

Vertigan's cost benefit analysis – chickens, eggs and the ogre of mobile substitution

Vertigan's Cost Benefit Analysis leaves the door open for the traffic model of charging. And if its analysis is correct, it means the NBN has much to fear from mobile broadband.

The Cost Benefit Analysis (CBA) presented in Volume II of the Vertigan reports is the first serious attempt to look at the demand for the NBN.

It should end the debate on the superiority of the Coalition's multi technology mix (MTM) plan over Labor's fibre to the premise (FTTP) plan, but its analysis raises other questions, including the role of mobile broadband as part of the NBN.

The most controversial finding in Communications Chambers' bottom-up analysis of the demand for bandwidth is the statement that by 2023 the top 5% of households will need just 43 Mbps, and the median household only 15 Mbps. (Communications Chambers is the UK consultancy which did the bandwidth modelling for the CBA).

Vertigan and the critics

The logic used to arrive at this conclusion has been attacked, most notably by Rod Tucker (*CommsWire*, 9 September). But Tucker has in turn been accused by Communications Chambers' Robert Kenny of confusing supply and demand (see his article in *Technology Spectator* [here](#)).

Since the main difference (apart from cost and time to deliver) between the MTM and the FTTP deployment plans is speed (bandwidth), it is not surprising that the focus of Vertigan's CBA is identifying what incremental benefits accrue from additional speed.

While Robert Kenny rightly says speed is no longer driven by traffic, he ignores the impact of abundant bandwidth (if it is not rationed) on traffic: "the model does not (and could not) treat 'unknown unknowns', bandwidth uses that we have not yet imagined but which might be enabled by the availability of higher speeds," he says.

This is, of course, the key to criticisms of his modelling. We do not know what applications may use this bandwidth in future, and history shows us that new classes of application are constantly being invented.

In the past, the speed of Internet access has constrained the use of potential applications. This constraint is now gone. But even the Fibre to the Home (FTTH) Council says that there is "no really compelling application yet" for faster speeds.

This would seem to be confirmed by [reports](#) that Google Fibred cities are struggling to find uses for greater bandwidth. But as Google's Kevin Lo says: "We need to encourage

developers who have great ideas, but we also need to build a critical mass of people who can use those applications. You need both for the breakthroughs to happen.”

So, we have a chicken and egg situation. Vertigan and Communications Chambers says we have enough bandwidth, their critics say build it and they will come.

To illustrate: Telstra initially migrated customers to the NBN to the 100/40 plan but now migrates customers automatically only to the 25/5 plan. That is because there is no application (yet) to justify the extra \$15 per month for the higher speeds. And – chicken and egg – no such applications will emerge until there is a critical mass of high speed users.

Critical Mass and the traffic model

Critical mass is the key issue. Some countries have high coverage of broadband but take-up rates have not been high (Vertigan II, Table 6.12). That is because (with the exception of Google Access – and the traffic model), users have to pay extra for more bandwidth.

If NBN Co bestowed full speed on all lines (already true of all mobile access!) Australia would be in the unique position of having ubiquitous, national, full speed broadband – maybe with sufficient market size to attract innovation.

It would not cost NBN Co any more to provide full-speed. But, are we leaving money on the table if NBN Co bestows full speed? Not much.

Currently, 42% of customers pay \$66 pm for the 12/1 plan on the NBN. The average retail premium over this for faster plans is \$9.30 per month (Vertigan II, p71). If all paid just \$66 for full speed, the forgone access retail revenue is \$56 million a year for the million premises currently passed by the NBN. That is less than 2% of current retail broadband revenues and excludes larger data cap revenues for extra traffic induced by faster speeds.

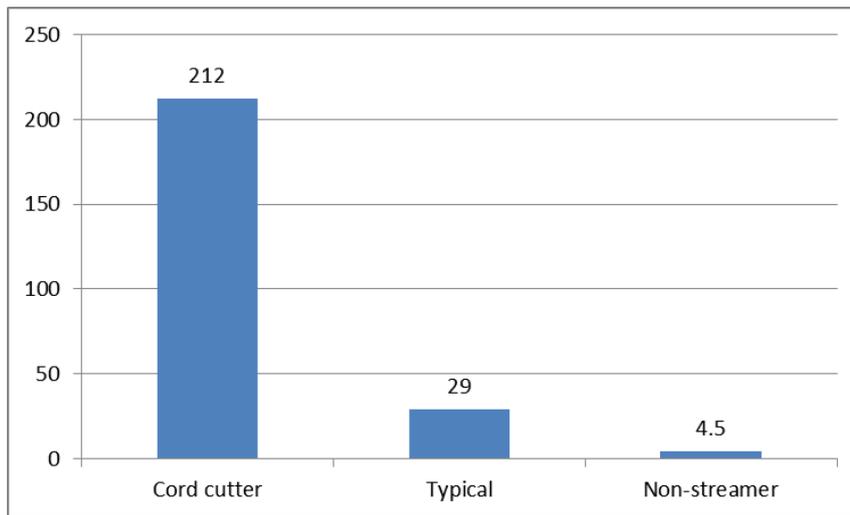
But wholesale revenues would be higher with the traffic model. The standard traffic model fixed fee of \$38 is more than the average \$29 AVC fee currently received by NBN Co (Vertigan II, Table 6.13). And the traffic model leads to extra revenue for traffic growth too.

