

# ○ THE IMPORTANCE OF NET NEUTRALITY TO THE DIGITAL ECONOMY

*Katrina Johnson*

Although there is no universal, widely accepted definition of Net Neutrality, a fundamental premise of a neutral network is that broadband providers should not discriminate against or provide preferential access to lawful content based on that content's source, destination, or ownership. This paper discusses some of the dangers associated with the abandonment of the foundational principles of the Internet as we know it today – openness, interoperability, and a culture of participation – and argues that we need to preserve Net Neutrality in Australia in order to protect the growing digital economy.

## INTRODUCTION

According to legend (and perhaps some historical fact) the modern telephone exchange was invented by a man named Almon Strowger as a result of his suspicions that competitors were re-directing telephone calls away from his business. Strowger was a funeral director/undertaker in the late 1800's. In those days, telephone calls were placed via operators who were responsible for routing the incoming call to the correct destination. Strowger reportedly discovered that his local telephone operator was not connecting telephone calls to his business as requested by those customers, but was instead re-routing potential customers' telephone calls to his competitors.

Apparently, the operator was a relative of a competing funeral director, and Strowger discovered that his calls were being re-directed after a friend complained to him about the practice. Unhappy with the telephone operator's power to direct customer traffic away from his telephone number in an anti-competitive manner, Strowger apparently went about inventing his own version of a telephone exchange that relied on customers dialling their own numbers in order to arrive at the correct destination. In this way, the people who controlled the network that customers were using could not interfere with customers' decisions to call certain businesses. The end-users of the telephone network were empowered to make those decisions for themselves.

There are some clear parallels with the modern-day debate about Net Neutrality. At its heart, should broadband providers have the ability to control the lawful Internet destinations and sources of content that customers choose to access? As end-users, could we find ourselves in the same position as Strowger's potential customers – effectively being re-routed to the broadband providers' preferred providers or indeed their own content, instead of that of their competitors? At a time when many broadband providers are themselves content providers, the potential consequences of such actions on our current Internet landscape could be huge.

The debate on Net Neutrality in Australia is relatively nascent. To date, there have been no major allegations or scandals involving Australian ISPs blocking access to competitor content or charging premium fees to content providers. In fact, there are suggestions that at least some local providers do not support ISP-level control of content.<sup>1</sup>

However, the issue of Net Neutrality certainly merits attention in light of the dramatic changes that are planned for Australia's broadband space. The Federal Government has recently announced plans to create a \$43 billion national broadband network (NBN) in conjunction with the private sector to help drive broadband penetration and adoption throughout Australia.

This paper will argue that, if the Internet is to flourish in years to come, it will be important that broadband services, including the NBN, operate on the principles of Net Neutrality. This paper seeks to counter some of the major arguments that have been advanced against Net Neutrality elsewhere in the world, and to explain how abandoning these principles could have serious consequences for Internet innovation, the economy, and social welfare as a whole. The paper will also suggest that there are potential opportunities for enshrining Net Neutrality principles in the roll out of the NBN.

## WHAT IS NET NEUTRALITY?

There is no universally-accepted definition of Net Neutrality. However, a common definition employed by the Internet industry – and one that this paper will be founded on – is that broadband providers should not be able to use their networks in a way that discriminates against competing content and services, either by charging higher pricing or by throttling or blocking the content or services of their competitors.

According to the Open Internet Coalition, a body committed to keeping the Internet fast, open and accessible:

Simply, net neutrality guarantees that broadband networks cannot use their networks to give preferential fast lane access to any content provider, nor can they slow down content or services that are unable to pay. The Open Internet Coalition seeks to ensure that the transmission of Internet traffic remains open, accessible and fast, and does not favour one particular brand or type of content over another (Open Internet Coalition 2008).

As other commentators have described it, a non-neutral network is akin to a situation whereby the postman opens your mail, and decides whether or not to deliver the mail based on its contents, intended destination, and even the type of paper on which the letter is written.<sup>2</sup>

To illustrate the point, imagine that you are a broadband customer of an ISP named InterWeb. InterWeb is a large provider of broadband networks and infrastructure. It also operates its own fixed-line telephone services. Smaller ISP resellers are also engaged by InterWeb to sell their broadband subscription packages to customers. Now, say that InterWeb decides that free voice over Internet protocol (VOIP) services<sup>3</sup> are a real competitive threat to its fixed line business. Using the argument that VOIP is too 'resource intensive' on InterWeb's bandwidth, InterWeb decides to de-prioritise, throttle or, worse still, block altogether access to those competing VOIP destinations and services. That would be a neat way of solving the competitive threat posed by free VOIP to InterWeb's telephone services.

What if InterWeb decided to engage in an exclusive partnership deal with one major search engine – let's call it Searchle – that allowed Searchle's content to be served to customers more quickly or over a preferred line? Traffic to competing search engines such as Google would be slowed or de-prioritised as a result of such an alliance. Over time, customers would likely be frustrated with the slow load times of Google search results, and simply switch over to using InterWeb's preferred search engine.

It is easy to contemplate further iterations of this problem. What if InterWeb also provided its own shopping platform, and decided that competitive shopping platforms were a threat to

its own content business, for which it also receives transactional and advertising revenue? As a result of its ability to control traffic over its network, InterWeb could throttle or even block traffic intended for competing shopping destinations.

