unwired™

National Regulations
Case Study
– Australia –

**ITU-APT Regional Seminar
on Broadband Wireless Access for Asia
Pacific Region**

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Australian Spectrum Policy "goals"

- Recognise that for it to be used efficiently, it needs to be made available to those who value it most highly.

- Recognise that spectrum is a national economic resource that needs to be used efficiently to promote national economic objectives.

- Maximise the utility of spectrum resource to derive best social and economic return for the public.

- Encourage competition at all levels.

- Work within the international regulatory framework to the maximum extent possible.

- Use a range of spectrum management tools in a flexible manner to best meet the growing demand of access to the spectrum.

Australian Spectrum Policy "challenges"

- Accommodating new services in the face of rapidly evolving technology.

- Making adequate provision for public or community services.

- Encouraging the use of efficient technologies while still adequately managing interference.

- Extending market based management of the spectrum to promote economic efficiency.

- Active deployment of market-based pricing and encouraging the development of "secondary" markets for trading in spectrum assets.

Australian Spectrum Management approach for Broadband Wireless

A "market-based pricing" approach was deemed on balance the most appropriate way to make spectrum available for BWA because:

❖ The requirement for investment in BWA infrastructure would clearly be very significant to meet the desired outcome of "infrastructure based" competition and so a long and secure licenses tenure period was appropriate.

❖ There were clear indication that the demand for spectrum in the 3.5 GHz band exceeded the available supply.

❖ The Government was not inclined to pick potential technological and business "winners" and a market-based approach offered the lowest risk and an early financial return which was deemed to be in the public interest.

❖ A market –based approach would create an opportunity for the regulator to impose creative technical conditions that would enable the licensees to use the spectrum in flexible ways as required to implement their business plans over an extended time frame.

❖ The licenses should be "tradable" to enhance the prospects that the spectrum would be utilized to deliver services.

The 3.4 GHz Broadband Wireless Auction

- A public auction of "spectrum licenses" was deemed on balance to be the most appropriate way to make spectrum available for BWA because:

    - ❖ "…Auctions have proved to be quick, fair and transparent in the way that allocations are decided. Underpinned by a technology approach to licensing, they have also proved to be successful in facilitating the introduction of new services, greater competition and greater choice for consumers….."

    - ❖ "…Auctions are also effective in revealing market valuations of spectrum..."

- The "market-based" approach for licensing spectrum for Broadband Wireless Access took the form of a price based auction for a significant portion of the 3.4 ~ 3.5 GHz band in 2000.

Key competition objectives to be met as part of the auction process

- A critical aspect of the BWA 3.4 GHz auction was a decision by Government to **exclude** Telstra from bidding to ensure that Telstra would not be able to extend its virtual monopoly over the last mile access to include broadband wireless.

- It satisfied broader Government policy of promoting competition particularly of last mile access at the core infrastructure level.

- The auction was designed around 3.5 MHz lot sizes, and large geographic lot areas to encourage bidding from multiple entities.

- No foreign ownership restrictions were applied.

- To the maximum extent technology neutral technical license conditions were applied to provide opportunity to implement a wide range of services and still adequately protect other spectrum users.

