

Fact checking Stephen Conroy's NBN speech to the Press Club

On 13 December 2011 the Australian Communications Minister Stephen Conroy gave a speech¹ (with accompanying slides) to the National Press Club, making the case for the NBN, Australia's government owned high-speed broadband network. This note fact checks some of his claims (shown in red).

“Download speed requirements have increased at 25 to 35% for more than two decades”

Actually the chart in the presentation shows that download speed *capabilities* have and will increase at this rate. Capabilities are not the same as requirements, and in particular to say that because FTTP is capable of 100 Mbps, this rate will be a requirement clearly doesn't make sense. It is equivalent to saying “because Ferraris can travel at 200 mph, this is a requirement of all drivers”.

“The volume of data over the internet is growing at a compound rate of 32 per cent annually. This will place increasing strains on our broadband infrastructure”

With the minor caveat that the 32% figure is the growth of the fixed internet, not the internet as a whole, this is an accurate statement of Cisco's forecasts for traffic growth. However, the more important point is that by using this traffic forecast in the context of NBN, Mr Conroy blurs broadband infrastructure in general (which will need upgrading) with the access network. In fact it is wrong to assume that traffic growth necessarily implies a need for greater access speeds. Traffic grows for many reasons, including more internet connections, more hours spent using each connection, and higher bandwidth uses. The first two require no increase in access speeds, and even the third needn't, since there is much latent capacity. For instance, someone starting to use YouTube not just email uses much more bandwidth but doesn't need fibre.

To get a sense of scale for the latent capacity in the Australian access network, consider the following:

| | |
|---|------------------------------|
| Australian fixed internet traffic (2010) | 67 PB per month ² |
| Australia average peak connection speed (Q4 2010) | 12.6 Mbps ³ |
| Implied capacity per connection day | 136,080 MB |
| Implied capacity per month equivalent to | 4,082,400 MB 0.0039 PB |
| Total Australian fixed broadband connections (Dec 2010) | 5.51m ⁴ |
| Implied capacity per month of fixed broadband | 21,236 PB per month |
| Implied utilisation of the access network | 0.32% |

¹ Available [here](#)

² Cisco [VNI 2010](#). This and subsequent figures include business connections

³ Akamai [State of the Internet, Q4 2010](#)

⁴ ACMA, [The internet service market and Australians in the online environment](#), July 2011

That the access network has average utilisation of 0.3% shows that there is potential for substantial traffic growth without any upgrade to the last mile at all. Of course, a low overall utilisation does *not* mean that individual users won't find their connection inadequate for certain purposes. However, that average utilisation is so low is evidence that it is very dangerous to assume overall traffic growth requires an equivalent increase in access speeds.

Moreover, Cisco's methodology for traffic forecasts uses connection speeds as an *input*.⁵ To take the output forecasts and then use them to argue for increased connection speed is completely circular.

“Whistle Out recently found entry level NBN prices were between 23 and 43 per cent lower than comparable ADSL 2+ plans”

The Whistle Out analysis⁶ does not compare apples and apples. It compares ADSL plus line rental charges to NBN broadband tariffs, saying “monthly line rental will not be required on the NBN”. This is strictly true, if a customer is willing to live with a VOIP service. However, the basic VOIP that comes with the NBN-based tariffs has a number of disadvantages compared to traditional telephone lines. For example, it will not readily work with a consumer's existing wall jacks, but rather offers a single modem to plug a phone into. iPrimus say of their own offering:

“Fibre Telephone service alone is not recommended if you/another resident have a disability, serious illness or other life threatening condition necessitating an uninterrupted phone line. No outgoing or incoming calls will be available if there is a power failure and the back-up facility is not maintained. It the customers' responsibility to power the back-up facility. iPrimus Fibre to the Home Telephony is a low cost service, so iPrimus only offers it to customers who agree to waive all rights under the normal Customer Service Guarantee for this service.”⁷

However, the more important issue is that NBN tariffs for higher speeds are appreciably higher than those for basic speeds. While this sounds natural, in market after market around the world it has been shown that consumers will not actually pay a premium for superfast broadband. According to respected European consultancy WIK Consult, “pricing strategies [that] regard fiber access as a premium service seem to fail”.⁸ According to UK regulator Ofcom, “Consumers [are] generally unwilling to pay a significant premium for a better (FTTH) service”.⁹

