

# Internode submission to the “Request for submissions on regulatory issues” related to the National Broadband Network (NBN)

Submitted: 21<sup>st</sup> June 2008

Author: Simon Hackett, Internode

Email: [simon at internode.com.au](mailto:simon@internode.com.au)

Web: <http://www.simonhackett.com>

## Background

The Australian government have framed the NBN on the Department of Broadband, Communications and the Digital Economy (The Department) web site<sup>1</sup> in this manner:

*The Australian Government has committed to provide up to \$4.7 billion and to consider necessary regulatory changes to facilitate the roll-out of a new open access, high-speed, fibre-based broadband network, providing downlink speeds of at least 12 megabits per second to 98 per cent of Australian homes and businesses.*

On 11<sup>th</sup> April 2008, the Department invited submissions on the topic of regulatory change requirements related to this proposed network<sup>2</sup>.

The Department web site<sup>3</sup> provides the following specification of the submissions requested this time:

*The Government is prepared to consider changes to existing telecommunications regulations to facilitate the roll-out of this network.*

*Industry and public interest groups are invited to provide submissions on regulatory issues, including consumer safeguards, associated with the National Broadband Network.*

---

<sup>1</sup>[http://www.dbcde.gov.au/communications\\_for\\_business/funding\\_programs\\_and\\_support/national\\_broadband\\_network](http://www.dbcde.gov.au/communications_for_business/funding_programs_and_support/national_broadband_network)

<sup>2</sup> [http://www.minister.dbcde.gov.au/media/media\\_releases/2008/024](http://www.minister.dbcde.gov.au/media/media_releases/2008/024)

<sup>3</sup>[http://www.dbcde.gov.au/communications\\_for\\_business/funding\\_programs\\_and\\_support/request\\_for\\_submissions\\_on\\_regulatory\\_issues](http://www.dbcde.gov.au/communications_for_business/funding_programs_and_support/request_for_submissions_on_regulatory_issues)

## Defining what is needed

For the purpose of this submission, we have interpreted the above as being a request to comment upon this specific question:

- What regulatory changes (i.e. changes to laws or regulations) will be required in order to make the NBN possible, and more specifically, what consumer safeguards will be required for consumers in presence of the NBN?

To understand how to safeguard consumers in the presence of the NBN, we should begin with a clear understanding of what a ‘safeguard’ is.

***Safeguard(n):** a measure, such as a law or procedure, designed to prevent something undesirable*

So now we can clearly understand our task – to ensure that the presence of the NBN is augmented with any changes or protections via law or procedure that would prevent something undesirable for consumers from occurring.

Next, we need to frame what *something undesirable* actually is, in the context of a consumer and their interests.

In the context of consumers, here are some examples of undesirable outcomes as a consequence of the NBN being created:

- An increase in price for an existing broadband (or voice) service. In other words, having the existence of the NBN drive up costs for something a consumer does today, with services available today.
- The removal of an existing service (or service feature) from consumers, due to its absence from the NBN framework, such that the consumer cannot re-acquire equivalent or better access to that service competitively (from the same service provider at the same price).
- A future environment in which new service innovations designed by the commercial marketplace are not able to be deployed for consumers because the operator of an NBN does not implement them and is not responsive to industry requirements that it should do so.

