SOME COMMENTS ON PAUL FLETCHER'S ARTICLE ‘BROADBAND: WHAT IS THE PROBLEM TO BE SOLVED, AND IS THE NBN SOLVING IT?’

Wayne Fitzsimmons

The Member for Bradfield has argued well for the Coalition's position on the NBN (Fletcher 2012). I would like to present an alternative perspective on some of the key issues surrounding the NBN implementation. Most importantly I wish to counter some extravagant assertions such as the NBN being 'stupendously expensive and unnecessarily complicated'. I will argue that the nation can and must afford it, and that from the 100,000-foot level, the Coalition approach to the NBN is essentially identical to the existing NBN Co plan; the difference lies in the timeline to full implementation.

INTRODUCTION

The Member for Bradfield has argued well for the Coalition's position on the NBN. I would like to present an alternative perspective on some of the key issues surrounding the NBN implementation. Most importantly I wish to counter some extravagant assertions such as the NBN being 'stupendously expensive and unnecessarily complicated'. I will argue that the nation can and must afford it and that from the 100,000-foot level, the Coalition approach to the NBN is essentially identical to the existing NBN Co plan; the difference lies in the timeline to full implementation.

Just how all of this got started when Labor came to power in 2007 appears to be some source of conjecture as evidenced by the Member for Bradfield's assertions. As an interested citizen, my observations are as follows: In 2007, the government of the day called tenders for a Fibre to the Node (FTTN) – yes a FTTN, broadband network. Our major carrier of the day, Telstra, just happened to 'no bid' with great wringing of hands and many press conferences to explain it all away. Senator Stephen Conroy faced up to this dilemma as the responsible Minister with a visionary solution based on the premise, (I presume) that this market failure demanded that the government step in on a piece of infrastructure that was fundamental to ensuring this great trading nation of ours remained internationally competitive. This is critical, clearly, to ensuring our standard of living we all take for granted, will be sustained over the long term – 50 years?

Unfortunately the arguments from both persuasions are not being articulated well enough for most of us to make an informed decision about which one is best for Australia. I hope this discussion assists those Australians who are interested in ensuring our politicians get it right on the NBN; such a critical piece of national infrastructure deserves nothing less.
A PRIMER ON THE ALTERNATIVES

It would appear that the Coalition argument is that there are huge savings to be made by embracing the FTTN solution. The schema is approximately like this: run fibre from the local exchange to nodes mounted in street hardware so that maximum distance from the node to any household is less than 200m give or take a few metres; then utilise the existing copper pairs and/or Hybrid Fibre Cable (HFC) (currently owned by Telstra but will transition to NBN Co as the NBN is rolled out) to link to each premise (house, office, apartment blocks etc).

The current NBN Co approach is to run fibre from the local exchange right to each premise (house, office or apartment block) – that is, Fibre to the Premise (FTTP). The existing copper pairs and HFC will eventually be de-commissioned and NBN Co is paying Telstra some $11 Billion to withdraw them from service over time.

It goes without saying that the FTTN is substantially cheaper than FTTP in terms of capital costs relating to cabling (digging holes in the ground largely) as it will utilise existing ducting/cable runs to connect node to user. In regard to capital equipment costs, I am unaware of the estimated number of nodes required in the FTTN solution but will concede the capital required to install the nodes could be as low as 25% of the FTTP rollout and certainly will be less than the savings made by not having to dig holes.

However, there are a few other high level considerations that we as consumers need to be aware of, before concluding there would be long-term meaningful savings to be made by the nation by switching architectures. The Coalition's approach is to run FTTN and retain the HFC and existing copper pairs to take advantage of the emerging new capabilities on these two forms of distribution – high speed (but not as fast as optic fibre), lower cost and faster rollout. Further it is not clear what are the costs and complexities of mixing FTTN and FTTP or of the impact on the final transition to FTTP. This clearly will be significant, to say the least. Whilst the capital cost of the equipment in the street cabinets will undoubtedly be lower in cost than running new lines from the local exchange to all premises, determining the lifetime expenses for this option must also include such elements as:

1. Incremental training costs
2. Duplication of sparing
3. Failure rates (given optic fibre is passive and these street cabinets are active) – damage rates due to 'traffic accidents', many more points of equipment failure
4. Incremental power consumption (the large green footprint will not thrill lots of citizens)
5. Obsolescence - how long before they all need to be phased out and replaced – 5 years, 20 years?
6. Opportunity costs associated with mixing technologies v uniform equipment and doing FTTP now versus later
7. Price penalties because of purchase volume compromises

SO WHAT ABOUT THE NUMBERS?

