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A LEVEL PLAYING FIELD: EXPLORING THE PRINCIPLE OF
NETWORK NEUTRALITY

Submitted for the LLB (Honours) Degree

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Victoria University of Wellington
2016

Abstract

Network neutrality speaks to the open nature of the Internet, and is defined as the principle that no data can be discriminated against on unreasonable terms. While the Internet already largely operates under the principle, it is still a relatively new concept that is not yet expressly enshrined in law. Recent events in the United States and the current market environment in New Zealand challenge the open nature of the Internet. It is therefore important to discuss whether the principle should now be expressly adopted in law for the benefit of consumers. On balance, network neutrality appears to be a good principle to adopt as the principle protects important values such as innovation, efficiency, consumer welfare, and the right to freedom of expression. New Zealand has various legal mechanisms which exist to support network neutrality, but the principle should be explicitly adopted in New Zealand so as to clarify and strengthen existing policies, laws and codes. The paper concludes with a number of talking points going forward.

Key Words: net neutrality, Internet, consumer law, technology.

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I Introduction

[B]ad things come from misunderstanding, and communication is generally the way to resolve misunderstandings. The Web's a form of communications, so it generally should be good. But ... we have to watch whether we preserve the stability of the world ... ¹

The Internet is no longer a luxury, but a means of participating in everyday life. The decentralised and open nature of the Internet empowers users to determine how they communicate, participate, and undertake transactions. The open nature in which the Internet operates is called the network neutrality (NN) principle.

This paper defines NN as the general underlying principle in which *no Internet data can be discriminated against on unreasonable terms*. This principle has recently been challenged when United States Internet service provider (ISP) Comcast was accused of degrading data originating from Netflix. The question of whether this behaviour should be prohibited is the debate surrounding NN. Proponents call for government involvement and regulations. Opponents prefer market freedom.

This paper explores the arguments surrounding the legal mechanisms of NN. It explores the question of whether the principle of NN is likely to improve consumer welfare. Part II briefly discusses the Internet architecture. Part III defines the NN principle and asks whether NN is a pertinent issue of discussion. In part IV, the paper will explore the merits of adopting NN as an underlying regulatory principle in light of the Internet's architecture. Part V discusses the principle in action in New Zealand.

II What is the Internet?

The Internet is a specific and unprecedented form of communication. Any laws, regulations and legal principles must reflect this nature. As NN is a principle that regulates the Internet, it is important to understand the nature of the Internet before discussing its regulation.

¹ Interview with Tim Berners-Lee, creator of the World Wide Web (Scott Laningham, IBM developerWorks, 22 August 2006) transcript found at IBM <www.ibm.com>.

A *A Brief History*

The Internet was first described in 1962 as a means of efficient communication by bringing "[humans] and computers together in tight synergetic interaction".² The Internet still operates in this way.³

In 1989, Tim Berners-Lee submitted a proposal for a workplace information management system, arguing that information could be better utilised when shared between users of the network (as a web) rather than as a hierarchical system (as trees).⁴ Information was contained in servers. Users accessed servers through hypertext (hosted on a client) by clicking on an item to access that server.

B *The Internet Today*

Today's Internet is millions of such communications on a global scale. The most common form of Internet communication is client-server. The Internet is accordingly often compared to the "information superhighway" with an emphasis on speed.⁵ The architectural design of the Internet system operates on two fundamental principles:⁶

- (1) End-to-end (E2E) principle: messages within the network are fragmented into data packets and are routed through the network *autonomously*;⁷ and
- (2) Best-effort (BE) principle: where such information is routed through said network as *quickly* as possible.

² JCR Licklider and Welden Clark "On-line Man-Computer Communication" (1962) International Workshop on Managing Requirements Knowledge 113 at 115.

³ Barry Leiner and others "Brief History of the Internet" (15 October 2012) Internet Society <www.internetsociety.org> at 2.

⁴ Tim Berners-Lee "Information Management: A Proposal" (March 1989) W3 Archives <www.w3.org>.

⁵ The term "information superhighway" is widely attributed to Al Gore. Al Gore, Vice President of the United States "Remarks Prepared for Delivery by Vice President Al Gore" (speech to the Television Academy, Royce Hall, Los Angeles, 11 January 1994).

⁶ Jan Krämer, Lukas Wiewiorra and Christof Weinhardt "Net Neutrality: A Progress Report" (2013) 37 Telecommunications Policy 794 at 795.

⁷ See generally JH Saltzer, DP Reed and DD Clark "End-to-End Arguments in System Design" (1984) 2 ACM Trans Comp Syst 277.

(1) above is now best described as the trust-to-trust (T2T) principle. This involves the end user relying on an agent to access the Internet. Most users access the Internet through the services of an ISP who provide such connections. Its name comes from the assumption that the end user trusts the agent to provide all the information the user wants.⁸ The end user's expectation of being able to access all information (i.e. the E2E principle) is still pertinent.

However, communications only reflect a portion of the Internet's nature. The Internet is also used as an important tool and geographical location.⁹ In New Zealand, "there is an increasing desire to use the Internet as a functional way to carry out various duties of both citizen and government."¹⁰ The United Nations recognised Internet access as a human right, as the Internet dominated "every aspect of modern human life."¹¹ In 2015, 80.8 per cent of developed households had a computer and 81.3 per cent had Internet access.¹²

This unique nature of the Internet calls for a discussion on how this space ought to be regulated. NN is a form of regulating and preserving this environment. The next section defines NN and how it can be achieved through law.

⁸ Christopher Marsden "Network Neutrality: History, Regulation and Future" (paper presented at the 7th International Conference on Internet, Law & Politics, Catalonia, 11 July 2011) at 29.

⁹ Annette Markham "Metaphors Reflecting and Shaping the Reality of the Internet: Tool, Place, Way of Being" (paper presented to the Broadening the Band: Conference of the International Association of Internet Researchers, Toronto, October 2003) at 5.

¹⁰ Petra Butler "When is an Act of Parliament Appropriate Form of Regulation? – Regulating the Internet as an Example" in Susy Frankel and Deborah Ryder (eds) *Recalibrating Behaviour: Smarter Regulation in a Global World* (LexisNexis, Wellington, 2013) 489 at 519.

¹¹ Frank La Rue *Report of the Special Rapporteur on the Promotion and Protection of the Right to Freedom of Opinion and Expression XVII A/HRC/17/27* (2011) at [2].

¹² "Statistics: Key ICT Indicators for Developed and Developing Countries and the World (Totals and Penetration Rates)" (2015) International Telecommunications Union <www.itu.int>.

III Network Neutrality

A An Introduction to the Concept

NN has often been used as a "catch-all definition [reflecting] various incumbent behaviours that are said to be anti-competitive".¹³ Others have called NN a human right.¹⁴ This paper proceeds on the basis that NN is the underlying principle that *no Internet data can be discriminated against on unreasonable terms*. Any law in line with this principle is pro NN. This formulation of NN has support from the creator of the concept, Tim Wu.¹⁵ The basis of NN is enshrined in the NN Regulations of the European Union (EU): to safeguard the "provision of Internet access services and related end-users' rights" and an "open platform for innovation".¹⁶

B Methods of Achieving Network Neutrality

The following have been described as specific methods of achieving NN.

1 Transparency

Laws that require transparency over ISPs' data management behaviour is a light handed approach to achieving NN. When an ISP's data management behaviour is visible, consumers can determine which ISP best follows the principles of NN and choose ISPs accordingly. Transparency requirements can ensure that ISPs provide a neutral gateway to the Internet.¹⁷ This is because information about how ISPs undertake data management endows consumers with the power of choice, effectively allowing consumers to "vote with their wallet". This disciplines ISP behaviour.¹⁸ Indeed, transparency is an express requirement in the EU Regulations.¹⁹

¹³ "Net Neutrality and Online Content" (December 2008) Wigley & Company <www.wigleylaw.com>.

¹⁴ See Arturo Carrillo "Having Your Cake and Eating It Too? Zero-Rating, Net Neutrality and International Law" (2016) 19 Stan Tech L Rev (forthcoming).

¹⁵ Wu emphasised that NN is "an end [product]" rather than a process. Tim Wu "Network Neutrality, Broadband Discrimination" (2003) 2 JTHTL 141 at 145.

¹⁶ Regulation 2015/2120 [2015] OJ L310/1 laying down measures concerning open internet access [EU Regulations] at (1) and (3).

¹⁷ Krämer, Wiewiorra, and Weinhardt, above n 6, at 809.

