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Asian Telecoms markets

Telecom Review looks at some of the key markets in Asia Pacific charting past and future developments

Destination Myanmar! A look at Asia's hottest telecoms market Australian NBN debate Separating the facts from the fiction **Qualcomm** Innovation, Partnership and Execution

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Printing

Arab Printing Press

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Toni Eid, Editor In Chief International

Hello and welcome to the first issue of Telecom Review Asia Pacific, the latest addition to a successful portfolio of Telecom Review titles covering key regions around the world.

e aim to be the ultimate source of business intelligence for operators, regulators vendors, suppliers and those involved in the Asia Pacific telecoms industry both directly and indirectly.

The Asia Pacific telecoms market is one of the most varied and dynamic globally, playing host to emerging giants India and China, technological leaders Japan, South Korea, Hong Kong and Singapore and what is currently one of the least developed markets worldwide, Myanmar.

It is also a region of great significance for the global telecoms market with Asia Pacific set to equate for nearly 50% of global mobile data traffic in the future.

In this issue Telecom Review has sought to provide a unique insight into countries across the region with our cover story

focusing on the key developments within each, and those to look out for in the year ahead.

We have also placed the spotlight on Indonesia, the world's fourth most populous nation and one of the most geographically challenging for telecoms operators, comprising of over 17,500 islands, and Myanmar where market privatization and the auction of two telecoms licenses is set to transform the nation's ailing communications infrastructure.

While our feature on the facts and fiction of the Australian NBN, one of the world's largest communications infrastructure projects, is sure to spark some debate.

I hope this issue proves to be engaging and a valuable source of business intelligence and I look forward to engaging with the industry in the months ahead.



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NTT Launches Japan's Largest Scale Data Center



Global service provider NTT Communications is claiming to have launched Tokyo's largest scale data center.

Tokyo No.6 Data Center is designed to be a cost efficient, user-friendly, disaster resistant

facility and has a total floor area of 22,000 square meters, enough to accommodate around 3,000 racks.

It features a energy and space efficient design, with large rotary UPS and racks that can handle equipment up to 1.5 larger than conventional racks, helping to lower costs by as much as half, according to NTT.

NTT said it will use the facility to further grow its worldwide data center services, now marketed under the newly launched Nexcenter brand. The launch comes as corporate needs for cloud services, ICT outsourcing, disaster recovery and other ICT related services continue to grow.

Tokyo No.6 Data Center is set to be the first of several major NTT Com data centers that will combine globally standardized service agreements, SLAs and customer portals and customer portals with cost reducing features, including advanced air conditioning and virtual network based services. The facility also features a seismic isolation structure designed to reduce the impact of earthquakes by up to 80% and foundations 1.4m higher than ground level to avoid flooding. Cables to the site come from a director connection to a large aseismic cable tunnel, protected from damage by earthquakes and drilling.

No.6 Data Center is also rated at a power usage effectiveness of 1.2, the highest level among data centres in Japan. The site uses NTT Com's Arcstar Universal One enterprise network service and other global network services for connectivity.

Consortium announces BBG cable linking Middle East and Far East



A consortium of international telecoms carriers has signed a turn-key contract with Alcatel-Lucent to deploy the Bay of Bengal Gateway (BBG) cable system connecting the Middle East, India and the Far East. The BBG cable is designed to enhance the robustness and reliability of international connectivity into and out six countries and will use 100Gbps technology. It will land at Barka (Oman), Fujairah (United Arab Emirates), Mumbai and Chennai (India), Ratmalana (Sri Lanka), Penang (Malaysia) and Singapore. The BBG consortium comprises of Vodafone Group, Dialog Axiata, Etisalat, Reliance Jio Infocomm, Omantel and Telekom Malaysia.

"BBG, the first system to be lit as 100G on day-1 will be a step change in capacity on this important route. The bandwidth, resilience and traffic routing of the BBG configuration, and Alcatel-Lucent's capabilities and track record, give us the confidence that this system will be able to address the fast-evolving expectations of our customers in line with their demands," said Edward West, Chairman of the BBG Interim Procurement Group.

Alcatel-Lucent will install the cable and repeaters for the system and it will be managed by the vendor's submarine network management system.

Under the contract Alcatel will lead project management, system design, marine operations and system commissioning and provide its advanced coherent technology for the deployment.

"We are pleased to deliver to the BBG consortium state-of-the-art technology and solutions that will help them flexibly and reliably manage bandwidth expansion ondemand. As a leader in advanced coherent technology, Alcatel-Lucent's 100G technology and advances in its branching unit set a new benchmark for the supply of fully robust high capacity systems with a clear upgrade path to higher speeds," said Philippe Dumont, President of Alcatel-Lucent Submarine Networks.

Reliance Jio Infocomm Signs IRU for Capacity on Bharti's i2i Cable



Indian provider Bharti Airtel and Reliance Jio Infocomm have signed an Indefeasible Right To Use (IRU) agreement, under which Bharti will provide Reliance Jio data capacity on its i2i submarine cable.

The cable connects Chennai, India, to Tuas, Singapore, and is wholly owned by Bharti. it consists of eight DWDM fibre pairs capable of supporting multiple terabits of capacity per fiber pair. Reliance will utilize a dedicated fiber pair on i2i enabling the company to extend its network and service reach to customers across Asia Pacific.

The deal is part of Reliance Jio's continued efforts to rapidly grow and expand both its international and domestic network infrastructure through an ecosystem with multiple carriers and service providers. Bharti will continue to build on this strategic framework and consider other areas of cooperation and development to improve both companies' customer experience.

12i is part of Bharti's global network spanning 225,000kms and 50 countries. It also owns capacity on other cables including SeaMeWe-4, AAG, IMEWE, Unity, EI, AAG and EASSy cables.



GSMA Puts the Connected City at the Heart of Mobile Asia Expo 2013



At Mobile Asia Expo 2013 in Shanghai, the GSMA will unveil a new Connected City experience, building on the success of the Connected City at this year's Mobile World Congress. Opening on the 26th June and drawing on the developments that have put the Asia region at the forefront of connected device and service uptake, the Connected City at Mobile Asia Expo 2013 will enable attendees to stroll down a city street of the future and experience the 'Connected Life' powered by intelligent mobile connections.

In partnership with China Mobile, Cisco, Ford Motor Company, Huawei, KT Corp. and SAP, the Connected City will be a life-like urban environment where attendees will experience how these companies are making homes smarter, motoring more intelligent, shopping easier and city living safer in the largest and most forward-thinking mobile market in the world. Each area will bring together the latest in cuttingedge products and services to demonstrate how a connected future, driven by mobile, will

simplify and enhance people's everyday lives.

"The mobile industry continues to develop at an unprecedented pace and nowhere is this more evident than in Asia - a region that continues to experience tremendous growth and by 2020 will lead the connected devices and M2M market. both in terms of the number of devices and in terms of revenues," said Michael O'Hara, Chief Marketing Officer, GSMA. "The Connected City in Shanghai will be a reflection of Asia's marketleading position, where attendees will experience

how the next wave of mobile innovation will deliver new business opportunities, enable disruptive products and services and ultimately drive economic growth."

Demonstrations in the Connected City include topof-the-range connected cars with the latest state-of-theart, in-vehicle technologies; innovative remote health monitoring and diagnosis services that link people to healthcare professionals from their own homes; and intelligent city services that can track vehicles or provide civic and lifestyle information via mobile devices.

NTT DoCoMo Acquires MCV Guam Holding Corp



NTT DoCoMo has announced that it has wholly acquired MCV Guam Holding Corp. (MCV), the largest cable television and Internet service provider in Guam and the Commonwealth of the Northern Mariana Islands.

The purchase from MCV Acquisition, LLC, the holding company of MCV, worth approximately \$129.8 million or about 12.7 billion Japanese yen, was made by a wholly owned holding company established in Guam by DoCoMo. The acquisition will enable DoCoMo Pacific inc, a wholly owned subsidiary of DOCOMO and Guam's largest mobile operator, to offer MCV's cable television, Internet and fixed-line phone services under its own brand as a one-stop quadruple play. DoCoMo Pacific expects to strengthen its mobile phone business through linkage to MCV's high-speed, largevolume fiber optic network.

The linkage also will enable DoCoMo Pacific to enhance the stability and capacity of its mobile network by leveraging MCV's communications network as core infrastructure.

Tata Launches HD Voice Termination Service



Tata Communications has launched an international HD voice termination service. The service is designed to enable mobile network operators to route international HD calls via end-to-end IP, without transcoding. The company says this ensures HD customers that are calling HD compatible destinations internationally will receive the full HD experience.

Of the 210 mobile networks Tata is interconnected to, 26 are HD ready with four operators already in deployment of HD Voice on Tata's network.

"Our focus on improving voice quality through innovations such as HD voice has led to 28% year-on-year volume growth from key retail service providers (MNOs and OTTs). We will leverage our community of IP-connected MNOs to quickly enable HD voice calls between the widest possible range of destinations, maximising the benefits of premium call quality for our partners and their end users," said Michel Guyot, president, Global Voice Solutions, Tata Communications.

Among the advantages of HD voice are clearer calls with a significant reduction in background noise. This in turn leads to longer calls and increased revenues for MNOs, according to Tata. HD voice is expected to play a critical role in increasing customer satisfaction and reducing churn on premium international calling and high-margin roaming, while also giving mobile operators a competitive advantage over OTTs in terms of QoS.

Tata has created a community of MNOs globally to delivery better inter provider mobile services delivery and management through its IPX+ connectivity platform.





Qualcomm: Innovation, Partnership and Execution



Telecom Review spoke with Qualcomm's Jay Srage, who was recently appointed to manage the SEA region for the company on top of his existing MEA responsibilities.

You've recently assumed the expanded responsibility to manage SEA for the company as well as MEA as the resident of both regions. Can you elaborate on the drivers and business requisite and vision behind this expansion?

The expanded role highlights the importance of emerging markets as whole in driving the growth of the mobile industry and the need to drive a more uniform approach and strategy across those markets to fully participate in that growth. There are clear and relevant synergies and market continuum between these two strategic business regions - MEA and SEA

- A number of major telecom operator groups based in the Middle East have expanded and continue to look out to opportunities in Southeast Asia

- STC, ooreedoo (QTEL) and Etisalat are strong examples. As an industry and thought leader in the mobile ecosystem, Qualcomm is well positioned to support that expansion under a single structure and technology strategy.



- SEA has a number of very successful private device brands or labels who have launched innovative platforms. We can extend the reach of those OEMs to markets in the Middle East and Africa under a single consolidated strategy and management umbrella.

- Through this synergy, we would be able to present a unified approach for the array of China OEMs/ODMs that aspire to expand outside of China, but currently stop at SEA markets, with the exception of a few, because of proximity and ease of business operations. We will be able now to expand that reach.

- Same applies to the ecosystem technology, services and apps development whereby we cross-promote successful apps and business models from and to both regions

Now Qualcomm is poised to extract higher growth from both regions where we enable the complete 3G value chain

What is Qualcomm's strategy in Southeast Asia (SEA)?

Qualcomm corporate objectives revolve around three main pillars -Innovation, Partnership and Execution and drive our overall vision. We have

a common objective across MEA and SEA of driving bestin-class network performance offering exceptional user experience, availability of smartphones and devices across market tiers - from the affordable to the leading edge innovation and enabling an ecosystem of apps and services that drive consumer demand - Not one element of the above mentioned can be successful without an integrated approach with the others. Our ultimate objective is to grow demand for and

usage of mobile broadband services, by enabling a wide range of devices with powerful mobile computing technologies based on our Snapdragon processors that cater to a great user experience and demand.

We do this by working to expand the regional mobile ecosystem the group of operators, handset manufacturers, infrastructure providers, software and content developers and others who each contribute to making mobile services more broadly available and by helping these partners work together more efficiently. Our strategy is focused on three primary areas:

Technology - we work with SEA operators to ensure the best networks are available to provide the most efficient, fastest and reliable connectivity to the mobile user. To do this, we collaborate closely with them on engineering and services, technical training, and technology outlook to ensure



TELECOM Review





their goals and objectives are met according to each market dynamics.

Devices - SEA mature and tech savvy consumers expect their devices to deliver an amazing user experience. It cannot be a sub-par experience. It has to be on par with the PC Internet browsing experience, HDTV and 3D media experience, and game console graphics quality. Qualcomm provides the technology to deliver such experiences, and we are working hard to ensure that devices using Qualcomm technologies are available in the market, and that consumers understand how Qualcomm is bringing these experiences to them.

Content and the Web -

Creating an ecosystem of applications and content is key to Qualcomm's efforts to grow demand for mobile network services and devices in SEA. We collaborate with incubators, operators and OEMs to ensure there is amazing content to be consumed.

Why is the SEA region important and what do you see as the major accomplishments of Qualcomm in SEA thus far?

Overall SEA countries cover a massive population of 580 Million, with 125% mobile penetration, out of which 40% is 3G, 48M 3G/LTE Smartphones have been shipped to the region in 2012, SEA as a region includes a significant number of emerging markets; like Indonesia, Thailand and Vietnam, all with mobile penetration above the 100% threshold. These figures clearly articulate the significance of SEA and its markets for Qualcomm and its partners.

There are many success stories to tell. We have we supported a range of private brands/labels across the region launch devices based on Qualcomm Reference Design (QRD), while supporting other OEMs integrate local apps to cater for local market needs and requirements.





Snapdragon S4 Processors by Qualcomm



Smartfren, the largest CDMA carrier in Indonesia is another success story, delivering to consumers the latest Andromax series of EV DO + GSM Smartphones.

Today leading smartphones are powered by 'Qualcomm Snapdragon' Processors, many of which are manufactured in Asia Pacific. What makes 'Snapdragon' the leading processor?

Qualcomm's Snapdragon processors offer a combination of mobile processing performance, powerful multimedia, wireless connectivity and power efficiency. This last element power efficiency is important because people want devices that last all day. Our engineers designed Snapdragon to deliver this delicate balance between high-performance and power efficiency, and this achievement is enabling a new generation of advanced smartphones, tablets and other smart devices.

In addition to featuring an integrated high-performance CPU and GPU, Snapdragon processors also incorporate Qualcomm's industry leading modem technology for advanced mobile broadband. Snapdragon's system on a chip design also features a rich multimedia subsystem that delivers world class audio and HD video capabilities such as advanced noise cancellation, echo cancellation, a variety of resolution support from XGA (1024x768) to WXGA (1280x800).

In short, Snapdragon is the allin-one mobile processor, and this high level of integration enables OEMs to offer devices that are more powerful, more power efficient, and optimized for performance because they require fewer components. In another articulation Qualcomm® RF360 Solution is set for Delivering one global design for worldwide LTE mobility, Qualcomm's new RF Front End solution provides OEMs a comprehensive system-level solution for solving the number one problem in designing global LTE multimode devices; band fragmentation.

Key Benefits for this solution are:

• Reducing 10+ SKUs to 1 SKU – which enables OEMs to address the global LTE market with a single multimode/multiband design.

