# Highlights of the GSM Association's Mobile Asia Congress in Hong Kong, 17 – 18 November 2010

*This briefing note provides a personal account of selected highlights from attending the GSM Association's Mobile Asia Congress in Hong Kong, 17 – 18 November 2010.  While every effort has been made to ensure that the content is accurate, you should verify relevant facts for yourself before relying on the information contained herein.*

## Introduction

The GSM Association's (GSMA) Mobile Asia Congress (MAC) was held in Hong Kong, 17 – 18 November 2010. This was the second annual MAC, which is an offshoot of the much-larger GSMA Mobile World Congress (MWC) events held annually in February in Barcelona[1].

This year's MAC event boasted an impressive line-up of C-level keynote speakers (mostly from Asia), and following the success of App Planet at MWC in February, the App Planet forum (a dedicated conference stream and exhibition area for mobile applications ('apps')) was included in the Asia congress for the first time.

Despite the shorter-duration (2/3 days versus 4/5 days) and smaller-scale (in terms of the number of attendees and exhibitors) of the MAC event (compared with MWC), it provided many valuable insights into the development of mobile markets globally, and particularly in Asia:

## Mobile devices

There are now more than 5 billion mobile devices (as at September 2010), with further growth to 6 billion mobile devices forecast by 2012[2].

China has the most mobile subscribers (813 million), high year-on-year growth rates (17%), with a relatively low market penetration (60%) suggesting considerable scope for further growth.  India is close behind with 693m subscribers, and 59% market penetration, but with a much faster year-on-year growth rate of 47%.  The potential scale and rapid rate of development in Asian countries lies in strong contrast to the near-saturated, mature mobile markets in the West.

## Smartphones

An expanding range of smartphones from a growing number of suppliers is driving the consumption of mobile applications ('apps') and mobile data traffic on mobile operators' networks.  Shipment of smartphones is forecast to surpass shipment of regular feature phones by 2014.

Asian operators, including both China Mobile and China Unicom, are planning to launch their own mobile device platforms (Ophone (an Android variant) and Uphone (Linux-based), respectively – both are expected to be mid-tier devices rather than high-end smartphones).  HTC are also launching further own-brand smartphone (and tablet) devices.

An initiative to develop embedded subscriber identification modules (SIMs) for mobile devices that can be remotely activated (and a rumour that Apple are planning to embed a SIM in the next version

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[1] Please ask to receive my notes on the Highlights of the GSM Association's Mobile World Congress in Barcelona, 15 – 18 February 2010.

[2] Source: GSM Association

of the iPhone) risks further loss of control by operators over the customer experience (though operators may refuse to subsidise smartphones that aren't tied to their networks).

## Mobile 'apps' and 'app' stores

There are a rapidly expanding number of mobile applications ('apps') from a growing range of 'app stores', with many app stores claiming millions or tens of millions of registered users and tens of millions or hundreds of millions of 'app' downloads.

Following the early success of Apple's App Store, and Google's Android Market (which currently account for around two-thirds of all downloads), Asian mobile operators are launching their own app stores (eg China Mobile's Mobile Market, Chine Unicom's WoStore, etc) offering apps designed to appeal to Asian customers: Asian social networking sites (such as China's SINA Mobile's Twitter-like micro-blogging service Weibo) are now dwarfing Twitter and Facebook in the region.  App downloads are forecast to peak by 2013 following a surge in Asia (forecast 30% CAGR).

However, operators seem to be pursuing app store strategies that are open to third-party app stores as well as their own, while also supporting initiatives such as the Wholesale Applications Community (WAC) and OneAPI to enable developers to write applications that can be deployed across multiple platforms and operators, including tighter integration with operators' networks to support features such as location-enhanced presence, click-to-dial, public subscriber profile access, and integration of IM and SMS with desktop apps.

But, despite all the buzz around apps and app stores, analysts remain sceptical about their potential to contribute to operators' revenues (Gartner forecast up to 5% by 2015).  It does seem that there is too little revenue being delivered to too few players across the value chain to justify the hype, valuations and resources currently being thrown at the 'apps' space.

Meanwhile, the Google Voice iPhone app has finally been approved by Apple to go on sale on the Apple App Store, following an investigation by the US Federal Communications Commission (FCC) after Apple had initially refused to support the Google Voice app[3].

## Growth of mobile data

Smartphones and PC dongles are currently driving growth in mobile data traffic of around 100% per year. Forecasts suggest that mobile data volumes could grow by as much as 40 times over the next five years.  There are warnings of an 'acute capacity crunch' in urban areas where smartphone density in the average city is set to grow from 400 devices per sq km today to 12,800 devices per sq km by 2015[4].