¹⁸ Krämer, Wiewiorra, and Weinhardt endorse this view. See above n 6, at 809.

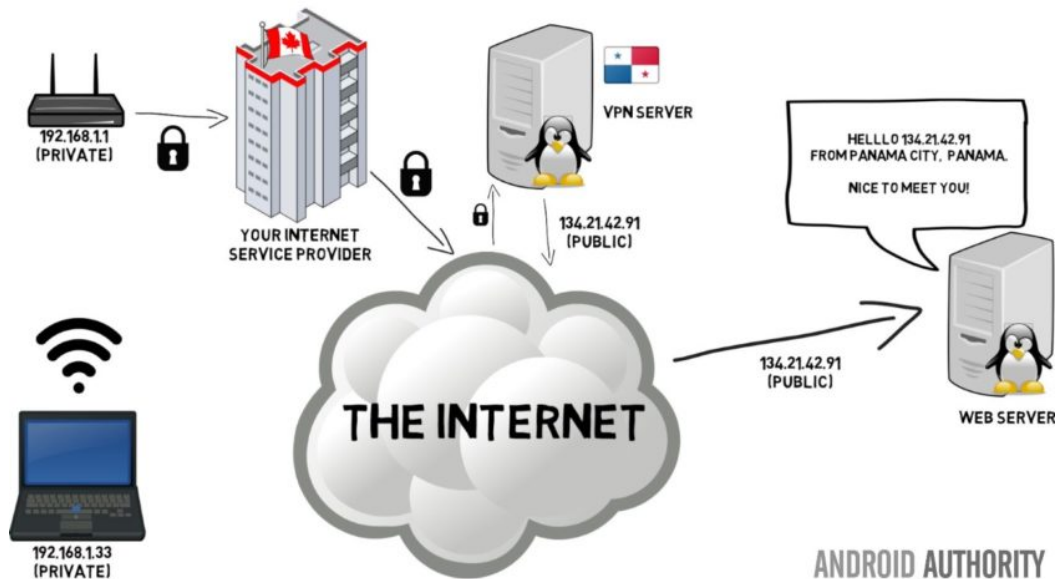
¹⁹ EU Regulations, above n 16, art 4.

2 *No unreasonable discrimination*

A more active approach to ensuring NN is to enact specific regulations that prevent ISPs from charging certain prices for certain kinds of content or communications.²⁰

ISPs can discriminate by type of *communication*. The Internet does not necessarily operate on a strict client-server basis. One such type is peer to peer (P2P) communication. A user's client is "accessible by other peers directly, without passing intermediary entities".²¹ P2P communication is often associated with copyright infringement and uses lots of data, so ISPs often slow down these connections. Pro NN laws can regulate this behaviour.

Another type of communication is the use of a virtual private network (VPN). An end user can use a VPN to ensure privacy. For example, a VPN can trick a server into thinking that a Canadian user was from Panama, ensuring anonymity for that Canadian user:²²



²⁰ See for example EU Regulations, above n 16, art 3.

²¹ Rüdiger Schollmeier "A Definition of Peer-to-Peer Networking for the Classification of Peer-to-Peer Architectures and Applications" (paper presented at the Proceedings of the First International Conference on Peer-to-Peer Computing, Linköping (Sweden), August 2001) 101 at 101.

²² Gary Sims "What is a VPN - Gary explains" (6 June 2016) Android Authority <www.androidauthority.org>.

An ISP could be reluctant to allow full anonymity over its network. VPNs are also used less often than client-server communications, so ISPs can prioritise direct client-server communications over VPN communications. Pro NN regulations could prevent unreasonable discrimination on the mere basis that VPNs are used.

ISPs can also discriminate by *content*. In a client-server communication system, a web application is any application where the client is run on a web browser.²³ This allows the user to easily access content due to the ubiquity of Internet browsers. An ISP can discriminate by application. Lightbox can be prioritised over Netflix, for example. Pro NN regulations can prohibit this discrimination.

Another method of discriminating content is through zero rating. Zero rating is undertaken by ISPs where customers can access certain content which is not counted on their data allowance.²⁴ The practice can be anticompetitive as it provides an advantage to content creators who can afford to subsidise their own data over certain ISPs, creating an unfair hurdle for less wealthy content creators. Competition law could address zero rating.

3 *No anticompetitive vertical integration*

A third way in which the law can help achieve NN is through limiting vertical integration. NN can be affected by vertical integration between:²⁵

- (1) ISPs and content providers; or
- (2) ISPs and infrastructure owners.

²³ Daniel Nations "What is a Web Application?" About Tech <webtrends.about.com>.

²⁴ Zero rating is distinct from an ISP subsidising a paid online subscription service. For example, Spark providing music platform Spotify Premium for free within a mobile data plan is not zero rating. However, if Spark stopped counting Spotify Premium data under a data limit, that is zero rating. See Carrillo, above n 14, at 3. See also "Get Spotify" (accessed 21 July 2016) Spark <www.spark.co.nz>.

²⁵ Letter from Tim Wu (Professor of Law, University of Virginia) and Lawrence Lessig (Professor of Law, Stanford University) to Marlene Dortch (Secretary of the Federal Communications Commission) regarding Network Neutrality in the United States (22 August 2003).

Under (1), there is the question as to whether ISPs will prioritise their subsidiaries' packets of data over others. ISPs can acquire content providers, giving them full control over content created by that content provider. A possible outcome of this is content monopoly. For example, if ISP Vodafone were to acquire content provider Sky, Vodafone would have an incentive to prioritise Sky content over Lightbox content. Pro NN regulations could impose conditions on such vertical arrangements with regards to content discrimination.

David Post argues that the term "content provider" does not work in this regard because users can also create content.²⁶ Post's argument reflects the open ended nature of the Internet. However, NN should be defined with specificity. There are companies that create content for profit. These companies are being acquired by ISPs. Vertical integration in this respect cannot be ignored.

An example best explains (2). If an ISP undertakes content discrimination, and that ISP also acquires a bulk of the physical infrastructure in a certain geographical area, users in that area may find it difficult to switch ISPs. Pro NN regulations can prevent ISP monopolies over infrastructure.

C Current Status of Network Neutrality

1 General status

The Internet is non-hierarchical and decentralised. No one organisation or government controls the Internet in its entirety; any regulation is territorial.²⁷ As such, the Internet largely remains largely neutral and open.

However, the Internet is not *completely* neutral. This is why, as has been stated above, it is preferable to define NN in limited and negative terms (*no* data can be discriminated against

²⁶ David Post "Does the FCC really not get it about the Internet?" *The Washington Post* (online ed, Washington DC, 31 October 2014).

²⁷ This is the generally accepted premise of Internet governance. See JL Goldsmith "The Internet and the Abiding Significance of Territorial Sovereignty" (1998) 5 *Ind J Global Legal Studies* 475.

on *unreasonable* terms). Indeed, ISPs have always been *blocking* (violating the E2E/T2T principles) and *degrading* information (violating the BE principle).²⁸

Reasonable network management is generally seen as being acceptable.²⁹ While absolute blocking of information is uncommon in developed democratic nations,³⁰ New Zealand ISPs block harmful and illegal data. Some New Zealand ISPs block malware and spam.³¹ Others voluntarily apply a government developed filtering system to block websites hosting child abuse images.³² Degradation of data is a more common practice taken by ISPs to ensure quality of service (QoS). This is done by prioritising packets of data in peak hours to provide a practically workable service with minimal impact on other packets of data.³³

2 *Current events*

The events in the United States show more questionable instances of network management. The FCC's decision to pass pro NN regulations was met with controversy.³⁴ The regulations were challenged in court, and the DC Circuit Court reversed a majority of the Order.³⁵

²⁸ Krämer, Wiewiorra and Weinhardt, above n 6, at 807.

²⁹ See for example EU Regulations, above n 16, art 3.

³⁰ This paper does not seek to discuss Internet censorship in more oppressive jurisdictions. See "How Censorship Works in China: A Brief Overview" (2006) Human Rights Watch <www.hrw.org>; and Tom Zeller "The Internet Black Hole That Is North Korea" *The New York Times* (online ed, New York City, 23 October 2006).

³¹ Spark New Zealand has an internet port specifically dedicated for blocking spam, viruses and worms through email. Users have the option to unblock this port. See "Port 25" Spark <www.spark.co.nz>.