• Half the board area which dramatically reduces the RF front end PCB footprint compared to our previous generation RF solution to enable increased band support. • Up to 30% better power and thermals - Reduced RF power consumption and heat, leads to longer battery life and ultra-thin form factors for LTE mobile devices

What are Qualcomm's expansion plans for the region?

Qualcomm has committed and invested in South East Asia over the last few years, and that commitment continues. It is a commitment to build a strong, local, vibrant mobile ecosystem that will change how consumers in the South East Asia do their daily tasks and routines.

We can only achieve it through Innovation transforming the way consumers live, partnerships with the key regional players, and execution to make the future happen, rather than wait for it to happen.





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By the beginning of 2012 there were around 2.7 billion mobile subscribers in the Asian region, with annual growth of nearly 15%. By the end of 2012 this number was believed to have reached three billion. As some Asian markets are saturating and with the impact of the shaky global economy, Evans believes the growth rate has slowed somewhat over the last year, following a period where annual subscriber growth rates in the region were over 50%. By the beginning of 2013 regional mobile penetration had reached 72%, says BuddeComm. An impressive statistic considering the total Asian population is around 4.2 billion, and suggesting there is still room for subscriber growth in some countries. While in markets where mobile penetration is in excess of 100%, and even over 200% in some cases, operator business strategies are shifting towards value added services and mobile broadband, according to Evans. Close to 50% of the world's mobile subscribers are in Asia and when it comes to the development of broadband internet Asia makes a strong claim to being the world leader, according to BuddeComm senior analyst Peter Evans.



LTE is expected to account for 63% of all mobile connections in developed Asia Pacific by 2017, with the resulting growth in handset revenue almost offsetting the declines in traditional services, according to Research and Markets. Asian operators in these developed countries have been providing LTE services for years now and positioned themselves well to exploit opportunities brought about by mobile broadband, including future LTE Advanced services.

LTE rollouts in Asia's large emerging markets are also now picking up pace. Launches by Bharti Airtel in India and Smart Communications in the Philippines will be followed by rollouts this year in China and Indonesia, according to Pyramid Research. Being first to market with LTE and gaining back ground lost with 3G are proving to be a powerful incentive for operators, says Pyramid, although a few countries have yet to announce any LTE plans due to a lack of development and little demand for data. Research and Markets believes that key trends driving change in the developed Asia Pacific will include the spread of 4G, increasing smartphone penetration, and the roll out of national broadband networks and FTTx services, which will generate more than \$20 billion in 2016.

China

Home to the world's largest population at over 1.35 billion China is an up and coming economic powerhouse, accounting for over 32% of mobile market share in Asia. Naturally with such a large addressable population, Chinese telcos wield the world's largest subscriber base in terms of both





fixed (China Telecom) and mobile (China Mobile) services, with monthly mobile net additions in China regularly reaching close to 10 million subscribers, according to BuddeComm.

One of the big talking points this year has been China's LTE rollout. China Mobile has been pushing the TD LTE standard worldwide and began conducting TD LTE trials in various cities across the country last year, including Shanghai, Hangzhou, Nanjing, Guangzhou, Shenzhen and Xiamen. Of these the networks in Guangzhou and Shenzhen are reported to be approaching commercial levels with over 6500 base stations across the two cities. The operator is expected to open a tender for around \$3.2 billion worth of equipment as part of an overall capital expenditure of \$30.6 billion this year, including the installation of 200,000 base stations covering 100 cities. China Mobile's rivals China Unicom and China Telecom are also conducting their own LTE trials but these are reportedly using the more common FD LTE standard. Commercial operating licenses to launch 4G services are expected to be issued later this year by the government, according to local reports.

Last year saw both China Telecom and China Unicom take steps to gain more control of their networks. China Telecom entered into a \$13.3 billion deal to acquire CDMA network assets it leased from its parent, China Telecom Corporation, for \$13.3 billion, in a deal designed to reduce its costs over time as mobile subscriber numbers increase and users migrate from 2G to 3G. The acquisition included 2G and 3G infrastructure covering 30 provinces, municipalities and autonomous regions but China Telecom will continue to lease CDMA facilities in other areas.

In November it was announced that China Unicom would acquire the fixed line assets of its parent company China Unicom Group in 21 southern Chinese cities and provinces. The \$2 billion deal was struck because the depreciation costs Unicom would be subject to were lower than the leasing fees that it would have to pay its parent.

China's government is backing a huge national project to increase access to high speed internet in the country. The Broadband China program is aimed at providing high speed fixed and mobile broadband connections to more than 250 million urban and rural homes by 2015.

As part of its participation in the project China Telecom is rolling out FTTH in cities across the country, including Shanghai where it aims to achieve city wide coverage and increase the percentage of customers taking fiber services to 90% by 2015.



China's Ministry of Industry and Information Technology (MIIT) has also sought to improve connectivity in the country through a mandate forcing any newly built home in areas with fiber access to be installed with an FTTH connection. The new rules will require FTTH networks to be open access, therefore not binding customers to specific service providers. This comes as part of plans to connect 40 million homes to FTTH networks by 2015.

Japan

Japan is among the world's most technologically advanced nations and this is reflected in its communications infrastructure. By the end of last year there were over 133 million wireless subscribers in the country of which the overwhelming majority were 3G subscribers, according to TeleGeography. All three of the country's major operators NTT DoCoMo, KDDI and SoftBank have launched LTE services and there is a growing LTE subscriber base.

One of the most significant events in the market last year was Softbank's acquisition of what was previously the fourth operator, eAccess. The all stock offer, which was made in October for around \$2.3 billion, has allowed the combined Softbank/eAccess to close in on second place KDDI in terms of subscriber numbers. After closing the sale in January 2013, Softbank went about selling two thirds of eAccess to a group of more than ten companies including Samsung Electronics and Nokia Siemens Networks, in order to comply with limits on spectrum ownership covering wireless carriers and their subsidiaries. Softbank proved particularly ambitious on the M&A front last year having also made an offer to acquire a 70% stake in US carrier Sprint for \$20.1 billion, which is still ongoing.

Elsewhere in the market, NTT DoCoMo, which launched LTE services in 2010, has begun looking towards LTE Advanced. The company has signed agreements with NSN and Panasonic to help deploy LTE-A infrastructure. NSN said its LTE base stations will allow a capacity of up to 300Mbps and cloud based services. On the fixed side NTT dominates the market through its regional units East and West. The company had around 49% market share in December 2012, according to TeleGeography with nearest competitors Softbank BB at only 10.8% during the same period. Both NTT subsidiaries are continuing their fiber rollouts and are believed to wield significant market share of over 70% in this segment.

South Korea

Although a recent rise in tensions between North and South Korea









has caused some concern, South Korea is expected to continue to maintain its position in the top tier of the global LTE league table.

Competition in the South Korean mobile market is fierce with its three operators, SK Telecom, KT Corp and LG Uplus fighting for subscribers. SK leads the mobile market with 50.3% subscriber share recorded at the end of last year, KT ranked second with 30.8% and LG U third with 19% during the same period, according to TeleGeography. In January 2013 all three operators were banned from customer additions by regulator the Korea **Communications Commission** (KCC) as punishment for a bitter LTE marketing battle for customers. LG U was given a 24 day suspension, SK 22 days and KT 20 days. As one of the earliest adopters of LTE, South Korea has already reached

over 20 million LTE subscribers, an impressive statistic given that the country's population stands at around 49 million. According to local reports, South Korea's operators plan to secure a combined total of 30 million LTE subscribers by the year's end, with SK targeting 14 million subscribers and KT and LG eight million each.

Much like Japan, South Korea also is now looking towards LTE Advanced with reports that SK Telecom plans for a commercial launch of services from September 2013. SK signed a MoU to cooperate on the development and promotion of LTE-A with Ericsson in February. This would be no surprise given that the operator has traditionally been a leader in communications technology. SK launched the world's first CDMA2000 1x network in September 2000 followed by the first 1xEV-Do 3G services in February 2002.Last year Korean operators became among the first in the world to offer their customers HD voice and VoLTE services.

Hong Kong

One of Asia's economic powerhouses, the Hong Kong Special Administrative Region (SAR) of China has built one of the most sophisticated and dynamic telecoms markets in the world, according to Paul Budde, Managing Director of BuddeCom. Key to this development has been regulator the Office of the Communications Authority (OFCA). In order to support one of the world's highest mobile and fixed population penetrations at 230% and 50% respectively substantial infrastructure has been put in place. Hong Kong is a key gateway for various international carriers and vendors as well as a major landing point for subsea cables.

An estimated 90% of all households in Hong Kong have access to broadband connectivity, according to Budde, with the number of subscribers representing about 75% of the total internet subscriber base and there is a significant market for both triple and quad play services. Like Japan and South Korea all of Hong Kong's operators have launched LTE and a stronger than anticipated mobile growth rate has resulted, says Budde, lifting the research firm's 2018 forecasts. 3G and 4G subscribers are now believed to equate to close to 60% of Hong Kong's total mobile base, and data contributions to mobile revenue exceed 50%. Hong Kong's data demand is expected to continue to grow with the average 2.5G/3G/4G subscriber using in excess of 750Mbytes per month in 2012.

Malaysia

Malaysia has experienced strong growth in its telecoms sector over

the last decade, but this growth has not been consistent across the sector, according to BuddeComm. The number of fixed lines in the country has been relatively static for around 10 years, and even showed evidence of shrinking in 2011, while in contrast the mobile market has grown dramatically. Having stood at six million subscribers in 2000 there were 37 million by March 2012, at a penetration of almost 130%, according to the research firm.

The Malaysian Communications and Multimedia Commission (MCMC) awarded LTE spectrum licenses that came into effect at the start of 2013, enabling market leader Maxis to launch services in the Klang Valley area. This year the operator is expected to continue to expand its network, which offers average downlink speeds between 10Mbps and 30Mbps.

There has also been progress in next generation fixed infrastructure, with incumbent Telekom Malaysia announcing that it had signed up more than 500,000 subscribers to fiber based services, according to local reports.

Malaysian operators have shown a willingness to engage in innovative partnerships to improve their customer offerings. These include an agreement between Maxis and Malaysian satellite pay TV service Astro to jointly develop and market telecoms product bundles including pay-TV, mobile and fixed broadband services. While third ranked DiGi has teamed up with WhatsApp to offer unlimited access to messenger services for customers in one of the very first revenue sharing business models between OTT providers and mobile network operators.

India

India is the world's second largest mobile market behind China with a total of around 865 million wireless subscribers by the end of



2012, according to TeleGeography. This places wireless penetration at around 71.6% leaving significant potential for growth, although it is believed that more effort needs to be made to address the country's rural population.

Despite experiencing its first subscriber decline in September, the Cellular Operators Association of India (COAI) believes the market is set for growth in 2013 having added 400,000 more GSM subscriptions in December. The decline was partly attributed to stricter SIM card registration requirements, with operators removing inactive, duplicate or fraudulent SIMs from their books.

A decision by the Indian Supreme Court in February to cancel 122 telecoms licenses rewarded in a highly criticized 2008 auction process sparked arguably the worst period in the Indian telecoms history. The months that followed the decision saw bickering between operators, their partners and the government over several issues including license fees, auction prices and roaming deals, while Batelco and Etisalat decided to cut their losses and withdraw from the market altogether. A 2G re-auction in November 2012 proved to be a disappointment due to its high pricing and raised only \$1.7 billion of the \$7.3 billion the government expected, with no CDMA bidders. A follow up auction in March failed to attract interest from anv of the major telcos other than CDMA player Sistema and there is continued uncertainty over how a resolution can be reached between the government and the country's telcos. So far this year there have been noticeable movements in the market including a deal between the previously at odds Ambani brothers. According to reports, Mukesh Ambani intends of use the fiber assets of his brother Anil's Reliance Communications to provide the backbone for Reliance Jio

Infocomm's 4G network. The deal is the first cooperation between the two since the Reliance business empire was split. Infocomm intends to launch 4G services by the end of the year, with the rollout expected to begin in Delhi and Mumbai and plans to extend to 69 cities in 2014, according to local reports. The rollout is expected to cost \$10 billion, part of which could be funded by selling a stake in the company. AT&T has been linked with a \$3.5 billion deal for a 25% stake in Infocomm and is rumored to have lined up advisors for the deal.

Although the majority of consumers in India use basic 2G services, there is a growing market for mobile broadband. Mobile market leader, Bharti Airtel, beat Infocomm in the LTE race by launching services last year and now covers Calcutta, Bangalore, Punjab and Pune with its network.

Vietnam

The Vietnamese telecoms market has come forward leaps and bounds in recent years, with wireless penetration rising from just 23% at the end of 2006 to over 100% during 2009 and just under 150% by the end of June 2012, according to TeleGeography. This increasing penetration has led to a gradual decline in subscriber growth from a high of 103% in 2006 to around 10% in 2011. During 2010 Vietnam became one of the few countries in Asia to bypass the 100 million mobile subscriber mark and now has over 132 million subscribers. BMI estimates that Vietnam's mobile sector grew by 9.7% in 2012 down from 14.1% in 2011 and this slowing of growth is set to continue to an average of 2.9% from 2013 to 2017. Vietnam's fixed market is also rapidly contracting with penetration rates actually set to decrease from an estimated 8.1% in 2012 to 4.3% in 2017.





On the mobile side at least BMI suggests the market still possesses significant potential given that most consumers still use basic lower value services. 3G in particular is deemed attractive as consumers have not realized the benefits of mobile broadband, but given the dominance of state owned companies including market leader Viettel, second place Vinaphone and third place MobiFone there is deemed little opportunity for international players.

Russia's VimpelCom last year became the latest in a line of foreign companies to leave the market and Hutchison Telecommunications is now the last remaining foreign investor as a partner in fourth ranked operator Vietnamobile. However, there have been reports that British Telecom and Thailand's True Corp are eyeing an investment in the country. Local reports suggest that state run Vietnam Posts and Telecommunications (VNPT) separated its postal service from its telecoms operations late last year, including its subsidiaries Vinaphone and MobiFone. VNPT undertook the changeover to focus on its telecoms and technology arms, which could mean a more aggressive approach to the market this year.

As a sign of increasing data demand in the country VNPT recently announced it had put three international transmission routes into operation increasing its total international transmission capacity to 185Gbps. By the end of the year the company aims to increase its total international capacity to 215Gbps to satisfy demand for international connections for 65% of Vietnamese internet users.

TELECOM Review

REPORT

Indonesian Telecommunication: Growing Towards 3G and Beyond



Telecom Review places the spotlight on Indonesia one of Asia Pacific's most geographically challenging but dynamic markets.

With forty seven countries and a population of 3.7 billion, the Asia Pacific region is one of the largest in terms of population, geographical size and most of all, cultural diversity. This diversity serves both as a challenge and an opportunity to any industry that would like to be a part of the melding of different cultures.

The intricacies and the complexities are what make the region so vibrant, each and every country plays a unique role in fuelling the region's economic growth while promoting its own and at the same time preserving its own identity. The same description can be said with Indonesia particularly as well as its growing telecom sector.

