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# the future of mobile communications

Time for network function virtualization

Vietnam telecommunication: The price to compete **Raising the bar high:** Telecom Review's Summit 'It's All About Networking'

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# Raising the bar high:

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www.telecomreviewasia.com



Editor in Chief - International Toni Eid toni.eid@tracemedia.info

Senior Editorial Manager - APAC Stuart Corner stuart@tracemedia.info

#### **Editorial Team**

Genesis Maniquez (Head of APAC Reporters) genesis@tracemedia.info

> Marcelle Najem (Editor) marcelle@tracemedia.info

> > Graphic Designer Mary Eid

Marketing Manager Mohammed Ershad

#### Published by



CEO Toni Eid Operations Manager Marian Santos info@tracemedia.info www.telecomreviewasia.com

Trace Media FZ.LLC.

Australia, Sydney PO Box 40 Enmore NSW 2042 Tel. +61 419 492 190 stuart@tracemedia.info

Philippines, Manila

Tel. +639174788170 / +639204689763 genesis@tracemedia.info

#### Dubai, UAE

Dubai Media City, Bldg. 7, 3<sup>rd</sup> Flr., Office 341, P.O.Box 502498 Tel. +971 4 4474890 Fax +971 4 4474889

Printing

Arab Printing Press

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#### **EDITORIAL**

# Telcos turning to Asia for new revenue streams



**Stuart Corner** Senior Editorial Manager Telecom Review Asia Pacific

hen IDC released its top ten predictions for the Asia Pacific telecoms market in 2014 IDC principal analyst Adrian Dominic Ho said: "Traditional telecom services are no longer providing the growth and even margins that telcos are hoping for. Their next trillion dollar

opportunity will come from a whole series of services that are built on top of their networks."

That's hardly news. Telcos have known this for years, and for years they have been struggling to make headway in new services built on top of their networks: entertainment services for the masses and cloud computing services for corporates are two examples on which great hopes are being pinned.

The trouble is that, as contributors to revenue and profit those traditional services are still massive and new services will have to become comparably massive before they will be able to buoy up the sinking fortunes of telcos watching their traditional revenue streams dry up. Moreover the telcos face stiff competition from other players that want to use their basic connectivity and build services on top themselves.

Take Telstra for example. Telstra chief financial officer, Andrew Penn, has been reported saying that, in order for the new growth sectors like Asia, network applications and services and media to become 'significant' for Telstra they collectively need to generate more than \$A20 billion in annual revenue. However in the year to 30 June 2013 they generated only \$A5.4 billion

With opportunities in their home markets limited by their already large market shares, regulation and stiff competition the established telcos are looking to the growing markets of Asia as the source of these new revenue streams, but some seem to be struggling to find the right approach.

Unless Hong Kong's telecoms regulator intervenes Telstra will sell its stake in Hong Kong mobile operator, CSL (see page 36). It has also sold the majority of its domestic directories and online advertising business, Sensis.

Telstra is being tight-lipped about how it will spend the proceeds of the CSL sale but CEO David Thodey told analysts at an investor briefing that the telco was committed to ramping up its business in Asia.

Somewhat more forthcoming about his company's Asia plans - and very bullish about the Asian market in general - was Kevin Taylor, President Asia, the Middle East and Africa for BT Global Services (page 22).

"If you look at China, if you look at India, if you look at Indonesia you see incredible growth and incredible strength. You're seeing emerging multinationals investing into the consumer markets and also emerging multinationals coming out of these countries," he said. "Fifty eight percent of our new business this year in the region has come from emerging multinationals. We are seeing the globalization of regional companies for the first time, which is a really exciting trend."

Meanwhile it is clear that the telecoms industry is gearing up for significant increases in Asia Pacific traffic. Within the space of a week in late January capacity upgrades were announced for multiple regional submarine cable systems: Southern Cross, AJC, Pacnet and Telstra's Endeavour, Reach North Asia Loop and its pair on the Asia America Gateway cable.

Darrin Webb, COO of Telstra Global, said: "Demand for network services in the Asia Pacific region is growing exponentially." Anthony McLachlan, vice president and general manager, Asia Pacific for Ciena - which is supplying the optical technology for the Southern Cross upgrade said: "High-bandwidth applications like video, cloud computing and machine-to-machine communications continue to put pressure on today's networks, requiring carriers like Southern Cross to deploy technologies that not only increase capacity but also provide more intelligent, adaptable networks."

So, throughout 2014 expect significant developments, deals and acquisitions as telcos struggle to build significant new revenue streams in Asia Pacific's growing and increasingly demanding markets.

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TELECOM Review



## Steve Mollenkopf to become Qualcomm's new CEO



Qualcomm said it had promoted Steve Mollenkopf to Chief Executive, succeeding Paul Jacobs at the helm of the world's dominant mobile chipmaker. Mollenkopf, 44, will retain his title as president of Qualcomm while Jacobs, 51, becomes Executive Chairman. The changes will become effective March 4, 2014. Mollenkopf will assume overall responsibility for Qualcomm including all lines of business and all functional groups while Jacobs will take the new role helping guide development of new technology and Qualcomm's long-term opportunities, a statement from the California company said. "With today's announcement, we enable a smooth transition to a proven executive in Steve Mollenkopf, while providing ongoing executive guidance and board-level leadership from Paul Jacobs," said Sherry Lansing, Presiding Director of Qualcomm's Board.

In nearly 20 years at Qualcomm, Mollenkopf has held a variety of leadership positions including heading the chipset business, helping it become the world's largest mobile chipset supplier.

Most recently he served as Qualcomm's President and Chief Operating Officer and as a member of the executive committee. "I am honored to have been chosen by the board to lead Qualcomm into the next exciting era of the company," said Mollenkopf. "Qualcomm's focus on execution in product and technology development has helped to establish us as a leader in wireless with our partners. I look forward to working with our executive team and our employees in driving growth for our company and the entire mobile ecosystem as it transitions to 4G and beyond."

Qualcomm has become the main player in the market for mobile phone chips, but has also attracted attention of regulators. Its Snapdragon line of processors is widely used in the mobile sector.

In the quarter ended September 29, Qualcomm posted a profit of \$1.5 billion on revenues of \$6.48 billion. The annual profit for the fiscal year was \$7.2 billion on \$24.9 billion in revenues.

## LTE to account for one in eight global mobile connections by 2017



GSMA Intelligence study predicts that the number of 4G-LTE connections worldwide will pass one billion by 2017.

By 2017, it is expected that LTE will account for about one in eight of the more than eight billion total mobile connections forecast by that point, up from 176 million LTE connections at the end of 2013. Nearly 500 LTE networks are forecast to be in service across 128 countries, roughly double the number of live LTE networks today.

"Since the launch of the first commercial 4G-LTE networks in late 2009 we are seeing deployments accelerate across the globe," commented Hyunmi Yang, chief strategy officer at the GSMA.

"Our new report highlights a number of factors that are driving LTE growth including the timely allocation of suitable spectrum to mobile operators, the availability of affordable LTE devices, and the implementation of innovative tariffs that encourage adoption of highspeed data services." "Mobile operators in both developed and developing markets are seeing LTE services contributing to a significant increase in ARPU."

The study calculates that about 20 percent of the global population is currently within LTE network coverage range.

As operators continue to expand LTE coverage over the next few years, it is forecast that LTE networks will be available to half of the world's population by 2017.

In the United States, LTE networks already cover more than 90 percent of the population, compared to 47 percent population coverage in Europe and ten percent in Asia. The United States currently accounts for almost half (46 percent) of global LTE connections; the United States, South Korea and Japan combined account for 80 percent of the LTE total today.

However, Asia is expected to account for almost half (47 percent) of all LTE connections by 2017, as LTE networks are rolled out in major markets such as China and India.

Half of total mobile connections in South Korea are now running on LTE networks, compared to 20 percent in Japan and the United States, making South Korea the most advanced LTE market worldwide.



## M2M World Alliance delivers first multi-operator global solution



The M2M World Alliance, which is comprised of Etisalat, KPN, NTT DOCOMO, Rogers, SingTel, Telefonica, Telstra and VimpelCom, has officially unveiled its solution which aims to simplify and promote the adoption of M2M communications worldwide.

The unique solution will leverage the operators' combined global presence to the benefit of customers who are looking for a regional or global M2M deployment.

It allows companies to enjoy connectivity throughout the Alliance coverage area with inmarket rates. Additional benefits include easier compliance with local market regulations and the potential for multinationals to provide global technical support from a single market. The name "M2M World Alliance" has recently been created to identify the group's coordinated operations. "With operations in more than 60 countries, the Alliance's global footprint presents multinational organizations with a seamless approach to deploying connected devices in multiple countries at one time," said Angel David Garcia Barrio, chairman of the M2M World Alliance.

M2M communications are used when machines, a broad term for equipment used in all sorts of industries, including consumer electronics, utilities, agriculture and construction, connect and exchange information with information technology infrastructure. It is considered by many as the latest stage in the internet's evolution, when cyberspace reaches beyond the traditional confines of computers to connect to any device with a microprocessor.

Major growth areas identified by the M2M World Alliance for its global solution include connected cars, fleet management, smart meters, consumer electronics, game consoles, wearable electronics, telehealth and security solutions.

## GSA confirms almost 100 mobile networks offer HD voice service



A new report from the GSA (Global Mobile Suppliers Association) confirms the growing importance of HD voice service for mobile network operators around the world. The number of mobile operators offering HD voice service increased by 48 percent in 2013.

The Mobile HD Voice: Global Update report published by GSA on January 3, 2014 confirms that 93 operators have commercially launched HD voice services on mobile networks in 66 countries.

The progress of mobile HD voice in 2013 was impressive. 30 operators commercially launched HD voice on mobile networks in 2013, which increased by 21 (i.e. 47 percent) the number of countries where mobile HD voice service is available.

Mobile HD voice service uses Adaptive Multi Rate Wideband (W-AMR) technology, enabling high-quality voice calls in supporting mobile networks and an improved user experience for calls between mobile phones supporting the feature, and can be offered on several network technologies including GSM, WCDMA-HSPA and LTE.

Alan Hadden, President of the GSA, said that HD voice is particularly widespread Europe, being available on mobile networks in over 85 percent of the 28 Member countries of the European Union, for example. However, HD voice service extends to mobile networks in most other regions of the world too.

Twenty countries have at least 2 mobile HD voice networks and enabling interconnection between competing networks for end-to-end HD voice calling is a priority for the industry in 2014. Deploying cross-network national interconnectivity for HD voice calling will fuel further growth, as will enabling international roaming HD voice services.

More progress is also expected this year on handling of international HD voice calls, and for HD voice calling between fixed and mobile networks. GSA expects that the stunning experience of HD voice calling will become a mainstream mobile user experience in 2014.

From the first service launch in 2009, HD voice is now commercially launched in Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Croatia, Czech Rep., Denmark, Dominican Rep., Egypt, Finland, France, Germany, Greece, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Ivory Coast, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Lithuania, Luxembourg, Malawi, Malavsia, Mauritius, Moldova, Montenegro, Netherlands, New Zealand, Nigeria, Norway, Philippines, Poland, Portugal, Qatar, Relunion, Romania, Russia, Rwanda, Saudi Arabia, Serbia, Singapore, Slovakia, Slovenia, South Korea, Spain, Sri Lanka, Switzerland, Taiwan, Thailand, Turkey, UAE, Uganda, UK, Ukraine, and the USA.