The above scenarios could very likely be the reality of an Internet landscape that lacks Net Neutrality. According to Professor Tim Wu, a respected Net Neutrality commentator:

'The whole Net neutrality issue is really about a power struggle ... [i]t all comes down to a scenario where the phone companies and cable operators want to call all the shots about which applications enter the market. And while that may be good for them, I'd argue it's very bad for the country.' (Reardon 2007)

## NET NEUTRALITY UNDER ATTACK: THE INTERNATIONAL EXPERIENCE

Currently, the Australian broadband landscape operates in a relatively neutral environment. While some network management obviously occurs in order to cope with peak load and usage times, it is not apparent that this traffic shaping targets specific content or types of applications. However, to understand why Net Neutrality (based on the definition used in this paper) is an issue that nonetheless deserves consideration in Australia, it is worth exploring some of the disturbing trends and concerns emerging elsewhere in the world which, if adopted by broadband providers in Australia, could have devastating consequences for the local digital economy.

In 2005, the then-CEO of SBC Telecommunications (now, AT&T Inc.) Edward Whiteacre was asked during an interview how concerned he was about 'Internet upstarts' like Google, MSN, Vonage and others. This was his response:

How do you think they're going to get to customers? Through a broadband pipe. Cable companies have them. We have them. Now what they would like to do is use my pipes free, but I ain't going to let them do that because we have spent this capital and we have to have a return on it. So there's going to have to be some mechanism for these people who use these pipes to pay for the portion they're using. Why should they be allowed to use my pipes?

The Internet can't be free in that sense, because we and the cable companies have made an investment and for a Google or Yahoo! or Vonage or anybody to expect to use these pipes [for] free is nuts! (O'Connell 2005).

Of course, this overlooks the fact that customers and content providers already pay to respectively receive and provide content over the Internet. Content providers such as Google and eBay have spent billions of dollars in network architecture and infrastructure to ensure that their content is accessible to end-users over the Internet. Moreover, it ignores the fact that broadband adoption has been driven by consumer demand for content.

End-users do not simply subscribe to broadband because it's a fun thing to do. They do so in order to access content and applications made available by content providers. Indeed, the same companies that Whiteacre was criticising were the ones delivering customers to *his* broadband subscription business. One wonders how Whiteacre would have reacted if he had been asked whether broadband providers should be paying royalties to content providers for driving demand and creating revenue for his company's broadband services.

In the UK, Virgin Media – whose CEO Neil Burkett has publicly stated that 'this net-neutrality thing is a load of bollocks' (RTS 2008) – has also announced its intention to 'introduce network monitoring technology to specifically target and restrict BitTorrent [peer-to-peer file sharing] traffic', rather than engaging in more general traffic shaping across all users and applications. (Williams 2008) Interestingly, Virgin Media also had plans to create its own peer-to-peer music sharing service, which it ultimately dropped in January 2009 (Orlowski 2009).

BitTorrent<sup>4</sup> peer-to-peer traffic has also been singled out as the target of discriminatory practices by other broadband providers in the world; most notably, in the United States. In 2007, it was reported that Comcast, reportedly the largest cable TV operator in the US and the number two ISP (Svensson 2007), was blocking attempts by some of its high speed broadband users to share files over the Internet using peer-to-peer technology. As described by the Associated Press:

Each PC gets a message invisible to the user that looks like it comes from the other computer, telling it to stop communicating. But neither message originated from the other computer – it comes from Comcast. If it were a telephone conversation, it would be like the operator breaking into the conversation, telling each talker in the voice of the other: 'Sorry, I have to hang up. Good bye' (Svensson 2007).

The US Federal Communications Commission (FCC) launched an investigation into Comcast's allegedly discriminatory and non-neutral practices, which concluded in August 2008. Comcast claimed that its practices were the result of legitimate and reasonable traffic management necessitated by the heavy bandwidth loads of users utilising peer-to-peer applications. The FCC however found that Comcast's broadband management practices violated 'federal policies that protect the vibrant and open nature of the Internet', and concluded that 'Comcast has unduly interfered with Internet users' right to access the lawful Internet content and to use the applications of their choice.' (FCC 2008)

In its Media Release of 1 August, the FCC stated that:

Comcast had deployed equipment throughout its network to monitor the content of its customers' Internet connections and selectively block specific types of connections known as peer-to-peer connections ... The Commission concluded that Comcast's network management practices discriminate among applications rather than treating all equally and are inconsistent with the concept of an open and accessible Internet ... the end result of Comcast's conduct was the blocking of Internet traffic, which had the effect of substantially impeding consumers' ability to access the content and to use the applications of their choice. The Commission noted that the record contained substantial evidence that customers, among other things, were unable to share music, watch video, or download software due to Comcast's misconduct (FCC 2008).

The FCC also noted that Comcast was blocking the type of peer-to-peer traffic that posed a competitive threat to its cable TV business. This issue is discussed in further detail below.

## THE INTERSECTION OF NON-NEUTRAL PRACTICES AND ANTI-COMPETITIVE CONDUCT

Arguments against Net Neutrality typically overlook the effects on competition in the content space. This is particularly dangerous in a world where broadband providers are themselves providers of content or services that compete with the content and services of third parties who do not control broadband networks. The network operators' ability to control, shape and even block Internet traffic to competing destinations is much more concerning when those operators have an economic incentive to promote their own content and services. This is particularly true when the number of network operators is limited or concentrated. The impact on content and application competition is perhaps one of the most dangerous consequences of abandoning Net Neutrality principles.

