

○ WILL OUR NATIONAL BROADBAND NETWORK SUPPORT NETWORK NEUTRALITY AND AVOID INTERNET CENSORSHIP?

The Net Neutrality issue has not been resolved over the last two years ... Net Neutrality remains a hot issue and will have a strong influence over future network regulation in the U.S. and globally. – Bob Larribeau in TJA V59 N2

Australia has recently taken an important step forward by committing to deliver fast, affordable broadband access to everyone. Creating the appropriate regulatory framework that ensures robust access to the open Internet will be a crucial part of this endeavor. – Vint Cerf in TJA V59 N2

Most of us in the industry were agreeably gob-smacked by the Australian Government's announcement on April 7: that the new National Broadband Network (NBN) would far exceed its 2007 election commitment of a \$4.7B investment in a Fibre to the Node (FTTN) NBN, with 12 Mbit/s download speed available to 98% of the population. Instead it will be a much more future-proof \$43B investment in Fibre to the Premises (FTTP) NBN, providing 90% of the population with 100 Mbit/s user bandwidth, with 12 Mbit/s user bandwidth for the remaining 10% to be reached by satellite or terrestrial wireless.

The new NBN strategy has many merits in terms of targeted outcomes. It should stimulate the globally battered national economy in both the short and long terms, supporting an estimated average of 25,000 jobs each year over at least eight years, most of these jobs being high-skilled and high-value. It will turbo-charge the health, education and digital media sectors in their service delivery, positioning Australia again – after a long drought – as a major innovator in ICT-enabled services. And it will provide far greater democratic, social and economic equity across the national population through online participation at affordable rates.

The strategy also has several excellent structural features. Firstly, as most of the industry hoped, the NBN will be a purely wholesale network. This will ensure fair retail competition, and thereby solve a 12-year-old regulatory problem for the industry: the need for structural separation of monopolistic public telecommunications infrastructure (see TJA V58 N1). Secondly, it will bypass the incumbent carrier's copper access network, avoiding the tricky and time-consuming issues of fair compensation in the original FTTN scenario. And thirdly, the implementation will be owned and managed by a stable, government-controlled entity ('NBN Co') that will not be vulnerable to the short-termism of the money market while it pursues its long-term (8–11 years) roll-out plan.

There will undoubtedly be many implementation problems to solve; and an appropriate regulatory environment has yet to be decided. However the broad strategy and direction are very well positioned to ensure success in providing universal, affordable 'real broadband' services across Australia.

EXTENDING FIBRE TO RURAL PREMISES

One effect of the NBN plan will be to shift the 'digital divide' from the current unhappy contrast between dial-up access versus entry-level ADSL or ADSL+2 Internet access, to a new divide between 100 Mbit/s for the privileged 90% versus 12 Mbit/s for the more geographically isolated 10% of the population. The latter speed is so much better than most Australians have ever experienced, that few are yet concerned about the continuing disadvantageous asymmetry.

Yet over the past 50 years, community expectations have shifted from having no TV whatever to B&W TV to colour (broadcast analogue signal) TV to digital TV, as a means of sharing mainstream community experiences (and not just those sporting events protected under 'no siphoning' legislation). By the time the NBN has been fully implemented, we can confidently expect that many online applications, including IPTV, will have grown in functionality to demand better than 12 Mbit/s user bandwidth – to the detriment of those on the wrong side of the digital divide.

With this in mind, a very recent technology breakthrough permitting the range of FTTP to extend to 60 km offers a reduction in the expected 90:10 broadband imbalance to perhaps a 95:05 ratio or better. A paper by John Ellershaw et al in this issue demonstrates that if at least 20 Mbit/s user bandwidth is demanded for reasons of social equity, FTTP can be a cheaper solution – using aerial OF cable for the 'last 100 metres' – than terrestrial wireless access, out to that 60 km limit.

SETTING THE WHOLESALE PRICING

One of the first commercial problems for 'NBN Co' to solve will be setting the wholesale pricing. As the Federal Government is underwriting the whole investment, and is implementing the network as essential national infrastructure, there is no overriding need for the wholesale pricing to be set at a level that would give the government a direct commercial return on its investment – any more than for its investments in national roads and railway infrastructure. But it will be motivated to set the maximum price consistent with rapid take-up by its retail customers – Australia's more than 100 licensed carriers.

John de Ridder's paper in this issue proposes a wholesale pricing strategy for the NBN that not only reconciles broadband investment incentives with affordability but also provides a partial solution to the net neutrality problem.

ACHIEVING NETWORK NEUTRALITY

Network neutrality – the principle, put most generally, that all Internet end users should be treated by service providers without any discrimination based on the source, ownership or destination of the content they distribute – has been a hot issue in the USA in recent years. It featured in Barack Obama's policy platform for the 2008 presidential election, and has led to a specific direction to his new appointees at the Federal Communications Commission to support the principle.

But network neutrality represents a fundamental conflict between the needs of carriers to recoup their investment in additional network capacity and the originators of the content that consumes that additional capacity. This conflict remains unresolved in the USA, where the carriers

feel unable to charge their end users premium rates for premium downloads, and has spilled over to other national broadband markets.