So there needs to be some numbers run (Operating Expenses and Capital) to put all of these issues in context and not just sweep them under the carpet as irrelevancies lost in the huge self-evident disparities in the capital cost between the two approaches. I have not quantified these items as I simply don't have the resources, but am just applying some simplistic engineering principles to this situation. And, by the way, architecturally in telecommunications parlance, they are not considered to be different architectures but rather subsets of a common distribution model termed FTTX. In other words, the arguments are about affordability and timelines.

We are told by some that FTTP has never been applied anywhere else in the world. This is not the case, as FTTP has been implemented by Verizon in the US and also in a number of
European and Asian markets, albeit not on a national basis. We also are told that many countries, like Korea and Singapore, have used FTTN architectures and have installed very high speed broadband networks nationally in record time and at a fraction of the cost of the NBN's proposed investment. Again this is not the case from my understanding. Apart from the obvious geographic disparities between these two countries and Australia, my observations after visiting these nations many times over many years, are that (apart from businesses) they are, broadly speaking, densely populated urban communities living in high rise apartment blocks with no rural coverage requirement. FTTP would be totally inappropriate and – as our NBN Co will do here – FTTN for apartments and green fields is the most cost-effective manner of distribution. It really doesn't matter (in the green fields case) whether or not the link from the node to each household is copper, HFC or optical fibre, as I would presume the capital cost of an initial installation would be roughly the same for each. Further it needs to be appreciated that the NBN Implementation Study Report (DBCDE 2010), shows that 25% of the estimated total spend of $43 billion is to provide rural and remote coverage to the 7% of Australia's population residing outside the optical footprint – and the Coalition endorses this approach!

It is generally conceded by FTTN proponents that FTTP performance exceeds FTTN, but that for most of us the reduced performance is not meaningful, at least for the next 10 years. It's self-evident isn't it? No it isn't! Let's agree that looking out five years is reasonable, but no one is able to predict 10 years out with this new world of the Internet. Fifteen years ago 32Kbits/sec was an almost acceptable Internet access speed at home but now no one would seriously consider anything less than 1Mbit/sec. So in five years' time (maybe 10), this nation will have to seriously look at its telecommunications infrastructure once more and plan yet another super high speed network. Capital costs let alone labour costs will hardly have decreased by then, one would have thought.

Based on my anecdotal experience in dealing with Telstra over the last 15 years or so in inner suburban Melbourne, the HFC solution prior to the advent of NBN Co was unreliable, and capacity for downloads once the kids returned home after school was severely diminished – that's a function of the laws of physics so it wasn't Telstra's doing (optical fibre overcomes this fundamental limitation of HFC). I switched to ADSL2 a couple of years back because of these issues and, in general, it has been reliable and satisfactory in terms of download speeds. I still have the cable, of course, for my Foxtel service (the reason it is there in the first place was to deliver cable TV, you may recall) and I was never quite sure why the reliability of the cable TV was substantially better than the cable data service – could it have been the modem, the exchange kit, who knows?

One other obvious comment to make is that, in broad terms, the copper network is old and many would say coming to the end of its technical life (but perhaps not its commercial life!). In my opinion, Telstra have a dream deal with NBN Co – $11 Billion to stop using it! I haven't looked in detail at Telstra's asset register on their balance sheet but I would think that the copper asset is largely written off after 50 years or maybe it's only 40 years?