The breakdown of network types that offer commercial HD voice service today is: On 3G/HSPA-only networks = 81 operators
On both HSPA and GSM networks = five operators
On GSM-only networks = two operators
On LTE (VoLTE) networks = five

operators

Total = 93 operators

The number of HD voice compatible products continues to rise, with at least 250 products being officially announced by leading manufacturers including Acer, AETA Audio Systems, Apple, Blackberry, Gigabyte, Glensound, HTC, Huawei, LG, Motorola, Nokia, Pantech, Samsung, Sony, TCL (includes Alcatel brand), TechFaith, and ZTE. Depending on the model, compatible phones are available for use on 3G/HSPA, GSM or LTE networks.

Operator commitment to providing voice service for users on their LTE networks (VoLTE) has significantly strengthened as network coverage improves, and smartphone penetration and usage have increased. In the report GSA lists more than 30 operators who have committed to VoLTE deployments or trials.





#### Badan SAR Nasional selects Thuraya Services in Indonesia

THURAYA 🔇

Solutions from Thuraya Telecommunications Company, a leading Mobile Satellite Services (MSS) operator, have been selected by Badan SAR Nasional which is the National Search and Rescue Agency for the Republic of Indonesia to improve its search and rescue efforts in the country.

The government agency will be installing a combination of Thuraya IP terminals, the Thuraya Integrated Communications Solution from Ultra Electronics - AEP and Thuraya NettedComms from Speakerbus to integrate its headquarters' capabilities with all branch offices, ships, portable units and land mobile units. This will enhance voice and data services as well as video surveillance and interoperability on crucial operations at sea. The Agency is comprised of the National Search and Rescue Center, Rescue Coordination Centers and Rescue Coordination subdivision.

The contract for the initial phase has been awarded to Thuraya's Service Partner, PT Mega Sarana Satellit of Indonesia, and is scheduled for completion over 2014.

"Thuraya is pleased to support Badan SAR Nasional to enhance their search and rescue operations. The combination of Thuraya's accredited solutions running over our robust Thuraya IP service will enable the Agency to connect their branch offices and ships at sea to their headquarters via a private network, to communicate instantly and securely within closed user groups," said Robert Demers, Vice president of government services at Thuraya.

Sutono, director of communications at Badan SAR Nasional said, "Time is of the essence with search and rescue operations. Thuraya has demonstrated an in-depth understanding of our needs and has been working with us to develop a bespoke and highly reliable solution that will boost our communication needs immensely."

"PT Mega Sarana Satelit is excited to be working with Thuraya and their hardware vendors and solution providers to provide the services to Badan SAR Nasional," said Rusidah Suhardi, President Director of PT Mega Sarana Satelit.

"Thuraya has worked closely with us on this project to understand the complex requirements of Badan SAR Nasional and to design a complete end-to-end solution that will support all SAR operations for years to come.

#### Tech firms plan smartphone system to rival iOS and Android



A new smartphone operating system developed by a global collaboration of tech firms to rival Google's Android and Apple's iOS will be launched in the next few months, Japanese mobile phone operator NTT Docomo announced.

The open source offering called Tizen, based on the Linux operating system, is expected to be installed on telephones sold from the end of March 2014, NTT Docomo spokesman Jun Otori declared.

Tizen is the product of a tie-up among companies from Japan, China, South Korea, Europe and the United States and comes despite tensions among the Asian neighbors over territorial disputes.

The consortium that makes up Tizen Association includes US giant Intel, Japan's Fujitsu, South Korea's Samsung and LG, China's Huawei and European mobile carriers Vodafone and Orange.

"Unlike Android and iOS, Tizen allows us to develop freely whatever we envision because it is an open-source operating system," said Otori.

Japanese mobile phones once led the world with cuttingedge technologies such as Docomo's i-mode, the world's first mobile web service, and software including electronic payment systems.

However, their glory faded quickly with the emergence of Apple's iPhone, as their concentration on catering to the quirks of domestic consumers saw them diverge from the rest of the world, a phenomenon dubbed "Galapagos Syndrome".

"With Tizen, we hope to revitalize Japanese-developed services and create new services more freely," Otori added. Tizen is among a handful of new smartphone platforms expected to become available this year, challenging the stranglehold of the two market leaders, Android and iOS which account for more than 90 percent of the surging smartphone market, with BlackBerry and Microsoft's Windows Phone vying for third spot.

Phones using operating systems based on the opensource platforms Linux and Mozilla's Firefox will be hitting the market this year, most likely in emerging markets. Samsung's Tizen-equipped smartphone was likely to be unveiled in February around the time of the industry-wide exhibition Mobile World Congress in Barcelona, Spain, Japan's Mainichi Shimbun said. Samsung will put a Tizen smartphone on the market as early as this spring, the daily said, citing unnamed industry sources.

Separately, NTT Docomo, China's number two carrier, China Mobile, and South Korea's second-largest carrier KT are planning to share their mobile networks using high-speed LTE technology this year, in a bid to internationalize their businesses.

The reported move comes against the backdrop of rising cross-border business and tourism, and Docomo expects the planned cooperation to help stimulate the Asian market, it said.



## PCCW Global in all-stars consortium to construct new Asia Africa Europe-1 Cable System

AAE/ Construction and Maintenance Agreement Signing Commony PLANE + How the hard state of the second state in the second state of the seco

PCCW Global, an international operating division of HKT, Hong Kong's premier telecommunications service provider, and 16 other prominent service providers around the world have come together to construct a new and unique high capacity cable system, Asia Africa Europe-1 (AAE-1). AAE-1 interconnects Hong Kong, Asia, the Middle East, Africa and Europe with a target ready for service date in 2016.

AAE -1 will be the first high capacity cable system to link all of the major South East Asian nations to Africa and Europe via the Middle East. It will facilitate and provide support for the unprecedented growth of Asia-Africa trade. Providing robust, reliable, low latency connectivity which underpins one of the highest growth and most active global trade routes, AAE-1 will also bring much needed protection and diversity to the existing heavily congested subsea cable systems connecting the various countries along the route.

PCCW Global plans to land the cable at the Cape D'Aguilar Cable Station in Hong Kong, and then extend connectivity to their city data center, making Hong Kong a key telecommunications hub in addition to Singapore and Marseille in France along the AAE-1 network.

Bringing together China Unicom, Telecom Egypt, Etisalat, Omantel, Ooredoo and many other major service providers from around the world, PCCW Global hosted a signing ceremony for the Construction and Maintenance Agreement in Hong Kong on January 27, 2014 to officially mark a new chapter of the AAE-1 Project.

This investment demonstrates PCCW Global's ongoing commitment to investing in new capacity to support its customers' needs. PCCW Global operates one of the world's most diverse, high quality global networks, designed to serve the growing voice and data demands of both global service providers and multinational corporations. PCCW Global's advanced network underpins a portfolio of innovative network, voice, video and cloud computing solutions designed to connect and facilitate the communications needs of global business.

Alex Arena, HKT's group managing director, said, "Our investment in AAE-1 will further enhance our position in Hong Kong as a regional telecommunications hub, and will also improve the ability of PCCW Global's international cable network to withstand natural disasters such as the massive earthquakes which have occurred in the region over the past few years. It will also help to address the ever-increasing demands of our mobile, data and video customers in Hong Kong who make use of our worldleading quadruple-play services."

Marc Halbfinger, PCCW Global's chief executive officer, said, "The AAE-1 project builds on our already extensive strategic cooperation with other consortium members. Not only will the construction of the AAE-1 complement our existing network and ensure added resilience and security, it will also provide us with new and extensive coverage for future expansion. In particular, it will provide much needed capacity to support the rapid growth that we are seeing in cloud computing and Content Delivery Networks (CDN), driven by our strong presence in the media industry."

#### Japan's SoftBank on course to buy T-Mobile

## SoftBank

On December 25, it was reported that Japan's SoftBank announced its plans to acquire T-Mobile US through its subsidiary Sprint in a move that would create the world's second largest mobile carrier by revenue after China Mobile.

SoftBank intends to buy a majority stake in fourth-ranked US wireless carrier T-Mobile in early 2014 in a transaction with an estimated price tag of more than 2 trillion yen (\$19 billion). Softbank is in the final stages of talks with T-Mobile's parent, Deutsche Telekom of Germany. The purchase would boost the SoftBank group's annual revenue from mobile operations to \$69.4 billion, making it the world's number two carrier behind China Mobile with \$90.4 billion, the Nikkei said citing, industry figures.

SoftBank had initially envisioned a stock swap, but it is believed to have added a tender offer and other transactions to the list of options since Deutsche Telekom prefers a cash deal.

The Japanese group has begun talks with US financial

institutions for loans to finance the deal. SoftBank aims to compete better with the two US giants, Verizon and AT&T by integrating T-Mobile with Sprint to create a stronger number three player with some 100 million subscribers.

The deal needs approval by the US Federal Communications Commission and the Department of Justice.

In July, US mobile carrier Sprint closed a deal that allowed SoftBank to take a controlling stake for \$21.6 billion, the largest overseas acquisition ever by a Japanese firm. The SoftBank deal received clearance from US national security officials on condition of appointing an independent member to the Sprint board of directors to serve as security director.

AT&T sought to buy T-Mobile for \$39 billion in 2011 but backed down amid opposition from US regulators.

As competition intensifies in the mobiles industry, Apple and China Mobile unveiled an agreement to bring the iPhone to customers on a network with an estimated 760 million subscribers.







Telecom operators are facing serious challenges in today's evolving telecommunications market. These challenges include the decline of traditional revenues such as voice and text messaging and the growth of over the top (OTT) players who are providing alternative means of communication and access.

In order to surmount these challenges and thrive in the market, operators must make sure that their networks

and infrastructure are able to support an increasingly complex set of services and have the capacity to deliver large data volumes. They will be able to achieve these goals only if their networks are sufficiently flexible to support these new services efficiently and cost-effectively. In 2012, during the Open Flow World Congress held in Darmstadt,

ASIA PACIFIC



Germany, a white paper was presented about a new way of building communications networks called Network Function Virtualization (NFV). This technology is highly complementary to software defined networking (SDN).

At the time, seven operators spearheaded the discussion and produced the white paper. An NFV Industry Specification Group was set up by the European Telecommunication Standard Institute (ETSI) in January 2013.

Since then a lot of companies have joined the NFV bandwagon. They include network operators, network equipment manufacturers and software developers.

According to the Group, NFV aims to address network problems by leveraging standard IT virtualization technology to consolidate many network equipment types onto industry standard high volume servers, switches and storage that could be located in data centers, network nodes and in end user premises.

The key goals of the NFV Working Group are to reduce equipment costs and power consumption, improve time to market, enable the availability of multiple applications on a single network appliance with multi-version and multi-tenancy capabilities and encourage a more dynamic ecosystem through the development and use of software-only solutions. It supports the introduction of services with new revenue models. It supports the intelligence and functionality that are the foundation for new services and that generate new revenue streams and deliver additional value to both subscribers and providers **11** 

Their vision is that these benefits can be derived from the use of commercial, off-theshelf (COTS) hardware that can be repurposed for multiple telecom-related services that currently use proprietary hardware, with significant operational cost savings and greatly reduced time to market for new services.

NFV is complementary to SDN, but not dependent on SDN. Network functions can be virtualized without an SDN being required.