While some of the required increase in capacity will come from more radio spectrum (in particular, the 700/800MHz and 2.6GHz bands) and technology developments (4G/LTE is 3 times more spectrally-efficient than 3G), most will have to come from *offloading* traffic onto WiFi and femtocells (see below) and increased cell density/more cells.

Some concerns were expressed about delays in the release of 3G spectrum in a number of Asian countries, as well as the need for the timely release of spectrum for 4G/LTE (at 700/800Mhz and 2.6GHz) around the world.

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[3]     Source: Wall Street Jounral
[4]     Source: Alcatel Lucent.

## Revenue Trends

Mobile operators' revenues from voice and SMS services have been in decline caused by competitive pressures and regulatory interventions, as well as substitution by other forms of communications (email, social networking, VoIP, etc). Introductory flat-rate pricing for mobile data on smartphones and PC dongles has helped drive take-up, but is widely-recognised as unsustainable as exponential growth in mobile data usage demands more investment in increased capacity. Nevertheless, as mobile data has grown as a percentage of operators' revenues (for some operators mobile data is now 50% or more of total revenues), it has helped operators sustain average revenue per subscriber (ARPU) against declining voice/SMS revenues.

However, most operators now recognise the need to move away from flat-rate data tariffs towards tiered-pricing models based on volume and type of use and time of day. But tiered pricing requires operators to implement intelligent policy control (based on deep-packet inspection) within their networks, as well as more advanced billing systems. A number of exhibitors at the congress were promoting intelligent policy control appliances, including some specialist roaming charge optimisation solutions[5].

## 4G/LTE

To cope with the growing demand for mobile data, many operators are planning to implement fourth generation mobile technology known as Long Term Evolution (4G/LTE). So far, 156 LTE networks have been announced in 64 countries, with 55 LTE networks planned for deployment by the end of 2012, and with as many as 20 live commercial LTE services by the end of 2010[6]. For the first time, it seems that the world is on course to adopt a single global standard for mobile communications[7].

However, because LTE was envisaged as an all-IP mobile data network standard, there is no native support for voice communications. An initiative known as Voice over LTE has been launched to standardise support for voice over LTE by June 2011. At the congress, CSL (a mobile operator in Hong Kong) and ZTE (a Chinese telecoms equipment vendor) gave the first live public demonstration of Voice over LTE based upon the developing standards.

Mobile networks traditionally make use of the radio spectrum on a Frequency Division Duplex (FDD) basis (ie using separate frequencies for uplink and downlink channels) in order to support the requirements of voice communications. However, data communications can make use of the radio spectrum on a Time Division Duplex (TDD) basis (ie the uplink and downlink data are sent in different time slots on the same frequencies) – additional TDD spectrum bands are available in most countries, but have been little used to-date. In response to the development of rival (to LTE) TDD technologies (notably, WiMAX), a TDD variant of LTE has been standardised alongside FDD LTE. An interesting recent development is that a number of major mobile operators (including Verizon and Vodafone) have been pushing mobile device makers to develop LTE FDD/TDD dual-mode handsets, which will enable both types of spectrum assets (FDD and TDD) to be used.

When 3G was first deployed, the delayed availability of fully-functioning and affordable 3G handsets severely delayed the take-up of 3G services. Industry is working hard to avoid repeating the same mistakes with LTE, with typical vendor timescales for LTE device availability being: LTE dongles in 2010, LTE mobile intelligent devices (MIDs) by 2011, and smartphones by 2012.

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[5]     Eg Roamware, MACH, Convergent Technologies.
[6]     Source: GSM Association.
[7]     There were a number of competing technologies deployed in different regions/countries for 2G and 3G mobile.

## Single RAN

Despite the intuitive notion that the next generation of mobile technology will supersede the previous generation, the reality for most mobile operators is that they will continue to have to support 2G alongside 3G for the foreseeable future, while introducing 4G.

Most 3G mobile operators have added High Speed Packet Access (HSPA) to their networks to support mobile broadband (at speeds of 3.6, 7.2 or 14.4Mbps). The HSPA technology evolution path is now enabling staged upgrades to HSPA+ using dual carriers and MIMO technology to 21Mbps, 42Mbps and 84Mbps, in parallel with the development and availability of 4G/LTE and LTE Advanced. Most mobile operators are likely to introduce 4G/LTE initially as an overlay (of 2G/3G) in high-usage areas. For example, China Unicom announced that it had covered 335 cities in China with HSPA, and was now starting to upgrade them to HSPA+, with further upgrades to 4G/LTE in planning.

