

Asia-Pacific III 2010

Connect-World

www.connect-world.com

Dr. Muhammad Yaseen,
Chairman,
Pakistan Telecommunication Authority



**Wireless -
it's in the air and on the move**

ROSTELECOM IS THE LEADING NATIONAL CARRIER PROVIDING TELECOMMUNICATION SERVICES TO MORE THAN 40 MLN NATIONAL AND INTERNATIONAL CUSTOMERS.

THE COMPANY'S SHARES ARE TRADED AT RUSSIAN, EUROPEAN AND AMERICAN STOCK EXCHANGES (NYSE, LSE, RTS, MICEX, AND OTCQX).

ROSTELECOM'S NETWORK covers the entire territory of the Russian Federation with extensions into Europe, Asia & CIS countries, which allows Rostelecom to be a strong and reliable partner on the wholesale market providing services to more than 600 fixed and mobile operators, international carriers, ISPs and content providers. The flexibility of the carrier service portfolio enables Rostelecom to match technical, quality and customer service requirements of each partner/customer.



VOICE

- Premium Voice Termination (fixed and mobile Russian networks)
- Hubbing
- Signalling
- IFS
- ISDN

DATA

- L3 VPN, L2 VPN
- InterAS VPN
- Ethernet over SDH
- IP-transit
- Data-centers

LEASED LINES

- Circuits for lease in Russia and beyond
- Capacity available from N*64K to N*STM-64

TEA (TRANSIT EUROPE – ASIA)

- Terrestrial route Europe – Asia
- Gateways to China and Japan
- Capacity available from N*64K to N*STM-64

Communication in your own style

VOICE

DATA

LEASED LINES

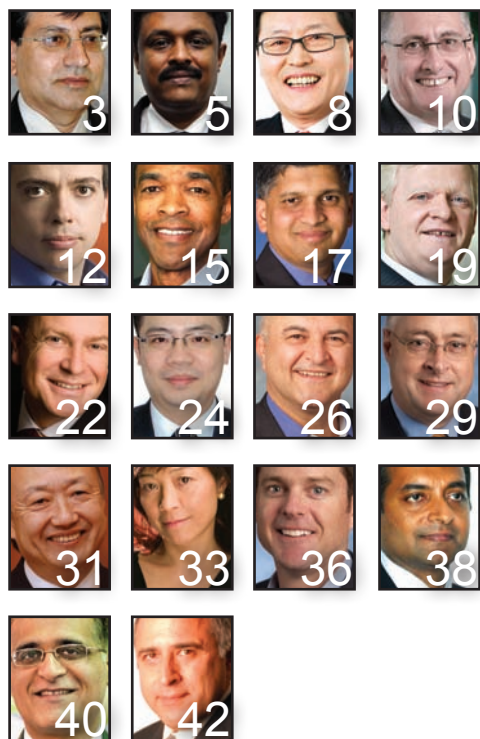
TEA (TRANSIT
EUROPE-ASIA)

www.rt.ru
e-mail: carrier@rt.ru
phone: +7 499 999 82 85



CONTENTS

All articles are available for download at www.connect-world.com



Connections

From the Editor-in-Chief's desk 2
by Fredric J. Morris

Imprint 2

Subscription 44

Advertisements

Rostelecom IFC
Kathrein 7
App Planet 2010 14
Mobile Asia Congress 2010 21
Global Mobile Awards 2011 28
FT World Telecoms 35
Mobile World Congress 2011 IBC
Microsoft OBC

National development

Wireless – in the air and on the move 3
by Dr Muhammad Yaseen, Chairman, ; and Muhammad Amir Malik, Director ICT, Pakistan Telecommunication Authority

National development

Improving broadband penetration in Sri Lanka 5
by Anusha Palpita, Director General and Chairman of ; South Asia Telecommunications Regulatory Commission (SATRC) and ; Dr Manodha Gamage, Consultant, Telecommunications Regulatory Commission, Sri Lanka

Applications platforms

South Korea's future in mobile and wireless 8
by Jung Man-Won, President and CEO, SK Telecom

Next generation broadband

Singapore's next-generation 10
by Neil Montefiore, CEO, StarHub, Singapore

Mobile and the cloud

Beyond the PC - the mobile revolution 12
by Daniel Alegre, Vice President, Japan and Asia Pacific, Google

Constant connectivity

Constant connection is changing the world 15
by Ken Denman, CEO, Openwave Systems

Mobile empowerment

Connect everything, empower everyone 17
by Raghu Subramanian, VP of System Engineering, Juniper Networks Asia Pacific

Sustainability

The business of sustainability 19
by Steve Watts, President SAP Asia Pacific Japan

Green M2M

Wireless and green with cellular M2M 22
by Axel Hansmann, Vice President, Strategy and Marketing, Cinterion

Mobile data

Are you connected? 24
by Patrick Ng, Head of Carrier Relations, Asia, Cable & Wireless Worldwide

Spectrum needs

The mobile age gold rush 26
by John Stefanac, President, Southeast Asia & Pacific, Qualcomm Incorporated

Femtocells

Femtocells - free is the magic number 29
by Chris Gilbert, CEO, Ubiquisys

Wireless markets

Who will lead in the age of wireless? 31
by Tetsuzo (Ted) Matsumoto, Senior EVP of Softbank Mobile, Corp

Smart WiFi

Is smarter WiFi the way to extend broadband? 33
by Selina Lo, President and CEO, Ruckus Wireless

Mobile broadcast

Solving the capacity crunch with IMB mobile broadcast 36
by Jon Hambidge, CMO, IPWireless

Applications development

Harnessing developer communities for telco apps 38
by Dinesh B. Saparamadu, CEO and Founder, hSenid Software International

Location services

Location services consolidation 40
by Navin Vohra, Vice President, Sales, Asia Pacific & India, Andrew Solutions, a CommScope Company

Mobile gaming

The potential of mobile gaming 42
by Sangeet Chowfla, Chief Strategy Officer and EVP Global Market Units, Comviva

CONNECTIONS

Connections



The theme for this issue of *Connect-World* is: *Wireless - it's in the air and on the move.*

The comparative ease of building wireless, and the affordability of infrastructure, are speeding the roll-out of wireless almost everywhere. There are problems, certainly - maintenance and accessibility, clean power supplies for base stations and users alike, among others - but it is increasingly the 'way-to-go'.

The convenience of mobile telephony is slowly eating away at the fixed-voice market and creating its own unique blend of services and opportunities for

service providers and network operators. Traditional markets have been disrupted by the new technologies - as they always have been in the past, but new opportunities are arising rapidly - even for traditional fixed-line dependent providers.

Fredric J. Morris,
Editor-in-Chief,
Connect-World



Connect-World is published under licence
by INFOCOMMS MEDIA LTD

email: info@connect-world.com
URL: www.connect-world.com

Editor-in-Chief: Fredric J. Morris fredric.morris@connect-world.com

Publisher: David Nunes david.nunes@connect-world.com

Editorial Department: editorial@connect-world.com

Production Department: production@connect-world.com

Sales Department: sales@connect-world.com

Administration Department: admin@connect-world.com

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise, without prior permission from the publishers. The content of this publication is based on best knowledge and information available at the time of publication. No responsibility for any injury, death, loss, damage or delay, however caused, resulting from the use of the material can be accepted by the publishers or others associated with its preparation. The publishers neither accept responsibility for, nor necessarily agree with, the views expressed by contributors.

ISSN 1462-2939

Wireless – in the air and on the move

by Dr Muhammad Yaseen, Chairman,
and Muhammad Amir Malik, Director ICT, Pakistan Telecommunication Authority

Wireless technologies let operators reach markets where fixed infrastructure is too expensive. By massively reducing infrastructure costs, they give developing countries - where most people do not have access to basic necessities - affordable access to the same communications-based services as high-income nations. Regulatory institutions are struggling to promote access to wireless technologies to give developing regions not only communications, but also access to health services, education and a host of other tools for a better life.



Dr Mohammad Yaseen is the Chairman of the Pakistan Telecommunication Authority (PTA). Prior to joining the PTA, Dr Yaseen served as Director of Strategy at PTCL Pakistan; as Senior Consultant for Advanced Networks and Systems, Australia; as a System and Project Engineer; at Alcatel Submarine Networks Australia; and as a Senior Research Officer at Essex University, England.

Dr Yaseen has produced 30 international and national publications on telecom technologies, ICT growth, strategies and design of telecom networks. Dr Yaseen represented the PTA at various international and national forums, including the Asia Pacific Telecommunity (APT), where he was named Vice Chairman of APT Study Group 2 (Networks).



Muhammad Amir Malik is the Director for ICT at the Pakistan Telecommunication Authority; he is responsible for policy and research-based studies of emerging and current ICTs. Mr Malik provides liaison with the Ministry of IT, government bodies and ICT operators to foresee issues and latest trends in the ICT market by studying international regulations and practices, and the implications of future technologies on the ICT sector of Pakistan. Mr Malik is responsible for devising and implementing mechanisms and policy recommendations in these areas. Mr Malik has also served the Electronic Government Directorate at the Ministry of Information and Technology as Project Director (e-Office Replication), as a Project Manager with Finlays, as an AP AG Senior Technical Support Consultant, as a SAP AG Technical Support Consultant, as a Research Engineer at Verimag, Air France, as a smartcard programmer at Schlumberger and as a Site Installation Engineer at Alcatel CIT.

Mr Malik is an Electrical engineer. He earned an M.S. in CS and Telecommunication Engineering from ENSIMAG, INPG, France.

With constant pressure to achieve greater efficiency, humans have continued to discover new technologies for ways to leverage competitive advantage. Probably the most fascinating addition has been the 'No wires - No restriction' phenomena brought in by the wireless communication technologies. Coupled with an added advantage of mobility, today's wireless networks have provided an ability to access information and data remotely, and to conduct a whole bunch of amazing stuff anywhere, anytime. The kind of technological progression observed

in the wireless arena is simply miraculous, where the next upgrade is in planning while its predecessor is still being deployed. The statement seems to hold true for the next generations of wireless networks as well. Wireless telecommunications have transformed the way we communicate, access data, do business and seek entertainment. You name it - notebooks, palm computers, phones, entertainment devices and even kitchen appliances - are ready to be linked wirelessly to each other or even to the Internet.

Wireless networks present a two-fold benefit for both service providers and consumers. From an operator prospective, wireless technologies offer an excellent alternative to reach out to those market segments where the deployment of expensive fixed infrastructure is not viable. Wireless has opened up whole new ways to communicate that allow developing countries to enjoy the same communication access privileges as high-income nations. They also massively reduce operators' capital expenditures.

Network rollout experts say that Worldwide Interoperability for Microwave Access, Inc. (WiMAX) deployment costs between one-eighth and one-quarter the cost for DSL (*digital subscriber line*) per subscriber. Telecommunication consumers also prefer wireless convenience over fixed-line services – today, mobile subscribers are outnumbering fixed subscribers around the globe. This trend continues in the data market as well; wireless broadband is rapidly gaining popularity and growing faster than copper-based xDSL services. It is well-proven that wireless technology is an important tool in the effort to alleviate some of the world's most pressing economic and social development problems. A large number of residents of low-income countries already have mobile phones; this high penetration - along with mobility, smartness, speed and dispersion - makes mobile telephony a superb tool to enable poor inhabitants to progress. A rapidly growing list of examples shows how individuals and groups in developing economies are utilizing mobile phones in creative, valuable and supportive ways: price discovery in fishing villages; coordinating humanitarian relief; and paying utility bills while working in the wheat fields.

In most parts of the developing world, the regulatory, administrative, business and technology communities have all joined hands to achieve a wireless revolution that no one would have thought possible - or perhaps even desirable - at the beginning of the decade. Today, in many poor countries, most of the population may not have access to basic life necessities, hygienic living conditions and quality education. However, they are likely to have access to a wireless phone and network coverage at affordable tariffs. By eliminating limitations of time and location, wireless is enabling a brighter future for people in developing countries.

While analyzing the growth of mobile telephony we observe an amazing escalation in developing regions. According to Terabit Consulting, in the year 2000 developing countries accounted for around one-quarter of the world's 700 million mobile phones. The developing countries' share of mobile phones had grown to three-quarters of the world total by 2009. Similarly, the wireless broadband market in developing countries is growing rapidly and revenues are growing apace. Several reputable international analysts predict that the number of wireless broadband customers in the world will exceed two billion by 2015. This growth should generate revenues of more than US\$780 billion - an

increase of 2,400 per cent compared to today. The analysts predict that by 2015 more than fifty per cent of the world's wireless broadband customers will be living in developing countries.


Interestingly, the recent growth of value-added data services on telecommunication networks - a result of technological convergence - seems to have been more effective in wireless networks than the wired one. This is a major reason why wireless systems are no longer designed entirely for voice traffic, but to serve multiple traffic types with different QoS (*quality of service*) needs. Next generation network (NGN) scenarios envision a diverse wireless world where users will be able to access any service, at any time, on any network that is optimised for the application at hand.

For several years, we have known that wireless data traffic will soon greatly exceed voice traffic (in bytes), and the increase in low-cost data is compelling operators and carriers to raise the average revenue per user (ARPU), by offering some incredible services like mobile TV. The wireless phone is no longer just a device to make voice calls, as it was during the first generation and second generation of mobile telephony. The third generation of mobile telephony (3G) offers both voice and data applications. Fourth generation (4G) mobile telephony will consist of a wholly digital packet switched network providing extremely high available bandwidth.

Radio waves, the basis of wireless technology, propagate according to the laws of physics, unbound by economic or geo-political borders. Although subject to national regulation, international telecommunications bodies, including the International Telecommunication Union (ITU), coordinate the management and regulation of frequency spectrum. Terrestrial wireless technologies present several regulatory challenges ranging from sales and installation of wireless equipment, fees, power limits, effective frequency band, radio frequency management, licensing, equipment type approval, setting licensing fees and provision of transparent information on licensing procedures. Global radio guidelines provide suggestions to establish procedures for a regional policy harmonization including mutual acceptance of equipment test results and type approvals for wireless devices in compliance with international best practices. The

exceptional growth of 'anytime, anywhere' communications obliges policy makers to create regulatory environments that promote access to wireless technologies for development purposes, focus upon spectrum management, foster the implementation of standards and support research and development.

By 2020, there will be five billion mobile users, shaping technology, services, content and pricing globally. Driven by the ubiquitous deployment of mobile systems, the widespread use of the Internet, the rapid advances in wireless technologies, the insatiable demand for high-speed interactive multimedia services, and the growing need for secure wireless machine-to-machine communications, wireless technologies might well have an even more profound effect than the Internet had on every aspect of our lives.



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com

Improving broadband penetration in Sri Lanka

by Anusha Palpita, Director General and Chairman of South Asia Telecommunications Regulatory Commission (SATRC) and Dr Manodha Gamage, Consultant, Telecommunications Regulatory Commission, Sri Lanka

Sri Lanka's economic growth was over eight per cent in the last quarter and the government seeks to achieve double-digit growth per centages. Sri Lanka's government considers ICT to be a key development tool and the expansion of broadband usage is among its highest priorities. Given the costs, wireless broadband is the most reasonable way to expand the access network; the backbone, however, will be fibre. Local content in local languages will be the main driver of consumer adoption.



Mr Anusha Palpita is the Director General of the Telecommunications Regulatory Commission of Sri Lanka; he is also the Chairman of South Asia Telecommunications Regulatory Commission (SATRC). Most recently he was the Director General of Government Information in Sri Lanka and Vice Chairman of Commonwealth Telecommunications Organization. In Sri Lanka, he has served in the President's office as an Assistant Secretary and Accountant. Mr Palpita has served, as well, in the Ministry of Public Administration, the Police Department, Customs, the Sri Lanka Broadcasting Corporation as Chairman, in the Sri Lanka Institute of Development Administration and more.

Anusha Palpita obtained his B.Com (SP) Degree from the University of Sri Jayawardanapura, Sri Lanka and an MBA from the University of Victoria, Melbourne.



Dr Manodha Gamage is a Consultant at Sri Lanka's Telecommunications Regulatory Commission. He is a Senior Visiting Lecturer at University of Moratuwa, IIT, SAIM, ICBT and Rajarata University, Sri Lanka, currently attached to the Telecommunication Regulatory Commission. Previously, he worked at Freescale Semiconductor Japan Ltd as a System Solution Engineer involved in broadband mobile infrastructure design and development.

He began his career at Sri Lanka Telecom as a Telecommunications Engineer.

Dr Manodha Gamage received a BSc (Eng) in Electronics and Telecommunications from the University of Moratuwa, Sri Lanka and his Masters Degree and PhD in Information Communication and Network Engineering from University of Electro-Communications, Tokyo, where he subsequently spent several years as a visiting lecturer.

There is no doubt in the minds of any Sri Lankan that their motherland is on her way to a very rapid socio-economic development in the post-conflict era. Government statistics show that its economic growth was over eight per cent in the last quarter and optimistic growth plans seek to achieve double-digit growth per centages in the near future. Sri Lanka's government has identified ICT as a key development tool and already named 2009 as the year of IT and English.

It is almost impossible to distinguish ICT from telecommunications, particularly from broadband Internet infrastructure. Sri Lanka has a telephone penetration over 85 per cent, of which almost 70 per cent is due to mobile phone penetration and the remaining 15 per cent due to wired and wireless fixed lines. Even though Sri Lanka can boast of its high telephone penetration, it is not proud of its less than two per cent penetration of broadband. Also the ARPU of telecommunication operators are in the range

of US\$2 to US\$3 - similar to most developing world countries.

Broadband expansion is important, not only for Sri Lanka, but for all developing nations, but there are a number of basic requirements to be met and barriers to overcome and a variety of strategies that can increase the penetration of broadband connectivity.

Broadband access can be either wired or wireless. Since FTTX (*fibre to whatever*) is

“Since most network operators maintain outlets and agencies in remote places, we believe that they can extend those outlets as Internet cafes and booths where the people can come and use broadband connections to access eServices.”

not an affordable option for most operators, or the residential users and the small and medium enterprises (SME) of most developing nations, they are compelled to depend on DSL technologies in areas where copper access infrastructure is in place. The attractive, affordable, broadband solutions in most other areas are wireless mobile broadband technologies such as Worldwide Interoperability for Microwave Access, Inc. (WiMAX), high speed packet access (HSPA), wireless fidelity (WiFi) and perhaps, in time, Long Term Evolution (LTE). Apart from affordability most users today need mobility too. Most developing nations have neither high-speed trains that travel over 200kmph nor many highways, so broadband connectivity that works on high speed vehicles is not yet essential.

