

Whither **WiMAX?**

Hype it, then trash it. That's the way most of the media cover high-tech and wireless used to be the worst offender: remember WAP? Bob Emmerson thinks it's time to make a WiMax reality check.



“Wi-Max will take over the 3G networks and become the next 4G wireless technology”. The quote was made by AT&T's CTO earlier this year. It got media coverage but it's nonsense and it raises a key question: what are the current 4G technologies? Answer: there aren't any. There is no agreed definition of what technology 4G will use or when it will be deployed or what it will deliver. Nokia, a company that knows a thing or two about wireless, position 4G as an end-of-the-decade deliverable.

Media coverage, particularly on the Net, tends to ignore the fact that the standard hasn't been nailed down: 802.16d is due end '05 and the key e suffix, which adds mobility won't arrive until the end of 2006. And 802.11e clients are unlikely to appear before 2008 (says Gartner). Alcatel are more optimistic and Intel is in the driving seat, so the Wi-Fi route will be replicated, i.e. PC cards followed by chipsets embedded in notebook PCs and PDAs.

So why is the industry getting excited and concerned about WiMAX? Because deployment in fixed locations precedes mobile usage. It's a different air interface to Wi-Fi so you'll need new client devices and don't hold your breath on the phone front. WiMAX is data centric.

RATES AND REACH

“If the surface of the earth were perfectly flat and we all lived in paper houses, fixed WiMAX operating in the lower frequencies [2.3 GHz] would have a range of about 31 miles . . . at a shared bandwidth of about 75 Mbps.” That quote come from the editor of VON Magazine and he goes on to indicate that you should half those figures in order to get a realistic performance assessment.

Even halved, those figures are impressive, and they go up with bandwidth, the top figure being 11 GHz. The range and the reach indicate that there are three principal opportunities:

1. DSL has brought broadband into millions of homes and every second there's a new DSL subscriber, but availability is limited. WiMAX is a viable wireless local loop alternative for rural areas and developing countries that don't have a copper wire infrastructure.

2. Backhauling traffic from cellular towers and hot spots. Right now they go over expensive fixed lines so mobile network operators (MNOs) are

getting excited about WiMAX because they save money. And putting a dent into the revenues of the wireline competitors doesn't hurt. NB: WiMAX base stations can backhaul themselves by reserving part of the bandwidth normally used for end-user traffic.

3. Enabling urban coverage; creating metropolitan area networks (MANs). Put one WiMAX tower up and you can cover a city centre and reach out to the suburbs. MNOs are getting concerned about this development since it will put the last nail into 3G's data coffin. The predictable market response is talk about complementary services: WiMAX in MANs and cellular elsewhere: elsewhere is the wide area network (WAN).

TIMELINES AND SERVICES

The 802.11a standard was approved in 2003 and products became available this year, but the service will probably be limited to backhauling traffic. No big benefits there for end users.

Enterprises having several offices in the same metropolitan area can jump the standardisation queue and build their own network. Like Wi-Fi, spectrum is free and unregulated. Alcatel, in an excellent white paper indicates that WiMAX is cheaper than leased lines even for two sites. (See www.alcatel.com/publications/abstract.jhtml?repositoryItem=tcm%3A172-44851635)

An interesting future scenario is the aggregation of various WiMAX networks, e.g. rural and urban networks. When the distance for self-backhaul is too great then microwave point-to-point connections can be employed. This development would boost the case the industry makes for “Always Best Connected”. The grammar is a bit dodgy, but the concept is sound. Devices having multiple air interfaces will automatically determine which network will give the best performance. If WiMAX isn't available then it would be Wi-Fi; no Wi-Fi then you get 3G (the lowest common denominator and it cost zillions).

Bob Emmerson, a freelance writer who lives in The Netherlands, is going to take a Comms Business break for a few months to write a second book. The first, 21st Century Communications, is out of print but available as a download from www.electric-words.com Email: b.emmerson@electric-words.org.