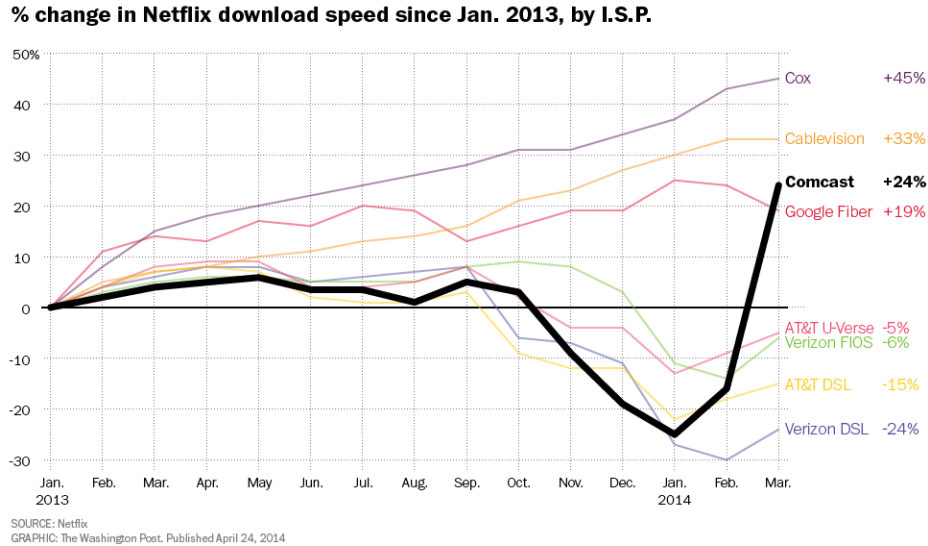
³² This is called the Digital Child Exploitation Filtering System (DCEFS). The DCEFS "focuses solely on websites offering clearly objectionable images of child sexual abuse, which is a serious offence for anyone in New Zealand to access." "Censorship DCEFS" Department of Internal Affairs <www.dia.govt.nz>.

³³ Krämer, Wiewiorra and Weinhardt, above n 6, at 808.

³⁴ Open Internet Report and Order FCC 10-201 (2010).

³⁵ *Comcast Corporation v Federal Communications Commission* 600 F 3d 642 (DC Cir 2010); *Verizon v Federal Communications Commission* 740 F 3d 623 (DC Cir 2014).

In 2013, United States ISP Comcast was found degrading packets of data originating from popular edge provider Netflix. This graph shows Netflix speeds over different ISPs:³⁶



Netflix and Comcast came to an agreement in February 2014.³⁷ In response, the FCC reclassified the Internet as a common carrier under Title II of the Telecommunications Act.³⁸ This put Internet regulation into the jurisdiction of the FCC.³⁹ The FCC's decision to reclassify was upheld.⁴⁰

There have been no recorded controversial incidents of data degradation in New Zealand to date. However, the local ISP market is worth examination. The three largest ISPs in New Zealand occupied 92 per cent of the New Zealand broadband market share in 2015.⁴¹ Data use by New Zealand consumers doubled in content and frequency between 2015 and

³⁶ Christopher Ingham "The death of #NetNeutrality, in one chart. With @MaxEhrenfreund" (25 April 2014) Twitter <www.twitter.com>.

³⁷ The graph above shows that Netflix download speeds increased exponentially in February 2014. See also "Comcast and Netflix Team Up to Provide Customers with Excellent User Experience" (23 February 2014) Comcast <corporate.comcast.com>.

³⁸ Open Internet Report and Order FCC 15-24 (2015).

³⁹ Telecommunications Act of 1996 Pub L No 104-104, § 706, 110 Stat 56 at 153 (1996).

⁴⁰ *United States Telecom Association v Federal Communications Commission* USCA-15-1063 (DC Cir 2016) [*Telecom v FCC*].

⁴¹ *Annual Telecommunications Report 2015* (Commerce Commission, May 2016) at 22.

2016.⁴² This is also supported by the government mandated Ultra-Fast Broadband Initiative, which aims to equip at least 80 per cent of the country with fibre optic broadband.⁴³ Meanwhile, content provider Netflix was introduced in New Zealand in 2015.⁴⁴ Netflix competes with Spark's own streaming platform Lightbox⁴⁵ and FreeviewPlus.⁴⁶ Cable provider Sky, who already owns streaming platform Neon,⁴⁷ could soon be acquired by Vodafone.⁴⁸

Two things are evident. First, the above events and environment raise the question of whether NN should be expressly enshrined in law. It asks whether consumers are satisfied with their ability to access a free and open Internet.⁴⁹ Secondly, the fundamental nature of the Internet is being challenged. Concerns over threats to an open Internet are no longer theoretical. While the Internet has always operated under the BE and E2E/T2T principles, current events indicate a need for immediate discussion regarding the nature of the Internet, and whether regulations need to be added. Indeed, there has been a notable lack of media coverage and discussion on NN in New Zealand.⁵⁰

IV Is Network Neutrality Worth Protecting? A Discussion of Potential Issues

A Introduction

The T2T principle is a governing principle of the Internet. Any effect on the operation of Internet access agents (the ISPs) will have an impact on how the end user (the consumer)

⁴² "Data Use Doubles as Kiwis Spend More Time Online" *Radio New Zealand* (online ed, Wellington, 14 July 2016).

⁴³ "Fast Broadband" (11 December 2015) Ministry of Business, Innovation and Employment <www.mbie.govt.nz>.

⁴⁴ "What Netflix Offers New Zealand Viewers" (24 March 2015) Stuff <www.stuff.co.nz>.

⁴⁵ Blayne Slabbert and Tom Pullar-Strecker "Spark hits back at Netflix prices, drops Lightbox cost" (23 March 2015) Stuff <www.stuff.co.nz>.

⁴⁶ Blayne Slabbert "Freeview to Revamp Service" (24 March 2015) Stuff <www.stuff.co.nz>.

⁴⁷ Tom Pullar-Strecker "Sky Television's Neon to launch in hours" (12 February 2015) <www.stuff.co.nz>.

⁴⁸ Jamie Gray "Sky TV - Vodafone confirm merger talks" *The New Zealand Herald* (online ed, Auckland, 8 June 2016).

⁴⁹ Comcast, an ISP and a vocal opponent of NN, was dubbed "the worst company in America" by consumers. See Adrienne Jeffries "The Worst Company in America" (19 August 2014) *The Verge* <www.theverge.com>.

⁵⁰ Tom Pullar-Strecker "NZ Needs Net Neutrality Debate" (10 July 2014) Stuff <www.stuff.co.nz>.

can access the Internet. As ISPs charge money for Internet access, the primary rebuttals to NN regulations are based on economics, proprietary rights, and profitability.

Neoclassical economists argue that the free market is the best method of maximising consumer welfare. Consumer welfare refers to the "individual benefits derived from the consumption of goods and services".⁵¹ This idea is based on welfare economics, where the end objective is to achieve consumer and economic wellbeing.⁵² Supporters of the free market approach are likely to view data management no differently to any other service. In a free market, the ISP is incentivised to undertake data management to maximise QoS. This maximises consumer welfare and therefore profitability. The only intervener should be generalist competition law as a last resort, as it achieves those goals through market efficiency and innovation.

Others argue that existing competition law fails to cover the unique nature of the Internet. The Internet is an infrastructure and network system that requires a specific set of laws regarding the different ways in which NN can be violated. They argue that regulations in favour of a free and open Internet should be prioritised above all else.⁵³

These viewpoints are not mutually exclusive. Regulations and competition law are both mechanisms in which the underlying principle of NN can be achieved. The Internet has historically remained largely open, and its openness has remained unchallenged until now. This raises potential issues from a consumer welfare perspective. These issues have not been explored in sufficient depth.

⁵¹ "Glossary of Industrial Organisation Economics and Competition Law" Organisation for Economic Cooperation and Development <www.oecd.org> at 29.

⁵² "The question is how much further the law ought ... [to intervene in a market]. The correct answer, I think, is not very much ... ". Richard Epstein "The Neoclassical Economics of Consumer Contracts" (2007) 92 *Minn Law Rev* 803 at 808.

⁵³ See for example advocacy group Save the Internet, whose message is simply stated as "Mess with the Internet and you'll lose." "Save the Internet" Save the Internet <www.savetheinternet.com>.

This section discusses the aims of competition law in relation to the context of the NN principle. It explores the potential issues and arguments about the principle. Finally, the section reaches a general consensus on the desirability of pro NN regulation.