Nevertheless, they do need broadband wherever they go, so wireless broadband is greatly appreciated, and there are currently a variety of barriers to increasing broadband penetration:

- *Lack of useful local applications/content* - Users need to know what benefits a broadband connection would bring. Browsing the Internet is not a good enough answer. Access to games, movies, music etc. or even social networks like Facebook is not attractive to much of the rural population in Sri Lanka. In Sri Lanka, people living in rural areas have to travel to the capital or to a few selected cities to apply for a passport or renew it, to register a vehicle, get a driving licence or renew it, get advanced medical care, or to find educational institutions and the like. This travel for basic services is costly and time consuming. The late Dr Arthur C Clarke said, “Communicate, don’t commute.” If we could provide quality eGovernment, eBanking, eMedicine, eLearning, remote offices and such, many people would want them and hence the broadband services to access them. People might pay up to US\$20-30 per month for a good broadband connection, even though the current ARPU for voice service is merely US\$2-3.

The Government of Sri Lanka is creating a variety of eGovernment services; it is computerizing most of its current services to provide them on line. Government employees are being trained to work in the computerized, eGovernment, environment as well. There is

still much to do and the government needs private sector partners to move ahead with many of the eServices mentioned above.

To reach the entire population, these new applications and the content must be in local languages. Although we have very high literacy rates, less than 25 per cent of Sri Lankans can work in English. We need to provide incentives to local content developers - local language content is the key to increasing broadband penetration.

- *Lack of PC penetration and computer literacy* - Computer penetration and computer literacy are very low in Sri Lanka. To improve the computer literacy, the government inaugurated rural wisdom centres, called NANASELA. There already are 600 such outlets and the target is to reach 1000 within this year. Apart from these, computer centres are being started in over one-third of the government’s schools and there are plans to expand this programme further - this is one of the areas where the government is encouraging the participation of private sector partners.

Since most network operators maintain outlets and agencies in remote places, we believe that they can extend those outlets as Internet cafes and booths where the people can come and use broadband connections to access eServices. This would be the short-to medium-term solution until PCs become affordable to most households and people become more knowledgeable regarding computers and their usage.

The government can create incentives to stimulate the local assembly of low cost computers for rural masses. Television might also serve as broadband customer premises equipment. Almost all households have televisions and there are plans in Sri Lanka to launch DVB in the near future.

- *Lack of affordability (low ARPU)* - As mentioned, local ARPU - mainly from voice services - is very low, in the range of US\$2-3. Voice is an essential service, but when no one is willing to pay for it, the way forward is to bundle it with broadband services. When sufficient locally useful content and applications - in local languages - are available via broadband, operators can generate significantly higher ARPU, given the usefulness to the customers. The service

convergence next generation networks will bring can push ARPU even higher. Mobile broadband will have a critical role building broadband penetration, especially in the developing world.

- *International bandwidth is expensive* - International bandwidth requirements have gone up and the costs have come down slightly over the last few years, but nowhere near the required amounts. It is now time that the network providers with direct access to international bandwidth work to increase this bandwidth and reduce the cost. Enterprise users need to commit to buying more bandwidth so that the operators can purchase large amounts of bandwidth and obtain significant quantity discounts. If that happens, the megabit per second costs would come down for all. This is a ‘must’ - today most of our broadband connections provide unacceptably low speeds; and

- *Solid, inexpensive/affordable backbone infrastructure* - Even though mobile broadband access - WiMAX, HSPA and LTE in the future - will be the most popular broadband access method, there is no doubt that the backbone network of any next generation network should be optical fibre. Different operators have their own optical backbones in different parts of the country, depending on their needs. In Sri Lanka we have decided upon a national optical fibre backbone network that can be shared by all operators. We also expect to share the fibre-laying process with other utilities such as electricity and railway that already have underground ducts in many parts of the country. Once the national optical backbone is ready, the cost of broadband connectivity (both wireless and wired) should come down and the QoS (quality of service) improve.

Sri Lanka now has a per capita income of about US\$2,100, but the government’s goal is to double this to US\$4,000 by 2016. ICT will play a key role in meeting Sri Lanka’s economic development goals for the foreseeable future. Broadband connectivity, a basic ICT tool, is fundamental to eLearning, eMedicine and eGovernment, as well as to many economic goals and the quality of life in every country. Building an appropriate broadband infrastructure will help foster exponential economic growth in Sri Lanka. ●

Superior Antenna Technology Made in Germany

Present all over the world

Kathrein leads the world in antenna technology, offering a broad range of products for use in mobile communication systems.

Kathrein professional products include **antennas, TMAs, filters, combiners, amplifiers and accessories.**

All major system suppliers and more than 240 network operators around the world rely on Kathrein's superior quality, state-of-the-art technology and over 90 years of experience.

Kathrein offers you the very best solutions for all your antenna system requirements!

KATHREIN-Werke KG

P.O. Box 10 04 44

Anton-Kathrein-Straße 1-3

D-83004 Rosenheim

Germany

Tel: +49 8031 184-0

Fax: +49 8031 184-820

E-Mail: central.sales@kathrein.de

Internet: www.kathrein.de

- Antennas for LTE-Applications
- Integrated RET and TMA Antenna Solutions
- CDMA 450 Antennas with Adjustable Tilt
- Special Products for UMTS 900 Solutions



KATHREIN

Antennen · Electronic

South Korea's future in mobile and wireless

by Jung Man-Won, President and CEO, SK Telecom

Smartphones, tablet PCs and the growth of mobile applications have focused South Korea on dominating the mobile data market. South Korea hopes to lead this market globally by developing leading edge applications platforms. Korean operators needed to build a technological ecosystem that provides an open environment where developers and companies can create different kinds of new and innovative services and applications that leverage their decades of accumulate expertise in mobile convergence services like mobile finance, LBS (*location-based services*) and mCommerce.



Jung Man-Won is the President and CEO of SK Telecom; he had more than 15 years of management experience in SK Group before becoming President and CEO of SK Telecom. Jung Man-Won was Vice President of the Internet Business Division at SK Telecom, Vice President of Customer Business Development Division at SK Energy and, most recently, the CEO of SK Networks.

Jung Man-Won holds an M.B.A. from New York University and a B.A. in Business Administration from Yonsei University in Korea.

The global information and communication technology (*ICT*) market is entering a new era as a result of the mobile and wireless revolution. As more and more global players jump into the rapidly growing market, boundaries among sectors within the ICT industry, such as content, software, device and network, are blurring and changes are taking place more quickly.

With the recent spread of connected devices like smartphones and tablet PCs, as well as the deployment of continuously evolving wireless network technologies, the whole ICT sector is focused on gaining dominance of the mobile Internet or data market. In fact, research from the past years has shown that the ICT industry has been moving towards data services,

and away from voices services, which have traditionally owned the market. According to Gartner, data services revenues represent 28 per cent of the total ICT market this year and 38 per cent by 2014. At this juncture, it is imperative for South Korea to deeply understand and lead the market trend, in order to prepare itself for being a global ICT powerhouse in the future.

It is projected that the growth of the data market will lead to a greater need for next-generation mobile network technologies, including wireless broadband. Since South Korea achieved the world's first commercialization of CDMA technology, the country has been leading the development of the global ICT industry.

By being among the first in the world to commercialise technologies such as CDMA 2000, EV-DO and handset-based HSDPA, Wibro has been recognized worldwide for its technical competence in the export of network solutions and relevant equipment. Currently, in South Korea the mobile coverage - including in-building and underground coverage - is nearly 100 per cent. Telecommunications operators are currently implementing plans to develop and deploy next-generation networks. For instance, plans are underway to introduce LTE in 2011. Based on its strength in network technology, South Korea is moving swiftly to lead changes in the global telecommunications market and to seize new business opportunities.

“Platform companies are rapidly strengthening their influence over all areas of the ICT value chain, helped by the development of the broadband network environment including HSPA and WiFi, as well as by the spread of smartphones since 2007.”

The uptake in smartphones has increased the importance of applications and platforms as they bring added value into the mobile market. Mobile operators used to be the main providers of these platforms, but smartphones shifted the paradigm to create an open mobile Internet environment where the lines between computing and mobile Internet services are disappearing. Companies from both fixed and mobile industries are competing to gain initiative in the new playing field. Mobile operators now face fiercer competition as non-network players are likely to increase their influence in the mobile market by introducing their well-developed platforms.

The platform and the ICT value chain

In the global ICT industry, the power of the platform has gradually increased over time. Until the early 2000s, when wired and wireless infrastructures were being built by network operators, the platform was regarded as a mere value-added service mechanism for networks. However, as the importance of platforms steadily grew from the mid-2000s, companies began to lay a foundation through the convergence with devices (iTunes) and with ad search (Adwords). At the same time, services like Facebook and YouTube, where users are encouraged to participate, as well as Google's API (*application programming interface*), have started to create a new trend.

Platform companies are rapidly strengthening their influence over all areas of the ICT value chain, helped by the development of the broadband network environment including High Speed Packet Access (*HSPA*) and wireless fidelity (*WiFi*), as well as by the spread of smartphones since 2007. For example, non-network providers are launching platforms that penetrate the boundary of network providers to offer services like WiFi/3G VoIP. Also Amazon's Kindle and Apple's iTunes are now wielding pricing power and leading distribution based on their platforms. As for Apple, which transformed itself into a mobile device company, it has achieved huge success with its iPhone + AppStore strategy and made the platform a very important criterion for consumers when choosing a mobile device.

The platform business in South Korea

The accelerated adoption of smartphones in late 2009 made the South Korean ICT sector realize the importance of the platform. Recently, awareness is growing among the South Korean government and ICT companies that the platform field must be nurtured and strengthened.

In fact, mobile operators in South Korea have promoted the platform businesses by developing innovative 'killer' services and attracting a significant number of users in South Korea. From early 2000, South Korean mobile operators, under the name of wireless Internet business, developed and offered diverse convergence services that encompass many different areas like portal, navigation, music, SNS, finance and commerce as network-related value-added services. Some of these services, namely finance and music and their enabling platforms, are increasingly being exported to the global market.

However, more could have been done to further improve the value of these platforms. Korean operators needed to build a leading edge ecosystem that provides an open environment for other developers and companies to create many different kinds of new and innovative services and applications. Also, despite the successful domestic launch of a number of platforms, they fell short of becoming widely adopted global standards.

A global platform leader

Many new services have not yet established a profitable model; they are heavily dependent on ad revenues. Nevertheless, it is expected that with an expanded user base, platform providers will find it easier to earn a profit and offer services of greater value to customers.

The platform business is definitely a new opportunity for South Korea's ICT industry, as it leverages decades of accumulated expertise in mobile convergence services like mobile finance, LBS (*location-based services*) and mCommerce. Thus, the South Korean mobile industry must make efforts to create renewed business opportunities in the

platform field based on its technological competence in platform development and an open environments. To this end, it needs to focus on services that hold great potential such as LBS, mobile commerce, TV portals and cloud computing. Moreover, it is imperative to look beyond the individual consumer market and identify the needs of corporate customers of various industries so as to expand platforms into a B2B business.

One of the most important requisites of platform business is scalability, which provides the basis for diverse services. When developing platforms, operators need to build one that minimizes the dependency on a specific network or device so that it can be used and expanded with a variety of networks and devices for various services in the future. In addition, it will be wise to pursue 'openness' by creating a cooperative ecosystem among businesses in the sector - i.e. content providers, device manufacturers, outside developers, etc. - from the early phase of platform development in order to better acquire competitive advantage in this business. Lastly, armed with attractive platforms, South Korean operators must enter the global market. The key here is to build platforms based on differentiated technology with which they can create global standards, while providing customized services that run on these platforms.

The South Korean mobile telecommunications industry developed its basic capability and know-how in mobile platform by promoting a variety of convergence businesses. It can become a strong, competitive, global platform provider by fully utilizing its extensive experience network technology, devices and content. In the end, only a few platform operators will be successful leaders of the global ecosystem and will generate profits. South Korean ICT companies will have to prepare themselves for global competition by pushing ahead with the platform business using their accumulated experience and know-how. By making the most of this growth opportunity, South Korea can maintain its position as the leading ICT powerhouse today and into the future. ●

Singapore's next-generation

by Neil Montefiore, CEO, StarHub, Singapore

Deployment of Singapore's new fibre-based Next-Generation Nationwide Broadband Network, with speeds of 100Mbps to 1Gbps, already covers more than 40 per cent of the nation. It will cover 95 per cent of Singapore by mid-2012. Singapore's mobile operators already provide a 200+kbps broadband service. Indeed, the problem now is planning how to fill the pipes. Operators expect most of the volume will come from video; they are working with content providers to adapt their output to other formats including mobile.



Neil Montefiore is the CEO and Executive Director at StarHub, Singapore; he has over 34 years of experience in the telecommunications sector. He was, most recently, the CEO and a Board Director of M1 in Singapore. Prior to that, Mr Montefiore was the Director, Mobile Services at Hong Kong Telecom CSL Limited. Mr Montefiore held various marketing and engineering management positions at the Cable and Wireless group in Hong Kong, Bahrain, Saudi Arabia and the United Kingdom. At Cable and Wireless Systems Ltd in Hong Kong, he served as Chief Executive. In the United Kingdom he served as Managing Director of PakNet Ltd, a joint venture owned by Cable and Wireless PLC and Vodafone PLC, which developed and launched the world's first public packet radio data network. He was also Managing Director of Chevalier (Telepoint) Ltd in Hong Kong.

Neil is a Fellow of the Institution of Engineering and Technology and a Fellow of the Chartered Institute of Marketing.

For an island-nation with a population of five million, we tend to do things on a very large scale and very quickly.

Just three years after the government announced plans to build a fibre-based Next-Generation Nationwide Broadband Network (*Next Gen NBN*), here we are, coming into the end of 2010 with more than 40 per cent of the new network in place. According to government estimates, we are on track to have 60 per cent coverage by the end of the year, and nationwide coverage at 95 per cent by mid-2012. Nucleus Connect, the company responsible for 'lighting' up the new fibre network, had recently announced its commercial launch, which means that

they will be able to provide retail service providers (*RSPs*) with open access and wholesale connectivity services over the Next Gen NBN. As we speak, subscribers are already able to register and subscribe to services which offer speeds of 100Mbps up to 1Gbps, along with a whole suite of content-rich value-added services.

The mobile infrastructure industry in Singapore has undergone just as rapid a change in the last five years as the fixed broadband segment. After years of patiently living with access speeds of up to 56kbps over 2G and 2.5G networks, Singapore mobile users were suddenly faced in the early months of 2005 with an overabundance of speed - all 200+kbps

of it. Many in the industry were giddy anticipating what could be done with all that extra bandwidth. As usual, reality quickly sank in with the fact that yes, even though we could do more on the mobile phone, we couldn't do that much more. Now, in 2010, Singapore's mobile networks have evolved past plain vanilla third generation (3G) and into high speed packet access (*HSPA+*) (dual carriage), which offers mobile users throughputs of up to 42Mbps. Talk is rife about Long-Term Evolution (*LTE*) becoming commercially available over the next few years. For developers and content providers, it seems everything is possible now. It seems as if customers are truly able to access content-rich value-added

services over the mobile device, the kind that many people have been dreaming about over the last three decades.

Two infrastructure developments occurring at roughly the same time can cause all sorts of angst for executives in the Singapore telecom industry. Setting aside questions of when compatible devices will be available to consumers or what kind of expenses the industry will have to bear for building the new networks nationwide, the question foremost on executives' minds right now is what exactly we are planning to do with all this bandwidth. Since Singapore is one of the earliest adopters of nationwide ultra-high speed broadband connectivity on both mobile and fixed fronts, there really isn't a precedent we can rely upon.

My opinion, having looked at scenarios in Hong Kong, Europe and the US, is that next generation networks will spur much greater consumption of video on alternative platforms than on traditional broadcast networks and this very demand will cause entertainment studios and production houses to adapt and change the way that they manufacture and market their content.

Clearly, the traditional system for producing television and movie content worldwide is deeply entrenched, and it will take some time to change, but consumer demand for more convenient video-streaming and on-demand delivery systems are putting pressures on those systems to innovate and to restructure themselves and squeeze the complexity and cost out of production and distribution.

Readily available evidence shows that there is great demand for video content. According to a 2009 report by Nielsen Media Index, the Internet audience, once the domain of young adults, has shown remarkable growth in other segments, especially in the 35-44 age range. Furthermore, the same report states that Internet usage is heavily skewed towards PMEBs (*professionals, managers, executives and businessmen*). This means that there is an even larger pool of online consumers than initially thought, clearly an opportunity for marketers and content providers to target. In our own internal surveys, we have noted that 71 per cent of our Singapore respondents stated that they watch streaming videos at least one

a month, over and above other activities such as online gaming, downloading and uploading content - another indication.

A cursory look at what is happening in the industry shows that many content providers have come to the same conclusion and are evolving their content offerings to meet this demand. Look at the success of YouTube, Netflix and Hulu, and in the mobile sphere, Apple's App Store. Many major broadcasters around the world have been providing, in one form or another, digital content for broadband and mobile platforms. Ancillary markets such as DVDs and Blu-Ray are offering digital copies of movies to their customers; there is also regular buzz about the development of a cloud-based video-streaming platform for fixed and mobile devices.

Singapore is well aware of this changing paradigm, and a number of companies have made tremendous efforts to evolve their business and embrace alternate platforms. Local mobile operators have been streaming TV content over mobile, some since 2006. Now, mobile customers can access a large number of mobile channels that showcase a wide range of international and ethnic content. Similarly, on the online TV front, there have been a number of local players streaming premium content since, at least, 2004.

