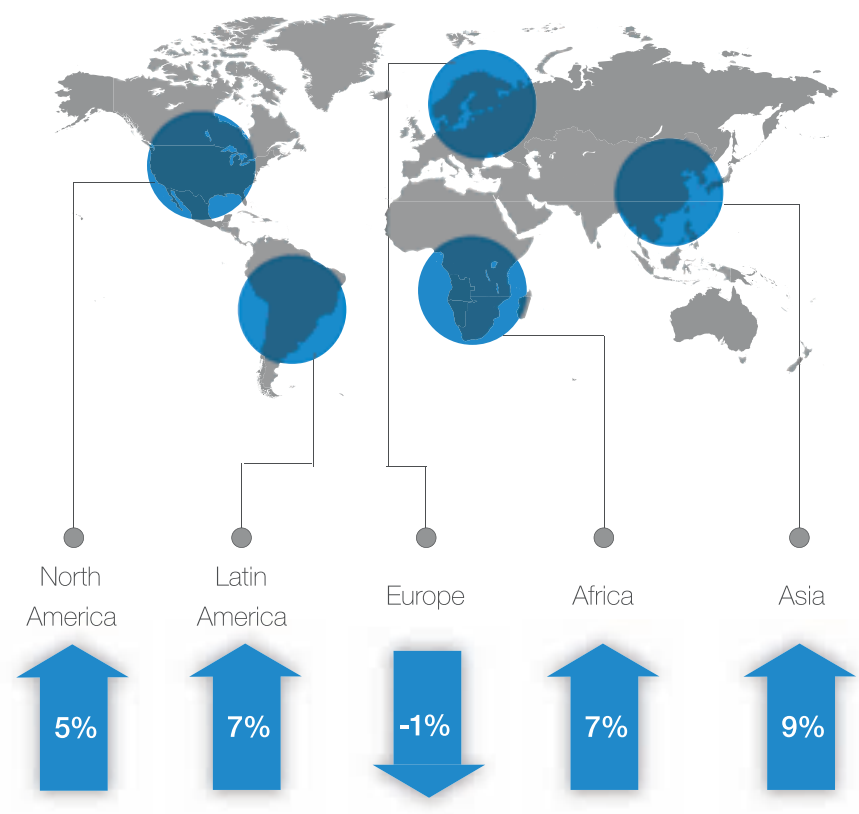
Wireless **Intelligence**

Global Mobile Operator Revenue Trends

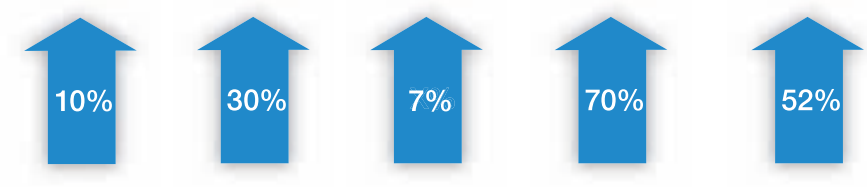
$1,160,000,000,000

Total revenues generated by mobile operators worldwide in 2012



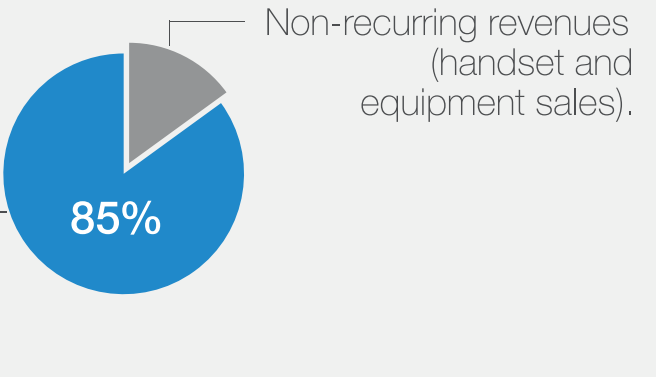


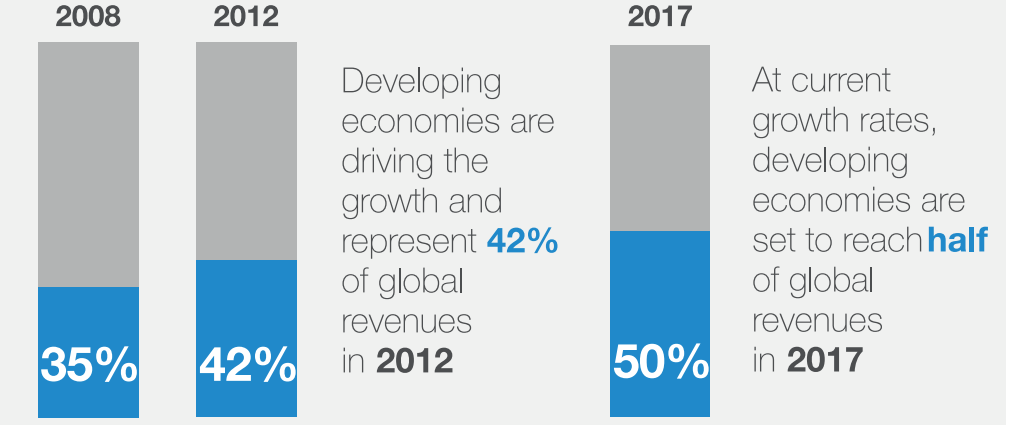
Total mobile revenue CAGR (2008-12)



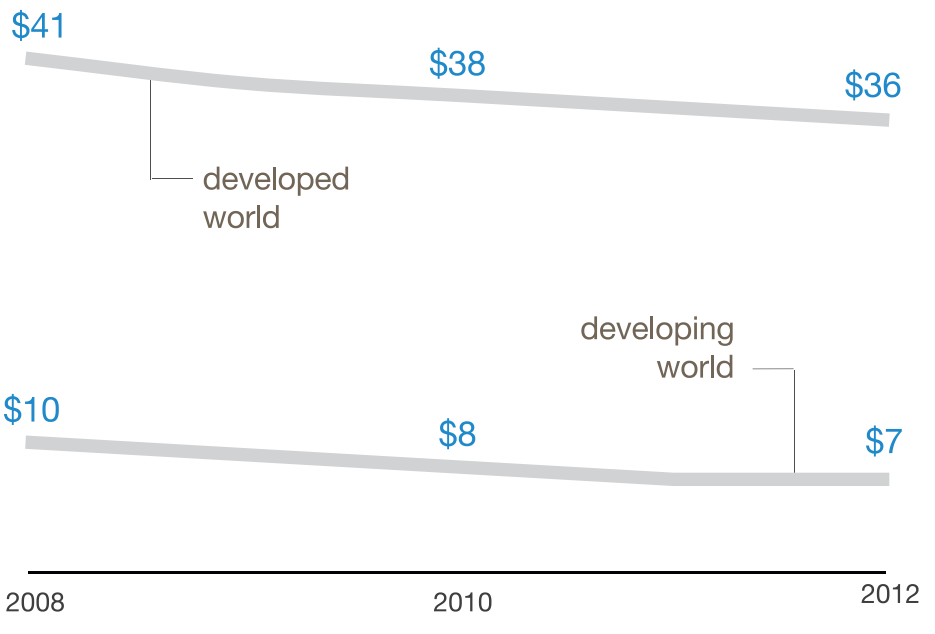
Unique mobile subscribers growth (2008-12)

% of global total mobile revenues, 2012:





Monthly Average Revenue Per User (ARPU):



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Lead Analyst, Operator Forecasts, Wireless Intelligence
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Wireless Intelligence

Smartphone subsidies driving mobile broadband growth in Latin America

Mobile broadband connections in Latin America (Caribbean, Central and South America) are forecast to top 150 million this quarter, accounting for about one in five of the region's mobile subscriptions.

We expect the figure to reach close to 200 million by year-end, by which point mobile broadband – which we define as HSPA, EV-DO and faster - will account for over a quarter of the region's total.

Growth is being driven by rising smartphone penetration, which – in contrast to the trend in some European markets - is being stimulated by local operators' increasing willingness to subsidise expensive devices. And there is plenty of evidence to suggest that local players see such strategies as a key differentiator in the market and a way to steal a lead in mobile data services.

ABOUT WIRELESS INTELLIGENCE

Wireless Intelligence is the definitive source of mobile operator data, analysis and forecasts, delivering the most accurate and complete set of industry metrics available. Relied on by a customer base of over 800 of the world's leading mobile operators, device vendors, equipment manufacturers and financial and consultancy firms, the data set is the most scrutinised in the industry. With over thirteen million individual data points (updated daily), the service provides coverage of the performance of all 1,140 operators and 1,153 MVNOs across 3,505 networks, 65 groups and 236 countries worldwide. www.wirelessintelligence.com

"Our commercial investment in handsets subsidy is supporting growth in penetration and usage of mobile data," noted Millicom CEO Mikael Grahne on a recent earnings call. He notes that in Colombia, the operator is commanding a market share in data that is almost twice as high as it has in voice: "[We get] very good, positive reactions from Colombian customers whenever we invest in subsidies."