B The Desirability of Network Neutrality

NN is the underlying principle under which legal mechanisms can operate. Competition law can work towards this outcome. Other legal mechanisms can do the same. This part of the paper considers arguments about whether the principle of NN is desirable under the headings of innovation, consumer welfare and freedom of expression.

1 Innovation

Sidak argues that ISPs retain proprietary rights over their network management, which they can use to maximise efficiency. He believes that this proprietary right increases consumer welfare because welfare is directly related to the consumers' willingness to pay.⁵⁴ He argues that ISPs need the freedom to have both "fast" and "slow" lanes of their Internet services, as long as the ISP retains the option to provide both access points to fast and slow lanes *and* a uniform and open Internet.⁵⁵ A car dealer is allowed to deal in both Porsches and Daihatsus. Some consumers do not need the capabilities of the Porsche. No one would purchase a car if their only option was to overpay for a Porsche that they do not need.

Therefore, an ISP's right to innovate over their own network is fundamental.⁵⁶ If network management is prohibited, ISPs may no longer feel incentivised to improve on their networks. Their actions are being restricted, and is an obstacle to profitability and their incentive to contribute to the economy. Prohibiting network management is also not ideal for consumers, who want a smooth Internet browsing experience.

This argument, however, fails to confront the reality that few rights are absolute. Property rights are no exception. In New Zealand, "property rights are [one of] the strongest interests

⁵⁴ JG Sidak "A Consumer Welfare Approach to Network Neutrality Regulation of the Internet" 2 JL Econ 349 at 367.

⁵⁵ At 369.

⁵⁶ Sidak, above n 54, at 373.

recognised by our law".⁵⁷ However, whether this right is absolute, or when those rights even attach, is a contentious issue.⁵⁸

It does not follow that an absolute proprietary right allowing for data degradation and throttling will result in innovation for the consumer. A network provider must still improve certain parts of the broadband network to implement a "fast" and "slow" data lane. However, it is easier and cheaper to slow down data than it is to improve. Comcast has already degraded packets of data from Netflix rather than looking to improve their existing infrastructure.⁵⁹ Comcast also degraded P2P communications in 2007.⁶⁰ In terms of speed, then, historical evidence shows that a "fast" and "slow" lane analogy is inaccurate; a more apt analogy seems to be a regular speed lane, and an otherwise identical speed lane with speed humps. Indeed, the needs of a modern day Internet user as discussed above can often call for the capabilities of a Porsche, yet consumers can be limited to a Daihatsu bolted with anchors.

Moreover, a neutral and open Internet has already fostered innovation in and of itself. This supports adopting a principle retaining NN. Boliek argues that there is market evidence suggesting that QoS guarantees are valuable to content providers when it comes to innovation. She states that Google and Microsoft have invested in large server farms to provide the speed and QoS that is "viewed as an imperative for a competitive edge".⁶¹ She is correct.⁶² However, this speaks to the E2E/T2T principle. The status quo is that the Internet is mostly free and open, and yet Microsoft and Google are not getting involved with the process of *delivering* content, but are instead innovating from their respective *ends*

⁵⁷ *White v Chandler* [2001] 1 NZLR 28 (HC) at [67].

⁵⁸ An example of this is the discussion on whether there can be property rights in the human body. See for example *Jocelyn Edwards; Re the estate of the late Mark Edwards* [2011] NSWSC 478.

⁵⁹ See Ingham, above n 36.

⁶⁰ Jacqui Cheng "Evidence mounts that Comcast is targeting BitTorrent traffic" (20 October 2007) Ars Technica <www.arstechnica.com>; Jacqui Cheng "Comcast settles P2P throttling class-action for \$16 million" (23 December 2009) Ars Technica <www.arstechnica.com>.

⁶¹ Babette Boliek "FCC Regulations Versus Antitrust: How Net Neutrality is Defining the Boundaries" (2011) 52 Boston Coll Law Rev 1627 at 1681.

⁶² Marius Oiaga "Microsoft and Google Server Farm Face-Off" (22 January 2007) Softpedia <news.softpedia.com>.

of the communication network. Therefore, this evidence supports the principle of NN. Both Microsoft⁶³ and Google⁶⁴ are, in fact, outspoken NN proponents.

However, this point raises another issue: there can be a potential opportunity cost in not being able to differentiate between different data sets that are most commonly used. As suggested by Boliek (as well as Sidak above), companies like Microsoft and Google could increase efficiency even more if they could undertake at least a little bit of data degradation, and being restricted from doing so could result in a loss of opportunity to create profits.

One counterargument is that profit can be increased through other means. Wu suggests that this can be done by charging the customers more for Internet access. He believes that the Internet is nothing without unfettered access to content, arguing that building networks at the expense of certain network applications is "akin to selling a painting in order to buy a better frame."⁶⁵ However, consumers will be displeased with an increase in broadband access fees simply based on lost opportunity. It also raises questions as to whether accessing the Internet will become more difficult as a whole due to said raised prices. Wu's view not only raises concerns regarding consumer welfare, but also affects the right to access the Internet as a whole.

A better counterargument is that ISPs can innovate in different areas. First, having an open Internet policy can itself be good business and politics. Van Schewick points out that the FCC was favoured by the general public as well as President Obama when NN rules were adopted.⁶⁶ A similar argument could be raised for companies who adopt a pro NN policy.⁶⁷

⁶³ David Tennenhouse "Microsoft voices support for FCC's net neutrality announcement" (24 February 2014) Microsoft <blogs.technet.microsoft.com>.

⁶⁴ "Our values remain the same: The Internet should be competitive and open." "We Stand Together – Take Action" Google <www.google.com>.

⁶⁵ Tim Wu "Why You Should Care About Network Neutrality" (1 May 2006) Slate <www.slate.com>.

⁶⁶ Barbara van Schewick "Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like" (2015) 67 SLR 1 at 81.

⁶⁷ Some ISPs' marketing platforms (for example Bigpipe) run on the premise that they do not throttle or degrade, and that they do not have a fair use policy. "Welcome!" (3 February 2015) Bigpipe <pages.bigpipe.co.nz>.

Secondly, the Internet itself levels the playing field for content creators. ISPs who acquire content creators can yield a profit and still adhere to the NN principle as long as that ISP does not undertake content discrimination. Compromises can be made; the Internet can remain as a fair platform for competition and ISPs can improve efficiency elsewhere.

2 *Efficiency and consumer welfare*

Neoclassical economists argue that the free market should determine what is best for the consumers. Traffic management is no exception; if bandwidth management results in efficiency, then such behaviour must be allowed. Existing competition law regulates this area already. For example, Federal Trade Commissioner Joshua Wright argued that existing competition law was sufficient to curb undesirable ISP behaviour. Any NN regulation or rule that restricts vertical integration "creates a categorical prohibition against vertical contracts without acknowledging the vast economic literature and empirical evidence that support the view that such vertical arrangements are usually procompetitive."⁶⁸

Opponents also argue that there is no evidence that current regulations have resulted in market failure. Former FCC Commissioner Robert McDowell argues that there is nothing in the current Internet access market that requires a remedy: "nothing is broken that needs fixing".⁶⁹ Meanwhile, existing competition law has a proven track record to remedying the wrongs in case such events occurred.⁷⁰ Similarly, Owens questions whether there has been anticompetitive discrimination undertaken by ISPs at all.⁷¹ He believes that competition law should come first, with regulations as a last resort. Wright, McDowell and Owens'

⁶⁸ Joshua Wright, Commissioner of the Federal Trade Commission "Broadband Policy & Consumer Welfare: The Case for an Antitrust Approach to Net Neutrality Issues" (Information Economy Project's Conference on US Broadband Markets in 2013, George Mason University School of Law, Arlington (Virginia), 19 April 2013).

⁶⁹ Testimony of Robert McDowell, former Federal Communications Commissioner "Net Neutrality: Is Antitrust Law More Effective than Regulation in Protecting Consumers and Innovation? Hearing Before the Subcommittee on Regulatory Reform, Commercial and Antitrust Law" Senate, 113th Congress 19 at 21.

⁷⁰ McDowell, above n 69, at 26.

⁷¹ Testimony of Bruce Owens, Professor of Public Policy "Net Neutrality: Is Antitrust Law More Effective than Regulation in Protecting Consumers and Innovation? Hearing Before the Subcommittee on Regulatory Reform, Commercial and Antitrust Law" Senate, 113th Congress 44 at 51.

viewpoints are arguably aligned with achieving consumer welfare. The ideal approach is the status quo: letting the invisible hand decide what is best for the consumers, with competition law getting involved when the consumers are left with no realistic options.