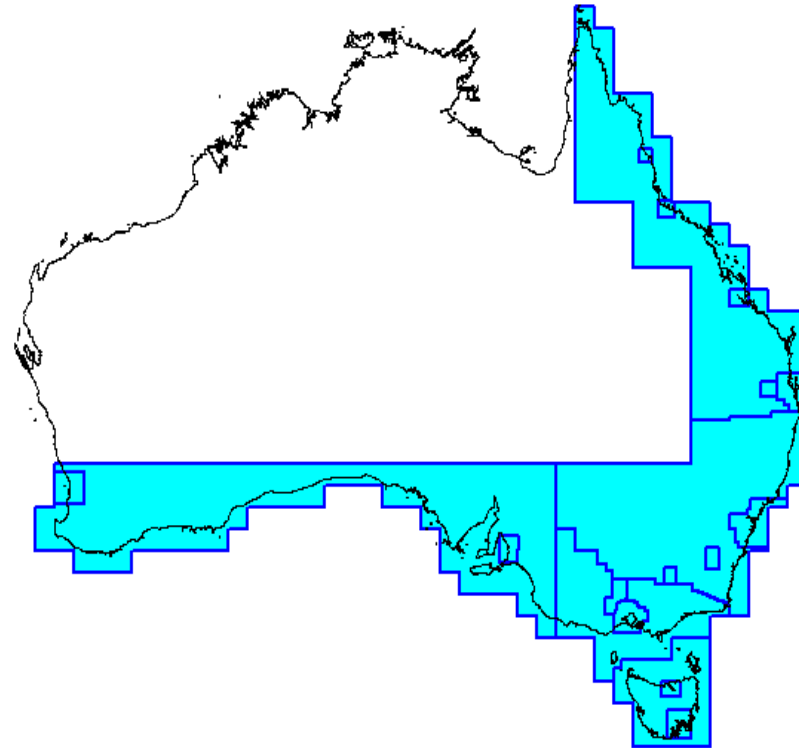# The 3.4 GHz
Auction result

Metropolitan areas :
Total of 2 by 32.5 MHz (100 MHz
duplex), plus 2 by 17.5 MHz (50
MHz duplex), each made up of
contiguous 3.5 MHz lots.

Regional areas :
2 by 17.5 MHz (50 MHz duplex),
made up of contiguous 3.5 MHz lots.

Price paid :
Around US$100 Million for 15 year
tenure

unwired

The Unwired business case

- Direct competition with Telstra for last mile provision of broadband to residential and small business customers commencing in the Sydney metropolis.

- Extension of the service to other major cities and selected regional population centres.

- The service to match Telstra and other ISP's ADSL and cable offerings in terms of performance and retail price.

- Direct retail sales channels supplemented by wholesale proposals.

- Reliance on simple self installed modems that can be operated indoors.

- Migration to "nomadic" use starting with basic "hand off" and eventually to full mobility functionality.

The Technology choices

In the absence of standards based solutions, the Navini Networks "Ripwave" proprietary solution was chosen to start the businesses for the access component of the network, and Airspan Networks AS4030 IEEE 802.16a for the back-haul. The key attributes of this solution are :

❖ The Ripwave CPE's are modestly priced.

❖ Navini employs adaptive antenna techniques to achieve very high system gains (160 dB plus) which facilitates indoor nomadic operation.

❖ Reasonable cell sizes can be supported

❖ The Navini system has adequate capacity, and the system can support hand off and a limited form of roaming.

❖ The Navini wireless modems can be self installed.

❖ The Airspan Networks AS4030 was chosen because it was a standards based (IEEE 802.16a) ETSI compliant, robust, carrier grade, high capacity solution that could operate in the Unwired 3.4 ~ 3.5 GHz spectrum, and could be expanded from the initial point to point configuration to a point to multi-point configuration.
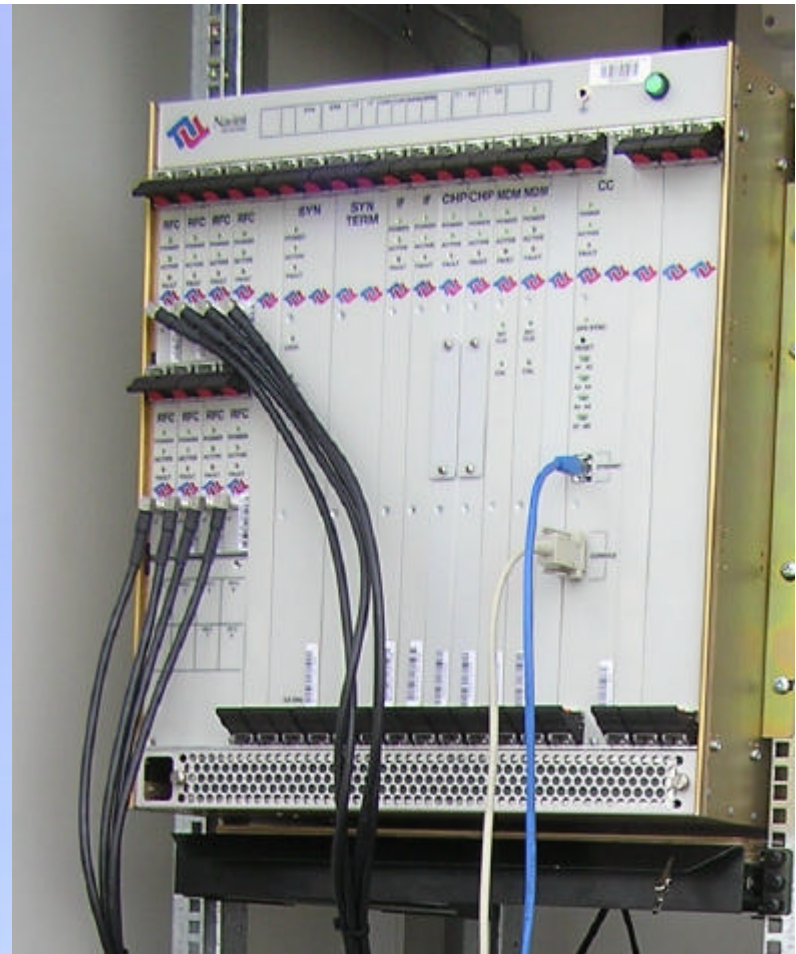
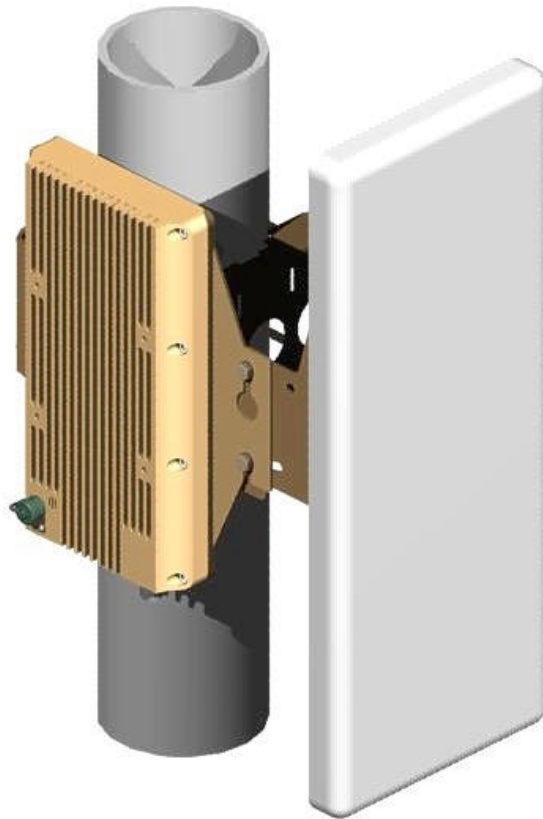# System hardware – Access Network Wireless Modems