This sentiment is echoed by America Movil, Latin America's largest operator. "We're moving a lot of the 2G phones to smartphones and feature phones," says CEO Daniel Hajj. He adds that this year and next will be "really important in terms of subsidies."

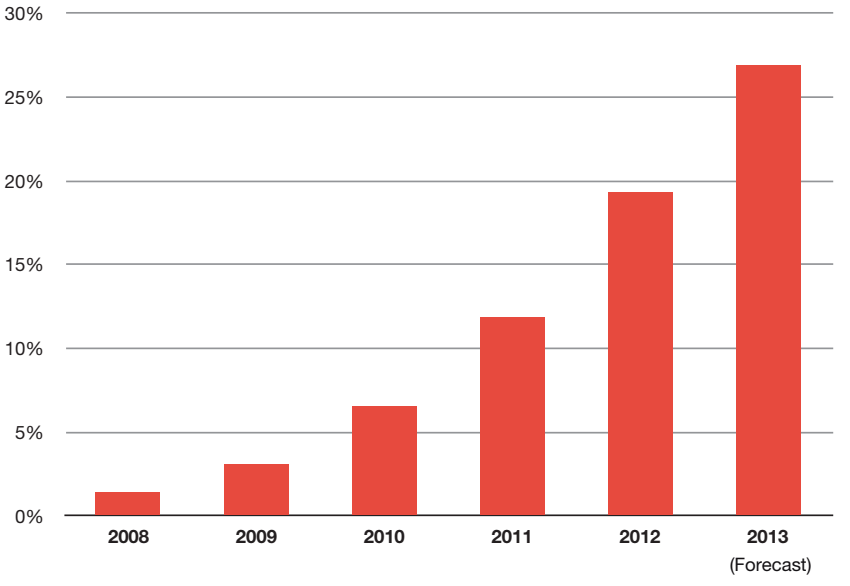
Smartphone penetration is therefore growing rapidly across the region. In Brazil, market-leader Vivo noted that smartphones accounted for 78% of contract net additions in Q3, up from 55% a year earlier. Smartphone penetration at rival TIM Brasil doubled year-on-year to reach 39% of the total base over the same period.

Growth in smartphones and data has been achieved despite (in global terms) a relatively late migration to 4G-LTE. At the end of Q3 last year, just three markets in Latin America had commercially launched LTE: Colombia (via UNE), Puerto Rico (via AT&T, Claro, Open Mobile, Sprint) and Uruguay (via Ancel).

A further seven networks launched in five more countries in Q4 2012 – Antigua & Barbuda (Digicel), Bolivia (Entel), Brazil (Claro and Oi), Mexico (Movistar and Telcel) and Paraguay (Vox). We expect a further 16 to launch during 2013, notably across key markets such as Argentina, Chile, Ecuador, Peru and Uruguay.

America Movil's Hajj has said that, in markets where LTE has launched, early adopters are consuming as much as 30% more data than 3G users. Ahead of the operator's Mexican LTE network launching last November, he stated that "we're not going to increase prices on LTE. It's going to be exactly the same pricing plan, and if you have more speed, then you're going to consume more."

Latin America: mobile broadband connections as a % of total (Caribbean, Central and South America)



Source: Wireless Intelligence

But despite the availability of subsidies and the new high-speed networks, device affordability remains a key issue. "I think the [LTE] handsets are a little bit more expensive, so you're not going to see a big move from 3G to LTE," admits Hajj, who sees LTE having more of an initial impact on data-only devices such as tablets and dongles.

According to our latest forecasts, total LTE connections in Latin America should come in at around half a million at the end of the current quarter (Q1 2013), rising to almost 2 million by the end of the year - which would represent less than 1% of total mobile broadband connections in the region.

Even as device ASPs start to decline, we expect operators to retain their subsidy strategies in an effort to get affordable smartphones in the hands of as many consumers as possible. Indeed, the ability to offer smartphones further down the price tiers should offset the negative impact subsidies are currently having on margins.

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