Christopher Marsden, a Lecturer of Law at the University of Essex, states:

'I agree that this is the focus of the [Net Neutrality] problem: network owners with vertical integration into content or alliances have enhanced incentives to require content owners (who may also be consumers) to pay a toll to use the higher speed networks that they offer to end-users.' (Marsden 2007)

Another respected commentator on Net Neutrality, Dr Trevor Roycroft, says:

The ability to charge an end-user or a third-party provider each time they activate an application that *competes* with offerings similar to those provided by the last-mile broadband provider (e.g. video, gaming and voice) indicated that the biggest 'innovation' resulting from the policy of network diversity will be higher prices for those who use Internet applications that provide an alternative to the broadband provider's offerings. These higher prices for use of Internet content, services, and applications will act as a tax on consumption of services provided by third-party sources. This effective taxation will undermine innovation and incentives to invest at the network edge (Roycroft 2006, 8–9) (original emphasis).

Vertical integration and convergence of broadband services and content is certainly occurring in the Internet space. This is increasingly the case in Australia, as broadband providers seek to monetise the provision of content to their customers in addition to subscription services.

Journalist John Durie recently explained this in discussing a hypothetical merger of two Telstra businesses:

While the distinction between Sensis and BigPond is plausible, it wouldn't surprise me if the new Telstra boss saw the merit of combining the two businesses.

BigPond's content is all about attracting people to using Telstra's mobile and fixed-line networks.

The better the content and the applications, the more you will use your phone, the better the phone you will want, and the less chance that you will switch to another provider (Durie 2009).

While I do not intend to suggest that Telstra itself is engaging in discriminatory practices that target certain types of content or applications, the convergence between networks and content can obviously create inherent incentives for broadband providers to engage in such conduct. As the FCC held, following its investigation of Comcast's blocking of file-sharing:

Indeed, the Commission noted that Comcast has an anticompetitive motive to interfere with customers' use of peer-to-peer applications. Such applications, including those relying on BitTorrent, provide Internet users with the opportunity to view high quality video that they might otherwise watch (and pay for) on cable television. Such video distribution poses a potential competitive threat to Comcast's video-on-demand ('VOD') service. (emphasis added) (FCC 2008).

There are other well-known examples of network operators blocking access to competing services. One popular service that relies on peer-to-peer technology is voice over IP (VOIP), which allows end-users to hold voice and video conversations over the Internet. In early 2005, the FCC commenced an investigation into Madison River Communications, a reasonably large US phone company, in response to allegations that Madison River was blocking traffic to VOIP operators who posed a competitive threat to its phone business. This included traffic to Vonage, a well-known VOIP provider, which Madison River apparently described as a 'competing phone service'. (Kapustka 2005) In March 2005, the FCC accepted a consent decree from Madison River, pursuant to which it agreed to stop blocking VOIP traffic and to ensure such blocking would not occur in future.

The potential effects on competition where network providers are also content providers are clear. Preservation of Net Neutrality principles will be important for ensuring that the provision of services and content over the Internet remains open and competitive.

## **DO INVESTMENT AND INNOVATION SUFFER IN A NET NEUTRALITY WORLD?**

One of the most common arguments leveled against Net Neutrality is that it stifles investment in Internet infrastructure by the network operators. Some commentators have argued that, since resources are finite, broadband providers necessarily need to charge content providers for access to (or at least, preferential access to) customers on their networks. Without this ability to control demand, broadband providers will apparently find it economically unattractive – or even unviable – to continue to invest in Internet infrastructure.

However, an examination of broadband development to date suggests that Net Neutrality is not incompatible with broadband investment and development. In fact, the historical level of broadband investment indicates that network providers have invested resources in building faster and better infrastructure. It is actually in the broadband providers' economic interests to do so. After all, it is not as though network providers are making broadband available simply for altruistic purposes. Increased consumer demand for faster and more reliable delivery of Internet content and services in turn leads to higher revenues driven by increased high-speed broadband subscriptions and the associated network costs for content providers.

Take, for example, investments in high speed Internet that have been made by two companies already discussed in this paper – AT&T and Comcast. In its 2008 annual report, AT&T stated:

To support our customers' growing desire to access data, software applications and video at higher speeds, we completed the world's largest deployment of 40-gigabit-per-second transport – the fastest available Internet backbone technology – across our entire U.S. network (AT&T 2008).

AT&T also claimed:

To stay ahead of customer demand for mobility and speed, we expanded our fastest-in-the-U.S. 3G wireless network to nearly 350 major metropolitan areas and strengthened our No. 1 position in mobile data. We also extended our industry-leading Wi-Fi hotspot footprint to nearly 20,000 U.S. hotspots and a total of more than 80,000 worldwide (AT&T 2008).

In February 2009, Comcast announced its own plans to reach more than 30 million US households and businesses in 2009 with new super-fast wideband speeds. According to Comcast:

With wideband, Comcast is able to offer some of the fastest Internet speeds available today, including the Extreme 50 tier at up to 50 Mbps downstream. It is also able to double speeds for the majority of existing high-speed Internet customers for no additional cost (Comcast 2009).

Comcast Cable's Chief Operating Officer, Steve Burke, went on to say:

What we're finding is that speed really matters to consumers, particularly as they watch more video on the Internet on sites like YouTube and Fancast.com. In addition, gaming, downloading and other applications get even better with more speed ... [l]ooking ahead, our goal is to get our entire footprint up to 12 Mbps and to offer 50 to 100 Mbps in as many places as possible (Comcast 2009).