Pro-NN regulations could also result in a planned economy. Any government regulation of how ISPs should operate will essentially result in an artificial government controlled market. Such control can come at a cost to consumers.⁷² This argument is a general critique on legal paternalism; the market should rather be left to its own devices, and the consumer will benefit from the market's overall efficiency.

However, any law must reflect the reality of the phenomenon that it seeks to regulate. The law should prevent possible harmful behaviours that can become prevalent in the future, especially if it is based on the ideological purposes of the state.⁷³ It is better to prevent an imminent issue than to look for a cure. The above arguments fail to understand the unique nature of the Internet architecture. The Internet is a multi-faceted and decentralised communications network. While any such regulation should avoid being overly prescriptive and idealistic, it is just as important to act quickly and reflect the dynamism of the Internet. Data applications cannot not be treated in the same way as, say, television channels.⁷⁴

First, McDowell and Owens are correct to say that there has been no substantial market failure, but are wrong to argue that NN is irrelevant. The Internet largely relies on code, a purely technological and manmade architecture. Therefore, the network is always evolving and is dynamic in nature.⁷⁵ Recent current events suggest that discussions and precautionary actions regarding the NN principle could be necessary. Dr Marsden

⁷² See for example George Gilder "Cap and Trade for the Internet" *The Wall Street Journal* (online ed, New York City, 15 March 2010).

⁷³ CE Clark "The Function of Law in a Democratic Society" (1942) 9 U Chi L Rev 393 at 400.

⁷⁴ Lawrence Lessig, Professor of Law "Cyberspace's Architectural Constitution" (9th International World Wide Web Conference, Amsterdam, May 2000).

⁷⁵ See generally Lawrence Lessig *Code: Version 2.0* (2nd ed, Basic Books, New York City, 2006).

concludes that any regulation regarding NN must be futureproof above all else.⁷⁶ On the other hand, competition laws were not designed with the Internet in mind.

Secondly, not having any regulations with NN as an underlying principle can itself result in a planned economy. A planned economy is simply defined as a direct allocation of resources in a market; it will not necessarily follow as a result of regulatory government intervention.⁷⁷ If there is absolutely no constraint on ISPs making deals that vertically integrate or discriminate data, there the result is "a transformation from a market where innovation rules to one where deal-making rules".⁷⁸ As the market runs on deal making and not innovation, efficiency is not always guaranteed. This is not beneficial for the consumer.

Consider this hypothetical.⁷⁹ Say the owners of an interstate highway struck a deal with Toyota to subsidise the purchase price of Toyota cars. People would start buying Toyota cars not because they were safe or fuel efficient, but because they were subsidised by the interstate highway and were therefore cheaper. This assumes that consumer welfare is reached through purchase price only. It is true that consumers could benefit from the low car prices of Toyota vehicles. However, this benefit is limited to a restricted (and likely short term) benefit of saving purchase costs. A similar argument can be raised in respect of NN. An efficient ISP could potentially provide lower connection prices, but it does not follow that consumer welfare will be maximised. Indeed, there is evidence that vertical integration between content providers and ISPs can detrimentally affect social welfare if there is also a failure to integrate NN policy.⁸⁰

⁷⁶ Marsden, above n 8, at 42–43.

⁷⁷ Ernest Mandel "In Defence of Social Planning" (1986) 159 *New Left Rev* 5 at 7.

⁷⁸ Wu ("Why You Should Care About Network Neutrality"), above n 65.

⁷⁹ This hypothetical is adopted from the example provided by Tim Wu. Wu ("Why You Should Care About Network Neutrality"), above n 65.

⁸⁰ Subhajyoti Bandyopadhyay and others "The Vertical Integration of Content and Broadband Services: The Net Neutrality Debate" (paper presented to Pacific Asia Conference on Information Systems, Hyderabad (India), July 2009).

Zero rating is another possible way in which NN can be breached at the cost of market efficiency. It is controversial as to whether the practice is anticompetitive. It is also controversial as to whether it benefits consumers. There is evidence that zero rating is a market driven mechanism for capturing economic efficiencies.⁸¹ There is also little evidence as to whether zero rating itself is likely to result in anticompetitive behaviour at this present time, as most zero rating seems to be demand driven.⁸² However, an overemphasis on network management efficiency can lead to potentially anticompetitive behaviour in the future. Zero rating plans are seen to be preferred by customers in the short run. However, the method can in fact distort competition by driving traffic towards parties who can afford to pay ISPs to zero rate and away from those who cannot.⁸³ Therefore, the practice is efficient but could be anticompetitive.

An overemphasis on efficiency within the Internet context can come at a direct cost to consumers. Unregulated data discrimination can give unchecked and unprecedented power to ISPs. Lessig states three factors which work together to make this a reality:⁸⁴

- (1) a monopoly (or duopoly) of ISPs with little competition;
- (2) a lack of regulations, where ISPs can pick and choose which content based on their business model and what will make them the most money; and
- (3) ISPs being able to successfully use freedom of expression to promote any ideas, including political ones, without any constraint from the government.⁸⁵

⁸¹ See JA Eisenbach "The Economics of Zero Rating" (2 March 2015) *NERA Economic Consulting* <www.nera.com>.

⁸² Examples include Wikipedia and Facebook. Eisenbach, above n 81, at 8.

⁸³ Erik Stallman and RS Adams "Zero Rating: A Framework for Assessing Benefits and Harms" (13 January 2016) *Centre for Democracy and Technology* <cdt.org> at 22; and Barbara van Schewick *T-Mobile's Binge On Violates Key Net Neutrality Principles* (report to the Federal Communications Commission, 29 January 2016) at 3.

⁸⁴ Lawrence Lessig, Professor of Law "The Politics of Innovation" (Wired BizCon 2014, Museum of Jewish Heritage, New York City, 13 May 2014).

⁸⁵ Point (3) could be a valid First Amendment defence in the United States. See *Citizens United v Federal Election Commission* 558 US 310 (2010).

Lessig argues that the three points above in tandem will give ISPs "a power to control access to our culture and politics, unchecked, and incapable of being checked by the government".⁸⁶ This power comes directly as a result of the Internet's ability to not only communicate but access information and culture. The nonexistence of NN not only impedes on consumer welfare, but can also endow unprecedented power to ISPs.

However, Lessig's point does not support the idea that regulations to remedy (2) should be absolute. It supports the idea that regulation should be introduced to restrict data discrimination, but only to the extent that is needed to ensure that ISPs do not gain this unprecedented power. Even Wu believes ISPs should have the "general freedom to manage bandwidth consumption and other matters of local concern".⁸⁷ While it is preferable to adhere to the general principle of NN for uniformity for the above concerns to consumer welfare, competition law can alleviate some of these concerns so that any such management is only done on reasonable terms.

3 *Freedom of expression*

The principle of NN supports freedom of expression for all Internet users. This is related to Lessig's point in section B2. David Post argued that the "content provider" label is unhelpful.⁸⁸ While this paper has already stated that Post's argument was unhelpful in *defining* the specific boundaries of NN, the argument certainly supports *retaining* NN as a principle. There is information on the Internet that is not commercial in nature. Meanwhile, competition law only covers anticompetitive behaviour and is not concerned with human rights. This can include political speech and blogs.

If the Internet is not open, ISPs can degrade certain packets of data to emphasise certain viewpoints over others. This can unduly affect the right to freedom of expression. That right is recognised in New Zealand through the New Zealand Bill of Rights Act 1990.⁸⁹ Competition law is, however, governed by the Commerce Act 1986. Competition law is

⁸⁶ Lessig ("The Politics of Innovation"), above n 84.

⁸⁷ Wu ("Network Neutrality, Broadband Discrimination"), above n 15, at 165.

⁸⁸ Post, above n 26.

⁸⁹ New Zealand Bill of Rights Act 1990, s 14.

designed to protect the competitive process, and detecting and punishing behaviour that deceives consumers. Without the NN principle in place, a company can discriminate *any* data. It does not necessarily follow that a company gains a financial advantage by violating NN. Take an example where an ISP favours one sports team over another.⁹⁰ That ISP could concentrate on news coverage claiming that Chelsea are a better football team than Manchester United, despite the latter being placed higher than the former in the 2015-16 Premier League season. Such concerns are not limited to sports, but also politics, opinions, or any other form of speech.

