

WIRELESS WATCH

In-depth analysis of Wlan, cellular and broadband wireless markets

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The past week’s news in brief

After Q3 problems, Nokia moves CFO to sourcing: watch for chip changes

- **Nokia's Q3 loss mainly down to NSN, but component shortages hit at its key strengths**
- **Firm responds by moving CFO Simonson to head cellphones and review sourcing**
- **Chip shake-up could follow—could Marvell and MediaTek get a look-in?**

While Nokia's shock third quarter loss was down to its €908m writedown on the value of the Nokia Siemens venture (*see separate item*), there were very mixed signals in its core handset business too. Margins were strong, market share and average selling prices were steady, and a fall in volumes was predictable, plus the portfolio is undergoing a major refresh in anticipation of market recovery. On the debit side was one eternal problem, north American weakness; one anticipated one, falling share of high end smartphones as competition mounts; and one true shock, component shortages.

CEO Olli-Pekka Kallasvuo said volumes would have been higher had it not been for difficulty in sourcing some key (unspecified) components, and some shortages could stretch into 2010. This is not the kind of admission we expect from Nokia, the grand master of the supply chain, and the company moved quickly to plug the chink in its most important armor, transferring CFO and logistics expert Rick Simonson to head up the mobile phones unit and companywide 'strategic sourcing'.

Nokia can live with some softness in its smartphone business, with not having its own iPhone, with remaining excluded from north America, with taking a little longer than hoped to gain real mass for its new web services business (though perhaps not all these risks at once). What it cannot live with is any reduction in the one advantage it has that is virtually unchallengeable, its mastery of supply chain efficiencies and sourcing. We would expect the appointment of Simonson to lead to further changes, notably as the company puts together its chip suppliers' roster for the devices that will be designed in 2010.

The handset results:

Apart from the twin shocks of the NSN writedown charge and the component shortages, the rest of Nokia's results were much as expected, with weaknesses largely down to the economy in general and the transition phase for the vendor's phone range, and with some encouraging patterns too, notably the resilience of market

share and margin despite price wars at all levels, and competition from low cost suppliers in emerging markets, increasingly the secret to Nokia's short term growth prospects. And the handset sector as a whole was lifted by Nokia's upgrading of its forecast for the phone industry, from a 10% slide in 2009 to just 7%. This implies a very buoyant fourth quarter, which should benefit most big brand vendors.

In general, though, the phones business contained many positive signs for the future and analyst consensus was that Nokia had managed the recession better than expected, leveraging its scale and efficiencies to keep market share strong and control costs effectively. Phone volumes fell 8%, average selling prices stayed at €62 for the second consecutive quarter and market share also was steady at 38%. Nokia's adjusted operating margin on devices, at 11.4%, was stronger than the 10.8% predicted by analysts though worse than the 18.4% recorded a year earlier. Nokia will have shipped about 108m handsets into its channels in the quarter, up from 103.2m in Q2, as inventory has normalized. This is still down on 117.8m a year earlier. Nokia claims about 57m active users of its web services and it targeting 300m by the end of 2011.

Smartphone decline—how significant?

Kallasvuo expressed disappointment in smartphones, where volumes fell from 16.9m units in Q2 to 16.4m units and share from 34% to 31% in the same period, as the market waited for new Nokia models - and we have to remember Nokia is also waiting for the next, open generation of Symbian, which hobbles it for now against Android, and introducing Maemo. Indeed some analysts called for Nokia to increase its appeal to Android obsessed north America (it shipped only 3.1m phones in the US in Q3, down 31% year-on-year), by letting the Google OS into its portfolio.

Julien Blin, principal analyst of JBB Research, said: "We continue to believe that it would make sense for Nokia to adopt the rival platform on select smartphones as Android continues to gain momentum and gets adopted by many of Nokia rivals." But Kallasvuo responded: "We don't believe in only one operating system but we really don't have [Android] in our thinking right now. We still have a lot of work remaining with Symbian. We know the user experience needs to improve ... but there's a lot we have in the pipeline."

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The big question is whether the smartphone decline at Nokia is a matter of timing, with the N97 only just out and the N97 Mini, N900, Booklet 3G and new E Series and XpressMusic models only turning up for Q4. Or whether Nokia will continue to lose share at the high end, even with its new range, in the face of rising levels of competition from all the other top five vendors plus Apple, RIM and even Palm. The other important question is how far does that matter? The markets tend to give disproportionate weight to the smartphone niche defined by the iPhone, because of its high value and profile, and undoubtedly Nokia would boost investor confidence and its own profits if it could come up with a really big hitter at the high end. But what if it fails to do so?

Nokia and Apple—different beasts:

This could be far less disastrous than many believe. For one thing, the smartphone (by current definitions) is a high end beast and does support specialist vendors that do not have the scale to compete in the overall handset market effectively – RIM, Palm, Acer and even Apple. Apple has the weight and economies to choose to go after the total cellphone space, but we suspect will choose not to because of the huge distortion on its habitual margins and cost structures. Conversely, it would be legitimate for Nokia to accept that it lags behind the US vendor in design and marketing wizardry, and to choose to play to its own, very different, strengths, which lie in its scale, logistics and cost structures.

Regarding Nokia and Apple as like-for-like competitors is unhelpful, and Apple finds itself in a position far closer to that of the PC world (never attaining double-digit market share, but retaining high margins and considerable clout), than that of the music player business, where the iPod attained both.

There is room for a Nokia and an Apple, without either significantly harming the other in the big picture, as long as both succeed in weakening their other nearest competitors. This has been a far easier task for Apple, fending off RIM and Palm, than for Nokia, facing up to the impressive rise of Samsung, flanked by LG. Apple's job may get far harder as more viable 'iPhone killers' emerge, some from the currently buoyant Android community and backed by a PR machine as skilful as Apple's own, at Google. And it will have a difficult balance to strike, in retaining its premium image and the profits that go with that, while deciding how far downmar-

ket to travel in order to defend or increase share and boost economies of scale.

Nor, despite weak smartphone results, is Nokia's outlook necessarily bleak. Its new devices are well supported by operators outside north America and the N900 looks strong and is genuinely defining a new category, much as the N95 did when it emerged as the original superphone. This suggests Nokia's other line of defense against the attack of the smartphone specialists – staying one step ahead

Sony Ericsson's loss widens:

Sony Ericsson reported third quarter results hard on the heels of Nokia's, claiming its restructuring plans are starting to take effect – a claim not yet reflected in the figures, which saw a widened loss and a sharp decline in unit shipments.

The joint venture has a tough task to convince investors and customers that it is on the turnaround track. It reported a loss of €164m (\$245m) in the third quarter, larger than the €25m loss of the same period a year ago, but up on the Q209 deficit of €213m. Reduced operating expenses pointed to the start of some impact from the reorganization, while gross margins also improved despite the ongoing price wars, as SEMC starts to reduce its damaging over-reliance on the pressurized midrange market and release true smartphones. Its channels and experience in the midrange should stand it in good stead to take advantage of the shift of smartphone capabilities into the mass market from this quarter.

But, although SEMC satisfied analysts' admittedly weak expectations, its sales still fell 42% year-on-year to €1.62bn, as unit shipments dropped 45% to 14.1m. However, the average selling price edged up to €114 from €109.

The venture was less sanguine about the Q4 recovery than Nokia, only saying that the global handset decline is "starting to slow" – it still expects the 2009 market to shrink by 10% in unit terms. In that contracted market, it had about 5% market share in Q3.

"Our business in the third quarter started to show the effects of our ongoing transformation program. Having refreshed our brand we are now better positioned to support the launch of new products," said Dick Komiyama, outgoing president. "We have cleared channel inventories, and have continued to realign internal resources and improve efficiency. We have also arranged external financing to strengthen the company's financial position."

"The goal is to be profitable next year," new CEO Bert Nordberg told Swedish press, reiterating an objective set by his predecessor. "If the market continues to stabilize and we are successful with our new products, we will be profitable next year," he said, adding that new cost cuts, in addition to a programme aimed at saving €880m, would be launched in 2010.

with new form factors, as it aims to do with its new Intel alliance, while building up its software arsenal. After all, Nokia has launched 12% more products so far this year than at the same stage in 2008, even while the market is down by around 13% in volume, so is clearly preparing for the upturn.

The new battle for the mass market smartphone:

But the really interesting situation arises when Nokia and Apple start to meet on a battleground where the leading strengths of each is required – the ‘mass market smartphone’. This looks set to be the key unit growth driver of 2010, bringing smartphone features like downloadable apps, widget interfaces, full browsers and touchscreens to phones that are midrange in price and hardware terms. Here, good design, branding and web experience will have to combine with excellent cost efficiencies.

Those vendors – notably Motorola and Sony Ericsson - that have been weakened by their exposure to the midrange in 2008-2009, when growth has been found in the high end and in ultra-low cost models, may now get their day in the sun (though SEMC, with painful timing, has finally managed to launch a string of really credible high end smartphones). But the really interesting, market defining battle will be between Nokia and Apple, and the test for the Finn will be how far its supply chain and cost advantages can be brought to bear to deliver hefty market share gains in the midrange smartphone, not just the conventional mass market featurephone and ultra-low cost segments.

The new Nokia devices team:

To gear up for that shift in the market dynamics, Nokia has to ensure its famous supply chain is in tip-top condition, hence the new role for Simonson and the probable further rethinking of its sourcing strategies, which have already been radically shaken up over the past couple of years with the move to multisourcing (rather than an almost total reliance on Texas Instruments for basebands and app processors), and to buying more off-the-shelf chips and SoCs to reduce costs.

Simonson (who is replaced as CFO by head of global sales Timo Ihamuotila) will bring a rigorous attention to efficiencies and logistical excellence to the core cellphone business, while the more ex-

perimental aspects of the devices business focus on future growth and new revenues.

These get new executives too, as Nokia breaks its vast mobile devices business, at strategy and sales levels, into separate units for mainstream phones, smartphones and ‘mobile computers’ or MIDs/netbooks/future formats. At last the company is recognizing that cellphones can no longer be viewed as one universal category (a lesson many analysts could learn, as they persist in extrapolating performance in high end smartphones to the entire business).

Smartphones will be headed by six-year Nokia veteran Jo Harlow, and a more autonomous unit should have greater agility and also work more directly with the software and web services activities, which will help drive its success. Harlow will focus in particular on consumer appeal. Her key experience is in brand marketing, having served at Reebok and Procter & Gamble, and her most recent position at Nokia has been senior VP of global marketing for phones. Also significantly, given Nokia’s continuing uphill struggle in the US, Harlow was previously VP of marketing for north America.

The ‘mobile computers’ subdivision is now in the charge of John Martin, a former Apple executive. It is important that he is primarily from an applications background, and was previously VP of iPhone and Mac internet services at Apple (from 2005 to 2008). He joined Nokia in September to run the Maemo-based devices activities and also has previous experience at Starbucks (VP of music and entertainment), Microsoft (director of Windows internet services) and even NASA. Martin left Apple in 2008 and promptly sued the firm for allegedly failing to compensate him for a patent he holds on a ‘method for operating an electronic machine using a pointing device’.

Simonson’s new role:

Simonson’s remit in sourcing extends across all product categories and his new role clearly makes him unofficial heir apparent to the CEO position, following a similar CFO/cellphone chief track to Kallasvuo himself. Nokia generally avoids traumatic leadership changes by having a clear, if unofficial, handover strategy, though this leads to accusations of a failure to introduce new blood or radical thinking at the top.

Not that radical thinking is required on the logistics side, just a steady hand. The appointment of the CFO to run cellphones clearly signals that entry level handsets are no longer a business of brand marketing or advanced R&D, but a purely financial and logistical business that requires intensive cost control and superb supply chains – the key goals being to accelerate upgrade cycles in emerging economies so that users shift quickly to higher margin updates. This is where Nokia can shine, but it needs to make efficiency a key competitive edge in smartphones too.

This could lead to another revamp of the giant's list of strategic silicon and components suppliers, which it traditionally revisits in the last quarter, arranging key deals at the turn of the year geared to the 2011 line-up. Two years ago, Nokia broke TI's near-monopoly on its baseband business and introduced a second supplier for each radio category – Infineon for GSM, Broadcom for EDGE, and STMicro (now ST-Ericsson) for HSPA. Last year, it extended Broadcom's remit to HSPA too, and introduced first Qualcomm and then Intel to its supply chain. What will only become clear in the chip suppliers' 2009 results (and beyond) is just how much Nokia business each new entrant has done, and how far they have displaced TI.

Nokia's chip suppliers in 2010:

In 2010-2011, it seems likely that TI's position will be dramatically reduced in basebands for Nokia. It has already exited the merchant baseband market, largely as a result of the Finn's change of strategy, and although it still makes customized basebands for Nokia,

Samsung over-orders?

The market is rife with talk that Samsung may have built up its inventory to “dangerous” levels during the third quarter, which could lead to a sharp pullback in its Q4 ordering from key component suppliers, with knock-on effects for their quarterly performance.

Just as the excess inventory of the turn of the year has cleared, Avian Securities analyst Avi Cohen says his checks indicate that “Samsung has in fact been very aggressive with the supply chain”, planning for shipments of 60m to 80m handsets in this quarter.

This would represent shipment growth of 15% to 23% this quarter, which is almost certainly over ambitious. That could cause problems for Samsung's main chip vendors – Qualcomm, RFMD, Skyworks and Advanced Analogic.

these are playing a less important role in the overall mix. It will remain important in other slots in many handsets, notably the apps processor, with the OMAP family. Though Nokia is showing more enthusiasm for SoCs and for apps processors integrated into the baseband – the approach taken by Qualcomm, Infineon and Broadcom – it is still a heavy user of dedicated products such as OMAP, and loyal to its old ally against challengers like Samsung .

In W-CDMA/HSPA, the current three-pronged approach will be tested in earnest in 2010. This sees Broadcom largely offering 3G SoCs for low cost 3G phones, Qualcomm working on devices for north American HSPA and for CDMA/LTE at Verizon, and ST-Ericsson the strategic partner for high end phones elsewhere, especially Europe. ST-Ericsson is sampling its U8500 cellphone processor for Nokia - this combines two ARM Cortex A9 cores with a Nokia HSPA baseband block and is likely to be the most important 3G chip for Nokia for 2010. This shows Nokia still pursuing its traditional approach to chip sourcing for the high end – jointly developing a processor with its chosen partner and contributing its own IPR, but with the partner then able to market the resulting chip more widely (this was the TI model, back in the days when it was all-but the inhouse silicon department of Nokia).