THE CRUNCH ISSUE

So now we are closing on the real issue – the costs to the nation. One dimension, that I feel is often left out of discussions by all participants in this debate, is the time line for expenditure. We are talking very large numbers (tens of billions of dollars) so normalising over a time horizon is critical in comparing solution costs. NBN Co have set out their version of this very clearly and opened it to very detailed analysis, as they should do as a Commonwealth Government Business Enterprise (for now). As mentioned earlier, 25% of the total spend is for the 7% of the population of our diverse nation who can't get access to a FTTP solution it will be fixed wireless, or satellite), and the Coalition are supporting this concept also, as I understand it. So now instead of arguing over $37.3 Billion, we are arguing over $30 Billion over – is it five years or 10 years? Let's say it is eight years – that is $3.5 Billion a year, which still sounds like a lot of money. So can Australia afford the FTTP solution?
The ANZ Bank's 2010 Economics & Global Markets Research indicated that over the past 25 years the average investment in Telecommunications in Australia was about 0.5% of GDP, but since 2001 it has dropped to 0.4% of GDP (ANZ Bank 2010). Whilst the NBN Co spend is large, it probably will not account for all of the annual spend on telecomms. Some facts will help in placing these numbers in perspective. The World Bank estimates that Australia's GDP in 2012 will be close to $A1.6 trillion so the data in Table 1 is a reasonable basis for contextual discussions:

<table>
<thead>
<tr>
<th>Avg % of GDP spent on telecomms</th>
<th>National GDP in 2012 $1.6 Trillion/ann</th>
<th>NBN Total Capital spend over 8 years $ 37.3 Bill</th>
<th>NBN spend as % of telecomms avg spend</th>
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</thead>
<tbody>
<tr>
<td>0.4%</td>
<td>$6.4 bill/ann</td>
<td>$ 4.67 Bill/ann</td>
<td>73%</td>
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<tr>
<td>0.6%</td>
<td>$ 9.6 Bill/ann</td>
<td>$ 4.67 Bill/ann</td>
<td>49%</td>
</tr>
</tbody>
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Table 1 - Average Spend levels on Telecommunications Infrastructure

It is true that NBN will increase the average spend over the next eight years but even at 73%, it would appear the nation can well and truly afford it.

The coalition concedes that ultimately FTTP will be the only long-term viable solution to fully exploit the new technologies as they become available. So their argument is that we should increment our way to this ideal over a yet to be defined period. In the interim NBN Co will be instructed to take a hybrid approach and extend the life of the installed copper/HFC etc. In the short term this will be at a much lower cost compared to FTTP and the performance achieved will be satisfactory in terms of ensuring our nation's international competitiveness. If this is how the coalition sees it, then let us have a public debate on the merits of each approach, but remove from the argument that we simply can't afford it – it being FTTP. Several informed sources are suggesting that instead of the FTTP footprint covering 93% of the population, a 85% footprint might be more appropriate – surely these type of alternatives warrant serious analysis and debate. Regardless, each year the FTTP rollout is delayed, the more expensive it will be and potentially Australia will fall further behind the rest of the world.

So whilst we are on about performance, the Coalition is proposing to refer the NBN to our Productivity Commission (PC) to do the cost benefit analysis. Given the coalition is proposing to implement NBN almost identically to Labor's plan only more slowly and with a blend of existing distribution technologies and fibre, surely they must therefore agree the benefits are already evident and the PC will merely articulate and quantify them given Labor has not seen it necessary to do so. Is the Coalition really suggesting this is the rationale for delaying the rollout?

SO WHY DON'T WE JUST DO IT ONCE AND DO IT RIGHT?

The challenge before us is not how fast the rollout will go or what are acceptable uptake rates in the early years, rather it is what we do to exploit this wonderful new platform that has such a huge potential for our nation. I, for one, am looking for leadership from our federal politicians to articulate the benefits we can look forward to and how our children will be assured of the legacy they deserve.

REFERENCES

ENDNOTES

1. The technologies utilised should be Fibre to 93% of premises (including Greenfields developments), Fixed Wireless to 4% of premises (delivering at least 12Mbps), and Satellite to 3% of premises (NBN Co. 2011).

2. Investment in Australian telecommunications (average 0.5% of GDP) over the past 25 years seems adequate given that in 2001 it scored a B (ANZ Bank 2010). However, since 2001 spending has dropped to an average of only 0.4% of GDP and this has been accompanied by an assessed decline in infrastructure quality. Investment in the National Broadband Network has now begun and this should lead to substantial investment in the sector over the next 8 years that will raise infrastructure quality. US investment has been weak relative to Australia. However, Australia might be expected to invest more as a % of GDP because its population is more concentrated in the major capital cities and the cost to provide telecommunications to regional areas is marginally more expensive.