With the advent of next-generation networks, what will it mean for operators? Over the last few years there has been a great proliferation of devices in the home; not just the mobile phone (or two), but PCs, laptops, game consoles, video phones, surveillance devices, and the ubiquitous TV set, and all will have the ability - one day - to sync with each other. This means that there is a good opportunity to deliver services to a variety of devices and screen types, especially for video consumption, at the same time; this also means that operators can and should empower the customer to access and manage their own media needs on multiple platforms. The new networks will serve as both a catalyst and enabler for the growth of video consumption.

Working closely with the content and access industry for over a decade, we have established strong partnerships with both vendors and content providers that enabled us to get a head start with the development of these alternative platforms. For operators who want to evolve into either

of these areas, there are some challenges to meet, not the least of which is how to develop a credible business case that helps both the operator and the content provider to generate new revenue streams. Many content providers are taking their first cautious steps to adopt mobile and online platforms as legitimate platforms for content distribution in Asia, and there are significant synergies to working with operators with a broad customer base.

Ultimately, I confidently predict that within the next five years, when next generation networks have reached their maturity, and the technology has moved on to even faster technology, the content developers that are looking into alternate platforms now, will eventually flourish, and the operators in Asia that help them do this will benefit the most. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com

Beyond the PC - the mobile revolution

by Daniel Alegre, Vice President, Japan and Asia Pacific, Google

Half of all new Internet connections come from mobile phones. By using servers in the cloud instead of the phone's computing resources, even basic mobile devices become very powerful. Users interact differently on a mobile. Since they have approximate equivalents to eyes, ears, a sense of direction and a sense of place, and the Internet's massive processing power to back them up, the mobile will let people communicate, share, and engage in commerce in wholly new ways.



Daniel Alegre is Google's Vice President for Asia Pacific and Japan; he oversees all of Google's sales and operations for the Asia Pacific and Japan regions. Previously, he was Vice President for Latin America sales. Additionally, Mr Alegre oversaw APLA (Asia Pacific and Latin America) business development, and was responsible for all international wireless, syndication, content acquisition and reseller strategic partnerships. Previously, Mr Alegre worked for seven years at media company Bertelsmann AG; he was Vice President of business development of the Bertelsmann eCommerce Group in New York, Managing Director of the record division of BMG Music in Latin America; and Director of new Internet initiatives in the company headquarters. Earlier, Mr Alegre started and ran an FM radio station in Mexico.

Daniel Alegre holds dual degrees from Harvard University - an MBA from Harvard Business School and a J.D. from Harvard Law School. He graduated, cum laude, with a bachelor's degree from Princeton University's Woodrow Wilson School of Public and International Affairs.

Although your first introduction to the web may have been via a PC, for many people around the world today, the main gateway is the mobile phone.

More than half of all new Internet connections come from mobile phones. At the end of last year, mobile-data traffic already surpassed voice traffic as the largest portion of traffic on the world's mobile networks, according to Ericsson. Our search traffic from mobile devices has grown more than four times in the last year alone. That's faster than our desktop traffic ever grew. This

revolution in connectivity is particularly profound in Asia, where it has had a huge impact upon varied economies, cultures, and infrastructure.

While the tech hubs of Korea and Japan are often cited in any commentary on mobile growth, it's just as important to consider the impact that mobiles will have on emerging Asian markets, where a whole generation of people will come online for the first time via their mobile. For example, much has been written about SMS services in India and Africa that allow farmers with cell phones to figure

out what to do with their crops by sending text messages with market data, weather forecasts and any relevant news. In this, and countless other examples, basic mobile technology is acting as a thin rope-bridge between the Internet and people's daily lives. With 90 per cent of the world's population living within range of a mobile network, this bridge, although narrow, is a more direct route to the Internet than a PC.

Success in the mobile space has been made possible by moving computing resources away from clients and on to the servers in the cloud - in this way, even a

basic mobile device can become very powerful. The advances in smartphones will obviously be key to how the mobile web develops, but what will count more are the robustness and the strength of those links between mobile devices and the Internet. The signs are good. Research house Ovum say that 3G or faster technologies will climb from 21 per cent of mobile subscriptions globally in 2010, to 43 per cent in 2014.

We can learn a lot about the future of mobile growth globally by looking at Japan, where Ovum expects 100 per cent of mobile subscriptions to be 3G by 2014. Over the past decade, while the rest of us were happy to use our mobiles for simple phone calls, the Japanese have been using their phones to write email, buy games and other mobile apps, and chat with friends made on mobile social networks. Phones have been able to receive high-quality broadcast television for years. And before there was the iPad or Kindle, there was the Japanese mobile phone novel, a literary phenomenon unique to Japan. A few authors started uploading novels to mobile websites, where they were downloaded and read by millions of fans. By 2007, five of the ten bestselling novels in Japan were originally composed on mobile phones.

Over the past two years, thanks to the explosion of smartphones, consumer habits around the world have followed the path of Japanese users. There is a tremendous amount of innovation in this space, and a new ecosystem of carriers, developers, and telecoms is thriving.

We are particularly excited about the success of Android, an open-source platform designed specifically to bring the open Internet onto mobile phones, but any mobile phone that gives the user full access to the Internet is making an evolutionary leap beyond the capabilities of the PC.

The growth and change that has already happened suggests that the mobile Internet we'll be used to five years from now will be radically different both from what we have today and what we're forecasting now. Still, we've had enough progress to be able to make out a few general rules.

First, things that seem marginal on a PC can be central to the mobile web. For instance, the new devices' ability to record movies and images anywhere and to

share them on the fly turned out to be as appreciated by users as the ability to watch movies on their phones. The pace of social networking has increased as people post photos instantly and share with friends.

Second, users' interactions with the web change when they are on a mobile. We first saw this with search - about 10 to 20 per cent of searches are for local information; on mobile that proportion is over 30 per cent. Similarly, the ability to link your thoughts and acts with a precise location while you're on the road is becoming a key difference between being on a social network on a PC and on mobile. Even email - the classic killer app of the PC Internet revolution - changes on mobile. People use mobiles to respond rapidly to work email, and continue to use PCs for longer email replies; among information workers it's a familiar ritual to check email before going to bed and after rising to quickly scan what lies ahead.

Third, one can't innovate for the desktop, with mobile as an afterthought. Five years ago, most products were first developed to use online and were only later adapted for mobile. Now, the mobile market is so large that it seems pointless to design a product without considering first how it will look on a variety of mobile devices. Gartner estimates that the global revenue from mobile applications, including revenue from ads sold against the app, will be US\$7 billion in 2010 and rising to US\$29.4 billion in 2013. By way of comparison, worldwide box-office receipts for movies were close to US\$30 billion in 2009. Many recent innovations in search have been aimed at making full use of the smartphone's equipment - its camera, microphone, and GPS device. Search by voice is one such example, and is especially useful in countries where keyboards aren't that good at rapidly conveying non-Roman scripts.

Finally, we've learned to make the most of the cloud. Mobiles will always be limited by small batteries and processing power, but if you remove the brunt of processing from the device, and take it into the cloud, then the small device in your hand can be as powerful as the desktop at your office. That connection makes the phone thousands of times more powerful than it is when it's offline, enabling phones to do many things that require additional processing power, like recognize snippets of songs or a photo of a painting.

So what's next? Obviously, smarter phones - and more of them. Analysts predict that smartphones will begin to outsell PCs as early as 2012. Phones already have approximate equivalents to eyes, ears, a sense of direction and a sense of place. With the Internet's massive processing power to back them up, we can expect phone's sensors to become more refined as cameras take sharper photos and mobile compasses become more accurate. Another step will be to push those capabilities further to find new links between people's needs and the world around them. In the process, people will be able to communicate, share, and engage in commerce - and in the world at large - in ways that the desktop has yet to offer. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com



App Planet

Hong Kong | 16-18 November 2010

GSMA Mobile Asia Congress presents:

The Centre of the Mobile Apps Universe

Asia, especially China, has emerged as a leader in the development and advancement of the dynamic mobile applications market. App Planet, a part of the GSMA Mobile Asia Congress, will present a unique opportunity to explore the many dimensions of this incredibly fast-growing sector.

App Planet will include:

- ◆ Application Developer Conferences for the leading mobile platforms
- ◆ The App Planet Forum, a day-long app conference
- ◆ App product and solution exhibition in the App Zone
- ◆ Networking and business development in the App Lounge

The world's leading app developers and professionals will gather in Hong Kong to connect and experience the future of mobile apps. Be a part of the excitement by attending, exhibiting or sponsoring App Planet.

Learn more at MobileAsiaCongress.com/AppPlanet

App Planet is a part of



Constant connection is changing the world

by Ken Denman, CEO, Openwave Systems

The advent of constant connections is breaking down the centralised control by government, media groups, enterprises and the like of all types of communications including personal, news, entertainment and financial. Even monetary transactions are increasingly moving to mobile networks. When most people have camera phones and use blogs, social networks, Twitter, and YouTube the traditional channels for news or even entertainment begin to lose relevance. Soon, constant connections via mobile to social networks seem likely to centralise most of our daily interactivity.



Ken Denman is CEO for Openwave Systems. Before Openwave, Mr Denman served as Chairman and CEO of iPass, a provider of platform-based enterprise mobility services. Mr Denman was also the Founder, President and CEO of AuraServ Communications, a managed service provider of broadband voice and data applications. Earlier, he served as Senior Vice President at MediaOne's National Markets Group (now part of Comcast) and as Chief Operating Officer of MediaOne's International Wireless Group. Mr Denman also serves on the board of ShoreTel, Inc., a provider of pure IP unified communications systems, headquartered in Sunnyvale, California.

Ken Denman holds an MBA from the University of Washington and a BS in accounting from Central Washington University.

Human history is full of inflection points - events that alter the daily course of events and set history on a new trajectory. In the last half of the 20th century, modern technology accelerated the frequency of these milestones to roughly 15-year increments - consider the effect of integrated circuits, the personal computer and the world wide web on our daily lives.

Today we are witnessing the next inflection point at the intersection of the Internet and telecommunications. Networks, devices and content are in place to allow constant connection at an affordable price. Connecting to the people and the information that matter to us - whenever and wherever we want - changes how we communicate. This change is expected to bring dramatic improvement in our societies and quality of life. It will certainly play a key role in the next surge of economic growth.

What might constant connection look like? What does this new paradigm mean for all of us? And what can mobile technology do to guide and accelerate it?

Transformation 1: Instant mass communication

Since the dawn of organised society, great power has come to those who have held control of communication and information channels. Not surprisingly, control that has been mostly consolidated within larger governing and private entities. We have gotten used to hearing stories about a government hiding bad news from its people or a newspaper campaigning for the publisher's pet cause. Centralised control over mass communication has shaped laws, social trends and even the fate of countries.

With the advent of constant connection, this control is breaking down rapidly.

When the majority of people are armed with camera phones and can post freely to blogs, social networks and Twitter, it becomes extremely difficult for anyone to delay the reporting of news (true or false), let alone hide it indefinitely.

Some real-life examples:

- Networks of activists in North Korea smuggle cell phones into the country and use them to post news to websites in other countries. These activist networks were the first to report unrest after a recent currency revaluation.
- Taxi drivers in Mexico are equipped with camera phones they can use to report crimes.
- Several private citizens recorded a shooting by police in Oakland, California. The events shown in the videos resulted in the filing of criminal charges against the officer involved.

Transformation 2: We communicate through social networks

To most, mobile communication means making phone calls and checking email. Yet, worldwide, to a growing generation, social networking is rapidly emerging as the most important method of mobile communication. Years from now, we might not remember Facebook, but social networking will still be the foundation for most of our personal connections.

Mobility is a natural match for social networks as it keeps people in touch wherever they go and whenever they want. Social networking is emerging as a dominant behaviour on the mobile web:

- Mobile usage of Facebook doubled in 2009 to 25 million users;
- A study in the UK found that Facebook accounted for about half of all mobile web page views in December 2009; and
- A survey of US mobile web users found that 60 per cent of total mobile web usage time is spent on social sites.

Transformation 3: Everyone pays for things instantly

People in the developed world take access to credit for granted. Banks send us credit card offers whether we want them or not, and credit cards are accepted just about everywhere. However, in much of the developing world, credit cards are very difficult to obtain and to use. Also, visiting the bank might require a long trip into a city, and carrying a lot of cash is both inconvenient and dangerous. For these reasons, in some areas payment systems built around mobile devices are already having a big impact:

- Twenty-one banks in India now allow depositors to make purchases and funds transfers using their mobile phones. These banks are presently handling about 190,000 transactions per month;
- In Kenya, a mobile banking system has more than two million customers who deposit money through local retailers that sell phone cards. Customers can also use their mobile phones to transfer money to anyone with a mobile phone; and
- In the Philippines, millions of people use mobile phones to make payments and exchange money. The system even enables people working outside the country to send money home.

The challenges of constant communication

All these transformations depend on a wireless network that is fast, ubiquitous and capable of transferring huge quantities of data whenever needed. Today's mobile networks have grown substantially, but the demand for mobile data has grown even faster. Estimates say that global mobile data traffic will increase 66 times between 2008 and 2013¹. Unless we act now, the benefits of constant connection could be delayed for years or even decades.

Here's a shortlist of what we need to do:

- Prepare the network for mixed media - Video is the biggest driver of web traffic today, generating more than 33 per cent of total consumer web activity, and is predicted to go above 60 per cent by 2013. As smartphones, tablets and wireless PCs proliferate, more video traffic is moving onto the wireless network, creating some of the wireless overloads experienced to date.
- Optimise for signalling, not just files - Although human usage of the network results in transfers of large files, machine-to-machine communication has a very different pattern. Mobile applications like email and wireless devices such as sensors and appliances generate constant streams of small updates - things like 'tell me if I have any new messages', or 'here's the temperature I'm sensing right now'. This type of traffic can easily overwhelm the signalling resources of a network. Implementing an all-IP infrastructure is the only practical way to address the issue.
- Build social networking into the network - As we become continuously connected, social features will become an inherent part of the network itself. Users will have profiles defining a constellation of different communities and interest groups they belong to, and the information that they are and are not willing to share with each one. One login should let them interact with all of those groups. This is an obvious place where operators can and should add value.
- Build context awareness into the network - There is no single modification to the network that can handle all of this change. Instead, optimization must take place in many different places, tuning performance in real time to make the best possible use of limited resources. Collecting, analysing and utilising contextual data - the who, what, where, when and how of the network - will make the network run smoother. Some simple examples that exist today:

- o If we know which videos and documents subscribers are viewing most, they can be cached at the edge of the network and delivered more efficiently;
- o When the network is especially congested, we can use compression schemes that sacrifice a little quality, but ensure timely delivery; and
- o If we know which network resources are available to a user, and what the user is trying to do, we can intelligently split the traffic between 2G, 3G, and WiFi networks.

Next steps

Cooperation between the computing and communication industries is essential. Here are three steps we should focus on:

- Be willing to abandon the old ways of doing business - Clinging to old business models will not save a company; rather it will ensure that they get left behind. The time to change is now, while we still have a financial cushion and the time to try a few experiments and find new ways of doing business;
- Enhance freedom of choice - From the rise of the iPhone to the growth of the Internet itself, it is clear that consumers respond strongly to freedom of choice in both applications and services. Operators should get ahead of that trend by making it even easier for people to find and use new applications and content. The wave of the future is not more app stores; it is a distributed app and content store built into every website; and
- Focus development on users, not technology - The mobile industry has a long history of floundering when it tries to force customers to adopt new technologies, such as multimedia messaging, rather than solving meaningful problems in their lives. To prosper, the industry needs to get a much better understanding of customer needs and trends. A key element in this is real-time analytics, combined with flexible software and services that can adjust on the fly as usage patterns change. Change and flexibility need to be built in from the user experience outward.

At a time when many people are talking about economic stagnation and lowered expectations, I am optimistic about our collective future. The actions we take in the next couple of years will determine whether we get to the era of constant communication awkwardly and slowly, or smoothly and quickly. ●

¹ Cisco network traffic forecast: http://en.wikipedia.org/wiki/Internet_traffic

Connect everything, empower everyone

by Raghu Subramanian, VP of System Engineering, Juniper Networks Asia Pacific

There are 6.8 billion people on the Earth and around five billion mobile handsets - one for every adult person; yak herders - with shoes on their feet or not - have mobile devices in their hands. We fret about the corrupt spelling used for SMS texting, but texting has done more to improve literacy in under-developed parts of Asia than any government or NGO. Mobile communications already permeate the warp and weft of Asian life and will eventually empower everyone.



Raghu Subramanian is the VP of Sales Engineering for Asia Pacific at Juniper Networks. Prior to this, he served as Chief Strategist for Juniper's security business, as a product evangelist to channel partners, and as a product manager for routers. Mr Subramanian was also a chip designer at Hewlett Packard, and a R&D manager at a start-up acquired by PM Sierra.

Raghu Subramanian has an MBA from the MIT Sloan School of Management, a PhD. in Computer Science from the University of California at Irvine, and a B.Tech.in Electrical Engineering from the Indian Institute of Technology at Kanpur.

The old saying about missing the forest for the trees is particularly pertinent when it comes to mobile communications. It is well known that mobile networks are increasingly usurping the place of the traditional last mile of fixed networks. What is sometimes missed is the mind-boggling scale at which this adoption is happening.

The earth's population is estimated to be 6.8 billion humans. The number of handsets on the face of the earth is now around five billion. That's a handset for every adult human being. To put

this in proper perspective, there are approximately one billion automobiles out there, 1.5 billion TV sets and two billion credit cards. In fact, no consumer technology to our knowledge had ever exceeded three billion users – until the mobile revolution hit its stride.

Another thing that we generally fail to properly recognise is that mobile devices are no longer simply phones; they are general-purpose computers. Technologically, they have been computers for the past ten years; psychologically, they have been recognized as computers only since the

introduction of the Apple iPhone, which made mobile web browsing practical for the first time.

To refer to these mobile devices as 'phones' is somewhat misleading, and reminiscent of the spoof secret agent movie *Our Man Flint*, where Flint says of his gadget-packed cigarette lighter: "This has 82 different functions; 83 if you want to light a cigar!"