There is also the dark horse of the Intel alliance, focused mainly on future device formats and on Linux. This has yielded short term results in the Booklet 3G smartbook, but a more radical joint platform is expected to emerge towards the end of 2010, for use in devices in 2011-2012. To support this, and in so doing boost its challenge to gain a real share of the mobile market at last, Intel has licensed Nokia's 3G baseband silicon blocks, to combine with its Atom processor and other components in its emerging range of SoCs. However, Intel is a newcomer to the SoC market and is unlikely to make huge impact on Qualcomm and STE for some while to come.

The low end—MediaTek and Marvell:

At the low end of the Nokia range, Infineon has apparently been performing well with its low power, single-chip architecture, after some initial glitches, though it is possible that Nokia will bring in another supplier as it chases ever increasing volumes in emerging economies. The big question mark must hang over whether the company wants to make a friend of MediaTek, the disruptive Taiwanese cellphone chipmaker, which is readying a smartphone sys-

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Weili Dai, Marvell

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tem-on-chip that would support devices to sell at under \$200 unsubsidized. MediaTek has boomed in recent years on selling low cost chips to white label and Chinese phonemakers, creating a headache for Nokia and Samsung, and Nokia could look to bring the supplier into its own fold, especially for the Chinese and Indian markets. Some operators, like China Mobile and Vodafone, have expressed interest in MediaTek's architecture too, as carriers look to define and standardize basic reference designs for midrange and low end phones, to increase their own branding and cut costs.

The other possibly disruptive force in the Nokia supply chain – and in our view, this would be a strong addition – is Marvell. Having acquired Intel's ARM-based XScale business, the US-based firm has not gained a high profile in cellphones, except in outside positions like Wi-Fi (it recently showed off a Wi-Fi hotspot integrated into a handset and has WLAN slots in the iPhone and BlackBerry Storm 2).

But it has been raising its game in two directions – one, pursuing an ultra-low cost architecture that appeals to the operators' desire for unified reference platforms, namely China Mobile's oPhone; and two, pursuing Qualcomm Snapdragon, TI OMAP, Nvidia Tegra and Samsung Hummingbird in the high end processor market, targeting netbooks, MIDs and gigahertz smartphones. In both these respects, it could provide some differentiation features for Nokia and help it consolidate its lead in the low end while chasing new device formats in the mobile internet space.

At the high end, Marvell this week announced the ARM-based Armada family, whose top end member boasts 1.2GHz frequency. Marvell is claiming over 50 design wins already, all unnamed, and reminding us that it ships one billion chips a year, two-thirds of them based on ARM, making it the biggest beast in the ARM space. So now it is getting more serious about cellphones, it should not be ignored. "The Armada family delivers to mobile devices what skeptics once doubted could be done - fast, PC-caliber processing, full internet experience, rich media including HD quality video and 3D graphics - all in lightweight form factors with long battery life," said co-founder Weili Dai, also general manager of the firm's consumer and computing business unit. "There will always be a place for PCs, but the future of mobile computing - for smartbooks, e-readers, smart tablets and more - will by necessity get its DNA from smartphones, not PCs," she added.

oPhone:

Meanwhile, Marvell said last week that AT&T has certified its oPhone architecture, a hardware reference design for low cost 3G webphones, for use on the US carrier's network. oPhone was developed for China Mobile by Marvell, and so far has only appeared in a few devices, including an Android midrange smartphone from Dell. However, Marvell says several operators in different parts of the world are evaluating oPhone as a standard platform for own-branded, web-oriented handsets. Although China Mobile has also created its own oPhone software environment, the basic platform is OS-neutral. Of course, certifying a design is a long way from adopting it, far less placing it at the heart of a major platform, but this shows the wide range of options AT&T is exploring for this key strategic decision.

Nokia is unlikely to ignore a platform that could give it another foot in the difficult US market, as well as strengthen its existing position at China Mobile. Nokia and rivals like Motorola are enthusiastic about winning market share by supporting platforms like oPhone – gaining ground in markets like China and ensuring this segment does not fall entirely to the white label manufacturers. China Mobile is to introduce no fewer than eight Moto smartphones next year, says the firm, some based on oPhone.

China Mobile does not have to keep oPhone exclusive to one chip-set supplier, but Marvell has the headstart. Its platform enables 3G phones with midrange smartphone capabilities for less than CNY1,000 (\$147), says Marvell, perhaps one-third the cost of a similar phone developed from scratch and clearly gunning for MediaTek. Marvell is already extending its client list via oPhone and supplies Dell, Motorola and Huawei.

Marvell commented: “When China Mobile began its mission two years ago to build an affordable open architecture smartphone based on Google's Android platform, Marvell was the only major silicon partner who committed to the program. Now, two years on ... it has the global electronics industry watching the emergence of a significant new player in chipmaking.”

To make that promise come true, Marvell needs to get Nokia on its side. This is more likely at the low end in the coming year – Nokia has OMAP and budding alliances with Qualcomm and Intel to sat-

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Marvell statement

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isfy its MID cravings for a while, and unlike Samsung, is wary of testing out too many new processor options in parallel. With TI fading from many parts of the handset silicon space, and Freescale all but gone, consolidation may seem to be the natural outcome. But new mobile device formats, and new economics in the midrange and low end, all open up opportunities for players who think a little differently, and we would expect MediaTek and Marvell both to increase their impact on cellphones, and possibly Broadcom too. All of them will find this task a great deal easier if they can convince Nokia to give them a serious try-out for its next silicon team.

TI exceeds expectations on continuing analog boom

Texas Instruments outdid muted analyst expectations in its third quarter, even though it is still going through a major transition phase, reducing its dependence on cellphone basebands as key customers like Nokia take a multisupplier route. Nevertheless, TI reported net income up 117% on the previous quarter at \$538m or 42 cents per share, though this was down 4% on a year earlier, while revenues of \$2.88bn were up 17% sequentially, but down 15% year-on-year.

Consensus analyst expectations for the quarter were for revenue of \$2.82bn and net income of 39 cents per share. The big driver, as in the previous period, was analog growth, and CEO Rich Templeton said in his statement that performance was led by a second consecutive quarter of 20% growth in this segment.

"We are encouraged with the strong sequential increase in demand for our products over the past two quarters as our customers are winding down their inventory corrections and have begun to increase production levels in their factories," Templeton said. Sales of embedded processing products grew 12% sequentially, as did sales of wireless products, while other products were up 20%. The chip giant expects fourth quarter revenue to be between \$2.78bn and \$3.02bn with earnings of 42 to 50 cents per share. This would outdo analyst expectations for Q4 revenue of \$2.78bn and earnings of 40 cents per share.

However, it is still early days for the new product mix at TI, and some observers are concerned that the impact of last year's decision to exit the merchant cellphone baseband business may have been underestimated (TI still makes some custom basebands for Nokia but this business could diminish or die too as the Finnish giant increasingly relies on a wider range of suppliers and buys off the shelf for more basic products.) Ramesh Misra of Brigantine Advisors said in a research note: "While the company's planned exit from the handset baseband business is well understood and factored in by investors, the impact TI's other businesses will likely suffer due to this is not adequately appreciated.... TI will not be able to provide bundled solutions to the handset market, and without a baseband offering, will likely be treated as just another analog IC supplier by potential customers." TI's primary handset product range is the OMAP application processor family and it is also a market leader in DSP-based solutions for cellular base stations.

RAD: Carriers ready for Carrier Ethernet, to address 4G ‘intelligence crunch’

- **Carrier Ethernet plus intelligent backhaul services are essential to LTE**
- **Intelligence plus capacity required in access network as well as core**
- **Ethernet/IP also coming to low end backhaul with rise of flexible microwave options**

We are all very aware of the huge demands that mobile broadband will put on operators’ network capacity. As well as stimulating a wave of investment in new wireless capacity, including more efficient IP technologies like LTE and WiMAX, there will be a sharper focus on the intelligence in the system. Sophisticated management of traffic, subscribers, applications and connections will be required, to eke the optimal performance out of the network and spectrum, and to help the operator actually make a return on its investment, by monetizing the mushrooming IP traffic.

Much of the debate - how to harness more intelligent networks to identify and support high value users and services – has focused on the evolution of the packet core, and this remains a vital part of the equation. But to avoid becoming a dumb pipe itself, the cellco needs every one of its own pipes to be intelligent, and so complex intelligence is being pushed end-to-end, leading to a new wave of backhaul and access network equipment that leverages Carrier Ethernet while catering for legacy systems too.

Product launches and acquisitions by Cisco (Starent), Nokia Siemens (the Juniper backhaul JV), Alcatel-Lucent (enhanced cellco routers) and others show the majors recognizing the need to cling onto their traditional ability to provide a one-stop shop for the whole system, by enhancing the intelligence and capabilities of every part of the network. But as many operators look to a best-of-breed approach instead, the most interesting innovations are often coming from the specialists – WiChorus and Starent itself in the core, for instance, and a group of independent mobile backhaul companies, looking to add value to their products and break the traditional pattern for cellcos to purchase backhaul as part of a bundle with their RANs.

RAD’s LTE strategy:

One of these is RAD Data Communications, which is outlining its strategy for LTE and other high capacity networks, migrating from

the last mile to the smart Ethernet access network to support end-to-end intelligence. The aim is to address not just the well recognized capacity crunch that LTE will bring, with its high data rates, video applications and dense networks, but its “intelligence crunch”. Ronen Guri, director of product management and business development at the firm (part of the RAD Group), says its latest backhaul gateways are designed to “marry capacity with intelligence”, and the vendor is extending its current expertise in cell site gateways into packet-based access networks.

LTE needs a high degree of intelligence in the architecture at all points on the network, to lower total cost of ownership and drive greater business value, argues Guri. “There is a big increase in capacity but intelligence is not increasing at the same rate – there is a need to catch up,” he said. “As capacity is decoupled from revenue [with flat rate tariffs etc], fat pipes are not enough.”

The LTE architecture has certain characteristics that can support new business models and cost structures and reduce bottlenecks – its flat structure; its ‘partial mesh’, enabling traffic to flow directly between base stations rather than always via the core; small cell deployments like femtocells. The mesh approach inherently shifts intelligence to the access network, because base stations are often communicating, via the X2 interface, directly, with any-to-any links with up to 32 neighbors (especially important in dense, small-cell deployments). This will reduce bottlenecks to the core, but only if cleverly managed to ensure the right traffic and service levels are supported in the right places.

These new approaches will generate value only if they are combined with strong traffic management and other smart approaches, which can, for instance, differentiate between different subscriber types or traffic types, and the service levels available to them; provision vast numbers of new services efficiently and to targeted user groups; support service level agreements and other QoS guarantees; enable operators to share RANs but still differentiate their offerings. To achieve this, the whole network needs greater resiliency and efficiency at the 4G stage, with formerly elusive features like accurate clocking/synching over a packet network. Other key attributes of a 4G backhaul system, which RAD says it is implementing now or in the coming months, are listed as hard CoS/QoS and traffic management; performance management; traffic security; resiliency, service availability and recovery; and fault management/

OAM (operations administration and maintenance). The vendor has included features such as timing-over-packet, hardware-based OAM, performance and traffic management, and support for G.8032 Ethernet ring protection, into its internet access demarcation devices.

Operators poised for Carrier Ethernet:

By combining all these smart backhaul services with Carrier Ethernet, (mainly over fiber and microwave as DSL fades in the face of massive data requirements), RAD says the marriage of capacity and intelligence can be achieved. Traffic is already sent over Ethernet to the aggregation devices for switching, but more intelligence is needed in those links, and Carrier Ethernet already supports many of the required building blocks, such as fault management over the packet network, in its standards.

With an intelligent Ethernet link, much of the performance management and other tasks are carried out at that place in the network, rather than having to be addressed elsewhere, and take place on live traffic. This allows for traffic shaping, sophisticated scheduling that responds to the weight of each flow, end-to-end SLAs and so on. With such capabilities included in Carrier Ethernet systems like RAD's, the technology becomes a viable alternative to TDM/SDH for operators' backhaul and access networks. "Carrier Ethernet at the transport layer represents the best fit for LTE backhaul," argues Guri. And with the shift to small cells, distributing intelligence to the cell sites allows for efficient handling of many thousands of connections.

As RAD readies itself to replace TDM/SDH, it has three particular areas of focus to lure potential customers. One is the promise of supporting more sophisticated service provisioning, to increase the carrier's ability to monetize a wide range of apps; the second is the pledge of lower costs, by harnessing the partial mesh architecture to maximize network efficiency at layer 2; and the third is a way to help ensure differentiation and QoS when telcos are RAN sharing, a key trend in many parts of the world.

At this week's Supercomm event, the vendor introduced one of the concrete building blocks that will underpin its Ethernet/IP/smart access strategy, the ETX-204A. This is a Carrier Ethernet demarcation device that delivers SLA-based Layer 2 and Layer 3 business

services to the CPE over native Ethernet access. It provides delineation between the user network and the transport network for those services, as well as for mobile backhaul, and transports up to one gigabit of user throughput with end-to-end monitoring, promising “SDH/SONET-like performance”.

Of course, the operators are not generally racing to Carrier Ethernet, despite rising interest. Lowering its costs and proving that it can support the performance of current technologies, plus support new service models, will be essential to creating confidence, and this will not be a quick process. RAD says it is in talks with various operators and pushing its ‘building block’ approach, offering tried and tested blocks in areas like traffic management that promise a low cost way to move towards Ethernet. Eventually, Carrier Ethernet will go end-to-end, believes Guri. “The core is smart enough already but if the core were Carrier Ethernet too, there would be a complete end-to-end solution. Carrier Ethernet is not widely deployed yet though, so we have to live with building smart access up to the MPLS backbone,” he concluded.

New microwave options for smaller carriers:

Another member of the RAD Group, Radwin, is focused on another key backhaul growth market, albeit one with rather nearer term horizons than ubiquitous Carrier Ethernet. This is low end microwave backhaul for the rising tide of small service providers, government agencies and public safety organizations that are using wireless networks, as well as the smaller cell sites that major carriers increasingly employ. A battle is mounting in this space, with disruptive players like Exalt and Dragonwave pushing established specialists like Radwin, Motorola and Proxim, as well as the lower cost products from the giants like Ericsson.