According to the GSMA, the Asia Pacific region is the world's largest mobile market. Since 2003, the APAC market has tripled its size and added more than a billion connections, growing at a CAGR (Compound Annual Growth Rate) of 26%. By this year APAC is expected to hit 3 billion connections with continual growth expected. Despite this overwhelming scale, the report noted that there are still huge numbers of individuals in the region that are unconnected, with over a billion still without a basic mobile connection. Eighty one percent of these belong to APAC's emerging mobile markets, namely; China, India, Pakistan, Bangladesh and Indonesia. Both telecom operators and governments in the region are taking numerous steps to address this connectivity problem in rural and hard to reach areas.

When talking about Indonesia, one of the first things that comes to mind is its geographical landscape. Its vast footprint serves as a big opportunity for operators, but this doesn't come without its challenges. Indonesia is a vast archipelago that comprises of 17,000 islands, and around 1.9million square kilometers. It is considered the 19th largest country in terms of land mass while the Indonesian population is booming and is believed to have reached over 248 million by the end of 2012.

Given this strong user base the country's telecoms industry is showing signs of growth, despite the challenge of providing coverage. The island topography of Indonesia means that fixed services are limited, so wireless is relied upon for providing connectivity. According to IDC there are about 30 million Internet users in the country, and based on Nielsen's statistics, there are about 150million mobile users. This represents a 78% penetration rate in the country. There are nine mobile operators providing connectivity to the population.

Indonesia's three largest GSM operators have continued to benefit from strong subscriber growth in what is the world's sixth-largest mobile market. Telkomsel - the world's eighthlargest operator in terms of connections – has now surpassed the 100 million milestone.

The market remains dominated by GSM players Telkomsel, Indosat and XL, which together account for 85% of total Indonesian mobile connections. All three grew their subscriber numbers by around 21% yearon-year and are seeing success in migrating customers to higher-speed WCDMA and HSPA networks. In the first quarter of 2011 a merger between **CDMA** players Smart Telecom and Mobile-8 created a new operator called Smartfren. The combined firm had a subscriber base of 6.8 million and has set its sights on expanding its number of base stations to further extend its reach to customers.



In terms of coverage, the telcos are continuously on their toes to have the widest reach across the country. Telecom equipment is constantly being deployed, and operators are tapping other available resources to increase their footprint. Last February, Reuters reported that PT Telkom Indonesia was considering a plan to merge its mobile tower unit businesses with another tower operator in a bid to expand its presence in that market segment. It was noted that Telkom was said to be considering merging its PT Dayamitra Telekomunikasi (Mitratel) unit with one of four publicly listed tower firms including Tower Bersama and Sarana Menara. But according to Telkom director, Indra Utoyo, talks have yet to begin on the proposal.

Telkom's Mitratel unit currently manages around 3,000 towers in Indonesia and is in the throes of purchasing an additional 14,000 towers from its sister company, mobile operator, PT Telkomsel. Meanwhile, Indosat has announced that it is infusing USD800 million in capital expenditure for 2013 as part of a strategy to deploy an additional 25,000 base transceiver stations (BTS) across the country by the end of the year. Indosat currently has 1,000 BTS installed in Jakarta covering the central business district, airport and Pondok Indah area. However, the operator wants to significantly increase this number and work is underway on the rollout of 55 BTS in Padang and Bukit Tinggi. This expansion plan was announced during the launch of Indosat's

'Network Modernization Program' in Jakarta.

Aside from infrastructure expansion another area that is capturing the headlines in Indonesian telecoms is the availability of spectrum, particularly for 3G services. Last December, as reported to Jakarta Post, Indonesia's Ministry of Communication and Information Technology (MoCI) planned to auction off two blocks of third-generation spectrum in the 2100MHz band. By the first quarter of this year, it was reported that Indonesian mobile operators PT Telkomsel and PT XL Axiata had each won frequencies in the final phase of bidding for the 3G spectrum.

Telkomsel, which is 65% owned by Telkom Indonesia, won spectrum in the 1970MHz-1975MHz band, while XL Axiata was the runner-up, acquiring spectrum in the 1975MHz-1980MHz band. In relation to this XL Axiata recently revealed that it will spend up to IDR9 trillion (USD928 million) during this year to improve its mobile broadband data business. According to Hasnul Suhaimi, president of XL Axiata, the company is setting aside a sum of between IDR8 trillion and IDR9 trillion to support the expansion of its data services, specifically for 3G, following its recent award of a new block of 2100MHz spectrum. Suhaimi said that the development of the new block of UMTS spectrum is already included in Axiata's budget for capital expenditures and added that the cellco has paid an additional IDR512 billion

and the first annual fee for the right to use it. This will increase the quality of XL's HotRodbranded mobile broadband service and contribute to a better performance overall, he concluded.

As well as spectrum and infrastructure developments signaling that Indonesia is progressing toward 3G, industry data also points towards a more data centric market. Cisco's Visual Networking Index suggests the country's data demand will grow 32 fold from 2011 to 2016, with the average user gobbling up about 716MB per month by the end of period. Numerous telecom operators believe that WiFi is one practical strategy that needs to be deployed to handle this expected data demand, particularly given the limited capabilities of their spectrum holdings. Therefore, most of them see the need for a strategy that involves the deployment of WiFi hotspots to fill gaps in coverage and capacity.

Last December Telkom Indonesia mentioned that it plans for a large scale WiFi network deployment, with 100,000 access points across Indonesia. This was mooted as the largest deployment of Wi-Fi hotspots by a single telecoms provider in Asia, Telkom Indonesia is working with Cisco to design and install a network capable of handling high volumes of internet data; serving malls, schools, hotels and public areas. It has also been reported that PT Indosat will increase its number of Wi-Fi hotspots to 5,000 during 2013, amounting to an almost 50% increase to those online

previously. To date, 80% of its Wi-Fi networks is deployed in Jakarta and its surrounding areas as well as Surabaya, Bali, Batam and Medan. Most of these hotspots are set in high density areas, such as shopping malls, where end users can instantly access the service because the equipment/ gadget automatically reads the customer's number. It was noted that the company has invested about USD8 million to deploy 2,400 hotspots. Although theses hotspot don't have a direct impact revenuewise, the investment helps to reduce churn rates, therefore having a positive impact on revenue overall.

Needless to say, the Indonesian telecommunication sector is at an early stage in terms of the third generation technologies. Although the countries around it are already moving to a hyper speed via LTE, Indonesia is more focused in making sure that every island on its vast land area is covered and will be able to access data services. By making sure that infrastructure is ready and frequency highways are available to extend each operator's reach it is hoped that when the time does come to roll out next generation technology the highways will be able to support the load and all citizens will have access to the same services.

This will enable operators to boast that they not only are the largest but also that they have the most extensive network and furthest reach in terms of mobile services.





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Telecom New Zealand to Acquire Revera Limited



Telecom has signed has signed a conditional agreement to acquire privately-owned New Zealand IT infrastructure and data centre company Revera Limited for \$96.5 million.

The acquisition will add considerable momentum to the long-term growth strategies of Telecom and Revera, improving their capabilities, expanding their market reach and deepening the overall Telecom group offer, according to Telecom New Zealand. "We're pleased to have a computing infrastructure company with the trackrecord and reputation of Revera joining our team and strengthening our group," said Simon Moutter, Telecom Chief Executive

"As previously announced, Telecom is refining its business strategy to become a future-oriented, competitive provider of communication, entertainment and IT services delivered over its networks and the Cloud. This acquisition adds a respected brand that deepens our IT services portfolio for business customers, particularly with regards to Cloud services. Both Gen-i and Revera will be better positioned

to respond to evolving customer needs in the areas of big data and cloud computing."

The Revera brand will be retained and Revera will continue to run as a standalone business, providing the customers of Gen-i, Telecom's ICT services division, with immediate access to additional Cloud capabilities and data centre capacity.

Gen-i Chief Executive, Tim Miles, said, "This is a fantastic move for Gen-i and for Revera, and more importantly, for our clients. The acquisition matches the future focus of Gen-i, giving us more data centre capacity, more Virtualization expertise, and more horsepower to support clients. This is one of a number of steps being taken by Gen-i towards becoming more agile, cost-effective and responsive.

Revera Chief Executive, Robin Cockayne, said, "Revera is one of a few cloud-focused infrastructure providers in New Zealand. This focus puts us at the sharp end of the utility IT services market. However, leading this market requires continued development of new data centres and services. We've enjoyed spectacular growth. But sustaining our momentum requires new investment and resources. This transaction ticks those boxes and helps Revera to build on its success so far."

Telstra wins 700MHz and 2.5GHz spectrum in Australian auction



Australian carrier Telstra, has secured licences in the 700MHz and 2.5GHz bands in an auction held by regulator the Australian Communications and Media Authority (ACMA).

The licences are for a contiguous 2x20MHz block of spectrum in the 700 MHz band (40 MHz in total) and a contiguous 2x40MHz block in the 2.5 GHz band (80 MHz in total) and have a term of 15 years.

Telstra won the spectrum at close to the reserve price and will spend a total of \$1.302 billion. The spectrum allocations will be financed predominantly through debt, with Telstra required to pay the price in the third quarter of 2014.

Telstra's CEO, David Thodey, said the auction would help ensure the company remained at the forefront of mobile connectivity

"This additional spectrum represents a major investment in the future of telecommunications in Australia and means we can continue to deliver a superior mobile experience for our customers," said Thodey.

"The spectrum will be used to enhance our network to help support extraordinary demand growth for mobile services and data. With the 700MHz and 2.5GHz spectrum we will be able to deliver faster speeds, more capacity and expansive wide area coverage of 4G LTE technology on our Next G®network.

Low frequency 700MHz spectrum allows mobile signals to travel longer distances, allowing Telstra to improve its services in rural and regional areas, while also providing better inbuilding coverage in metro and suburban areas.

"Together with ongoing investment in our wireless network, which will total \$1.2 billion in 2012-13 Financial Year, and the application of next generation LTE-Advanced 4G technology that we announced earlier this year, the additional spectrum will help ensure we continue to deliver Australia's leading mobile network for our customers."

In the auction Telstra's total package of spectrum was secured at close to the reserve prices and the total investment by the company will be \$1.302 billion.

Telstra will be able to offer services using the new spectrum in the 2.5GHz band from October 1 2014, excluding the Perth metro area and regional Western Australia, where it will be available on February 1 2016. Spectrum in the 700MHz band will be available on January 1 2015.



Sprint Raises Clearwire Bid



Sprint has hiked up its offer for the remaining shares of mobile broadband provider Clearwire, in the face of a rival bid from satellite TV group Dish Networks.

Sprint, the number three US mobile telecom carrier, said it was offering \$3.40 per share for the 50% of Clearwire it does not already own. The offer values Clearwire at \$10.7 billion, and comes after Dish made a bid of \$3.30 a share.

"This increased offer represents a 14% premium to Sprint's previous offer of \$2.97 announced on December 17, 2012 and a 162% premium to Clearwire's closing share price the day before the Sprint-Softbank discussions were first confirmed in the marketplace," Sprint said in a statement.

Sprint, which is to get a big capital injection from Japanese

mobile carrier Softbank, wants Clearwire's spectrum and broadband WiMax network, which is becoming more valuable with the surge of mobile Internet use.

Softbank is set to acquire 70% of Sprint, the number three US carrier behind AT&T and Verizon Wireless, later this year.

Softbank agreed in October to pay \$20 billion for a 70% stake in US-based Sprint in the biggest overseas acquisition by a Japanese firm. The tie-up was expected to provide Sprint with capital that the company needs to compete better with its larger rivals, analysts said.

Sprint has around 55 million US customers, roughly half the size of Verizon and AT&T. Dish has made a separate bid of \$25.5 billion for Sprint, saying it wants to create a unique company that could deliver a fully integrated, nationwide bundle of video, television, broadband Internet and voice services.

Orange Business Services leads market in network services for MNCs in Asia Pacific



Business Services

Independent market analyst Ovum has identified Orange Business Services as the leading player in network services in Asia Pacific in the firm's March 2013 report, "Ovum Decision Matrix: Telco Network Services for MNCs in Asia Pacific."

The report aims to help multinational companies (MNCs) in Asia Pacific select a network service provider and provides Ovum's analysis of vendors' service capabilities, reputation among customers, vision, long-term commitment and experience in the market.

The Ovum study evaluated the region's leading network service providers on a range of current capability assessment criteria including network reach and SLAs as well as strategy assessment criteria such as market impact and innovation.

The study also looked into providers' ability to offer network IT-related services, such as unified communications, video solutions, and data center and cloud services. Orange scored highly for its service capabilities and strategies as well as its market footprint in the Asia Pacific region.

"Orange Business Services is the market leader. It scores highly on both current capability and strategy and has a significant market footprint in network services for MNCs in the region. Ovum recommends that it appears on any shortlist," said Claudio Castelli, Ovum senior analyst for enterprise telecoms.

According to the Ovum analysis, Orange offers an attractive proposition to MNCs looking for a one-stop-shop for global network IT-related services, including cloud computing, unified communications, contact center, video, data center, and IT services.

"Orange is proud to receive Ovum's recognition for our market leadership in Asia Pacific service capability and commitment. Multinational companies depend on a reliable service provider to support their business expansion, enhance their operations and enable them to be nimble in the face of today's rapidly changing business environment. Orange strives to deliver real value to multinationals as an ICT partner that they can trust," said Yee-May Leong, SVP, Orange Business Services Asia Pacific.

SingTel launches 150Mbps 4G services

Singapore Telecommunications Ltd (SingTel) has launched Mobile Broadband 150, claimed to be the first 4G mobile broadband service in Singapore to offer speeds of up to 150Mbps, which is two times faster than conventional 4G services.

The network speeds are available at outdoor locations

nationwide, as well as popular indoor locations like Jurong Point, Raffles City, Tampines Mall, Bishan Junction 8, Bugis Junction and Changi Airport. SingTel said it was working closely with building owners and property developers to implement 150Mbps 4G capabilities in as many buildings as possible. "SingTel continuously invests in its network to offer customers the fastest and most reliable mobile broadband experience. We are excited to be the first to launch the next-generation of 4G services in Singapore. With speeds of up to 150Mbps, customers will enjoy an unrivalled experience for multimedia content, web surfing, games and file downloads on the move," said Johan Buse, SingTel's Vice President of Consumer Marketing.

"Our customers can look forward to a 150Mbps service for smartphones and tablets in the coming months when handsets compatible with these speeds become available in Singapore," he added.

TELECOM Review



Australian NBN debate mired in misinformation



Telecom Review attempts to separate the facts from the fiction regarding Australia's National Broadband Network project.

There's a table in the Australian Coalition's press release announcing its plans for the National Broadband Network headed 'The Facts' that lists details of its and the Government's NBN plans.

A 'fact' about the Coalition plan is that it will be rolled out 2014-2019. A 'fact' about the Labor Government's plan is that rollout has been 'promised' from 2009-2021 but will 'likely' be 2009-2025.

Here's a quick quiz for you, and this isn't about your views on the merits of one other NBN plan. Which of those three statements is a fact?

Answer: only one, that the ALP has promised to roll out its NBN from 2009-2021. The Coalition's timetable is not a fact, it's a promise and the 'likely' timetable for the ALP plan is sheer speculation. The rest of the table is filled with speculations, forecasts and promises masquerading as facts.