The above example shows that the Internet is unique in its form and nature. It is not just telecommunication. It also acts as a geographical location where ideas and discussion points can gather. While free speech is not absolute on the Internet,⁹¹ the Internet has nonetheless facilitated certain viewpoints to be expressed which may have otherwise not been heard. The open nature of the Internet has contributed to levelling the playing field between smaller and larger speakers.⁹² An example of this is Bernie Sanders' 2016 presidential campaign. He received 13 million votes during the primary elections despite being written off as a fringe grassroots candidate.⁹³ A lack of legal mechanisms supporting NN could impede on the expression of certain viewpoints.

C Summary

The NN principle protects important consumer values, including consumer choice, innovation, and the right to freedom of expression. Accordingly, this paper supports the adoption of NN and argues that a variety of legal mechanisms (including competition law

⁹⁰ This example is adopted from Professor Wu's testimony at a Senate Hearing. Testimony of Tim Wu, Professor of Law "Net Neutrality: Is Antitrust Law More Effective than Regulation in Protecting Consumers and Innovation? Hearing Before the Subcommittee on Regulatory Reform, Commercial and Antitrust Law" Senate, 113th Congress 70 at 72.

⁹¹ Private property does not turn into a public forum on the basis that the public is generally invited to use it for specified purposes; the same is true for privately owned websites. See *Langdon v Google Inc* Civ Act No 06-319-JJF (D Del 2007) at 18.

⁹² See Robin Lee and Tim Wu "Subsidizing Creativity through Network Design: Zero-Pricing and Net Neutrality" (2009) 23 *J Econ Perspect* 61.

⁹³ Nick Corasaniti "Seeking the Presidency, Bernie Sanders Becomes Facebook Royalty Through Quirky Sharing" *The New York Times* (online ed, New York City, 18 May 2015).

alongside NN regulations) can and should achieve this goal. The goal of NN should be to maximise benefits to consumers while fostering an innovative and profitable environment. The above arguments support the definition of NN as provided by this paper: that it is a principle that no Internet data can be discriminated against on *unreasonable* terms. This leaves the opportunity for ISPs to undertake reasonable local data management for efficiency and profitability without compromising the overall open and neutral nature of the Internet.

The E2E/T2T and BE principles are central to Internet operation. It fosters innovation on the client/server ends rather than degrading data at middle points. This retains an efficient market through meritocracy, and respects freedom of expression on the Internet. The modern day consumer requires Internet services to pay for services, undertake research, and participate in democracy. Consumers need a variety of choices as to how they choose to do these things. In turn, a free and open Internet is necessary, and the Porsche's capabilities are needed more often than not.

Neither NN nor openness are absolute. Economic incentives are crucial. If innovation and efficiency are stifled, it will hurt both the ISPs and the consumer. Indeed, even the FCC's proposed regulations only interfere with behaviour which was found to not be "commercially reasonable".⁹⁴ At the same time, however, it is important to consider the unique nature and architecture of the Internet and how innovation and efficiency were historically achieved. The need to regulate for NN only became an issue when ISPs attempted to fundamentally interfere with this nature of the Internet. As this paper has stressed, the Internet's open and neutral nature best fosters innovation and benefits the consumer.

The principle of NN should assist in the direction of Internet regulations generally. Different kinds of laws can work in tandem to best benefit the consumer. The next part will look to how this could work in practice.

⁹⁴ Tom Wheeler "Setting the Record Straight on the FCC's Open Internet Rules" (24 April 2014) Federal Communications Commission <www.fcc.gov>.

V *An Example: Network Neutrality in New Zealand*

A *The New Zealand Position*

[New Zealand's regulatory system] may prevent Net Neutrality from becoming a significant problem but that isn't something we can take for granted.⁹⁵

The term "common carrier" does not exist in New Zealand.⁹⁶ No government agency can simply reclassify the Internet as a common carrier and make regulations like the FCC. Therefore, the reclassification and appeals are very specific to the United States jurisdiction.⁹⁷ New Zealand cannot simply copy the United States approach. Rather, New Zealand has various different mechanisms in which the principle of NN are enforced.

B *Existing New Zealand Mechanisms*

1 *Government policy: anticompetitive vertical integration (ISPs and infrastructure)*

The governing legislation in telecommunications is the Telecommunications Act 2001.

In 2008, the National Party successfully campaigned under the promise of a \$1.5 billion investment in a fibre-to-the-premises (FTTP) programme (called the Ultra-Fast Broadband, or UFB, initiative).⁹⁸ Subsequently, the Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011 resulted in the structural separation of Telecom (now

⁹⁵ Amy Adams, Minister for Communications "Keynote Address at NetHui" (NetHui 2014, SkyCity Convention Centre, Auckland, 10 July 2014).

⁹⁶ See Michael Wigley "New Zealand" in Gemma Bridge (ed) *Telecoms, Media & Internet Laws & Regulations 2016* (9th ed, Global Legal Group, London, 2015) 175.

⁹⁷ The FCC is an independent government agency and the Court's role in "reviewing agency regulations ... is a limited one." See *Telecom v FCC*, above n 40, at 22; citing *Association of American Railroads v Interstate Commerce Commission* 797 F 2d 995 (DC Cir 1992).

⁹⁸ Sean Mosby and Jerome Purre *Toward Universal Broadband Access in New Zealand* (Ministry of Economic Development, case study, November 2010) at 19.

Spark) so that the ISP branch of the company could participate in FTTP.⁹⁹ The UFB initiative is still being implemented at the time of writing.¹⁰⁰

Critically, the UFB initiative operates as an Open Access Network (OAN).¹⁰¹ OANs are network architectures which separate the physical access of networks from service provisioning.¹⁰² In New Zealand, the physical infrastructure that delivers Internet can only be sold by a Local Fibre Company (LFC) to an ISP (or Access Seeker) at a fixed price. The UFB Invitation to Participate itself forbids discrimination. This means that LFCs must treat all Access Seekers identically; if there are any differences in treatment, that approach cannot harm competition.¹⁰³

Competition issues arise where a natural monopoly is vertically integrated. This gives rise to an incentive to "discriminate between its own arm and its competitors in the terms at which it will grant access to the natural monopoly".¹⁰⁴ The OAN model eliminates vertical integration between ISPs and LFCs. This adheres to the principle of NN in respect of anticompetitive behaviour.

The OAN model is merely government policy. It could therefore easily change with a change in government. Nevertheless, there are a number of reasons that this policy is unlikely to change. First, the New Zealand public has implicitly supported this policy through the ballot. The Fifth (and incumbent) National Government has not changed its position on the Internet since 2008.¹⁰⁵ Secondly, the project is a long term one set to continue until at least 2022; tearing it apart would be difficult for any government. Finally, Spark was structurally separated through the legislative process. This is a key aspect of the

⁹⁹ Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011, pt 2.

¹⁰⁰ See "Fast Broadband", above n 43.

¹⁰¹ Mosby and Purre, above n 98, at 10.

¹⁰² See *Broadband Networks and Open Access* (Organisation for Economic Co-operation and Development, Digital Economy Paper 218, March 2013).

¹⁰³ Ministry of Economic Development *New Zealand Government Ultra-Fast Broadband Initiative: Invitation to Participate in Partner Selection Process* (October 2009) at Appendix 4.2.8.

¹⁰⁴ Paul Scott and David de Joux "Uncertainty and Regulation: Insight From Two Network Industries" in Susy Frankel and Deborah Ryder (eds) *Recalibrating Behaviour: Smarter Regulation in a Global World* (LexisNexis, Wellington, 2013) 385 at 400–401.

¹⁰⁵ Mosby and Purre, above n 98, at 19.

FTTP programme. Vertical integration was the key issue for NN; the horizontal nature of the model is likely to be retained.

Nonetheless, clarity is key. The government policy is unlikely to change for the foreseeable future. However, it makes sense to clarify and solidify the policy. While the regulatory environment in New Zealand telecommunications has improved since moving away from its light handed approach, it has failed to entrench key regulatory principles.¹⁰⁶ The same can be said with regards to transparency.

2 Commerce Commission and competition law: discrimination by data type (ISPs and content providers)

NN can also be compromised through anticompetitive vertical integration between ISPs and content providers. This provides an incentive for ISPs to prioritise its own content.

Generally, competition law has two aims. One is to promote, maintain and protect market competition.¹⁰⁷ Some argue that the process of competition is the best way to allocate resources and provide consumers with alternatives.¹⁰⁸ Therefore, the primary goal of competition law is to increase corporate efficiency by allowing for competition. A second aim of competition law is promoting consumer welfare. This is the primary goal of lawmakers and regulators.¹⁰⁹ Anticompetitive behaviour can allow for companies to establish monopolies and cartels. This leaves consumers without choice.