Of course, ISPs could put customers on the traffic model’s cheaper entry level fee at \$10 a month, but that only makes sense if the customer’s traffic is under 10 GB (second chart).

As at December 2013 the average download across fixed networks in Australia was 47 GB per month (ABS Cat 8153). But that arithmetic mean will be influenced by a long tail – a small number of users probably account for the lion’s share of traffic.

This is illustrated in the chart with data from [Sandvine](#) on traffic usage by customer segments in the US. The “cord cutters” stream video rather than use cable TV. In the USA, Netflix alone accounts for a third of downloads. The mean and median downloads for North American users in the first half of 2014 were 43.8 GB and 17.4 GB respectively.

Bestowing full speed would be a real game-changer. If NBN Co did that, no ISP would try to price on bandwidth because it would not want to be the only one that did.



The benefits of the NBN do not accrue from speed per se (except for time savings) but from what users do with it – the content and applications. There may be little public benefit in enabling greater consumption of streaming video. But, if the capacity is there - and it is – why not use it? And is it not possible that new productive applications that will use those higher speeds will arrive?

Vertigan’s cost benefit and mobile substitution

If Vertigan and Kenny are right, the logical conclusion is that mobiles threaten the commercial viability of the NBN because bandwidth will not be the key differentiator between fixed and mobile – the apps you want will run on both equally well.

Telstra has just announced (*CommsWire*, 12 September 2014) that its 4G coverage will reach 90% of the Australian population by the end of January 2015, giving it the world’s largest 150Mbps peak network speed and peak network speeds of up to 300 Mbps on Category 6 devices. This is more than enough given the Kenny analysis. Optus and Vodafone are also quickly expanding their 4G coverage.

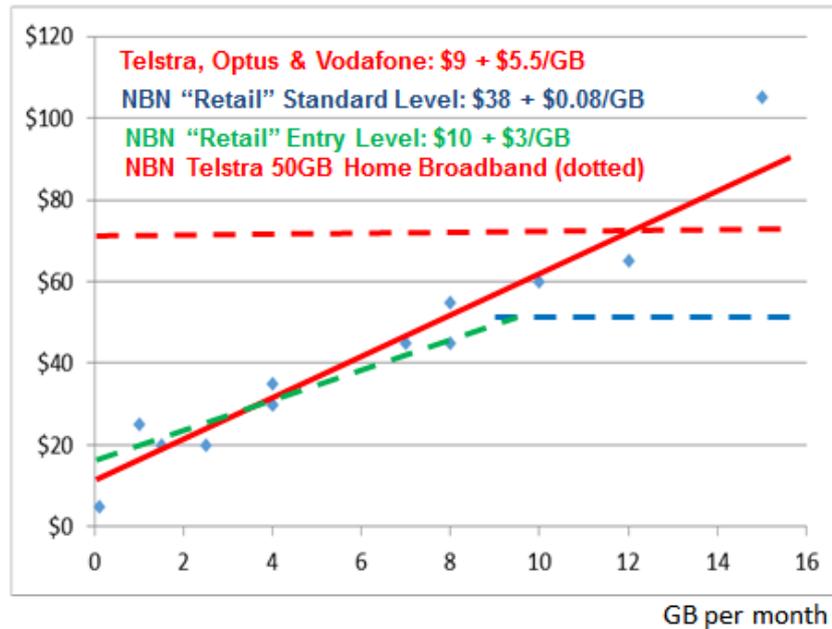
Mobile broadband, at some of the highest speeds in the world, is fast becoming the default for many Australians. The ABS reports 12 million fixed broadband users, 20 million mobile phones and 6 million other mobile devices (tablets with SIMs, USB modem, dongles etc.)

Ofcom [reports](#) that in the UK over 50% of those with a smartphone or tablet said these were the most important devices for accessing the Internet. Almost all adults with a smartphone also have fixed broadband, although only 4% relied only on mobile access.

The best thing about the first era of broadband was ‘always on’. In the next era it will be broadband that is ‘always with you’.

Even if NBN Co adopts traffic model pricing, the retail prices on fixed and mobile networks would be very similar. The blue dots in the chart show SIM prices on mobile devices (but not smartphones; which were illustrated in [Entry Level Pricing for the NBN](#)) for the three carriers with a red “best-fit” line drawn through them. The NBN dotted lines include Telstra and what is possible with the traffic model (‘retail’ because a 30% retail margin and GST

have been added to what the traffic model would charge).



On these numbers it looks tempting to forgo the NBN entirely and rely on mobile broadband access. The average monthly downloads on handsets and devices (which includes satellite) in the December 2013 quarter were only 0.5GB and 2GB respectively.

Could you live with around 2-10GB per month as an individual (or 2x 5GB for a household)? Probably anyone could if they can forego games downloads and watching more than a few hours of video – this isn't everyone, but maybe quite a few and growing each year.

Maybe NBN Co should not be scared of mobile broadband, but embrace it. With MTM deployment NBN Co is now more technology agnostic in the platforms it uses for itself. But, with end customers clearly comfortable using mobile devices, maybe NBN Co should go further and consider incorporating 4G LTE into the access network – as it is in some regional areas. Then the NBN would be truly technology agnostic – and cheaper to build.

As they say, "if you can't beat 'em, join 'em." Turn the ogre of mobile substitution into a friend of the NBN. With convergence of fixed and mobile access networks, Australia could lead the world.

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