NFV gives a less complex standard hardware architecture with reduced power consumption, lower CAPEX /lower OPEX. It makes the testing of new applications easier and lowers the risk and reduces time to market for new services.

Using a common, agile infrastructure platform enables simplified operational support.

NFV also simplifies the introduction of services with new revenue models. It supports the intelligence and functionality that are the foundation for new services and that generate new revenue streams and deliver additional value to both subscribers and providers. NFV is still in its early stages. However there has been very rapid progress since the first white paper was published in October 2012.

ETSI's NFV Industry Specification Group in late 2013 released an update of the white paper that started the NFV bandwagon rolling and recently held its fourth meeting, in California.

Since then ETSI has accepted the first proposal for a proofof-concept NFV trial, from CloudNFV, a vendor group formed to promote cloud infrastructure as the basis for NFV.

Cloud NFC founder, Tom Nolle, announced the move on his blog stressing that Cloud NFV was not seeking to compete with the ETSI ISG. "CloudNFV from the first sought to build on the ISG work, to validate it within the broadest possible framework of service creation and operations, and to incorporate the other critical revolutions of our time the cloud and software defined networking."

"All this while not only sustaining but extending the open principles of the ISG. We are not, nor have we ever intended to be, a 'replacement' or 'alternative' to the ISG's approach."

Meanwhile market researchers are starting to size the NFV market. The Yankee Group predicts that, by the end of 2014, 70 percent of Tier 1 mobile network operators will have NFV trials in place and 20 percent will have a production implementation.

These predictions are supported by those from network technology developer, Dialogic, which surveyed the top 12 telcos in the US for their views on and plans for NFV. Eighty percent of respondents said they plan to leverage NFV solutions in the year ahead and 70 percent expect operational efficiencies as a result of doing so. They expect unified communications to be the likely starting point for NFV deployments followed by 4G cellular.

Implementing security, encryption etc in a virtualized environment was seen as the biggest challenge, by 56 percent of respondents. Also, 53 percent expect purpose-built hardware to be in use for many years; they believe that virtualization will never replace purposebuilt hardware for some applications.







As we leave 2013, heading for 2014, eCommerce is growing rapidly all around the world. A growing number of online consumers will put pressure on eCommerce sites' functionality. Web performance expert Sven Hammar, CEO of Apica, gives his best advice on how to avoid being the e-retailer who throws the customers out on the street in 2014.

New technology has driven continuous growth in eCommerce. Consumers are feeling more secure shopping online, becoming accustomed to shopping online and increasingly going online for their essential shopping. Increased creativity and the expansion of loyalty programs and promotions by eCommerce retailers also play an important role in this process. Forrester predicts that the average shopper will spend \$1,738 annually by 2016, compared with \$1,207 in 2011, with the increase coming largely from existing online shoppers.

Increased promotional sales and growth in consumer transactions will put additional pressure on eCommerce sites. Those that fail to anticipate these pressures and upgrade their sites accordingly could lose customers very quickly.





For example, customers trying to complete a quick online shopping errand during their lunch break will lose patience very quickly if the task ends up consuming their entire lunch hour because of a slow website. Such a situation can easily be avoided. Here are six ideas on how to optimize desktop and mobile website performance:

#### 1. Minimize or remove

flash: Flash is bulky and is often not worth the added, limited, benefits. Flash is also incompatible with most mobile devices, so a big chunk of visitors may be unable to view the content anyway. If you cannot eliminate it completely, minimize it.

#### 2. Optimize images:

Keeping images in their full size consumes a lot of bandwidth as they load, so resize them whenever possible. Also, change the format and optimize them for the web. Sometimes there is extra space or padding around graphics to separate them from text or other elements. So consider cropping that out and using CSS to create the padding. Fine-tune image settings in programs with that option because reducing the color palette from 256 to 32 greatly reduces file size. And finally, decrease the quality setting, since reducing them to 80 or 90 percent will not show any significant difference from the original.



#### 3. Do not embed external

media: Eliminate links to videos hosted on other sites because your pages will only run as fast as theirs. If it is really beneficial to include such content, host it on your own site whenever possible so you are not relying on another website's performance.

## 4. Consider utilizing a content delivery network:

A CDN is a system of servers networked across the internet and designed to serve up content closer to end users, shortening the delivery cycle and decreasing page load times. This improves scalability and efficiency but more importantly it provides a better user experience for your site visitors. When users abandon sites after waiting a mere two seconds or less, it is an option worth considering.

## 5. Choose the best web host for your business: Do not

stick with a host provider overloaded with thousands of other sites, slowing yours down, just because you have been with them for a long time. Your host needs to understand your organization and its requirements, including performance, availability, security and more. So in order to keep up with business demands and continually evolve, make sure they are continually delivering on their promises.

#### 6. Conduct load testing and monitor your site regularly for performance dips and spikes: Address the dips with code and content changes. If you have a proactive load testing and monitoring plan in place, you have a better chance of avoiding the site abandonment issue described earlier.

by Sven Hammar, CEO, Apica

# OPERATORS' NEWS

#### Wataniya Maldives is now Ooredoo



Wataniya Maldives announced that it is the first operating company in Asia to transform into Ooredoo, adopting the new global brand of the Ooredoo group.

By adopting the brand, Ooredoo Maldives is demonstrating the strength of its connection with its customers and is showcasing the incredible range of services available to people and businesses in the Maldives. The brand launch event was inaugurated by Hon. Ameen Ibrahim, Minister of Transport and Communications, and Dr. Nasser Marafih, Group CEO of Ooredoo. The event, which was broadcast live across the Maldives, was also attended by key officials and stakeholders of the company, along with senior community representatives.

Dr. Nasser Marafih, Group CEO, Ooredoo, said, "We welcome our customers in the Maldives into the new world of Ooredoo. Ooredoo is a community focused brand and we are committed to bringing our promise of human growth to our customers across the country. We strive to improve lives through mobile technology, and we will be sharing the benefits of life changing initiatives with our Maldivian customers. Our Maldives operation is our first operation in Asia to become one with our global identity, and this underlines how committed we are to this market."

Ooredoo symbolizes the company's drive to support customers' aspirations through mobile technology. Ooredoo has delivered a major network upgrade in the Maldives this year, launching the first and fastest-ever 4G network in April 2013, as part of a series of major enhancements planned for customers.

Haroon Shahul Hameed, CEO, Ooredoo Maldives, said, "This is a proud and historic day for the Maldives. We are hosting the Asian launch of the new brand of the world's fastestarowing communications company, and promising our customers that they will enjoy a world-class range of life-enriching services in the months and years ahead. We believe that our services transform people's lives, and we will use the energy of our new Ooredoo identity to make a real difference in our community."

In addition to focusing its efforts on enhancing the customer experience with the introduction of a revamped portfolio of services, a new website with online account management and the opening of the Ooredoo experience center, Ooredoo will continue to build upon the company's proud tradition of supporting community initiatives in the Maldives.

Ooredoo has a number of ongoing international partnerships in place set to add value in the country including its relationship with the Leo Messi Foundation, which has seen the company bring mobile health clinics to towns and villages in Indonesia. Ooredoo global brand ambassador and football hero Lionel 'Leo' Messi will be featured in the advertising campaign for the launch with the headline 'Your world just got better'.

## Ooredoo to launch 3G services in Myanmar

Ooredoo Myanmar will introduce 3G mobile services nationwide in 2014. To achieve this, the operator has selected Nokia Solutions and Networks as the key supplier for its radio and core equipment and services. Ooredoo's subscribers in Myanmar will soon have access to advanced mobile broadband services.

"This initiative underlines our commitment to deliver worldclass communications services to our customers in Myanmar, who will soon enjoy a great customer experience with our network," said Ross Cormack, Chief Executive Officer at Ooredoo Myanmar."We are confident of NSN's capabilities to help deliver our vision of becoming the service provider of choice across Myanmar." Under the two-year agreement, NSN will build a complete 3G radio access network (RAN) on the 900 MHz and 2100 MHz bands based on its compact and energy efficient Flexi Multiradio 10 Base Station and Multicontroller Radio Network Controller (mcRNC).

These high capacity and flexible platforms will provide great coverage and capacity for Ooredoo Myanmar, enabling it to roll out new services fast and efficiently while managing its rapidly increasing traffic growth.

As the supplier to Ooredoo Myanmar's core network, NSN will provide its Liquid Core based open Mobile Switching Center Server (MSS) and open Media Gateway (MGW). The company will also supply Evolved Packet Core (EPC) ready equipment, including Flexi NS (network server) and Flexi NG (network gateway). The contract also includes NSN's Subscriber Data Management (SDM) with its New Technology Home Location Register (NT-HLR) and One-NDS subscriber data management system to enable a centralized database repository that is independent of the application used.

NSN will also provide its NetAct management system to ensure consolidated configuration, monitoring and network optimization for Ooredoo Myanmar's 3G network. Furthermore, the company will provide its CEM on Demand and Serve at Once Traffica to provide insights into the customer experience.

The scope of the deal includes network implementation, planning and optimization, systems integration and care services including hardware, software and competence development services.

"This deal marks our entry into Myanmar and is therefore of great significance for NSN," said Paul Tyler, Senior Vice President of Asia Pacific at NSN. "As Ooredoo Myanmar's partner, we will leverage our expertize to build a network that will enable exciting new services for customers in Myanmar. Together with Ooredoo Myanmar, we will facilitate the evolution of the country's communications industry."





# NSN helps Telkomsel upgrade GSM, 3G network and provide Indonesia's first public LTE services



Customers of Telkomsel, Indonesia's largest telecom operator, can enjoy higher quality voice and data services with improved network capacity, speed and coverage, thanks to Nokia Solutions and Networks.

The operator upgraded its GSM and 3G HSPA+ network across the country using NSN's radio and core network as well as comprehensive services. In addition, NSN provided its refarming services for the 1800 MHz GSM band, helping Telkomsel successfully provide 4G LTE services for the APEC (Asia-Pacific Economic Cooperation) CEO Summit in Bali, Indonesia.

Indonesia's first public LTE network at the APEC CEO Summit provided ultra-fast mobile broadband services for about 5,000 delegates and participants attending the event. During the LTE test conducted before the summit, the 4G network successfully demonstrated a download speed of up to 70 Mbps (megabits per second) to analysts and journalists. The LTE network provided coverage throughout the summit venue and at other places such as Ngurah Rai International Airport and hotels in the Nusa Dua territory.

"The 4G LTE services that we offered during an international event such as APEC Summit. demonstrates our readiness to expand the broadband network in Indonesia. It is also a statement to the world that Indonesia is ready to implement the technology, and by implementing the technology in the country, we are going to support the economic development in Indonesia," said Alex J. Sinaga, Chief Executive Officer of Telkomsel.

"Our longstanding technology partner, NSN, helped us upgrade our existing GSM and 3G network across the country as well as deploy a reliable LTE network smoothly in Bali. The deployment of an LTE network for the APEC summit further strengthened our wellestablished partnership with Telkomsel," said Dharmesh Malhotra, head of sub-region at NSN Indonesia. "We have a solid grasp of the operator's requirements as well as its roadmaps for the future. We have therefore upgraded Telkomsel's existing network to provide better quality voice and data services and enhance the experience for its customers, and prepared its network to launch LTE services in the near future."

