

## Micro GSM set to hit the big time?

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In early 2006, Ofcom will auction off a small piece of spectrum trapped between GSM main services and the DECT range. This buffer zone is no longer needed, so five to 10 licenses will be being sold to companies that wish to operate extended GSM services through micro cells for in-building communications.

The GSM/DECT guard band spectrums involve two bands, of 1781.7 to 1785 megahertz, with 1876.7 to 1880 MHz. To keep the spectrum in-building, it is low powered, hitting a maximum of 23 dBm per carrier. Also, with these licenses, there will be no limits as to technology or application on the lucky bidders, making the auction outcomes particularly interesting.

Coffee Telecom was set up in 2003 specifically to take advantage of this small spectrum. The company's founders realised the spectrum would become available at some point in the future following the consultation on it in September 2002, and decided to create a company that would come up with the best ideas for its use.

Martin Wren-Hilton, managing director at Coffee Telecom, invented the mobile phone top up card, and through Coffee Telecom, will be offering users a hotspot service based on this spectrum. Using the Coffee Telecom network, businesses will have access to free or low cost calls from offices on the network.

"All calls made on the Coffee network between coffee customers will be unmetred," Wren-Hilton explains. "It's similar to Skype, but you won't need a headset and laptop, just your standard mobile phone. Our primary message is as a landline replacement service, but this is also about reducing your mobile phone bill. Research company, Ovum, states that 30 per cent of all mobile phone calls are made in the office or at home, where a landline is available.

Coffee Telecom intends to provide users with a micro site GSM service within one or multiple offices, which converts back to main operator usage once the user steps outside of the Coffee Telecom realm in the office. Users can get back into the Coffee Telecom network simply by going into one of their own or another company's office which is also on the network. Wren-Hilton adds that the sweet spot for his company is SME's in the 20 to 200 handsets range, although multisite offices have a huge amount to gain from reduced calls costs.

No new phones or upgrades will be required to use the Coffee Telecom network, according to Wren-Hilton. Services will either run through the existing PBX via a gateway that links via DSL back into the IP-based Coffee network for companies that wish to use the kit they have already invested in, or alternatively for businesses that wish to do away with the costs of running and maintaining a PBX and landlines, through a micro GSM base station connected into the network via Coffee's DSL backhaul.

Manufacturer of telecoms equipment, ip.access, already makes kit for operators in this spectrum. ip.access' product for this spectrum range is at the pico, or smallest, end of things. "This is for a one to 200 metre range per pico cell, giving very localised coverage," says Chris Cox, marketing manager at ip.access. "You can put a pico cell at the end of a DSL line to carry traffic back into the operator's network." Cox states that smaller mobile operators with lower overheads can make this a very low cost call service.

Cox expects services from companies such as Coffee Telecom to pose a threat to larger mobile operators. He says: "It's difficult to predict what might happen with these micro cell services, but that's one of the exciting things about this. If enough people get licenses, there'll be lots of opportunities for people to offer and do different things; it's opening the door to new people. This is the first time there haven't been rules and restrictions on what has to be done with a spectrum license. And if you read the responses to Ofcom's consultations, the big operators are hostile."

However, Dave Milletts, services business development director for Europe, the Middle East and Africa at Avaya, advises network managers to take the value of these auctions with a pinch of salt. "In some ways, this is exactly the same as what BT said about Centrix 10 years ago. It never really took off for a number of reasons."

Milletts points to IP as the reason micro GSM services will fail in the UK: "Services from companies like Coffee Telecom will be relying on the quality of IP networks to make these phone calls. Yet if you look at the hosted voice over IP market, even analysts' most optimistic view is that they expect no more than 10 per cent of all lines in the UK market to be hosted by 2010."

Micro GSM services will fail, Milletts states: "This can't offer people working at home or in the office what they need, because they don't need it. Is a company likely to switch all its services over to micro cells? How many companies are likely to do that? Where the bulk of employees are fixed or semi fixed, what's the advantage services

based on this spectrum can offer over existing technologies, in terms of beating the cheap costs customers are already getting?"

The issues that Jeremy Green, analyst at Ovum, points to for businesses hoping to offer micro GSM services focus around allocations of phone numbers, signalling point codes, plus the cooperation of larger mobile operators that have to recognise the little guy as an operator in order for customers to roam from the office onto outside networks.

Green comments: "From the radio technology point of view, these problems aren't nearly as challenging as some WiFi ideas, but they are still challenges. Also, right now the best brains in the generation are looking at other ideas, such as WiFi and the handover of one technology to another. This is because IP is the word, and WiFi is linked to IP whereas GSM services are seen as a bit dull and boring."

Alternatives to micro GSM services are those such as BT's Fusion that uses GSM in the street and Bluetooth technology indoors, but that needs a specialised phone to work, Avaya's work with Nokia to offer PBX functionality on Nokia Series 60 mobile devices with the download of a piece of client software directly to the device, and Vodafone's Wireless Office, which is very similar to the type of service expected to come out of the 2006 800 megahertz auctions, but more expensive according to Green.

Green points to Spring Mobile in Sweden as the main example of how services such as Coffee Telecom's will work out. Spring Mobile is a full GSM operator, but it does not run a nationwide service, only micro cell services for in-building connections to its network. It deploys pico cells with other services on top, marketing mainly to SMEs that want to do away with PBX and landline costs. It then operates as a mobile virtual network operator outside of the office networks, so it can provide end to end coverage without the overheads of running a national network.

If micro GSM services could be grown to cover offices outside of the country, Green says the potential for this technology will be huge. "Mobile phone bills for corporations make 30 to 80 per cent of total phone bills, plus roaming charges. If these new services mean companies could reduce call charges while staff are inside the building and also roaming charges, it's going to be great."