Even in Australia, there has been a reasonable level of investment in broadband infrastructure. For example, on 10 March 2009 (prior to the Federal Government's announcement of its plans for the NBN rollout) Telstra announced that it would be investing \$300 million during the 2009 calendar year in upgrading its hybrid fibre coaxial cable broadband network in Melbourne. In its media release, Telstra stated that the upgrade 'will increase the peak download speeds in Melbourne homes to 100Mbps [which is three times faster than its current peak speed], with further upgrades potentially to speeds of up to 200Mbps', and will also 'build on the recent BigPond Cable Extreme upgrade, which already provides download speeds on the cable network of up to 30Mbps to 1.8 million homes, with another 700,000 homes having speeds up to 17Mbps.' (Telstra 2009)

According to outgoing Telstra CEO Sol Trujillo:

This broadband upgrade will bring the next generation of the internet to Melbourne, enabling new work-from-home, learning, security, entertainment, health care and energy-saving choices at home. It will help spawn an innovative, video-based, applications and content services sector in Australia (Telstra 2009).

Mr. Trujillo went on to say:

As Telstra has done with Next G and Next IP in wireless and business broadband, we intend to leverage our cable network to lead the market in providing world leading services to meet our customers' individual needs (Telstra 2009).

The US Federal Communications Commission (FCC) is one body that appears to have recognised the benefits to broadband investment of ensuring Net Neutrality, and has adopted four guiding principles aimed at furthering this end. The FCC believes that, in order '*To encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet*' (FCC 2005) (original emphasis) consumers must be entitled to:

- access the lawful Internet content of their choice;
- run applications and use services of their choice, subject to the needs of law enforcement;
- connect their choice of legal devices that do not harm the network; and
- competition among network providers, application and service providers, and content providers (FCC 2005).

Of course, in addition to a healthy level of self-funded investment already occurring in the broadband space, the Federal Government has also announced its plans to establish the new super fast NBN in conjunction with the private sector. According to Senator Stephen Conroy, the initiative is an:

historic nation-building investment focused on Australia's long-term national interest. It will fundamentally transform the competitive dynamics of the telecommunications sector, underpin future productivity growth and our international competitiveness (Conroy 2009).

Clearly, investment in broadband infrastructure is not suffering in Australia's current, relatively neutral broadband environment. Any moves away from Net Neutrality in future therefore cannot be justified on this basis.

## **THE TRUE IMPACT ON CONTENT AND APPLICATIONS INNOVATION CAUSED BY ABANDONING NET NEUTRALITY PRINCIPLES**

The Internet was founded on principles of openness, interoperability, and participation. As explained by Dr. Roycroft:

The foundation of the innovations which are associated with the Internet – e-mail, web browsing, search engines, online auctions, e-commerce, streaming media, file sharing – are open and standardised network protocols. No firm has the ability to act as a gatekeeper associated with access to the protocols, and thus determine which applications, content, or services should be allowed to use the Internet. Innovation associated with the Internet has been fueled by the high level of deference to the network edge, and the equal opportunity to utilise network resources enabled by Internet protocols and pro-competitive policies (Roycroft 2006, 5).



I suggest this is not merely misty-eyed rhetoric of the 'good old days'. There are direct economic impacts arising from the abandonment of these principles – the very principles that have allowed the Internet to flourish and become the success that it is today. Take away that openness and the ability of new content and applications to thrive without artificial fetters, and you lose the very things that made the Internet a mainstream success.

Consider some of the most popular, well-known Internet businesses today. They were not large media incumbents but small, unknown start-ups. eBay began life as a small site known as Auction Web, hosted by Pierre Omidyar from his house. Google was started by two Stanford students. Facebook was launched by Mark Zuckerberg while he was still a student at Harvard. These sites became popular and large through consumer choice. When many of these companies commenced operations, the broadband landscape in the US was arguably more network neutral than it is today. How would these small unknowns have gotten a start in the online world, if their ability to access end-users was throttled or taxed so highly that it became virtually impossible for them to reach Internet audiences and get off the ground? Would they have received any venture capital if they faced major barriers to entry by broadband providers? In a non-neutral broadband landscape, some of the most exciting innovations we have seen in the Internet space would never be known to us today, as these unfunded, unknown businesses would not have had the necessary funds or incentives to bother innovating in a non-neutral space.

The impact on content innovation by abandoning Net Neutrality is great. In his submission to the US Federal Communications Commission, Professor Tim Wu correctly points out the potentially devastating effects on new business models – and the economy as a whole – if network operators were to impose non-neutral rules for access:

The danger to the economy is real. If carriers can doom a business model by rejecting it off the network, that model never gets a chance to prove itself in the market. Even the likelihood of getting stopped on the network is enough to deter investment and venture funding (Wu 2008).

Wu continues:

In the new economy, so much is relying on the carriers that their decisions now have serious consequences for the whole economy. If cable, as a TV carrier, chooses one show over another, that's one thing (though of course even that process is overseen by the FCC). But when the carriers choose entire industries and businesses over another, the consequences are even greater. That's why the basic neutrality of the network has so much to do with the continued economic growth of the United States (Wu 2008).

Dr. Roycroft agrees:

The greatest potential for innovation associated with the development of new network applications occurs when the underlying network does not introduce artificial or arbitrary constraints on how those at the network edge innovate...If, for example, end-users have limited upload capabilities or cannot use a service for streaming, then the incentive and ability to innovate in these areas is greatly reduced (Roycroft 2006, 5–8).

