

JOINT COMMITTEE ON THE NATIONAL BROADBAND NETWORK

Rollout of the National Broadband Network

27 July 2011

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DATE:	25 July 2011
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CONFIDENTIALITY:

This submission is not confidential. I give consent for my name to be used in the committee's reports, along with excerpts or quotes from this submission.

OVERVIEW:

The currently proposed and offered NBN satellite solution does not support distance education as it does not support video-conferencing or have multicast functionality.

The Schools of the Air (SOTA) in the Northern Territory have been successfully delivering IDL lessons to their students using technology that does support video-conferencing and does have multicast functionality for the past 5 years.

In addition, teachers in specialist subjects (which are often difficult to source) in urban, regional and remote schools can use the same technology to deliver IDL lessons to any student wherever they may be located geographically providing scope for student education that is resource and cost-effective.

The NBN's proposed and offered satellite solution is inferior and inadequate to service the needs of those students receiving their education via satellite. If the proposed NBN satellite solution is rolled out in its present format, students will be severely disadvantaged and will be forced to take a retrograde step in their receipt of education.

On 5 July, at the Joint Committee hearing on the NBN, Mr Rob Oakeshott raised with Mr Mike Quigley (NBNC) concerns that the SOTA would lose the capability for video-conferencing as a result of the proposed upgrade in NBN satellite services but Mr Quigley was puzzled as to what would be down-graded. It is very concerning that NBNC's CEO is oblivious to the requirements of and impact on such an important and growing section of the community.¹

BACKGROUND:

Sixty years ago, the SOTA in the NT started using HF radio to deliver lessons to their remote students. At first, lessons used one-way audio with teachers delivering pre-prepared scripts to their students but shortly after a question and answer time was added to the end of each broadcast lesson.

In 2002/3, SOTA moves to using Interactive Distance Learning (IDL) technology as a model to deliver lessons to their remote students. This was facilitated using computer technology and the software program One Touch. This provided two-way audio and one-way video which enabled students to see their teachers for the first time.

In 2006, SOTA moved to the new IDL software program known as REACT (Remote Education And

Conferencing Tool) which is Northern Territory developed software designed specifically for distance education. REACT employs the most up-to-date technology to provide excellent quality multi-way audio and video which permits all students and teachers to see and hear each other as if in the same room.

In 2007, as a result of \$4.5 million in federal funding (plus \$8.6 million in co-contributions) under the Clever Networks program, the STARS project built a new satellite network in Darwin which provided increased bandwidth for delivery of education and e-health services to remote communities and homesteads in the NT.²

This has significantly improved the delivery of IDL at SOTA and online education at over 200 urban, regional and remote schools “The new STARS network has enabled an increase in the number and variety of education programs available and is providing superior audio and video interaction capability.”²

As a result of the capabilities now afforded by the network and software, in 2009 the SOTA started delivering lessons to middle-years (7-9) students for the first time. This was a significant milestone in that remote students that would once have had to go to boarding school for their education were now able to stay at home with their families. The benefits to the student and the family as a whole cannot be underestimated when considering remote students who experience isolation on a daily basis.

The success of the project has seen other government agencies jump on-board and what started as a 6 MHz usage has grown to 36 MHz which is the maximum capacity of the transponder. Initially 6 venues or classrooms were used and this has now grown to 72 venues.

Not only do SOTA and the schools have an improved service, other stakeholders have active involvement through access to the network and software. Examples include:

- Royal Institute for Blind and Deaf Children (RIBDC) deliver lessons to students with disabilities,
- Richmond football club mentor indigenous youth,
- Isolated Parents & Children Association (ICPA) hold meetings,
- Parent & teacher (P&T), parents & citizens (P&C) groups hold meetings

These all take place without people needing to leave their homes and travel possibly hundreds of kilometres often on dirt roads to access these services or attend meetings.

People in the remote areas of Australia and in this case, the NT have been promised that the rollout of the

NBN from July 2011 will provide them with communications superior to what they currently experience. However, under the current NBN models, this is not the case and in fact what is being offered is not even comparable with that which currently exists.

SPECIFIC ISSUES:

The proposed satellite solution does not support:

1. video-conferencing (TOS2) or
2. multicast functionality

in addition:

3. the “interim solution” could support but does not support video-conferencing or multicast functionality
4. what the final solution will comprise and when this will be rolled out is nebulous at present
5. many NBN promotional materials make claims of what the NBN can/will do which are incorrect and misleading to satellite consumers e.g.:

“The NBN can facilitate: Education opportunities irrespective of proximity to your nearest school, university or educational institution.”³

Video-conferencing through the software REACT is used by the SOTA and other schools delivering distance education to their remote students whether in their own homes or in communities. To deliberately not provide the video-conferencing capability to educational institutions whether private or government-run in the “interim solution” is unconscionable when given the chosen architecture’s capability.

Multicast functionality is an extremely efficient means of data transmission and it is inconceivable that the “interim solution” does not provide for this particularly when NBN is espoused to be a dynamic, leading-edge technology that will revolutionise communications in Australia.