The impact of the mobile revolution is most deeply felt in developing Asia, in terms of both quantity and quality. It is transformational in ways that those of

“Indian writer and politician Shashi Tharoor relates a story about visiting a friend’s farm, deep in the countryside, where he was asked if he’d like some fresh coconut water by way of refreshment on what was a hot and humid day. His host took out his mobile device and dialled a number, which was promptly answered by a voice saying, “Hello. I’m up here.” Right on top of the nearest coconut tree, with a hatchet in one hand and a mobile in the other, was the local toddy-tapper who proceeded to bring down a coconut for Tharoor to drink.”

us who have always had access to good communications infrastructure find difficult to truly fathom.

The quantity argument stems from the fact that Asia is home to 50 per cent of the world’s population. China and India alone add more mobile users annually than the entire population of Scandinavia, long seen as the crucible of the mobile development.

So pervasive are mobile devices these days that new mobility related words are entering the vernacular. A couple of years ago, when I was visiting Chennai in India, I hired a taxi for a day. Upon being dropped at a friend’s house, I asked the taxi driver if he could pick me up in an hour. He said in his native Tamil, “No problem: just give me a ‘misseducall’ when you are ready.” It took me a moment to realize that ‘misseducall’ meant for me to call his mobile handset without expecting him to answer, thereby letting him know that I was ready - without paying the mobile service provider a single paisa.

Indian writer and politician Shashi Tharoor relates a story about visiting a friend’s farm, deep in the countryside, where he was asked if he’d like some fresh coconut water by way of refreshment on what was a hot and humid day. His host took out his mobile device and dialled a number, which was promptly answered by a voice saying, “Hello. I’m up here.” Right on top of the nearest coconut tree, with a hatchet in one hand and a mobile in the other, was the local toddy-tapper who proceeded to bring down a coconut for Tharoor to drink.

After an international conference in Indonesia, an American professor was taken to see an archaeological site in the remote countryside. Much to his surprise, he received a call from his wife who happened to be in a conference in Hawaii at the time. A few days later, his plane touched down in a major US airport. Much to his surprise again, it took him

several tries before his mobile service provider succeeded in connecting him to his wife who had come to pick him up. He was left wondering whether the First World is really the Third World when it comes to mobile communications.

The quality argument stems from the fact that most people in Asia don’t have the money to buy a conventional personal computer, but they have the money to buy a mobile device. Therefore, mobile devices are becoming the primary mean whereby people will experience the Internet. When people have Internet access they become empowered in all sorts of ways.


Most of us have heard of the stories of rural fishermen who, while returning from sea with the day’s catch, use their mobile devices to check the prices offered by buyers on shore, enabling them to land their boat directly at the doorstep of their preferred buyer. Prior to the Internet, they would pick a buyer at random, and then would find themselves at a negotiating disadvantage given that the catch only lasts for a few hours before it loses its freshness.

On a recent trip to Bhutan, home to the concept of Gross National Happiness, a colleague of mine observed that the most common occupation appeared to be yak herding, and each yak herder - whether he had shoes on his feet or not - certainly had a mobile device in his hands. Clearly, mobile communication is part of the mix that goes to make national happiness.

While the intelligentsia bemoan the arcane abbreviations and spelling snafus of SMS messages, it turns out that SMS texting has done more to improve literacy rates in under-developed parts of Asia than the policies of any government or the pious intentions of not-for-profit organizations. The treasure trove of information to be found on the Internet will no doubt drive up literacy rates and education further. This will inevitably lead to the general populace being able to

make better-informed decisions about a whole host of issues.

The point of these stories is simple. Mobile communication has penetrated the remotest corners of Asia and permeated the very warp and weft of Asian life. This is not a point about Tweeting teenagers and other such trivialities. It is a far deeper point about how mobility beats in the very heart of Asia, in the hands of the silent billions, how it will connect everything, and how it will eventually empower everyone. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com

The business of sustainability

by Steve Watts, President SAP Asia Pacific Japan

Sustainability is simple - only use resources at a rate at which they can be replenished naturally. The business drivers of sustainability are urgent and the stakes are increasing. To be successful, companies must transform themselves end-to-end, so all their business processes are sustainable. The complex business process changes needed to address sustainability must be measurable and controllable. Sustainability is more than a question of corporate responsibility, it is a strategic business option that can result in new opportunities and profits.



Steve Watts is President of SAP Asia Pacific Japan (APJ); he has 20 years of experience in software business operations. Until assuming his current post he held the position of Chief Operating Officer, SAP APJ. At SAP, he has also served as regional COO, SAP APJ and as Operations Director, SAP Australia and New Zealand. He began his career with SAP as Sales Director of SAP Australia and New Zealand.

Steve Watts received his BS in Electrical Engineering from the University of Technology, Sydney and a Masters Degree in Marketing from Southern Cross University in Australia.

“Sustainability initiatives cannot stand alone - they must transform the enterprise as a whole.”

Sustainability has attracted increasing interest in recent years. In principle, the basic idea is as simple as it is compelling: resources may only be used at a rate at which they can be replenished naturally. It is obvious that the way the industrialized world operates today is not sustainable in the long term and that change is imperative.

The fundamental business drivers - tougher regulation, greater cost pressures, and higher consumer expectations - remain urgent and the stakes for businesses of all types are

increasing. To stay competitive, we need to hone operational efficiencies and prepare for the impact of regulation - while at the same time paying attention to our brand positioning and market reputation.

To be successful, however, sustainability initiatives cannot stand alone - they must transform the enterprise as a whole. Putting the economy on a better footing in terms of sustainability will take effort from many segments - smart regulation utilizing market-based instruments, for example, and consumer pressure, often create new business opportunities.

Yet, as simple as that sounds, the actual implementation of this idea

poses considerable challenges. On the one hand, there is the human side. Businesses need senior management to define and approve a core set of sustainability performance indicators, raise internal awareness for sustainability across the company, identify the right stakeholders and role models - all this while coping with changing global standards and the globalization of workers. Conversely, businesses need the ability to analyze the sustainability of their end-to-end business processes today, develop a strategy and identify specific objectives; they must implement these changes over time, starting with those that have the biggest immediate positive financial impact.

“Over the last few years, the business environment has fundamentally shifted. Organizations are increasingly operating across global business networks. Faced with challenging and complex business process changes to address sustainability, every organization needs a consistent and integrated business process to address and measure its sustainability initiatives.”

Sustainability is very relevant, not only at times of growth, but specifically during times of economic challenge, simply because the main drivers of sustainability don't change. Regulation will continue to increase. This is specifically the case for industries involved in managing water, carbon emissions, waste and recycling, but is likely to incorporate many other environmental and social domains in the future. Energy prices will continue to fluctuate and, with economic recovery, are likely to increase and build cost pressures. Consumer awareness will continue to intensify and force transparency and optimization across entire business networks and supply chains.

Much has been discussed about the different models that define the relationships between business and society. I see sustainability as moving beyond the 'corporate responsibility' domain into 'strategic business development', - potentially resulting in new opportunities. Going 'green' is not just a social obligation; it's a potential path to profitability, competitive advantage and highly favourable positioning in the war for talent.

So what is causing this need for a change in focus? Historically speaking, trade liberalization allowed the proliferation of the enterprise - organizations encountered widely different regulatory regimes at national, local and regional levels with varying degrees of regulation, especially on social and environmental issues. The philanthropic model of taking care of those in the community outside the factory gates in home markets was quickly identified as tokenistic - global enterprises could enjoy the benefits of lower costs in regulatory regimes where employee rights and benefits were less protected - so a better solution was needed.

Businesses in the 1990s attempted to bridge this perception gap by trying to find ways to 'do well by doing good'- harnessing the force of the market to create better social outcomes. This ideology rejects the notion that profit and people were in direct conflict -

although at times this may be true, at other times there may be great synergies. Businesses began to think less about the social benefits of cash donations and, instead, began to think about mobilizing the market to address real social needs.

Clearly business has a legitimate social responsibility here - particularly if it can be done in a way that is transparent to all stakeholders (including shareholders) and creates genuinely mutual value.

The road ahead

The road to sustainability is still under construction and there is not yet one organization which knows all the answers. Whether you are starting to implement a new sustainability plan or are adjusting a plan which is already in place, the following suggestions may help you get the most out of your efforts.

- Assess your organization and plan - Get a basic understanding of what the business case for sustainability for your company should include. Remember that such a case should combine social, environmental and economic considerations. With that basic understanding, you can see where opportunities exist to improve and be most effective;
- Measure your business activities - Set a baseline of data for current activities so you know when and where you are improving. Include your network of partners and suppliers in the measurement process to increase the footprint of your efforts. Some businesses even include their customers and their usage and disposal of products;
- Take action - Execute on your plan and measure every step of the way. This includes the involvement of employees in engagement programmes that make them part of the effort; and
- Monitor and adjust - Learn from your experience and look for

additional means of achieving sustainability throughout your organization and wider business ecosystem.

Over the last few years, the business environment has fundamentally shifted. Organizations are increasingly operating across global business networks. Faced with challenging and complex business process changes to address sustainability, every organization needs a consistent and integrated business process to address and measure its sustainability initiatives. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com



MOBILE™ ASIA CONGRESS

Hong Kong | 17-18 November 2010

MOBILE MOMENTUM

As leaders in the industry, Asia drives the momentum for mobile innovation, advancement and adoption. Senior industry leaders will gather in Hong Kong for the 2010 GSMA Mobile Asia Congress to share their vision and drive the mobile industry forward. MAC 2010 will include:

- A visionary thought-leadership conference
- An inspiring product exhibition
- World-class industry networking
- App Planet, the Centre of the Mobile Apps Universe

Plan to join us in Hong Kong as we drive the **Mobile Momentum**.

www.MobileAsiaCongress.com

Platinum Event Sponsor



Gold Event Sponsor



Wireless and green with cellular M2M

by Axel Hansmann, Vice President, Strategy and Marketing, Cinterion

M2M - machine to machine - technology connects machines via wireless networks to improve efficiency and productivity in a wide variety of applications. M2M also has a highly beneficial impact upon the environment. By monitoring machines in real-time, M2M can reduce their carbon output, improve air quality and make energy systems more efficient. Just one company, UPS, shaved nearly 30 million miles off delivery routes, saved 3 million gallons of gas and reduced emissions by 32,000 metric tons of CO₂.



Axel Hansmann is Cinterion's Vice President of Strategy and Marketing. Before joining Cinterion, Mr Hansmann was with Boardeleven Management Consultants where he focused on evaluating market entry and strategic growth options in the M2M industry. Prior to that,

Mr Hansmann worked at Telefónica O2, where his responsibilities covered network technology, product management and business strategy.

Axel Hansmann earned degrees in electrical engineering and telecommunications management.

If you follow the wireless industry, then you already know that the machine-to-machine (M2M) sector is exploding and generating significant revenues for mobile network operators (MNOs), device manufacturers, original equipment manufacturers (OEMs), service providers and integrators while end-users enjoy significant savings. M2M technology connects machines via wireless networks to improve communications, processes, efficiency and productivity. It's used in an astonishing array of vertical markets and industries such as: remote maintenance and control; metering; payment systems; routers and gateways; security systems; healthcare; automotive and eToll; tracking and tracing; environmental monitoring and more. The latest report by ABI Research estimates an M2M projected compound annual growth rate (CAGR) of over 25 per cent per year with 232.5 million cellular M2M connections by 2014.¹ Since there are currently an estimated 50 billion

machines in the world that would benefit from M2M connectivity, market growth is expected to accelerate.

While we'd like to say that zero carbon footprint is a major contributor to growth, the reality is the significant environmental benefits of M2M are often fortunate side effects of business decisions to invest in smart technology. M2M is good for the balance sheet, which encourages adoption. The vast majority of M2M applications - perhaps 70 per cent - have intrinsic environmental benefits that promote environmental sustainability and good corporate citizenship at the same time. M2M is a win-win proposition for going green and growing profits!

Planet at risk

With increased worldwide awareness of the risks of global warming, environmental pollution and related health issues, as

well as the importance of natural resource conservation, it's becoming more and more important to governments and businesses to consider environmental economics and the impact that operations have on the planet. China, the world's most prodigious emitter of greenhouse gas, continues to suffer the downsides of exponential economic growth. Despite the country's 2020 goal of generating 15 per cent of its energy from renewable sources - mainly wind and water - today's coal-burning power plants and exhaust from millions of new cars is tainting the air in Chinese cities. Beijing alone violated the World Health Organization's standards more than 80 per cent of the time during the last quarter of 2008.²

Worldwide, road traffic air pollution has a major impact on air quality and human health. The European Environment Agency (EEA) identified in its 2008 report Transport at a Crossroads, that growing transportation

needs are undermining efforts to solve many pressing environmental problems; in Europe, transport sector greenhouse gas emissions increased by 28 per cent during 1990-2006.

Scientists tell us that the world needs to cut greenhouse gas emissions in half by mid-century to avoid the worst effects of air pollution and climate change. M2M is a crucial enabling technology in the cleaning up of the world's environment and the greening up of its transportation and energy systems.

An M2M primer

Cellular M2M technology uses wireless modules, mostly GSM-based, to connect machines to each other and to central servers to improve a company's operations, productivity and efficiency through optimized business processes. M2M is used for smart meters and smart grids, mHealth medical solutions, automotive and fleet management applications, alarm and security systems, tracking and tracing devices and a lot more. Enterprises implement M2M because the technology can transform business processes, improve productivity and cost efficiency and sharpen their competitive edge. Governments implement to increase revenue, cut costs or to achieve energy conservation targets.

Pollution, traffic and M2M

The average driver in the United States contributes some 11,500 pounds (over five metric tons) of climate changing emissions each year according to LiveNeutral³. The impact of heavy-duty vehicles is even greater, underscoring the need for effective solutions to reduce emissions. And the US Environmental Protection Agency and the Intergovernmental Panel on Climate Change estimate that every gallon of gas a vehicle burns puts 19.4 pounds of carbon dioxide into the air.⁴ Increasing fuel efficiency by just 5mpg would eliminate approximately 17 tons of carbon dioxide from the earth's atmosphere each year!

M2M-powered fleet management solutions track vehicles in the field, increase business productivity and efficiency and manage vehicle maintenance to reduce the need for major repairs. These solutions also offer powerful tools to save fuel and cut emissions. By enabling real-time communication between the vehicle and dispatcher, vehicle routes are optimized and job assignments reassigned in real time to save miles and fuel. M2M technology shortens distances travelled and saves manpower.

Many M2M fleet management solutions include emissions-monitoring tools that schedule preventive maintenance to keep vehicles working at peak performance and help reduce emissions. Fleet management solutions can issue alerts when a vehicle exceeds pre-determined limits for idle time or speed, prompting drivers to respond in real time; managing speed and idle time reduces carbon emissions. M2M solutions help devise the best routes for truck deliveries to avoid unnecessary idling and to cut down on left-hand turns. According to UPS, one of the world's largest delivery and distribution services, between 2004 and 2008 this simple technique shaved nearly 30 million miles off delivery routes, saved three million gallons of gas and reduced emissions by 32,000 metric tons of CO₂ - the equivalent of removing 5,300 passenger cars from the road for an entire year!⁵

Electric vehicles offer another way to reduce the pollution caused by traffic. Car manufacturers are responding to consumer demand by introducing designs of sporty new electric cars. Still, to be truly green, electric vehicles need to be charged at environmentally friendly, green-powered, charging stations that tap into smart grids. M2M technology is crucial to support an unmanned electric vehicle charging infrastructure. The always-on M2M communications connect individual charging stations to the station's control centre, the utility company and to the smart grid. All the charging tasks such as user authentication, start and stop commands, determining user-defined charging session length, charging speed/rate, transmission of usage data and credit card payment procedures can be remotely managed with cellular M2M communications. Charging stations users can choose the energy source (sustainable vs. traditional). The station can also provide energy-holding tanks for use during peak consumption hours.

Energy efficiency and M2M

M2M technology - smart meters, smart grids and remote monitoring solutions - are widely used around the world to control and manage energy distribution and improve consumption efficiency. Smart meters and smart grids deliver electricity from suppliers to consumers using two-way digital and cellular technology to control appliances (or anything that consumes energy) in homes, businesses and at industrial sites. Smart M2M technology helps to conserve energy, reduce costs and increase reliability and transparency in the energy supply chain. It also tracks all electricity flowing into the system and incorporates a wide variety of sustainable energy sources. Smart grids allow utilities to

track consumption trends and optimise their energy generation. The goal is to minimise traditional fuels usage and maximise the use of renewable energy sources.

Smart grid technology can shift demand to match supply or even power-down or switch off non-critical consumption during peak hours to reduce energy consumption.

The power industry also uses cellular M2M technology to monitor risky environmental operations and behaviours on the grid. M2M remote monitoring lets utility and gas companies manage equipment in the field and detect oil and gas pipeline problems before costly and dangerous leaks occur. M2M can also manage fields of solar panels and wind turbines and respond in real time to output changes due to changing weather, equipment failure or cleaning or maintenance issues. This helps maximize energy production and further reduces the need for carbon burning energy sources. With M2M communications, energy distribution networks can be better managed so brown and black outs can be more easily avoided.

The bottom line

M2M technology offers a powerful tool to improve business operations and quality of life. Enterprises and governments the world over are turning to these specialty wireless solutions to improve operations, boost productivity and efficiency and, ultimately, to generate greater profitability and peace of mind. The consequences are remarkable - reduced carbon output, improved air quality, more efficient energy system, the ability to integrate alternative energy resources into the supply chain, environmentally responsible corporate and global citizenship; and long-lived electronics that foster a greener future instead of overloading landfills. Whether put to use to manage fleets, alternative vehicle fuelling or fields of windmills, M2M technology is driving positive growth and the move toward a healthier planet. ●

¹ ABI Research, October 2010, <http://www.abiresearch.com/press/3528Cellular+M2M+Connections+Will+Show+Steady+Growth+to+Top+297+Million+in+2015>

² New York Times, July 2010, <http://www.nytimes.com/2010/07/29/world/asia/29china.html>

³ LiveNeutral: www.liveneutral.com/climate_change

⁴ EPA: <http://www.epa.gov/oms/climate/420f05001.htm>

⁵ UPS, <http://www.pressroom.ups.com/Fact+Sheets/ci.UPS+Saves+Fuel+and+Reduces+Emissions+th e+%22Right%22+Way+by+Avoiding+Left+Turns.print>

Are you connected?

by Patrick Ng, Head of Carrier Relations, Asia, Cable & Wireless Worldwide

As use of mobile Internet devices such as smartphones and 3G dongles grows, more and more mobile subscribers want access to high data volume Internet applications via their mobile devices. Mobile Internet usage is growing faster than desktop Internet did, and more users will soon access the Internet via mobile devices than desktop PCs. This is driving an unprecedented increase in traffic on the mobile networks, but also driving mobile operators to heed the call for global IP connectivity.



