News Analysis - All change at Mobile World Congress

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The mobile industry is back on its feet after a couple of recessionary years, but who will make the most of the new opportunities?

Did February's Mobile World Congress in Barcelona mark a changing of the guard for the vast mobile communications industry?

It certainly felt like it.

The stage had been set the previous week with the leaking of a memo from former Microsoft employee and new Nokia CEO Stephen Elop, which described the company's position as like that of a man standing on a burning oil

platform, deciding whether to stay and perish or jump into the unknown waters below. On Friday morning, Elop jumped, committing Nokia to Microsoft's Windows Phone 7 operating system. The response was overwhelmingly negative, with some Nokia workers staging a walkout, and industry watchers asking why Nokia would throw its lot in with a company that has had little impact on the mobile industry.

In an effort to be balanced, some analysts pointed to the volumes of handsets that Nokia makes, and the financial resources of Microsoft. But a graph in The Economist painted a more damning picture – although Nokia has the biggest share of handset sales by volume, Apple has the biggest share of the profits. Elop pointed out that Chinese companies were outcompeting Nokia at the low end, that its Symbian operating system was too complex for apps developers, and that it had not come up with a competitor to the iPhone since its 2007 launch: "We still don't have a product that is close to their experience".

Customer experience

This focus on customer experience was echoed elsewhere. Rajeev Suri, CEO of network equipment provider Nokia Siemens Networks, said that customer experience would be a key concern for operators.

"Spending in this area will outstrip any other area by several percentage points. The best way to retain customers is to give them a better experience each and every day. Getting this right for customers will mean billions of dollars of opportunity for us," he said.

Little wonder then that the news that Nokia's future is reliant upon Microsoft's ability to engineer a satisfying user experience was badly received. It hasn't helped that recent updates to Windows 7 have 'bricked' some Samsung Omnia handsets, making them unusable.

US carrier AT&T felt its customers' wrath when its network proved inadequate to the task of supporting the iPhone user experience. According to Kristine Rinne, senior vice president for architecture and planning at AT&T, the company saw a 3,000 per cent growth in data traffic on its network in three years.

Wim Sweldens, president of the wireless division of Alcatel Lucent, expects mobile date demand to grow 30-fold over the next three years. Jan Heglund, vice president of networks for Ericsson, says that by 2020 the company expects there to be ten times as many subscriptions and 1,000 times as much traffic on mobile networks as now.

This means that the operators will have to invest in more of pretty much everything. Shailesh Shukla, vice president and general manager, mobile, access, routing and services business unit at Cisco, pointed out that the capacity crunch will affect both the radio part of the network and the backhaul, where existing TDM connections are proving too expensive to scale up to cope with greater volumes of traffic.

Hugh Bradlow, chief technology officer of Telstra, pointed out that it wasn't just data volumes that were the problem: "Smartphones generate eight times more signalling traffic per megabyte than a laptop. The network is being stretched in more than one direction."

Radio days

The most obvious response from the operators has been to move to more advanced versions of the 3G standards, and to start planning the shift to 4G standards. According to GSMA, the industry association, 380 operators in 155 countries now run HSPA networks, 103 HSPA+ networks have been launched, and there are 128 commitments to build LTE networks from operators in 52 countries, with a further 52 trials under way.

Dean Bubley, founder of Disruptive Analytics, speaking at a pre-MWC conference arranged by NetEvents, said that LTE is delivering: "The technology on the radio side seems to be doing what is expected of it – it works and can deliver 50 to 60Mbit/s if you're the only user in a cell."

But there are teething problems, including coverage, roaming, and support for voice. Some of the high-frequency bands used for LTE, such as 2.6GHz, don't penetrate buildings well. Handsets will be complex.According to Nigel Wright, vice president of wireless product marketing at Spirent: "A phone capable of modest roaming might need to support 12 or 13 bands. For a long time, roaming will be deeply problematic, particularly with all the frequency bands and the difficulty of supporting MIMO [multiple antennas] at all those frequencies."

Wright says Verizon, which has been rapidly introducing an LTE network in the US, has found that 4G to 3G handover is seamless but 3G to 4G handover is taking four minutes: "Even Verizon, which is incredibly diligent about the quality of the network and the devices they put on it, have a mobility issue at the moment."

The way the LTE network supports voice is also evolving. Early efforts to set a standard failed, only to be replaced by a second effort which calls for the use of IMS – the IP Multimedia Subsystem. Some operators regard this as too expensive and so are handling voice calls outside the LTE system.

According to Mehmet Balos, executive vice president and chief marketing officer of Genband, Verizon has decided to use IMS on its LTE network but MetroPCS and AT&T are using circuit-switched voice systems. "Mobile IMS to me is a dead parrot," said Bubley. "Five years ago we wrote off the use of IMS. The standards bodies nailed it to a perch through LTE. The fact that IMS has become a political choice for doing telephony on LTE may slow down its uptake."

His alternative? "A 'Velcro phone' may be a better idea, where you put two phones in one handset."

Network architecture

Cost and technology pressures are also reshaping the way that networks are designed and operated. According to Bradley Mead, head of operations for Ericsson UK and Ireland, the industry is likely to see increased network sharing, of the type that 3 and T-Mobile have undertaken in the UK with the creation of Everything Everywhere, to get scale, optimise costs and maximise the use of assets.

"Shared infrastructure is going to be important globally," he said, although Hugh Bradlow, chief technology officer of Autralian operator Telstra, later said that such sharing meant a "race to the bottom" because companies had every incentive to load up the shared network but not much incentive to invest in it.

The 'data deluge' is also making operators rethink their networks, with companies such as Vodafone in the UK and Softbank in Japan using femtocells, small base stations built to consumer electronics standards and pricing,

to offload traffic from expensive macrocells – as well as improving the customer experience by improving local coverage.

Other operators are considering using the Wi-Fi capabilities of some smartphones as another way to offload data traffic, although it is more difficult to control the quality of service over such links. Both approaches, though, can offload some of the operators' energy and backhaul costs onto the consumer.

China

With Nokia on the back foot and the key handset operating systems now being developed in North America, the industry's centre of gravity is shifting. China's role is also strengthening. Companies such as fabless chip vendor MediaTek have enabled the emergence of the agile low-end handset makers that have given Nokia such trouble. And the Chinese version of the LTE standard, TD-LTE, seen by many as a way of bringing China back into the global standards fold after its efforts to create a 3G standard failed to dominate the local market, is now gaining wider traction.

According to Suri at Nokia Siemens Networks: "TD-LTE will be bigger than most people thought – the right band for TD-LTE is now licensed in 40 countries."

Suri says his company is doing tests with five chipset vendors in China to support the standard. Although the apparent strength of TD-LTE is good news for China, it means that companies wanting to build globally roaming handsets will have to support both multiple radio bands and two versions of LTE.

After a couple of years in which the global mobile industry felt the cold winds of recession, the sheer size of the global mobile opportunity created a sense of increasing optimism at this year's MWC. Whether it will be yesterday's heroes or today's upstarts that capitalise most effectively on that opportunity remains to be seen.

http://eandt.theiet.org/magazine/2011/03/analysis-mwc.cfm