This has been a recurring theme throughout the last four years of debate around the ALP's NBN. Not only can many of the participants not get their facts straight, they can't even use the word correctly. It's been co-opted for possibilities, probabilities, improbabilities and outright fiction. A release by the Coalition of its NBN policy on April 10 has precipitated a fresh deluge of misinformation, disinformation and downright ignorance on the topic.

There is also an assumption of ignorance that is, frankly, rather insulting. The Coalition's press release states: "Under Kevin Rudd, Labor promised fast broadband for all Australians by 2013 for a cost of \$4.7 billion. After more than five years in Government, only 10,400 users have signed up to the Labor's



fiber network despite \$7.5 billion in cash injections to the NBN by June – already almost double the money Kevin Rudd said was needed to complete the entire NBN."

No mention of the fact (a real one this time) that the current largely FTTH NBN is a totally different beast to the FTTN NBN proposed in 2007.

At least no one can accuse the Coalition's NBN spokesman, Malcolm Turnbull, of being ignorant about the NBN. He is far more knowledgeable about the technology and overseas networks both FTTN and FTTH than most of the journalists who question his policy. This is more than can be said for many of those who choose to weigh into the debate, or feel pressured to comment.

Misinformation through ignorance and deceit are just two sources of falsehoods around the NBN. The third is projections that prove overly optimistic. NBN Co CEO Mike Quigley, fronting the Joint Parliamentary Committee on the NBN on 19 April, revealed that NBN Co's fiber network rollout schedule had slipped considerably.

In his press conference after that event, Greens communications spokesman, Scott Ludlam, said: "It still seems to me extraordinary that as late as December last year we were being told everything was fine and then all of a sudden the rollout of the fiber to the premises is up to between fifty and sixty percent behind schedule. All we were really told today is 'trust us'. I don't think we take these things on trust anymore, but on data." Data, of course can only be 100 percent reliable after the event.



Other key data missing from the debate relate to the state of the copper access network, which is crucial to the Coalition's FTTN plans. Opponents of that plan say the copper is in bad shape and will require much remediation work in order to support technologies like VDSL and vectoring on which the plan depends.

One commentator (ABC journalist Nick Ross) claimed that "Over 80 percent of the nation's copper network is over 30-years old and copper expires after 30 years - Telstra is currently in the process of ripping it up to make way for NBN fiber."

Telstra, and/or the Government, have been accused of "ripping up the copper" by numerous opponents of the FTTH NBN. Telstra is certainly not going to rip up the copper. It will be left in the ground. High though the price of copper is it would presumably not be economic to retrieve it.

And of course copper does not 'die' - ever. As it and the ducts that carry it age water ingress increases, joints corrode, noise increases and performance degrades. In fact, according to Ross, the parlous state of Telstra copper is reason on its own to build an FTTH network "A standalone reason for the NBN is that it replaces the expired 'rotting' copper network," he claims.

NBN Co CEO, Mike Quigley who looks set to lose his job if the Coalition wins the next election - has to tread a fine, apolitical line between the FTTH and FTTN camps. He told the joint committee: "We know a lot about VDSL technology including vectoring, what we don't know obviously what is the state of the copper network in Australia."

Only Telstra has that knowledge and in its 2005 FTTN proposal to the Government Telstra rated remediation of the copper as one of the big costs. Given that the Government foreshadowed the copper network's decommissioning when it announced its FTTH plan in 2009, it seems likely that Telstra's remediation work since then is likely to have been minimal.

The Coalition' NBN policy does acknowledge that "in some places, especially high maintenance costs may require copper to be replaced with fiber." It estimates this figure at 10 percent of premises, but gives no indication of how that figure was arrived at.

Such is the level of

misinformation around the NBN that a cottage industry has sprung up around it. Put 'NBN' and 'myths into Google and you'll get over 200,000 hits. Topping the list are likely to be hits for a web site dedicated to the topic (nbnmyths.wordpress.com).

Its author is unashamedly pro NBN, but claims no affiliation with the Government camp. "My name is Jamie Benaud. I'm a fulltime professional firefighter and hazardous materials technician. I also run a photography business based in the Blue Mountains, west of Sydney," he says.

And he has no doubts as to the source of misinformation around the "My final reason for creating the site is the huge volume of demonstrably false NBN information that has been promulgated by the Federal Opposition and certain sections of the media (primarily by a single media organisation, actually).

The public is being grossly mislead by this false information, and I feel it needs to be corrected."





Destination Myanmar!



One of Asia Pacific's last untapped telecoms markets its set to open its doors to international competition with the awarding of two telecoms licences. Telecom Review explores the challenges and opportunities presented by Myanmar.

News that Myanmar was preparing to privatize its telecoms sector drew attention from telecoms companies around the world, eager to tap into a market ranking close to the bottom of penetration league tables globally.

In January the Myanmar government announced plans to grant two nationwide licences, each with 15 year terms, as part of efforts to privatize the telecoms market and improve its telecoms infrastructure. The licences will authorize the holders to build, own and operate a public telecommunications network and to provide a full range of public telecommunications services, with minimum coverage requirements.

The main goals of the policy are to increase Myanmar's overall tele-density (the number of fixed lines and mobile phone subscribers per 100 inhabitants) to between 75% and 80% by 2016, to make telecommunications services available to the public at affordable prices both in urban and rural areas; to give citizens and enterprises the ability to choose their service provider and more broadly to develop Myanmar's information and IT sector, according to documentation issued by the Telecommunications Operator Tender Evaluation and Selection Committee (TOTESC). The move will bring Myanmar's total number of telecoms operators to four.

TOTESC said in order to be pre qualified applicants needed the requisite resources, financial strength, operating skills and experience to design, implement and operate a public telecoms network. The government initially received a total of 90 expressions of interest and shortlisted 23. Of these 12 were selected and have submitted detailed proposals of their plans to the government committee. Winning applicants will be notified by June 27.

Among the shortlisted companies is a consortium consisting of the world's two largest mobile operators China Mobile and Vodafone Group, which would certainly be a significant player if selected.

Other shortlisted companies include consortiums led by France Telecom, SingTel, India's Bharti Airtel, MTN Dubai, the Caribbean's Digicel Group and Japan's KDDI. While Malaysia's Axiata Group, Norway's Telenor Group, Millicom International, Qatar's Ooredoo and Vietnam's Viettel.



Looking into the market

Following elections in 2010, President Thein Sein of Myanmar has adopted a progressive approach, passing reformatory laws allowing the formation of unions, relaxation of foreign and domestic media censorship and the release of thousands of political prisoners.

In response to this international governments have expressed a willingness to improve diplomatic and trade relations with Myanmar provided reforms are sustained, and various international sanctions have been lifted. This paved the way for the reforms in the telecoms sector that are now taking place.

Myanmar is Asia's eleventh most populous nation at around 60 million inhabitants. Of these there are estimated to be less than three million wireless subscribers, the majority of which are signed up with state owned Myanmar Post and Telecommunications (MPT). Wireless penetration is believed to stand at around 4-5%%, and there are estimated to be around 400 base transceiver stations (BTS) in the country, while fixed penetration stands at 3% with 1.5 million fixed lines.

Internet use in Myanmar remains low at 1% penetration with an estimated 110,000 users, which are believed to be focused around the two largest cities Yangon and Mandalay. Popular sites including Yahoo, Facebook, Youtube and Google are blocked.

Nomura Equity Research suggests that one of the key

issues holding back Myanmar's telecoms market has been artificially high handset prices of between \$600 and \$1800. Although mobile handsets are now available for as low as \$50, phones in other regional markets can be purchased for as little as \$20. The process of registering SIM cards is also prohibitively expensive, at a cost of around \$150 to \$200, according to Nomura. Myanmar's neighboring countries charge as little as \$4 for SIM cards in comparison. There is also a long waiting period for mobile service of up to two years and connection hurdles, as well as poor network quality and coverage.

It was announced in January that a sweeping corruption probe was being launched by Myanmar's government into the country's telecoms sector. The investigation, which is believed to involve Thein Tun, a deputy telecoms minister under the previous regime, reportedly centers on the artificially high prices for SIM cards and other irregularities. The news was deemed to be positive by operators involved in the auction process but there were concerns the investigation would delay the awarding of licences.

Nomura believes that a significant increase in penetration will require lower prices, large infrastructure investment and clearer policies around interconnection. The research firm compares Myanmar's potential to that of neighboring Thailand, where the combined market cap of the top three operators is \$23 billion, but Myanmar's GDP per capita is significantly lower. Another issue that may concern applicants is security risks in the country. Myanmar has been wracked by civil war for decades, and a recent rise in unrest in Kachin State has undermined government reforms. Ceasefire talks between senior military and rebel figures have raised hopes of peace, but conflicting interests in the country may present problems. Neighboring China has facilitated negotiations but has a vested interest due to an oil and gas pipeline that travels through rebel territory. The Shwe pipeline is deemed critical for the economic development of Southwest China and Beijing is concerned that it could be affected by any growing instability, according to risk analyst Maplecroft.

Regulatory Hurdles

Among the key challenges for those looking to enter Myanmar's telecoms market are whether there will be regulation in place to protect their investments and allow them to grow. In a document released by TOTESC it is stated that the licence reward process will be part of a larger process by which the government is seeking to transform the telecommunications sector. The document states that a new telecoms law, which will govern the sector, is expected to be promulgated in the coming months, while at the same time the government has begun corporatizing Myanmar Post and Telecoms.

The document further states that the government expects

the structural and functional separation of policy making, regulatory and operating functions in the sector and expects to establish an independent regulatory authority by 2015.

Given that the licen ces will be awarded in 2013, this has led operators to question what safeguards and provisions will be put in place to achieve an even playing field for the new entries and the regulatory regime that the licences would be subject to.

TOTESC has responded by saying that new regulations are being developed by the Ministry of Communications and Information Technology, the Posts and Telecommunications Department and experts from international institutions.

"As a result Myanmar is expected to follow international best practices" says TOTESC. With the document going on to say that regulation may not be fully ready by the time licences are granted, but high level regulatory guidelines will be provided.

Naturally this lack of regulation is likely to be a cause for concern for international telcos, but given that many chose to submit applications anyway it shows just how promising Myanmar is deemed to be as a market. However, there is clearly a long way to go yet, and the next few months will reveal not only the auction winners but also the true challenges they are going to face in establishing themselves in the country.

Interview: Andrew Findlay, Managing Director of Vertel Australia



Andrew Findlay, MD of Vertel Australia spoke to Telecom Review, regarding the company's microwave, Carrier Ethernet and IP transit operations and serving the needs of government, enterprise and service provider customers in Australia.

Can you describe Vertel's business?

Vertel is an Australian based carrier which commenced operations in 1973. Over the last 40 years the company has been focused on building out carrier grade mobile and fixed network infrastructure. We provide network services mainly to the government, enterprise and service provider industry segments. The company is privately owned and our main focus is



building telecommunications infrastructure in areas that are underserviced by the major carriers – outer metro, regional and remote Australia.

What are the key services you provide and the market segments you are currently addressing?

The key services can be broken up into four major segments. The first is site colocation facilities, that includes a portfolio of approximately 180 towers and rooftops which are leased to numbers carrier and service providers in the marketplace. We also provide land mobile radio (LMR) network services - analogue and digital pushto-talk two way radio. We provide these networks as fully managed service to our clients. We secure all relevant ACMA frequencies, utilising our own and third party towers to install all necessary base station equipment and provide and proactively monitor the end-to-end quality of our services for our clients.

We offer both analogue and digital radio networks and we also undertake the build/ operate/transfer of large government style networks using other digital P25 or TETRA technologies. In the second mobile segment we have a comparatively new offering which is a managed wireless LAN or managed Wi-Fi service. We target stadiums, function centers, hotels, major venues etc. and provide general public Internet and private LAN access. The third segment is our fixed network portfolio which is comprised of two major service offerings.

The first is a QoS guaranteed Layer 2 Carrier Ethernet network service - point to point and multipoint connectivity. We are unique in the way we deliver these services in that we are able to combine third party provided fiber and copper access services and integrate that with our own wireless access offering – Ethernet over high capacity microwave. Delivered on carrier grade and dedicated point-to-point microwave, we can provide bandwidths between 2Mbps and 1Gbps. This wireless access technology allows us to deliver services to areas that do not have or are unable to get fiber connectivity.

We also win business from large enterprises, government departments and carrier clients who have fiber, but require full network redundancy for mission critical applications or services. We also provide a flat rate, unlimited use port based IP Transit service. Delivered over our own network we provide this high capacity and uncontended services to organisations that are heavy Internet users. The



fourth segment that we are addressing is as an enabler of Cloud services.

We have identified and are partnering with a number of the most respected and successful providers of cloud services in the Australian market. This enables us to deliver a range of IaaS, PaaS and SaaS services. Our focus is in enabling these services over highly available, SLA backed network services. This is very much a "sell with" model with these Cloud providers.

What differentiates you from other Australian network providers?

The first point is that we are very much focused on building our own network infrastructure. Unlike many other carriers who have gone off and resold or purchased copper and a DSL offering or are re-selling a Tier 1 carrier's offering, we continue to build and offer our own networks. We take all the commercial and technical risks in providing our range of fixed and mobile network services. We are also very specific about who we target as clients.

We target only government, service providers and large enterprises who from our experience, view network and technology services as an enabler of their business objectives. We also believe in building today for tomorrow. We build our networks to globally recognised standards. Our Carrier Ethernet services are certified to MEF standards, our LMR / managed WLAN networks are based on relevant ITU and industry standards. We guarantee network availability, performance and management under strict SLA and QoS agreements.

We also have genuine focus on customer management through our service desk which is operationally driven by the ITIL standards. But we also have a very innovative commercial approach to working with our major clients.

This enables us to be much more flexible and dynamic than the incumbent carriers by sitting down with our users and listening to what they are trying to achieve, looking at other customer opportunities we can leverage off from that network and then calculating a fee structure that works for both us and our client.

What geographic coverage are you able to offer?

As we build our own network we can provide a service to anywhere in Australia. The challenge with that obviously, is that in some cases in remote locations this would be very expensive. However, there are some organisations or departments that have no choice, having tried satellite or copper services that do not provide the bandwidth and SLAs they require. We have arrangements with wholesale carriers covering the major metro areas in the country. We take that coverage and add our own wireless capabilities to provide the largest MEF certified Carrier Ethernet service footprint in the country.

Our two-way radio networks are national. We operate a national trunked network and many conventional / private networks in the capital and major cities of Australia.

Is microwave really a reliable alternative to fiber?

Absolutely. A well-engineered microwave link will provide to the same availability and performance criteria as what you get from a fiber based service. In terms of value for money, we can deliver around fifteen 100Mbps point to point services for the same money that it takes to build a 20km fiber run – using a seven year TCO on both technologies.

