

TAKING THE PULSE OF TODAY'S WiMAX NETWORKS

Wireless ISPs make the most money from WiMAX services, WiMAX networks mostly emulate standard broadband speeds and pricing, WiMAX BTS support fewer CPE than anticipated; some key research findings WiMAX consultancy Maravedis revealed in a briefing last week.

Maravedis founder and CEO Adlane Fellaoui also said that WiMAX operators are generating attractive ARPU numbers although deployments remain modest and dominated by business DSL last mile connectivity.

"What is important is that many of the operators we have spoken to are profitable today," he said. "WiMAX ARPU is very attractive, it is three times higher than mobile ARPU for residential customers". Maravedis reported an average monthly residential ARPU of \$40.76, and a monthly business ARPU of \$145.54.

"A key finding is that Wireless ISPs are making the most money in WiMAX," said Fellaoui. "They have the most experience creating fixed WiMAX networks and have everything to lose if WiMAX doesn't do the job."

Fellaoui was surprised that mobile operators were unable to make good money. "Maybe they are afraid they will cannibalise their mobile service, or are still in trials and evaluations. We believe this will change when mobile WiMAX comes into play," he suggested.

Maravedis' numbers are not representative of the whole WiMAX industry. They refer to over 110 WiMAX or pre-WiMAX operator profiles that the firm has assembled in its WiMAXCounts database, perhaps half of the industry total but including most of the major players in the industry.

Maravedis has defined its research on the basis of service provision rather than technology provision. Therefore, for the purposes of the study, Maravedis includes pre-WiMAX certified and proprietary networks that are slated to migrate to WiMAX.

Over half of the deployments Maravedis studied remain proprietary, with 802.16d deployments making up another 36 per cent and 802.16e only 12 per cent of deployments.

Barring WiBro in Korea, all deployments are for fixed or portable services with 50 per cent of CPEs shipped indoor CPEs and 50 per cent outdoor units.

Reporting on figures up to the end of the first quarter 2007, Maravedis documented 950,000 broadband wireless/WiMAX subscribers worldwide.

"The US, Australia and Spain are the top three countries with regards to WiMAX subscribers," reported Fellaoui. "Clearwire has 232,000, Unwired Australia 63,500, Iberbanda 45,000 and Banda Ancha 43,000 subscribers."

Almost a quarter of all WiMAX subscribers are Clearwire subscribers, which skews all of the market metrics.

For example, although both Asia Pacific and Europe boast far more WiMAX deployments by region, Clearwire's presence means that North America has far more subscribers than any other region.

Similarly, although the raw data shows a 60-40 split between residential users and business users, take Clearwire out of the equation and the current landscape is dominated by business adopters.

Looking ahead, however, Maravedis expects the residential share of the market to increase dramatically to 90% by 2012 as mobile WiMAX comes online and WiMAX gets embedded in consumer devices.

A major challenge, however, will be to maintain ARPUs while prices and ARPUs in the mobile phone industry are in decline.

In an interesting insight into WiMAX network topography, Fellaoui reported that WiMAX subscriber CPE density per base station varied from a high of 159 in North America to a low of 74 in Asia Pacific.

"The bottom line is that these figures are low compared with vendors' data sheets. They are too low for operators to make a lot of money. We believe the density will go up when the technology becomes more affordable and mobile, maybe into the hundreds," he said.

As for network speeds, Maravedis found that WiMAX operators are offering: "basic broadband

connectivity, they are not differentiating with high speeds, portability and better customer service may be more important."

For residential customers average WiMAX speeds were 1632Kbps downstream, 952Kbps upstream, for business users 2074Kbps downstream and 1795Kbps upstream.

Again, Clearwire's dominant presence probably bumps up the averages.

Maravedis found the vast majority of services were using broadband speeds in the range 256Kbps-780Kbps, upstream and downstream, although nearly a quarter of services for business users were offering speeds of 2Mbps and above (see figures below).

<u>Residential Users</u>			<u>Business Users</u>		
<u>256-780Kbps</u>	<u>780Kbps-2Mbps</u>	<u>2Mbps+</u>	<u>256-780Kbps</u>	<u>780Kbps-2Mbps</u>	<u>2Mbps+</u>
Up Down	Up Down	Up Down	Up Down	Up Down	Up Down
68% 50%	26% 33%	6% 17%	52% 41%	32% 35%	16% 24%

Source: Maravedis

Fellah concluded the briefing by looking ahead, dismissing the suggestion that 802.16d was obsolete and predicting a situation where "we will see hybrid networks with proprietary and WiMAX certified networks, and also hybrid 802.16d-2004 and 802.16e-2005 networks together."