Carriers round the world are looking to a mixture of fiber and microwave to support exploding mobile data usage and denser networks, and to reduce total cost of ownership compared to leased lines. This is throwing the spotlight on microwave specialists, not just the big hitters like Harris Stratex, NEC and Ericsson, but a wave of innovative start-ups focused on IP/Ethernet, and the opportunity presented by new-style operators like Clearwire, looking to gigabit data rates and unfettered mobile broadband services. Here too, the emphasis is on the move to Ethernet/IP, reduced total cost of ownership, and support for new services and mushrooming capacity demand.

DragonWave, Clearwire's key supplier, debuted on the Nasdaq exchange this week, in an initial offering that will raise almost \$130m – one of the largest for a Canadian firm this decade. DragonWave has been listed since 2007 on the Toronto Stock Exchange, but reached profitability this year, driving its shares from \$1 in January to as high as \$12.10.

Exalt's ExtendAir:

Another innovative microwave backhaul specialist is Silicon Valley-based Exalt Communications, which was founded in 2004 by veterans of companies like Western Multiplex. It initially focused on the high end, and in March announced its GigE gigabit Ethernet platform, in the wake of raising a series C round of \$15m in February. Now it is moving into the lower end of the market, targeting WISPs, smaller operators (or large cellcos' smaller cells) and government or enterprise users. It is taking on the giants of this segment, Motorola (with the former Orthogon product) and Radwin (part of the RAD Group in Israel).

Its ExtendAir backhaul system is designed to be lightweight, compact and cost effective, to appeal to public safety agencies and smaller providers – which generate revenues and cashflow more quickly than their tier one counterparts – and to give microwave sceptics a low risk chance to try out the technology, and then hopefully move up the product range.

ExtendAir supports point-to-point links to a distance of 20 miles, with “moderate” capacity of 100Mbps to 200Mbps, at a cost from under \$5,000 to \$8,000 per link. CEO and founder Amir Zoufonoun says the product will compete with the Motorola PTP500 and Radwin2000. Its key differentiator will be guaranteed ‘five nines’ performance through use of point-to-point, line of sight systems, whereas he says the rival platforms use OFDM and near-line of sight to achieve a constant ‘best effort’ connection, but with lower and less consistent performance.

Among the features of the new system are 120Mbps Ethernet throughput, 40 kilometer range, support for both native Ethernet and TDM at low latency, built-in layer 2 switch with optional 3x10/100BaseT, and 256-bit AES encryption. "Until now, the only wireless connectivity options at this price have been Wi-Fi or OFDM based radios, which are not designed for sustained, guaran-

teed throughput over long distances," said Richard Webb, directing analyst at Infonetics. "Exalt is bringing microwave reliability to the entry level segment of the market for the first time."

Amid all this activity, microwave radio will rise in status from dumb pipe to intelligent network element, argues Exalt CEO Amir Zoufonoun. Network planners used to have to instal expensive routers or switches alongside IP-based microwave radio links at aggregation points, but now smarter radios can also switch and route traffic. Such advantages will start to see microwave gaining a critical role in WiMAX and LTE deployments, large and small.

Will Google really create a ‘gPhone’ to wrongfoot Apple?

- **Google and Microsoft could both be planning reference designs to extend reach**
- **Apple, like its Google enemy, defies downturn with strong quarter**
- **Android 2.0, Moto and Sony Ericsson all improve the odds of Google winning out**

In case we’re tired of the will-they won’t-they reports about a Microsoft own-branded Windows phone, similar reports have resurfaced about Google, suggesting that the search giant could release its own handset design to associate its brand even more intimately with Android and the mobile market.

gPhone and Windows Phone:

The latest round of speculation about a ‘gPhone’ – widely expected two years ago when, in fact, Android surfaced as software only – was sparked off by Ashok Kumar of Northeast Securities, in a research note. He sees Google tapping into the need for standardized reference designs in the midrange and low end of the phone market, that reduce cost and time to market for vendors by unifying key hardware and software components. Microsoft also recently said it would release its first reference designs for Windows Mobile, probably to makers of lower cost handsets, whether OEMs or white label.

This creation of off-the-shelf handset ‘kits’ to cut vendor costs is not, of course, the same as Google (or Microsoft) actually creating their own handset and marketing it, with the obvious conflicts of interest with their vendor licensees and potential brakes on the spread of their OSs. But taking control of the reference platforms, rather than relying on third parties, would give either software giant considerable influence on the midrange market and the future direction of webphone design, as well as the opportunity to push their brands (the new ‘Windows Phone’ and Google’s own logo and key apps) to the forefront of the mind of the mass market.

So Google could unveil such a platform by year end, Kumar believes, and he also sees this as a means for the search giant to work directly with vendors and reduce the influence of the operators. The carriers have worked hard in recent years to stamp their own imprint on standardized midrange systems, as devised by operator driven groups like the OMTP (Open Mobile Terminal Platform).

Google would like to seize that initiative for itself, while reducing fears of the fragmentation of Android, and its big picture vision does envisage a world where consumers access applications directly on the web, with the cellco merely a bitpipe.

The ambivalent view of operators:

In the short term, though, any ‘gPhone’ platform may be more carrier friendly than Kumar foresees, since the operators remain the chief channel to market for Android devices and Google mobile services. Witness the recent deal that Google struck with Verizon Wireless, to create customized Android devices for that carrier’s brand and web services – probably the first real world appearance of a ‘gPhone’ design, and possibly the source of the new round of rumors.

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Google is expected to launch a self branded smartphone by year end followed by a netbook early next year
Ashok Kumar, Northeast Securities

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Kumar’s note says: “Google is expected to launch a self branded smartphone by year end followed by a netbook early next year.” He expects both to run Android 2.0 and use Qualcomm chips, including the Snapdragon for the netbook. A key aim will be to integrate Google services optimally to create an attractive and simple interface for midrange phones and for vendors that cannot afford to invest in developing their own fully fledged user experience as Motorola has with Motoblur or HTC with Sense.

This could result in a broad reference design that could be adopted at low cost by operators and suppliers for the mass market, giving Google greater direct control over the type of standardized mid-range and low end platforms that will evolve, particularly for carrier branded web services. It could thus compete with similar designs from Marvell, with oPhone, used for Android by China Mobile (*see separate item*).

This would be a far cry from Google turning itself into a branded smartphone maker in its own right, which would be suicidal for its hopes of Android as a broad-based OS. Indeed, Google’s strategy in the ebook market highlights the remoteness of the possibility it will try to take on Apple directly with a combined hardware/OS platform. The search giant has confirmed plans to introduce an online storefront for electronic books, Google Editions, promising that content will be available across any device with a browser, including phones and netbooks. Google will categorically not market branded hardware like the Amazon Kindle: "We're not focused on a

dedicated ereader or device of any kind," Tom Turvey, Google's director of strategic partnerships, said, a view that will be echoed in phones and other gadgets.

So far, its belief that accessing web services from mobile devices, and generating revenue from those services, is the future, is borne out by its quarterly results, especially when compared with the figures from more conventional mobile players. It turned in a record quarterly profit, declaring that the economic downturn was coming to an end and that Android was "about to explode." It reported revenues of \$5.94bn for the quarter, up 7% year-on-year and ahead of forecasts, and net profit of \$1.64bn (a huge 27% increase).

Apple results:

Of course, the other recession beating set of results came from Apple, which represents the exact opposite of the Google mobile model (with each of the vendors now allied with one of the leading US cellcos in their own web stand-off). Record iPhone sales delivered another strong quarter of growth for Apple, which saw net profit in its Q4 rise by 46% year-on-year to \$1.66bn, a record profit figure for the firm. Revenue was up by 25% to \$9.87bn and gross margin improved by 1.9 points to 36.6%.

COO Tim Cook called this the "quarter of the portable" as iPhone sales rose 7% year-on-year to 7.4m units, and Mac sales jumped 17% to 2.05m, mainly on strong demand for notebooks and the release of the new Snow Leopard OS. The results beat analyst consensus forecasts of \$1.3bn net income on sales of \$9.2bn.

"For the full year, we grew revenue by 12% and net income by 18% in extraordinarily challenging times," said CFO Peter Oppenheimer said. Annual income rose to \$5.7bn on revenue of \$36.54bn. Apple is predicting revenue of between \$11.3bn and \$11.6bn in the current quarter, the first of its 2010 financial year, and Jobs said new products were in the pipeline for 2010, but offered no details (of course this will set off speculation about an iPad or an iPhone Nano once again).

"We are thrilled to have sold more Macs and iPhones than in any previous quarter," said Steve Jobs, Apple's CEO. "We've got a very strong lineup for the holiday season and some really great new products in the pipeline for 2010."

The iPhone remains heavily dependent on its US carrier AT&T but Oppenheimer expects a new boost from the phone's debut in China. For Apple as a whole, 56% of sales came from north America.

Apple is one of the only companies in its segments so far to report year-on-year sales and profit gains for this quarter, the last where firms are comparing with a year-ago quarter that largely came before the crash. The only weak spot for Apple was the iPod music player, which recorded negative growth as customers shifted to the iPhone – iPod sales fell 8% to 10.2m units.

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We are thrilled to have sold more Macs and iPhones than in any previous quarter. We've got a very strong lineup for the holiday season and some really great new products in the pipeline for 2010

Steve Jobs, Apple

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Research firm iSuppli estimates that Apple will have gained additional smartphone market share in the current quarter. The firm expects total smartphone unit sales to increase by about 11.65 in 2009 but Apple's shipments to rise by 37% year-on-year. If it enjoys another year of similar iPhone growth, it could achieve a share of the overall cellphone market similar to the share it has in PCs – around 3.5% according to iSuppli - though it will face unprecedented levels of competition in its core smartphone bases from this fall, while overall share will depend on its ability (and desire) to penetrate lower end markets.

Android 2.0 and SEMC:

The big question is how long Apple can continue to increase share, as competition mounts from many more well established phone-makers, several of which are rejuvenating their ranges to prepare for the economic uptick, using Android. An important element of Android's bid to supplant the iPhone is the belated release of version 2.0, bringing much needed enhancements to the platform and unleashing pent-up product releases for the high end.

While Android 1.5, or Donut, was a step upgrade, 2.0, or Eclair, should address some serious issues, notably with multitouch and advanced multimedia processing. Some vendors, notably Sony Ericsson (SEMC), have been vocal that they would not release a handset until 2.0 was available, as 1.5 was too lightweight for a high end user base. Now, with Eclair due in December, that vendor is likely to unleash its first Android phone, the Xperia X3 or Rachael, in time for Christmas. It will tussle for the position of first Android 2.0 handset with Motorola's Droid, due in the same time-frame, and like Motorola, SEMC is expected to announce that it will make Android its primary smartphone OS.

This would involve defocusing on Symbian and Windows Mobile, although SEMC insiders are less definitive about an Android-only strategy than Motorola has been, and the company appears to be keeping its options open, with the possibility of reintroducing Symbian once the first open source platform is fully established (likely for 2011 models), and even using Windows Mobile in future, again, once its next generation, WinMo 7, is with us. SEMC has hardly used WinMo – it has appeared in the Xperia X1 and X2 only – but may want to keep a toe in the water in case release 7.0 makes a big impact on the high end (Motorola is also refusing to dump WinMo entirely for the same reason).

All will become clearer soon, with SEMC about to announce a new smartphone and software strategy, according to new CEO Bert Nordberg, speaking on the firm's Q3 results call last week. This strategy will be outlined "in the next two quarters", he said, presumably once the success of Rachael has been assessed.

Ben Wood, an analyst at CCS Insight, told *Techworld* that SEMC channel partners have been impressed with first sights of the Rachael, which should launch in late November. "What you'll see is Nordberg trying to get some momentum around the Android propo-

Mozilla backs Android and Maemo:

Open source browser maker Mozilla is placing its own OS bets behind Android and Maemo, even as it readies the mobile version of Firefox, Fennec, to take on Opera and the host of WebKit-based products.

Mozilla CEO John Lilly, talking to the *GigaOm* blog, hinted at an iPhone app, but was mainly focused on open platforms. He admitted Firefox had fallen behind WebKit-based browsers on the mobile platform but said at the recent Play conference: "Sure, we are behind, but we didn't want to do a browser that didn't do the whole web. We wanted to build a browser that did everything — Javascript, CSS, Flash, SVG, video and audio. What that meant was we had to wait for a while for devices to get better to handle this modern browser." Fennec is based on the Firefox 3.6 engine, which is not even available on the PC yet.

Fennec is running on the new Nokia N900 and has been much praised by previewers for its PC-like qualities. Lilly is supportive of Nokia Maemo, despite its nascent base, because it is a modern OS "built with the internet in mind". After Maemo, Fennec will appear for Windows Mobile and Android. Lilly is less interested in Java-based platforms like BlackBerry, and far more positive about Android now that it uses C/C++ as well as Java. "That is what we program in, so we are now looking at developing Firefox for Android," said the company.

sition to get some mindshare back to the Sony Ericsson brand, because that's what it needs," he said.

The Rachael is expected to have a four-inch touchscreen, 16Gb of internal memory, GPS, Wi-Fi and an 8-mp camera, and to be heavily geared to high end audiovisual applications. Leaks also point to the highest screen resolution yet seen on a phone, which would see SEMC challenging LG and Samsung for their heavy duty display and media crowns.

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‘Everything iDon’t, Droid Does.’ We have a physical keyboard, we have multitasking, we can take 5-megapixel photos with flash, our users can customize the UI, our development is open source, and our battery is replaceable. iPhone doesn’t do any of this

Verizon advert

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Verizon goes public with Droid at last:

As for Eclair, the new Android version comes with a fast browser, extends Facebook support and supports the Layers feature on Google Maps. It has better text-to-speech facilities, a comprehensive lock function, unified email inbox and native Exchange support to improve its business credentials. Most important, multitouch and better video capabilities will make it look more like iPhone, while support for Flash and other third party add-ons is promised soon.

