

○ LETTER TO THE EDITOR – HOW MUCH BROADBAND WILL WE NEED?

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Following animated discussion on Australia's proposed new flagship NBN, providing FTTH for 90% of the population, the key issue that caught my attention arises from arguments over whether demand will justify the bandwidth to be made available. In my view, much of the arguments are overly focused on the applications of today when assessing the bandwidth needed for the applications of tomorrow. The proposed NBN simply cannot be justified by the applications of today – but it will very likely be by those of tomorrow, which will require much higher bandwidths than currently available.

Many of tomorrow's applications are yet to be devised – and they won't be conceived until it is clear that enough bandwidth will be available. Still, a good idea of the needed increases in bandwidth can be obtained just by looking at the impact of video applications. The very first to consider is a triple play bundle of voice, data and video already on offer in many countries by both telcos and cable companies. Under this arrangement the video component is typically pay TV, in the form of IPTV, and uses telco plant which currently might be either ADSL or fibre. Video applications can also take the form of video on demand (VOD) in which users can access a video library with say tens of thousands of titles. A variation of VOD is accessing videos from video web sites such as YouTube, which has mushroomed recently and is expected to continue expanding by offering archived commercial TV shows. YouTube is also bidirectional, with users free to upload their own videos to the site, which they do in large numbers. Yet another video application is distance education, in which students don't need to go to class to take their courses. Videoconferencing is also taking off with very sophisticated new applications on offer such as Telepresence from Cisco.

The new applications will not only expand bandwidth requirements, they will also expand consumer willingness to pay, thus justifying a larger end-user payment, which will mean higher revenues for the broadband provider. The reason is simply that they offer benefits above and beyond those of current applications – and often substitute for other services currently paid for separately. In the case of the video applications mentioned above, video on demand could replace the need to rent movies and go to the video rental service. This was already partially done with the US Netflix film rental service delivered by mail – although now beginning to be delivered over the network for certain films and when bandwidth is adequate. In the case of advanced video conferencing like Telepresence, it replaces the need for long distance travel for corporate users. In the case of distance education, it replaces the need to travel to class – or perhaps even to move to another country to take an advanced degree.

This expanded bandwidth requirement of future applications is not at all surprising if one considers the evolution of Internet access since the early days of dial-up access. There have been dramatic changes in increased bandwidth use over the last decade. New applications will keep expanding bandwidth use over the next decade. In fact, all the figures on growth of traffic on the Internet point to a continuous growth of roughly 50–60% annually, with rates close to 100% for regions with pent-up demand such as Latin America, Eastern Europe, Middle East and Africa.

It would indeed be surprising if this rate of growth were to subside in the coming years. We should expect and plan for continued growth at comparable rates. This could easily mean a hundredfold increase over a ten year period, meaning that users consuming a 1 Mbps broadband access rate today would need a 100 Mbps access rate in ten years' time.

All this says nothing about the critical issue of cost. A key assumption for the continuation of Internet traffic growth observed in the past decade is that effective user costs per unit of transmission capacity continue to drop over time. That will most likely depend on continued cost reductions in fibre transmission technology (especially multiplexing equipment) and a competitive environment in service provision to ensure those gains are passed on to the end user. In addition, implementation of the proposed NBN should assume that the much higher access speeds proposed will be implemented over time, starting with lower cost areas and gradually spreading out, and that demand by consumers will continue to require a range of access speeds (though higher ones), with not all consumers choosing to use the maximum available speed of 100 Mbps even eight years from now. These assumptions will have important implications for avoiding excess capacity in the design of the NBN, as well as result in benefits from likely cost reductions of fibre termination equipment over time.

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