The other benefit of delivering services via microwave is in the relatively short time that it takes to build. We were involved in a project where the fiber provider quoted 30 months to deliver a 25 site WAN. We delivered that network in less than 9 months. Following on from this speed of delivery point, it's also worth noting that the service recovery time of microwave versus fiber is very different as well. A microwave path may be affected by unusually heavy rain or an outdoor unit failure. Both these can be addressed in hours or minutes in the case of 'rain fade'. However, if a fiber optic cable is cut or damaged - and there are increasing examples of this - it is not unusual for that service to be affected for days if not weeks. Having said all this, it is worth noting that we increasingly see the opportunity to provide our wireless based services as complementary to fiber optics rather than just an alternative.

This is particularly relevant in the instances where a customer requires 100% network availability Often they have dual points of fiber in the building, but as we have found in a few situations, there is a common point of failure and Murphy's Law dictates that you will be caught out with that path diversity.

So with a complimentary approach to wireless and fiber, we can provide complete network or 'media' diversity which guarantees 100% availability.

You spoke of MEF services certification. Why is this important?

MEF certification is important for a number of reasons. Firstly, it really helps us overcome the misconceptions that exist around the 'wireless versus fiber' debate. Gaining MEF certification moves the





focus away from the delivery technology to the performance of the service. The MEF does not dictate how you deliver the service, only that you have to meet the very stringent performance criteria to have a certified Carrier Ethernet service.

The other important point for us is being able to provide our services to third party carriers and service providers. By gaining certification, a domestic or global carrier can confidently buy a service from us and know that our service is going to seamlessly integrate to their offering.

The MEF is doing a huge amount of work on these global interconnects and we are excited about this as it opens up opportunities to deal with the world's best carriers on interesting network projects.

The final point regarding certification, it's been important for us to position ourselves at the forefront of the MEF Carrier Ethernet certified services in Australia. There are only 4 other carriers which have achieved certification and we are very proud to be the world's first certified carrier that delivers the services over a wireless access layer.

With the National Broadband Network being rolled out across Australia, is this not a threat to Vertel and other operators?

There are a couple of considerations relating to this question. The first is that under the current government's network we focused (a) in areas that were never going to get fiber and had to rely on satellite or wireless services (b) were not included in the first phase roll-out which meant that would have to wait for a broadband service for five, seven or up to nine years. We have been busy targeting government, enterprise and service providers who have locations or customers in these locations.

Our value proposition is that we can deliver the promise of the NBN fiber services without the wait and without the massive price tag that goes with this project. The second consideration is the current uncertainty as to how the NBN will be rolled-out given that likely change of government at the next election.

Rather than fiber to the premises of 93% of the population, the Coalitions plan is to drop that number down to 21%. This means that 79% of all businesses and houses will be connected with an inferior (to fiber) copper or wireless service. Either way, we remain excited about our niche play in the Australian market.

What do you see as the key factors driving the demand for high speed broadband in Australia?

From Vertel's perspective – being focused on the business market – migration to the Cloud which requires a high bandwidth, low latency, symmetric, QoS enabled link, and in many cases a redundant link. Cloud services are therefore driving demand for better connectivity and a move away from IP-VPN to Layer 2 which is the preferred transport option for Cloud services delivery and management as it provides full network control at user level. Lower priced collaborative video platforms, VoIP, SIP Trunking and other IP based applications are all factors in driving demand for bandwidth.

What role do you see Vertel playing in catering to this demand?

By virtue of the fact that our Layer2 offerings are being delivered to regional and remote Australia, we are looking to those organisations that want to take advantage of the same benefits and economies of scale associated with Cloud and video services etc., but lack the network connectivity. We are looking to address this network connectivity between the end user locations and the data centers that are hosting these new services.

We are also able to offer business broadband services NOW to businesses with compelling needs in remote locations avoiding the five, seven or nine year wait for fiber roll-out under the current NBN plans.

What in your opinion are the biggest challenges confronting government and enterprise CTO / Network Managers within the next 3 years?

From a government perspective I know there is real drive to use shared services. The government has finally realised there are smarter and more economical ways to be able to deliver ICT services – avoiding duplication and unnecessary capital expenditure. In NSW for instance there is a move to consolidate the current 132 data centers into two.

This will create real challenges in the consolidation of existing services and the provision of connections to the two planned date centers. Governments are also striving to understand how it can better interact with the public, particularly in the areas of telehealth and tele-medicine but issues relating to application delivery, network management and privacy all need to be understood and delivered.

Government networks also face the challenge of migration from older legacy networks and I believe there is an educational need for CTO/CIOs in understanding what the available and most appropriate technology and service options are available to drive the ICT changes that are required.

In terms of the enterprise, I believe this segment is better positioned than government as commercial competition tends to drive change and innovation. Having said that, my experience is that there is still an education requirement for enterprise CTO/network managers in understanding the various network options and impact of technologies such as cloud, unified communications, BYOD, managed WiFi, femtocells and SDN will have for their organisations in the near future. 🎹





Ericsson appoints new Head of Investor Relations and Head of Corporate Communications



Ericsson has announced the appointment of Peter Nyquist and Elisabeth Manzi as Head of Investor Relations and Head of the Corporate Communications team respectively. Peter Nyquist has a long background in investor relations and financial communication and since 2006 holds the position as Senior Vice President Investor Relations and Financial Information at Electrolux.

In his new position, effective during the month of September, he will report to Helena Norrman, Head of Group Function Communications with close relations also to the CFO office. Nyquist will be part of the Communications Leadership Team and succeeds Åsa Konnbjer who has been acting in the role since February 2013.

Elisabeth Manzi has for the past 13 years held various communications positions within Scandinavian Airlines (SAS), most recently as Head of Media Relations SAS. In her new position, effective August 1, 2013, she will lead the Corporate Communications team within External Communications and report to Ola Rembe, Head of External Communications, Group Function Communications. Manzi fills a vacancy in the organization.

Helena Norrman says: "Ericsson has a strong communications team in place already and I really look forward to strengthening it even further with two new senior members to the team. Peter Nyquist brings years of investor relations experience with a very strong track record and Elisabeth Manzi gained extensive media relations experience from her years at SAS."

Korean AppDisco Helps Foreign Game Developers to Enter East Asian Markets



AppDisco Inc, the company that developed Asia's No. 1 mobile reward advertising platform 'AdLatte', has announced marketing support and operational assistance for boutique mobile game companies to enter Korean and East Asian markets.

AppDisco has realized the difficulties of relatively small domestic and foreign mobile game developers who possess great mobile games but lacking marketing capital and sales force. Bum Ryung Yoo, co-founder of AppDisco, attended Game Developers Conference 2013 (GDC) who stated, "During GDC, we met many talented game developers who need support for marketing their game. While the content itself has a great value and potential, it seems very hard for them to get attention from users as the competition is getting stronger and a few of big players are conguering the market."

To resolve these issues, initial game marketing, operations, and customer service aid will be provided by AppDisco Korea and through AppDisco's global entities in Japan, Taiwan, Singapore, China, US, Australia, Germany, and UK. Global partners in Singapore, Vietnam, France, Spain, and other countries will participate and extend these efforts as well. One of the developers at the GDC who had a meeting with AppDisco said, "I am very impressed that a Korean company introduced such a successful marketing tool that will help the gaming industry. As AppDisco is already building its global infra, I would love to collaborate and experience the marketing effect of AdLatte and Latte Screen."

The most unique proposition of this assistance program is that game developers are provided with advertisement services as well as game publishing services via AdLatte and Latte Screen. Currently, Korea has over 30 million smartphone subscribers and its mobile gaming industry is rapidly growing. Industry experts forecast its size to surpass over \$ 100M in the year 2013. With these trends, it is welcomed by mobile game developers are encouraged to take advantage of AppDisco's marketing and operations assistance program to land footsteps in the new global markets.

The CEO, Jeong Soohwan, added, "The advantage of mobile game application business is that anyone can share their ideas into the open market system without any physical restriction. We sincerely believe that minor mobile game developers will join our famous cost-effective AdLatte and Latte Screen, and overcome their marketing capital shortage. This will enable co-existence and cooperation of diversified global mobile ecosystem."

LG U+ Trials Cisco Mobile Internet Solutions for Voice-over-LTE



South Korean operator LG U+ is set to trial two Cisco mobile Internet solutions to deliver voice, video and messaging services to LG U+'s rapidly growing number of 4G long-term evolution (LTE) customers.

The Cisco V2oLTE (Voice and Video over Long-Term Evolution) solution, based on the Cisco ASR 5000

Series multimedia core platform, will help LG U+ meet the performance challenge of carrying voice traffic over LTE, according to Cisco.

According to the Cisco Visual Networking Index (VNI) mobile data traffic in Korea will grow eightfold from 2011 to 2016, a compound annual growth rate of 50%. Overall, in Korea, mobile data traffic is expected to grow two times as fast as fixed IP traffic from 2011 to 2016. This rapid growth raises the demand for high-quality mobile broadband networks.

TELECOM Review



Broadband Asia 2013 coverage



Telecom Review attended the Broadband Asia 2013 conference from the 9th to the 10th of April at the Kowloon Shangri-La, Hong Kong. The event was partnered with TV Connect Asia 2013, with a twin conference schedule, allowing delegates a choice of two ladders of informative panels and keynotes.

This year's theme was improving the connected experience through access innovation & imaginative content and delegates were given insight into a wide range of issues from key figures throughout the industry including, telecoms executives, market practitioners, financers, media and regulators.

Among those with a strong presence were PCCW and its subsidiary HKT which welcomed delegates to the event as host operators. This year they are celebrating the 10th anniversary of their successful now TV IPTV service.

During the conference Telecom Review attended a series of keynote sessions and in depth panel discussions from key figures within the industry and some of the region's most influential operators.

PCCW

As host PCCW offered one of the most in depth presentations of the event, with Paul Berriman, CTO at the company, offering an informative presentation on investing in infrastructure for growth across PCCW's businesses.

He began by explaining that 2012 had been a good year for PCCW with revenue growth across all core business sections, including over 25% growth in mobile and international, while mobile EBITDA grew over 44%. In outlining the company's core capex Berriman revealed that HKT's capex remains demand driven while there was only light capex spending required in the Media and Solutions businesses. He also highlighted that the company's transition to next generation core and access platforms was now substantially



complete, moving to OSS/ BSs CRM systems, from copper access to FTTx, circuit switching to IP switching and 2G to 3G, LTE and Wifi.

Berriman revealed that key to PCCW's new revenue growth had been its expanded content value proposition with key segment partnerships, entertainment production, news and sports, interactivity and content aggregation. He particularly focused on the company's now TV brand which has become the market leader after starting operations in 2003. now TV had an installed base of over 48% of homes in Hong Kong in the second half of 2012 with an ARPU of HK\$173 per month.

One means of growing ARPU has been PCCW's TV everywhere strategy with 1.4 million application downloads, 34 live streaming channels and video on demand services, while the company has also signed multiple distribution deals in Malaysia, Thailand, Canada and the US. Among the key points to success that Berriman presented for PCCW were well-defined business processes & back office systems to manage he complex operations of its IPTV business. PCCW's FTTH strategy was also touched upon including its capabilities. Offering speeds of up to 1000Mbps along with a ubiquitous wireless platform is allowing the company to differentiate and drive new revenue growth, according to Berriman. He noted there had been a shift in the broadband business from market share gain to value creation and ARPU growth.

Other topics Berriman touched upon included PCCW Global's business which has now expanded its IP backbone into Europe and Africa and the evolution from voice to multimedia communications. He revealed that data revenue now accounted for 73% of all service revenue for PCCW and highlighted the advantages that PCCW's network offered in supplying high speed backhaul to the company's LTE network.

Other areas of PCCW's business that Berriman was keen to highlight were the benefits



of content play for operators, including the lesser churn, higher market share and ARPU PCCW had attained through doing so, while also talking about the company's cloud service portfolio and home automation service.

He concluded through all the areas covered throughout the presentation that PCCW had positioned itself well for future growth.

CSL

A particularly striking presentation on first day of the conference came from Christian Daigneault , CTO of Hong Kong mobile operator CSL, who covered the smart expansion of LTE in the municipality at 1800 and 2600 MHz.

Daigneault opened his presentation with data from Akamai, showing that Hong Kong had the world's fastest broadband, peaking at an average of 49.3Mbps in the first quarter of 2012, up 9.9% from the previous quarter and 25% year on year. He went on to paint Hong Kong as Asia's high density, high speed broadband hub with the world's second fastest wireless experience, only behind Sweden.

Much of the early part of Daigneault's presentation focused on why CSL decided to launch LTE so early, with the world's first dual-band 4G LTE network in November 2010, followed by a mass market 4G LTE launch in August 2011 and one of the world's first LTE roaming agreements with SK Telecom in July 2012.

Among the reasons stated were Hong Kong's extremely high population density and GDP, as well as its mobile penetration, standing in excess of 200% and one of the world's highest smartphone penetrations. In such an environment network experience is the most important driver of customer satisfaction, according to Daigneault.

He explained some of the key challenges of Hong Kong's geography, notably the large number of high rise buildings, which means that 40% of the population lives above the 14th floor. With such a high number of users in such close proximity CSL's heterogeneous network is very dense in some areas of the city with 50 sites within 0.25 square kilometers in Central.

Daigneault also focused on spectrum, explaining that despite CSL having the largest spectrum holdings in Hong Kong at 137.6MHz, more was needed to sustain mobile data growth. He revealed the company's short term roadmap including having 90% of sites overlaid with LTE in June 2013 and LTE Advanced in 2014.

Later on in the presentation Daigneault focused on the innovation CSL is offering through its music platform, cloud gaming, streaming TV and personal cloud platform, while also looking into a shifting focus from network rollout to managing customer experience. In this he stated building the relationship between service KPIs and customer satisfaction is key.

To close his presentation Daigneault encouraged delegates to come to Hong Kong to experience the mobile broadband future.















КТ

In his keynote on future strategies and partnerships for next generation broadband Tael-Yol Yoo, EVP of KT, alluded to the state of the telecoms market in South Korea, with rapidly collapsing legacy services, OTT players flourishing and increased IP based revenue.

In what he described as the rise of the all IP-broadband era, Yoo outlined projections for the explosive growth of worldwide broadband connections, from 2.2 billion in 2012 to 7.5 billion in 2018, the vast majority of which will be mobile. He also revealed that KT now had 20 million LTE subscribers, with 99% coverage and average mobile broadband use of 2GB per month per user by March 2013.

Yoo went on to describe how legacy accounts for only a fraction of broadband revenue and asserted that telco's must seize new business opportunities utilizing broadband, including what he described as a virtual goods business model. New virtual goods included intangible digital goods distributed through networks and consumed via smart devices, including eBooks, music, games, photos, videos and applications. This was compared to the past non physical goods, purchased to use in the virtual world.

In one amusing insight, Yoo used data comparing the number of views YouTube record breaker Psy's Gangnam Style achieved directly to the number of broadband connections worldwide in 2012 compared to the second highest video by Justin Bieber. He concluded that part of the reason Psy achieved more views was because there were 2.2 billion broadband connections globally in 2012 when Psy's video achieved 1.4 billion views, compared to only 1.3 billion connections in 2010, when Bieber achieved 0.8 billion views.

Yoo went on to outline KT's strategy including building an innovate and low cost broadband network using software defined all-IP technology, cloud computing and always best connected services. He also saw the company transforming into a media group with IPTV over fixed and mobile, E-Learning and significant pay TV market share of 35%.

