

Deconstructing wireless access

BY RAIS HUSSIN I



Not too long ago, over lunch with executives from a reputable cellular company, the atmosphere became congenial enough for me to tentatively ask how they felt about wireless broadband. In an expansive mood, the senior-most luminary patiently explained to me the difference between an apple and an orange.

Conceding that WiFi (wireless fidelity) was perfect for homes, hotspots and for enabling PCs with Internet access, he went on to explain why it was an apple to cellular's orange. "Range," he said. "Take a city block and then spec it for WiFi as well as for cellular coverage. Just the numbers of WiFi routers needed to populate the demarcated area and the cost of the accompanying Internet bandwidth should price the WiFi solution out of the ball park.

"By comparing it to cellular, you are trying to make WiFi into something it is not," he concluded. Moving to WiMax (worldwide interoperability for microwave access — a standards-based wireless technology that provides high-throughput broadband connections over long distances), he dismissed it as a technology that's not there yet, leaving cellular the one with the maximum reach for minimum cost. Delighted at giving wireless broadband such short shrift, he gladly paid the bill as we got up to leave.

The cellular executive was senior enough to awe me into agreement had not a group of young Chinese entrepreneurs invited me to a demonstration at the Science Park in Hong Kong a few weeks after that lunch. Up on the roof of a building in the Science Park, they presented what looked like a cellular base station. That, they explained, was their WiFi access point base station. Not cellular. Just standard WiFi 802.11.

This is the standard prevalent on the WiFi cards installed in our PCs these days. But the range of the access point, they claimed, was 2km line of sight (LOS) and 500m radius non-line of sight (NLOS). This, I had to see. So, we climbed into a van and drove away from the access point with me in the back seat, notebook perched on my lap. Moving away from the access point at 60kph, I was able to talk to my lovely wife, Aiman, on Skype and browse on Goggle at the same time. The apple had become an orange.

The entrepreneurs tell me that the long range and better coverage came from us-



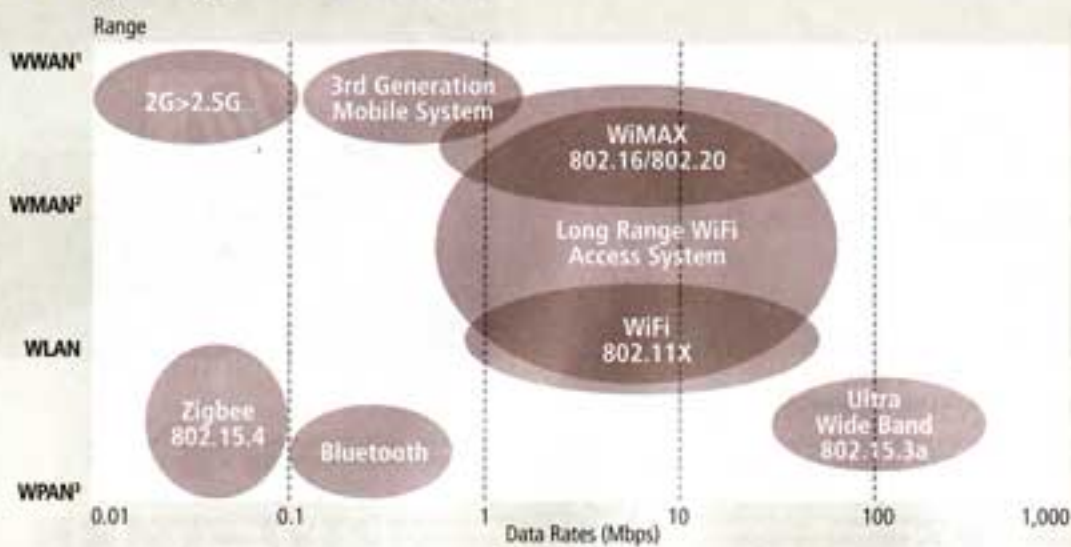
Cities like Ipoh will be an ideal choice for wiring up with WiFi service

So here is the Pepsi challenge to Malaysia. Let's do a long-range WiFi versus 3G cost/benefit study. Further, I shall install for free two WiFi access points to fire up any chosen location. If long-range WiFi passes the comparative test and also works in practice, Malaysia should draw up plans for a national deployment of WiFi using existing investments as enabling vehicles like PLUS highways, Tenaga Nasional, municipalities and cities like Ipoh.

ing a proprietary algorithm that allowed for switching between multiple high-gain antenna beams. The client signal (the signal from the PC's WiFi card or a WiFi handphone) is simultaneously received on all beams and the best signal then passed to the upper layer for processing.

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Long-range WiFi access



Whatever the mumbo-jumbo, the point is that it works. As the accompanying graph shows, using these high-gain antenna beams, WiFi has effectively usurped the territory WiMax had sequestered for itself. And at under US\$5,000 per pop with a coverage that approximates 70% of that of a micro-cell site, we just replaced 3G data coverage with an alternative that comes at a fraction of 3G's cost. Here then, is the long and the short of it:

- One more nail in 3G's coffin;
- Ups the ante for WiMax;
- Decimates the range and cost argument used by cellular proponents;
- Effective handover between sites makes the technology even more compelling and cellular like in coverage;
- Comparable data and voice coverage at a fraction of 3G cost; and
- Existing PCs can immediately establish access while WiMax, when available, will need PCs to be equipped with completely new client hardware.

If massively adopted, this technology has the power to revolutionise our lives in Malaysia. Cheap enough to be deployed along highways, railway lines and power lines,

whole tracts of the country could be broadband-enabled for peanuts. One could drive from city to city and move within a city and remain online. Incredibly, two of these WiFi access points today cover the whole of Beijing University's campus.

Starting today, we in Malaysia have no excuse left to allow our underground fibre backbone to remain in its present abysmally utilised state. Not just because of this technology per se. But because it has now been proved beyond doubt that cheap and massive deployment of wide area wireless broadband access is no longer a city planner's pipe dream. Its new found viability makes it as real and deserving of time and effort as deployment of roads, sewage and other facilities that grid cities and patch into buildings, offices and homes.

The downside is that 3G now becomes even more difficult to justify. One could suggest that to be an acceptable consequence of an otherwise stellar course of action for our nation to follow. Shorn of its data pretensions, deployed 3G could still be used to patch these WiFi-enabled corridors and cities while further deployment would need to be extremely carefully thought out. This may not be too bad an end result.

So, here is the Pepsi challenge to Malaysia. Let's do a long-range WiFi versus 3G cost/benefit study. Further, I shall install for free two WiFi access points to fire up any chosen location. If long-range WiFi passes the comparative test and also works in practice, Malaysia should draw up plans for a national deployment of WiFi using existing investments as enabling vehicles like PLUS highways, Tenaga Nasional and municipalities. I will not take a sen. The pleasure of seeing a dream finally happen is payment enough. So, gentlemen, do we have a deal? ■

Rais Hussin has more than 14 years of senior management telecoms experience with both domestic and foreign carriers