Also using Eclair is the second Motorola Android phone, which has been variously known as the Sholes and the Tao but looks set to be called the Droid in real life. Speculation that there were glitches with the phone had mounted as Verizon Wireless raised expectations of an unveiling, only to dash them again, on at least two occasions (when Motorola and T-Mobile announced Cliq/Dext, and at Verizon’s recent open developers’ event, where it talked up its new friendship with Google). But now it has unleashed a series of commercials leading up to a likely shipment of the product at the end of October.

Like Verizon Wireless’ Google deal for carrier branded gadgets and services, a range of strong Android smartphones will be strategically important to the cellco, in its newly aggressive battle against AT&T and the iPhone. The tone of the carrier’s recent comments suggest it will not be carrying its own Apple device for some time, so it needs to gain attention elsewhere, reducing its high end dependency on RIM and Windows Mobile. It has promised at least two Android smartphones by year end (the other being from HTC), and is certainly putting some marketing muscle into the Droid.

Although it has not stood up on stage with Motorola, as T-Mobile did, to unveil the handset (as yet anyway), Verizon Wireless has started advertising the new phone, which is a more heavyweight affair than the socially oriented Cliq, and will be one of the first to run the considerably beefed-up new version of Android, release 2.0 or Eclair. Reflecting the wider capabilities this updated OS supports, the Droid will boast the ability to run multiple apps, support video recording and a widget interface. It will have a physical keyboard and touchscreen.

The commercials are blatantly taking shots at the weaknesses of the iPhone experience on AT&T's patchy network. The slogan is 'Everything iDon't, Droid Does', and says: "We have a physical keyboard, we have multitasking, we can take 5-megapixel photos with flash, our users can customize the UI, our development is open source, and our battery is replaceable. iPhone doesn't do any of this." With such messages, Verizon Wireless will hope to make greater advantage from its network, which is better regarded for coverage and quality than AT&T's, but which has suffered from the small choice of smartphones and mediaphones.

The new ads do not reveal exact specifications for Droid (there is no image of the phone even), nor a price or launch date (just 'November'). Verizon Wireless also confirmed it would offer the Palm Pre, but not until 2010 and is expected to launch its own version of the HTC Hero soon (to be called Predator, say some blogs). Shares in Motorola leapt by 8.3% to \$8.50 as the ads aired, reflecting relief that Verizon Wireless will ship the Droid in time for the key holiday season, and also that it will put significant marketing effort into it, placing it at the center of its holiday line-up. This will be essential in the CDMA world, since there are so few carriers available to take the Droid, even when it is not a Verizon exclusive – unlike the Dext, which is already seeing good international uptake and has started to ship in its first territory, the UK, via Orange.

Acer and Dell:

Also getting behind Android are two major PC makers, Dell and Acer. Having announced a hat trick of phones this year, Acer is now showing off the Android-based Liquid, the latest in the new wave of gigahertz superphones based on Qualcomm's Snapdragon processor. Meanwhile, Dell is still being evasive about its own efforts, after almost a year of on-off rumors, and rumors of carrier

indifference to its prototypes. Last week was full of reports that the firm had done a deal with AT&T, but CEO Michael Dell would only say that “you’ll probably see some products next year in the United States that are family members with some of the things we started in China”.

Speaking at the FiReGlobal conference in Seattle last week, he said the products would run Android but offered no further details, though he did hint Dell could keep its options open in OS terms. "There are some other open platforms that are emerging that are similar to other businesses we participate in," he said, leading to speculation that he was referring to Windows Mobile 7.0, due next year, or even Intel’s Moblin or Nokia’s Maemo, both of which draw on a heavy PC/browser heritage. Dell has shown an Android handset called Mini 3i with China Mobile, but has stressed this was, so far, only a “proof of concept”.

Comment:

Ericsson results may highlight NSN’s weakness after huge writedown

Nokia’s third quarter results announcement last week was dominated by its shock €908m writedown on its Nokia Siemens infrastructure venture, and there have been few crumbs of comfort for the joint venture since. Nokia’s own CEO, Olli-Pekka Kallasvuo, rubbed salt in the wound by offering a fairly bullish outlook for the wireless infrastructure market as a whole, even while bracing himself for worsening market share for NSN. And indications for Ericsson’s third quarter results, due tomorrow, suggest that the Swedish leader will have gained still more share at NSN’s expense, while Huawei creeps up behind even in the W-CDMA heartland. All this has raised speculation that Siemens wants to exit the venture, and even Nokia might be looking for a way out.

Nokia’s huge writedown on NSN:

The writedown on NSN sent Nokia’s shares reeling on Thursday on the results announcement, down by about 13% after they had rallied somewhat just ahead of the Q3 report. The charge pushed Nokia into its first quarterly loss since it started reporting quarter by quarter in 1996. The shock deficit of €913m (compared with profit of €1.1bn a year ago) also reflected the pressure on average selling prices and the contraction of the overall handset market this year. A year ago, just pre-crash, Nokia made a profit of €1.09bn. Sales fell 20% to €9.81bn, worse than analyst consensus forecasts of €9.94bn. Nokia now holds no goodwill in NSN.

NSN suffered a 21.2% year-on-year fall in net sales to €2.76bn and an operating loss of €1.107bn, compared with an operating loss of €1m in the third quarter of 2008. "The challenging competitive factors and market conditions in the infrastructure and related services business necessitated non-cash impairment charges at Nokia Siemens Networks," said Kallasvuo.

Of course, NSN is operating in a tough business where operators are planning major investments in infrastructure but largely holding off on implementing them on a broad scale (or paying for them) until next year. But there are worrying signs that NSN is underperforming the sector - Nokia now expects the total "mobile infrastructure and fixed infrastructure and related services market" to shrink by about 5% in 2009 from 2008 levels, rather than the 10% it had previously envisaged. However, it anticipates that NSN's market share will "decline by more than previously expected in 2009, compared with 2008". Kallasvuo said: "It's clear NSN has lost market share. The top priority now is restoring the top line... and reversing the market share dynamic."

All eyes, then, will now be on the results of Ericsson and other competitors, to judge just how badly NSN is faring in relation to its peers. Few players are expected to shine, and while Ericsson should have solid results when it reports tomorrow, reflecting its greater ability to withstand price wars, it will be pressurized by the strengthening of the Swedish kroner against the dollar and, because of higher expectations, could disappoint analysts. Still, analysts expect its earnings to improve slightly from the previous quarter, though its margins may be hit by its transition to services (also a factor for NSN and Alcatel-Lucent), since margins tend initially to be lower on services than on equipment sales. Ericsson said this week that its networks division would need to cut purchasing costs by 50% over the next five years to remain price competitive and the price competition in its RAN business will also be squeezing profitability.

It is highly likely, however, that Ericsson will have improved its market share, mainly at the expense of NSN. The Swedish leader is a key bellwether for the whole sector, and if its results reflect any upturn in the troubled infrastructure segment, this will also point to the scale of the problems at NSN.

Siemens wants out of NSN?

All this is leading to talk that NSN's parents would like to divest the firm, though it is unlikely to find a buyer prepared to pay a respectable price. "We continue to support Nokia Siemens Networks actions to improve its performance," said Kallasvuo bravely, but Siemens may be less positive. A report in the *Financial Times Germany* says that Siemens has wanted to exit the venture, its only remaining telecoms business, "for some time", and that Nokia is starting to think the same way. But "I cannot imagine that NSN in its current state could be of any interest to a financial buyer," said the newspaper, quoting financial sources. Siemens said last month that it would take "a very close look" at the valuation and the ensuing writedown could set the stage for a sell-off, halfway through a six-year JV deal.

"It could mean that they are cleaning the books so they could get rid of the whole thing," said Helena Nordman-Knutson, an analyst at Oehman, speaking to Bloomberg. "If they did an IPO it would have to be at a discount because it's lossmaking and losing market share. A good restructuring story for whoever dares." But most analysts believe few firms would have the taste for such an adventure, especially as NSN did not perform well at the peak of the cycle either, as it

was going through its merger and restructuring. If Nokia wanted full control, it is likely this agreement would already have been made, and the Finnish firm has sufficient challenges keeping its lead in handsets and moving into web services.

Ericsson got key assets on the cheap with its Nortel buy and would likely prefer to sideline NSN than buy it, while Alcatel-Lucent is in no position to make a major acquisition. That would leave Huawei, with all the usual political problems such a deal would entail, or a private equity transaction.

NSN has been successfully shifting the balance of its business towards services, which will enable it to reduce costs, attract higher value deals and, over time, improve margins, but in the short term services deliver lower upfront profits. In Q3, services accounted for €1.3bn (\$1.93bn) of revenues, 47.1% of the total, a slight increase from the previous quarter. The vendor recently replaced its CEO, Simon Beresford-Wylie, with the former head of its services business, Rajeev Suri.

In its core business, network equipment, it faces a dual challenge. At the low end, it sees massive price pressure, especially from the Chinese majors but also from Ericsson, which leverages its scale and its ability to bundle, to compete aggressively on price in markets like India. NSN has tried to maintain its margins – for instance by refusing to bid on some Indian deals as they would be loss leaders – but appears to be fighting a losing battle. In market share terms, at mid-year it had 20%, down from 21% when it was created – but in the same period, Ericsson's has risen from 26% to 32%.

At the high end, NSN has made a slow start in next generation systems. It has pulled out of WiMAX, and not yet gained a high profile LTE trial, while - unlike Ericsson, with its large deals at Verizon and Sprint, and its purchase of Nortel's CDMA and LTE assets – it also remains weak in north America, despite an increasingly valuable contract at T-Mobile. "They're neither fish nor fowl, neither a technology leader nor a cost leader," said Richard Windsor at Nomura Holdings in London.

Ericsson forecast:

As for Ericsson, the Swedish leader is expected to continue to suffer from the weak results at its own JV problem child, Sony Ericsson, and from high restructuring costs as it engages in major cost reduction. A survey of 14 analysts by SIX Estimates revealed forecasts that Ericsson will report a 31% fall in pre-tax profit, excluding extraordinary costs, to SEK4.3bn (\$619m), on sales up 3% to SEK50.6bn (\$7.3bn).

Evli Bank analyst Michael Anderson said he has high expectations for Ericsson. "I am fairly optimistic, considering that the operators cut back their investments extensively during the first half of the year," he said. "I think we will see signs of somewhat better markets now that the operators are catching up." He also expects the cost savings to start to have a positive impact on

margins, though Ericsson could suffer from a stronger Swedish kroner. After its disappointing second quarter, Ericsson's share price fell nearly 8% to SEK71.5 and has remained low but stable since, trading between SEK71.9 and SEK73.8 last week.

According to dell'Oro, as of September Ericsson had grown 32% year-on-year in sales of its key product, W-CDMA, driven by deals at AT&T and T-Mobile USA (US W-CDMA sales were up 117% in the same period), and a hefty share of the China Unicom roll-out. NSN remained in second place in W-CDMA, but with only 2% growth, while Huawei overtook Alcatel-Lucent to take third position, with a huge 85% surge in share, buoyed by Unicom and by significant international expansion.

Note: Nokia also wrote down the value from its acquisition of mapping firm Navteq, though this was blamed on the economic situation rather than poor performance by the unit, which is central to Nokia's web services strategy, but for which the Finn greatly overpaid at \$8.1bn two years ago.

New hopes for WiMAX as UK makes rules for 2.6GHz and 3.5GHz

The UK is undergoing one of Europe's most radical – though often tortured - reviews of spectrum strategy, with proposals that will set important precedents for other parts of the region and for universal broadband plans using wireless. With the picture further complicated by the plan for Orange and T-Mobile to combine their UK arms, possibly breaking planned spectrum caps, the government has embarked on the next stage of the process, a consultation on the recommendations by Kip Meek, the Independent Spectrum Broker (ISB), on how to make the optimal use of existing and future spectrum allocations.

Stephen Timms - the UK's Minister for Digital Britain (the country's universal broadband initiative, which looks for heavy involvement from the five 3G carriers) – said in a statement: “This package will free up the airwaves for the expansion of wireless and 3G services, increasing their reach to consumers and businesses across as much as 90% of the country, including rural communities.”

UK spectrum proposals:

Meeks' final proposals, published today, resolve some technical issues arising from his original report of May 2009. The government aims to implement these revised recommendations through a directive to regulator Ofcom, subject to a consultation period that runs from today until January 8 2010.

There are four key proposals, which are being closely studied by EU and national European authorities. First, the 3G license term will be made indefinite to encourage higher investment in advanced services and extend coverage to 90% of the population. An annual fee will be applied,

reflecting market value, from 2021. Second, Ofcom will free up the 800MHz digital dividend spectrum as soon as possible and this will be auctioned in coordination with the much delayed sale of 2.6GHz licenses. The UK was once expected to sell 2.6GHz frequencies ahead of any other European country, at least two years ago, but is now lagging behind.

This has been seen as a blow to WiMAX, which had hoped to take advantage of early auctions to gain a foothold in a major western European economy, possibly at incumbent BT (which lacks a wireless arm of its own). However, the latest Meeks proposals keep hopes high for WiMAX, stating that 2.6GHz will be “aimed at the use of TDD for WiMAX networks”. This suggests that the UK will expect extensions of FDD services to take place in lower bands - refarmed GSM spectrum and 800MHz – with the higher frequency reserved for high capacity data applications as well supported by TDD. It may also suggest that the 3G carriers have lost some interest in 2.6GHz because of the lower frequency options, so the band may be used to encourage new competitors and new types of services.

Although LTE is developing a TDD version, mainly for China Mobile, WiMAX is currently the main TDD option. Ofcom has generally taken the view that spectrum auctions should allow carriers to decide on their FDD/TDD mix according to market needs.

Third, there will be coverage conditions for any operators using 800MHz or the refarmed 900MHz GSM spectrum for mobile broadband, to ensure rural coverage.

Fourth, the proposals include liberalizing existing 2G licenses in 900MHz and 1.8GHz to make these indefinite and tradeable. Operators will then be able to reallocate their spectrum for 3G or even 4G but Vodafone and O2, the holders of 900MHz, will not be forced to give up some spectrum upfront to their rivals, as previously suggested.