Imagine a world with no Google, eBay, Facebook, YouTube or Yahoo!. That could very well be the reality if Net Neutrality principles were to be abandoned. Newsweek summed up the potential consequences as follows:

The trend from open systems toward closed ones threatens the culture of serendipitous tinkering that has given us the Web, instant messaging, peer-to-peer networking, Skype, Wikipedia and a host of other innovations, each of which emerged from left field. It will produce a concentrated set of new gatekeepers, with us and them prisoner to their limited business plans and to regulators who fear things that are new and disruptive (Zittrain 2008).

Accordingly, it is critical that Australia promote and protect these principles, to ensure continuing innovation and development in the digital economy.

## **IMPACTS ON THE WIDER ECONOMY OF ABANDONING NET NEUTRALITY**

Critics of Net Neutrality frequently cite economic consequences as a reason for abandoning the principles. Some argue that Net Neutrality makes it unprofitable for networks to continue to provide broadband services. However, it is important to consider what is good for the economy as a whole, rather than the profit margins of the individual broadband providers.

If content and applications innovation is diminished or halted through the application of non-neutral network rules, the consequences for the wider economy would be great. This is because the digital economy is an important and growing component of the overall economy, both in Australia and abroad.

As Prime Minister Ken Rudd has stated:

In the coming decades our ability to engage in the global digital economy of the twenty first century will be a key driver of our productivity growth (Rudd 2008).

Furthermore, Senator Stephen Conroy has said that the Government's 'investments in broadband are driven by our recognition that digital technologies promise considerable benefits for our economies and communities (Conroy 2009b).

Take, for example, eBay's contributions to the Australian economy. According to research conducted by the Allen Consulting Group (Allen Consulting Group 2008), eBay is responsible for contributing approximately \$2.6 billion annually to the Australian economy, which 'means that on average, thanks to eBay, each Australian household's income is higher by \$364 per year.' The Allen Consulting Group also found that eBay created other beneficial macroeconomic impacts for the Australian economy, such as greater household expenditure, reduced prices, and up to 0.3 per cent real wage growth. In addition, according to ACNielsen research conducted in 2006, more than 52,700 eBay sellers in Australia derive their primary or secondary source of income from selling on eBay.com.au (AC Nielsen 2006).

According to figures recently released by the Australian Communications and Media Authority (ACMA), 98% of Australian small-to-medium sized enterprises (SMEs) with an Internet connection are using that connection to communicate with customers and suppliers, with these types of communications constituting 'the largest single business activity undertaken by SMEs using the Internet' (ACMA 2009).

There is no doubt that advancements in Internet applications are creating greater efficiency and cost-savings for business. According to ACMA Chairman, Chris Chapman:

evolving technology is providing greater flexibility in meeting business operational needs, with 78 per cent of SMEs reporting efficiencies and time savings from broadband Internet (ACMA 2009).

One area where this is particularly marked is the use of VoIP. By providing businesses with the ability to have voice and video conversations without paying on a per-call basis, VoIP enhances corporate communication efficiencies in a very cost effective way. An ACMA report released on 13 March 2009 found that:

16 per cent of SMEs now used voice over Internet protocol (VoIP). The take-up of VoIP, however, was significantly higher for certain industry sectors such as finance and insurance (29 per cent) and the communications, property and business services sector (26 per cent) (ACMA 2009).

We have already seen examples overseas of network operators engaging in conduct that is damaging to competing VOIP services. If Australian broadband providers, including the retail resellers of the NBN, were to move away from Net Neutrality principles and favour their own fixed-line or other VOIP services, this could significantly stifle innovation and investment in the competitive VOIP market.

## **SOCIAL WELFARE**

The debate surrounding Net Neutrality also raises broader, philosophical questions regarding society's participation in and interaction with the Internet. Do we, as a society, want to move back in time to a place where content was controlled by large interests, and where only commercial publishers had the means and access to create and control content for society's consumption?

Web 2.0<sup>5</sup> applications have enabled society's non-technophiles to actively participate online. These applications have enabled a culture of participation, leading some to describe the Internet of today as the democratic web<sup>6</sup>. For example, sites like Facebook and Flickr allow people to easily share their photos with family members, without needing to know how to host photos on a website. Blogs and sites like Twitter allow individuals to express their thoughts online without needing to know complex script. Sites like eBay allow people to trade online with people around the world, and allow individual sellers to compete alongside large retailers. Software applications like Skype and Engin allow family members (and businesses) in different locations to hold voice and video calls without incurring costly long-distance phone charges or needing to invest in sophisticated video-conferencing facilities. Search engines such as Google and Yahoo!, and sites such as Wikipedia, have helped to ensure that knowledge and education are not concentrated in the hands of the lucky few or controlled by large media interests.

As a society, we have moved far beyond the days when the Internet comprised static, downstream, 'brochure' style content. We now live in an age of a participatory, interactive, dynamic and democratic Internet, where end-users are as equally able as publishers to create, access and distribute content.

What would become of this participatory culture if broadband providers were to charge higher rates or provide discriminatory access to certain types of Internet applications such as Web 2.0 applications – many of which rely on the type of peer-to-peer technology that already has been the target of discriminatory broadband practices in the US and UK? What would happen to the websites of public interest groups, charities and non-profit organisations, which would be ill-placed to afford these Internet toll ways? What would happen to government information websites?