Each operator will need to decide its own strategy for the evolution of its network from 2G/3G (HSPA) to 4G LTE/LTE Advanced – some may opt for an early move to 4G/LTE, while others will exploit the further evolution of HSPA before moving to 4G/LTE later. Relevant factors to take into account will include the future pattern of demand for voice and data services, the availability of spectrum (new spectrum at 700/800MHz and 2.6GHz), and the re-farming of existing 2G spectrum at 900MHz/1800MHz and 3G spectrum at 2.1GHz), technology maturity, availability and cost – both for network equipment and devices, the need to modernise and reduce the operating cost of their existing 2G/3G networks, and the risks and costs of alternative evolution paths.

Many of the leading vendors have recognised the challenges facing the mobile operators in supporting multiple generations of mobile technology and competing standards in multiple frequency bands, as well as seamlessly evolving customers from (eg) 2G/3G to 4G/LTE, and have announced single integrated radio access network (RAN) solutions (using software defined radio (SDR)) to lower costs and maximise network efficiency (including Huawei's SingleRAN@Broad, ZTE's Uni RAN, Cisco's Unified RAN, etc).

## Offloading

Many operators are seeking to offload mobile data traffic from their mobile networks using WiFi and femtocells, while a few are also looking to use TDD spectrum (TDD LTE or WiMAX) for offloading (eg Japan's KDDI). One operator (South Korean KT) noted that two-thirds of mobile data traffic was generated indoors, a significant proportion of that in hot-spot areas. By building their own WiFi networks, or partnering with other existing WiFi networks, mobile operators are looking to offer their customers a seamless mobility experience between their own wide-area mobile networks and WiFi, while avoiding the potential risk of independent WiFi networks cannibalising mobile operators' revenues. By embracing WiFi, operators are able to reduce the capex and opex costs of more capacity in their wide-area mobile networks.

## Core/Backhaul Network Evolution

As mobile data becomes an increasing percentage of total mobile operator traffic, many operators are planning to move to an all-IP evolved packet core (EPC) network, with Gigabit Ethernet backhaul over fibre or

microwave radio links (in rural areas) – eg CSY, a mobile operator in Hong Kong, aims to complete its all IP core network by the end of 2010. These EPC core networks offer much higher capacity while simplifying the network and lowering costs. However, the full benefits of an EPC core network will only really be achieved when voice traffic can be carried over them as just another mobile data application, eliminating the legacy network and supporting systems used to support voice communications in 2G/3G.

This shift in the nature of mobile networks (from circuit-switched voice to packet-switched data) is creating new opportunities for non-traditional vendors from the data world to win a larger share of mobile operators' capex.

## Future Growth Opportunities

A number of opportunities for future revenue growth were explored during the congress, including:

*The Internet of Things* – as the mobile penetration of the world's human population approaches saturation over the next decade, the next source of growth in the number of mobile devices is 'The Internet of Things' (or objects), also often referred to as machine-to-machine (M2M). These mobile-enabled things or objects will be sensors reporting real-world data to network-based applications, which will then offer human users value-added services based on aggregating and interpreting the real world data. Estimates suggest that there could be around 180 million mobile-enabled devices by the end of 2012, with as many as 50 billion such devices by 2020.

*Cloud Computing* – the hype around Cloud Computing continues to grow, though the basic concept of mobile devices interacting with network-embedded applications to deliver value-added services isn't a new idea. However, the hype may be starting to become more real as smartphone device capability and mobile network capacity reach levels where cloud services begin to offer real advantages. One interesting observation is that as well as 4G/LTE offering ~10 times the speed of 3G, 4G/LTE also offers much reduced latency compared with 3G (about one-third), which suggests that 4G/LTE could become a catalyst for cloud-based services.

Others included: *mHealth, mMoney, mAdvertising, mPublishing, mGovernment*… and much more!

## Summary

In summary, the Asian congress showed that the time-lag between developed economies and emerging markets is shrinking rapidly, with the developing world able to 'hop, skip and jump' new technologies – by the time we get 4G/LTE fully deployed the time-lag will have gone. The combination of huge market size, and population demographics (eg more than half the Indian population is under 25) that favours take-up of new mobile services, are driving the phenomenal pace of development of the mobile market in Asia.

If you would like any assistance in understanding the strategic implications of the developments reported from the Mobile Asia Congress, please get in touch with us at:

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