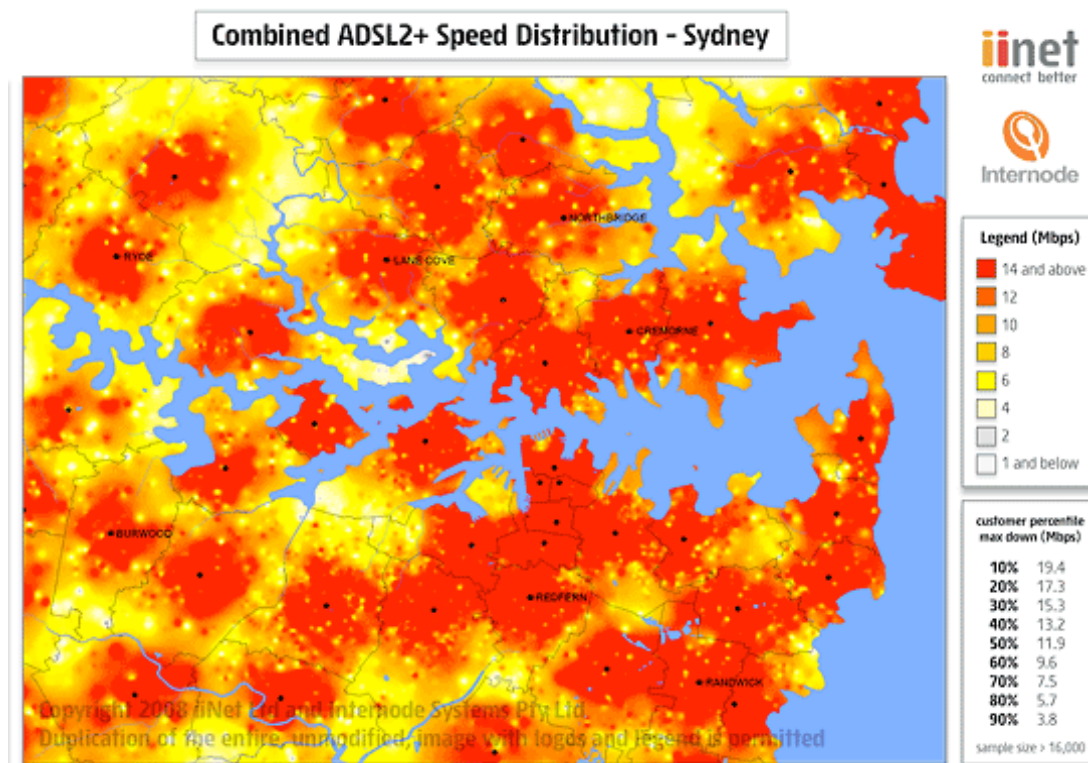
## Current environment

Today, millions of Australian consumers have access to high speed broadband services that already meet or exceed the stated government downstream speed target.

The combined iiNet & Internode ‘Heat Map’, showing real world achieved speeds in the Sydney basin using competitive ADSL2+ services demonstrates this situation as it exists today.

A high resolution version of the heatmap is available for download here:

[http://www.internode.on.net/residential/internet/home\\_adsl/extreme/syd-heatmap/](http://www.internode.on.net/residential/internet/home_adsl/extreme/syd-heatmap/)



This map shows the results of assessing more than 16,000 active ADSL2+ customer services and demonstrates that in this area, 50% of customers are achieving speeds of 12 Megabits per second or higher, and they are doing so today.

In doing so, they are able to access the services of multiple independent ISPs, each of whom have made infrastructure investments that deploy their own DSLAMs via the Declared ULL and LSS copper line access wholesale services.

The existing environment, under which multiple competitors are able to use the ULLS and LSS Declared services has generated substantial and ongoing consumer benefits.

Today, in a wide variety of locations around Australia, a substantial number of providers are competing in this facilities-based infrastructure mode. See <http://www.adsl2exchanges.com.au> for a summary of that activity to date.

This environment has generated many consumer benefits, including:

- Higher performance services: It was competitors, not the incumbent, who first released ADSL2+ services back in 2005. Telstra belatedly followed with the (to date) most expensive retail ADSL2+ offering in the market (via BigPond) two years later.
- More technically flexible offerings. For example:
  - Competitors in the market have introduced innovations such as “Annex M” (very high speed upstream services, at rates up to 2-3 megabits per

- second, fast enough for highly effective high quality videoconferencing; The incumbent is yet to release such a service at all)
- Competitors have released IP Multicast based video services into the market, which allow cost effective and network-efficient deployment of video ‘channels’ in competition to established Pay-TV operators such as Foxtel. The wholesale offerings of the incumbent do not support IP Multicast.
  - Competitive offerings allow additional technical differentiation in areas such as real-time ‘profile changing’ to allow customer self-optimisation of network performance

But the most important overall benefit of having multiple, infrastructure based competitors in the fixed line broadband market over the copper line network is *competitive tension*.

Competitive tension exists where there is ‘a choice of airlines’ for consumers. And as with all industries, the absence of competitive tension invariably leads to higher consumer prices and reduced consumer innovation.

It is critical to retain Competitive Tension if at all possible in any future changes to the broadband environment, and it is not sufficient to frame wireless or other alternatives as providing that tension – to insure against the erosion of consumer benefit in the manners noted above, we must retain the existing capacity for innovative competitors to innovate – not just within the NBN network, but in parallel to it – in the national fixed-line copper network.

The material aim here is (to adapt an old adage), to ‘keep the NBN honest’ by ensuring that other alternative paths *and their alternative price points* remain in the market.