The potential downside from abandoning network neutrality is serious – and hence the passionate messages in Vint Cerf's paper in this issue, urging the world to maintain the Open Internet. Katrina Johnson, from eBay, not surprisingly is strongly in agreement, and her paper argues that we need to preserve network neutrality in order to protect the digital economy. Geoff Huston takes a long-range historical view, seeing network neutrality as just the latest manifestation of commercial conflict between transport providers and content providers; his sympathies are with the latter.

In contrast, Bob Larribeau puts the case for pricing based on service differentiation in the US market, and James Endres (from Telstra) advocates it for the Australian market. Independent researcher Ross Kelso analyses the US debate, in which the competition issue has shifted semantically from 'Open Access' to 'Network Neutrality', where 'the opposing sides in the debate have taken network neutrality to mean whatever supports their case'; and he extracts lessons for Australia in creating a new regulatory regime around the NBN.

We are fortunate to have papers from Jeremy De Beer, Izumi Aizu & Judit Bayer, and Murray Milner, to present overviews of how the relevant competition issues associated with network neutrality have been managed in Canada, Japan and New Zealand respectively.

THE RELATED ISSUE OF INTERNET FILTERING

The Australian Government's parallel election commitment to introduce mandatory Internet filtering by Internet Service Providers, based upon a secret black list of proscribed websites set by a federal government agency, has become extremely controversial, not the least for the lack of transparency with which the federal Minister has been progressing his legislative project. In Senate Committee hearings, those raising the obvious policy hazards of secret state censorship have been gratuitously accused of being in favour of child pornography. It is as if three centuries of the European Enlightenment have passed unobserved, and civil libertarians need to go back to the courts to re-fight the battles of the 1950s and '60s against literary censorship – when at least the censorship process was well-defined and understood.

The relationship with network neutrality is evident: this is the extreme situation in which particular website content is so heavily discriminated against that distribution to ordinary end users is totally blocked. We are accustomed to seeing this abuse of the Open Internet in totalitarian societies, but not in working democracies. As David Vaile and Renée Watt's paper in this issue points out:

Australia enjoys no equivalent to the US Constitution's First Amendment in support of freedom of speech, which has seen off past legislative attempts to render the whole (American) Internet 'safe for children'.

Because the government's Internet content filtering proposal remains such a 'moving target, whose key elements remain elusive', TJA is grateful to Vaile and Watt for providing a highly comprehensive account of the range of policy considerations raised by this moving target. In addition, David Vaile's structured bibliography on the topic is so useful that TJA has decided to publish this also within this edition, as an online resource for public policy researchers.

The relationship of Internet filtering to the new NBN also needs to be carefully examined, perhaps in a future issue of TJA. Put briefly, if Telstra and other infrastructure carriers accept the Government's apparent offer to buy their backbone optical fibre infrastructure, presumably at heavily discounted prices, in return for equity in the new NBN Co, then the majority of all Internet traffic within Australia will pass through the NBN. (The remainder will largely be mobile-to-mobile traffic that stays within a single carrier's network.)

The Australian government, which already exercises its legal rights (under judicial warrants, on a case by case basis) for its national security agencies to monitor the traffic passing through all telecommunications infrastructure carriers, will thus gain a very efficient means for applying Deep Packet Inspection to any relevant Internet content emanating from all on-Net sources. This will apply whether the targeted websites are addressable within the Public Web (the province of the proposed Internet filtering scheme) or are located within the non-publicly addressable private networks in which, experts maintain, virtually all the hard-core child pornography websites now reside.

It would therefore seem feasible for the national security agencies to use Deep Packet Inspection via the NBN to support normal police procedures of forensic electronic investigation, under judicial supervision, in order to prosecute any Internet-based criminal activity that is proscribed under existing laws, such as trading in child pornography or worse. This would avoid the need to create dubious black lists behind closed doors, or to force Internet Service Providers to act as unpaid censors under new laws that would subvert hard-won civil liberties – let alone the principles of the Open Internet.

\$60,000 IN NEW TJA 'BEST PAPER' COMPETITION PRIZES

To finish on a bright note: thanks to some very good 'corporate citizens', TJA now has AU\$60,000 (including AU\$40,000 in cash prizes) available to award to the authors of the best papers submitted this year on two internationally important topics: the application of broadband to the sustainable environment, and the application of telecommunications technology to support people with disabilities. Each is a truly global competition: entries are welcome from authors based anywhere in the world.

Each competition has a different deadline, and will be judged by an independent judging panel. More details of the competitions, with prizes generously contributed by Alcatel-Lucent, Telstra and AARNet, are provided in this issue.

Peter Gerrand, Managing Editor, TJA

Cite this article as: Peter Gerrand. 2009. 'Will our National Broadband Network support network neutrality and avoid Internet censorship?' *Telecommunications Journal of Australia*. 59 (2): pp. 15.1 to 15.4. DOI: 10.2104/tja09015.