WIRELESS

BROADBAND

INQUIRY

A SUBMISSION FOR
THE HOUSE OF REPRESENTATIVES
STANDING COMMITTEE ON
COMMUNICATIONS, INFORMATION
TECHNOLOGY AND THE ARTS

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1. KEY POINTS

The current inquiry might suggests that wireless technologies can be used to broaden the market for much larger deployment – for example, as an alternative to Telstra's fixed broadband network. While I would hope that opportunities do exist for 802.11 and other broadband services, they have not surfaced as yet.

Admittedly the technology produces great results in a laboratory environment (802.11 claims to be able to cover distances of up to 10 kms), but over the last 20 years I have seen at least 25 wireless data technologies which have made similar promises (including satellite; MMDS, LMDS, WAP, GPRS, 3G); but none of them have delivered beyond niche markets.

My assessment of wireless broadband is that it is a great technology for its niche market (802.11 for business travelers, satellite for remote users, etc) but is absolutely unsuited to large-scale and high-density services.

Our forecast indicate that wireless broadband in general will not represent more than a 20% to 30% market share of the total broadband market by 2010 – while satellite will take up at least 70%-80% of this. There is no indication whatsoever that technologies such as 802.11 have mass market potential – the technology was never designed for mass deployment.

2. THE PROMISES OF WIRELESS BROADBAND

2.1 BUSINESS ACCESS

Wireless broadband allows new operators to avoid the stranglehold that the incumbent carrier has on the local access market. As the telecoms market is rapidly moving in the direction of broadband, the stakes are much higher than simple telephone calls. Even if you get Telstra's cooperation it can take as long as six months before business customers in CBDs can be connected to an fibre network. In areas where wireless broadband is available, this can be done in days, sometimes even within hours.

Customer demand for more bandwidth and regulatory emphasis on deregulation and competition has boosted interest in wireless broadband as an alternative access technology to the local loop.

2.2 BYPASSING THE FIXED LOCAL LOOP

As competition opens up many telecommunications market sectors, the difficulty and expense of deploying a fixed network has led to a bottleneck in the local loop. This favours the incumbent telecommunications companies and cable companies who charge high rates for broadband access.

It is estimated that 60% of all wireline revenues are coming from access, Telstra has a 90% marketshare.

2.3 CLEAR BENEFITS

It is therefore obvious that new telcos are looking for opportunities to enter the market through a wireless solution. So far however, this has been far from successful.

This despite the fact that wireless broadband, once develops into a truly versatile broadband communications medium, could offer the following benefits:
* it is cheaper than a wired solution;
* it is faster to implement;
* it can be configured for one or more applications.

New high-frequency digital networks can even provide a two-way broadband pipeline for multimedia services promising digital television, interactive entertainment, fast Internet access and commercial data networking services. Wireless broadband will position itself as a provider of entertainment and data services where there is a strong density of high spending residential and/or SME (small-medium sized) business customers, or where cable installation is not cost-effective.

3. THE PROBLEMS

There are many reasons why wireless broadband has not taken of in the way that many had hoped and envisaged.

3.1 DOZENS OF COMPETING TECHNOLOGIES

First of all there is not one technology but at least a dozen (even more when you count all the entrepreneurs who have come up with their own unique wireless products and services). Each of these technologies offer very specific benefits which could make it an ideal niche market applications. However, telecommunications is an interconnected world and very few customers are thrilled to use a proprietary system that very few others will use. There are already more wireless technologies that are obsolete than the ones that have survived.

Non of the ones that have survived have been able to grow anywhere beyond niche markets (including satellite; MMDS, LMDS, WAP, GPRS, 802.11). AAPT's and Optus' LMDS networks are not delivering the business results that were promised, Austar's interactive wireless trials have come to a standstill, WAP has well and truly flopped, GPRS is another technology waiting for customers and it is doubtful if 3G will ever be deployed, certainly not to the level that everybody had expected at the time of the various multi billion dollar auctions.

3.2 QUESTIONABLE QUALITIES

Next is the technology itself, wireless will never be able to match the reliability, quality and robustness that fixed line offers. This means that when there is an option, fixed solutions are often preferred. Other elements here include security and coverage. Admittedly most wireless technology produces great results in a laboratory environment, but in real life situation there always seem to 'unexpected' problems.