Any moves away from Net Neutrality in future would not only be anachronistic, but could also have major impacts on social welfare. This is particularly true for groups who have traditionally been marginalised – such as people in geographically isolated areas or people with disabilities – who have now been empowered to participate through developments in the democratic web. What would be the impact on their quality of life if they could not easily, or could not afford to, publish their own content, share their stories, and communicate with friends or family online? One can also imagine the potential impact on collective knowledge that has been developed through innovations such as Wikipedia or Digg.

In a non-neutral world, ISPs could occupy the dangerous position of deciding what content end-users can access; the unenviable position occupied by Strowger's potential customers in the late 1800's. As described above, this could be done directly through 'blocking' or 'downgrading' certain content (e.g. competitor content) so that end-users cannot access the information quickly or at all – or it could be done indirectly through discriminatory pricing practices that discourage innovation by competing providers and steer consumers towards accessing certain types or sources of content over other types.

In a 2007 press statement regarding US media ownership laws, then-Chairman of the FCC, Kevin Martin said:

A robust marketplace of ideas is by necessity one that reflects varied perspectives and viewpoints. Indeed, the opportunity to express diverse viewpoints lies at the heart of our democracy. To that end, the FCC's media ownership rules are intended to further three core goals: competition, diversity, and localism (Martin 2007).

The same can equally be said of the Net Neutrality debate. If pricing/taxes or other technical means were employed by broadband providers in a way that stifled competitor access to end-users, we would certainly see a lack competition, diversity and localism. Instead, we would find content concentrated in the hands of a few large powerful interest groups – those most able and wealthy enough to afford that access.

At its more extreme edges, a non-neutral world could go beyond just 'walled garden' types of content control by commercial interests, to a dangerous situation of active political and thought censorship. This concern is compounded by the increased reliance by political parties and elected officials on new media applications for reaching their constituents, as acknowledged by the Department of Broadband, Communications and the Digital Economy:

Facilitating the development of these sites [i.e. 'new, primarily user-generated content platforms'] may be beneficial because they potentially represent new content distribution and political communications platforms for licensed content,

in addition to allowing individuals to share their own content and stories. For example, all major Australian political parties established YouTube channels in the lead up to the 2007 federal election, many of the US presidential debates were posted to YouTube and many individual US voters posted videos of their voting experience to the video hosting site. In addition, both the European Union and the British Royal Family have YouTube channels (Australian Government 2009).

Imagine a hypothetical scenario whereby a major ISP was heavily connected to the Republican Party in the US. That ISP could very well choose to de-prioritise, or even block altogether, the serving of Democrat content in favour of Republican content. Although this type of scenario may sound unlikely, it is entirely possible where broadband providers operate a non-neutral network.

## **WHERE TO FROM HERE? FUTURE DIRECTIONS FOR AUSTRALIA**

Although Net Neutrality is not yet a heated topic in Australia, it is timely that the issue be given careful consideration in light of the planned NBN rollout.

On 7 April 2009, the Federal Government revealed its plans to build a super fast NBN that will be 'the single largest nation building infrastructure project in Australian history' (Conroy 2009a). According to Senator Stephen Conroy, Federal Minister for Broadband, Communications and the Digital Economy, the Federal Government intends to establish a company to build and operate the NBN, which will operate on a wholesale-only basis. The company will initially be wholly-owned by the Government. However, significant private investment in the company is expected. The Government also intends to sell down its interest in the NBN company after five years, meaning that the private sector could control what will be arguably one of the largest pieces of critical infrastructure in this country. (Conroy 2009a) Senator Conroy confirmed that the Government will be introducing legislation regarding the 'governance, ownership and operating arrangements' for the National Broadband Network company'. The NBN company will be 'required to provide non-discriminatory and fair access to all wholesale customers' (Australian Government 2009).

As stated above, it is not evident that Australian network providers currently engage in discriminatory Internet traffic practices that negatively impact on competing content and service providers. However, in light of the very real threats posed to Net Neutrality elsewhere in the world, it will be important that Australia protect and promote the principles of Net Neutrality to ensure that it can maximise the economic and social returns of the NBN rollout.

The NBN initiative perhaps presents one of the best opportunities to enshrine the principles of Net Neutrality in Australia's future. For instance, just as the Government will require the NBN company to provide non-discriminatory and open access to all wholesale customers, the Government could also require that those wholesale customers themselves provide enforceable undertakings to comply with Net Neutrality principles in providing broadband services to end-users. Adherence to these principles could be monitored by way of regular technical audits of the wholesale customers' data shaping and traffic management practices, with such audits being conducted by the NBN company or by an appropriate independent Government authority. Net

Neutrality principles could also be enshrined in the governance arrangements that have been foreshadowed for the NBN company. Agreement to adhere to Net Neutrality principles might also be made a condition precedent for private sector investment in the NBN company.

The US approach suggests that utilising the NBN structure might be an appropriate way of protecting Net Neutrality. The 2009 American Recovery and Reinvestment Act ('the Stimulus Act') includes provisions for a broadband technology opportunities program (BTOP) that is aimed at providing affordable, high speed broadband access for people throughout the US. Financial grants to be provided to broadband providers under the BTOP will apparently contain contractual obligations of non-discrimination and open access. In this way, broadband providers will be accountable for ensuring that they adhere to broader Net Neutrality principles.

This is an opportune time to explore opportunities for laying down guiding principles that support Net Neutrality, to prevent the threats occurring elsewhere in the world from creeping across the shores to Australia.

## CONCLUSION

Australia has not yet experienced the serious threats that have been posed to Net Neutrality elsewhere in the world. There has also been little debate or consideration of the topic in public forums. However, should Australian broadband providers choose to follow in the footsteps of their overseas counterparts and depart from providing neutral networks, the consequences for the digital economy could be severe.