The current knowledge of the “over time” and final solution for satellite is extremely vague and provides no reassurance as to what can be expected to those people in remote areas that are reliant on satellite for their children’s education.

It is unethical for NBNCo to make generalised, sweeping statements in their promotional materials regarding what the NBN will provide consumers in general and to satellite consumers specifically without clearly clarifying the limitations that exist with the proposed solutions.

ADDITIONAL:

In the past few years, federally funded remote Trade Training Centres (TTCs) have been and continue to be built to address local skills shortages in traditional trades and other local industries in the Northern Territory. TTCs do and will provide real training for students and provide pathways to real jobs.

All TTCs do/will contain classrooms that are fully cabled for Internet use. Northern Territory Open Education Centre (NTOEC) classes may be streamed via REACT to support lessons. Literacy and numeracy programs are being developed in the NT and will support VET delivery and be accessed by TTC students via the internet, to aid them in the completion of VET competencies.

TTCs have already been built in Tennant Creek, Darwin, Wadeye, and Tiwi Islands with many more sites either already having funding approved or are in the process of applying for funding. These Remote Service Delivery (RSD) sites are identified by the Commonwealth and are not only located in the NT but also in Western Australia, South Australia and Queensland.

In addition 20 Growth Towns will also be a priority in later rounds. A Northern Territory Government initiative “‘Working Future’, the Territory's biggest remote communities will become properly planned and designed towns, with services, buildings, facilities and infrastructure like any other country town in Australia. These towns will become the economic and service delivery centres for their regions.”⁴

It is inconceivable that the federal government would provide tens of millions of dollars for these educational initiatives that are sorely needed yet under the proposed NBN satellite solution their need for cost-effective video-conferencing as an educational delivery mechanism will not be catered for.

CURRENT & FUTURE DEVELOPMENT:

As a result of federal and local funding in wise investments, the NT currently has a network that provides an optimal framework which enables teachers and students to participate in IDL lessons using video-conferencing software.

The network has now reached its maximum capacity but could be expanded if federal funding was obtained. However, under the terms of the NBN, federal funding would not be provided to extend the existing solution as the NBN solution is the federally funded option.

It is already clear that the NBN offering does not support the current requirements for video-conferencing

and multicast functionality and therefore just as clearly, it will not accommodate future developmental requirements.

RESEARCH:

Much research has been done on how to overcome the challenges faced in distance education in addition to how students of all ages learn. The Australian Research Council Linkage Project on Interactive Distance eLearning: 'Opening Our Eyes' conducted by Professor Stephen Crump of the University of Newcastle, Australia was one such study which focussed entirely on distance education in the Northern Territory and New South Wales.

'Opening Our Eyes' referred to the teaching and learning experience of students of all ages and teachers involved in IDL in the shift from paper, post and audio to video and internet-based communications.

Found in the Introduction to the project report was the following summation of the impact IDL has had:

*"IDL ushered in a demonstrable improvement in the student experience and in distance education teacher professional competencies. These outcomes are remarkable given all that could have frustrated an innovation of this magnitude and sophistication. A finding common to both the NT and NSW was the rapid and wide adoption of IDL and the almost immediate impact it had on improving levels of student engagement and participation, IT skills, exposure to a live classroom and broader subject matter, assisted by improved parent/tutor understanding and skills."*⁵

The concluding paragraph of the project report is as follows:

*"The new national superfast broadband network will use next generation wireless and satellite technologies to deliver 12 megabits per second or more to people living in more remote parts of rural Australia. IDL has provided a strong, tried and tested platform for this development, especially in relation to how people will use it and how it might change the way they live, learn and look out to the rest of Australia and the world."*⁵

It is very disappointing that the NBN will not build on this remarkable achievement and that this vision for the NBN's capability will not eventuate under the current NBN modelling.

CONCLUSION:

The NBN purports that it will provide superior, leading edge technology to Australians wherever they may live and will provide greater access & capability for educational and health services. However, the NBN

will not provide those services to people living in remote locations that rely on satellite as a means of communication.

These very services already exist in the NT and have done so successfully for the past 5 years in the NT and will not be supported under the proposed NBN satellite solution specifically under the “interim solution” and unknown in the “over-time” or final solution.

For the NBN satellite solutions to be rolled out in their current format takes no account of the very real needs of people in remote areas that rely on satellite as a communication mechanism and it is at the very least an ill-considered decision and at worst a negligent decision that those solutions do not provide for video-conferencing and multicast technology.

REFERENCES:

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| 1 | 5 July 2011 Proof Committee Hansard, Joint Committee on the Rollout of the National Broadband Network, Canberra, ACT. |
| 2 | http://www.dbcde.gov.au/digital_economy/programs_and_initiatives/clever_networks/isd/STARS_Satellite_To_All_Remote_Sites |
| 3 | <i>The NBN – unlocking Australia’s potential, NBNCo Limited.</i> |
| 4 | http://www.workingfuture.nt.gov.au/growth_towns.html |
| 5 | Crump, S and Twyford, K (2009) <i>The Australian Research Council Linkage Project on Interactive Distance eLearning: ‘Opening Our Eyes’ Project Report.</i> |