

Highlights from the Mobile World Congress 2012

Once again, more than 60,000 visitors came to Barcelona last week to see what's new in Mobile. We highlight some of the key themes and announcements from MWC 2012, and why they matter.

Global Economy:

This year's Mobile World Congress takes place against a backdrop of a continuing slowdown in global economic growth. Consumers are being cautious in their spending, and revenue growth can be hard to find.

The Eurozone crisis, compounded in some EU Member States by delays to spectrum awards, have resulted in much of Europe lagging behind markets in North America and Asia in the deployment of fourth-generation mobile (4G/LTE).

For many major European operators, revenue growth is suppressed, debt levels have become an issue as credit rating cuts have increased re-financing costs, leading to dividend cuts. While there will be some variations by operator and market among capital expenditure plans for 2012, the overall trend is expected to be flat (~\$200bn pa), despite the investments needed for new spectrum and mobile data capacity.

Mobile Data Growth:

Meanwhile, the growth in the volume of mobile data demand continues unabated (at ~100% year-on-year, forecast to be 10x current levels by 2016), requiring operators to invest in additional capacity – in additional spectrum, access technologies, and core and backhaul network capacity. Operators are selectively targeting their investments on enhancing customer experience (in speed and coverage) in order to attract customers to remain within the operators' ecosystem and to minimise churn.

4G/LTE:

Operators are deploying fourth-generation (4G) mobile technology = Long Term Evolution (LTE) in new spectrum to cope with the rising demands for mobile data, with operators in the US and Asia leading deployments, and further deployments and trials announced at MWC 2012. However, many operators continue to rely on HSPA+ upgrades to existing 3G networks to carry much of the current demand for mobile data.

Telefónica announced a 4G/LTE trial network in Barcelona, based on Alcatel-Lucent's lightRadio technology, and Samsung's Galaxy LTE-enabled tablets, smartphones and USB dongles.

There are now 10 million LTE connections on over 50 live LTE networks across 30 countries globally, with forecasts for 500m LTE connections on over 200 LTE networks across more than 70 countries globally by 2016.

Major trends evident at MWC 2012 was the move towards small-cell technology to provide in-fill coverage beneath the macro-cellular wide-area coverage, and offloading mobile backhaul onto the fixed network using both licensed spectrum (small-cells) and license-exempt devices (WiFi). Modular small-cells come in much smaller form factors, are easier to deploy discretely in outdoor and/or indoor environments, and can use advanced beam-forming to focus coverage where it is most needed (statically and dynamically), while minimising interference with the macro-cellular layer operating on the same frequency band.

Alcatel-Lucent launched a lightRadio WiFi solution, which enables mobile devices to roam seamlessly and securely between cellular and WiFi networks – without the need for the user to search for a secure WiFi network or enter complex usernames and passwords to log-on to it.

Meanwhile, the other major equipment vendors were demonstrating their own small-cells technology, and Ericsson announced the acquisition of Bellair to add WiFi solutions to their portfolio.

Voice over LTE:

While most operators are initially deploying 4G/LTE networks as a mobile data overlay to their existing 2G and 3G voice/data networks to cope with the growing demands for mobile data, operators will eventually want to migrate their voice traffic onto LTE in order to free-up spectrum currently used for 2G/3G for the next generation of LTE (LTE Advanced), and to avoid the cost of operating multiple platforms (2G/3G/4G).

To begin with, voice calls from LTE devices will fallback to 3G or 2G (circuit-switched fallback (CSFB)). Ultimately, when LTE networks are ubiquitous, voice will be carried natively over LTE (Voice over LTE, or VoLTE). In the interim, as voice starts to become carried over LTE networks, but those networks are not yet ubiquitous, a voice call that starts on LTE may need to be seamlessly handed-over to be continued on 3G, eg when the device roams beyond LTE network coverage (using Single Radio Voice Call Continuity (SRVCC)).

This evolution path towards Voice over LTE will require operators to implement an Intelligent Multimedia Subsystem (IMS) in their core networks (which many operators sought to avoid, or minimise, in their 3G networks due to complexity and cost). A number of technology vendors were demonstrating IMS-lite solutions for VoLTE, which would provide operators with the IMS functions they need to support the evolution towards VoLTE, while avoiding the complexity and cost of a full IMS solution.

While VoLTE solutions will be available over the next few years (CSFB now, SRVCC from 2013+, all native VoLTE from 2014+), for most operators, voice evolution to LTE is a long-term plan unlikely to be completed until post-2020.

Smart Devices:

A growing range of 4G/LTE-enabled smart devices (PC-dongles, smartphones and tablets) were announced at the Consumer Electronics Show in Las Vegas last month (CES2012), with more announced at MWC 2012 in Barcelona.

