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***Submission to the
House Standing Committee on Infrastructure and Communications'
Inquiry into the role and potential of the National Broadband Network***

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Mr Andrew McGowan
Secretary
Standing Committee on Infrastructure and Communications
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Dear Andrew,

Thankyou for the opportunity to present a submission to the *Parliamentary Inquiry into the role and potential of the National Broadband Network*.

The potential benefits from the near-universal availability of superfast broadband in Australia can lead to enormous advances for our society, but the benefits depend on the network being embraced by Government, Business and the community at large.

I will address several of the terms of reference as identified, based on my own experiences as an Australian and small business owner.

d) *The management of Australia's built and natural resources and environmental sustainability:*

The NBN has the potential to greatly reduce our natural resource use and aid our future sustainability, however achieving these outcomes will require business and Government sectors to lever the potential of the network through flexibility in working practises and conditions.

There are many occupations where a fast network such as the NBN could facilitate regional business growth, decentralisation and extensive telecommuting (work-from-home) opportunities. Existing ADSL and ADSL2+ networks do not allow for effective telecommuting, and faster HFC cable networks do not cover enough of the population to make telecommuting a viable practise for most workers.

The current deficiencies are most apparent in the outer "commuter belt" of our large cities, such as the NSW Blue Mountains and Central Coast regions. Areas such as these have a large number of commuting residents, but are outside the rollout zones of the Telstra and Optus HFC networks, and have few or no newer fibre-serviced estates, making telecommuting impractical.

Case-study of a current deficiency that would be rectified with an NBN:

Two years ago, my wife received an agreement from her employer in North Sydney to commence a trial telecommute, two days per week. They provided a laptop and Virtual Private Network (VPN) connection in order to enable this. However, it soon became clear that the ADSL connection available to us at home was inadequate to serve the needs of her connection, and the trial was abandoned.

Investigations revealed that while the download speed of 8Mbps was (barely) adequate, the upload speed of 384kbps was well below the requirement for practical use. The IT department advised that the system required at least 1Mbps upload speed for reasonable usability, which our ADSL service could not provide, even if she were the only member of the household using the internet connection.

Resource and environmental benefits that could be aided by an NBN:

- Reductions in CO₂ emissions
- Reduced demand on road and public transport infrastructure
- Reduced demand for fossil fuels
- Reduced traffic congestion
- Reduced demand on CBD parking

f) **Impacting business efficiencies and revenues, particularly for small and medium business, and Australia's export market:**

This is perhaps one of the most tangible benefits offered by an NBN.

Big business has long enjoyed the benefits provided by fast broadband networks, as they have the facilities and revenue to justify the huge cost of a fibre-optic or microwave connection. Small and medium businesses simply cannot justify such a cost, which puts them at a disadvantage both to larger businesses and to businesses from overseas where high-speed networks are ubiquitous.

As the use and size of image and video files continue to increase, our current network is becoming a great impediment for businesses trying to take advantage of these new technologies.

Case-study of a current deficiency that would be rectified with an NBN:

I operate a small business based in an outer-suburban area of Sydney. Much of my business relies on the internet, with an online store and regular data transfers between myself and my clients (who are generally located in the Sydney Metropolitan area). My current internet connection (13Mbps down/0.5Mbps up – the fastest available to me) is an impediment to the productivity of my own business and that of my clients.

Due to the slow upload speeds available via DSL networks, a typical transfer to a client takes 10-12 hours to complete^(See figure1), during which time my internet connection is essentially unusable for any other purpose. In addition, the slow upload prevents my clients from accessing the files they have purchased, leading to downtime and delays at their end. If deadlines are short, this means I sometimes have to hand deliver the files rather than send them electronically. This three-hour return drive is a major productivity loss and also incurs costs in fuel, vehicle wear and to the environment.

Benefits to small and medium businesses that could be delivered by an NBN:

- Growth in rural/regional business and employment opportunities
- Reduce the enormous network quality disparity which exists between large and small/medium businesses
- Deliver services which are currently cost-prohibitive for small business – eg: Cloud Computing, offsite backups, remote interactive training sessions
- Large increase in productivity for businesses with an online presence
- Reduced vehicle operating costs