Finally he described KT's participation in the global virtual goods market including the OASIS mobile application framework with NTT and China Mobile, Sommpi.com Korean culture and music site and K-pop application Genie.

LTE replacing FTTH?

One of the key themes raised by Informa senior analyst, Tony Brown, during the conference was the threat LTE and smartphones play to FTTH players.

While wireless networks can't carry the same weight as FTTH in terms of demand for bandwidth there is serious evidence that the arrival of LTE networks, coupled with the smartphone and tablet boom, is creating problems for FTTH





operators in some markets, according to Brown.

He used the example of Japan where fixed broadband giants NTT East and West have been forced to cut their FTTH prices for new subscribers 34% from ¥5,460 a month to ¥3,600, to try to reinvigorate subscriber growth and stop customers switching to cheaper LTE mobile broadband services.

In comparison sister company NTT DoCoMo has grown its LTE subscription base rapidly having launched services in December 2010 and now has more than 8.7 million subscribers despite LTE only recently reaching national coverage.

During the same period NTT East and West's FTTH subscription growth has slowed significantly during the same period even though FTTH household penetration is still below 50%. From 2011 to 2012 NTT East's FTTH subscriber base only grew from 9,224,000 to 9,654,000.

Brown pointed out that this slowing of FTTH subscription

growth and rise of LTE had come at a time when DoCoMo was changing its pricing strategy, moving away from unlimited data packages to the lowest price of ¥4,935 a month for 3GB of data.

FTTH providers like NTT East and West had assumed that fixed to mobile broadband substitution would be limited due to these limited tariffs not providing enough data to watch movies or download music but this isn't proving to be the case.

Brown said NTT East sources had found that LTE subscribers were adjusting their viewing behavior to fit the realities of mobile broadband snacking on video clips on smartphones and tablets rather than downloading multiple HD movies and other data intensive activies they could with FTTH.

While Brown asserted that this by no means evidence that fixed broadband is dead but it does show that LTE becoming available nationwide can have a significant impact on the telecoms market.



Investigating Highly Automated Ethernet Services for Reduced OPEX and Quicker Time to Market



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Are We Moving Towards 5G?



Cliché as it may seem, necessity is the mother of all inventions. Looking at the current telecom scene, the necessity to innovate has never been more pressing.

ASIA PACIFIC

In this seemingly wild rollercoaster-like mode

of transition in the era of connectivity, the great

and brilliant minds of the telecommunications industry are restless.

Improvements and developments in the various means of

connectivity are hounded by unrelenting issues rooted in all the different sectors in the industry which further impose the need to evolve in order to adapt.

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In an interview, Rahim Tafozolli, Director for Surrey University's Centre for Communications Systems Research, and **Professor of Mobile Wireless** Communications, mentioned that every 10 to 20 years, a new generation of mobile cellular standards will come up. He added that the aroundwork in terms of research, development and standards are being done as early as now, though he noted that rollout may not happen until sometime between 2020 and 2030.

3G connectivity is taken for granted now. It has become part and parcel of daily life without which individuals cannot live. Even more so with all the advancements and rollouts of 4G, people are under the spell of connectivity. Entrepreneurs are continually looking for more advanced technologies that would provide swifter and easier ways for connecting wirelessly.

Despite the rollout of 4G (LTE) still being in its prime the thought of bringing about 5G connectivity is being conjured in the heads of tech experts. Their reason behind such thoughts is that at some point, there will be an undeniable need to address the huge demand for data. The only way to face this tidal wave of data is to come up with a seamless and ubiguitous connection that would cater to all needs and demands no matter how colossal they are.

Tafozolli added that despite time impediments, there are a number of companies that have already banked the needed funds required for making 5G a reality. He stated that "5G is about the network capacity. We expect mobile data traffic to double every year. We are going to need around 20 times more capacity per meter square than we are offering right now."

5G, according to Tafozolli, will also be driven by the energy efficiency of networks - the cost of energy to run the network. "As mobile data traffic doubles, the costs of electricity will double every year too. It is as simple as that. It is a linear relationship, and we want to provide huge amounts of capacity for a fraction of the energy consumption that we are using right now," he comments.

Expectations

Reports revealed that the UK government, despite still waiting for the full implementation of its 4G data services, is set to embark on a trial of 5G services this year. According to TechWeekEurope, the UK is looking to offer users speeds of up to 200Mbps.

This milestone is in line with the UK government's announcement of £35 million funding for a 5G Innovation Centre, as part of a £1 billion investment from the UK Research Partnership Investment Fund (UKRPIF). Europe is making large investments in this particular next generation of wireless technology. It was earlier reported that major EU carriers including Telefonica, Deutsche Telecom and France Telecom are part of the plan to launch 5G wireless technology in Europe by the start of 2020.

5G is being developed to lessen and avoid bottlenecks caused by mobile data traffic. Beyond speed, 5G could additionally become much more reliable than 4G networks thanks to its ability to handle 50 to 100 times more traffic. It provides a great leeway for more data transfers. It also further lessens the energy consumed as it allows data to flow faster.

5G technology could take the form of new radio air interfaces, new cellular architectures like heterogeneous networks and wide-area mobile mesh, and even the virtualization of the network itself, says Jan Färjh, Head of Standardization and Industry for Ericsson, the network vendor spearheading Mobile and wireless communications Enablers for the Twentytwenty Information Society (METIS). In addition to that, according to Crain's NY, future 5G networks could have download speeds that are 1000 times faster than 4G.

However, moving towards 5G needs careful planning, consideration and of course time. It is no secret that the benefits of 4G are still being freshly and newly felt. Many operators are still investing in 4G infrastructure and will be rolling it out in a year or two. For this reason, 5G could be pushed far back down the line as they may need to realize the turn around of their current investments (spectrum or infrastructure) with 4G.

Despite everything, 5G network technology is a definite future development. As a smart network, it is expected to address the current concerns within today's networks because, it would know when the network traffic congestion dies before transferring more data.

More importantly, as we wait for 5G to emerge, we can expect roomier storage space for data, but not much more speed. The issue of speed has been already addressed through 4G.

5G complements the amount of space for the required data without further disturbing other network components. As stated above, redeveloping a new technology takes time and money. But, with the increasing demands for mobile connectivity, 5G is a reality carved within the world of connectivity.



Inmarsat Acquires Australia's TC Communications



Global mobile satellite communications provider Inmarsat has acquired TC Communications of Australia.

Inmarsat said it will integrate the company into its existing operations with a particular focus on supporting its expanding Global Government and Enterprise Business Units. As part of the deal TC Communications CEO, Todd McDonell will join Inmarsat as VP of Global Government Solutions, covering sales and operations of Inmarsat's global government business in Australia, Canada, New Zealand and the Netherlands.

"The strategic rationale is compelling. The acquisition of TC Communications brings strong VSAT, Wideband Global Satcom system, aviation and solutions skills to Inmarsat's Global Government and Enterprise Business Units.

These skills are particularly important to drive the takeup of Global Xpress® in the enterprise and government markets following the launch of the first satellite later this year," said Andy Start, President, Inmarsat Global Government. "In acquiring TC

Communications, Inmarsat has gained access to a professional team with a strong reputation for excellent customer service and technical expertise."

The acquisition will see TC Communications' team, which was 24 strong in 2012, integrated with Inmarsat, increasing the provider's presence in Australia to 65 people, based in Sydney, Perth and Canberra.

Thuraya Creates Innovation Division

THURAYA 🔇 stay close

Mobile satellite operator Thuraya Telecommunications has formed a new division focused on leading strategic initiatives for the development and innovation in products, services and business models.

The move follows the successful launch of Thuraya's

SatSleeve for the iPhone and is driven by ambitions to develop state-of-the-art solutions in the satellite industry.

Thuraya also recently expanded its product portfolio, optimized its network infrastructure and expanded its distribution network in key markets.

A new position, Head of Innovation, will lead the division. The role will serve as a key member of the company's executive team and report to Thuraya's CEO, Samer Halawi.

A global search is currently underway with Halawi taking the position of interim Head of Innovation until a suitable candidate is recruited.

"Thuraya demonstrated its ability to buck the trend and deliver outstanding growth in a stagnant industry despite a tough economic climate. We have ambitions to further grow our business by being at the forefront of innovation. We are proud of our legacy in delivering the best quality mobile satellite products and services and we intend to take our product and service offering to the next level in our commitment to continue to drive innovation in the satellite industry," said Halawi.

Eutelsat 3D Satellite Successfully Launches



Eutelsat Communications has announced the successful launch of the Eutelsat 3D satellite by Proton Breeze M rocket supplied by ILS.

The satellite, built by Thales Alenia Space, lifted off on May 14 at 16:04 GMT. Following a nine hour and 13 minutes flight Proton released Eutelsat 3D into geosynchronous transfer orbit. Eutelsat 3D will initially be located at 3° East to address high growth video, data, telecom and broadband markets. It will serve customers in Europe, North Africa, The Middle East and Central Asia through a configuration of Ku and Ka transponders connected to three footprints.

A fourth services area in the Ku band will serve Sub Saharan Africa and the satellite is designed to operate in orbit for 15 years. When the Eutelsat 3B satellite is launched to 3° East in 2014, Eutelsat 3D will continue services at 7° East.

"This new satellite will take service at 3° East to a new level in advance of the launch in 2014 of Eutelsat 3B. Our thanks to Thales Alenia Space for delivering our new satellite and to ILS and Khrunichev for this flight which maintains our track record of 100% success since our first Proton launch in 2000. We are pleased to renew our confidence in the powerful Proton launcher with a new contract that gives us the scope to increase our operational agility, a key asset in our business," said Michel de Rosen, Eutelsat CEO.

Eutelsat has also signed a new contract with ILS for a satellite to be launched in the 2014 to 2016 timeframe. It will be the eighth to

be launched for Eutelsat by the Proton launcher.

"The Proton vehicle and Eutelsat partnership dates back 13 years starting with the Sesat 1 launch on Proton in 2000. After seven launches, including the 50th ILS Proton launch in 2009 with the Eutelsat 10A satellite, we are honored that Eutelsat continues to place their trust in us to enable the expansion of their business. Many thanks to the Eutelsat, Thales Alenia Space, Khrunichev and ILS teams for ensuring mission success with the launch of Eutelsat 3D," said ILS President Phil Slack.



Asia Broadcast Satellite Appoints Felix Damiba as MD Of Africa



Asia Broadcast Satellite has announced the appointment of Felix Damiba as Managing Director of Africa. In this newly created position, Felix will be responsible for business development, managing sales and operations for the African market.

"We are delighted to have Felix join us at ABS. Felix brings more than 30 years of experience in the industry and will demonstrate strong leadership skills in various disciplines to bring ABS's presence in Africa to another level. He will be responsible for business development, sales, and project and service management. We are confident that Felix's experience in sales and customer relations as well as his high standard of service delivery will help our future expansion for this growing region," said Tom Choi, Chief Executive Officer of ABS.

Mr Damiba was the Sales Director at Comtech EF Data with a strong track record for both commercial and government clients for the African region. He also held various positions in Sales and Engineering with Intelsat and was the CTO of National Telecommunications of Burkina Faso. Felix holds an MBA from Loyola College in Maryland, and a Master of Science in Electronics and Telecommunications Engineering from the Polytechnic Institute of Bucharest.

Arianespace Wins Australian Broadband Satellite Contract



European satellite launch company Arianespace was Monday selected by the Australian government to send rockets into orbit to help bring broadband to the country's remote Outback. Arianespace, backed by the European Space Agency, won a contract worth up to US\$300 million following a two-year procurement process to fire. Australia's National Broadband Network satellites into space.

The massive Aus\$35.9 billion network is the largest infrastructure project in Australia's history and aims to connect 90 percent of homes, including remote settlements, with access to fast Internet by 2017. Arianespace chairman Jean-Yves Le Gall said his company was proud to be part of such an ambitious project.

"Arianespace has led the launch services industry with many operational firsts and numerous record-setting missions," he said.

Two purpose-built communications satellites,

currently under construction in California, will lift off aboard two 777 tonne Ariane 5 heavylift rockets which will deliver the payloads into orbit.

The launches from Europe's spaceport in French Guiana are scheduled to take place in 2015 and will allow access to fast Internet to up to 200,000 remote homes at speeds people in the city currently take for granted.

Thuraya Launches New Maritime Broadband Offering



Mobile satellite operator Thuraya Telecommunications has launched a new Maritime Broadband (MBB) service claimed to offer ship owners and managers high quality maritime communications at practical prices. The service price plans are designed to cater to all types of user requirements, with both unlimited high volume usage plans to zero monthly low volume plans to be used for backup purposes.

"Our analysis of the maritime communications market identified a

clear need to simplify choice for end users by providing pricing plans that reflect best possible value. MBB from Thuraya MarineComms offers a flexible solution, regardless of whether users are looking for high or low volume usage or for a reliable backup," said Thuraya's Director of Marketing, T. Sanford Jewett.

Thuraya's mobile broadband service offers standard IP at speeds of up to 444kbps, enabling maritime users to take advantage of true broadband connectivity for business-critical and crew welfare applications.

The provider claims its network features the most powerful L-band satellites currently available to maritime users and utilizes dynamic resource allocation to minimize traffic congestion in areas of high communications volume such as ports and busy shipping lanes.

The price plans are initially bundled with the Thuraya's IP broadband terminal and a Spacecom IP321 antenna, a solution designed to be resilient in the harsh conditions of the maritime environment. It has been successfully deployed on leisure and commercial vessels for several years and is currently actively used across Thuraya's satellite coverage footprint.

"The maritime communications landscape is rapidly changing. Thuraya MBB provides the shipping industry with the robust, value-for-money option that it has been seeking. Combining competitive airtime, tried and tested hardware and a reliable L-band network, means users no longer have to choose between quality and value," said Thuraya's Director of Market Development for MarineComms, Kyle Hurst.

MBB has been certified to work with value added services provided by Thuraya's Service Partners, making it simple to set up optimized email and web browsing, VPN, VOIP, Instant Messaging and M2M applications.

TELECOM Review



The Rise of Hybrid Apps



"Do I need to install Windows or Mac OS on my MacBook? Will the new version of Photoshop run on both? What are the things that I can and cannot do if I chose the Jaguar OS over the Windows?"

There was a time when these seemingly confusing questions popped up and consumers were solely left to decide which particular laptop to buy. With these crucial questions, they had to weigh the pros and cons of their next purchase. This tug-of-war questioning is not exclusive to computer consumption alone, but it is also applicable to all other products including handsets and mobile phones.

This line of thinking has continuously served as a

common filter for millions of people in streamlining technical specs and features that they find most useful when buying a new product.

According to research company Canalys, during the last quarter of 2012, there were about 438 million smartphone units shipped across the globe, which equates to a growth of about 37% compared to the units shipped for the same time during the previous year. One would assume that one of the significant factors affecting crucial consumer decisions, before the actual purchase, is the operating system itself. However, some consumers are more interested in the body of the smartphone rather than its operating system.