System hardware – Access Network Base Stations

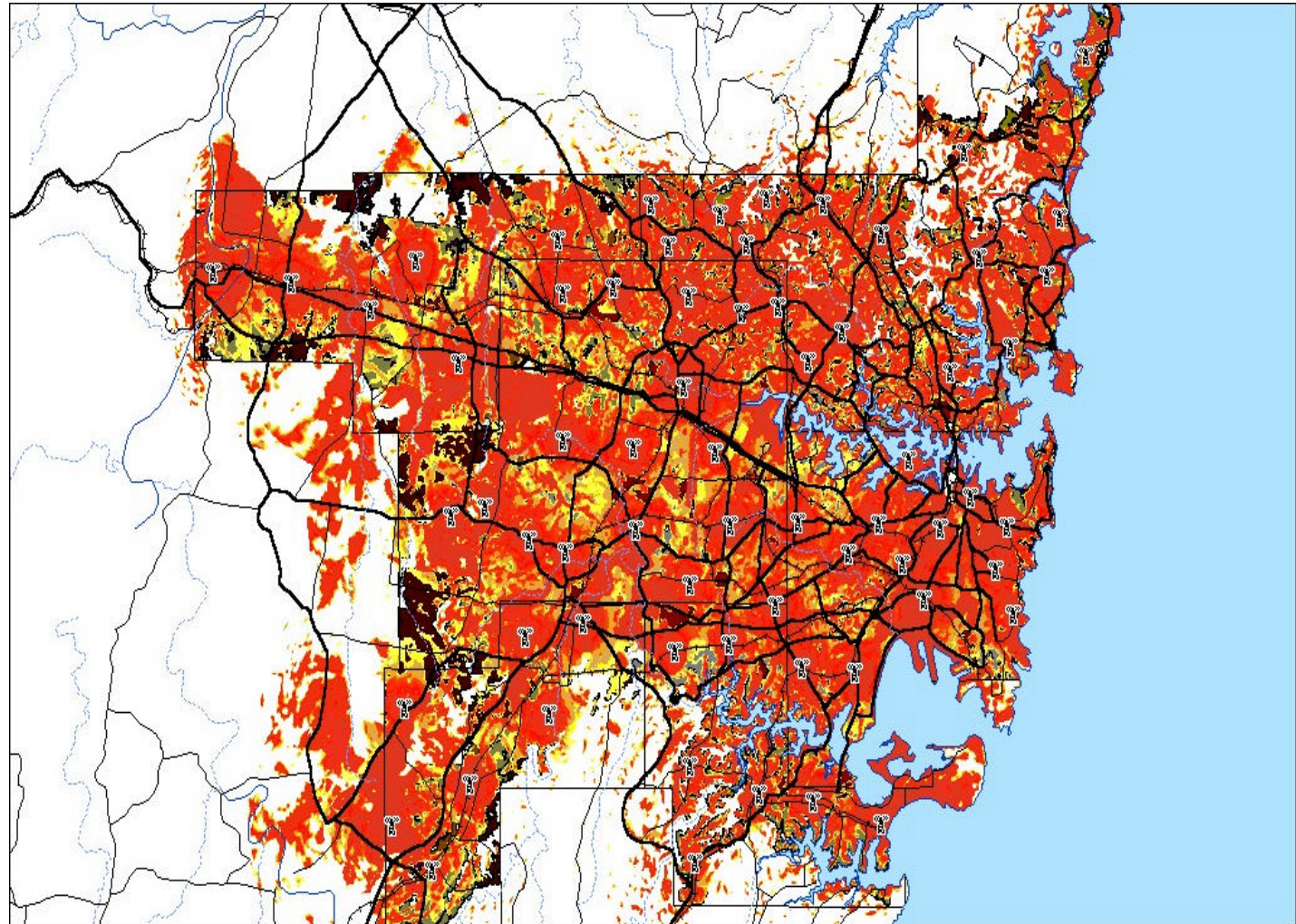# System hardware – Back-Haul Network Point to Point Links