Under the contract to upgrade Telekomsel's GSM and 3G network, NSN supplied its Single RAN platform, which is based on its compact, energyefficient Flexi Multiradio Base Station. In addition, the company implemented its NetAct network management system that enables consolidated monitoring, management, and operation of Telkomsel's GSM and 3G network. Services scope of the contract covers network planning and optimization, network implementation, system integration as well as care services from NSN.

For the LTE network for the APEC summit. NSN provided Telkomsel with its comprehensive LTE infrastructure including Single RAN, refarming services for the GSM 1800 MHz band to enhance service experience for the LTE users at the summit, Evolved Packet Core (EPC) platform, and its Home Subscriber Server (HSS) to support LTE user authentication and authorization. Its Circuit Switched Fall-Back (CSFB) system supported voice call functionality in the LTE network. The company also provided its Customer Experience Management\*\* (CEM) portfolio.

Now, NSN has 116 commercial references for the delivery of LTE with leading customers in advanced mobile broadband markets such as Northern Europe, Japan, Korea and the United States.

## Alcatel-Lucent opens Taiwan innovation center



Alcatel-Lucent has opened an Innovation Center in Taiwan, a move designed to increase strategic engagement with service providers and enterprise customers in North Asia and China.

According to Alcatel-Lucent, "Taiwan has become a significant player in the ultra-broadband market with both fixed and mobile access predicted to reach \$US13.6 billion by 2018 through a nationwide fiber-optic network rollout and LTE launch."

Martin Jordy, President of Alcatel-Lucent's Asia Pacific Region, said, "This innovation center gives our customers a way to see and experience Alcatel-Lucent products and services, and also work in partnership with businesses from a wide range of industries and markets to develop next generation services. Here, they can share ideas, gain a better understanding of The Shift Plan, our strategy with IP and ultra-broadband, as well as join an established ecosystem of partners via the ngConnect program."

The Taiwan briefing center is the fourth for Alcatel-Lucent. Others are located in Brazil, France and the United States. It will showcase Alcatel-Lucent's latest technology and will give service providers and enterprise customers the opportunity to experience hands-on demonstrations. Facilities available in the center include a live 4G LTE network to highlight mobile ultra-broadband access and a fixed access network that includes Alcatel-Lucent 7750 service routers and the 1830 Photonic Service Switch in the core.

TELECOM Review



# 5G: the future of mobile communications



In the late 1980s when analogue cellular networks were rapidly gaining traction the European GSM technology - know then as Groupe Speciale Mobile - was but one of several contenders for a future digital cellular standard.

It went on to achieve global dominance, overwhelming the US-orginated Digital AMPS system and CDMA and, appropriately, having its acronym repurposed as Global System for Mobile communications.

Now as the global cellular industry gears up for its fifth generation of technology,

Europe is once again hoping for a lead role in a global industry, but this time the competition is likely to be much tougher, and Europe is already lagging.

The GSMA, in its Mobile Economy Europe 2013 report, noted that "the EU mobile wireless market is underperforming relative to other advanced economies, including the US. We find that the EU is lagging well behind the US in deployment of next generation wireless infrastructures and the advanced services they make possible, and that EU consumers are worse off as a result."

It quoted Commissioner Viviane Reding warning, back in 2008, that the EU was losing its lead in mobile wireless.

"Despite our widely applauded leadership in rolling out second generation services we seem to be lagging behind on moving to the mobile web," Reding said. In a bid to regain the lead, on 17 December the European Commission announced 5G



PPP: Advanced 5G networks for the Future Internet (5G), one of eight new public private research partnerships. It aims "to stimulate the development of network internet infrastructure to ensure advanced ICT services for all sectors and users."

Neelie Kroes, the EU Commissioner responsible for the Digital Agenda, said: "This is a great opportunity for Europe. These PPPs will maintain our global lead in robotics, photonics, high performance computing, telecoms and give us a head start in smart cities, intelligent transport, education, entertainment, media and other promising markets. Combined with a comprehensive industrial strategy, the PPPs will ensure vigorous European leadership and a better future for all."

The EU will invest around Euro700 million (\$960m) in the 5G PPP by 2020 and expects this to be matched by the private sector partners in the venture. However there is also much momentum behind 5G coming out of Asia.

This is not the first EU backed initiative on the 5G front. On 27 November 2012 the EU launched METIS (Mobile and wireless communications Enablers for the Twenty-twenty (2020) Information Society) a consortium of 29 partners spanning telecommunications manufacturers, network operators, the automotive industry and academia. Its aim is "to respond to societal challenges for the year 2020 and beyond by laving the foundation for the next generation of the mobile and

wireless communications system."

METIS is co-funded by the European Commission as an Integrated Project under the Seventh Framework Programme for research and development (FP7). It will receive  $\in 16$  million (\$22m) of its  $\in 27$  million (\$37m) budget from the EU.

Metis brings together the biggest mobile infrastructure vendors - Alcatel-Lucent, Ericsson, Huawei, Nokia and Nokia Solutions & Networks (Nokia Siemens Networks at the time) - along with major carriers Deutsche Telekom, Docomo, Telecom Italia and Telefonica; Motor manufacturer BMW and numerous academic institutions.

The main objective of METIS is to lav the foundation for, and to generate a European consensus on the future global mobile and wireless communications system. In a press release the EU said: "The METIS overall technical goal is to provide a system concept that supports: 1000 times higher mobile data volume per area: ten times to 100 times higher number of connected devices; ten times to 100 times higher typical user data rate; ten times longer battery life for low power machine-to-machinecommunications: five times reduced end-to-end latency."

Metis' specific goals are much more modest. It aims to "provide valuable and timely contributions to prestandardization and regulation processes, and ensure European leadership in mobile and wireless communications." It hopes to achieve these goals by April 2015 when it is scheduled to be wound up, leaving further work to established standardization and regulatory bodies.

The EU's latest 5G venture, the 5G PP, will be chaired by Dr Werner Mohr, head of research alliances for Nokia Solutions & Networks (NSN), who said: "LTE and its continuous evolution will be sufficient until the end of the decade. However, after 2020 a new generation of technologies will be needed to address market demands. The industry and academia are working together to create a highperformance 5G environment."

NSN says it is already deeply involved in 5G. It is conducting research on the flexible use of spectrum and its propagation in new, higher bands, both for centimeter and millimeter waves. It is also working on system designs for ultra-dense small cell deployments to deliver the high data rates and ultra-low latency that will be needed to support future use cases such as augmented reality and tactile Internet.

Other 5G related research areas for NSN are wide area enhancements, including efficient support of machine type communication; and architectures to integrate existing and new technologies. NSN is also analyzing how 5G may be adapted to such new uses as smart grids, homes or cities.

Meanwhile NTT Docomo has already floated its ambition to have 5G services in operation in time for the Tokyo Olympics in 2020. When the plan was announced, at the Broadband World Forum in Amsterdam in October, Total Telecom suggested that Docomo had "risked provoking snorts of derision among the assembled press."

Derision was not what greeted the 5G claims of another Asian telco player, Samsung, when in May 2013 it made some fairly dubious claims about having achieved a "breakthrough" in 5G technology. There was little substance to the announcement, yet it was widely and favorably reported.

Not to be outdone, Chinese telco giant Huawei announced on 6 November that it would invest a minimum of \$600 million in research and innovation for 5G technologies by 2018. It predicted that the first 5G networks would be ready for commercial deployment starting in 2020 and would deliver peak data rates of over 10Gbps.

However, despite all these initiatives, projections and claims of technical involvement in 5G, there is a 'problem' with 5G. Unlike every previous generational change in cellular technology it cannot be characterized by a clear technological quantum leap. If there is any consensus around what 5G will look like, it is that it will require and will incorporate technology changes on multiple fronts to achieve projected demands for speed, capacity and cost efficiency.

So just what do those in the know think 5G will look like five years hence, or thereabouts?



# COVER STORY



In a white paper published in June, Ericsson said: "5G will enable the long-term Networked Society and realize the vision of unlimited access to information for anyone and anything."

According to Ericsson, it will comprise "a set of seamlessly integrated radio technologies," and will draw on various current technologies. "The evolution of LTE will be fundamental to [the 5G] future, as will the evolution of HSPA and Wi-Fi," Ericsson says.

Rival vendor Alcatel-Lucent is in broad agreement, and has its focus firmly on what users will demand of 5G services. Tod Sizer, Bell Labs' head of wireless research - addressing an Alcatel-Lucent Technology Symposium in the USA in November - said that 5G was "not about speed, not about a new air interface, and not about enabling machine to machine [M2M] communications." (Although it will have all those features).

He added: "Over the past three years we have really started to hone down what we think the important problems are. We really believe we need to focus on end-to-end performance. Getting access to the information, to the applications the user wants, is going to become more and more important."

Michael Peeters, CTO of Alcatel-Lucent's Wireless division, put this another way. "Today the end user adapts to the service that is available. For me 5G is exactly the other way round," he said. "The communication service will adapt to what the user needs. Having the network figure out what you are doing and adapting is the grand vision for 5G."

Peeters said also that there was as yet no 'core vision' for 5G. "Everybody has done a lot of work on the technologies, but this has not yet gelled."

However he does see some clear proof points. "It is generally agreed that millimeter waves will be an important technology. You need line of sight to the base station but it has advantages in that, because the frequency is so high, antennas are much smaller so you can put more of them into the base station and the receiver and can get much higher order MIMO [multiple input, multiple output]."

As to the timeframe. Peeters' guess is for standardization around 2018 with the first 5G technologies appearing around 2020.

There seems little doubt that major developments in cellular technologies - whether branded '5G' or otherwise - will be needed by that time simply to meet the projected demand for the volume of data that will be sucked up by and generated from mobile devices.

In 2011, Nokia Siemens Networks produced a white paper mapping out how it expected mobile technology to evolve over the next decade. According to the white paper - 2020: **Beyond 4G Radio Evolution** for the Gigabit Experience -"Extrapolations of current growth trends predict that networks need to be prepared to support up to a thousand-fold increase in total mobile broadband traffic by 2020...[assuming] a ten-fold increase in broadband mobile subscribers and up to 100 times higher traffic per user (beyond 1Gbyte/sub/day)."

Further, it expected service providers' revenues to grow only modestly over the next

decade. Hence, in addition to being able to support a 1000 fold increase in throughput, future technologies must be able to do so without significant cost increases; ie the cost per bit delivered must fall to one thousandth of the cost today.

Ericsson is in broad agreement with the 1000 fold throughput increase, but also projects a huge increase in the number of connected devices. "In the future," it says, "human-centric connected devices are expected to be surpassed between 10and 100-fold by communicating machines including surveillance cameras, smart-city, smarthome and smart-grid devices, and connected sensors. The transition from five to 50 or perhaps even 500 billion connected devices will present a formidable challenge."

For several years now 20 billion connected devices by 2020 has been something of catch cry from Ericsson. More recently Cisco has jumped on this bandwagon, under the slogan: 'The Internet of Everything, which it defines as "bringing together people, process, data, and things to make networked connections more relevant and valuable than ever before-turning information into actions that create new capabilities, richer experiences and unprecedented economic opportunity for businesses, individuals and countries."

Note that this is technology-free definition. It's not about what the Internet of Everything is, it's about what it can do. Which brings us back to Alcatel-Lucent's comments. Ultimately 5G is not about technology per se, it's about what we will be able to do with it.



# Raising the bar high:



# **Telecom Review's Summit 'It's All About Networking'** 2013 gathers the largest industry leaders in Dubai

On December 8, Telecom Review's summit, It's All About Networking, brought to Dubai the leaders of the telecoms and ICT sectors from across the globe in a very friendly environment.