Caps for the combined auction will be set – a temporary cap on overall mobile spectrum per operator will be 2 x 65MHz, with a second temporary cap on current holders of sub-1GHz licenses at 2 x 17.5MHz. Any bid for additional sub-1GHz frequencies that is successful will require the holder to give up an amount of 900MHz spectrum, equivalent to the amount purchased in the analog TV band. A third temporary cap will be on overall 2G spectrum, so that an operator with more than 2 x 25MHz, which acquires new spectrum in the combined auction, will have to relinquish 2 x 5MHz into the auction. This could have implications for a merged T-Mobile/Orange, which holds no 900MHz spectrum but would have a heavy concentration of the UK’s 1.8GHz licenses.

3.5GHz operators in the UK and Ireland:

The focus on TDD and WiMAX in the UK recommendations raise new hopes for the technology in western Europe, which has always been its toughest base to penetrate, given the heavily entrenched interests of the GSM community. But while the 2.6GHz band may become more geared to disruptive open broadband models than once envisaged – possibly implemented by

new players with new technologies – and less to simple ‘3G expansion’, now focused on sub-1GHz spectrum, there is still the problem of the long wait for auctions. These could take place next year in the UK, but the necessity of selling digital dividend licenses in parallel, and sorting out the merger of T-Mobile and Orange, could delay it until 2011.

In the meantime, then, there is new interest in using 3.5GHz – already available and plentiful – for advanced wireless broadband services. We have seen Clearwire stepping up its European activities in this band, with roll-outs in Spain that are designed to test both the technology and the mobile business model in 3.5GHz, and now there are new developments in the UK and Ireland. Both these countries have seen a high level of WiMAX activity in the 3.5GHz band, which should be stimulated by government initiatives to enhance broadband access. And the past week has seen Intel joint venture Freedom4 gaining permission to operate mobile services in the UK, and Imagine planning a national roll-out in Ireland.

Imagine has contracted Motorola to supply equipment to replace and extend its existing proprietary fixed wireless network, to support personal broadband services using standards based systems. Imagine Group acquired Irish Broadband, one of the early pioneers of WiMAX, in May 2008 for €47m, from its existing shareholders, NTR and Kilsaran Concrete. This bolstered its existing business in fixed line and broadband services – the group has about 12% of the small and medium enterprise market in Ireland and revenues of around €100m. Irish Broadband is the second most popular broadband service in Ireland, after the incumbent Eircom, and acquired 27 3.5GHz licenses in 2003.

Even before the acquisition, the wireless player was moving its existing systems, sourced from Navini and others, to WiMAX but this process is now been accelerated with a national plan, with Motorola supplying a full end-to-end system to support voice and mobile services as well as fixed access.

“Customers across Ireland will soon experience a leap forward in terms of broadband access and speeds,” said Sean Bolger, CEO of Imagine. The firm will focus on voice and data for SME and residential clients and on laptop dongle services in urban centers. It will also create a wholesale voice and data broadband service for other ISPs. As well as base stations - the WAP450 and WAP800 access points – and two CPE variants, Motorola will supply dongles, integration services and the NBBS remote device management software platform. A portion of the contract will be financed by Motorola.

Freedom4:

Across the Irish Channel, Freedom 4 has received clearance from regulator Ofcom to provide mobile services in its 3.5GHz spectrum. This has traditionally been confined to fixed usage in the UK, and the decision to allow mobile hand-off – contested, of course, by the cellcos – has taken years in coming, although fellow mobile broadband start-up UK Broadband, part of PCCW, got mobile clearance almost two years ago for its 3.4GHz spectrum.

Freedom4 launched the UK's first commercial WiMAX services in early 2008, in a partnership with the local authority in the city of Milton Keynes. It uses equipment from Airspan. The company emerged out of broadband ISP Pipex, now part of Tiscali. Pipex spun off its wireless activities, which mainly consisted of its national 3.6GHz license, into a joint venture with Intel Capital, later renamed Freedom4, with the aim of targeting SME and wholesale services. Freedom4 in turn engaged in a reverse takeover of Daisy Communications earlier this year, paying £81m plus £32m for telecoms services provider Vialtus. Daisy has since also bought the main operating subsidiary of AT Communications for £12.45m and the telecoms subsidiary of Redstone for £17m, creating a larger group to push a whole range of telecoms offerings.

These plans will be boosted by the flexibility to offer mobile services in the 3.6GHz band (Freedom4 holds two blocks of 84MHz in the 3.6GHz to 4.2GHz band, a substantial hoard of spectrum). "These changes to our license will enable us to provide both fixed and mobile wireless services to our customers using the next generation of mobile technology," said Freedom4 CEO Mike Read. The operator was also granted its request to increase the maximum power levels on its base stations, which helps offset some of the limitations of higher frequency spectrum in coverage terms.

For a fuller version of this analysis of the opportunities for WiMAX in the UK, and the rest of Europe, access our sister service, WiMAX Directions, which examines the business models and key developments in the market on a weekly basis. For this, and an archive of opinions on a wide range of WiMAX issues, these research notes are accessible free at our web site at www.rethinkresearch.biz.

Samsung preserves proprietary OS with multiplatform store for carriers

Mobile players continue to debate the best business model for apps stores, or even whether they will be more than a shortlived phenomenon, but the major operators are all determined to try their hand rather than leaving it all to Apple and Android. And increasingly, vendors see their opportunities lying in being the 'carriers' friend', rather than their rival, helping them to create stores that will drive uptake of their services and boost their revenues.

Ericsson and Alcatel-Lucent are creating hosted services and 'out of the box' store platforms to ease the operators' risk and cost burden, while systems like Qualcomm Plaza also provide readymade underpinnings for stores that carriers can then differentiate at the upper layers.

Samsung's store strategy:

Samsung is the latest to jump on this bandwagon. Although its first attempts at an app store, notably its movie oriented shopfront (piloted in the UK), looked like direct-to-consumer initiatives designed to boost phone sales, it now says its new store is mainly geared to helping cellcos make money (and so be lured to support Samsung phones).

Donjoo Lee, senior VP of sales and marketing for the Korean giant's mobile media and communications business, told *TelecomAsia*: "We're entering an era where apps and services must be converged around the mobile." Its Application Store launched with 300 Symbian and Windows Mobile applications and will add Android in the first quarter of next year, though this will provoke inevitable overlaps with Android Market (as WinMo support already does with the new Windows Marketplace for Mobile). The potential user confusion over whether to turn to the handset maker, cellco or software giant for apps may be prompting Samsung to take the carriers' side, simplifying the situation somewhat.

"We can install our app store within the operator's storefront in a shop-in-shop arrangement, or if it's a small operator that doesn't have its own app store or the resources to develop one, we can provide our app store platform to them on a white label basis so they can put their name on it," Lee said. "So we will support the operator to make more revenue from their application business, but it's not something we're doing to make more revenue for ourselves on a stand-alone basis." He added that Samsung was currently in talks with potential operator customers.

The store is live in the UK, France and Italy and will expand to 13 markets, including Hong Kong, by early next year, adding Android and LiMo as it goes, as well as Samsung's own operating system SHP (still used in the majority of its models).

The survival of SHP:

As well as strengthening ties with operators, these multi-OS stores allow operators and users to avoid making a choice of OS, and could also prolong the life of the proprietary software platforms. Among these, only iPhone and BlackBerry (plus Palm webOS, which is open source but single-vendor) have got their own storefronts so far, and in general, a successful store is expected to require support from a range of phonemakers. But an OS like SHP is sufficiently well installed to justify appearing in an apps store, especially as Samsung is putting significant efforts into its range of software and its developer tools, plus running the TouchWiz widgets interface on it as well as Android and other OSs. For some users, the SHP experience will be more optimal than those of other multivendor software platforms, especially when it comes to integrated apps and multimedia, because of the degree of control of a single supplier.

It has been assumed that the smartphone wave would be propelled mainly by open OSs, with iPhone being the main exception, but adding smartphone software characteristics – downloadable apps from stores, widgets, full browsers, open APIs and so on – to previously closed operating systems is another route for vendors to differentiate themselves. And with Samsung the second largest vendor of phones, SHP has a far wider reach than the iPhone, especially as mobile apps start to move to emerging markets and the mass market.

For now at least, Samsung seems to prefer to boost SHP's app store credentials by stealth, through creating a multi-OS store that will appeal to the operators' need to support all the popular platforms (they may want to reduce the number of systems they include in their portfolio, but until open access really takes off, they need to offer as many options to consumers as possible).

Support for all the well used operating systems, plus the unifying technologies of Java and Flash, is also key to the value proposition of Qualcomm's Plaza Retail, another platform that helps carriers cover all their handset app options at low cost. The latest adopter of Plaza Retail is the Brazilian arm of Telecom Italia Mobile (TIM), which is following the usual carrier route of boasting that its store will cover all its supported handsets and OSs. Its shopfront will launch in the first quarter of 2010 with access via a WAP portal or online. Plaza Retail allows operators to manage pricing, licensing, promotions and other attributes of the store.

Plaza Retail has found its strongest foothold so far in Latin America, with the region's powerhouse America Movil/Telmex its first customer.

IDT sale plan shows new interest in LMDS for mobile backhaul

The LMDS spectrum (28-31GHz in the US) was widely discredited as an asset after the broadband wireless crash at the turn of the century, but in recent years there has been a significant revival of interest in this band - no longer for wireless consumer access, where it failed at the turn of the century, but for backhaul and point-to-point links. But IDT Spectrum, which bought up the licenses held by bankrupt broadband wireless operator Winstar for \$42.5m at the end of 2001, still does not expect to get back the \$300m it has spent trying to create a national backhaul network. However, eyeing the interest in backhaul capacity from cellcos and cable operators, it has decided to sell up its portfolio, in a move that highlights the decade's corkscrew twists in the value and business models for high frequency spectrum.

The LMDS band was originally seen as a vehicle for the first wave of deployments of wireless networks for broadband access and three key operators emerged in the last years of the twentieth century, backed by huge and speculative sums from major players like Microsoft and Craig McCaw. These were NextLink, Winstar and Teligent, but all three failed in the telecoms crash around 2000 and ended up in the bankruptcy courts. This was not just a factor of the economy but because they were using the wrong technology at the wrong time. Only expensive proprietary kit was available for the high frequency, line-of-sight bands, and this was being turned to leased line replacement and consumer access services, for which demand was, at that time, immature and unproven. The business case would not add up until that demand was higher, and low cost standards-based equipment available with mobile and non-line of sight capabilities (in the second broadband wireless wave, driven by WiMAX from 2004).

The three LMDS companies were all acquired at knockdown prices from out of Chapter XI, and gradually the real potential for their spectrum holding was recognized – to support the exploding requirement for mobile backhaul (and enterprise links), created by the expansion of video IP and 3G traffic and denser cellular networks. IDT bought Winstar, whose spectrum covered all 50 states and averaged 615MHz in the top 200 markets. It held 16 LMDS licenses and 931 licenses at 38GHz, for which Winstar had originally paid \$200m at auction, and is particularly strong in some top cities like New York and Chicago.

First Avenue Networks bought Teligent with its 350MHz of capacity in 75 markets and used this as the basis of a new backhaul business model, under the company's newer name Fiber-Tower. And backbone provider XO Communications snapped up NextLink, the largest holder of LMDS licenses, with 101 in total, covering 173m of the population and with about 1GHz of spectrum. It recently set up an LMDS spectrum exchange, another innovative approach. (A fourth player is Level 3 itself, which bought TelCove, together with 300 licenses covering 90% of the US population, in 2006. It is likely to try to augment its wireless capacity for cellcos and could be interested in IDT.)

The IDT sale:

The new spectrum owners set out to create wireless equivalents of wireline backbone businesses like Level 3, selling capacity and services to US cellcos as they started to follow their European cousins down the microwave backhaul route (a slow process in the US, because of low cost leased lines, but driven by the new capacity and flexibility requirements of 3G). But it is possible they have underestimated the US operators' desire to control their own backhaul, and the price competition that the big three introduce because of their ownership of so many backhaul links of their own via their wired infrastructure.

This is likely to be driving IDT Spectrum's sale. Its president Michael Rapaport believes wireless operators could see the licenses as useful assets and said last week that he was already receiving enquiries from large carriers before the decision to sell. "We have known for a long time that there's a tremendous need for our spectrum," he said in an interview. "It's a function of maximizing shareholder value." IDT Spectrum's original plan was to build a backhaul network, and it spent about \$300m doing that before shifting to a less capex-intensive leasing model. "We were five or six years too early for the marketplace," Rapaport commented. He plans to sell the spectrum as a single nationwide bundle rather than market-by-market.

As well as cellcos, cablecos could be bidders, since they have been trying to build up their own businesses in selling backhaul for cellcos – mainly over their own infrastructure, but some could look to add wireless. Time Warner Cable, for instance, claimed in 2006 that it wanted to be the "first alternative access provider that can truly address the majority of cell towers" in order to break the telcos' "virtual monopoly on cellular backhaul". IDT could also see interest from tower companies, especially those wanting to offer added value backhaul services as Fiber-Tower has pioneered.

So what of the other LMDS holders? NextLink/XO and FiberTower have adopted different strategies to those of IDT to maximize the value of their spectrum and generate new revenue from the mobile backhaul boom. In April 2008, NextLink announced an online marketplace for licensed LMDS spectrum, to allow businesses, government agencies and service providers to lease capacity. LMDSXchange, which grew out of a coalition of members, covers more than 80 major metropolitan markets in 40 states.

“We could potentially lease links to build out entire networks,” NextLink said. “We’ll provide installation, we’ll provide maintenance management of that link and we’ll repair it as needed.” The new business model is part of the company’s strategy to validate and expand the use of LMDS to a variety of applications. As well as leasing, NextLink offers wireless backhaul directly to cellcos and provides business services to large enterprises via resellers such as Covad.

FiberTower, which merged with First Avenue in 2006, had spotted the cellco opportunity even earlier. The combination created a wireless backhaul installed base of more than 1,000 sites and national spectrum holdings in 24GHz, LMDS, 39GHz and common carrier bands, along with customer relationships with five of the top 10 US mobile carriers. With backing from all three US major cell tower owners – Crown Castle, SpectraSite and American Tower – as well as venture capitalists, FiberTower devised a wireless backhaul service for towers that it says reduces service outages by 50-60% for lower costs than leased T1 lines. It uses 155Mbps point-to-point microwave links to move cellular traffic from the tower to a central aggregation point; multiplexes and grooms it; then sends it to the provider’s main switch via leased fiber.