Patrick Ng, is the Head-Carrier Buying (Asia) for Cable & Wireless World-Wide; he is responsible for strategic partnership development with the Asian carriers. Mr Ng has over 20 years of international telecommunications experience in engineering, product development, partner management and business development. Prior to C&W Worldwide, Mr Ng worked for several companies including PCCW, Reach, M3Com, CPCNet and Citic1616. His last assignment was with Citic1616m where he served as the General Manager for business development, responsible for global network infrastructure procurement and data services sales.

Patrick Ng holds a MSc. Degree from HK Polytechnic University and is a member of the Institution of Engineering and Technology in UK.

According to a recent study by leading analyst house Gartner, sales of smartphones represent the fastest growing area in the mobile market. With the launch of Apple's iPhone and Google's Android Mobile Device Platform, content and services such as instant messaging (MSN/Skype), video viewing (YouTube/Mobile TV), online auctions (eBay), social networking (MySpace/Facebook) and location-based services are being increasingly accessed via mobile as well as the PC.

The mobile Internet has witnessed explosive growth in the number of users due to the increasing popularity of mobile broadband and 3.5G. With the mobile phone becoming a true necessity and

the Internet a symbol of civilization and social engagement, mobile Internet is the magic wand to live a lifestyle in today's community. Consumers commonly use mobile Internet for services such as finance, news, sports and entertainment, leading to an unprecedented increase in traffic on mobile networks.

Some of the key mobile Internet trends witnessed during this growth:

Top categories

- Social Networks
- Instant Messaging
- Email
- Gaming
- Entertainment, Music & TV

- Mobile Search
- Enterprise Adoption

Mobile communication has become an integral part of our lives; consumers see it as both a 'life support' and 'life management' tool. Today's truly multifunctional mobile devices are being used throughout the day, every day, for many purposes. The sophistication and level of mobile Internet usage varies in each country. This is the result of many structural factors - such as data package pricing, mobile handsets, Internet bandwidth and WiFi availability - as well as cultural trends.

The icon-based applications on the iPhone provide a perfect template for certain

“The BlackBerry is the de facto mobile devices in most enterprises for email, but with the popularity of the smartphone, and the speed at which it has entered the workplace, employees are pushing IT to support these handsets as well. Enterprise acceptance of smartphones, however, is likely to be a more complicated matter, with challenges such as managing and supporting the growing diversity of device types and managing the data security.”

kinds of services and applications, done in such a way that you don't even have to be familiar with the Internet to use them.

The BlackBerry is the de facto mobile devices in most enterprises for email, but with the popularity of the smartphone, and the speed at which it has entered the workplace, employees are pushing IT to support these handsets as well. Enterprise acceptance of smartphones, however, is likely to be a more complicated matter, with challenges such as managing and supporting the growing diversity of device types and managing the data security. Over the next two to three years, we believe that the wider adoption of smartphones in enterprises will be driven by the development of relevant business applications rather than email. Enterprises will use managed mobility more for its ability to enable applications and services that provide the companies with a competitive advantage.

All of this means that most mobile operators will have to do two things: upgrade their backhaul networks to allow for growing data usage on their networks; and upgrade their global IP connectivity to give customers access to content that resides in other countries.

Many incumbent carriers see mobile telephony slowly eating away at the fixed voice market, but at the same time, it creates opportunities for global network services providers. This global IP connectivity for the mobile operator is a growing market, primarily because everyone is getting mobile phones with data capabilities, and they want to access the Internet from those devices.

Massive data growth

The mobile phone will overtake the computer as the most common web access device worldwide by 2013, with more than 1.82 billion Internet-enabled phones in use, according to industry estimates. Cisco projects that mobile Internet traffic will double every year between now and 2013, when it will total an average of 2.2

million terabytes per month. The company says the biggest driver for the traffic increase will be video, which will account for roughly 64 per cent of all mobile data traffic in 2013. By 2013, video traffic will increase by more than 100 times and will average around 1.3 million TB per month.

Increasing smartphone penetration and emerging usage models (such as video/audio streaming) will stress an operator's wireless networks. Mobile operators may be able to address the surge via capacity upgrades and offloading to WiFi. Global IP connectivity, however, is likely to be the critical bottleneck for seamless mobile Internet services. Operators could be heading for mobile Internet congestion and innovative solutions such as tiered data pricing on speed and Quality of Service may prove to be longer-term strategies for sustained revenue growth.

The Asia Pacific market


Asia Pacific is a key growth market when it comes to Mobile Internet, with a constant pool of new users swelling the ranks of adopters. But there are other factors that we need to take into account when we define the APAC market. 'Asia Pacific' as a term is far less accurate than 'the wild west' given the huge cultural, economic, geographical and technology differences which exist in the region.

For example, the Japanese mobile market is vastly different to Thailand's mobile market while Singapore has more attributes of a Western state in terms of technological advances and adoption, which is seen in its mature consumer behaviour as well. So a one-size-fits-all approach does not work.

Will you remain connected?

The mobile Internet ecosystem is formed of media, advertisers, application developers, service providers or carriers, device manufacturers and technologies. With the exponential increase in mobile Internet adoption, there are both challenging and exciting times ahead

for communication service providers and global network providers alike - and potentially great benefits for customers. The focus will continue to revolve around providing a positive customer experience. Legacy systems will be overhauled, larger investments in the area of mobile apps development will continue, and adoption rates will continue to go north with better connectivity and faster networks. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com

The mobile age gold rush

by John Stefanac, President, Southeast Asia & Pacific, Qualcomm Incorporated

New telecommunications service providers are inventing new business models that undercut traditional customer/service provider models. ‘Non-wireless companies’ are becoming ‘Mobile Virtual Network Operators’, or MVNOs; they ‘rent’ capacity from existing networks and rebrand the services (Internet, phone, etc.) as their own. They are capturing a large share of the business, shifting the dynamic of the entire sector, fuelling the extraordinary growth of data usage seen around the world and exacerbating the demand for new RF spectrum to handle the traffic.



John Stefanac is the President of Qualcomm Southeast Asia & Pacific; he has more than 20 years of experience in the telecommunications and information technologies industries. Mr Stefanac joined Qualcomm from Nokia Siemens Networks where, as Vice President and General Manager of Asia/Pacific, he led the company's regional marketing and sales efforts. Previously, Mr Stefanac served as Vice President of Sales and Business Development, Asia/Pacific, for Flextronics Network Services in Singapore. Stefanac also served in leadership positions at Lucent Technologies/AT&T in Australia and Singapore, managing the company's in-country sales of optical networking equipment, wireless and broadband systems and software products to service providers.

John Stefanac earned a Master's of Business Administration from the Henley School of Management in the United Kingdom.

When thinking about the state of the telecom industry, I am reminded of Australia's Gold Rush in the 1850s. Vast numbers of gold-seekers, from virtually every continent, found themselves in a new land that broke traditional rules and offered boundless opportunity. Today, those in the wireless industry are finding themselves in similarly uncharted territory with limitless possibilities, as the rapid evolution of mobile technology is leading to fundamental changes in the telecommunications industry.

Countless new devices and services are being developed and these innovations will combine with faster data speeds to integrate 3G, and soon 4G, bringing mobile broadband even further into our lives. Each new stage of mobile technology has enabled extraordinary capabilities. We have quickly moved from the first generation analogue world in the

1980s, to the second generation (2G) digital voice and simple message service (SMS) in the 1990s, to the rich data services of 3G we see now, and soon to the exclusively IP (Internet protocol)-based world of the fourth generation. The mobile technology generations ('G's) - the advances in mobile technology standards, are not, themselves, of great interest to consumers. What is important is what each stage allows us, as users, to do - whether it's accessing Facebook from the train, checking milk vat levels from the other end of the farm, or having our heart monitored in real-time while watching TV.

The most recent evolution to 3G has brought an unprecedented shift in the business models the telecommunications industry is built on. 3G has done more than just allow vendors to sell more devices; it has opened the floodgates for developers,

inspired manufacturers, and introduced opportunities for a whole host of vertical industries - changing what it means to be a telecommunications company.

In order to keep pace, mobile operators need to fundamentally rethink the role they want to play in the future of telecommunications. Traditionally, telcos have controlled the relationships with consumers - providing them with devices and billing them for using their services. Nowadays, telecommunications service providers have caught on and have begun to wrestle ownership of the relationship with the end-user away from the telcos by developing end-to-end services - including connectivity packages - as an extension of their product offerings and marketing this offering direct to consumers. In this way, these 'non-wireless companies' are becoming 'Mobile

Virtual Network Operators', or MVNOs, by 'renting' from existing networks and rebranding the services (Internet, phone, etc.) as their own. This new business paradigm provides exciting opportunities for businesses across numerous industries, but has enormous implications for incumbent telecommunications providers.

One of the best examples of an MVNO today is Amazon. With its 3G-enabled eReader, the Kindle, Amazon is able to offer an end-to-end service to its customers. Users can access and browse Amazon's website and, of course, download books. This is all done via 3G network connectivity. What makes this different is that the customer has no idea what mobile network they are actually using. Amazon has created a relationship directly with the customer, effectively marginalising the operator in that value chain - Amazon even issues the bill.

In Japan, there are two examples of the world's largest technology manufacturers entering the data side of the business. Dell directly provides users of its HSPA-enabled laptops with mobile broadband access, via Japan's NTT Docomo's network, and HP partnered with Japan Communications to rent wireless data spectrum and sells inexpensive netbooks to customers who sign up for prepaid data service. In both cases, the operators have been bypassed with regards to a significant revenue generator - the ownership of the customer relationship.

For years, operators have been competing against each other, based on the value of their brands, for individual customers and businesses. Now they are competing for contracts and chunks of business of an unprecedented size - shifting the dynamic of the entire industry.

To fight demotion to commodity status, operators must re-evaluate their strategy. So many operators today continue to market their business based on price, not value; this is simply not feasible for much longer. Operators need to ask themselves, what do they want their relationship with customers to be? Who would they want their customer to be? Do they want to be an operator that trades on the value of their brand, using branded devices and services to build up a loyal customer base? Do they collaborate with MVNOs and rent out their networks to these businesses and new vertical players and allow them to introduce the possibilities of 3G to their customer base?

These strategic questions are relevant to an operator's long-term survivability.

New and evolving business models can provide exciting opportunities for both businesses and consumers in a number of different industries. For example, we are seeing manufacturers of SLR cameras putting 3G mobile chips into their products. This means you can upload photos from wherever you are straight onto Flickr or Facebook, or email them to friends or family direct from the 'traditional' camera. Imagine being out with your kids and being able to upload a photo of them straight to grandma's 3G-enabled digital picture frame sitting on her mantelpiece. And some vehicle manufacturers are already building 3G chips into cars as a way in which to track vehicle performance, notifying the owner if there is something wrong, or as a way in which information and entertainment can be downloaded. In the same way, medical devices can track our body's performance and alert medical staff in real-time if a problem is encountered.

3G-enabled healthcare is an area that promises tremendous benefit to all members of society. With a focus on preventative rather than reactive healthcare, 3G wireless technology provides patients and caregivers with greater freedom, gives physicians access to improved, timely information enabling better diagnosis, and helps society lower healthcare costs. Today, wireless biosensors (smart band-aids) and connected glucose meters, give people a more personal, effective and real-time healthcare experience. In the near future, innovations such as 'smart pills' or 'ingestible event markers' will report when a pill is taken - using tiny, embedded RFID chips - helping to better manage medication usage. Imagine the commercial opportunities presented through wireless healthcare for operators as they partner with medical institutions and vendors to offer a differentiated, premium service for those who need it.

Before the telecommunications industry can even catch its breath, we find ourselves teetering amidst industry hype on the edge of a 4G world. LTE Advanced is being developed as we speak. The move to 4G will bring higher bandwidth, increased data rates and multi-carrier transmission; consumers will get better audio and video streaming, higher quality data and voice transmission.

While the mobile technology opportunities are limitless, there are still many challenges

and perhaps the most significant is to ensure sufficient spectrum is allocated for these services in the future. By the end of 2014 we expect to see as many as 2.8 billion 3G wireless subscriptions (source: Wireless Intelligence, April 2010). Around the world, 3G operators already see explosive growth in wireless data usage. According to ABI Research, the amount of data consumed by subscribers worldwide in one month in 2014 is likely to exceed the total amount of data consumed in all of 2008. With this 12-fold increase in data usage, operators, and of course regulators, are now scrambling to look for ways to make more spectrum available to carry the expected increase in data traffic.

As we all know, spectrum is a finite resource and while advances in technology continue to extract as much as possible from available spectrum, our insatiable desire for data access while we are on the move means we need to look at ways to make more spectrum available. Indeed, we should see some relief in many markets around the region as governments mandate closure of analogue TV broadcast in favour of more efficient digital broadcast, thereby allowing the use of freed-up spectrum for mobile wireless networks (i.e. the 'Digital Dividend'). However, that relief will only become available for most of us after 2015. As such, we continue to look at how to use whatever spectrum we now have more effectively with today's wireless technology.

The increase in data usage will put added pressure on government ministries and regulators to ensure they allocate the spectrum responsibly. There are significant amounts of TDD (*time division duplex*) spectrum either available or underutilized, especially in the Asia Pacific region, that could be better used for more widely industry supported 3G family of wireless technologies.

3G wireless technology is unearthing numerous exciting opportunities. The new business models emerging in the wireless world will affect all mobile operators, vendors, developers and vertical industries. The 'wireless-ification' of virtually every aspect of our daily lives will present enormous opportunities and challenges to governments in addition to the industry. The 3G ecosystem is more dynamic than ever before and players will need to adapt to the changes made by the others. All this is good news for consumers, of course; the wireless future will deliver us the rich experiences we have longed for - limited only by the extent of our imagination. ●



GLOBAL MOBILE
AWARDS 2011



Rob Conway
CEO & Member of the Board, GSMA

Simon Wilkinson
CEO, Myriad



WORLD LEADING MOBILE PLAYER? PROVE IT.

The GSMA's Global Mobile Awards honour excellence and innovation in mobile communications. They are unrivalled as the premier international showcase of world leading products, services and initiatives in an industry that continues to transform communications on a daily basis. Judged by world leading independent experts, the awards comprise nine categories with 26 individual awards for 2011, among them brand new Apps and Devices categories, Best Mobile Technology, Best Mobile Advertising & Marketing, Best Mobile Innovation, Best Mobile Enterprise, the Green Mobile Award categories, and more*.

This is your chance to take centre stage at the Mobile World Congress, the mobile industry's leading annual event, to prove your credentials as a world leader.



ENTER NOW AT:
www.globalmobileawards.com
Entry Deadline: Monday, 22nd November 2010

* Some categories are based upon a nomination process and do not require entries. Please check website for further details.



MOBILE.
WORLD CONGRESS

Barcelona | 14-17 February 2011

Femtocells - free is the magic number

by Chris Gilbert, CEO, Ubiquisys

Operators are deploying femtocells to counter the mobile capacity crunch. Femtocells offload some of the mobile data from cellco macro networks. Femtocell technical issues have been resolved, but operators doubt the wisdom of charging for femtocells. Some major breakthroughs lead Japan's SoftBank Mobile to become the first operator to provide free femtocells and DSL connections to its users; this was possible because femtocell experts sold the complex software to consumer electronics players with the skills to build the box cheaply.



Chris Gilbert is the CEO of Ubiquisys. Mr Gilbert has a formidable track record in the communications industry. As CEO at IPWireless, he transformed it from a niche, wireless broadband player into a mainstream cellular provider. The company was a Red Herring Top 100 Private Company, an Always on Top Innovator and was awarded Network Magazine's Wireless Product of the Year. Previously, Mr Gilbert held senior roles with Motorola where he managed the company's cellular infrastructure business in some 60 EMEA countries.

Chris Gilbert has a degree in physics from the University of Bristol.

Since the dawn of the femtocell industry, the biggest technical challenges faced have been those of interference and radio resource management (RRM). The management of femto-to-macro and macro-to-femto interference was vital to the success of the technology. All femtocells need radio resource management to some degree, so the femtocell can measure its radio environment and set its own configuration. However, people moving around, opening windows, plugging new femtocells in, or an operator reconfiguring the macro network, means that the radio environment is constantly changing - and failing to respond immediately to these changes can cause serious problems.

Some of the early femtocell deployments solved these issues by using a completely different carrier frequency to eliminate any possible interference with the macro-network. However, this does not resolve femto-to-femto interference and few operators have a spare carrier available. The development of adaptive radio resource management (aRRM) has rendered these problems irrelevant. With aRRM, femtocells constantly listen to their environment and respond immediately, eliminating the interference issues inherent in shared spectrum deployments.

The establishment of open industry standards has been central to the success of femtocells.

Standards have been critical to the success of all the technologies used by the cellular industry and femtocells are no exception. Vendors and operators have worked on a variety of interoperability tests to ensure a scalable, multi-vendor femtocell market based on open standards. This in turn has made it possible for operators to select standards-based femtocells and femto gateways from multiple vendors, safe in the knowledge that they will be fully compatible with each other and their core networks.

With these obstacles overcome, femtocell deployments are accelerating globally and the industry's focus has now shifted to driving mass consumer adoption. For the industry to truly succeed, however, the benefits of femtocells also need to be clear

“A new manufacturing model has enabled dramatically reduced wholesale pricing of femtocells. The challenge facing the industry has been that the femtocell vendor community has little experience in manufacturing consumer electronics for mass markets. They are, however, skilled at manufacturing highly complex RF products in relatively small numbers. The solution has been for the femtocell experts to give the tried and tested consumer electronics players the skills to manufacture femtocells themselves. The key to doing this has been to separate the femtocell software and hardware design process.”

enough to consumers to drive mass uptake. Central to this is a consumer proposition that generates widespread appeal.