H.E. Mohamed Nasser Al Ghanim, director general, TRA, UAE



The summit was held at the Intercontinental Hotel in Dubai Festival City with a star lineup of key ICT industry decision makers. Representatives from TRA UAE, Etisalat, du, Deutsche Telekom, Ooredoo, Huawei, Verizon, Zain, Alfa, Oualcomm, Mycom, Nuance, Ericsson, Redknee, NSN and CommScope were all present.

In a dedicated full day conference, more than 150 attendees listened to interesting keynotes from the region's leaders and international industry experts and added their views to those of four expert panels tackling the operators' new business models, the best techniques in deploving new technologies, wholesale market





Shi Yaohong, president, Huawei, Middle East

opportunities and monetizing media content.

"This year our theme is still 'It's All About Networking' as it reflects the nature of our telecom business that connects people, especially nowadays in the evolution of M2M communications and advanced mobility services, which have become essential tools in our daily lives," said Toni Eid, CEO of Trace Media and Editor In Chief of Telecom Review International.

#### Working together

H.E. Mohamed Nasser Al Ghanim, Director General of TRA, UAE









inaugurated the summit. In his opening keynote, he said he was enlightened and encouraged to see so many leading figures recognized for their contributions to the ICT industry in the UAE and around the globe come together to discuss and debate some of the hottest ICT trends and their impacts on societies around the world.

"We all live in what is now known as the digital age. In order for us to successfully navigate our way through the complexities that routinely arise, it is very important that we all work and collaborate with one another." said Al Ghanim.

He continued by saying that even though the event was being held in Dubai, it was crucial to recognize that with such high caliber participants this annual summit had gained traction over the past two years and thus had established itself as a truly regional gathering. "All of this is made possible due to Telecom Review's readership and the value of its commentary," he said.

Highlighting the theme of the event, Al Ghanim stressed the importance of relationships between the different stakeholders and industrial leaders. He said these were fundamental to the progress of



Issa Chini, VP business development and strategy, Redknee

the industry, driving all players to constantly innovate."ICT is central to any modern administration, and it is so closely tied to our ambitions and national goals here in the UAE."

He then moved on to talk about some of the most recent achievements of the TRA including the introduction of Mobile Number Portability or MNPm and the mGovernment initiative which signals the TRA's clear commitment to improve all governmental services delivery.

Reaching the end of his keynote, Al Ghanim said, "Our principal duty at the TRA is to further develop

interest in the communications market. So, all our activities are focused on good consumer and citizen outcomes; we make sure that this focus is deeply embedded in the culture of the TRA's organization."

#### **Riding the wave of change**

Osman Sultan, CEO, du started his keynote by talking about the changes induced by the new digital era. He said, "We are going through a lot of change, and I sense that we all work in defensive mode or in a kind of concerned mode because the OTTs lover the top service providers] are here. We have already seen the major







impact of these new trends and services, and we already know that they are radically changing everything we do."

Sultan then explained how the borders between governments and citizens are transforming. He said, "Social media is now used to engage citizens in crucial social facets of life such as health and education for example. This is opening yet another door of communication. It is another indication of the impact of change is happening all over the ecosystem."

Sultan reminded the audience of the importance of never

forgetting the pre-digital era. "It is of great importance to look a little bit back," he said. "A lot of great things happened through the telcos' community in the past years. The mobility story has roots, and we need to be very proud of everything that we have achieved along the years. We have leapfrogged. We are here now."

Sultan then moved on to talk about the issue of pricing which has also become a hotly debated topic. He said, "We are at risk not only on the revenue stream side, but we are facing the risk of having our brands become irrelevant. We need to develop and enforce our presence to face



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these challenges. What OTTs offer will never be as relevant as what we have to offer. That is why we have to build around customer experience. We have a lot of work to do; it is a very exciting time because of this transformation."

He added, "Now we are challenged by another industry. We need to coexist. I believe in regional consolidation because it is the best way for us to get scale and customer experience. We can be stronger. But for now, we should be proud of everything that we have done so far. The challenge is very exciting, and I am very optimistic about the future of this industry."

## Paving the way for a prosperous future

Khalifa Al Shamsi, Chief Digital Services Officer of Etisalat Group, said that Etisalat's investments in advanced technologies had positioned the operator to take advantage of changes in the nature of the industry, especially in emerging markets, paving the way for healthy returns in the years ahead.

Al Shamsi said changes in the industry included the growth of big data and cloud computing, the spread of social networking and increasing prevalence of smart devices. He said more and







more customers were wanting to be connected anytime and anywhere through secure, high speed connections, and that they would not settle for anything less.

#### **Smart cities**

Shi Yaohong, President, Huawei, Middle East, talked about the core values that are at the heart of Huawei. "Support, trust and collaboration are key aspects for discussing and sharing thoughts. This proves that the core values of Huawei are mainly focused on bringing value to the customers. In fact, this is essential for the company's survival and growth," he said.

He said that despite all the concerns, the doubts and the challenges, Huawei remained focused on its customers. He said it was very important for a giant like Huawei- and for any industry player - to be focused on improving customer satisfaction, to find the right the path for better serving its customers.

Yaohong also discussed the importance of smart cities as well as all other smart initiatives that are taking place in the region. He said, "Our region is completely different from other regions around the world. If we look at the United States for example,

we would see how everyone looks at Silicon Valley as the only technology maker and owner. However, in the Middle East, innovation is lying in every corner of the region. We are leading the change. If we look at our own assets, on one side, we have the consumers; on the other side, we have the government initiatives. Our region needs diversity of the economies, and what I have seen is that smart cities are moving ahead of other initiatives, and they can be the drivers for digital societies."

#### Yaohong concluded:

"Strategically, we are determined to move to a smarter society along with our partners; we have the same vision. We have to put our efforts together and move in that direction together."

#### New business model of operators

The digital revolution today represents immense potential for telecommunications companies. Digitization is transforming the business models of telcos, making them more customer centric. Although the market for digital services is highly attractive and lucrative, telcos will still have to face several challenges in adapting their new business models. They need to develop



and Europe, Nuance Communications

skills and correct business models to take advantage of the digital revolution opportunities.

A fine lineup of CEOs from around the region gathered to discuss the different means that would help reshape the operators' business model in order to adapt to the digital revolution. Marwan Hayek, CEO, Alfa; Ahmad Hanandeh, CEO, Zain Jordan; Nagi Abboud, CEO, Atlantique Telecom: Hussein Rifaï, CEO, MDIC; Jay Srage, President, Oualcomm, Middle East and Africa and South East Asia and Wassim Mansour, CEO of Zain South Sudan took the stage and discussed the digital revolution and the economic effect of this revolution on operators' revenues.

Hayek, CEO of Alfa, emphasized the importance of moving from network centric to customer centric. He also highlighted the importance of engaging more with customers.

Abboud said that operators should focus on organization and reducing OPEX through outsourcing while keeping the focus on customers. He also talked about the success of mobile money in some unbanked areas in Africa due to the fact that these services

answer directly to consumer needs.

Rifaï said that, operators should introduce services that cater to the specific requirements of each market.

Srage said, "Our focus is all about partnerships and creating an ecosystem of the different players including developers, device manufacturers, mobile operators and engineering services. It is a partnership to enhance and create a new direction for the telecom industry."

"Customer experience is the area we should focus on," commented Mansour.

In recognition of the digital revolution and the shrinkage of revenues, panelists agreed that telcos need to develop a good strategy and benefit from the attractive opportunities brought about by the digital services market, which holds big potential if they can learn how to make the best of the opportunities it presents to them.

#### **Challenges of bringing** commercial and technical sides together

The summit also gathered one of the biggest technical panels







discussing the best methods in ensuring good mobile broadband user experience. Moderated by Ghazi Atallah, Managing Director, neXgen Group, the panelists took the stage to debate the major issues including how to bring the commercial and technical sides of their operation closer. They all agreed that customer experience is the only remaining differentiator in an increasingly commoditized market and that ensuring a consistently positive experience is a sure way to maximize market share and dominate the competition.

The panel included: Hatem Bamatraf, Group CTO, Etisalat; Mounir Ladki, CTO, MYCOM; Imad Hamed, CTO, Alfa; Yousef Abu Mutawe, CTO, Zain Jordan; Saleem Al-Balooshi, Executive Vice President, Network Development & Operations, du: loor Leprince, Senior Vice President, Nokia Solutions and Networks, Middle East & Africa Region; Dr. Junaid Syed, Product Line Management, Asia, Middle East & Africa, CommScope and Rafat N. Tashman, Technology Consultant, Carrier Solutions Huawei, Middle East.

#### Other key speakers

Other key speakers also took center stage and talked about

major breakthroughs in bringing about better and more refined communication experiences.

Anil Kumar, Director of Sales, Middle East and Europe, Nuance Communications discussed how Nuance is redefining the customer experience and creating revenue streams through its voice biometrics and natural language understanding technologies. The company works extensively with the telecom sector globally to help operators increase their ARPU. He commented, "Technology needs to adapt to people instead of the other way around."

Kumar talked about NINA (Nuance Interactive Natural Assistant), the intelligent natural assistant which is now a more empowered virtual assistant with the extension of the same natural interface from a mobile app and/ or the website driven interactive virtual chat assistant.

In addition to Kumar, Issa Chini, VP Business Development and Strategy at Redknee talked about how important it is for telcos to transform into truly customer centric operators and gain a 360 degree view of their customers.

He said, "Redknee solutions can help operators minimize their

OPEX through full convergent BSS backbone and efficient customer care and self-care functions, gain new customers and drive ARPU through top quality customer engagement management and pro-active targeted promotions."

Redknee software is highly configurable and eliminates the need for a customer to customize their software. Operators want to make sure that their systems are pre-integrated for point of sale, CRM, charging and billing, all in one system.

## Creating a new revenue stream from video services

Over the past few years, video technology has been deployed widely in the region, and regional operators have been thinking of novel ways to monetize digital and video services. A wholesale panel moderated by Georges Dabaghi, General Manager, VUBIQUIT, Middle East and CIS Countries Discussed ways to tackle these challenges and exploit the opportunities they could bring.

The panelists included: Emmanuel Belleville, Vice President Video Services, Etisalat; Ali Ajouz, Managing Partner Sawamedia and Kurt Otto, Director Distribution and Business Development of Yahlive TV.

Belleville said that Etisalat planned to build a large content lineup because taking a strong position in content was the only way to monetize the network, reduce churn and enhance customer experience. . "We will do our best to bring our customers the largest library of content," he said.

According to Otto, it is difficult for operators in the region to compete with European and American content on their own. He believes in the importance of building a strong network and infrastructure that will make it easier to distribute video.

Ajouz said, "There are a lot of wasted opportunities for telcos in our region. Readiness means awareness of the opportunity and operators are not ready yet. They are not monetizing opportunities."

#### See you next year!

Finally, Telecom Review proved to be an undisputed leader in bringing together the frontrunners of the telecom and ICT industry from across the globe. Next Year's edition will be held in Dubai on December 8, 2014.

TELECOM Review

# BT sees big opportunities in Asia Pacific, Middle East and Africa



Kevin Taylor, president Asia, the Middle East and Africa, BT Global Services

BT is planning significant investments in Asia Pacific, Middle East and Africa in a bid to capture a bigger share of a market estimated to be worth \$US52 billion annually. The move follows the consolidation of BT's operations in these regions early in 2013.