⁵ Cisco, *Cisco Visual Networking Index: Forecast and Methodology, 2010–2015*, June 2011. See page 4

⁶ Whistle Out, *What customers will pay on the National Broadband Network*, 18 October 2011

⁷ iPrimus [website](#)

⁸ Dr. Karl-Heinz Neumann (WIK Consult), *What are the Best Measures to Increase the Take-up of High-speed Broadband Connectivities?*, 14 September 2010

⁹ Ofcom, *Recent Broadband Developments*, 1 March 2011

JP Morgan have said “Only 5-25% of customers seem willing to pay [a] ~€10/month premium [for fibre]”.¹⁰ (€10 is equivalent to A\$13). Even for 50 Mbps services, NBN price premiums over base plans are more than this – typically A\$15.¹¹ If NBN is nonetheless able to win 5-25% of consumers for higher speeds, penetration rates in this range will still be problematic for the economics of the business. The NBNCo corporate plan¹² assumes that in 2012 30% of subscribers will be taking speeds of 50 Mbps or more, rising thereafter.

The NBNCo business plan is fundamentally built on the premise that consumers will pay much more for higher speeds. The evidence from other markets is that this is not the case.

“To achieve [60-80 Mbps] over FTTN requires bonded copper pairs”

This is simply untrue. Alcatel recently announced that they were achieving VDSL2 speeds of 100 Mbps at distances of 400m (using vectoring, not bonding). This was not a lab experiment, but based on field trials with a range of European carriers.¹³ Because FTTN is getting massive investment from carriers around the world, equipment manufacturers in turn are investing in technology development, and as a result performance over copper is improving rapidly.

An operational example is BT, who have announced¹⁴ that they plan to roughly double their FTTN speeds to up to 80 Mbps¹⁵ next year (without using bonding).

“I have mentioned the importance of upload speeds. FTTN is severely limited in this respect”

BT’s FTTN will have upload speeds of up to 20 Mbps from next year.¹⁶ This is actually as fast or faster than all but the most expensive NBN plans, and is sufficient for a household to upload two HDTV streams simultaneously. Unless someone is planning to run a data centre from their garage, this is likely to be more than enough.

“HFC is a dead-end solution ... [and] it can not deliver high upload speeds”

This isn’t NBNCo’s view. Their corporate plan says

“Telstra has upgraded its Melbourne HFC network to DOCSIS 3.0, announcing speeds of up to 100Mbps. The next possible upgrade would be node splitting, to reduce the number of End-

¹⁰ Hannes Wittig (JP Morgan), *The investment climate for telecoms – the European incumbent perspective*, 29 November 2011 [Presentation to ECTA conference]

¹¹ Note that this premium is before any increase in data consumption charges (which are not a generally a feature of European broadband pricing). Thus the comparable Australian premium is likely higher than A\$15

¹² NBNCo Ltd, *Corporate Plan 2011-13*, 17 December 2010 (page 118)

¹³ Paul Spruyt & Stefaan Vanhastel, *Boosting VDSL2 Bit Rates with Vectoring*, 21 September 2011

¹⁴ BT, *Openreach to transform broadband speeds*, 5 October 2011

¹⁵ For ADSL, ‘up to’ speeds can often significantly overstate the achieved speeds, which in practice depend on how far you are from the exchange. However, because the copper loop lengths in FTTN are so much shorter, ‘up to’ speeds are likely to be much closer to achieved speeds. It is worth noting that FTTH often fails to achieve advertised speeds, because of constraints in the non-access parts of the network

¹⁶ BT, *Fact sheet: Generic Ethernet Access over Fibre to the Cabinet*, 2011

Users who share the same segments of 750MHz coaxial network. Node splitting could be implemented as early as 2013-14, and would result in an increase in typical downstream speeds to 240Mbps, and upstream speeds to 12Mbps.”¹⁷

They go on to describe further (albeit more costly) upgrades that would be possible thereafter. In trials, HFC networks have achieved speeds of 1.5 Gbps.¹⁸

Comcast in the US is already using HFC to offer upload speeds of 10 Mbps (and download speeds of 105 Mbps).¹⁹ This is as much or more than most NBN plans, and is likely to improve over time.