The early availability of a wide-range of attractive smart devices at competitive price points is a critical consideration for operators planning 4G/LTE network deployments, and operators will be relieved that the 4G/LTE smart device ecosystem is becoming established so much earlier for 4G/LTE (than was the case for 3G). However, the early availability of 4G/LTE devices does vary by frequency band and mode (FDD vs TDD), with implications for the timing of 4G/LTE network deployments in some geographies.

Some of the smart devices on show this year are starting to blur the distinctions between what we currently think of as smartphones, tablets, PCs and TVs. In particular, the distinction between small screen devices (smartphones, tablets) and large screen devices (PCs, TVs), and how they are used by consumers, is breaking down as a full range of screen sizes is becoming available.

As the take-up of smartphones and tablets increases, we are witnessing new consumer behaviours that involve the simultaneous use of multiple devices (eg TV + tablet and/or smartphone): users can view un-related content or linked content, use their smart device to control their TV, and interact with content and services on their main screen. Currently, integration across multiple devices is rather limited and 'clunky', but expect closer integration to start to deliver a richer, more seamless experience in the near future.

To cope with the need for fast customer experience on increasingly sophisticated smart devices, a number of the new smart devices announced at MWC 2012 were based on quad-core processors (most existing smartphones are based on single or dual-core processors), with PC processor suppliers (notably, Intel with its Atom chip) trying to break into mobile smart devices (dominated by processors designed by ARM).

Of the many new devices on offer, the ones that caught our attention were:

- Samsung Galaxy range of smartphones and tablets (with some including LTE support at 800MHz, 1800MHz, 2.6GHz)
- Nokia added two more smartphones based on Windows Phone (Lumina 610 (new), 710, 800, 900 (new))
- Huawei Ascend D quad, based on an in-house quad core processor, and featuring the latest version of the Android operating system (4.0/ICS)
- LG's 3D and HD smartphones
- ZTE, which launched no fewer than eight new devices, and has become the fourth-largest device maker in the world by sales volume
- Sony (formerly, Sony Ericsson) Xperis NXT series of smartphones (Xperia S, P, U)
- Fujitsu smartphones based on Android 4.0/ICS and Windows Phone 8, including some waterproof devices.
- HTC One portfolio of three new smartphones based on the latest version of Android (4.0/ICS)

There are now ~6.6bn mobile devices connected, which is forecast to grow to ~9.1bn by 2015. There are currently ~1bn smartphones, which is forecast to grow to ~2.5bn by 2015. With the world's human population now more than 7bn, that leaves ~5bn in need of access to the mobile internet. This theme was repeated in keynote speeches by many industry leaders at MWC 2012, with some calling on the GSMA to develop a specification of a low-cost smartphone (<\$50) for developing markets (a few years ago, the GSMA led a similar initiative to create a <\$20 feature phone for developing markets).

M2M:

With mobile penetration in developed markets approaching saturation, the inevitable next focus area for the industry is in connecting together all of the world's 'things'. The 'Internet of Things' (or Machine-to-Machine (M2M) communications) is getting a lot of attention, but the potentially-lucrative large-scale applications may prove slower to take-off than some are predicting because of a lack of standardisation, suitable radio spectrum and ubiquitous infrastructure. Nevertheless, a number of projects are starting to gain traction in energy conservation, environmental management, transportation and healthcare, though the projects are requiring operators to partner to understand the opportunities and risks, and to deliver end-to-end solutions. A Weightless SIG (Special Interest Group), modelled on the successful Bluetooth SIG, has been established to develop a royalty-free open standard for M2M devices using TV 'White Space' spectrum.

The GSMA are forecasting 24bn M2M devices by 2020, though Ericsson were sticking-by their headline-grabbing forecast from last year's MWC of 50bn devices by 2020.

Apps:

Since the advent of the smartphone (less than 3 years ago), the number of applications ('apps') for smart devices has exploded – there are now apps for (almost) everything!

The main areas of focus for 2012 seem to be a transition to the use of HTML5 (as developers build apps for a wider range of device manufacturers and operating system platforms), a renewed focus on how to monetise apps, and a second round of innovation in augmented reality.

While the App Planet and Android stand were both well-visited, they somewhat lacked the excitement that accompanied their first appearances (2 years ago and 1 year ago, respectively), and there seemed to be a higher turnover of smaller app start-ups with some not returning this year, but some new ones.

The prospects of the competing operating system platforms (eg Apple's iOS, Google's Android, Microsoft's Window Phone, etc) continues to be closely watched, with:

- Google's latest version (4.0) of Android ('Ice Cream Sandwich') appearing on a number of new smartphones/tablets announced at MWC 2012, and Google announcing its 'Chrome for Android' browser based on Android 4.0/ICS.
- Microsoft releasing a partial beta version of Windows Phone 8 (Apollo) during MWC 2012 for public testing.
- Apple's next version of iOS (iOS 5) due to be announced on an iPad 3 and iPhone 5 later this month (Apple do not exhibit or announce products at MWC, preferring their own events).
- Telefónica and Mozilla unveiling a strategy to create an Open Web Devices (OWD) platform for low-end smartphone devices based on HTML5.