BT said it had combined its Asia Pacific, Turkey, Middle East and Africa business units to better address the needs of a new generation of regional multinationals and big domestic players that are increasingly expanding from China and India into the Middle East and Africa.

Luis Alvarez, CEO of BT Global Services, said that BT has almost trebled customer numbers in Asia Pacific since 2010 following its initial investments in the region as well as latest investments in consultation with customers.

"A new generation of regional multinational companies looks to us to help them grab global growth opportunities. More than ever, established multinationals are determined to invest for growth in this vast region," he said.

"We help them succeed and reap the benefits of instant globalization by aligning our investments to their requirements and providing them with our market leading portfolio of networked IT



services wherever they need them."

Kevin Taylor, President Asia, the Middle East and Africa for BT Global Services told Telecom Review Asia Pacific that BT's move to integrate its business units aligned well with the growing amount of trade across these regions.

"If you look at China, India and Indonesia, you will see incredible growth and incredible strength. You're seeing emerging multinationals investing in the consumer markets and also emerging multinationals coming out of these countries. 58 percent of our new business this year in the region has come from emerging multinationals. We are seeing the globalization of regional companies for the first time, which is a really exciting trend. For example the biggest white goods manufacturer in the world is now Chinese."

He added, "We are also seeing stronger links with the Middle East and Africa. UAE investments into Asia have increased by 40 percent and will be \$US100 billion by 2015. China now has investments in 51 of the 54 countries in Africa."

To support its bid for a bigger share of this market, BT says it will hire more than 400 people focused on regional business growth across all key markets including Australia, China, Hong Kong, India, Japan, Indonesia, Malaysia, Singapore, South Africa, the United Arab Emirates and Turkey.

The new hires will include industry specialists focused on logistics, healthcare, consumer packaged goods, financial services and professional services experts based in 11 countries.

BT operates out of nine hubs in these regions and provides services to customers across 99 countries. It has about 3,300 employees based in offices in Australia, China, Hong Kong, India, Korea, Japan, Singapore, Malaysia, Indonesia, Thailand, the Philippines, the United Arab Emirates, South Africa and Turkey.

The company has service centers in Sydney, Dalian in China, Gurgaon, Mumbai and Noida in India, Tokyo, Istanbul and Durban in South Africa. It also has security operations centers in Australia and India, a joint research lab with Tsinghua University in China, a global development center in Bangalore and a joint innovation center with Etisalat and Khalifa University in Abu Dhabi.

BT has announced earlier in 2013 that it would add 600 positions in its Global Development Center in Bangalore and approximately 600 in new Global Shared Service facility in Kuala Lumpur.

## We are going full out to run our own field services. Our plan is to provide services in major centers of the countries in which we operate today

Taylor said Malaysia was a good place to locate this facility. "It is right in the middle of Asia Pacific. And we have always been very friendly with the Malaysian government. They have been very supportive to us financially."

He added, "We will continue to make investments in multiple countries around Asia-Pacific. We have a security operation center in Australia and our whole service model for AMEA is run out of Australia."

BT plans to add five new IP and ethernet points of presence starting with India and Turkey, four network-to-network interfaces (NNIs) starting with Indonesia and an enhanced satellite capability to support remote coverage and disaster recovery.

It also plans to boost its offerings in security, cloud, unified communications, mobility and contact centers. It also plans to offer solutions for health analytics, point of sale sector and supply chain management.

According to Taylor, BT's R&D capabilities enable it to get new services to market for customers very rapidly. "We can have an idea on the market within three to six months, with all the right security and with all the data in the places where it should be. Companies can develop new business models in a much faster way using the architecture and the infrastructure we have."

He identified logistics and supply chain management, connecting retailers to manufacturers, oil and gas, commodities, and healthcare as sectors where the opportunities were particularly strong without singling out any geographic market.

"I think the exciting thing is that the whole of Asia is a growth market for us," he said.

"The Australian business is growing in high double digits. Our Indian business is growing fantastically well. We are seeing growth all over the regions."

Taylor concluded, "We are going full out to run our own field services. Our plan is to provide services in major centers of the countries in which we operate today."





# **NUVO:** Changing the future landscape of messaging



In today's fast-paced, technologically driven environment, it is good to know that some things don't change. One of these is SMS (Short Messaging Service), more commonly known by its nickname of text messaging: the sending and receiving of messages between mobile handsets.

**66** When it celebrated its 20<sup>th</sup> birthday two years ago, global SMS traffic volumes were about 350 billion messages per month "

This mobile service has retained technological consistency and has been true to its objective from the very beginning. When it celebrated its 20th birthday two years ago, global SMS traffic volumes were about 350 billion messages per month. It is no secret that revenues from SMS have been declining for several years.

However, operators are still leveraging this service not



only because of its popularity, but because it is ubiquitous, well known and user-friendly. Advertisers would describe it as something that has a strong recall value.

For the past several years, SMS has been dismissed as dying or rather dead, a view perhaps brought about by the decline in revenue streams for operators, or perhaps by the popularity of instant messaging apps that are slowly gaining traction with the advent of smartphones. However, there is so far no evidence that SMS is in terminal decline.

The past several years have seen considerable developments in the mobile landscape that have challenged the incumbent mobile network operators and the text messaging revenues.

The advent of smartphones has contributed to these challenges. Mobile messaging apps are slowly creeping in and are being embraced as an alternative to SMS text messaging.

The initial notion of free text to anyone from anywhere (as long as they are of the same app) is attractive to end users.

Thus, more and more OTT players are entering the market and continuously honing their messaging services to increase their footprint in the messaging world. However, not all OTT apps are simply piggybanking on the mobile network operators' (MNO) infrastructure. In fact, there are some apps slowly sneaking in that they are providing services complementary to those offered by MNOs.

These are being provided by what we know now as Network Unaffiliated Virtual Operators (NUVO). The term was coined by Sybase 365 group director of product management, Bill Dudley.

NUVOs are similar to MVNOs (Mobile Virtual Network Operators) but are not affiliated with a specific carrier. However, at some point they need to intersect with commercial operators.

Currently, well-known messaging apps like Facebook Messenger, WhatsApp and Viber require both sender and receiver of the message to be using the same app and do not rely on the mobile phone number to establish a connection. They use the internet and IP addressing to provide service to their customers.

More and more end users have been using these OTT services because of their enhanced features and the price, which is generally zero. In addition, the same threat can also be identified from OTT voice related service like the one from Skype or Viber.  The NUVOs are seen more as a friend than a foe by network operators because a NUVO's core business model involves giving benefits to the whole messaging and calling ecosystem

These OTT services are gaining in popularity and affecting all operators but are constrained by the requirement that both parties have the same app on their smartphone.

However, this is not the case with NUVO. In fact, the NUVOs are seen more as a friend than a foe by network operators because a NUVO's core business model involves giving benefits to the whole messaging and calling ecosystem.

Google Voice, textPlus, Pinger and HeyWire are some examples of NUVOs that have been gaining traction and expanding their footprints across the United States and Canada.

These apps allow users to communicate to anyone and are accessible even to people who do not have the same app. They support text messages or voice calls to anyone with an assigned phone number.

They have proven to be so popular that, in the US alone, an estimated five billion messages are being sent by textPlus users and other NUVOs. They also enable non-phone devices like iPods, iPads and other tablets to send text messages and make a phone call.

If this is the current scenario, the 'evil face of OTT' perceived as being antagonistic towards MNOs' revenues and business models could soon change. With NUVOs MNOs would be able to cater to the PSTNenabled community, adding more end users to their services.

In addition to that, with more connected devices enabled by NUVOs, more and more end users will be welcome to the fold and as they develop differentiated offerings they will increase the importance of MNOs as being in the center of these communication systems, benefiting the whole ecosystem.

Although NUVOs are just taking their first baby steps, the messaging and calling landscape is about to change. This time however, it will be for the benefit of everyone.

TELECOM Review



# PUSH-ing beyond the limit



The final figures are not yet in but global smartphone sales for 2013 look set to top the one billion mark following record Q3 sales of around 250 million, a 40 percent increase on Q3 of 2012. Android was far and away the dominant technology accounting for 82 percent of Q3 sales.

These figures indicate that smartphones have become an integral part of individuals' activities on a daily basis and that users are constantly seeking to utilize the most evolved and advanced means of communication.

Gone are the days when mobile phones were used only to make voice calls, send a text message, set an alarm clock or even listen to an FM radio. Smartphones have revolutionized the way handsets are used and have changed the way people communicate with one another, using numerous mobile applications.

One estimate has smartphone users consulting their phones an average of about 23 times a day for messaging, 22 times for voice calls and 18 times for the time. Another puts the figure much higher: 110 times a day.

Mobile applications have contributed greatly to the popularity and frequent use of smartphones, enabling these devices to be used in a variety of non-traditional ways.

According to Google's Our Mobile Planet data of 2013, the average smartphone user downloads about 26 apps, 20 of which are free, with the remaining six being paid for. Figures for South Korea are almost double this global average.

Applications are the lifeblood of smartphones. They give each smartphone its unique characteristics as well as its functionalities and enable the device to operate in accordance with its capability as well as the user's preference.



One such function is Push Notifications.

#### What are push notifications?

Push notifications are messages sent from the application directly to the device's home screen. The good thing about push notifications is that they allow developers to connect and continuously communicate with the users of their applications to deliver helpful and relevant information.

They enable businesses to send targeted messages that encourage users to make more frequent use of their applications, and thus engender customer loyalty.

A study has recently revealed that customers who accept push notifications are four times more engaged compared to other users, and thus are more loyal towards applications as well as push messages. The study also noted that without these push messages applications would have been rarely used.

#### **Pushing for benefits**

For developers, these notifications are also a useful source of information for improving and evolving the application and for developing similar applications. Notifications may also serve as a feedback system through which users can evaluate a particular application in terms of its usefulness and its appeal to them.

With the current technology of push notifications, analytics



reporting can also be made available, thereby giving a deeper insight into end user behavior enabling mobile operators to improve their services as well as their marketing efforts and possibly create new revenue streams. This can significantly contribute to the ARPU (average revenue per user) and improve customer satisfaction that would reduce churn.

Notifications allow operators to deliver simple alerts to customers, thereby triggering the customer to take action. With push notifications, operators have an additional channel dedicated to the end users, allowing them to quickly and effectively provide their customers with relevant information. Information provided might include eligibility for an upgrade, availability of data packages, network upgrades and other services. Operators can also opt to use push notifications as a channel for operator-controlled advertising that would serve as another revenue stream.

From the users' perspective one of the most important benefits of push notifications is to provide information on application reviews.

According to a study entitled Mobile Apps: What Consumers Really Need and Want, 84 percent of mobile application users value mobile app store reviews. This in turn significantly affects their decision to download the app. With push notifications, end users will be more engaged not only with the app developer or operator, but also with the app itself and with its ongoing development.

Users can choose whether or not to receive these notifications and can refine their options so that they receive only relevant and meaningful messages.

Push notifications are currently spearheading various direct mobile marketing strategies around the globe. They are a key tool for advertising agencies enabling them to target their advertising to specific customers.

TELECOM Review



# Intelligent transport network



Networks today are often described as being fast, agile and scalable. These are all attributes that are highly desirable if the network is to function efficiently and provide the services that end users demand.