As Dr. Roycroft rightly argues:

The Internet, based on a foundation of network neutrality and open-access principles, was perhaps the greatest innovation of the 20th century. Advocates who prescribe the replacement of open-access principles with a policy of multiple, closed networks should bear a heavy burden of proof. They have fallen far short of that mark (Roycroft 2006, 3).

For these reasons, it is worth capitalising on the opportunity presented by the new NBN, by encapsulating in its governance and structure measures that protect and enforce Net Neutrality principles.

---

## ENDNOTES

- <sup>1</sup> For instance, when interviewed by ZDNet on the issue of the government's internet filtering trial, Justin Milne of Telstra Media said: 'The idea of having some sort of fairly loose regulations and saying to ISPs, look, you have the capacity to do X, Y or Z and we'd like you to do that is crazy ... If we start doing things like cutting people off on the basis of doing file-sharing, for example, we could finish up breaking laws. We could certainly lend ourselves liable to being sued for wrongfully cutting people off' (Winterford and Hill, 2008). In addition, Simon Hackett, Managing Director of Australian ISP InterNode, has said it is 'somewhat loony' to make ISPs adopt a censorship role. 'The reality is that we are just a gatekeeper ... [b]ut we don't own the content, we only own the doorway' (Winterford and Hill, 2008).
- <sup>2</sup> See, for example: Federal Communications Commission Media Release, 'Commission orders Comcast to end discriminatory network management practices', 1 August 2008. Available at: <http://www.fcc.gov>.

- <sup>3</sup> VOIP is a peer-to-peer technology that enables users to hold voice and video conversations over the Internet.
- <sup>4</sup> BitTorrent is a peer-to-peer protocol for sharing and transferring large data files over the Internet.
- <sup>5</sup> At its most basic, the phrase 'Web 2.0' – coined by O'Reilly Media at a web conference in 2004 – denotes a change from consumers being passive recipients of information, to being active participants in the process. This has been driven by the development of innovative applications that simplify online participation, such as Wikis, blogs, tags, and RSS feeds.
- <sup>6</sup> Bart Decrem, co-founder of the social web browser Flock, has similarly used the phrase 'participatory web': see <http://www.flock.com/node/4500>.

---

## REFERENCES

- AC Nielsen Report, 'Income Earners: eBay Sellers – Australia', May 2006.
- Australian Communications and Media Authority. 2009. Media Release 28/2009, 13 March 2009: 'Nearly all small to medium enterprises now use the internet to communicate with customers and suppliers',. Accessed 25 May 2009. Available from: [http://www.acma.gov.au/WEB/STANDARD/pc=PC\\_311661](http://www.acma.gov.au/WEB/STANDARD/pc=PC_311661).
- The Allen Consulting Group. 2008. 'I got it on eBay! The economic impact of eBay in Australia', February 2008, at p. 1.
- AT&T Annual Report 2008. Accessed 25 May 2009. Available at: [http://www.att.com/Common/about\\_us/annual\\_report/pdfs/2008ATT\\_Narrative.pdf](http://www.att.com/Common/about_us/annual_report/pdfs/2008ATT_Narrative.pdf) at p. 4.
- Australian Government, Minister for Broadband, Communications and the Digital Economy. 2009. 'National Broadband Network: Regulatory Reform for 21st Century Broadband Discussion Paper', April 2009, p1. Accessed 25 May 2009. Available from: [http://www.dbcde.gov.au/\\_\\_data/assets/pdf\\_file/0006/110013/NBN\\_Regulatory\\_Reform\\_for\\_the\\_21st\\_Century\\_Broadband\\_low\\_res\\_web.pdf](http://www.dbcde.gov.au/__data/assets/pdf_file/0006/110013/NBN_Regulatory_Reform_for_the_21st_Century_Broadband_low_res_web.pdf).
- Comcast Corporation. 2009. 'Comcast Puts the Pedal to the Metal: Announces New 65% Benchmark to Roll Out Wideband High-Speed Internet Services In 2009 – Plans to Reach More Than 30 Million Homes and Businesses with Faster Speeds and Doubling Speeds for Most Existing Customers for No Additional Charge'. Media Release, 19 February 2009. Accessed 25 May 2009. Available at: <http://www.comcast.com/About/PressRelease/PressReleaseDetail.ashx?PRID=838>.
- Conroy, Senator the Hon Stephen. 2009. 'New National Broadband Network', Media Release, 7 April 2009. Accessed 25 May 2009. Available at: [http://www.minister.dbcde.gov.au/media/media\\_releases/2009/022](http://www.minister.dbcde.gov.au/media/media_releases/2009/022).
- Conroy, Senator the Hon Stephen. 2009. Minister for Broadband, Communications and the Digital Economy. Speech to Communications and Media Law Association, 25 March 2009.
- Durie, John. 2009. 'Trading Post move makes Sensis', AustralianIT, *The Australian*, 5 March 2009. Available at: <http://www.australianit.news.com.au/story/0,,25141835-5013038,00.html>.
- Federal Communications Commission. 2005. Policy Statement 05-151. Accessed 25 May 2009. Available from: [http://fjallfoss.fcc.gov/edocs\\_public/attachmatch/FCC-05-151A1.pdf](http://fjallfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf).
- Federal Communications Commission. 2008. 'Commission orders Comcast to end discriminatory network management practices', 1 August 2008. Accessed 25 May 2009. Available from: <http://www.fcc.gov>.
- Kapustka, Paul. 2005. 'FCC Fines N.Car. Provider \$15K For Blocking Vonage', *NetworkComputing.com*, 3 March 2005. Available from: <http://www.networkcomputing.com/channels/networkinfrastructure/60405195>.
- Marsden, Christopher T. 2007. 'Net Neutrality and Consumer Access to Content'. *SCRIPT-ed* 4(4) (September): 410. Accessed 25 May 2009. Available from: <http://www.law.ed.ac.uk/ahrc/script-ed/vol4-4/marsden.pdf>.
- Martin, Kevin J. 2007. Chairman, Federal Communications Commission. Press Statement, 18 December 2007. Accessed 25 May 2009. Available from: <http://www.fcc.gov/kjm121807-ownership.pdf>.

