The operators' dilemma – which way wireless?

Reg Coutts warns players contemplating the options created by the explosion of broadband wireless technologies to learn from recent history and "be wary of rosy certainties peddled by corporate marketing departments or some consultants".

The basis of operators' dilemma with respect to emergent broadband wireless is the clear tension between the family of "3G" mobile technologies versus the more recent "WiMax" wireless technology family. After several years of excessive hype about 3G, established telecommunications operators are now rolling out at great capital expense both WCDMA and CDMA2000 3G mobile networks around the world. At the same time, new entrants are entering the fixed broadband market with broadband wireless termed "pre-WiMax" and with the promise of a future mobile variant of the WiMax standard termed "WiBro", which some have portrayed as 4G! Many in the supply side of the industry can be found in both camps.

You can pick your family

Given the options that are available, the choice of family depends on the timing for any decisions. 3G infrastructure and terminals are available now from multiple suppliers. 3G technology is based on the *mobility service paradigm,* not the fixed service paradigm, where WiMax is initially focused. Continuous coverage of a geographic area supporting modest service bit rates at about 2GHz and penetration in buildings are the challenges for 3G!

WiMax offers a significant niche alternative to DSL fixed technology in developed markets and the promised truly mobile WiBro version is projected to be up and running in Korea by mid 2006. Continuous coverage rather than 'coverage islands' at about 3.5GHz will indeed be a systems challenge. Processor performance may follow Moore's Law and increase exponentially: the laws of radio propagation are as immutable as the laws of physics. However, in any contest for *true broadband*, fibre to the home (FTTH) trumps wireless options.

Spectrum

Government policies and regulation affect choices too. Much of the fiasco of the last decade in relation to 3G was the process chosen by governments for allocating unique spectrum to potential 3G operators using the 'market mechanism' of auctions. In the case of WiBro, spectrum access is a challenge where, Intel would argue, operators should be able to use their 3G spectrum consistent with 'technology neutrality' principles.

This approach to spectrum would be feasible in Australia given our spectrum licensing regime and would provide an interesting alternative for our established operators who *own* 3G spectrum to counter a new player like Unwired using its 3.5GHz spectrum. In Europe, I suspect this 3G option would be less likely but there is significant enthusiasm in Europe for the WiMax family.

Undoubtedly, 3G's capital costs, including spectrum costs, coupled with ongoing operational costs continue to make it expensive for operators as huge investments are repaid. In spite of the 'head start' by the Western supply industry in WCDMA and CDMA2000, the Chinese 3G variant, TD-SCDMA, will be launched in the near future providing a platform for significant cost competition in the supply industry. At the same time, both the capital and operating cost advantages of the WiMax and WiBro technologies look alluringly attractive compared to 3G. Yet, while cellular technology like 3G is expensive to run, it has sufficient paying applications to make money! No WiFi operator has made money and one wonders why WiMax will be different. Will WiBro with continuous coverage and full mobility be more cost effective than 3G?

History repeats itself

All this reminds me of the CT-2/PHS saga of the early 90s! Again, comparing the technology options of today needs a considered understanding of the various likely supply side industry evolution scenarios particularly given the importance of the Asian market dynamics.

My brief discussion of 3G cellular versus WiMax broadband urges cautious evaluation of the certitudes of Intel *the chip supplier* and Paul Budde the *silver bullet consultant*. Yet, the fantastic technologies incorporated in WiMax and the speed at which these innovations have been brought to market is inspiring for a (nearly) reformed technologist like me!

Professor Reg Coutts,

MD Coutts Communications Pty Ltd www.couttscommunications.com