OTT:

Internet giants (such as Goggle, Facebook, Apple, etc), as well as a number of start-ups, are delivering services to customer 'over the top', without contributing towards the cost of meeting demands placed on operator's networks to deliver OTT content and services to consumers. This is the so-called 'Net-Neutrality' debate, and operators fear that the OTT model may relegate operators to becoming just 'dumb pipe' providers. This concern is now being exacerbated as OTT providers also start to move into voice and messaging services, with added file sharing and video calling capabilities (eg WhatsApp, Viber) – Ovum suggested that operators are already loosing ~\$14bn of annual revenue to rival OTT service providers, though that figure was hotly denied by operators.

Operators, faced with the strategic challenge of how they embrace the OTT model themselves without cannibalising existing revenue streams, announced the 'joyn' initiative to standardise and accredit interoperable messaging services based upon the GSMA's Rich Communications Services (RCS) initiative, first announced in 2009. 'joyn' will be based on the latest RCS Version 5 specification.

The operators' aim is to make instant messaging services as interoperable (between operators and across device platforms) through 'joyn' as SMS (text messaging) is, though OTT critics were quick to point out that Multi-media Messaging Services (MMS), first introduced in 2007, are still not interoperable today, and had never really taken-off in volume because of the lack of interoperability and the high cost of using MMS.

However, a number of major operators in the US (Verizon, AT&T), Europe (Vodafone, Telefónica) and Asia have signed-up to 'joyn', which will be pre-loaded into selected devices from the first half of 2012. Operators are hoping that embedding 'joyn' in devices and ensuring interoperability will give operators an advantage over OTT apps that users must choose and download themselves.

Cloud:

The next major transition from largely stand-alone, device-based apps and OTT content and services, to a more integrated, accessible applications and content experience will require a shift to the 'Cloud' (ie resources delivered via the network). 'The Cloud' is starting to happen now because access speeds over both fixed and mobile networks are becoming sufficient to access resources (content, services, processing power, storage and infrastructure) remotely (rather than having to have all those resources held locally on the end-user device). The Cloud enables the 'Martini' effect of access 'anytime, anyplace, anywhere', but crucially offers the economic advantage of reduced costs through shared resources.

The concept of the Cloud is sufficiently all-embracing that it offers opportunities to a wide-range of industry players. Network operators are well-placed to exploit the shift to the Cloud, and will seek to become the natural home for Cloud services for tablets and smartphones, but customers' willingness to pay for Cloud services (rather than expecting them to be free) is not yet established.

Big Data/Privacy:

'Big Data' refers to the industry's ability to gather evermore data about user behaviour, and to process that data to tailor services to better meet users' needs and/or make recommendations about content or services user's might be interested in, and to target offers. However, 'Big Data' risks privacy concerns, and the GSMA are promoting a

commitment on privacy which requires operators and content/service providers to seek users' consent to use data about them for specific purposes.

mEverything:

Mobile-enablement of other industry sectors, such as mCommerce, mAdvertising, mPayments, mHealth, and many more, is opening-up a wave of new business opportunities. Indeed, the theme of this year's Mobile World Congress: 'Redefining Mobile' was about understanding the breadth of mobile-enablement beyond mobile communications.

In particular, there were a number of significant announcements of mPayment initiatives at MWC 2012, and 2012 is likely to see the technology required to enable mobile phones to be used as a smart wallet for swipe-to-pay at points of sale (SIM-based Near-field Communications (NFC)) appearing in a number of newly launched smartphones;

- Vodafone and Visa announced a worldwide mPay partnership that will enable to consumer to pay for goods and services using NFC-enabled smartphones equipped with Visa payWave payment technology.
- The ISIS joint venture between the three leading US mobile operators announced agreements with Chase, Capital One and Barclaycard to include their credit, debit and pre-payment cards in the venture's mobile wallet.
- Meanwhile, the proposed UK joint venture between Everything Everywhere, Telefónica and Vodafone are submitting their plans for a UK mobile payment system to European regulators next week, though they continue to face opposition from Hutchinson 3G.

And, of course, there was very much more besides!

One stand-out observation from the various forecasts on offer was that on most, if not all, metrics of the mobile industry, the (so-called) emerging/developing markets will overtake the (so-called) developed markets around 2015.

In summary, the overall sentiment at MWC 2012 seemed to be cautious optimism about prospects for the mobile industry in the mid-term (2014/15+), but with a recognition of the prospects of a continuing tough environment for the next two years or so. The current tough environment seemed to create a more edgy, competitive feel to this year's event.

If you need any help in understanding the mobile industry trends and the strategic implications for your business, please contact me:

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