Doing so acts both as an exemplar of what is possible, and as a driver to mitigate against the tendency of monopolies to raise price in the absence of competitors’ ability to offer alternatives.

## **The risk of losing Competitive Tension in an NBN environment**

As part of the government requirements for the project, the NBN is to be constructed as a “Fibre to the Node” (FTTN) network.

In such a network, the ‘Nodes’ of the FTTN solution are positioned and attached to the existing Copper Line (PSTN) infrastructure at points ‘deeper’ in the network than existing Telstra exchange sites, and hence closer (on average) to consumer homes and business premises.

The driver for attaching these Nodes closer to customer endpoints is that the speed possible using DSL technology over copper lines is (in broad terms) an inverse

function of line length. In other words, the shorter the line, the higher the potential service speed.

These Nodes are then fed ('backhauled') to the original exchange site in each distribution area using optical fibre links – hence the overall construct being 'Fibre to the Node' (and Copper from the node to the consumer – i.e the last part of the path remains as Copper phone lines).

The major challenge to the retention of Competitive Tension in the NBN scenario is based on a presumption that has been present in the public statements of both the Australian Government and of Telstra. This presumption is twofold:

- 1) That as each Node is installed, all existing copper lines from that Node point back to the existing Exchange point will be severed (i.e. all lines will be 're-terminated' into the Node equipment and unpugged from the central exchanges, often called 'flash cutover')
- 2) That achieving the stated speed and coverage aims for the NBN requires complete replacement of the existing copper line paths for 98% of consumers and businesses, rather than just the installation of sufficient equipment to connect those who have no access (or slow access) today.

## **The myth of 512k-only access**

There is a related misunderstanding that the author has noted in the comments of key participants in the process, during the course of the last few months. That misunderstanding consists of stating that the large number of consumers using 'only' a 512k or slower broadband ADSL service today is representative of the extent to which higher speed services – and hence the FTTN – are needed.

However, the reality is that anyone using a 256k, 512k, or indeed a 1.5 Megabit per second ADSL service today on a Telstra based DSL service is able to have access to an ADSL2+ service at up to 20 megabits per second today, on demand. This involves a software setting change to turn up the speed...the hardware deployed today is almost all ADSL2+ capable nationally – now.

The reason they do not do so is, simply, that the access price is too high for them to justify doing it today - or *they would already be doing so*.

Via the research driving the "heat map" data noted previously, we can see that around 50% of Australians already using ADSL based broadband today have 'on demand' access to speeds above 12 megabits per second via a simple plan change request to their ISP. So, again, the reason they don't do so today is purely a question of retail access price.

Hence it would be highly inefficient to overbuild the 50% that already has no problem to solve – instead we must concentrate NBN related investments on both people who cannot access ADSL services at all today (priority 1) and the subset of existing

customers who can access ADSL but who can not reach 12 megabit speeds today (priority 2).

And also, this clearly demonstrates that an NBN would be a failure should it drive real world retail pricing higher than it already is in the market today, as price, not availability, currently holds millions of consumers at low speeds today.

## **The risk of legislative change leading to delay, legal action, and potential project failure**

Some very clear risks of making any legislative changes (at all) related to the NBN build are that:

- 1) Those changes may be flawed in some unexpected or unintended way (perhaps fatally damaging competition in the process), and/or
- 2) Those changes may be the subject of legal action in the federal and/or high court from any unsuccessful bidders, seeing to delay or overturn the NBN tender decisions for their own commercial purposes

And so, we face a high risk situation – any NBN construction with substantial changes to the law to support it, and/or any NBN construction that allows ‘full node cutover’ (physically disconnecting and stranding existing competitive ADSL2+ infrastructure) generates outcomes that may be hugely detrimental to competition, and hence to consumer choice and consumer access price.

It would seem that an obvious success factor for the NBN would be both improved access price *and* no decrease in the competitive choices available to consumers (either in terms of price or in terms of technical capabilities and features in the market).

So – how can we build an NBN and yet avoid legal action and outcomes that are not pro-competitive – outcomes that do not damage or destroy the existing, valuable presence of competitive tension in the market? Read on.

## **The solution**

The solution here involves, quite simply, not throwing out the baby with the bathwater.