The two aims work together in New Zealand. The purpose of the Commerce Act 1986 is to "promote competition in markets *for* the long-term benefit of consumers within New Zealand."¹¹⁰ This is also reflected in s 3A, which allows the consideration of efficiency

¹⁰⁶ Dwayne Winseck, Professor of Journalism and Communication "Consumer Segment Issues" (The Future with High Speed Broadband: Opportunities for New Zealand Conference, SkyCity Hotel, Auckland, February 2012).

¹⁰⁷ Rita Yi Man Li and Yi Lut Li "The Role of Competition Law: An Asian Perspective" (2013) 9 Asian Social Science 47 at 47.

¹⁰⁸ See for example GR Roberts "The NCAA, Antitrust, and Consumer Welfare" (1996) 70 Tul L Rev 2631.

¹⁰⁹ Li and Li, above n 107, at 51.

¹¹⁰ Emphasis added. Commerce Act 1986, s 1A.

when looking to benefit the public.¹¹¹ The Courts have also held that "rivalry between firms ensures maximum efficiency in the use of resources."¹¹² Therefore, the general position on competition law in New Zealand is that increasing efficiency also increases competitive behaviour *and* consumer welfare. As discussed above, NN is likely to be beneficial in relation to consumer welfare. Arguably, then, the aim of competition law in New Zealand is aligned with achieving the principle of NN.

National regulatory bodies are important in maintaining NN.¹¹³ The Commerce Act 1986 establishes the Commerce Commission to be the primary government agency who enforces competition law in New Zealand.¹¹⁴ The Commission clears business acquisitions if it does not have the effect of substantially lessening competition in New Zealand.¹¹⁵ This is done by undertaking a "counterfactual test", where they compare the likely state of competition if the merger proceeds with the likely state of competition if the merger does not proceed.¹¹⁶ Even if the acquisition is anticompetitive, the Commission can still authorise mergers if the public benefit of the acquisition outweighs its detriments.¹¹⁷

The Commerce Commission has specific guidelines for business acquisitions.¹¹⁸ The guidelines recognise that acquisitions between non competing parties are less likely to result in a substantial lessening of competition, but can still reject a clearance if anti-competitiveness is the result.¹¹⁹

¹¹¹ Commerce Act 1986, s 3A. See also Lindsay Hampton and Paul Scott *Guide to Competition Law* (LexisNexis, Wellington, 2013) at [1.1].

¹¹² *Tru Tone Ltd v Festival Records Retail Marketing Ltd* [1988] 2 NZLR 352 (CA) at 366.

¹¹³ See for example EU Regulations, above n 16, at (19).

¹¹⁴ Section 8.

¹¹⁵ Commerce Act 1986, s 66(1).

¹¹⁶ *Commerce Commission v Woolworths Ltd* [2008] NZCA 276, (2008) 12 TCLR 194 at [63].

¹¹⁷ Commerce Act 1986, s 1A. See also Paul Scott "Competition Law and Policy: Can a Generalist Law be an Effective Regulator?" in Susy Frankel and Deborah Ryder (eds) *Recalibrating Behaviour: Smarter Regulation in a Global World* (LexisNexis, Wellington, 2013) 139 at 143.

¹¹⁸ *Mergers and Acquisitions Guidelines* (Commerce Commission, July 2013).

¹¹⁹ *Mergers and Acquisitions Guidelines*, above n 118, at chapter 5.1.

Vertical integration between ISPs and content providers is of interest. Until recently, the only relevant acquisitions were *between* ISPs (or general telecommunications companies; the acquisition of Clear Communications by Telstra, for example).¹²⁰ Acquisitions of content providers over the Internet is a recent phenomenon. The closest acquisition of this kind is when Telecom acquired Sky TV shares in 1995. The Commission predicted that technologies could undertake a "convergence" in the future, particularly between telecommunications, broadcasting, entertainment, and information services.¹²¹ As no such technology existed at the time, such markets would be separate. Therefore, the Commission concluded that the merger's impact on telecommunications competition was low.¹²²

That convergence is now reality. In 2016, Vodafone (an ISP) made an application to the Commission to acquire Sky TV (a content provider). The Clearance Application submitted by Vodafone suggests that the acquisition came as a result of meeting demands for online content.¹²³ It argued that Sky's content services were "not 'key inputs' which are needed to compete effectively in telecommunications markets."¹²⁴ Vodafone was the only ISP who opted to resell Sky services; nonetheless, the broadband and telecommunications market shares have "remained relatively constant over recent years."¹²⁵ Vodafone recognises the practice of zero rating but does not see it as a concern.¹²⁶

The Commission's decision is pending.¹²⁷ However, the Commission's Statement of Preliminary Issues raises two findings which are relevant from a NN perspective. First, the Commission asks what the relevant markets are in 2016.¹²⁸ This is a good place to begin

¹²⁰ *Telstra Corporation Ltd and Clear Communications Ltd* [2001] NZCC 447.

¹²¹ *Telecom Corporation of New Zealand Ltd and HKP Partnership of New Zealand* [1995] NZCC 276 [*Telecom and HKP*] at [87].

¹²² *Telecom and HKP*, above n 121, at [90].

¹²³ *Notice Seeking Clearance: Vodafone Europe BV and Sky Network Television Ltd* (Commerce Commission, 29 June 2016) [*Notice Seeking Clearance: Vodafone and Sky*] at 7.2.

¹²⁴ *Notice Seeking Clearance: Vodafone and Sky*, above n 123, at 11.4.

¹²⁵ *Notice Seeking Clearance: Vodafone and Sky*, above n 123, at 11.12.

¹²⁶ *Notice Seeking Clearance: Vodafone and Sky*, above n 123, at 11.15 and 11.16.

¹²⁷ The decision is due 11 November 2016.

¹²⁸ *Statement of Preliminary Issues: Vodafone Europe BV and Sky Network Television Ltd* (Commerce Commission, 14 July 2016) [*Statement of Preliminary Issues: Vodafone and Sky*] at [13].

NN discussions. It is not just the ISP and telecommunications markets that are involved, but also content providers (such as Netflix and Lightbox). Determining whether there is a possible violation in NN requires, at least in part, a determination of discriminatory and anticompetitive behaviour. Secondly, the Commission considers whether the merged entity could discriminate against other online providers based on content.¹²⁹ Listed examples include blocking specific website access, or not hosting rivals' content on the Vodafone network.¹³⁰ This issue can be interpreted as an implicit recognition that anticompetitive behaviours could have an impact on the Internet. It asks whether the potential power of the merged company could have an impact on how data is treated by ISPs.

While the decision is pending at the time of writing, the Commission's preliminary Statement of Issues still fails to mention some key issues related to competition and NN. A greater and more specific consideration of open Internet principles is necessary, as they could have a detrimental impact on consumer choice. Indeed, there have already been submissions made to the Commission opposing this acquisition for this very reason.¹³¹

First, the Issues Statement mentions blocking but not degradation. Chief Executives of Vodafone and Sky have both denied that websites will be blocked.¹³² As mentioned above, however, outright blocking is uncommon in democratic nations like New Zealand. The larger issue is degradation to the point where certain applications become unusable. The Commission should expressly investigate the likelihood of degradation in its analysis.

¹²⁹ *Statement of Preliminary Issues: Vodafone and Sky*, above n 128, at [30].

¹³⁰ *Notice Seeking Clearance: Vodafone and Sky*, above n 123, at 11.15 and 11.16.

¹³¹ Submissions were made by InternetNZ, Spark New Zealand, and Freeview, among others. InternetNZ and Freeview in particular voiced their fears of the merger's impact on NN. See *InternetNZ Submission by InternetNZ to Commerce Commission in relation to clearance application by Vodafone and Sky* (12 August 2016) [InternetNZ Submission]; and *Freeview Submission by Freeview to Commerce Commission in relation to the clearance application by Sky and Vodafone* (12 August 2016).

¹³² See Interview with Russell Stanners, Chief Executive of Vodafone New Zealand (Eric Frykberg, Checkpoint, National Radio, 9 June 2016); and Interview with John Fellet, Chief Executive of Sky Television (Eric Frykberg, Checkpoint, National Radio, 9 June 2016).