Building the business model

The majority of deployments to date have been based upon the consumer paying for the device, either buying it outright or via a subscription. This approach has received strong criticism from some quarters, with the argument being that consumers should not have to pay again for coverage they already pay for. For many this is the major barrier to consumer adoption.

In stark contrast, Japanese operator SoftBank has revolutionised the business model for femtocells by offering its subscribers not just free femtocells, but the ADSL connections as well. This removes one of the biggest barriers for consumers and the offer has already seen significant consumer uptake in Japan since launching in mid-2010.

Two major developments have made this move possible. The first has been breaking the wholesale price barrier and the second is the introduction of so-called open mode femtocells.

A new manufacturing model has enabled dramatically reduced wholesale pricing of femtocells. The challenge facing the industry has been that the femtocell vendor community has little experience in manufacturing consumer electronics for mass markets. They are, however, skilled at manufacturing highly complex RF products in relatively small numbers. The solution has been for the femtocell experts to give the tried and tested consumer electronics players the skills to manufacture femtocells themselves. The key to doing this has been to separate the femtocell software and hardware design process.

This has allowed established consumer electronics manufacturers to focus on the hardware they know and then buy the


complex software - essentially the secret sauce - from the femtocell experts. This allows the companies that have so successfully reduced the prices of DSL modems and WiFi routers to do the same for femtocells. The first products manufactured under this system are being deployed in their tens of thousands and have transformed the femtocell business case. For years, the industry has seen \$100 as the right price for mass market deployments of femtocells - the consumer electronics manufacturers have already undercut this price. This new process has allowed SoftBank to offer free femtocells to drive rapid take-up of their mobile services.

Furthermore, the operator is also running the world's first open mode femtocells; any subscribers in range can connect to them. This is in stark contrast to other femtocells, which run in 'closed' mode and can only connect to a limited number of pre-determined handsets. Using this femtocell strategy lets SoftBank significantly increase the coverage and capacity of its entire 3G network, while benefiting customers and slashing network costs.

The benefits of femtocells to operators and consumers alike have long been recognised. However, their true potential is only just beginning to be realised. Existing deployments have proved that femtocells are technically viable and can improve coverage and increase network capacity. The challenge, now, is to prove that femtocells are commercially viable. SoftBank's pioneering deployment has done just that and highlights to other operators how such an innovative and radical commercial offering is not only viable, but extremely popular.

By offering the devices to consumers for free, consumer uptake has been considerable, and the operator has benefited from the reduced strain on their network and by avoiding the need for costly macro upgrades. For femtocells to

be a success, they need to be provided at the right price. In this case - as SoftBank has proved - free is the magic number. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com

Who will lead in the age of wireless?

by Tetsuzo (Ted) Matsumoto, Senior EVP of Softbank Mobile, Corp

Wireless usage is growing and with it the struggle to determine who will control the market. Mobile operators are discovering the need for fixed-networks and even WiFi and broadcast to offload a significant portion of their traffic. Device manufacturers, Internet providers, network operators, content providers, cloud service companies and more will all fight to own the customer. In the end, it might well be the traditional operators that have a well defined, billed monthly, relationship that will organise the market.



Tetsuzo (Ted) Matsumoto is the Senior EVP of Softbank Mobile, Corp; he started there as the EVP of Technology and Chief Strategy Officer of Vodafone KK - a company that had already been taken over by Softbank. Before that, Mr Matsumoto worked for Qualcomm, where he started as a consultant, before serving as President and Chairman of Qualcomm Japan, as well as Senior VP of Qualcomm Corporate, San Diego, responsible for Japan, South East Asia and Pacific. Prior to Qualcomm, Mr Matsumoto worked for the Japanese Conglomerate, Itochu Corporation, in a variety of positions, including GM of the Communication and Multimedia Business, and as Division VP of Aerospace and Information.

Tetsuzo Matsumoto received a Bachelor of Law degree from Kyoto University in 1962.

Wireless is our destiny. It's because human beings are born, not wired. However, people are now facing the problem of how to deal with this destiny.

Until very recently, people on the move did not have the tools to connect themselves with other people and/or databases back at the office, but, once they got these tools, they kept using them even when not on the move. It has become part of their lives to count upon the many things readily available via the tiny mobile device they always carry.

However, this tiny mobile device will soon have the processing capability of a PC, and the data communication capacity it requires will be tens and hundreds of times of that needed in the past; this is starting to create

serious spectrum shortage problems. Radio is a physical phenomenon ruled by Shannon's law; there are always physical limitations to the communications capacity of any wireless device. If you could monopolize a given bandwidth, you would feel pretty comfortable; if not, you would have a problem. To overcome these limitations, the size of each cell has to be very small, so that users will not have too many competitors trying to share the available spectrum.

People talk about wireless communication versus wired communication, but there are almost no pure wireless communication systems in the world, except for satellite communications. Most communications systems consist of both wired and wireless connections. In the case of the usual macro-

cell based mobile system, the wireless part is bigger than the wired part, which connects each base station to the central facility. On the other hand, for femtocell systems and WiFi, in which the wireless link consists only of the final 10 to 20 meters, the wired part is more important.

For a long time, mobile communication carriers have looked down at fixed (wired) networks as old-fashioned systems. Now, mobile operators must embrace fixed networks as an indispensable part of the integrated network. For many years, mobile communication carriers hated WiFi, fearing it might take over their traffic. Today, mobile operators look at WiFi as a way to offload part of their overwhelming traffic burden.

Sooner or later, everyone will carry around various types of portable devices for wireless communications with a variety of displays, audio systems, cameras, sensors, CPUs, memory, and batteries. These devices will be connected with each other, as well as with databases and applications 'in the cloud', through a variety of communications networks.

These devices will largely replace many existing products, such as books, newspapers magazines, dairy books, cell phones, FM/AM radio receivers, portable audio devices, notebook PCs, tablet PCs, cameras, portable games and the like. These devices will also replace people's wallets, documents, licences, membership cards and credit cards. It would be easier to carry, easier to use, more sophisticated and more secure, and it would be much cheaper overall.

The technologies to enable this already exist and are constantly improving. iPhones and other smartphones are already successful, and tablet devices like the iPad are likely to penetrate the market very quickly. The technology is improving rapidly and the improvement will accelerate, driven by competitive pressures among the equipment and components vendors and service providers.

Who will lead the changes? Many people think Apple and Google will; they dominate their market segments and have the money and the technology to grow and advance. Many think the success of the mobile operators - of the conventional cell phone business - is about to pass its peak and that mobile operators will soon become simple dumb pipe providers.

Is this true? Will this happen? Not necessarily. Mobile carriers throughout the world can lead in certain market segments, as long as they clearly understand their business is to give users an entire value package, not just communications. They must also understand that today's high revenue telephony and SMS business models cannot be sustained indefinitely.

In Japan, mobile communication carriers are more confident about the future, since they have always been at the core of a total ecosystem, which provides a total value package consisting of handsets, application services and the network. They buy and sell the handsets, which support various advanced applications, and handle most of the associated marketing, distribution and customer service. By doing so, users benefit from one-stop shopping, one-stop billing and one party to go to if anything goes wrong.

This requires a lot of financial commitment, management skills and devotion - without which mobile carriers could not survive. We understand that survival means leadership, and conversely, leadership is survival.

The essence of the business is to earn as much money as possible from the customer. Users only pay for what they see value in, so product suppliers and service providers have to work hard to give users the best value possible. It is very important that users feel the cost they pay is reasonable for the value and enjoyment they receive.

Handset performance and cost depend upon the handset vendors. Nokia has been leading the game for a long time, but now Apple seems to be pulling ahead of all the others. It will not be easy, however, for Apple to keep their lead for long - their competitors are working hard to take the lead.

The cost and the value provided by mobile applications depends on who develops and sells the application; the cost and value of services depends upon who manages the cloud and offers the services. At the moment, Apple and Google seem to be leading the game, but no one knows what the future will bring.

Communications carriers control the networks. Fixed communications are mostly controlled by traditional common carriers, but recently highly competitive mobile communication carriers have taken over a substantial part of the value chain. By leveraging their monthly billing relationship with users, mobile carriers are trying to take the lead in the handsets and service/application business.

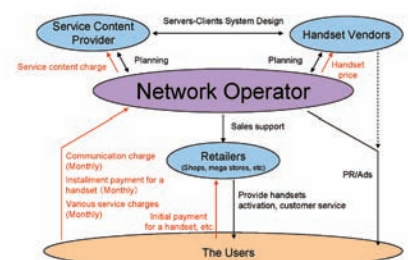
The nature of the network business, as we have said, is also changing. No one can satisfy users' needs just by providing a single network service. To handle the traffic, which can grow dramatically within a very short period, network operators should provide the users with a bundled selection of network services consisting of various kinds of mobile communications, fixed service plus WiFi and broadcasting.

Broadcasting? Yes, it will become an indispensable part of integrated communications packages. When many people are likely to access the content, it is better to broadcast it to the user's handset, and cache it there for retrieval whenever the user wants. By broadcasting popular content, operators can obtain dramatic savings of both network transmission capacity and server delivery capacity.

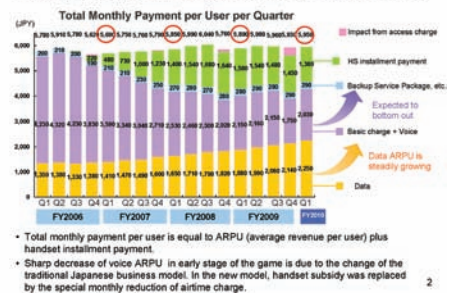
In the future, many different types of players will have to cooperate to create the best value for the users. These players will fight at times, seeking to control the user and the market, but generally, they will have to cooperate.

Who, then, will organize the entire service package and offer it to the users? Marketing, distribution, billing and customer service are all important, but in the end, the player who has the best, most frequent, contact with the end-user is the key. That is why we should never underestimate the incumbent communications carriers.

Ecosystem of Mobile Business in Japan

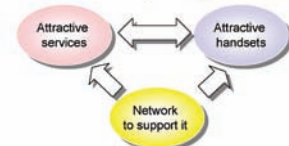


Data ARPU of Softbank is now 53% of total ARPU



Philosophy Behind the Success of Softbank

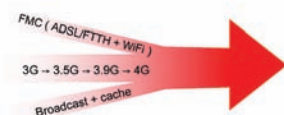
- User pays for the "Value"
- We offer the "Value" to the users
- The "Value" is created by the integration of three factors



- Strong marketing & sales convince users of the "Value"

Rapidly Growing Data Traffic Cannot be Supported by Mobile Network Only

- Future data traffic would be very big (50-100 times), unpredictable and download-heavy.
- Different network should jointly support the total traffic burden, depending on the places and the types of services.



- As only the mobile network (3G/4G) can assure "anytime and anywhere (ubiquitous)" communication link, its value will never be diminished.

Is smarter WiFi the way to extend broadband?

by Selina Lo, President and CEO, Ruckus Wireless

Demand for broadband connectivity is outrunning capacity and operators' costs are rising faster than revenue. Due to costs, many regions still lack broadband connectivity. A new technology, 'Smart WiFi', extends WiFi's range by up to a four-fold and enables a carrier-class WiFi infrastructure that delivers reliable performance. Smart WiFi is an economical way to bolster overloaded 3G networks; it provides the last-mile access needed to expand fixed-line broadband networks at a fraction of the cost of competing solutions.



Selina Lo is the President and CEO of Ruckus Wireless. Before starting Ruckus Wireless, Ms Lo built a number of successful computer networking start-ups. As VP of Marketing at Alteon WebSystems, she defined a completely new market for load-balancing Web switches. After taking the company public, she sold it to Nortel. Before Alteon, she co-founded Centillion Networks, which developed the first token ring Ethernet switch. She then sold the company to Bay Networks.

Selina Lo received her B.S. in Computer Science from the University of California at Berkeley.

The race is on to roll out broadband services in new areas and bolster existing networks, but will mobile operators finally embrace what was until recently a 'dirty little word' - WiFi?

The mobile revolution has taken the world by storm. With a well-publicised barrage of data traffic hitting mobile infrastructures around the world, operators are actively seeking any and every available tool to augment and expand their networks and deliver wireless broadband access to more people, in more places.

Millions of Blackberry and iPhone users already know from painful firsthand experience that mobile operators have a real problem; even in areas where networks are highly developed, demand for connectivity is outstripping supply at an unprecedented rate. The cost of transporting data is rising faster than revenue, and poor user experiences resulting from network congestion are raising chum, one of the largest costs operators incur.

In addition, there are a multitude of suburban and rural areas that still lack the broadband connectivity that many of the UK's cities already enjoy. While the abundance of fixed-line infrastructures in towns and cities made it relatively easy to offer broadband, it is both expensive and disruptive to extend fibre networks beyond these areas.

Despite these frustrations, one thing is clear - there is a massive opportunity for those operators that can increase capacity and extend coverage. The race is on to tackle the problem and find a way of extending broadband services into new and under-served areas - which is why the benefits of robust, flexible WiFi solutions have become increasingly difficult for carriers to ignore.

Smarter WiFi - mirage or miracle?

Given the enormous installed-base of 802.11 silicon embedded in virtually every conceivable

device, WiFi is one of the most expedient and cost-effective ways to relieve strained networks and build out into new areas, while keeping a tight focus on where traffic is heaviest.

Traditionally held back by its inability to deliver robust connectivity over large distances, WiFi is both uncontrollable and unpredictable - it has historically been viewed as a flaky solution. This, combined with the notable lack of a complete end-to-end solution, quite rightly put WiFi firmly out of the running as a viable option for extending broadband connectivity.

Contrary to popular opinion, 802.11n has done little to solve the problem so far. The new standard now increases the capacity of WiFi technology from 54 megabits per second (Mbps) to 300 Mbps or more, but it has a nagging blind spot - interference caused by neighbouring devices that operate in the same unlicensed spectrum. Essentially this means that anyone can install an access point wherever they want, or run

interference-generating microwaves, blue-tooth headsets or cordless phones in the vicinity at any time. This flaw means that many WiFi signals are constantly transmitted in all directions, each of which can be interfered with before reaching their destination.

To make matters worse, 802.11n devices are nearly two to three times the cost of older 802.11a/b/g devices. Despite vendor claims to deliver theoretical maximum throughputs of 200, 300 and even 600 Mbps of performance, users never see it. If something could be done to offer 802.11n equipment at 802.11g prices with better range and reliability, then the market will run, not walk, to install the new technology.

Enter a new generation of smarter WiFi technology which can actively ignore interference from competing networks, by constantly steering signals around obstacles and other problems that previously wreaked havoc on WiFi performance. This smarter WiFi technology sees and hears interference, but delivers high bandwidth coverage even in the dense urban markets littered with radio noise.

Dubbed 'Smart WiFi', this revolutionary technology extends signal range up to four-fold without wasting signal on areas where it is not required. Advances in RF technology combine intelligent beam-forming with new 802.11n standards to increase both the range and reliability of WiFi connectivity. This enables, for the first time, a complementary carrier-class WiFi infrastructure capable of delivering consistent performance, adaptable interference mitigation and more reliable WiFi services for latency-sensitive multimedia applications.

These developments present carriers with an exciting prospect. The technology is by far the most economical means to bolster overloaded 3G networks; it can also deliver the crucial last-mile access needed to expand fixed-line broadband networks at a fraction of the cost of competing solutions.

Sustainable growth

Of course, delivering robust connectivity is only half the battle - operators need a solution that can help them to drive down capital costs and operating expenses in the midst of spiralling demand, while at the same time retaining existing customers and fighting for market share amid cut-throat competition.

To achieve the full promise of WiFi, operators need a well-conceived, carrier-built, architectural approach that spans the radio access network, backhaul and core cellular infrastructure -

addressing issues such as provisioning, seamless authentication and IP mobility. Such an approach allows operators to both offer a high quality service to subscribers and monetise services that travel over WiFi.

For example, PCCW deployed a 7,500-node high-speed WiFi network to offload its 3G network infrastructure and to support the distribution of IP-based video content to handheld devices. PCCW says that WiFi is off-loading up to 20 per cent of the data traffic that would have otherwise been destined for their 3G networks. At peak times in dense urban locations, data traffic offload to WiFi can reach up to 80 per cent.

The advantages of using WiFi are available in either self-build or partnered models. For tier two and three operators, partnering with a third-party wholesaler, building out standard WiFi networks or acquiring networks from another provider offers the benefits of lower data transport costs by shifting traffic onto WiFi networks - but these processes will of course take time.

Conversely, tier one operators can benefit today, and in the long-term, through operator-built carrier-class WiFi networks. This allows carriers to address the two essential priorities related to network operation and expansion: control and cost. However, this requires a comprehensive and well thought through architectural approach that spans the radio access network, backhaul and core infrastructure - addressing issues such as provisioning, traffic flow, seamless authentication, lawful intercept, IP mobility and policy control and management.

With a controlled and cooperative WiFi/cellular infrastructure, operators can deliver service capacity in WiFi mode and, as well, monetise applications enabled by higher-bandwidth connections. This allows them to reduce the costs associated with offloading data and signalling traffic onto WiFi while simultaneously generating revenues.

Lower cost backhaul, plus the sheer reliability of solutions, gives operators the freedom to extend WiFi networks quickly and scale them easily as mobile data traffic increases - an approach which delivers much faster times to revenue and ROI than alternative options. This will undoubtedly make it a winner in markets where installing alternatives such as fibre is too expensive or too difficult.

In India, the Tikona Digital Network has done what few thought possible. They have quietly built the world's largest outdoor WiFi mesh network - with over 35,000 WiFi access points - in less than 18 months. Tikona's Smart WiFi network offers tiered broadband services over

the unlicensed 2.4GHz band to hundreds of thousands of subscribers in dozens of cities.

Ultimately, by providing wire-like reliability at a much lower cost than competing technologies, WiFi will undoubtedly be the most economical way for operators to extend their networks into new areas, fill the gaping holes in 3G coverage, and deliver a positive mobile experience to end-users over the next decade.