***There is no technical barrier to allowing all existing ADSL2+ competitive facilities-based competition to continue to exist in parallel to an NBN deployment.***

Keeping existing facilities-based competition operational in parallel to the deployment of the NBN for a minimum transition period of 5 years would generate the following outcomes:

- Pro-competitive, pro-consumer outcomes: Existing pricing and services remain available to help mitigate against ‘monopoly rent’ pricing increases and loss of technical flexibility inherent in an ‘NBN only’ outcome over copper lines
- Avoidance of issues around ADSL2+ asset stranding for the industry (including both ‘challengers’ and the incumbent, Telstra, alike – neither would lose their existing investments and hence neither would have any reason to take legal action to recover those lost investments)
- Insurance against delay or technical failure in the deployment of the NBN, leading to loss of broadband services for those using copper line based ADSL services today
- Ensuring technical innovation occurs in the NBN by retaining the existing successful ULLS and LSS based competitive framework, as both an exemplar of what is possible and a source of competitive pressure to ensure that the NBN operator keeps up with new technical developments.

In summary, keeping the existing ULLS and LSS regime operational (in parallel to Node based deployments, and able to service the same customer base) is a pro-competitive outcome that:

- Minimizes legal changes (hence removes almost all avenues for legal action);
- Protects consumer interests including mitigating against rises in retail pricing due to potential monopoly-rent pricing by an NBN operator

In keeping the existing services running, this approach will ‘future proof’ the NBN by ensuring that it has to remain competitive in the marketplace and does not become a moribund monopoly replacing the competitive landscape that has taken two decades to finally create in this marketplace today.

The NBN can be built with almost no changes to the law, and with the preservation of the existing facilities based competition structures – and indeed if any legal changes need to be made, they are to *strengthen* that regime, not to allow its decimation in the presence of an FTTN construction exercise.

To prove that there are no technical barriers to coexistence of the existing access regime and the new one, the author has written and presented a paper on this topic to the April 2008 CommsDay Summit held in Sydney.

That paper should be read at this point as an incorporated part of this submission – it explains in detail the following critical statement is true, specifically that:

***The existing exchange-based ADSL2+ regime can continue to coexist with the upcoming Node-based VDSL2 services (FTTN) without significantly compromising the performance of either set of services, and in particular while still amply exceeding the minimum 12 megabit per second target speed for FTTN.***

The paper (reference 2 below, and also attached to this submission directly) explains:

- The merits of coexistence,
- Provides the resolutions to the commonly presumed technical barriers to doing so
- Presents the benefits of explicitly acting in the interests of consumers in retaining what they have today for a minimum transition period (say, 5 years, if not indefinitely).

The bottom line here is clear; The primary beneficiary of the building of the NBN is intended to be **consumers**.

Specifically, it is intended to benefit consumers who can't access ADSL2+ at all today, and also to benefit consumers who can't reach speeds above 12 megabits per second if they require them.

It is important to note that while preserving the existing services (for those able to access them) may not be the lowest overall cost option for the network operator, it is the most pro-consumer outcome possible; And surely the point of the exercise, again, is consumer benefit – not the financial benefit per se' of the builder of the NBN.

If consumer benefit is the aim, the way to achieve that is clear – keep what we have now, in parallel to the NBN, for at least 5 years, everywhere that what we have today is already operational.

This is technically straightforward to achieve – so rather than asking why we should do so (which is hopefully obvious at this point), we should instead ask:

Why *not* do so – at almost any reasonable technical cost, its better for consumers than throwing away the last twenty years in the hope and belief that the NBN will necessarily be better for all concerned, in all cases.

Why take that high-risk path, when a low-to-zero risk path (coexistence) is available?

## References:

- 1) Combined iiNet/Internode heat map:  
<http://www.internode.on.net/heatmap>
- 2) Paper presented to the Comms Day Summit in April 2008 by Simon Hackett:  
<http://www.simonhackett.com/submissions/inconvenient-truth-fttn-hackett.pdf>
- 3) Huawei Vendor brochure demonstrating current support for mid-span injection and automated MDF functions in currently available VDSL2 equipment:  
<http://www.huawei.com/publications/view.do?id=690&cid=342&pid=61>
- 4) A conference paper from the Netherlands reporting on real-world testing that proves that mis-span injection to allow exchange-based ADSL2+ to coexist with Node-based VDSL2 works in practice, not just in theory:

[http://www.ist-muse.org/Documents/BBEurope2007/slides\\_BB2007\\_PSDshaping\\_v3.pdf](http://www.ist-muse.org/Documents/BBEurope2007/slides_BB2007_PSDshaping_v3.pdf)

- 5) An article by Simon Hackett called ‘The real issues about high speed broadband’: Access via the following link ( and click on ‘Technology’):  
<http://www.simonhackett.com>