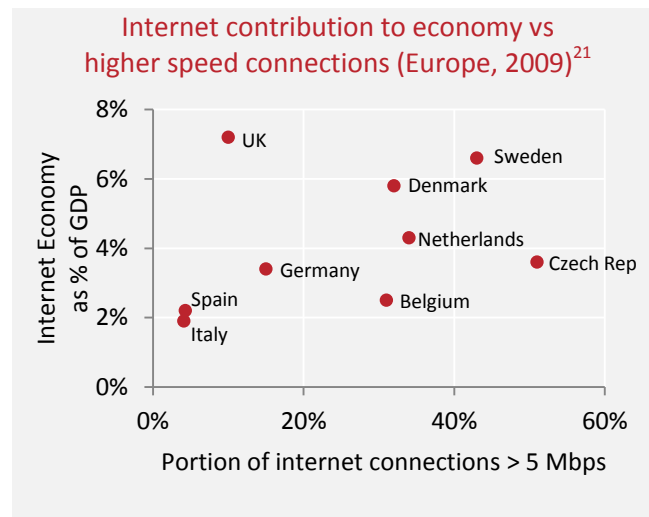
“[According to Citigroup] ‘demand in Australia is likely to exceed the capabilities of what the Coalition plan can deliver sooner rather than later’”

Citigroup’s conclusion is based on the very same equipment-vendor chart of access capabilities²⁰ (rather than speed requirements) that Mr Conroy used to make the case for the need for higher bandwidth, and so the conclusion is on the same shaky ground.

“The NBN is integral to the Gillard Government’s vision of Australia as prosperous, egalitarian, inclusive and connected. Like water, roads, rail and electricity, broadband is fundamentally important to the economic growth of all nations”.

Here Mr Conroy blurs the benefits of broadband with those of high speed broadband offered by NBN. There is no doubt that broadband brings many numerous benefits, both economic and societal. But this simply doesn’t prove that higher speed broadband brings greater benefits. Indeed, the correlation between broadband speeds and contribution of the internet to the economy is very weak.

BCG have undertaken an international study²² of the internet’s share of the economy in various countries.²³ By comparing this to



¹⁷ NBNCo Ltd, *Corporate Plan 2011-13*, 17 December 2010 (page 42)

¹⁸ Global Telecoms Business, *Virgin Media achieves 1.5 gig with Cisco*, 13 September 2011

¹⁹ Comcast, *Comcast Offers the Fastest Residential Internet Service to the Most Homes in the U.S.*, 14 April 2011

²⁰ Citigroup, *Still Connected Without NBN*, 4 November 2011 (page 10)

²¹ Sourced from BCG and Akamai, as below. Note that the highest speed category then tracked by Akamai was greater than 5 Mbps

²² BCG, *Sizing the Digital Economy*, September 2011

²³ As I discuss below, BCG’s methodology (which is similar to that used by Deloitte Access Economics) likely overestimates the contribution of the internet, but our purposes here the key point is that they have used a consistent methodology across countries

Akamai's measurements²⁴ of the portion of internet connections that are higher speed, we can test the idea that the two are linked. In fact, the correlation is low ($R^2=0.09$). The UK, which BCG commended as one of the markets with the strongest internet economies actually had one of the lowest proportions of higher speed connections.

“Deloitte Access Economics found the internet contributed \$50 billion to Australia’s economy”

This is an accurate statement about what Deloitte Access Economics said²⁵, but their methodology was extraordinarily generous in its calculation of the internet’s contribution. Firstly, one quarter of the \$50 billion comes from ‘public spending on ICT by all levels of government’. However, it is far from clear why a government office buying a printer or a telephone or a large software system should be treated as part of the internet economy. Secondly, it includes all retail sales – if someone buys a book online for \$10, this full value is factored in, though even without the internet it might have otherwise been bought in a shop. This approach also takes no account of the fact that the book might be imported (meaning that its wholesale value should be excluded, since that is no part of the Australian economy, internet or otherwise). Deloitte do offer a second methodology, based on income not expenditure – this comes up with the much lower figure of \$22bn.

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²⁴ Akamai [State of the Internet, Q2 2009](#)

²⁵ Deloitte Access Economics, [The Connected Continent](#), August 2011