

IT Analysis - Small networks, big prizes

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Do you know what a femtocell is? Unless you're involved in a certain part of the telecoms industry it's pretty unlikely and, like most technologies, why should you really care? Outside of the femto-related product providers, and some of the mobile operators, the term "femtocell" is pretty meaningless. Even the [Femto Forum](#) industry body recognise that, in many cases, operator awareness and interest is restricted to certain internal 'champions'.

At last week's Femtocell Deployment World Summit 2008 in Amsterdam, the community of interest around this particular technology got together and tried to thrash out some reasons why business and consumer users might start to care, and what business models might work for mobile operators and why. This was an event mainly for those with a vested interest, but their deliberations will have an impact elsewhere, as the potential for the technology is significant, both for business and consumer users of mobile phones.

Essentially it is about shrinking the 'gubbins' that makes up a mobile network's cell towers—those things that people object to next to their own homes or schools, but want to have everywhere else for mobile coverage—into a tiny box to fit into a home or small office. The tiny box supports a small in-building network of mobile coverage, the small size giving rise to the use of overly technical sounding language of small things—in the case of 'femto', an unfeasibly small 10 raised to the power of minus 15.

Unlike other solutions that might, for example, boost signals weakened as they pass through other buildings, outer walls or windows, these femtocells rely on the customer's broadband for the 'backhaul' link to the mobile carrier's network. Where femtocells differ from other small cells—micro or pico—is that these are deployed by network engineers and run as extensions of the existing open cellular network.

On the other hand, femtocells are mass market, closed to only specific users or groups and automatically adapt the radio side of their

operation. They are engineered and packaged much closer in design to consumer electronics or office IT equipment than to communications cabinets or server rooms.

Given the concerns about cell tower locations, there may be some who are worried about bringing the same sort of radio transmitters into their offices and homes. While not dismissing the potential harm from radio waves, it is important to view it with some perspective. In many cases these same people will be putting mobile phones next to their heads for long periods of time, and surfing the internet with portable wireless PCs on their laps.

Meanwhile, femtocells use and transmit substantially smaller amounts of radio wave power than cell towers. In addition, the transceivers in mobile phones are adaptive, so when they are in range of a femtocell, will reduce the amount of power they use in their radio transmissions. Better for phone battery life and, relatively at least to some extent, this should be better for human life too.

But longer potential battery and subscriber life is not why the industry, in particular fixed and mobile operators, is showing growing interest in femtocells. There is some interest related to reducing costs in the network, but the main reason is an offensive/defensive struggle at the commercial heart of communications—control of the subscriber.

The challenge is that subscriber behaviours and needs—both business and consumer—have changed, ironically partly as a result of the very wireless technology that has been brought to market by industry. People are mobile, working flexibly or from home and more often unconstrained by wires.

For this reason a secondary supporting conflict is the technology battle between cellular (ie licensed spectrum telecoms heritage including GSM, 3G, LTE) and wireless (ie unlicensed and IT heritage such as Wi-Fi and WiMAX) industry technologies.

While wireless technologies such as Wi-Fi have gained traction and acceptance, especially as they have shrunk into handheld computers, PDAs and phones, the mobile industry has become concerned. This unlicensed technology starts to undermine their commercial hold. Dual mode handsets offer a cheap way of making calls by routing them over Wi-Fi and then broadband networks independent of the mobile operator. This cuts off the operator's basic revenue stream, and opens up an opportunity for traditional fixed and IP telephony providers.

Mobile operators should take a chunk of the blame. After all they have made great revenues from shifting users from fixed voice to mobile calls, benefited from massive adoption of mobile messaging and now they are attempting to suck data traffic from fixed networks with 3G 'dongles' or modems. Fixed / mobile substitution cuts both ways.

There are challenges for this technology—is cellular more secure than Wi-Fi, does it offer higher quality of services, is it hampered by over standardisation?—but the issue at the core is a commercial one; who owns the customer, and what can be offered to them? In that case the femtocell is in essence a 'trojan', and most likely a branded presence in the form of a physical device, an intelligent air-to-wire router. It can be viewed as a potentially visible point of connection, and more importantly, a point of service delivery for current and future services.

Companies like BT have recognised this with products like the Home Hub, although its approach is currently based on wireless rather than cellular technology combined with 'legacy' cordless DECT (Digital Enhanced Cordless Telecommunications) phones.

Mobile operators have a similar opportunity to deploy hardware—consumer friendly for the home, business friendly for the enterprise—but they have to build suitable value propositions around the offer, and are often stuck in an internal view of networks, worrying about their own costs and savings rather than identifying business benefits for their customers.

It is time for the industry to stop focusing inwards on specific technologies and time to start addressing the larger problem of actual business communication needs and benefits that can be delivered.

According to recent Quocirca research into the communications needs of small and medium-sized businesses (SMBs), the potential business benefits are pretty straightforward; bring mobile costs down and under control, fill the coverage gaps, keep the solution as simple as possible.

Femtocell technology can make a good case to meet these needs, and most of its technical challenges have been addressed, so all that needs to be tackled is the usual high-tech industry lagging factor—a commercial model that leads to customer pull, rather than technology push. For the companies that get the proposition right—fixed or mobile operators, or anyone else—the rewards could be very significant.

For a more detailed look at the communications needs of SMBs and how technologies like femtocells might have an impact, download this free report "[Loud and Clear](#)".

About Quocirca

Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With world-wide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, mid-sized and small organisations. Its analyst team is made up of real-world practitioners with first hand experience of ITC delivery who continuously research and track the industry and its real usage in the markets.

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption – the personal and political aspects of an organisation's environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

Quocirca research is always pragmatic, business orientated and conducted in the context of the bigger picture. ITC has the ability to transform businesses and the processes that drive them, but often fails to do so. Quocirca's mission is to help organisations improve their success rate in process enablement through better levels of understanding and the adoption of the correct technologies at the correct time.

Quocirca has a pro-active primary research programme, regularly surveying users, purchasers and resellers of ITC products and services on emerging, evolving and maturing technologies. Over time, Quocirca has built a picture of long term investment trends, providing invaluable information for the whole of the ITC community.

Quocirca works with global and local providers of ITC products and services to help them deliver on the promise that ITC holds for business. Quocirca's clients include Oracle, Microsoft, IBM, Dell, T-Mobile, Vodafone, EMC, Symantec and Cisco, along with other large and medium sized vendors, service providers and more specialist firms.

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