Regardless of how they choose, Canalys noted that



based on the last shipment alone, Android powered handsets accounted for about 34% of the total shipment, 11% went to iOS, whereas the rest was shared by different market players. Smartphones now represent almost 50% of the total shipments in the last guarter of 2012.

With millions of users now accessing the internet over their handsets, the critical bulk of consumption questions are: Which handset will I buy? Do I need to go for Android, iPhone (iOS), Windows or something else? Deciding on the operating system is a critical factor for many users as it will soon dictate their capabilities as everything moves towards mobile computing. These capabilities, more often than not, are dictated by the apps that come along with the handset, or rather that work well on it.

Nowadays, apps have given users more freedom to choose which handset to buy. Through applications, users are able to customize how their handsets work according to their specific needs. They can choose which application is most beneficial. End users now have the power.

Needless to say, the smartphone uptake will continue its unprecedented growth over the next few years. However, what is really exciting is the continuous battle towards supremacy between operating systems.

According to ABI Research, Android will be on top with 58% of the market share this year. It will be followed by iOS with about 33%. They have also predicted that the total number of apps to be downloaded will be about 56 billion. These downloads will be the main driver and motivator for creating apps and certifying them.

Banks, airlines, transportation, restaurants, theatres and all other industries that exist have jumped on the bandwagon to create value added apps services.

Industries are aware that with these apps, they have direct contact with end users and consumers, who are potential customers.

However, designing a specific app always comes with a price and is dependent on the company and which application to place their bet on.

Like end users and companies, developers likewise are caught in the confusion as to what type of applications they need to develop. The process of developing applications involves the operating system first and foremost.

In layman's terms, there are three types of mobile apps:

native apps, web based apps and hybrid apps.

Native apps are the most basic type of applications. Building them is very simple and specific as they are developed for specific devices. For instance, iPhone apps (iOS) are written in Objective-C and Android apps are done in Java. With native apps, programs are created specifically for each operating system. With these apps, end users can tap into the wider functionality of the device such as the camera, compass or other notification features.

However, the downside of these particular types of mobile applications is that they will not work on all mobile devices on multiple platforms because they are designed for a specific OS. Despite that, native apps bring about higher performance in terms of quality of user experience.

Web based apps, on the other hand, are made to look like a condensed version of the original website of a company and can display text, images and videos. The significance of these apps is that they effectively display static content but do not require a hardcore software programmer; a web designer can easily create one. Nevertheless, these types of apps suffer in terms of functionality as they cannot be accessed properly

if users are not connected to the internet; the basis of web based apps content is online, thus, offline viewing is remotely impossible.

Lastly, hybrid apps are considered the in-betweens of native and web based apps. They are quicker to build compared to native ones, thus, less expensive to develop. Their responsiveness and quality are also higher compared to the web based ones. Hybrid apps are cross compatible. They are built using web technologies, while using native codes in order to enable access to wider functionalities of the device, and thus produce a more refined user experience.

According to Gartner, more than half of mobile apps deployed by technology enterprises will, by 2016, be of the hybrid type. When this happens, a huge shift in apps development will take place.

The wave of change in terms of developing mobile applications is in the offing. Though hybrid apps are not meant to replace the responsiveness of native apps, they respond to the end users' needs in terms of delivering content through their mobile handsets.

Today, we only see the tip of iceberg in terms of hybrid apps in app stores. Soon enough, as users' needs become more refined, all apps will be hybrid.

TELECOM Review

Thuraya: Expanding channels and connectivity in Asia Pacific



Bilal El Hamoui, Regional Director for Asia at mobile satellite provider Thuraya, spoke to Telecom Review regarding the company's expanding business in Asia Pacific, the launch of Thuraya's iPhone satellite adaptor, the SatSleeve, and plans to establish distribution channels in emerging markets across the region.

How is Thuraya's business in Asia Pacific developing and what areas are you particularly excited about?

Thuraya's business in Asia has been growing exponentially over the past 24 months. In fact, we culminated in triple digit growth in 2012. Our success can be attributed to strong demand for our land and maritime voice services. We are also very excited to be working on establishing our distribution channels in emerging markets in the region, which have been instrumental to our growth objectives. We recently launched the Thuraya SatSleeve, which is the world's first satellite adaptor for the iPhone. The new device has gained significant interest from our partners and operators and we are working towards building on the success we have in this product.

Why has Thuraya opted to partner with telecoms operators in the region?

The Thurava SatSleeve has allowed us to bridge the gap between the consumer and traditional satellite users. Today, we have a stronger value proposition for mobile operators in Asia looking to extend network to their subscribers. This unique value proposition will help drive better customer loyalty through product differentiation and allows operators to leverage our strong satellite coverage network. Our Thurava SatSleeve offering also complements the product portfolio of the telecom operators and allows them to reach a wider end-user base with minimum CAPEX.

What potential does mobile satellite services have for addressing connectivity needs in Asia Pac?

We believe that there is tremendous potential for addressing connectivity needs in Asia Pacific. In general, GSM coverage over Asia is not comprehensive due to the vast expanse of land and maritime areas. Therefore, mobile satellite services will always play a significant role in these areas with sporadic or no terrestrial coverage. This includes coverage at sea too.

We recognize that every market in Asia has a specific demand. Whether it is dual band use in Indonesia because of the large number of islands, or within the outback in Australia where GSM coverage has gaps, Thuraya has a value proposition to match every market demand.

Are there any specific countries in the region from where Thuraya is experiencing higher demand? Key countries that we've seen steady growth in are Australia, Indonesia and Japan. We've also recently launched our services in Taiwan and in China and these countries have very high potential and demand.

What are some of the key challenges Thuraya is facing in Asia Pac?

Establishing a solid distribution channel network requires a lot of hard work. For us, setting up our base in the region is akin to running a startup. We recognize that there is high potential and demand for Thuraya's products and solutions in the region and our challenge is to put together a strong distribution network that will support customer demand in markets under our coverage area. We are fortunate to enjoy and benefit from strong brand recognition across the Middle East, and we are working on raising our brand awareness across Asia with the support of our partners.

In what business areas is Thuraya expecting to see the most growth in Asia Pacific in 2013-2014?

As outlined earlier, we see steady growth in our land and maritime voice services. With our focus on the Thuraya SatSleeve, we expect to drive even higher demand for voice services moving forward. Furthermore, we also see exceptionally high demand for data services too, particularly for our Thuraya IP+ broadband terminal and our maritime services. With the launch of our maritime broadband plan, we are expecting strong growth in this area too.

ASIA PACIFIC





Mobile Data in India Nearly Doubles in 2012, 3G Data Triples



Nokia Siemens Networks' MBit Index study reveals a 92% increase in mobile data traffic generated by both 2G and 3G services in India between December 2011 and December 2012. The study further reveals that mobile data traffic generated by 3G services increased by 196% while mobile data traffic generated by 2G services increased by 66% during the period.

According to the study, each 3G user currently consumes close to 300% more data on an average than a 2G user. And currently, a 3G user consumes 434 MB per month on an average while a 2G user consumes 115 MB per month. In the first half of the research period, December 2011- June 2012, data traffic generated by 3G services increased by 78% while that of 2G services increased by 47%. In the second half, July 2012 - December 2012, data traffic generated by 3G services increased by 54% while that of 2G services increased by 18% on a larger base. Hence, the growth rate of 3G data in the second half of 2012 was almost triple that of the growth rate of 2G. In the second half, 2G data growth stabilized due to high-end 2G users migrating to 3G services.

The 3G tariff reduction by operators in mid 2012 led to the significant growth in 3G data

consumption across the country, with category A circles seeing the maximum impact. 3G services generated one-third of the total mobile data in the country in the second half of the year – up from one-fourth in the first half.

The study further reveals that in category A circles, there is a very strong tendency to access mobile data using smartphones. Forty five percent of the total data accessed by smartphone users is generated in these circles. But half the number of these users still access mobile data on 2G networks. This provides operators a huge opportunity to encourage 2G users to go for much faster 3G services. It also underscores the need for operators to make 2G/ GSM networks more smartphone friendly in order to ensure a better customer experience.

The report further reveals that data currently accessed by smartphones using 3G services in category B and C circles is much lower than the national average, with category B circles recording 75% of the mobile data consumption using 2G services only. "The fact that data consumption by 3G users has tripled in one year clearly shows the rapid and steady increase in mobile data consumption in India. This translates into the need for high-quality mobile broadband services with improved speed and service quality to satisfy mobile broadband users," said Sandeep Girotra, head of India region at Nokia Siemens Networks.

"In addition, the observations of trends in various circles underscore the need for a special focus on further enhancing 3G network coverage in A, B and C circles across the country. Constantly improving the quality of data services and fulfilling growing expectations of mobile broadband customers will be a win-win for both operators and data customers."

The trend in mobile data growth in India is in line with other high growth mobile data markets around the world as well as with Nokia Siemens Networks' vision that operators worldwide will need to be prepared to provide 1GB of personalized data per user by 2020.

KDDI forms partnership with Telenor Connexion to provide global M2M solution



KDDI has teamed up with Nordic M2M service provider Telenor Connexion to provide a global M2M solution for KDDI's corporate customers. Utilizing this platform, KDDI's global M2M solution enables corporate customers in Japan to monitor and control devices such as industrial machines overseas in approximately 200 countries and regions, over a secure network.

KDDI offers the service in Japan as an all-inclusive one-stop solution covering all stages from contract to operation and maintenance, and in the remote event that trouble occurs abroad, KDDI's overseas subsidiaries are able to provide prompt and secure support. In addition, by using global M2M roaming SIM cards that do not need to be changed for each area, this service reduces the operational load on customers.

"KDDI has a longstanding reputation for quality and reliability and a proven M2M track record in Japan," said Per Simonsen, CEO of Telenor Connexion. "Hence, the partnership with KDDI is a seal of approval of our end-to-end solution and comprehensive support. And it further strengthens our position on the important Japanese market."

Telenor Connexion provides its M2M platform, which enables remote monitoring and control of devices such as industrial machines via installed SIM cards, to approximately 200 countries and regions.



CommunicAsia 2013: Supports Booming Mobile Applications Trend



CommunicAsia 2013, is the region's most established technology event for the ICT industry. Taking place together with EnterpriseIT2013 and BroadcastAsia2013, it will showcase a congregation of the latest technologies, products and developments from cloud computing, over-the-top (OTT), 4G/ LTE, satellite communications, multi-platform broadcasting, mobileTV, DVB-T2, professional audio technology and many more from close to 2,000 exhibitors on the show floor. The conference will take place from the 18th to the 21st of June at Marina Bay Sands, Singapore According to recent studies, around 10 billion mobile internet devices will be in use by 2020; and in 2012, the average number of mobile devices carried by mobile workers was three. As the concept of Bring Your Own Device (BYOD) continues to grow, industry watchers predict that the increasing prevalence of mobile applications (apps), will spur growth of the Bring Your Own Apps (BYOA) trend where consumers will pick the app they are most comfortable with for work.

To keep attendees up to date with of the latest trends and updates in the mobile apps





industry, CommunicAsia2013 and EnterpriseIT2013 are introducing the APPSmart Techzone where exhibitors will be showcasing their latest innovations in mobile apps. Visitors can immerse themselves in the fast-paced apps industry and look forward to meeting developers, mobile professionals, operators, value added service providers, venture capitalists and enterprises at the APPSmart Techzone. Exhibitors such as Ariose Software, NDOT, Retail Juice and TalkBox will be showcasing their innovative apps developed for a wide range of sectors at the Techzone while innovative SMEs such as MobiOuest will be demonstrating their app gems outside the Techzone.

Apps to look out for at CommunicAsia2013 and EnterpriseIT2013

Retail Juice, a Singaporebased apps developing firm and debut exhibitor at CommunicAsia2013, will be showcasing the world's first 'Sofa Maker' iPad app, developed in collaboration with Courts Asia. Launched in December 2012, the app uses augmented reality to showcase sofas in 3D images, allowing consumers to visualise how a particular sofa set would look in their home. Consumers can mix and match 42 sofas with more than 250 materials to create 32.1 billion sofa combinations with which to

create their ideal living space. Since sales staff started using the app, retail sales have increased by 30% to 55%

TalkBox will be featuring their latest product, TalkBox Enterprise, a voice messenger app that allows users from different parts of the world to exchange, share and publish their voice through TalkBox voice bubbles. The app serves as an effective internal communication tool for enterprises and helps businesses reduce devices, networks and IT management costs.

Elsewhere at the conference MobileMonday, together with GrowVC, will host a unique session on mobile start-up funding titled 'Where the Money Meets the Talent' to discuss key issues such as the types of mobile businesses that will thrive over the next two years; future models for venture capitalists and different kinds of investors to work together; and share case studies on successful startups from around the world. The session will be held at the Discovery Lounge on 19 June 2013. MobileMonday will also be presenting the Industry Keynote at the CommunicAsia2013 Summit on 18 June 2013.

Developing mobile apps tailored to your business

A series of exciting and informative conference topics dedicated to the mobile apps industry can be expected at the CommunicAsia2013 Summit's conference track titled 'Mobile Marketing, Services and Commerce'. A congregation of industry experts from around the world will address the latest challenges in the industry, such as how brands can achieve strategic objectives via social media, monetization of online mobile advertising and driving revenue through mobile social networks.

Speakers will include Aliza Knox, Managing Director of Online Sales APAC of Twitter, Marcus Ho, Director of Client Leadership of Social Media Hub and Koh Eng Kiong, Regional Director, ASEAN of Compuware Asia Pacific.

Another panel discussion titled 'Boosting a Mobile App's ROI', will address issues such as using Big Data to enable higher ROI. Another panel discussion, 'Consumer Trust in Mobile Apps', will see industry experts debate on what the mobile apps community needs to do to gain the trust of their consumers.

Zhou Wenhan, co-founder of local mobile consultancy 2359 Media, will be speaking at the CommunicAsia2013 Summit on the 'Top 10 Mistakes Clients Make When Building Their App'. The award-winning entrepreneur, who founded 2359 Media in 2009 when the mobile apps market was still in its infancy, has developed apps catered for a wide range of clients. He will share his views on how to avoid creating a selfdestructive mobile app, and much more.

"Mobile applications are a great way for businesses to reach out, engage and interact with consumers easily. Additionally, there is a gold mine of valuable information such as consumers' spending habits that businesses can tap into with the use of mobile apps, which is partly responsible for the spike in number of mobile apps available in the market.

However, businesses must first understand what they and their customers need in order to build a successful app that reaps returns and I am most delighted to share this and more, with delegates at the CommunicAsia2013 Summit," says Zhou.

The highly anticipated annual conferences held at CommunicAsia2013, EnterpriseIT2013 and BroadcastAsia2013 will also be presented in a new format with a joint visionary address and a cross-industry C-level panel discussion encompassing the ICT, broadcasting, pro-audio, film and TV industries. Delegates can look forward to presentations by global thought-leaders and experts from Amazon Web Services, Google, MasterCard, Microsoft, Telstra Global and many others. 🎹





Asia Pacific: Switching focus from voice to data



Spurred by a diverse mixture of technologically advanced countries and up and coming economic power houses, Asia Pacific is set to lead the world in terms of data traffic. But what impact will this have on the region's voice market?