Spotify ties with 3 to shake up mobile content market further

Hutchison’s 3 unit may be the smallest in most of its markets, but it certainly tries hard to punch above its weight by being aggressive about mobile services. It has led the way in offering handsets with simple access to key web services, providing tight integration with Skype, Facebook and soon Twitter. Its latest web apps bandwagon is music streaming service Spotify, and 3 is to offer a preloaded client on one of its most attractive handsets, the new HTC Hero, to provide an optimized music experience.

The Hero runs Android, and 3 – starting in the UK – has succeeded in bringing together three areas of mobile buzz, Spotify, Android and the Hero itself, managing to differentiate its offering for the HTC flagship, from those of other launch operators like Orange, which have more marketing euros to plough into the device. Indeed, it has stolen a march on Orange, which was also tipped to be the first ‘Spotify carrier’. It is also taking on music services that have had huge budgets invested in them, such as Nokia Comes With Music, with the streaming partnership.

3 UK subscribers can get access to Spotify from Hero for £35 a month, and the carrier will have similar offerings in its other European territory, including Spotify’s homeland Sweden. The HTC phone is also the carrier’s first move into Android, behind UK rivals T-Mobile, Orange and Vodafone. It sits at the high end of 3’s portfolio – the operator is increasingly heavily focused on the prepaid market, young mobile web consumers and the dongle sector.

And it shows 3 experimenting on a real smartphone with a strategy it has already adopted on midrange handsets – gearing the branding and functionality to one predominant web app to simplify the experience and attract a new breed of web users. It has done this mainly with phones made by its sister company INQ, such as its Skypephone and Facebook device.

Spotify Mobile is likely to be extended to other 3 handsets in various levels of its catalog. With the Hero, it comes for £35 a month provided you sign a two-year contract, and an upfront fee of £99, which gets unlimited Spotify Premium (the ad-free version) for mobile and PC, 750 minutes to other mobiles, unlimited texts, unlimited 3-to-3calls, unlimited email, internet browsing and free Skype-to-Skype calls.

This is a typically disruptive move by 3, though somewhat higher up the pricing food chain than it normally plays, taking on the smartphone music download services. "This is a very exciting deal for Spotify. We're intent on offering people a high quality, simple yet powerful portable music experience at a fair," said Faisal Galaria, global head of business development at Spotify.

Spotify for iPhone and Android smartphones launched in September, with users paying £10 a month to listen to music both online and offline, with thousands of songs available in offline mode.

Charlotte Blanchard, director of products and services at 3 said: "As a first step we've built this service into an attractive, well-priced package with the HTC Hero. Over time our deal with Spotify will extend across a range of our products including mobile broadband [dongles]."

The cloud music dilemma:

The appeal of streamed music offerings like Spotify, like all cloud services, poses dilemmas for companies whose models rest on downloaded content and apps. Apple iTunes for instance. Despite Apple's influence on the mobile music space with iTunes and its associated devices, the company cannot reverse the tide of 'cloud' music or video services, where users stream paid-for or free tracks as they want to listen, rather than downloading and keeping music. The upside for device makers is that the cloud requires highly functional devices and should stimulate the uptake of musicphones as more and more people want to listen to music on the move, encouraged by these free offerings.

iTunes does not benefit Apple primarily for profits, but because it ties its fans into Apple devices (while the iPhone has up to 60% gross margin, the margins on iTunes content are modest). So in the short term, Apple could benefit from cloud music, especially if this increases the total base of mobile music lovers rather than cannibalizing the iTunes constituency. Even if the impact is more negative – if users flock from iTunes to the more modern, social networking-enabled interfaces of the streaming approach – Apple still needs to keep control of the mobile music space.

It can only do this if its devices are the main ones on which services like Spotify are available – or those on which it delivers the best user experience – otherwise music will become device agnostic, with no way to tie in the customers, and operators like 3 will be the main places to get a decent Spotify service. So perhaps Apple should look to take the lead in streaming music rather than setting its face against it.

The dilemmas will be even more apparent to Nokia, which has worked with some open web players, notably Skype, to integrate their apps with its handsets. But it has been keen to create a splash under its own brand in music, with its MusicStore and its Comes With Music unlimited download subscription service. Yet it remains dogged by reports that CWM has enjoyed limited uptake, despite being a flagship of the important mobile web services strategy on which Nokia is placing high hopes.

According to digital music research firm Music Ally, as of July CWM had just over 107,000 active users in nine markets around the world. The figures are claimed to be those sent by Nokia to record labels and distributors. In the UK - which last week celebrated the first anniversary of launch - the service had 33,000 users in July, up from 23,000 in April.

Off-grid mobile charging to power \$2.3bn opportunity

Nearly 500m mobile users - more than 10% of global subscribers - in emerging markets will benefit from the provisioning of off-grid charging solutions such as solar phones or external solar chargers, according to a report from the GSM Association. This translates into a \$2.3bn market opportunity for mobile operators that can tap into an otherwise inaccessible base of users, as well as harvesting additional minutes of usage.

The GSMA's Green Power for Mobile (GPM) program, which commissioned the research, estimates there are 485m mobile users without access to the electricity grid, a factor which severely limits usage opportunities. The report identifies a range of charging choices available that, if implemented effectively, will extend service availability and could boost ARPU by 10-14%.

Mobile networks are increasingly being deployed in rural areas of emerging markets, where consumer access to the grid is at best limited and unreliable and in many cases non-existent. Usage will in large be dependent on consumers being able to charge their handset through alternative methods. Solar powered chargers in particular could become a key means of facilitating reliable access to mobile services in these markets.

"We are extremely excited that operators are able to provide people in off-grid areas with solutions to power mobile phones, as this will not only improve quality of life and access to information but can also act as a unique and significant opportunity to fuel economic growth," said David Taverner, GPM program manager at the GSMA. "The figures we used to calculate the market size of off-grid charging solutions were on the conservative side, so the actual benefit to mobile operators could in fact be much greater than the \$2.3bn we are estimating."

Providing people in off-grid areas with the means to power their mobile phone is one of the last hurdles to bringing mobile services to the emerging markets. The research has found that there is significant interest in off-grid solutions - 60% of mobile operators interviewed already have or are exploring off-grid charging initiatives. But there is currently only limited understanding

about the full scope of options and the associated social and business benefits. Operators like Digicel and Safaricom, however, have demonstrated how the consumer, the environment and the mobile operator can reap the benefits of off-grid charging solutions.

Bluetooth Low Energy to reach handsets in 2010

Momentum is gathering behind the low energy variant of the Bluetooth standard, which will be standardized soon. Supporters are gathering this week at the first international conference for the technology, in Munich, Germany, and Texas Instruments will run an ultra-low power demonstration using the draft standard.

Forecasts are bullish for the new version of the short range wireless network (as they usually are for a not-yet ratified standard). Just over 2.5bn Bluetooth Low Energy (BLE) chipsets will ship in 2014, representing CAGR of 78% until then, says ABI Research, while IMS Research previously predicted this could be the fastest shipping wireless technology ever, and that 70% of Bluetooth phones would be using the low energy variant by 2013.

As well as TI, Bluetooth powerhouses CSR and Broadcom are early supporters, and there are also chipsets on show from Nordic Semiconductor and EML. Real world handsets could appear next year, with TI pricing its entry level developer offering at just \$99 for a single-mode slave and USB adapter.

Bluetooth Low Energy started life as the Wibree platform, created initially by Nokia as a separate initiative but then adopted by the Bluetooth SIG. As well as handsets, it should go into many kinds of appliances and home or industrial low power gadgets. ABI believes the market will develop in two stages – single-mode and dual-mode – and that these will be addressed by different vendors, though TI, for one, has promised products for both segments. Single-mode products will be far slower to take off, and will account for less than 3% of BLE shipments in 2010, says the research company. The first wave of adoption will be for dual-mode systems, notably for handsets.

BLE will enable sensors and monitors to communicate with handsets and other BLE-enabled devices using very low power communications, driving applications like sports equipment and health monitoring. Single-mode devices will run for many months or even years on standard coin-cell batteries, as showcased this week by TI. Dual-mode chips for phones, PCs and media devices will boast power consumptions of 75%-80% of conventional Bluetooth.

The TI coin-cell demo will run on its upcoming CC2540 single-mode system-on-chip, which will sample early next year. It is based on an MSP430 microcontroller and application peripherals in a 6x6mm package. There are also associated RF ICs, protocol stack, basic profile software and applications support.

Mobile Internet Watch:

Ericsson signs Chinese partner to boost social nets strategy

Ericsson has been getting ever deeper into software frameworks and web services in the past two years, though not because it wants to become a software house, Nokia-style, but to develop and host rich offerings for its carrier customers, helping them maintain their position in the mobile value chain. A string of apps, partnerships and projects has emerged recently, and the latest ticks two key growth boxes – China and social networking.

Ericsson has signed a three-year pact with Chinese social networking service Kaixin001, which has about 50m subscribers in the Chinese speaking world and claims about 200,000 new sign-ups a day. The two companies will collaborate on enhancements to allow users to access the site more easily, “to manage their virtual space, interact with contacts and stay updated on their online communities via mobile devices”.

This will bring Ericsson various advantages, apart from likely closer ties with carriers in areas where Kaixin001 is popular – not just China and Hong Kong but other growth markets with major Chinese speaking communities, like Indonesia. It can tap into the expertise of its new partner to enrich its other social networking projects, and while using its weight to improve Kaixin001’s ties with other social nets and global carriers, it can enhance its own position in the mobile social world.

The Swedish giant is interested in broadening its software reach for several reasons – enhancing the hosted multimedia services offering it increasingly aims to offer to carriers; putting itself in a leadership position in driving open mobile frameworks, preferably cross-platform; and tapping into the latest innovations out in the wider software world. Its Ericsson Labs Portal, set up in November 2008, is an important element of this drive, and in April released its first product, Ericsson Mobile Maps. Social networking and social location are key areas of interest for this portal, where Ericsson opens up APIs to partner with third party developers on key aspects of its evolving web apps platform.

Also on the social side, Ericsson has created an aggregation service to provide single-point access to many social nets and blogs, called 3GLifestore. This is designed to be a managed service for carriers, many of which aim to take this aggregation role to maintain their close relationship with consumers even as those users move towards open web brands like Facebook. 3GLifestore is still in the test phase.

Nokia adds Symbian, Windows 7 and new IDE to Qt

Last week Nokia put its Qt multiplatform developer framework firmly at the heart of its software roadmap, and this week followed through with ports for the new N900 and for Symbian.

In advance of its Qt Developer Days conference in Munich, the company announced that developers would soon be able to use Qt to build and port applications across both Nokia operating systems – Maemo Linux and Symbian – as well as Windows Mobile and desktop OSs. Qt was created mainly for Linux systems by Trolltech, acquired last year by Nokia, and has now been ported to Symbian.

Developers will soon be able to use Qt for the three chosen mobile platforms, and Nokia is particularly keen to get them interested in the new N900 mobile internet device, set to ship soon. This runs the latest update of Maemo, release 5, for which Qt has now been officially made available. Apps can also be ported to the upcoming Maemo 6 release. Final release of Qt 4.6, which will work with Maemo 5, will be in the first quarter of 2010, with the Symbian release not far behind.

The extension of the toolkit will also incorporate the community driven 'Qt for Maemo' project, on which Nokia says it drew heavily in creating the new ports. However, the move from a community port to an official port was necessary to ensure that applications developed with Qt will be compatible with both future versions of Qt, future versions of Maemo, as well as Symbian and other platforms.

A few days later, Nokia released the first beta release of Qt 4.6 as well as the latest version of its integrated development environment (IDE), Qt Creator 1.3. As well as the existing OSs, the new release will add Windows 7 and Mac OS X 10.6 to provide better cross-platform support across mobiles and desktops.

Also added to Creator, Nokia says, are advanced graphics effects, a new animation framework and support for gesture-based and multitouch input methods. To enhance application performance, it has added a new back end for QtScript based on JavaScriptCore, as part of an updated Qt WebKit Integration, and new support for hardware accelerated 2D vector graphics using OpenVG. Qt 4.6 and Qt Creator 1.3 are scheduled for full release in Q4 2009.

Operator Watch:

Verizon follows AT&T into the quad play

Verizon has launched its first quad play bundle of services, adding wireless services from its cellco arm to its wireline voice, data and video offerings. The new options will be available initially in the north east and mid-Atlantic states, to customers of Verizon's FiOS fiber and DSL offerings. The basic bundles cost \$134.99 a month for FiOS users and \$124.99 a month for DSL/DirecTV-based services.

AT&T began offering a quad play service earlier this year as part of its partnership with DirecTV. According to Verizon, its new services are aimed at putting cable competitors on the defensive and the pricing looks quite aggressive. Verizon also is offering a triple play service that doesn't include wireline voice for customers who only need a mobile phone, and will allow current broadband/video customers to add wireless voice, and vice versa. The wireless service is Verizon Wireless Nationwide Basic 450, normally a \$39.99. This makes the FiOS bundle a \$47.97 per month discount over Verizon's current advertised pricing for the four services separately.

The services will be available at a later date in Verizon's other service territories, including Florida, California and Texas. The cablecos are racing to add wireless options too – Comcast, Time Warner Cable and Brighthouse via their partnerships with Clearwire WiMAX and Sprint 3G, Cox with plans for its own 3G build-out as well as a Sprint MVNO deal, and Cablevision using Wi-Fi.

Sprint acquires last affiliate to end lawsuits

Sprint Nextel has agreed to acquire its last remaining affiliate, iPCS, for \$426m in cash and \$405m in debt, to end long running lawsuits with the firm. iPCS had been at war with Sprint over alleged infringements of its territorial exclusivity, arising first from the acquisition of Nextel (whose own areas overlapped with the affiliate's) and then the Clearwire deal. Most recently, iPCS had threatened to try to block Sprint's planned takeover of Virgin Mobile USA.

In May, the larger carrier suffered the latest in a series of setbacks in the case when the Circuit Court of Cook County Illinois denied a Sprint motion to block a complaint by iPCS, claiming the Clearwire venture violated Sprint's obligations.