- O'Connell, Patricia. 2005. 'At SBC It's All About 'Scale and Scope'', *BusinessWeek*, 7 November 2005. Accessed 25 May 2009. Available from: [http://www.businessweek.com/@n34h\\*IUQu7KtOwgA/magazine/content/05\\_45/b3958092.htm](http://www.businessweek.com/@n34h*IUQu7KtOwgA/magazine/content/05_45/b3958092.htm).
- Open Internet Coalition. 2008. 'Why an open Internet?' Accessed 25 May 2009. Available from: <http://www.openinternetcoalition.com>.
- Orlowski, Andrew. 2009. 'Virgin puts 'legal P2P' plans on ice', *The Register*, 23 January 2009. Accessed 25 May 2009. Available from: [http://www.theregister.co.uk/2009/01/23/virgin\\_puts\\_legal\\_p2p\\_on\\_ice](http://www.theregister.co.uk/2009/01/23/virgin_puts_legal_p2p_on_ice).
- Reardon, Margeurite. 2007. 'Thanks to BitTorrent, Net neutrality debate reignites', *CNET News*, 2 November 2007. Accessed 25 May 2009. Available from: [http://news.cnet.com/Thanks-to-BitTorrent%2C-Net-neutrality-debate-reignites---page-2/2100-1034\\_3-6216750-2.html?tag=mncol](http://news.cnet.com/Thanks-to-BitTorrent%2C-Net-neutrality-debate-reignites---page-2/2100-1034_3-6216750-2.html?tag=mncol).
- Royal Television Society. 2008. 'Pay-per-voom TV'. *Television Magazine* 45(4) (April 2008). Accessed 25 May 2009. Available from: [http://www.rts.org.uk/Info\\_page\\_two\\_pic\\_2\\_det.asp?art\\_id=6763&sec\\_id=3256](http://www.rts.org.uk/Info_page_two_pic_2_det.asp?art_id=6763&sec_id=3256).
- Roycroft, Trevor R. 2006. 'Economic analysis and network neutrality: Separating empirical facts from theoretical fiction'. Accessed 25 May 2009. Available from: [http://www.freepress.net/files/roycroft\\_study.pdf](http://www.freepress.net/files/roycroft_study.pdf).
- Rudd, Prime Minister Kevin. 2008. Speech to the Australian/Melbourne Institute New Agenda for Prosperity Conference, Melbourne University, 27 March 2008.
- Svensson, Peter. 2007. 'Comcast Blocks Some Internet Traffic', *Associated Press*, 19 October 2007. Accessed 25 May 2009. Available from: <http://www.law.ed.ac.uk/ahrc/script-ed/vol4-4/marsden.pdf>.
- Telstra Corporation Limited. 2009. 'Telstra unveils super-fast cable broadband – Melbourne first to be upgraded', Media Release 051/2009, 10 March 2009. Accessed 25 May 2009. Available from: [http://www.telstra.com.au/abouttelstra/media/announcements\\_article.cfm?ObjectID=44582](http://www.telstra.com.au/abouttelstra/media/announcements_article.cfm?ObjectID=44582).
- Williams, Chris. 2008. 'Virgin Media to dump neutrality and target BitTorrent users', *The Register*, 16 December 2008. Accessed 25 May 2009. Available from: [http://www.theregister.co.uk/2008/12/16/virgin\\_bittorrent](http://www.theregister.co.uk/2008/12/16/virgin_bittorrent).
- Winterford, Brett; Hill, Julian. 2008. 'ISP-level content filtering won't work', *ZDNet Australia*, 30 October 2008. Accessed 25 May 2009. Available from: <http://www.zdnet.com.au/insight/communications/soa/ISP-level-content-filtering-won-t-work/0,139023754,339292158,00.htm>.
- Wu, Tim. 2008. 'The Installation and Use of Filtering Software on Public Networks Contradicts U.S. Policy', Testimony Draft for Federal Communications Commission Hearing on Net Neutrality, 25 February 2008, p2. Accessed 25 May 2009. Available from: [http://www.fcc.gov/broadband\\_network\\_management/022508/wu.pdf](http://www.fcc.gov/broadband_network_management/022508/wu.pdf).
- Zittrain, Jonathan. 2008. 'The Internet is Closing to Innovation: we face a wholesale threat to the open Internet environment of the past 30 years', *Newsweek*, 8 December 2008. Accessed 25 May 2009. Available at: <http://www.newsweek.com/id/171317/page/1>.

Cite this article as: Johnson, Katrina. 2009. 'The importance of net neutrality to the digital economy'. *Telecommunications Journal of Australia*. 59 (2): pp. 19.1 to 19.16. DOI: 10.2104/tja09019.