And even the simplest network function, like delivering the results of a Google search, requires significant network resources.

Google estimates that one web query actually travels more than 2400kms across its network.

According to Najam Ahmad, director of technical operations at Facebook, a simple 1KB web request by an end user generates almost 1Mbyte of traffic on its network.

When that figure is multiplied by the number of users on Facebook, the volume of data becomes truly astounding. More complex services requiring higher bandwidths, like video, place even greater demands on the network. To meet these demands operators must continually invest to upgrade their networks, or face loss of customers to competitors.

An IEEE report from July 2012 projected the impact of traffic growth on both network and compute infrastructures.

It projected that traffic volumes in core networks would double every eighteen months and predicted that terabit ethernet clients would be available by 2020, requiring transport networks able to deliver 1Tbps per slot.

Network upgrades to meet these demands are complex and costly. How digital optical networks and photonic switching enable network operators to meet these challenges efficiently and cost-effectively.



These networks use photonic integrated circuits (PICs). PIC is a component about the size of a fingertip wherein hundreds of components of optical network switching are condensed into a single ultrareliable microchip.

PICs and the digital optical network together uniquely combine the speed of optical networks with the simplicity of the digital domain. They are bringing about a revolution in networking.

# Taking networking to the next level

Scalability is one of the key factors of the next generation transport networks. Current products, such as Infinera's 500G Flex Coherent PIC, are able to support hundred of terabits per second of switching capacity and multiple services, including terabit Ethernet, in a small space and power footprint.

Aside from scaling up, a converged architecture is a must for the next generation of transport networks. The Intelligent Transport Network architecture will converge packets, optical transport networks (OTN) and remote add drop multiplexor (ROADM) switching functions into a single platform without compromising performance. This convergence will lower capex and opex requirements by dramatically simplifying the network.

Multilayer optimization can now be employed to further reduce transport costs. Multilayer optimization



Automation is one of the key differentiators of an Intelligent
 Transport Network. It offers programmability and automated
 multi-layer provisioning via software control that works in
 conjunction with transport software defined networking

enables traffic to be carried on the lower network layers at lower cost than would be incurred by using the higher layers.

In addition, automation is one of the key differentiators of an Intelligent Transport Network. It offers programmability and automated multi-layer provisioning via software control that works in conjunction with transport software defined networking. This allows users to provision network capacity to match demand in almost real time. With such Intelligent Transport Networks, service providers will be able to monetize their infrastructure by winning more customers with differentiated services that can be easily delivered and deployed.

Also, the Intelligent Transport Network will lower expenses, thereby protecting the investment in provider networks.

By integrating wavelength division multiplexing and optical transport network switching, it maximizes WDM capacity by reducing the number of wavelengths needed for transport. This will in turn reduce the number of chassis and modules needed to run a traditional network.

This will have a multiplier effect reducing the power, cooling, rack space and operational resource requirements of the network.

Lastly, with such highly reliable technology, operators will be able to reduce churn and retain more end users. That in turn will enable them to increase revenues.

TELECOM Review





The year 2008 was monumental for Asia's eighth most populous country, Vietnam. It marked Vietnam's entry in the World Trade Organization (WTO). That was a significant event, especially for a country that remains impoverished and that has been politically isolated for the past forty years.

The past two decades have seen enormous economic and political reforms. It was 1986 when the government started working its way towards integrating Vietnam into the world economy and showing Vietnam's neighbors that it was ready to do business with the international community. However, five years on

from its accession to the WTO, studies by the Central Institute for Economic Management (CIEM) show that the move as not made the needed significant impact, particularly on gross domestic product (GDP).

The study group reported that GDP growth had reached

only 6.5 percent. That figure is 1.3 percent lower than the figure for 2006 – 2010. Experts noted that, although international integration may promise opportunities, it also brings challenges that need to be addressed. They said also that the country's reforms would improve the business climate and ensure macroeconomic stability. These macro and micro economic fundamentals must be applied to any industry if the country expects to move forward with its economy.

And if there is one industry that is taking baby steps, it's the telecommunication industry.



#### Supply and demand

The supply side of the telco industry in Vietnam is composed of four major operators: Viettel, Mobifone, Vinaphone and Vietnamobile. These players serve about 128 million mobile phone users. In 2012, there were six operators in the country. However, S-Fone and Beeline services temporarily shut down stating "hard competition" as the primary reason of their exit from the market.

Viettel Group is the largest mobile network operator. It is a state enterprise wholly owned and operated by the Ministry of Defense. It has more than 40 percent of mobile subscribers and about 25,000 employees. Vinaphone is the second largest provider. It has about 30 percent of the market. It is also a state-owned company founded in 1996.

Mobifone was founded in 1993. It is owned by Vietnam Post and Telecommunication (VNPT), a government company and has about 3000 employees, revenue in excess of 40.8 trillion VND (\$4bn) and has about 18 percent of the market. The smallest by market share is Vietnamobile. It is a joint venture between Hanoi Telecom and Hutchison Telecommunication International of Hong Kong and has about nine percent of the total market.

More commonly known as the 'Big three in Vietnam's telco

industry; Viettel, Vinaphone and Mobifone, hold about 90 percent of the Vietnam market.

Last year's Vietnam's telecommunications users were plagued with price hikes, particularly from the Big three: Viettel, MobiFone and Vinaphone. In April last year, VNPT owned telco Mobifone started raising tariffs, particularly on its unlimited 3G data plans by 25 percent from VND40,000 (\$1.9) to VND50,000 per month. Viettel followed suite in July, stating that the initial low tariffs had been introduced just to attract users. Six month later, the triumvirate had another price hike. This time it was by 40 percent; from VND50.000 to VND70,000 (\$3.35) per month.

Unhappy end users suggested there had been collusion. However, earlier this month, the government as represented by Vietnam Competition Authority (VCA) concluded that the big three had not violated any competition law and ruled that the price hike had been necessary to upgrade networks in order to meet the growing demand. But this was not the first time the Big three had been in the spotlight. A year earlier all three companies were fined by Vietnam's Ministry of Information and Communication (MIC) for violating the SIM registration rules set forth by the agency.

VietNamNet Bridge reported that these mobile operators

paid a total of VND118.5 million (\$5,700) for violating regulations on the registration of prepaid mobile phone subscribers. In relation to the case, it was reported that a number of dealers authorized by these companies did not meet the MIC's basic reguirements.

This presented another opportunity for Vietnam's mobile operators to request a price hike. They have submitted a proposal requesting the MIC to increase tariffs for international incoming calls to \$0.081 per minute; as reported by VNS. It was noted that the higher rate would in turn improve the profitability of the telecom company. In fact, on the report, it was noted that Viettel had asked the MIC to introduce new incoming call charges by the start of February 2014. The proposal has yet to be decided.

#### **Curtailing price**

In a free market economy prices would be determined by market forces and packages will then be determined and differentiated based on price and its quality of service (QoS). But in Vietnam, this has not been the case.

According to report by Vietnam News, Vietnamobile complained that a state owned telco had been receiving preferential treatment and that there had been price fixing among the big three players. Pham Ngoc Lang, Chairman of Hanoi Telecom parent company of Vietnam mobile said the company would not be able to survive if it continued to suffer from unfair competition. This may have been the reason that S-Fone and Beeline exited the market.

#### **On being with WTO**

In 2003, the WTO Working Group published a trade policy to address cartels and other anti-competitive practices including price fixing. In the Cancun Ministerial Conference, it promised to address the "hard core" cartels that included price fixing by private companies to raise cost to consumers and businesses. In addition, the WTO framework on this area aims to support the implementation of effective national competition policy by its members and to enhance the overall contribution of competition policy to a multilateral trading system. As a WTO Vietnam is required to abide by these policies.

Vietnam is still young member of WTO. However after five years progress should have been made in its policy and framework in each industry, particularly in the telecom sector. It is here where the government should start implementing the international standards and allowing market forces come into play. This action would establish Vietnam as a nation that fosters a true environment of competition.





# Things to consider for LTE roaming



This year will be a watershed for LTE. 2014 marks the fifth year of LTE in the mobile market. The first network was launched in Stockholm by Teliasonera in December 2009 and growth since then has been spectacular.

It is the fastest growing mobile technology ever. In December, according to industry body GSA, there were commercial LTE networks in 93 countries supporting close to 160 million subscribers, 110 million of which had been added in 2013 alone. There are expected to be over a billion subscribers by 2017.

LTE offers significantly higher speeds and lower latency than 3G broadband. However, one

promise of LTE has not fully materialized: LTE roaming. LTE roaming differs from roaming in earlier mobile technologies in that it is all IP based.

New technologies and new commercial agreements are needed to implement and exploit its potential.

#### **Pricing and Timing**

With LTE deployments spread around the globe there

## LTE roaming differs from roaming in earlier mobile technologies in that it is all IP based ""

is great potential for LTE roaming. The initial phase is having domestic LTE roaming.

This is where operators establish roaming agreements with other mobile networks in their home country. After which, they will start establishing LTE roaming agreements with operators in their primary correspondent countries. This is happening, but slowly.

In December, AT&T announced that it has



launched an LTE roaming partnership with Rogers in Canada. The partnership enables AT&T's LTE users to enjoy high speed access in Canada. However the price is high compared to 3G roaming offerings.

Informa Telecoms and Media reported last year that there was a significant increase in terms of global mobile data roaming and that LTE roaming deployments had been contributing significantly to data roaming growth.

The greater capacity and spectral efficiency results in an enhanced customer experience, thereby enticing customers to make greater use of mobile data roaming.

Informa said that annual mobile data volumes would grow 328 percent between 2011 and 2016, compared to annual growth of 112 percent for international voice minutes.

It said the increasing penetration of smart phones, the increasing growth in application development and the dissemination of data services to customers through app stores, would significantly contribute to the share of revenues generated from data services.

Operators are expected to try and capitalize on the data roaming market. However, under pressure from competitors, regulators and end users operators have been reducing prices by as much as 70 percent In addition bundling has been



LTE under pressure from competitors, regulators and end users operators have been reducing prices by as much as 70 percent In addition bundling has been one of the pricing methods that has worked well for consumers and operators **99** 

one of the pricing methods that has worked well for consumers and operators.

With a new technology like LTE, it is inevitable that initial prices will be high. However, as the market matures and competition intensifies prices are likely to come down.

Technology and the IPX factor A key factor in the LTE roaming market is the IP exchange (IPX). Developed by GSA, IPX is being touted as a significant contributor to the growth of LTE roaming. It not only addresses interconnect issues but also supports quality of service differentiation and share of revenue: enabling each player in the service chain - content provider, originating and terminating mobile network operator for example - to acquire a portion of the end user's payment for each service.

In addition to IPX, a hub or a diameter hub is also an integral part of the LTE roaming. It allows the operators to scale up rapidly to meet increasing demand. The hub and the exchange model address the issues of interoperability and interconnecting with large numbers of roaming partners.

LTE roaming is the next critical step that most operators need to offer after rolling out LTE.

Its full benefits are unlikely to be realized this year but it is expected to be a major differentiator in years to come, and to significantly change the landscape of mobile computing.



# HKT's plan to buy CSL spurs HK mobile competition fears



On 20 December Australian telco, Telstra, announced that it had signed a deal to sell Hong Kong based mobiles business CSL - in which it holds a 76.4 percent stake - to HKT for \$2.425 billion.