In January, when iPCS first brought its complaint, the court said a 2006 ruling on whether Sprint's acquisition of Nextel violated its exclusivity agreement with iPCS also applied to Sprint's WiMAX operations. "Sprint and those acting in concert with Sprint may not compete against iPCS in iPCS' exclusive service areas," Judge Kathleen Pantle said at that time, and the new ruling seems to confirm the point of view.

iPCS was seeking a permanent injunction preventing Sprint from "obtaining directly or indirectly the benefits of advanced technology without providing that technology and sharing its benefits with its affiliates." Its territories are certain areas of Illinois, Iowa, Michigan and Nebraska, along with bordering parts of Indiana and Missouri.

Chinese operators' profits hit by marketing costs

With higher value 3G services unlikely to account for a significant portion of Chinese operator revenues for another year or more, the three cellcos are facing intense pressure on margins, with price competition in 2G, and high marketing costs as they roll out commercial 3G.

So China Mobile, reporting results for the first nine months of the year, saw only a 1.8% year-on-year growth in net profit, far lower than in previous periods, while China Telecom reported a 34% drop in profit for the same three quarters, blaming higher marketing spending. It is even unclear how much of a 'honeymoon period' the cellcos will have on 3G tariffs, as they undercut one another on rates to attract customers to their expanding networks.

China Mobile posted net income of CNY83.9bn (\$12.3bn) for the January to September period. Sales climbed 8.9% to CNY327bn. The improvement in net profit missed analyst estimates averaging CNY84.3bn. The operator's customer base in the period rose to 508.37m but ARPU and average revenue per minute fell. Total voice usage volume, however, increased by 19.5% year-on-year and SMS usage volume grew 12.9% while "other data businesses also maintained favorable growth", according to the company.

Competition to the market leader from China Unicom and China Telecom is intensifying, in 2G and 3G, and Mobile is handicapped by using an untried 3G technology, TD-SCDMA, with a more limited device range and ecosystem than its rivals' W-CDMA and CDMA2000 systems.

Telecom reported January-September net profit down 34% to CNY11.39bn despite a 15% increase in revenue to CNY154.75bn – both figures in line with analyst expectations. The operator's fixed line subscribers fell by 4.97m in the three months to September 30, to 194.39m. It is the largest Chinese fixed carrier, and entered the mobile market a year ago when it acquired the CDMA activities of China Unicom. This had been the least competitive mobile business in China, but Telecom has been investing heavily in 3G upgrades, improved 2G coverage and better handset choices. This has hit profits, as have the costs of marketing these improvements, coupled with higher cellphone subsidies and lower tariffs.

As emerging markets get more competitive on the smartphone front, operators are having to consider a subsidy model from which they were shielded in the 2G world. China Mobile, facing huge pressure from the other two 3G carriers, is reported to be planning to triple handset subsidies next year, amounting to a bill of about CNY30bn (\$4.4bn).

Analyst firm BDA says the leading cellco plans to spend CNY120bn on subsidies this year, most of it on TD-SCDMA. The aim is to spark a price war with the other two cellcos as all three build out their 3G coverage. According to the latest (and always obscure) figures from the operators, China Mobile had 503m users as of September, Unicom 142m and Telecom 44m customers. Of these Mobile has 1.3m 3G subscribers, Unicom 350,000 and Telecom 1.3m. A China Unicom source told BDA that Mobile was being too hasty in planning a subsidy war, which would hurt all three carriers.

Operator News in Brief:

- O2 UK has released strong results for Top-Up Surprises, its year-old mobile ad platform that rewards users with prizes as they renew their accounts and enables advertisers to interact with consumers. This is a good example of the kind of added value that carriers will need to offer, to retain prepaid customers, in particular, and avoid the worst of the price war. In one campaign, for the TV show '24', users were invited to send a text to a short code to receive free SIM cards, while a Blockbuster campaign offered a free trial of the chain's unlimited rental service as well as a \$16 voucher to use in stores or online, achieving conversion rates of over 50%. "Mobile operators are now increasingly seeing the opportunity of working closer with brands," said O2 managing director Shaun Gregory in a statement.
- Major telcos such as AT&T and Verizon are relying on their wireless businesses to balance declines in their landline voice businesses, but that strategy has been more difficult for small independent telcos, the 2009 Telergee Benchmark Study shows. The study of 196 independent telcos, published by TelephonyOnLine, showed that 21% offer wireless services. Although those telcos saw wireless net income increase 20.2% between 2007 and 2008, their margins were only about 6% on average. This is partly because many small carriers do not own their own networks, and at a median of \$40.93, the ARPU is considerably lower than larger carriers' \$50 or more.
- China Mobile has posted a 1.8% year-on-year increase in nine-month profit, reporting net income of CNY83.9bn (\$12.3bn) for the January to September period. Sales climbed 8.9% to CNY327bn. The improvement in net profit missed analyst estimates averaging CNY84.3bn. The operator's customer base in the period rose to 508.37m but ARPU and average revenue per minute fell. Total voice usage volume, however, increased by 19.5% year-on-year and SMS usage volume grew 12.9% while "other data businesses also maintained favorable growth", according to the company.
- French MVNO Virgin Mobile France's parent company, Omer Telecom, has agreed to acquire rival MVNO Tele2 France from Sweden's Tele2 for approximately €56m in cash on a debt-free basis. By integrating Tele2 France's 385,000 customers, Omer Telecom strengthens its position as the country's biggest MVNO with 1.6m customers, including

Virgin Mobile France and smaller MVNO Breizh Telecom. Omer Telecom's 48.5% shareholder Carphone Warehouse (along with Virgin Group) said the move would allow Virgin Mobile France to reduce its operating costs.

- Millicom has sold its Tigo-branded mobile operator in Sri Lanka to Etisalat for \$155m in cash, ending months of speculation that also put Bharti, BSNL, VimpelCom, Axiata and DoCoMo in the frame. The deal values the Sri Lankan operation at an enterprise value of \$207m. Tigo is Sri Lanka's third largest mobile operator and had 2.3m connections by 2Q09. Millicom has 13 operations across Latin America and Africa, its chosen area of focus from now.
- The Indian price war continues to mount, with Vodafone Essar and BSNL launching low cost plans. Vodafone's Indian unit has launched a plan to offer some calls at rates as low as INR0.20 a minute, while BSNL introduced plans at INR0.50 a minute. India already has the lowest cellular rates in the world, averaging less than INR1 a minute for local calls and INR1.50 a minute for national long distance calls. Days before Vodafone's move, Idea Cellular announced an INR0.40 a minute rate for local calls, undercutting Reliance's earlier INR0.50 offer. In mid-September, market leader Bharti Airtel also offered calls at INR0.50 per minute for local or long distance calls on its own network. And Vodafone is testing a per-second call plan.
- Korea's LG Telecom is to merge with the fixed line unit of LG Dacom and ISP LG Powercom on January 1 2010. The newly merged entity will offer mobile, high speed internet, internet telephony and IPTV services and will have combined assets of KRW7.88 trillion, sales of KRW7.72 trillion, and 13.6m subscribers. This move by Korea's smallest carrier follows that of market leader KT, which absorbed its wireless unit KT Freetel in June.
- Twitter has announced an agreement with Indian mobile leader Bharti Airtel to offer the carrier's 110m-plus subscribers Twitter access via SMS. Airtel consumers can now send tweets at standard messaging rates and receive tweets for free.
- Slovakia's landline operator Slovak Telekom and mobile operator T-Mobile Slovensko have announced details of a planned merger. T-Mobile is already a wholly owned subsidiary of Slovak Telekom, but the full merger will enable the sharing of resources and cost cutting. The integration of the units will also allow for quad play services. It was suggested by controlling shareholder Deutsche Telekom.
- US retail giant Walmart has entered the increasingly aggressive prepaid price war with the launch of Straight Talk, two new prepaid mobile plans including messaging and mobile web services. The no-contract services, available exclusively via Walmart stores and online, include a \$30 'All You Need' option featuring 1,000 minutes, 1,000 texts and 30Mb of mobile internet access per month. Unlimited monthly minutes, text and web access cost \$45. Walmart developed the service in tandem with prepaid mobile provider

TracFone Wireless. It will also sell a range of Straight Talk handsets including the entry level LG 220 flip phone at \$39.98, the LG Slider 290 at \$79.98 and the Samsung 451 Qwerty keyboard phone at \$99.88.

- A consortium led by India-based Vavasi group is in talks with China Mobile for a possible joint bid for Zain, according to India's *Business Standard* newspaper, which says Vavasi is also in discussions with BSNL of India. The idea would be to involve one of the carriers in a special purpose consortium to be formed specifically for this bid. The other Indian state telco, MTNL, is also in the frame. The Vavasi group has a four-month exclusive agreement with the Kharafi group, which holds over 32% in Zain and is looking to exit. The agreement ends on January 2010.
- Europe has been virtually closed to CDMA, except a few 450MHz deployments, but regional telco and cableco NetCologne has chosen the technology for a mobile network around its home city in Germany. The network, supplied by Huawei, will provide 2Mbps data services to an area of about 160 square kilometers around Cologne, with a potential subscriber base of about a million. CDMA dongles will be provided to students at Cologne University and some other subscribers for free.

3G+ Watch:

Vendor labs already look towards LTE Advanced

Before LTE is even commercially deployed, the vendors are jockeying for position in the next generation of wireless standards. Both the LTE and WiMAX communities have submitted their upcoming standards, LTE Advanced and WiMAX 2.0, to the ITU for consideration as official standards for 'true 4G'. While we might not expect to see such systems in the field until the second half of the next decade, the suppliers want to establish their technology and patents credentials early, and Alcatel-Lucent is leading the field for now, with its Bell Labs R&D unit forming a strategic partnership with Korean operator SKT.

Last week ALU introduced a technique called CoMP (Coordinated Multipoint Transmission) to improve LTE data rates and coverage, and it expects this to turn up in LTE Advanced standards. Now it has signed a memorandum of understanding with SKT, one of the most aggressive carriers in contributing to standards and R&D – like Japan's DoCoMo, it sees this investment as a way to increase its influence on the world's technology platforms, and punch above its weight in the carrier community.

The key focus areas for the SKT-Bell Labs cooperation will be LTE Advanced architecture, self organizing networks and next generation packet core systems. Although LTE Advanced standards are in the earliest stages, they are expected to try to boost data rates to the gigabit stationary levels (100Gbps mobile) required by the ITU's 4G specifications, using techniques such as

enhanced MIMO arrays and small cells. Self organizing networks (SON) are a key feature of current LTE efforts, to reduce carrier costs and optimize performance on a dynamic basis, but the techniques will need to be considerably refined for the highly complex networks of the future, says ALU, especially ones that are based on hundreds of thousands of femtocells.

Such deployment patterns will also put new burdens on the core network, and in this area, the SKT-ALU collaboration will study, in particular, how the packet core needs to evolve to support cloud computing usage patterns and enable cellcos to be effective providers of cloud services over their LTE and LTE Advanced systems.

Even for the more immediate version of LTE, vendors are increasing their investment in research and testing labs round the world, to work closely with operators and raise their profile on the 4G map. No fewer than four major suppliers have established or expanded LTE labs, to work on the current and Advanced iterations, in Richardson, Texas, with their eyes firmly on the Verizon Wireless roll-out and future US deployments at MetroPCS and eventually AT&T and T-Mobile.

ZTE has joined Huawei, Nokia Siemens and Fujitsu in building a new LTE R&D center in Richardson, a suburb of Dallas which is a hub of the US wireless industry. ZTE is focusing mainly on CDMA/LTE dual-mode systems. Ericsson has also acquired Nortel's wireless headquarters in Richardson as part of its takeover of the bankrupt firm's CDMA and LTE assets, as well as major R&D facilities in Canada.

The new CoMP (Coordinated Multipoint Transmission) technology for LTE is standards-based but has been demonstrated first by Alcatel-Lucent in the most venerable wireless R&D center of them all, its Bell Labs research division. CoMP should improve the performance of LTE and support faster and more reliable data rates.

ALU's advance relies on a new approach to implementing MIMO smart antenna arrays, one of the key elements of 4G platforms like HSPA+, WiMAX and LTE. Changing the antenna configuration can help improve the signal strength, says the company, which will use CoMP to link MIMO-enabled base stations together in what LTE people call 'partial meshes', using low latency backhaul options such as fiber or microwave. This will create a network design that will support smaller cells, bringing users closer to the base station for better performance and battery life, and will reduce burden on the core network.

The technology is still at the research stage, but ALU expects it to turn up in standards for LTE Advanced, the next iteration of the platform, which has been submitted to the ITU, along with WiMAX 2.0, for acceptance as an official standard for IMT-Advanced (true 4G). CoMP is likely to be implemented, in a few years' time, as a software upgrade.

In nearer term good news for ALU's LTE efforts, the company has announced that NTT DoCoMo, which plans to be one of the earliest adopters of the technology, is using the ALU

7450 Ethernet Service Switch (ESS) to help transform its network to all-IP to support high speed fixed and mobile services. This is a sign that ALU's routers, which go up to 100Gbps, can hold their own against Cisco and Juniper.

Airvana says smartphones, not dongles, are the danger for mobile networks

Airvana has been an early mover in CDMA femtocells, and is now making a new case for adopting the tiny base stations. It claims the root of many of the problems that users of smartphones like the iPhone experience are down to the way that these devices communicate with the macro network – problems that are not the same for USB dongles or notebooks, or for phones talking to femtocells.

The company says its researchers have identified some significant network usage characteristics that throw light on the challenge that complex smartphones offer to mobile operators. iPhone-type gadgets – in contrast to laptops or standard phones – create a ‘load multiplier effect’ that generates eight times the network signalling load of a dongle when transmitting the same volume of data, says Airvana.

This means that operators need to find ways to improve mobile data processing and to offload traffic from the macro network – some do this to Wi-Fi, but most operators are looking to femtocells, backhauled by consumers’ broadband lines, to share the data burden while remaining under the carrier’s control. This will become urgent, with shipments of smartphones expected to more than double in the coming few years (from 200m to 450m by 2013, according to one estimate from iSuppli), and with their users consuming more data on average.

Because smartphones, in typical usage, are constantly moving between cell sites and polling the network, they are already responsible for 2-3 times more signalling activity than laptops, especially in areas of dense networks and high usage (such as London, as lamented this week by O2 CEO Matthew Key, as he prepares to broaden the operator’s smartphone range).