3.3 THE ECONOMICS OF WIRELESS

Than there are the economics. Wireless technologies have been in use in America since the 1980s and, if the Americans thought they could make bigger bucks out of it they would have done so. In areas where wireless might make sense there often is not the investment money needed to build such services. Without massive government support the development of wireless system in most rural and regional areas in Australia will never happen. And rather than supporting such systems the government in 2001 missed an opportunity by playing it safe and selecting Telstra for two large scale regional projects, funded under the Universal Services Obligation Fund. The other contenders had developed unique wireless solutions that were seen by the government as to risky.

The reality of wireless broadband for at least the foreseeable future is, that it is better suited for niche market deployment. There is absolutely nothing wrong with that. To the contrary companies that are able to harness the customer benefits of these technologies and who are building the right customer bases around them will be very successful.

4. OPPORTUNITIES

4.1 SLOW MOVING INCUMBENTS

None of the incumbent wireline players are serious about providing large-scale broadband services to Australians. Telstra is talking about only 650,000 ADSL users by 2005; Optus has halted the upgrade of its cable network; Packer, Murdoch and Telstra are forever quarrelling about Foxtel; and the government has made a complete mess of digital TV.

In the midst of all this disarray, we estimate there exists an unmet demand for the service of over one million residential and business users. At the right price, and if the networks were available, these users could be connected within 1-2 years. And once broadband is in peoples' homes and businesses, there will be a content bonanza for those companies who have customer relation management systems and are equipped for permission-based marketing – the broadband operators could at least double their revenue by providing these companies with the facilities to establish one-to-one marketing opportunities.

4.2 ROOM FOR A 20% MARKETSHARE

We estimate that even when the fixed network operators finally get their act together, there will still be a market available for the wireless operators. Cable could be deployed in a commercially viable manner to between 60%-80% of the population. This would provide the wireless operators with a market share of at least 20%.
However, it is highly unlikely that the fixed operators will cable 60% of all households before the end of this decade. By the same token, it is highly unlikely that commercially viable broadband services could be delivered to the other 40% within this decade. This could leave a large proportion of the Australian population without access to the information highway.

5. HIGH-SPEED OVER DIGITAL CELLULAR

New digital cellular technologies are going to provide higher speed wireless services as well. By late 2000 the first GPRS service came into operation. Telstra is leading the field here. However, very little progress was made during 2001 and this situation remained unchanged by mid 2002. Hutchison initially indicated it would build a dedicated GPRS network for businesses, however, they cancelled this and embarked on 3G. It plans to have this in operation by 2002.

The next big developments are based on the new 3G technologies. Massive increases in mobile traffic will lead to more and better infrastructure. These networks will start arriving by 2003-2005. However, it is highly unlikely that cellular-based mobile networks are going to play a major role in the high-speed fixed-wireless broadband market as an alternative access technology for superhighway services to homes and businesses.

6. WIRELESS LANS (IEEE 802.11)

6.1 INTRODUCTIONS

With new wide spectrum technologies such as 802.11, the unlicensed spectrum set aside can suddenly become economically viable for use in respect of commercial services as well. In the early 1990s telcos first began to use it to deliver telecom services – especially Internet access to customers in CBDs. Australian operations were launched in the mid-1990s (Horizon and OmniConnect), and Agile in Adelaide and many other regional players soon followed.

Exhibit 1 – Applications

• 'free' high-speed Internet access

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- Internet account sharing
- Members run services (games, radio, TV)
- Video conferencing
- Neighbourhood security services and other community based services
- Free local phone calls, using VoIP on the network

With the renewed interest in wireless services a range of new telcos and service providers all jumped on the IMS band and started to use it for their services. The majority of these new players are using it for high-speed Internet services. However, as there are few rules and regulations, services in most CBD areas got quickly congested and the quality of the service makes it very difficult to provide quality based commercial services. Furthermore there is still a lack carrier grade technology that can be used in this spectrum. The cost of entry is very low, access points can be established at $2000 each and user terminals cost between $300 and $800, prices are still dropping. This brings the technology within reach of radio hobbyists, not unlike the radio hams. Some entrepreneurial hobbyist has moved into semi-commercial operations. In all several thousand interested individuals are estimated to be involved in this emerging market. By 2002, there were at least a dozen of such networks in operation around Australia.