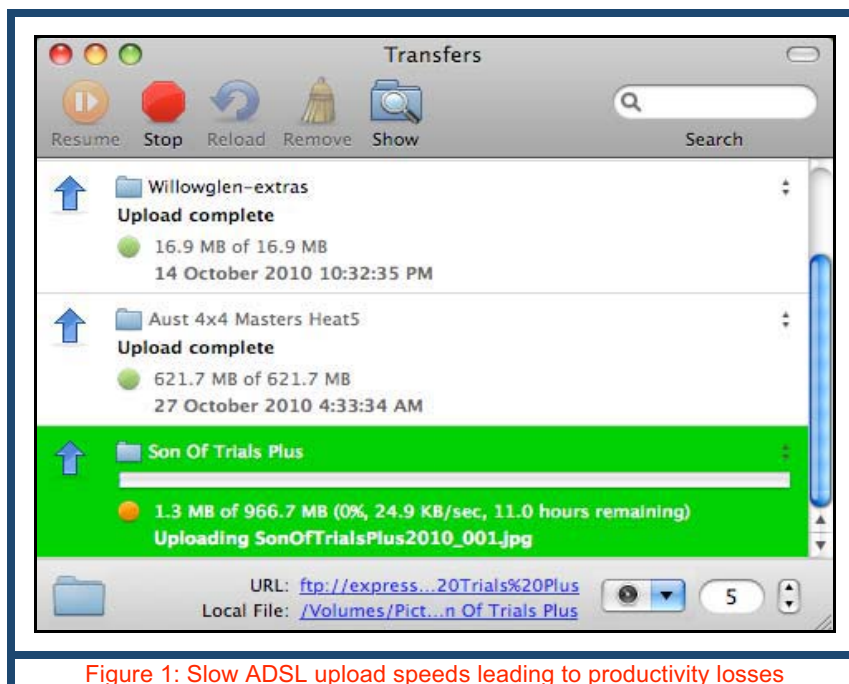


Figure 1: Slow ADSL upload speeds leading to productivity losses

h) *Facilitating community and social benefits:*

The provision of near-universal fast broadband has the potential to provide great benefits in the quality of life of Australians through improved family life, reduced stress and improvements in community services.

Benefits that could be delivered by an NBN:

- More time to spend with family for telecommuters
- Improved competitiveness in a global digital economy, leading to reduced unemployment
- Reduced pollution and lower taxes and expenses for transport
- Reduced vehicle accidents due to fewer vehicle movements. Lowering insurance premiums, healthcare costs, emergency service loads and reducing productivity losses
- Improvements in education levels and availability
- Opportunity for vast improvements in rural education levels
- Migration of community services such as counselling, basic healthcare and other Government services online, through HD video interaction. Further reducing the need for travel and improving access to services from home.

i) *The optimal capacity and technological requirements of a network to deliver these outcomes.*

To deliver the current outcomes I have detailed above, a substantial portion of the population should initially have the ability to access at least 20Mbps of *actual* download speed and 5Mbps of *actual* upload speed. Such speeds would facilitate telecommuting, improve business productivity and remove barriers to the growth of small and medium businesses outside CBD areas. As applications become more complex and widespread, I believe speed requirements will increase.

Claims that a *12Mbps down / 1Mbps up* connection “ought to be enough for any home user” ignore the fact that many homes and SOHO businesses require concurrent internet access for multiple users at any one time. So while such a connection *may* be adequate for *most* applications for a *single* user, several users sharing that connection would quickly overwhelm it. This situation is becoming far more common as families grow more dependent on online content for business, education and entertainment.

Of particular concern are the upload speeds available over existing networks. Despite theoretical claims, even ADSL2+ typically provides real-world upload speeds of under 0.5Mbps, which is a severe impost for many business users. The news that even a basic NBN connection will provide 1Mbps upstream, with speeds of up to 400Mbps available if required, will be a boon for business productivity.

Without knowing the technological advancements that will occur in the future, it's impossible to accurately predict the additional speed requirements that unknown innovations will require. Given the past history of the internet however, it would be naive to assume that our “need for speed” won't continue to increase well beyond the capability of current DSL networks, which are the fastest technology currently available to most Australians. With its vast capability reserves, a fibre-optic based network is clearly the most future-proof solution to deliver the increased speeds that we will come to rely on in the future.

Recommendations:

- The Federal Government and/or NBN Co and RSPs must begin a public and business education campaign on the uses and potential uses of the network, in addition to drastically improving public access to technical and user information surrounding the NBN, such as costs, pricing and available services. There is currently a huge void in this area, which has led to uncertainty, confusion and misinformation campaigns relating to the network and its potential.
- The Federal Government and/or NBN Co should begin sponsoring regular conferences to encourage the development of applications for superfast broadband technologies in Australia. These conferences should include technical seminars, but also include presentations suitable for the general public and small business, in order to increase general awareness of network potential. Public access to these conferences must be free of charge.
- The Federal Government should work with NBN Co, State Governments and RSPs to provide small and SOHO businesses with a “one stop shop” of telephony, fax, data and cloud computing services, which take advantage of the network. This should include an education campaign for small businesses so the new services and possibilities provided by the NBN are made known to them.
- Local, State and Federal Governments should immediately begin consultation with Business and Union groups to examine employment positions which could benefit from telecommuting and begin trials of such as the network is rolled out.
- All levels of Government and community service groups should begin working towards providing services over the network. While e-Health is already a focus, other services such as counselling, interviews and remote HD-video based, interactive education should begin trials as soon as services become available.
- NBN Co should prioritise the rollout of their fibre network in outer suburban areas and regional centres which do not currently have access to high speed fibre or HFC networks. Areas that already have access to fibre and/or HFC should be amongst the final areas covered by the NBN. By so doing, the benefits of high speed broadband can be made available to more in the community, sooner. As an interim measure, NBN Co should investigate the leasing of access to the existing HFC network(s) in order to provide people in those areas with an open-access network of reasonable speed until fibre can be installed. This could be completed in a similar way to the proposed interim leasing of satellite services.
- NBN Co should actively pursue partnerships with Local Government and community groups to facilitate the expansion of the fibre footprint where local groups are willing to share the cost of such expansion or assist with the rollout itself, thereby reducing the cost.
- NBN Co should do whatever is possible (through the use of emerging wireless technologies) to improve the wireless and satellite portions of the NBN so those users outside the fibre footprint are able to access speeds in excess of the proposed 12Mbps downstream.
- NBN Co should publish a proposed nationwide rollout schedule, so business groups can begin planning for the arrival of the network in their area.

Best Regards,

Jamie Benaud
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