The Sydney Deployment

183 base station sectors

60 back-haul links

capacity for up to 100,000 subscribers

The challenge going forward

- The **key** challenge for Unwired is to remain competitive in the broadband access market over an extended period while expanding its operations.

- To achieve this the deployment and operating costs of the wireless access infrastructure **must** be brought down.

- It is very clear that this can only be achieved with the adoption of mass market standards based BWA solutions.

- For this reason Unwired Australia joined the WiMAX Forum last year, and is active in the work of the Forum.

- Based on its experience, Unwired is convinced that the wireless access solution must do more than simply match the ADSL and cable solution offerings in terms of performance and retail pricing to become a true competitor at the infrastructure level.

The Unwired Roadmap

- Continue to enhance the service by building on a solid "nomadic" service foundation and then progressively introducing standards based mobility functions that are complementary to 3G, but without sacrificing performance or capacity advantages inherent in BWA.

- Take advantage of the IEEE 802.16e developments and the WiMAX initiative to deploy a network that can satisfy the above objective at progressively lower cost.

- Work within the WiMAX Forum and key international bodies such as the ITU-R and APT/AWF to foster global standards and spectrum harmonization for BWA.

- Gradually expand the Unwired network to all the key population centres of Australia.

Comment on the regulatory environment for Unwired

- There is no doubt what so ever, that the market-based, technology neutral regulatory environment created by the Australian regulator (ACA), was instrumental in enabling Unwired to launch its business.

- This same regulatory environment has the flexibility to enable Unwired to adopt new technology as and when required, with a minimum of technical constraints.

- The adoption of new technology will enable Unwired to expand its business and become an effective infrastructure based competitor to Telstra for last mile access.

The recent Unwired Sydney commercial launch – "competition!"

- **Telstra loses its licence to print money -** By Alan Kohler
  Sydney Morning Herald August 17, 2004…………….

- *"……Telstra's "natural monopoly" of owning the wires is evaporating into thin air because there are about to be several overlapping "local loop" networks - sometimes called 4G - connecting every home through wireless spectrum.*

- *There are already two wireless broadband networks covering virtually all of Sydney: Peter Shore's and David Spence's unwired network, and Jim Cooney's Personal Broadband Australia.*

The recent Unwired Sydney Commercial launch "just the beginning!".

- *Unwired's network will be officially launched this Thursday by the communications minister, Helen Coonan. It cost $33 million and took six months to build. Of that cost, $4.5 million was for back office stuff that won't have to be duplicated when networks are built in other capital cities.*

- *Unwired covers 90 to 95 per cent of all homes and flats, and the spaces in between, from Bondi to the Blue Mountains. Modems are now on sale in Harvey Norman stores for $189. The monthly access charge is $34.95, which includes 300 megabytes of data, after which the speed slows from 512kbps to 64kbps (there is no extra cost).*

- *Telstra's cheapest ADSL plan is $29.95 a month for 200 MB and 15c per MB after that. But it's fixed. Unwired is fully mobile, so you can use it in the local park and when you move house, it comes too…………"*