Mobile data traffic in Asia Pacific is booming with Cisco Systems predicting that it will far exceed all other regions in 2017.

The vendor anticipates that Asia-Pac will generate 5.3 Exabytes of mobile data per month in 2017, more than two times that of North America at 2.1 Exabytes and a significant rise from the 310,000 terabytes recorded in 2012. As a result, Asia Pacific's percentage of global mobile traffic will climb to 47.1%.

This increase can partly be attributed to the projected rise in 4G connections in the region, with Cisco estimating that the number will shoot up from 24million in 2012 to 425 million in 2017. The average mobile connection speed in Asia Pacific is forecast to jump from 316kbps in 2012 to 3036kbps in 2017 at a CAGR of 57%. Asia Pacific is also forecast to have the second highest CAGR for mobile traffic of all regions at 76%, or 16.9 fold growth, just behind the Middle East and Africa by one percentage point.

Robert Schult, research director at analyst firm TeleGeography, believes that 3G service growth in the region will continue as users upgrade from previous service plans, and 3G becomes more widespread and affordable. South Korea, Hong Kong and Japan boast a 3G penetration of near or above 100% but increasing penetration in the much more highly populated Chinese and Indian markets, which make up over 30% of the global wireless subscriber base, is expected to have a significant effect.

Fixed Broadband Still Dominates

Despite impressive growth forecasts, mobile data is anticipated to be a small percentage of total data traffic projected for Asia Pacific over the next few years.

TeleGeography's Schult estimates that mobile network bandwidth requirements contributed around 10% of the region's international bandwidth requirements in 2011 and forecasts that this figure will increase to 18% in 2016.

Instead the main driver for IP backbone demand in Asia Pacific is expected to remain fixed broadband as availability and household penetration continues to increase. In China alone it is estimated that more than 20 million broadband subscribers are being added in every quarter.

There is a significant disparity with regards to fixed broadband penetration and connection speed in different Asian markets. While subscribers in Singapore, South Korea and Hong Kong have access to fast connections, broadband penetration in the higher population Indian and Chinese markets is still quite modest. Slower DSL



technology is therefore expected to be the fastest growing metric in Asia Pacific's fixed broadband sector for the next few years.

Overall as the Asian market has become more mature and the base of international bandwidth usage increases for the aggregate market, growth rates are believed to be declining.

Between 2010 and 2011 international bandwidth usage grew at an annual rate of 50% compared to the nearly 60% recorded between 2009 and 2010. Schult notes that there appears to be no immediate supply constraint in the region, and that there is a surprisingly large amount of new supply imminent.

With the launch of the Asia Submarine Express cable last year and the SouthEast Asia Japan Cable and Asia Pacific Gateway Cable expected in the next two years the total potential capacity on all intra Asia systems will more than double to 86.8Tbps.

This suggests that systems are not being built due to a need for supply, but to allow the members of the various consortiums to position themselves with sufficient access to capacity at the right price points for the future.

Data expanding at the expense of voice

As users continue to up their data usage in the region, it is anticipated that they will use traditional voice services less. Voice usage data from IDC



Asia Pacific, excluding Japan, suggests that the range of voice minutes per user per month in the region in 2012 was 21 to 680 minutes and an average of 270 minutes. IDC expects this trend to decline and remain flat for the next few years with a CAGR of -0.1% in 2016.

"This is a common trend IDC is seeing in the APeJ region, especially with higher penetration on smartphones, tablets and notebooks which are data-centric," said Ashadi Cahyadi, senior research manager for telco & mobility at IDC Asia Pacific. However some markets are expected to buck this trend. Australia, Indonesia, South Korea, Taiwan and Thailand are all still experiencing growth for voice traffic. A factor IDC attributes to the market demographic and competitive landscapes in these countries.

The decrease in minutes is not projected to decrease revenue. Total mobile carrier revenue for voice and data was \$230 billion in 2012 and IDC estimates that this will increase by CAGR 6.3% in 2016. Voice will make up a significant portion of this growth with a CAGR of 3.5% in 2016 and total revenue of around \$150 billion in 2016. With the volume of voice minutes set to decline, according to IDC estimates, carriers in Asia Pacific are pursuing a number of different methods to try to reinvigorate subscribers.

These include complimentary service to data plans by partnering with third parties, like VoIP through Skype and other data centric solutions.

"To resolve the current trends and challenges in the market, many carriers are switching their focus from voice to data services," says Cahyadi.



Telecom Events' Calendar 2013

Telecommunications Exhibitions And Conferences Where Telecom Review Is A Media Partner

June 2013

Telecoms Risk Management Forum



Telecoms Risk Management Forum will explore the strategic, operational, financial and reputational risks operators are facing. Through operator case studies and expert presentations, you will be able to learn how to effectively identify,

anticipate, measure, mitigate and manage risks through organizational enhancements, tighter process and infrastructure integration as well as a stronger focus on the involvement and cooperation of all relevant stakeholders.

Date: 3-4 June 2013 Place: Dubai, UAE

GISEC



GISEC offers cutting-edge IT solutions via a dedicated exhibition concentrating on keeping you safe. The increase in targeted industry attacks from Stuxnet, DuQu, Flame, Gauss and Shamoon reflect an escalation in sophisticated and sustained cyber attacks in the Middle East.

At the event, understand the legislative landscape of cyber security across the Middle East, and what changes need to be implemented to provide a defense on all fronts.

Date: 3-5 June 2013 Place: Dubai World Trade Center, Dubai, UAE

The 2013 Canadian Telecom Summit



Now in its 12th year, The Canadian Telecom Summit has become the place for Canada's ICT leaders to meet, interact and do business. As in past years, this year's Summit will feature highoctane interaction, top-level keynote speakers and thought-provoking panel discussions.

Date: 3-5 June 2013 Place: Toronto Congress Centre, Toronto, Canada

Connecting West Africa



Connecting West Africa is the region's leading digital event and attracts over 500+ telecommunications professionals to network and do business. Hear from top speakers who will deliver you the latest business lass vendors showcasing the technology of

knowledge and meet world class vendors showcasing the technology of tomorrow at the co-located exhibition.

Date: 11-12 June 2013 Palce: Radisson Blu Hotel, Dakar, Senegal

Latest updates on: www.telecomreviewasia.com

CommunicAsia2013



CommunicAsia, EnterpriseIT and BroadcastAsia, Asia's largest and most established information and communications technology (ICT) and media comto roture this upper to chouse the latest technology

munications events, are set to return this year to showcase the latest technologies and trends for the entire communications ecosystem.

The 2013 edition of the shows will have a special emphasis on content as they bring together experts and exhibitors from around the world to showcase and share the latest technology developments and insights, touching on the blend of technologies across the entire value chain of the ICT, broadcasting, pro-audio, film and TV industries. Being the premier launch pad in the region, CommunicAsia2013, EnterpriseIT2013 and BroadcastAsia2013 consistently attract the world's leading companies to showcase the latest game-changing technologies and products that will shape the future of communications.

Date: 18 - 21 June, 2013 Place: Marina Bay Sands, Singapore

LTE World Summit 2013



LTE World Summit - the world's leading 4G event - is back for 2013. Now in its 9th successive year, the 2013's flagship event will be bigger and better than ever before.

The event is expected to bring together over 3,000 attendees, 125 exhibitors and 250 speakers, as well as a large presence from the media and online press. LTE World Summit is recog-

nized by the entire industry as the place to learn from and network with all the LTE industry's key decision-makers and thought-leaders.

Date: 24-26 June 2013 Place: Amsterdam RAI, Netherlands

Mobile Asia 2013



Mobile Asia Expo will showcase the mobile trends and solutions that will transform our lives today and tomorrow. This 3-day event will include a premiere thought-leadership conference, an international technology exhibition, world-class networking opportunities and several featured programs including App Planet, innovation labs and various formalized

industry trainings - all covering in Shanghai to connect the mobile future.

Date: 26-28 June 2013 Place: Shanghai, China

July 2013

LTE Africa 2013



LTE Africa is Africa's first dedicated LTE event and will be the premier forum for African operators to meet, learn, and form fundamental business partnerships to establish what the future holds for LTE. Featuring 60+ visionary speakers from across the ecosystem, including 30+ operator case studies, the event will address the strategic and commercial aspects of bringing

LTE to the market as well as assessing the technical challenges involved. Topics covered include Handling the Mobile Data Explosion, Spectrum Management, Operator Strategies to Incorporate LTE, Analysing the device landscape, Monetising LTE, Service Provision and Hetnets & WiFi Offloading.

Date: 9-10 July 2013 Place: Westin Cape Town, Cape Town, South Africa

Telecom Events' Calendar 2013

Telecommunications Exhibitions And Conferences Where Telecom Review Is A Media Partner

September 2013

VSAT 2013



VSAT 2013 will bring together the major decision makers in the industry to focus on key issues, discuss the latest industry developments and identify opportunities across the globe.

Whether you want to catch up with your industry peers, meet potential and existing business partners or learn about the industry and market developments – VSAT is the premier industry event for you!

Date: 18 - 20 September 2013 Place: Grand Hotel Krasnapolsky, Amsterdam, Netherlands

Middle East Com 2013



Middle East Com will provide an important platform for experts from the telecommunications, media & ICT industry in the Middle East.

Middle East Com is far more one of the most extensive telecom events, both in terms of content, and in terms of including more of the 'disruptive' players in the ecosystem.

Date: 23-24 September 2013 Place: JW Marriot Marquis, Dubai, UAE Emirates

COMPTEL PLUS Convention & EXPO



The COMPTEL PLUS Convention & EXPO is the preeminent networking event for innovative communications companies and their supplier partners. Held twice a year, COMP-TEL PLUS attracted almost 202 exhibitors and more than 4,137attendees to our 2012 events.

COMPTEL PLUS provides you with the opportunity to learn about new products, services and industry trends; meet po-

tential customers and do business. During the Spring and Fall 2012 conventions, we welcomed 42 new companies to the EXPO hall, giving you great opportunities to meet with a growing universe of vendors and suppliers.

Date: 23-26 September 2013 Place: Gaylord Palms, Orlando

MVNO Industry Summit Middle East 2013



MVNO Industry Summit Middle East 2013 assesses the ongoing readiness of a wholesale market which after initially opening up to MVNOs resumed a more cautious relationship with third party telcos.

International best practice case studies will be showcased and analyst insight of local MVNO and wholesale landscapes will be delivered. MVNO Industry Summit Middle East is co-located with the 17th Prestigious Middle East Telco World Summit, offering fantastic business and networking opportunities under one roof.

Date: 23-24 September 2013 Place: JW Mariott marquis, Dubai, UAE

October 2013

LTE Voice Summit



The inaugural LTE Voice Summit will be addressing the most asked questions in this space. Benefit from presentations from key individuals, representing the full value chain including all the top operators and disruptive players, who will be providing the audience with a range of interesting perspectives.

Vendor presentations from Samsung, Acme Packet, Mavenir, Metaswitch & ST-Ericsson were very well-received by conference delegates at last year's event, and this event provides you with the perfect platform to get your message across to this unrivalled audience.

Date: 1-2 October 2013 Place: Hilton Paddington, London

TIA 2013: The Future of the Network



TIA 2013 is a 3-day conference offering intensive learning, insightful discussions and related technology demonstrations. Attendees can expect

to gain new ideas, understanding and directions for adapting their product launches, technology innovations and business models in order to thrive in the rapidly-changing ICT environment.

Date: October 8-10, 2013 Place: Gaylord National in Washington, DC.

GITEX Technology Week 2013

GITEX TECHNOLOGY WEEK 14-18 OCTOBER 2012 GITEX is the ICT business gateway to the Middle East, North Africa and South Asia Region. Focused on providing exhibitors with high ROI through direct business opportunities with decision makers, GITEX has maintained

its position as the industry's trend setting authority. GITEX continually identifies the hottest global IT trends and incubates these into the event either as new sectors or conference programs.

Date: 20-24 October 2013 Place: Dubai World Trade Centre, Dubai, UAE

November 2013

AfricaCom 2013



AfricaCom, Africa's premier communications congress and exhibition returns to Cape Town this November for its biggest and best year yet. The conference program covers the most strategic issues affecting companies in Africa's digital market - services, efficiency, profitability,

customer experience, partnerships, policy and more – and features 6 co-located events: Digital Music, Mobile Money, AfricaCast, AfricApps, Cloud and Big Data. The exhibition is larger with 300+ exhibitors and you'll network with a record 8,000+ decision-makers, representing the entire communications ecosystem across Africa and beyond.

Date: 12 - 14 November 2013 Place: CTICC Cape Town, South Africa

ANI(2)	Access Network Identifier	ARP(2)	IETF Address Resolution Protocol. Binds the physical (MAC) address of a device to an IP
ANI II	ANI Information Digits. Describes the type of phone being used to call (e.g. residential line or payphone)	ARPU	address on a local network (e.g. ethernet subnet) Average Revenue Per User/Unit
ANM	SS7 ISUP Answer Message	ARQ	Automatic Repeat Request. A method of error correction where the receiver detects errors and
ANSI	American National Standards Institute	A.C.	Internet Application Server Handles applications
ANSI-136	ANSI version of the TDMA air interface standard. Replaces IS-136. Correct name is TIA-136	AS	for a range of addresses (e.g. a telephone switch)
ANSI-41	See TIA/EIA-41	ASCII	Interchange. The most commonly used method
ANT	ADSL Network Termination		UNICODE for more complex alphabets and the
ΑΟΑ	Angle of Arrival. A technique for locating a radio by estimating the angle of signal arrival at multiple points. Compare with TOA	ASE	Application Service Element
АоС	Advice of Charge	ASIC	Application Specific Integrated Circuit. A computer chip that is customized for a special
AP(1)	Application Part (of a protocol)		purpose application
AP(2)	Access Point. An 802.11 BS	ASN.1	representation of a protocol message set
АРСО	Association of Public Safety Communications Officials	ASP	AS Process
APDU	Application PDU	ASR	Automatic Speech Recognition
ΑΡΙ	Application Programming Interface	Assisted	A class of GPS receiver that uses information
APLMN	Associated PLMN	GF3(1)	quicker. This is common in cellular phones, where the cellular BS transmits additional
АРМ	Application Transport		information to make the acquisition of satellites quicker and may offload some of the calculations
APMN	Associated PMN		Data is transmitted only when needed. At
APN	Access Point Name. In a GPRS network, the domain name referring to an external packet network		least one bit is needed to indicate the start of transmission (known as a start bit). Compare with Synchronous
ARCH	Access Response Channel	AT	Access Tandem. A switch that can be used to reach a variety of IXCs
ARIB	Association of Radio Industries and Businesses. Responsible for standardization of telecommunications protocols in Japan	ATI ATIS	Access Terminal Identifier Alliance for Telecommunications Industry
ARM	ARQ Response Mode		Solutions. Parent organization for the T1 standards committees and many telecom industry groups, such as OBF
ARP(1)	Authorized Receipt Point. The sole entity authorized to settle and exchange roamer charges and revenue for a carrier		, <u>3</u>

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