The announcement sparked speculation about Telstra's motivation and plans for its operation in Asia along with fears of reduced competition in the Hong Kong mobiles market and of increased dominance of the country's economy by the family of its richest citizen, Li Ka-shing. Telstra CEO David Thodey told analysts during a briefing on the deal that it did not signal any reduction in Telstra's commitment to Asia. "We are very committed to driving value from our expansion in Asia ... [but] we're not emotionally driven just to do deals," he said. "If we can realize more value by making a sale, that's what we will do. ... And so, as we look across what's a very heterogeneous market across Asia, we will continue to look at what's in the best interests of shareholders."

Asked if a large portion of the sale proceeds could be reinvested in growing Telstra's Asia business in other ways, Thodey declined to comment but said: "We have done quite a bit actually in Asia this year. We have built out a number of data centers, put in cloud infrastructure; we have made more cable investments. These are 20, 30, 40 million dollar investments. And also, we have had more people join us."

CSL is already Hong Kong's largest mobile operator and the combination of its operations with those of HKT would give HKT a 31 percent share of the mobile market with number two player Hutchison Telecom holding 29.6 percent. Also, HKT would control 41 percent of mobile spectrum and Hutchison Telecom, 23 percent.

Telstra does not expect the deal to stall over market dominance issues. Thodey told the analyst briefing: "We believe that the regulatory hurdles should not be



significant, given five existing operators coming down into four in what is actually a relatively small market."

But concerns of market dominance extend beyond the raw figures. HKT is a subsidiary of PCCW, which is controlled by Richard Li Tzar-kai, youngest son of Li Ka-shing, who through Hutchison Whampoa controls Hutchison Telecom.

Statements from HKT group managing director Alex Arena (former head of the telecommunications regulator) that family ties would have no impact on competition in the market have done little to dampen concerns that the deal will give the family too much power.

Hong Kong's telecoms regulator, the Communications Authority, has already initiated a public consultation into the deal following receipt of a submission from HKT back in October, seeking preapproval to proceed with the deal. However its review will not factor in any connection between HKT and other Li family companies, because competition law does not consider family links.

The Authority released its consultation paper on 23 December and interested parties have one month to make submissions. HKT is hoping that the deal will get

# CSL is already Hong Kong's largest mobile operator and the combination of its operations with those of HKT would give HKT a 31 percent share of the mobile market with number two player Hutchison Telecom holding 29.6 percent

the nod by March but that is looking exceedingly unlikely.

The South China Morning Post reported on 2 January that the Office of the Communications Authority (Ofca) had hired a consultant to help with its review and it reported a government source saying that, due to the complexity of the deal and the time needed to assess comments from the consultant, it was likely that the review would take more than three months.

When it sought prior approval from Ofca HKT said that the deal would benefit consumers by enabling it to reduce its cost base and achieve economies of scale that would "enhance HKT's ability to serve its customers across all its brands, and increase investment and innovation to the benefit of HKT's consumers and the Hong Kong economy."

It claimed that the merger would leave it with less than 40 percent market share; a figure that it claimed was unlikely to raise competition concerns "consistent with global best practices." It cited both Hong Kong and global merger precedents in support of this argument.

"Post Transaction, HKT will not have the ability to price above competitive levels and will remain constrained by its competitors and customers," HKT claimed.

The company also offered to continue to provide wholesale services now provided by CSL and HKT (eg, MVNO, resale and network sharing arrangements) and to fulfill all of CSL's license and customer contract obligations.

It also said it would acquire not more than a total of two times 15MHz of 3G spectrum in the 1.9-2.2GHz band following expiry of the existing assignment of the 3G spectrum in October 2016 and would not participate in the auction for the 3G spectrum. This would reduce HKT/CSL's share of mobile spectrum from 38.3 to 33.4 percent.

In deciding whether to give the deal the green light Ofca must determine whether it will result in a significant lessening of competition and whether the detriments to consumers of any such lessening would be outweighed by the benefits it would bring.

Meanwhile the Communications Authority is reviewing its spectrum allocation model and on 8 December issued a press release detailing its options along with a report from Network Strategies on the implications of its proposed hybrid allocation versus administratively-assigned and market based approach.

A spokesman said the Authority was confident its proposed approach was the best "to achieve the multiple objectives of ensuring customer service continuity, efficient spectrum utilization, promotion of effective competition, and encouragement of investment and promotion of innovative services."

Network Strategies' assessment of the current market is that it is "highly competitive, having five MNOs [China Mobile, CSL, HKT, Hutchison and SmarTone] and 15 licensed MVNOs." It added: "In terms of overall subscription numbers, all of the MNOs appear to have enjoyed increases over the last year."

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#### LinkedIn sues hackers over thousands of fake accounts



Just as 2014 kicked off, the social/professional networking website, LinkedIn, filed suit against scammers who created thousands of fake accounts in order to scrape data about existing LinkedIn members.

Back in May, 2013 it was reported that hackers had bypassed LinkedIn's security protocols in order to troll the site for data. Commenting on this threatening breach of users security, LinkedIn stated, "We feel that we have a responsibility to protect the control that our members have over the information they put on LinkedIn."

Even though the hackers identities have not been identified yet, the company has been able to identify that these scammers have used Amazon Web Services. Thus, LinkedIn is to ask Amazon to turn over any data it has on those tied to the accounts identified by LinkedIn.

The company also reported that over the past few months, the

scammers circumvented LinkedIn security measures like FUSE (which limits account activity), Sentinel (which limits successive requests from the same IP address), UCV (Captchas), and the robots.txt protocol (crawling). They used an automated process to create thousands of fake LinkedIn profiles, which in turn allowed them to view hundreds of thousands of legitimate member profiles per day and scrape those profiles for data.

LinkedIn discovered the scam when it detected that thousands of member accounts

had collectively viewed many member profiles in a short period of time. These accounts were thus discovered to be fake even though they demonstrated clear patterns of automation.

LinkedIn has since disabled those accounts and said it boosted its security. However, the company still wants to go after the scammers because fake profiles reduce the accuracy and integrity of the information on LinkedIn. These efforts, in turn, have put significant strain on LinkedIn's servers.

#### Regional submarine cables get upgrades



Three announcements of capacity upgrades to multiple regional submarine cable systems have been made: Southern Cross, AJC and Pacnet and Telstra's Endeavour, Reach North Asia Loop and its pair on the Asia America Gateway cable.

• Southern Cross Cable Network said it would use the Ciena

WaveLogic 3 platform to add an additional 500Gbps of capacity to each of its two cables that link Australia and New Zealand to the US West Coast to both cables by July 2014. The upgrade is due to be completed by July 2014 and will increase the total lit capacity on the two cables from 2.6Tbps to 3.6Tbps.

• AJC announced that it had deployed the Infinera DTN-X packet optical transport networking platform across its network "to significantly expand their cable's capacity and rapidly deliver 10, 40 and 100 Gigabit Ethernet (GbE) services." The exact capacity increase was not specified.

• Pacnet announced that it had deployed Ciena's 6500 Packet-Optical Platform, powered by WaveLogic 3 coherent optical processors, to upgrade the two fiber pairs it co-owns on the trans Pacific network linking the US West Coast to Japan. Again, no details of the capacity increase were provided.

Pacnet said it had expanded its network "to offer a suite of high-capacity OTN and Ethernet services to meet customer demand while reducing costper-bit. • Telstra announced that it would deploy Infinera Intelligent Transport Network to deploy 10G, 40G and 100G Ethernet and OTN services on:

- Telstra Endeavour, a 9,124 kilometer cable connecting Sydney and Hawaii;

- The Telstra's designated fiber pair on the Asia America Gateway (AAG) submarine cable connecting Hawaii and California;

 Reach North Asia Loop, which spans 9,000 kilometers to connect Hong Kong, Taiwan, Japan and South Korea.

#### Will they reach a settlement?

After a bitter two year legal battle over designs and technologies of smartphones and tablets, the CEOs of Samsung, Apple CEOs will finally meet to reach a settlement.

However, this decision was not made by choice as this agreement came as a response to a court order to submit a proposal for settlement discussions before a new trial begins next March.On another hand, a filing with the US District court in San Jose showed that senior legal executives from Apple and Samsung were driven to meet by or before February 19 to find an end to these mutual accusations. The March trial involves more recent mobile devices than previous cases. However, many industry watchers predict the two companies will ultimately settle their patent lawsuits outside court.

Since 2011, these two smartphone makers have been

wagging legal battles over mobile devices. The battle started when Apple accused Samsung of copying the iPhone and the iPad. Later, Samsung claimed that Apple used its technologies without permissions, expanding battles to courts in Asia, Europe and North America.

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GLOSSARY	DACS	Data	Ū.	Dem	Dem (dem	Digit Mana	ĎÔ	Dum	DX si	Dyna Mark (dHT	

DACS	Digital access and cross-connect system				
Data Aggregation	In security, the compilation of unclassified individual data systems and data elements resulting in the totality of the information being classified				
D Channel	The signaling and data transmission channel (specified in ISDN standards) used to transm network control signals for setting up phone calls				
Demarc Extension	The transmission path originating from the interface of the access provider's side of a telecommunications circuit Demarcation Point within a premise and ending at the termination point prior to the interface of the edge Customer Premises Equipment				
Demarcation point (demarc)	That point at which operational control or ownership of communications facilities changes from one organizational entity to another				
Digital Rights Management (DRM)	A collection of technologies that technically enable the definition of and enforcement of secure content transportation as well as secure content licensing				
DOCSIS	Data Over Cable Service Interface Specifications				
Dumb terminal	An asynchronous terminal that (a) does not use a transmission control protocol and (b) sends or receives data sequentially one character at a time				
DX signaling	Direct current signaling				
Dynamic Hypertext Markup Language (dHTML)	A form of HTML used to create Web-page content that, as perceived by the viewer, appears to change each time it is viewed, without further interaction with the server III				

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# **March 2014**

#### EurasiaCom



The 10th Annual EurasiaCom 2014, is the region's leading Telecoms, Media & ICT event. EurasiaCom is the key event to be at to glimpse what's round the corner in the coms sector

Date: 25 - 26 March 2014 Place: Istanbul, Turkey

# **April 2014**

#### **Broadband Asia**



Date: 29-30 April 2014 Place: Suntec, Singapore

#### Broadband Asia & TV Connect brings together decision makers and buyers from the fixed, wireless and mobile broadband industry from across the Asia-Pacific region and beyond.



#### CommunicASIA



CommunicAsia continues to strengthen and stay relevant to the ever changing info-communications technology industry. CommunicAsia2014 is the event that addresses the

ENTIRE ICT ecosystem from 4G / LTE, AR and Innovations, Content Security Management, FTTx, Mobile Apps, Mobile Broadband, Mobile Devices, RF & Cables, Telecom Energy & Power System and many others.

Date: 17 - 20 June 2014 Place: Marina Bay Sands, Singapore

#### LTE WORLD



The world's leading 4Gevent, will be relocating back to the popular city of Amsterdam for 2014! With its core values of creativeness, enterprise and innovation, Amsterdam is the ideal location for the world's only dedicated global LTE event.

Date: 23-25 June 2014 Place: Amsterdam RAI, Netherlands

# September 2014

#### LTE ASIA



Now in its 8<sup>th</sup> year, LTE Asia is the must-attend event for Asian operators.

Date: 15 - 17 September 2014 Place: International Convention & Exhibition Centre, Suntec Singapore

# Latest updates on: www.telecomreviewasia.com