"We really wanted to find out what was happening with this and get ahead of the problem," said Airvana’s VP of marketing and product management, David Nowicki. He is not even referring to end-to-end signalling for applications like web email, which requires constant connection to the internet. This is about lower level signalling for initiating layer 2/3 connections to supports apps or move between cells. "The smartphone has to do a lot of signalling just to send those small amounts of data," said Nowicki.

As well as offloading traffic where possible, operators need to put in more optimized controllers for layers two and three, he added.

WiMAX and broadband wireless:

Clearwire ratings boosted as Time Warner Cable announces launch

Clearwire enjoyed a welcome boost to its share value last week after an analyst awarded the WiMAX start-up a rare rating upgrade, indicating that the company's new management team and accelerated partner roll-outs are starting to win confidence. With two of the firm's MVNO/investors, Sprint and Comcast, already live with services that piggyback on the WiMAX network, Time Warner Cable announced that it, too, would start reselling Clearwire mobile broadband services from December 1 in three cities.

Clearwire's rating was raised by Phil Cusick of Macquarie analyst - just from 'outperform' to 'neutral', but this was enough to boost the carrier's stock, as Cusick's comments reflected a more general increase in confidence in the firm. The analyst increased his price target from \$7 to \$12 (the stock closed on Friday at \$8.21).

"Our confidence is higher primarily due to Clearwire's shift in the past six months to an experienced wireless team and operational focus, its building momentum, a high likelihood that it will be able to raise additional capital and an attractive valuation and asset base," Cusick said in his research note, hinting at the impact that the new CEO, former Vodafone senior executive Bill Morrow, is starting to have.

However, the note says that Clearwire will need an additional \$2.5bn to \$3bn to hit its target of covering 120m pops, and thinks that, with this injection of capital, it is likely to reach 225m pops by 2016. Cusick says that, according to Clearwire management, the company needs visibility on the additional funding by the first quarter to avoid a pullback in its build-out schedule, and that he thinks Sprint would be willing to fund more than 51% of the new funds, with the rest to be made up, presumably, by others among the investor line-up (Comcast, Time Warner Cable, Brighthouse Networks, Intel and Google). There is also the much discussed option of T-Mobile USA joining this rollcall, though this could create conflicts of interest with lead shareholder Sprint and is, according to Cusick, "not the first choice".

The biggest strengths in Clearwire's armory are its vast swathe of spectrum, capable of supporting the full range of broadband services and a large number of resellers, and the wholesale model that it has established with its four operator investors, reducing the risk associated with a start-up network by providing guaranteed customers with significant market reach. One of these, Time Warner Cable, will launch its wireless offerings on the WiMAX network on December 1, initially in three cities in North Carolina - Charlotte, Greensboro and Raleigh. The company also plans to launch in Dallas this year and in Hawaii in early 2010.

It will use the brand name Road Runner Mobile, with tariffs from \$40 per month for customers who already purchase at least one other Time Warner Cable service. Prices for different bundles will range up to \$80 per month. There will be three main pricing categories - \$40 a month for

light users, with a data cap of 2Gb per month and with at least one other TWC service; \$50 for unlimited mobile WiMAX, for customers of the TWC Road Runner Standard or Turbo cable modem offerings; and \$80 for these same customer groups, who also take 3G services (running on the Sprint CDMA network). Other discounts could apply for users with multiple TWC services. It does not appear that the cableco will offer WiMAX as a standalone offering at this stage, pushing mainly to make its bundles more attractive and push towards a full quad play – an objective that will become more urgent after Verizon announced its own new quad play options this week.

WiMAX and Wi-Fi in Brief:

- The tide of sentiment is certainly turning in WiMAX' favor, especially among government agencies keen to accelerate broadband programs. New FCC chairman Julius Genachowski, speaking at the recent CTIA Wireless event, delivered a scarcely veiled challenge to the top telcos to get on with their mobile broadband efforts. "Clearwire has launched WiMAX in 14 markets. Verizon, AT&T, T-Mobile and MetroPCS have each announced plans to launch LTE in the next year or two. But of course it's easier to roll out a press release than roll out a network," he said.
- Mobile device management specialist Mformation has formed an alliance with WiMAX chipmaker Sequans. The interoperability program provides a range of support options to service providers for managing and controlling devices over a WiMAX network.
- About 560,000 WiMAX and broadband wireless (BWA) subscribers were added in the second quarter of 2009, according to the latest quarterly report from Maravedis' 4G Counts service. The average BWA/WiMAX subscriber growth rate was 16.5% over Q109, and there was a 74% year-on-year growth rate. "Global service revenue growth is going up as WiMAX operators experience increase in subscriber growth, and the gradual appreciation of most currencies against the US dollar," noted Maravedis CEO Adlane Fellah. The report noted that many operators were coming back from the recession in Q2, "recovering from the subscriber and revenue slowdown they experienced in previous quarters". Clearwire continues to be the top BWA/WiMAX operator in terms of subscriber numbers.
- Fixed broadband wireless vendor InfiNet Wireless is to provide Metronet UK with its InfiLink series of point-to-point and InfiMan series of point-to-multipoint products. Metronet was the first UK ISP to support wireless IP CCTV video streaming and installed the country's first gigabit wireless connection. It has more than 200 enterprise users of its leased line replacement offering, which is extending from Greater Manchester in northern England to the northern cities of Liverpool and Leeds, plus Birmingham, and then Dublin, Ireland

Worth Noting:

- RIM's BlackBerry Storm 2 has duly turned up at Vodafone and is being pre-registered across the Atlantic at Verizon Wireless. Vodafone's UK exclusive on the new handset is much reduced compared to the first Storm, which it promoted very heavily as its key crossover device for business users and consumers. It will only have mark two to itself for a few weeks, probably because RIM has withdrawn some of its favors since Vodafone UK took on the iPhone, which will inevitably reduce the share of its attentions, and marketing budget, it gives to the Storm family. The new model has an improved touchscreen and claims to be easier for typing and navigation; it has turned the physical buttons into part of the touchscreen; and adds Wi-Fi and 2Gb of onboard storage, expandable to 16Gb with microSD cards.
- Mobile broadband start-up Stoke has received further investment from DoCoMo Capital, the venture wing of its largest customer, and from Mobile Internet Capital, bringing its Series D round to \$20m and total investment to \$70m to date. This closes the latest funding round for Stoke, which makes mobile broadband gateways to manage traffic on converged IP access networks. "Stoke is delivering advanced and unique solutions for the immediate requirements of mobile data offload, femtocell deployment and transition to LTE," commented CEO Vikash Varma.
- At Supercomm, Adtran upgraded its backhaul range by adding Ethernet-over-fiber and pseudowire gateway support to its Total Access 5000 multiservice access platform. Its OPTI-6100 optical access platform now supports pseudowire gateway functionality too.
- These additions are aimed at mobile operators wanting to move to packet-based transport from circuit-based TDM. The firm follows Cisco, Alcatel-Lucent, RAD, Huawei and Tellabs into the market for pseudowires that carry circuit switched traffic over packet networks.
- The current \$7.2bn in stimulus funds earmarked for extending broadband service across the US is less than one-third of the funds needed to connect every household, according to calculations from research firm Yankee Group. Even the most basic approach will require additional funds, says the report. About 12% of US households currently have no broadband access options, some in metro areas. Yankee Group analysts modelled four approaches to addressing this – a low cost 'discount' option; a 'duct tape' route for harnessing existing infrastructure; a midway 'pragmatic' strategy; and the 'gold plated' scenario based on fiber to the home. A minimum of \$24bn is required, and every approach has its downsides, says report author Vince Vittore.
- On Friday, US federal prosecutors charged six money manager and hedge fund operators with conspiracy and securities fraud, alleging that they earned millions from insider trading of hi-tech firms including Intel, Google and Clearwire. Among those arrested were Raj Rajaratnam, founder of the New York hedge fund Galleon Group; Rajiv Goel, an executive at

Intel's treasury department; and Anil Kumar, an executive at McKinsey. Allegedly, Rajaratnam illegally obtained and traded on information that Google's earnings were going to drop, cashing in to the tune of \$8m in profit. Goel is accused of giving Rajaratnam information about the planned \$3.2bn investment that Intel, Google and three cablecos were to make in Clearwire.

- The Advanced Television Systems Committee (ATSC) has approved the Mobile DTV standard. The move is designed to enable US broadcasters to provide services to mobile devices using their digital television transmissions. The technology is backed by major Korean vendors LG and Samsung, as well as a number of US broadcasters. Last month the GSM Association announced its endorsement of the new 3GPP standard for mobile TV over cellular networks, Integrated Mobile Broadcast (IMB).
- Mobile payments and license management services provider Tanla Solutions announced a five-year agreement with Nokia that promises to enable new application rights management and billing options. Tanla's License Manager already runs on Symbian and will expand to additional platforms, enabling in-application billing, try before you buy, subscription and related business models. Tanla's Mobile Payment service will also enable on-device transactions.
- In its Official Journal of October 20, the European Union outlines new measures that allow 3G services on GSM frequencies. This follows the European Parliament and Council of Ministers' agreement to update the European GSM Directive to support this change. A new Decision and a Directive modernizing the 1987 GSM Directive have been printed in the Official Journal, becoming EU law that must now be applied in all 27 EU countries. The new rules also make it easier to adapt spectrum allocation in the 900MHz band to allow 4G mobile broadband technologies to be deployed in future. National administrations have six months to implement the Decision.
- Nokia has been exonerated by the US International Trade Commission in the case against InterDigital, with the agency confirming an earlier decision that the handset giant did not violate some of the wireless IP group's UMTS patents. The action originated in 2007, but in August this year the ITC ruled in Nokia's favor and InterDigital requested a review of that decision. We strongly disagree with the Commission's decision. We believe in the merits of our case and are considering a number of options in response to the Commission's decision," said William Merritt, CEO of InterDigital. Nokia said in a statement that the ITC decision was consistent with a "previous judgment in the UK that found several InterDigital patents not to be essential to the UMTS mobile standard".
- InsideContactless, the French specialist in open standard contactless chip technologies, has announced an initiative to create mobile payment solutions that banks, brands, transport agencies and others can deploy from 2010. This will run on the firm's existing MicroPass platform, which will now offer a suite of add-on mobile payment solutions, con-

tactless sticker products. Handset stickers can turn almost any personal item into a payment device. Although not electronically connected to the phone, these stickers are able to support debit, prepaid debit and credit card payments, and are convenient plastic card replacements.

- The Italian government has revealed that it is developing plans to launch an €800m ubiquitous broadband access project from 2010. The minister of public administration, Renato Brunetta, said the project was seeking investment from public and private sources, and aimed to provide network speeds of at least 2Mbps. “I expect to have 2Mbps of broadband for everyone starting from 2010. The plan is ready ... It's a problem of investments, but by now only a final push is needed,” Brunetta told Reuters. The plan requires regulatory approval, which is up for consideration by the end of November.
- A research team at the Karlsruhe Institute of Technology in Germany has created optical antennas for multi-terahertz frequencies. The devices could form a cornerstone of extremely powerful future data networks. Using electron beam lithography tools, the team has created arrays of antennas made of gold on a glass substrate. The wavelengths are designed to correlate with frequencies of 500,000 GHz and more. Of course, no semiconductor elements are available to drive these antennas, so they are driven by white light, and the team plans to develop nano switching elements that make use of quantum technology.
- Apple said it will extend in-app micro-transactions to free iPhone and iPod Touch applications, enabling developers to sell content, subscriptions and digital services without requiring consumers to spend any money upfront.
- Nortel has gained bankruptcy court approval to go ahead with the auction of its optical and Carrier Ethernet activities, with Ciena the ‘stalking horse’ with an opening bid of \$532m. Ciena stands to get \$16m break-up fee if it is outbid. It is offering \$390m in cash and 10m shares of its stock for the business, an acquisition which would double its size. The courts also approved a so-called ‘naked auction’ of Nortel's GSM/GSM-R business in November. A naked auction is one where there is no opening bidder.
- Sales of femtocells and network elements for fixed/mobile convergence will grow to \$7.4bn worldwide by 2013, forecasts Infonetics, which also believes that the number of 2G and 3G femtocells sold will increase fivefold from 2009 to 2010. “So far we have found no evidence of the economic downturn having a major impact on the pace of FMC roll-outs and it has had only a mild effect on the femtocell space. In the first half of 2009 we saw unabated UMA roll-outs at T-Mobile USA, Orange and Rogers Wireless, with Turk Telecom joining the bandwagon more recently,” said principal analyst Stéphane Téral. The firm also expects at least a dozen operators to launch femtocells in 2010, following AT&T, Vodafone and Verizon Wireless this year.

- Finland's Ministry of Transport and Communications has made 1Mbps broadband access a legal right from July 2010, and the country's 5m-strong population may ultimately gain the right to a 100Mbps connection. Last year, Finland said it would make a 100Mbps broadband connection a legal right by the end of 2015. France has made internet access a basic human right, but stopped short of specifying broadband speeds.
- The growing popularity of touchscreens in smartphones is fueling new touch-sensitive interfaces in other equipment, from cars to industrial controllers, according to Freescale. The chip firm has unveiled a software initiative to improve resistive touchscreens (the cheaper kind), multitouch interfaces and transparent indium tin oxide panels to address this need. "People are getting used to having their personal area network devices like their cellphone and their multimedia devices respond to their touch, and are starting to expect the same response to their touch in their automobiles, homes and even their workplaces," said Mauricio Gomez, Freescale's regional marketing and engineering manager. The emerging touch-sensing market is growing at a CAGR of 23.8%, according to iSuppli, and will top \$3bn by 2011.
- Also reflecting the overall recovery in wireless chips, Wi-Fi silicon specialist Atheros reported that its third quarter profit almost quadrupled year-on-year, indicating a rapid rebound after the downturn. It earned \$38.6m, or 60 cents per share, up from \$10.1m, or 16 cents per share, a year earlier. Adjusted profit totaled 46 cents per share, beating analyst forecasts of 38 cents. Revenue was up 13% year-on-year to \$156.6m, also outdoing analyst expectations of \$147.3m. CEO Craig Barratt said the company was coming through the downturn well because of its product cycles and increased diversification of product lines.

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