WiFi - from underdog to major player

Until recently, end-to-end WiFi access solutions have been the missing link operators needed to extend broadband data services in rural and less developed areas. Without end-to-end access solutions, WiFi could not reliably deliver the necessary range needed to extend services beyond the realms of wired networks.

However, the timely arrival of smarter WiFi solutions has sparked a welcome departure from traditional broadband access solutions that simply blanket large areas with expensive access and backhaul equipment that takes years to deploy.

In addition to solving data offload woes, this new breed of complete end-to-end solutions are ideally suited for under-served areas where there are still huge opportunities for broadband access, but where installing fixed-line or traditional wireless broadband technologies is so often impossible or cost-prohibitive. Designed to let operators quickly deploy reliable wireless coverage and capacity at the lowest possible cost per bit, WiFi can now address the massive opportunity for high-speed data services that alternatives, such as WiMAX, cannot due to the huge start-up costs and deployment complexities involved.

Cost-effective 'build-as-you-grow' models for wireless broadband data services dramatically cut the capital costs of broadband infrastructure, therefore giving operators solutions that can scale-up quickly and easily as mobile data usage increases - particularly given the surge of affordable devices such as smartphones and iPads.

Of the many tools at operators' disposal, smarter WiFi is among the easiest to put to work quickly. Based on the accelerating activity of the past six months, the industry can expect to see rapid expansion of WiFi networks worldwide that will open up new markets and enable broadband users to enjoy the truly reliable, affordable, high-bandwidth experience they've been waiting for.





FT World Telecoms CONFERENCE

Smart Moves for Changing Times

16 & 17 November 2010 | Marriott Grosvenor Square, London

Fresh competitive challenges, innovative technologies and evolving business models are all putting pressure on telecoms players to scrutinise their commercial strategies closely.

The FT World Telecoms Conference 2010 will feature a series of in-depth interviews and thought-provoking panel debates with global industry leaders to discuss how telecoms players can adapt their businesses to thrive in this time of significant change. This is a must-attend event for anyone whose business is telecoms, media and technology.

Speakers include:

Ian Livingstone, CEO, *BT Group*

The Hon. Ed Vaizey, MP, Minister for Culture, Communications and Creative Industries,
Department for Culture, Media and Sport

Matthew Key, CEO, *Telefónica Europe*

Ed Richards, CEO, *Oftcom*

Nick Read, CEO, Asia Pacific and Middle East Region, *Vodafone*

Gabriele Galateri di Genola, Chairman, *Telecom Italia*

Mikhail Shamolin, CEO and President, *Mobile TeleSystems OJSC*

Hironichi Shinohara, SVP and Senior Executive Director, Research and Development Planning
Department, *NTT Corporation*

Rajiv Mehrotra, Founder, CEO and Chairman, *VNL*

Olaf Swantee, EVP, Europe and Sourcing, *Orange France Telecom*

William So, Former President, *China Unicom (Europe)*

REGISTER BY 1 AUGUST AND SAVE £400

www.ftconferences.com/telecoms

To register

Tel: +44 (0)20 7873 3088

Email: steven.roach@FT.com

For sponsorship enquiries

Tel: +44 (0)20 7873 3260

Email: toufique.khan@FT.com

FT

FINANCIAL
TIMES

We live in FINANCIAL TIMES®

Solving the capacity crunch with IMB mobile broadcast

by Jon Hambidge, CMO, IPWireless

The long predicted explosion of mobile data has arrived. The rapid adoption of media-centric smartphone and tablet devices has accelerated mobile data usage including mobile video traffic. Mobile broadcast, initially focused on supporting Mobile TV as an application, is now seen as a way to provide capacity for popular content. Integrated Mobile Broadcast (IMB) supports high performance broadcast with a very low cost upgrade. With the GSMA's support of IMB, mobile broadcast is now ready to address 3G capacity issues.



Jon Hambidge is the CMO at IPWireless; he oversees all the company's global marketing and public relations. Mr Hambidge is also responsible for the company's initiatives to promote the UMTS TD-CDMA standard around the world, serving as the Chairman of the Global UMTS TD-CDMA Alliance. Prior to joining IPWireless, Mr Hambidge ran various marketing functions for NorthPoint Communications and worked at Charles Schwab & Co. in a variety of marketing and product management functions.

Jon Hambidge holds an MBA from the Haas School of Business, the University of California, Berkeley and a Bachelor of Arts in Economics and Rhetoric from the University of California, Berkeley.

The long predicted explosion of mobile data has now shifted from theory to reality. With an ever-increasing range of media-centric smartphone and tablet devices, operators are faced with an exponential growth in mobile data - in particular mobile video - traffic on their 3G networks. In the light of these developments, mobile broadcast offers a highly compelling solution. While initially focused on supporting mobile TV as an application, mobile broadcast is now looked at as a way to add infinite capacity to 3G for popular content. The 3G roadmap has evolved to include Release 8 Integrated Mobile Broadcast (IMB) a very low cost technology upgrade that supports a high performance broadcast bearer. With the recent GSMA and mobile ecosystem

support of IMB, mobile broadcast is now ready for prime time as a way to address 3G capacity issues.

More and more people are regularly streaming video over mobile networks leading to soaring data volumes; a recent study by Allot Communications found that YouTube alone accounts for 13 per cent of all mobile bandwidth. This increase in mobile data consumption has, in turn, negatively impacted the quality of service that consumers are receiving. Operators, then, are keener than ever to find a technology which can offload these bandwidth-hungry applications from their data networks whilst also providing them with the opportunity to increase ARPU through the creation of innovative new services.

Freeing up 'unicast' capacity for bandwidth-intensive traffic is just part of the issue. The exponential rate at which 3G traffic is growing, especially for data-intensive applications like mobile video, will spell clogged networks for service providers and forebodes slow multimedia content delivery for the average user. It has been predicted that the total wireless network traffic generated from all voice and data services will increase 39 times by 2014 while LTE will only give a two to four times increase in spectral efficiency. Operators must plan for this surge in traffic prior to LTE rollouts or risk network performance degradation.

As a result, mobile operators are turning their attentions to mobile broadcast

options as a way to offload unicast traffic, with IMB generating particular interest. It implements broadcast services in the unpaired TDD (*time division duplex*) bands of spectrum owned, but unused, by many operators as part of their 3G licences. By adding a very integrated licences bearer to existing 3G networks in spectrum already owned by 150 MNOs (*mobile network operators*), they get infinite capacity for popular content, making it a highly cost-effective option. IMB is unlike other broadcast technologies as it is one-tenth of the cost at a network level, has a far higher degree of integration with 3G networks, and is wholly MNO controlled. Moreover, it utilises widely deployed WCDMA technology that already exists in devices, minimising the cost of manufacturing IMB capable phones.

The unused TDD bands support multiple 5MHz carriers, each of which may be dedicated solely to the delivery of broadcast services. It is expected that IMB will support up to 30 broadcast channels in 10MHz at 300 kbps. By taking advantage of unused TDD spectrum, IMB can deliver the most popular content and reduce the capacity needed on crowded FDD (*frequency division duplex*) channels. The standard was harmonised in Release 8 of 3GPP and endorsed by the GSMA in September 2009 as its favoured method of mobile broadcast. It is one of five technologies to be officially endorsed and promoted by the GSMA as fit for the purpose and effective for the mobile industry. Others include HSPA and WCDMA.

Previously, there had been division in the vendor community regarding which broadcast technology to support. This division led to regional and even in-country variances resulting in confusion among handset manufacturers on which to support, and few devices were produced, limiting the potential for widespread deployment. Within the 3G broadcast standards, there were initially two separate proposals for the TDD spectrum. With the harmonised proposal that was agreed to in Release 8 for IMB, there is now a single broadcast standard which has received the support of many major vendors such as Ericsson and Huawei who will both be bringing IMB to market in their product roadmaps. The technology has also recently become the subject of a major London pilot by operators O2, Orange and Vodafone, which begins in the fourth quarter of this year.

Much like HSPA, which has proven to deliver mobile broadband traffic efficiently, IMB provides the GSMA community with the opportunity to efficiently deliver mobile broadcast services, evolve their existing 3G networks and maximize the billions already invested in spectrum licences.

Mobile Broadcast also opens up a wide range of other applications and new service possibilities for the operator community. These can be delivered to all devices attached to the network without impacting the performance of the unicast voice and data network, a key requirement for operators. These include live event mobile TV streaming, homepage or widget updates, OTA software updates, public safety alerts and, perhaps most interestingly, predictive mobile broadcast.

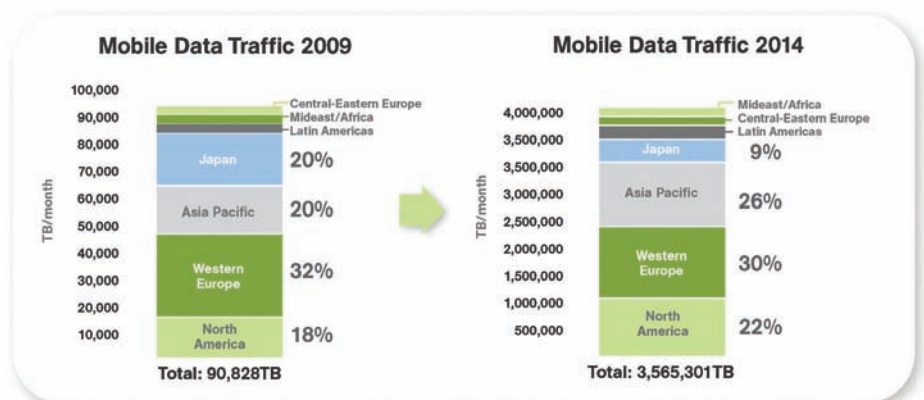
While it has been typically assumed that success in digital content distribution is dependent on the delivery of a broad range of small, niche items, recent experience suggests that the opposite is true and that there is a high level of common content viewed by users. For instance, less than one per cent of YouTube videos receive more than 500,000 views a month whilst the song recommendations and top 50 tracks account for over half of all downloads on Spotify. This creates a huge opportunity for IMB. With a high concentration of video and multimedia traffic concentrated on just a few sites, for example YouTube, Spotify and BBC iPlayer, operators can identify the most popular content and broadcast it to consumers using an IMB network.

At the same time, low-cost mass-storage for mobile devices, such as MicroSD

memory cards, has become readily available presenting mobile operators and content providers with the chance to exploit IMB's capabilities. Large data files and popular content can be pre-loaded onto the device, using the broadcast mechanism, based on prior information about the user, their subscription profile or other data.

Until now mobile broadcast has failed to offer an adequate business proposition. The lack of integration with existing 3G technologies and high capital expense costs associated with the purchase of new infrastructure and spectrum have largely doomed these solutions to failure. In IMB, however, mobile broadcast has found a business case. The long anticipated capacity crunch has finally arrived and led mobile operators to hunt for a means of offloading the multimedia traffic that is putting such a massive strain on their networks. A cost-effective solution, IMB's capacity for predictive broadcast, coupled with the increasing storage space on mobile devices, makes it ideally suited to meeting consumer demand for multimedia content without degrading the operator's unicast networks performance. Mobile broadcast has had a number of false dawns, but the support vendors and operators have shown through instances like the GSMA endorsement and London initiative would suggest that in IMB mobile broadcast's time has come. ●

Mobile data traffic will increase **39x** between 2009 and 2014



Source: Cisco Visual Networking Index: Global Mobile Data Traffic Forecast Update, 2009-2014 & Credit Suisse

*TB= terabyte

Harnessing developer communities for telco apps

by Dinesh B. Saparamadu, CEO and Founder, hSenid Software International

Telecom operators need applications. To attract the developers and get the applications operators need a platform that facilitates innovation - a platform that stimulates idea generation, provides development tools, enforces best practices and provides a test bed where application developers can freely experiment. Since market penetration is the developer's chief concern, a platform must offer a wide variety of ways to deliver applications to subscribers, including telco app stores, web-based delivery and USSD (*Unstructured Supplementary Service Data*) interfaces and more.



Dinesh Saparamadu is the founder and CEO of hSenid Software International and the hSenid Group of Companies. Mr Saparamadu began his career with Aetna Life and Casualty, Connecticut, USA where he worked on client server applications development, in the Corporate IT area, in Enterprise Technology Services, and where he served as an Enterprise Technology Consultant. Mr Saparamadu then moved to PepsiCo, as a Software Engineer, and worked on Mobile Computing, Internet and Intranet Applications, and Middleware applications. Mr Saparamadu also worked at the Center for Telecommunication Research, at Columbia University, New York, USA on research projects sponsored by the National Science Foundation.

Dinesh Saparamadu holds a Bachelor of Science in Computer Engineering and a Master of Science in Computer Science from the University of Bridgeport, Connecticut, USA.

It is no secret today that applications developers are indispensable sources of innovation in the mobile industry. Innovation can come from an average high school kid or specialised companies like Mobiquest, all of which contribute to this rapidly growing industry. Every mobile application developer dreams of building the next cutting-edge application and monetizing it.

The success of a mobile application is based upon its creativity and its relevance to the intended audience. Furthermore, the uniqueness of the application, its functionalities and time-to-market all contribute to its success.

A major challenge for telecom operators is to channel the creation of these applications that monetize network assets and accelerate the rollout of 'telco apps' which add value to their service offering. This means that telecom operators must have a platform that facilitates innovation - a platform that stimulates idea generation, provides development tools, enforces best practices and provides a test bed where application developers can freely experiment with their brainchildren.

Enticing developers

In Mobile Developer Economics 2010, a study by Vision Mobile, 75 per cent of the developers surveyed identified market

penetration as the most important reason to choose a developer platform - over and above its technical facilities. Compared to the makers of mobile devices and mobile operating systems, few operators have an overall global reach, but most of them have strong brands in their local markets, the ability to steer traffic via their networks and a great deal of knowledge about their subscribers that lets them target their offerings to their clients. This gives them a great opportunity to convince local developers to come up with applications suited to their surroundings.

The diversity of the market can play a great role in attracting developers. Although the apps distributed by device vendors and

“Mobile application developers need a simple and streamlined application development process to unleash their creativity and speed the development of novel applications. They want to create applications without having to pay attention to the technical details of telecom operator’s hardware or software.”

those available on the mobile web have brought a rich wave of sophisticated, user-enhancing, experiences, GSM coverage still provides unlimited opportunities to reach out to niche and mass subscribers alike. Operators should exploit network capabilities such as SMS - it is available on every mobile handset and nearly every mobile user understands how to use it. By using the full potential of their networks to build their markets, operators can attract applications developers that cover everything from low-end to very high-end applications, operators can obtain the apps they need to serve a the broadest possible range of users in their markets .

The convergence of technologies that operators deal with today provides multiple interfaces for developers to reach out to their audiences via bundling, packaging, cross-product opportunities, location-based services, segmentation and profiling capabilities, amongst others. The operator therefore becomes a unique and powerful channel for developers to collaborate with in order to sell their applications.

Pricing and charging are underlying drivers of applications distribution. Developers of established application platforms have long been stuck with the limited pricing options of the pay-per-download revenue model. The operator can provide both developers and users with a wide variety of payment options including fixed price, recurring fee on usage, subscription-based, among many others.

Easing the developer’s task

Of course, the platforms that operators provide have to be technically capable to handle what developers do best - develop applications. The Vision Mobile report states that the learning curve for the Symbian Platform is approximately 15 months, but that it takes only six months to learn to work well with the Android Platform.

A platform that reduces the learning curve significantly gives developers and operators alike a great opportunity.

Mobile application developers need a simple and streamlined application development process to unleash their creativity and speed the development of novel applications. They want to create applications without having to pay attention to the technical details of telecom operator’s hardware or software.

Developer-friendly operator platforms make it easy to harness the creative talent of developers who, although they may have ground-breaking ideas for new applications, find it difficult to surmount the technical obstacles involved.

In addition to developer-friendliness, the availability of useful resources that facilitate the building of functional applications, sample applications, development tool kits and guides can all help inspire budding developers and speed the development process from creation to deployment and commercialization of the mobile applications.

Marketing of telco apps


Market penetration is a decisive factor in a developer’s choice of platforms. By offering a variety of ways to deliver applications to subscribers, including telco app stores, web-based delivery and USSD (*Unstructured Supplementary Service Data*) interfaces, applications will appeal to a larger and more diverse audience and not only to smartphone users.

The power of identity management options such as user profiling information coupled with network capabilities such as location gives developers the opportunity to better customize apps for distinct subscriber segments.

Vision Mobile reports that the key challenge developers face is marketing their own applications. There are many reasons for this including widely dispersed markets. By working with operators, there is a better opportunity for developers to focus upon their own communities and interest groups and deploy apps specifically targeted to users they understand.

Telco developer communities

In a day and age where mash-ups are enriching consumer experience, best-of-breed mobile applications result from the collaboration of many people from all walks of life. Fierce competition has led individual developers to seek partnerships with larger communities of developers in order to develop better, more sophisticated, applications. This collaboration takes many forms - interactive online forums supported by technical counselling, developer workshops and networking sessions for idea generation, knowledge sharing, business partnerships and more all help create a vibrant developer community. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World*'s authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com

Location services consolidation

by Navin Vohra, Vice President, Sales, Asia Pacific & India, Andrew Solutions, a CommScope Company

The rising demand from mobile broadband and smartphones users has prompted operators to deploy rich location-based Internet services, but the deployment and operational costs of many traditional solutions can be daunting. Distributed architecture - control plane - location services, require location service platforms at a great number of network nodes, considerably raising costs and complexity. A consolidated location system using virtual node technology can meet all of an operator's needs through a single Mobile Location Center (MLC) platform.



Navin Vohra is the Vice President, Sales, Asia Pacific & India, Andrew Solutions, a CommScope Company; he is responsible for leading all of Andrew's sales activities in the Asia Pacific region, excluding China. A 20-year veteran in the telecommunications industry, Mr Vohra previously was Vice President of Sales for the India and South Asia region at Andrew. Mr Vohra joined Andrew from UTStarcom India, where he was a Director of Business Development and Head of Operations. Mr Vohra also worked with Lucent, AT&T India, and Siemens.