Some service providers are furthermore overstepping the boundaries of IMS and several complaints have been made to the ACA. So far however, very little action has been undertaken. At the same time the fact that anyone providing access to the Internet does require a licence is a real damper on potential developments in Australia (these restrictions don't eg not apply in the USA).

It will also be a brave government that would want to take away this spectrum from these radio hobbyists.

6.2 GREAT NICHE MARKET OPPORTUNITIES

I have been an advocate of the 802.11 service ever since its inception, as I can see a real business opportunity for it in the niche market of business travellers. However, installing it at airports, hotels and other venues has been a very slow process. Telcos used to look after the funding for such projects, but the situation has changed and the venues themselves will now have to become actively involved in the funding process.

A country like Australia is well-positioned to profit from 802.11 as there are relatively few venues that need to be covered (5 airports and, let's say, a dozen other business venues in each of the capital cities) to achieve a good overall business service. Imagine trying to do this in the USA – you would have to cover thousands of venues to establish even a reasonable national service.

However, progress has been – and will continue to be – made, and I can still see a good future for this technology within its niche market. New developments are helping the spread of 802.11. Nokia and Sonera in Finland have developed roaming technologies between GMS and 802.11. This has to be looked at in the light of Europe's current search for 3G alternatives. Also, the entry into this market of larger mobile companies such as VoiceStream is boosting the technology's credibility.

6.3 THE TRAVELLERS MARKET

Despite the high level of growth experienced by the Internet and the laptop over the last five years, convenient, fast and easy to use access to the Internet or company servers is still not readily available.

This is especially the case in countries with low-grade telecommunications infrastructure. Travelling business people are often frustrated when attempting to communicate remotely to their office through inconvenient, slow, unreliable and yet highly priced facilities.

Several companies are now installing and operating these wireless local area networks (LANs) in strategically selected access locations, which initially will include international hotels and airline club lounges. There has been quite a rush in the USA, with dozens of companies becoming involved in this

market. So far in Australia two companies have established themselves in this niche – SkyNetGlobal and inter-touch.

6.4 NOT SUITABLE FOR LARGE SCALE DEPLOYMENT

The current investigation suggests that the 802.11 technology can be used to broaden the market for much larger deployment – for example, as an alternative to Telstra's fixed broadband network. While I would hope that opportunities do exist for 802.11 broadband services, they have not surfaced as yet.

Admittedly the technology produces great results in a laboratory environment (802.11 claims to be able to cover distances of up to 10 kms), but over the last 20 years I have seen at least 25 wireless data technologies which have made similar promises (including satellite; MMDS, LMDS, WAP, GPRS, 3G); but none of them have delivered beyond niche markets.

My assessment of 802.11 is that it is a great technology for its niche market (business travellers) but is absolutely unsuited to large-scale and high-density services.

I abide by my earlier predictions that wireless broadband in general will not represent more than a 20% to 30% market share of the total broadband market by 2010 – while satellite will take up at least 70%-80%. There is no indication whatsoever that technologies such as 802.11 have mass market potential – the technology was not developed for mass deployment.

This is not to say that its potential should not be explored. On the contrary, I would welcome the current investigation.

7. LOCAL MULTIPOINT DISTRIBUTION SERVICES (LMDS)

LMDS is, in fact, a form of wireless local loop (WLL) and represents an entry opportunity into telecommunications for non-traditional service providers. As LMDS can be used for point-to-multipoint voice and data services, pay TV, high-speed Internet access and wireless telephony; it is the first opportunity for converged service providers, whether they are Internet service providers, fixed-telecommunications service providers, cable operators or electric utilities.

It was thought that competitive pricing could propel LMDS into the business market, however, with the current bandwidth glut this opportunity has rapidly evaporated. The technology also offers companies the ability to spread their risk in case of telecommunications disruptions. Nowadays we regularly see major network failures, during which normal services are severely disrupted or cut, for hours, and sometimes even days. In our e-world this becomes increasingly unacceptable and, while the operators will have to lift their game in this respect, I believe that users also have a responsibility to protect their companies from these disruptions by making sure that alternatives are in place. This is where LMDS can play a key role.

While there are good opportunities for the technology they will always concentrate around niche markets. It is highly unlikely that it will be used for large scale, high density services.

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