Navin Vohra holds a Bachelor of Engineering, Electronics and Communication degree from the Delhi Institute of Technology, and an MBA from the Institute of Management Technology, Ghaziabad.

Location services have long offered an opportunity for network operators to climb the value chain ensuring their networks offer more than just commodity bit-pipe functionality. In recent years, the value of location has been taken to a whole new level due to the advent of mobile broadband, smartphones, and rich Internet services that are enabled by location information. This 'awareness' of the value of location is even driving demand back into markets dominated by 2G technology deployments with sophisticated LBA (location-based advertising) delivered on commodity SMS and USSD (unstructured supplementary services data).

In order to capitalize on their networks' strengths and guarantee their position in the location value chain, operators need to make

certain that their networks are optimally location-enabled. To location-enable their networks, operators must deploy new nodes in their network. When deployed as separate platforms this has a direct impact on costs that the operator needs to pay upfront and on an ongoing basis. As operators struggle to reduce the Capex and Opex (capital and operational expenses) when trying to location-enable their networks, a Mobile Location Center (MLC) hardware platform may be the best way to address operators' needs.

Location Services in 3GPP Networks are defined in both Secure User Plane Location (SUPL) and Control Plane (CoPL) architectural models. Often these two models are used together to locate mobile devices connected to 2G, 3G, and 4G networks.

SUPL supports commercial location-based services (LBS) for SUPL-capable handsets and CoPL supports emergency and security LBS for all mobiles and value-added services (VAS) for non-SUPL capable handsets.

The SUPL architecture defined by the Open Mobile Alliance (OMA) is an inherently centralized architecture. On the other hand, the Control Plane architectural model defined by 3GPP is essentially distributed. A Gateway Mobile Location Center (GMLC) node provides gateway functions (receipt of location requests, authorization and authentication, and routing). A Serving Mobile Location Center (SMLC) - a part of the access network - provides serving functions (location determination via multiple location technologies).

For an operator, supporting location services within their networks implies having to deploy, connect and manage multiple nodes. The number of nodes required varies depending on the capabilities, capacity and coverage requirements of the operator. The complexity and cost associated with deploying multiple nodes, and the operations, administration, and maintenance (OAM) tasks, scale directly with the number of nodes deployed.

Consolidated location systems

Given the inherently distributed nature of the control plane architecture and the common desire to deploy both SUPL and CoPL location architectures, an operator wishing to support location services for all of their radio access technologies (2G, 3G, etc.) must deploy multiple location-related nodes in their network.

The cost and complexity of deployment scales in proportion to the number of separate platforms deployed. A system with a larger footprint requires more points of integration with the network and a corresponding increase in the associated operations, administration, and maintenance costs.

Costs include ongoing operational costs (power consumption, real estate), maintenance costs such as warranties and software licences, upgrade, end-of-life of equipment, replacements, spares kit, administration costs such as fault monitoring, and provisioning coordination. Moreover, as an operator's business grows and greater capacity demands push existing infrastructure towards its performance limits, additional hardware deployment becomes necessary and creates churn in the operator's network. All of which adds to the cost of owning and operating the system.

A consolidated location system supporting virtual node technology, on the other hand, is able to meet the entire location needs of an operator. Whatever network nodes the operator needs can run as virtual nodes on a single Mobile Location Center (MLC) platform. Needless to say, the platform must be powerful and flexible enough to allow operators to run all of their location nodes flexibly in any desired combination on a single hardware platform and it must be able to scale to meet an operator's changing business needs.

For example, an operator may begin with a basic Control Plane Location System; a Gateway Mobile Location Center (GMLC)

and Serving Mobile Location Center (SMLC) for 2G networks and add nodes to support 3G and 4G and SUPL as those radio access technologies and architectures are brought online. These additional nodes can be added to the same hardware platform without any churn to the hardware through non-service interrupting software-only licence upgrades. A SMLC should also be a high capacity, scalable platform with no single point of failure which means that additional capacity and coverage can be added through software licences at the time it is required and without additional hardware churn.

Consolidated platforms


Some of the latest MLCs concurrently support both Control Plane and Secure User Plane architectures for GERAN (*GSM EDGE Radio Access Network*) and UTRAN (*UMTS Terrestrial Radio Access Network*). These are new generation hardware platform, custom-designed to ensure that the operators have the ability to co-locate all their location functional nodes on a single platform. Furthermore, the high-throughput, high-capacity, and large-coverage capability of the MLC ensures that an operator can support emergency, commercial and legal Intercept services for 2G, 3G, and 4G over both SUPL and Control Plane by deploying a single consolidated system with a common OAM (*Operations Administration Maintenance*) infrastructure. In many cases, a single MLC platform can provide all of location-enabling capabilities and capacity of an entire network. The concept of a single consolidated platform for all location needs is a powerful one with tremendous benefits to the operator. Key benefits include:

- Reduced footprint - a single bay of hardware equipment supports 2G, 3G, and 4G and provides Control Plane and SUPL location methods;
- Simplified integration into the network - fewer platforms mean shorter deployment and commissioning timelines because there are fewer points to integrate into the network;
- A common OAM infrastructure simplifies day-to-day maintenance - configuration variables, base station almanacs, event records, performance metrics, logs and alarms, system backups and restores can be performed centrally, once, for all nodes;
- Lower operational costs - smaller power consumption with associated environmental and ongoing operational cost benefits;
- Lower ongoing maintenance costs - warranties, spares kit, end-of-life maintenance, and upgrades are minimized

with fewer hardware platforms; and

- Reduced hardware churn in the network - scalable high-capacity platform allows operators to add nodes and capacities as business needs grow.

Today, SUPL and Control Plane architectures are deployed as complementary architectures to support emergency, commercial, and security services. With the advent of smartphones, location-aware apps have exploded, leading to demand for higher capacity. For operators wishing to location-enable their networks, in the past this has meant deploying multiple platforms in their network. Multiple platforms multiply the costs that the operator needs to pay upfront and on an ongoing basis. As such, an effectively location-enabled network is a key value proposition for network operators today. Cost of ownership derived from Capex and Opex components remains as critical as ever. The new generation MLC with virtual node technology provides an optimal solution addressing both key criteria. ●



Connect-World is celebrating its 15th anniversary

Through the years, *Connect-World's* authors told of the rise of mobile, of fibre, of wireless and of broadband; they told of the dot.com meltdown, of digital inclusion and convergence, of standards and breakthroughs, the rise of IP and the fall of switching and of the regulatory turnaround.

In every issue of *Connect-World* heads of state, ministers and regulators, heads of international institutions and leaders of industry speak of what the ICT revolution, as it happens, means to the people in their regions of the world.

www.connect-world.com

The potential of mobile gaming

by Sangeet Chowfla, Chief Strategy Officer and EVP Global Market Units, Comviva

Today, mobile gaming is a growing source of data revenue for operators and game publishers alike. With an online mobile gaming model, which enables operators to offer an efficient, consistent, and robust access mechanism, a clear and affordable pricing proposition, and a fast and smooth gaming experience, the stage is set for mobile gaming to realize its full potential. Nevertheless, mobile service providers must align pricing models with consumers' value perceptions to promote mobile game uptake among a wider audience.



Sangeet Chowfla is the Chief Strategy Officer and EVP Global Market Units at Comviva. Prior to joining Comviva, Sangeet Chowfla was a partner in Timeline Ventures, a VC firm investing in early stage technology companies. Previously, Mr Chowfla held various management positions at HP; he was VP and GM of HP's Inkjet Media Division and held a number of other senior roles at HP, including managing HP's printer and mass storage business for Asia Pacific, global marketing for the Asia Peripherals Division, channel management for the European printer division in Stuttgart, and sales management for the Middle East.

Sangeet Chowfla graduated with honours in Economics from St. Stephens College, Delhi University, and earned an MBA from the Faculty of Management Studies at Delhi University.

As people become increasingly comfortable leading a digital lifestyle, they tend to turn to digital forms of entertainment – be it TV, music or games. Technological advances, coupled with growing demand for a superior gaming experience, have prompted mobile operators and game developers to push the barriers of digital game play. With more than 4 billion mobile users globally, rapid advances in wireless technology have made mobile devices the next frontier in digital gaming.

While handsets still have some way to go to match the deep, rich, gaming experience of dedicated consoles due to form factor limitations, their multi-functionality and widespread availability within a diverse user-base offers the scope to expand the 'digital gaming phenomenon' to the masses.

Several favourable developments in the mobile gaming market, including the availability of diverse gaming genres, increasing sophistication in game quality, and growing consumer interest, position mobile gaming as a steadily growing segment of the digital gaming market.

In terms of revenues, Informa predicts mobile gaming will become a US\$7 billion global opportunity by 2013. India, too, is not far behind as the country is expected to lead among most Asian countries in terms of total mobile gaming revenues. In the advanced gaming markets of Japan, Europe and the US, the mobile games industry is expected to grow at a CAGR of 24.6 per cent by the year 2012. This represents the fastest growing digital gaming market segment (CSMG

estimate). Therefore, the growth potential is simply unlimited.

Interest in mobile gaming is not a recent phenomenon. Consumers have frequently 'killed time' playing mobile games since Snake was loaded onto handsets in 1997. With the increased availability and growing sophistication of mobile games, mobile gaming is emerging as the dominant mode of everyday entertainment for a rapidly growing number of consumers.

In the early years of mobile games, adventure and sports simulation were the dominant game categories. These genres attracted only a small segment of core gamers, typically 18-30 year old men. As the gaming industry has matured, game publishers have introduced

new genres of mobile games, ranging from life simulations to role-playing to real-time strategy. The availability of diverse game genres is expanding the mobile gaming market to a wider market demographic.

The 'anytime-anywhere' availability of mobile phones coupled with the improved multimedia capabilities of handsets brings a compelling new dimension to digital gaming. Mobile gaming fits into the fast-moving lifestyles of today's connected, on-the-move consumers and offers a time-efficient source of recreation and enjoyment. Improved affordability and increased personalization have made mobile devices a more ubiquitous media platform compared to dedicated digital gaming devices. With the availability of technologies such as WiFi, GPS, and 3G, combined with superior handset functions (e.g. multi-megapixel cameras, high quality audio, and Bluetooth connectivity) mobile phones offer an exciting gaming platform with unique and innovative potential.

Earlier, independent, predominantly smaller, companies, such as Jamdat, Gameloft, I-play, and Glu, published mobile games. In recent years, several established publishers have entered the mobile games business to leverage their success in the console and PC gaming markets, which has increased monetary resources within the industry, resulting in greater sophistication and improved game quality. New game players are increasingly investing in developing cross-platform titles for the PC, the console and the mobile handset. At the same time, major sports, leisure and media brands seek to increase their presence in the mobile space and view mobile games as a key area to enhance their profiles. Media brands Nickelodeon and MTV have recently unveiled plans to substantially invest in the mobile gaming business.

Although the essential factors needed to grow mobile gaming appear to be in place, current statistics demonstrate that operators have been unable to effectively tap consumer interest and convert players of handset-embedded games into active buyers. Primarily, the high prices associated with the prevalent one-time purchase/download model have held back consumers from purchasing mobile games. According to Informa's estimates, 157 million consumers downloaded mobile games in 2008. This translates to just four per cent of the global mobile population. The small percentage of mobile subscribers who download mobile games today will not be the engine

driving industry growth over the next years. A gaming model that appeals to the masses is essential if mobile gaming is to realize its potential.

The right business model

Until now, operators have largely followed a single model of one-time purchase/download to distribute mobile games. Although some operators offer subscription packages renting out games for a limited time-period, downloaded games are by far the most popular form of mobile game purchase. They account for more than 80 per cent of mobile game revenues. This category includes games that users download to their handsets over-the-air and which are then played offline in single-player mode. The download model has failed to attract a substantial customer-base due largely to high download prices and limited choice.

It has become immensely critical for companies to evaluate the efficacy of their business models in today's global and highly competitive business landscape. Although the mobile gaming business exceeds US\$4 billion in global revenues, restrictive models pursued by operators have limited its reach to a small segment of mobile consumers. Mobile operators, game publishers and other stakeholders in the gaming ecosystem need to collaborate to make mobile gaming more attractive to mobile consumers. Operators should consider incorporating new and innovative business models to encourage more people to sample mobile games and to increase the overall size of the addressable mobile gaming market.

The online mobile gaming model allows consumers to play over the operator's data network - without the need to download games onto their handsets - and can reach a critical mass of consumers. This is essential to achieve commercial mobile gaming success.

Mobile online games allow consumers to play over the operator's data network without the need to download games onto their handsets. With an online gaming solution, the operator integrates gaming into the network infrastructure nodes, including billing, operations administration and maintenance (OAM), content management system (CMS) and provisioning. This enables the operator to build a vibrant gaming brand, which will reinforce customer loyalty when coupled with an improved user experience, usage flexibility, multiple pricing options and low device dependency. These benefits can capture

mobile gaming growth opportunities and reach the critical mass of consumers for commercial mobile gaming success. Mobile online games will achieve this by altering the existing constituents of the prevailing download model, namely, customer segments, value proposition, distribution channels, cost structure, revenue streams and customer delight.

With an online gaming model, mobile users become fully fledged mobile gamers. The one-time client download and the one-click-access to games remove the biggest hurdles to gaming uptake - namely the complexity, expense and time taken to download new games. The intelligent interface, personalization options and wealth of available games further enrich the gamer experience, creating a satisfied community of gamers and building a strong revenue stream for operators and developers.

Operator advantage

With an online model, operators can expose gamers to targeted advertisements, pushing ads dynamically, based on the user's gaming usage patterns and interests. The access to real-time data enables operators to collect and analyze users' gaming behaviour - leading to improvements in gaming strategies.

It is crucial for mobile service providers to align pricing models with consumers' value perceptions to promote mobile game uptake among a wider audience. Mobile online gaming allows operators to introduce a number of flexible micro-pricing options, enabling operators to bring affordable mobile gaming to a wider market demographic. Online mobile gaming pricing plans do not burden consumers with a one-time payment, but rather allow them to pay incrementally for mobile game usage, enabling consumers to control their spending. The value that consumers derive from these 'sachet' pricing models helps operators to effectively promote gaming services to new users, as well as drive usage among existing customers.

Today, mobile gaming is much more than a bundled 'freebie'. It is a stand-alone value-added service and is a growing source of data revenue for operators and game publishers alike. With an online mobile gaming model, which enables operators to offer an efficient, consistent, and robust access mechanism, a clear and affordable pricing proposition, and a fast and smooth gaming experience, the stage is set for mobile gaming to realize its full potential. ●



Send me the following *Connect-World* issues

- | | |
|--|---|
| <input checked="" type="checkbox"/> Africa & the Middle East issue | <input checked="" type="checkbox"/> ICT Global Challenges issue |
| <input checked="" type="checkbox"/> Latin America issue | <input checked="" type="checkbox"/> Asia-Pacific issue I, II & III (3 issues) |
| <input checked="" type="checkbox"/> North America issue | <input checked="" type="checkbox"/> Europe issue I & II (2 issues) |
| <input checked="" type="checkbox"/> EMEA issue | <input checked="" type="checkbox"/> India issue |

A total of 11 issues for the publishing year of 2010, at a special discounted rate of £100. Online subscription also available.

Subscribe to receive your copy now!!

Subscription Form

Title (Mr/Mrs/Miss): _____	Name*: _____
Company*: _____	Job Title*: _____
Address*: _____	City*: _____
State/Province: _____	Postcode/Zip*: _____
Country*: _____	Telephone*: _____
Fax: _____	Email*: _____

(Fill all fields marked *)

Check preferred subscription medium

- Online** - Digital Magazine £15 (11 issues, Online download PDF)
- UK** - Printed Magazine for UK subscribers £95 (11 issues hard copy by post)
- Europe** - Printed Magazine for Europe subscribers £100 (11 issues hard copy by post)
- Foreign** - Printed Magazine for Rest of the World subscribers £115 (11 issues hard copy by post)
- Corporate** - Printed Magazine for Corporate subscribers (11 issues hard copy by post)
- sign my company up for a two-years subscription to *Connect-World* series of magazines with an additional 15% discount. Please charge my credit card once a year until I notify you otherwise. I'll get the same low subscription rate I've chosen above for as long as I am a subscriber. Please note: all corporate subscriptions must be pre-paid. Please provide your credit card information when placing your order.

Note: Please allow up to 4 weeks for mailing of first issue.

Please charge my:

- Visa MasterCard American Express

Card Number: _____ Expiry Date: ____/____(MM/YYYY)

Signature: _____

Bill me later

- Tick here if you want us to bill you later. Available only to domestic UK addresses.

Please sign _____ and send back by:-

Email: info@Connect-World.com or

Post: InfoComms Media Ltd., 1 & 2 Riverside Offices, 17 Towcester Road, London E3 3ND, UK.



LEADING THE TRANSFORMATION

The mobile ecosystem is in the midst of an unprecedented wave of transformation. As business models adapt, new verticals and players emerge. Technology evolves, perceptions shift, and lives are improved.

At the centre of this transformation is GSMA Mobile World Congress, the must-attend annual gathering of the mobile industry. Our participants – 50,000 senior mobile leaders from 190 countries – enable, accelerate and direct this transformation, leading us into the mobile future. Be there to be a part of it.

www.MobileWorldCongress.com



MOBILE.TM
WORLD CONGRESS

Barcelona | 14-17 February 2011

Deliver a ubiquitous experience across the PC, TV and mobile device



Hosting



Media & Entertainment



Telecommunications

Screens are the common user interfaces through which consumers and business users access services and content, whether in the office, at the home, or on the go. Microsoft's heritage is in creating these operating platforms, all of which deliver a rich, familiar experience, across the PC, TV or mobile device. By offering a range of consumable devices to which service providers can deliver a multitude of services, Microsoft is uniquely positioned to work together with operators to make the converged lifestyle a reality.

Software is driving the telecommunications industry forward towards the goal that no matter where you are, you should be able to take your world with you. Microsoft has the breadth of technology assets to bring that idea to life and, as we work together with operators to continue to drive innovation, the combination of software plus services will deliver the best choice to consumers and businesses.

For more information : <http://www.microsoft.com/serviceproviders>

Microsoft[®]