Secondly, the Commission has not mentioned all forms of data discrimination. As stated earlier, data discrimination can take place based not only on content but also type of communication. Type of content is just one part of the picture; considerations regarding video quality as well as having certain content at specific times of the day are both ways in which consumers can lose out on choice.¹³³

Finally, the Issues Statement does not mention zero rating. While the Clearance Application briefly mentions zero rating, the issue was brushed aside by the applicants quickly. Vodafone argues that the degradation of content will simply result in customers switching to alternative ISPs, and therefore has no incentive to degrade.¹³⁴ However, the violation of NN is not limited to degrading data and can also be done through zero rating. The novel nature of how data works means that the practice is initially disguised as a positive to some consumers. As stated earlier, however, zero rating's impact on the consumer is unclear. At the very least, then, this is a good opportunity for the Commission to investigate the impact of zero rating in New Zealand. Indeed, the lack of an express zero rating provision in the EU Regulations was touted as a weakness.¹³⁵

This is the reality of Internet operation. Content discrimination can take place through degradation and zero rating, which can still be anticompetitive without the need for express blocking. Such a practice has not been seen in other markets. Therefore, the Commission "would be wise to keep some very open eyes on this matter".¹³⁶

¹³³ Interview with Andrew Cushen, Acting Chief Executive of InternetNZ (Andrew Patterson, Sunday Business, National Radio, 9 June 2016).

¹³⁴ Letter from Torrin Crowther and Glenn Shewan (solicitors acting for Vodafone New Zealand) to Susan Brown (Commerce Commission) containing Vodafone's interim response on submissions on the Statement of Preliminary Issues over the Vodafone-Sky merger (23 August 2016) at [4].

¹³⁵ While this paper was being written, the Body of European Regulators for Electronic Communications (BEREC) since clarified that the practice of zero rating under the EU Regulations was more likely to be anticompetitive than not. BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules BoR (16) 127 at [41]–[42].

¹³⁶ Interview with Cushen, above n 133.

The counterfactual test *may* involve the consideration of some of these issues.¹³⁷ However, the novel nature of this new issue calls for these questions to be *expressly* considered when such acquisitions are before the Commission. The above issues should be made clear in the Mergers and Acquisitions Guidelines. The existing Telecommunications Commissioner must consider such issues. Alternatively, a new "Internet Commissioner" could undertake inquiries. The overall goal should be to clarify NN principles under the helm of competition law. The Commission's approach should reflect these new areas and platforms that the Internet covers.

3 Voluntary codes and room for regulations: transparency

The Fair Trading Act 1986 (FTA) is relevant to ISP transparency. The general purpose of the FTA is to contribute to a trading environment which protects the interests of consumers by ensuring that businesses compete fairly and effectively.¹³⁸ Section 9 prohibits misleading and deceptive conduct generally.¹³⁹ Section 11 prohibits misleading conduct in relation to the nature, characteristics, suitability or quality of service.¹⁴⁰ The FTA applies to anyone in trade, including ISPs.¹⁴¹ The scope of s 9 is wide.¹⁴² It could therefore be argued that ss 9 and 11 require transparency of ISP network management policies.¹⁴³

However, no law calls for ISPs to be transparent in the specific area of network management. There is only a voluntary Code for Broadband Product Disclosure Information (Broadband Product Code) drafted by the New Zealand Telecommunications Forum (TCF) – an organisation which creates voluntary standards for communications companies. This provision in the Code is pertinent:¹⁴⁴

¹³⁷ This view is supported by InternetNZ in their submissions to the Commerce Commission. InternetNZ Submission, above n 131, at 8.1.

¹³⁸ Section 1A.

¹³⁹ Fair Trading Act 1986, s 9.

¹⁴⁰ Fair Trading Act 1986, s 11.

¹⁴¹ Section 3.

¹⁴² *Commerce Commission v New Zealand Nutritionals (2004) Ltd* [2016] NZHC 832 at [22].

¹⁴³ This is the view of the current Minister for Communications. Adams, above n 95.

¹⁴⁴ Code for Broadband Product Disclosure Information, New Zealand Telecommunications Forum (endorsed 23 October 2013, effective 1 March 2014) [Broadband Product Code], at 7.1.3k.

Traffic Management Policy - circumstances in which traffic management may apply and the effect this may have on Customers. Suggested wording: "A traffic management policy is in place which may influence your broadband performance at busy times. See [insert web link] for more details." and provide a link to where the Customer can find a more detailed description of the traffic management policy.

One interpretation of this is that the act of network management must be disclosed to the consumer.¹⁴⁵ The Code aims to simplify disclosure of information for consumers, as well as providing a process for independently measuring and reporting on an ISP's performance.¹⁴⁶ ISPs are moving towards industry self-regulation by being transparent in traffic management without having a legal obligation to do so. Indeed, Vodafone displays a traffic management policy which is limited to P2P type traffic.¹⁴⁷ 2degrees states outright that they do not have a traffic management policy.¹⁴⁸

However, the Broadband Product Code is not law. ISPs are under no legal obligation to follow the Code outright. Not many ISPs have disclosed their network management policies in great detail.¹⁴⁹ Spark merely acknowledges that sometimes network traffic *may* be managed to "improve functionality".¹⁵⁰ Spark does not clarify whether they shape traffic in their terms and conditions, and only denied such behaviour on social media platforms

¹⁴⁵ "Network Neutrality in New Zealand: Public Discussion Document – June 2015" (June 2015) InternetNZ <internetnz.nz> at 14.

¹⁴⁶ Broadband Product Code, above n 144, at 2.1.2 and 2.1.4.

¹⁴⁷ "Terms - Unlimited Broadband" (1 September 2015) Vodafone <www.vodafone.co.nz>.

¹⁴⁸ "2degrees Home Broadband Offer Summary" (28 June 2016) 2degrees Mobile <www.2degreesmobile.co.nz>.

¹⁴⁹ This is despite the Broadband Product Code requiring a hyperlink ("[insert web link]") in their terms and conditions containing a detailed description of such policies. Broadband Product Code, above n 144, at 7.1.3k.

¹⁵⁰ Spark "Broadband Customer Terms and Conditions" (24 March 2016) <www.spark.co.nz> at 5.

when expressly asked.¹⁵¹ While the Broadband Product Code suggests adding a separate page for details on traffic management, a specified list of requirements could be useful.¹⁵²

Similarly, ISPs are under no obligation to sign the Broadband Product Code at all. Vocus, the third largest ISP in New Zealand, has not signed the Code despite making up 15 per cent of the broadband market share, as well as being a member of the TCF.¹⁵³ Vocus states that they "may use traffic prioritisation policies for these plans to protect [their] network and improve the overall performance"; they do not explain *when* these prioritisations take place, or *how* "overall performance" is defined.¹⁵⁴

It is encouraging that the Broadband Product Code was voluntary. Many ISPs have somewhat followed the Code. The FTA is also a useful mechanism to ensure ISP transparency. However, it is vital that transparency over *traffic management* is made a requirement. Regulations can clarify the issue and make the requirement more uniform throughout the sector.¹⁵⁵

C Summary

The existing regulatory landscape in New Zealand seems to support the principle of NN. NN is an underlying principle and is therefore already in operation through a mixture of existing regulations, government policy, competition law, and voluntary codes. Fears of anticompetitive vertical integration are mitigated by government policy and the Commerce Commission. Data management policies are already somewhat transparent.

However, the current ISP environment calls for some changes in the near future. The current approach leaves gaps, and it is unclear as to the direction of the Commerce

¹⁵¹ Spark "Spark on Twitter: '@pipes We're definitely not shaping, and we're in no position to comment on how other providers manage their traffic. ^TRF'" (25 May 2014) Twitter <www.twitter.com>.

¹⁵² The EU Regulations have a checklist of transparency requirements. All EU ISPs must display this information. EU Regulations, above n 16, art 4.

¹⁵³ *2015 Annual Telecommunications Report*, above n 41, at 22.

¹⁵⁴ "Broadband Terms & Conditions" Slingshot <www.slingshot.co.nz>. Vocus operates under the name Slingshot in the ISP market.

¹⁵⁵ This again echoes the general opinion of Professor Winseck. Winseck, above n 106.

Commission. Specific regulations targeting NN could help safeguard and clarify the NN principle. This paper proposes three actions across the regulatory environment as a starting point:

- (1) adopt NN as a general principle that government agencies like the Commerce Commission can apply;
- (2) clarify existing guidelines and regulations which can be interpreted as being in favour of NN, particularly with respect to vertical integration, zero rating and data degradation; and
- (3) clarify or increase transparency rules for ISPs' data management.

VI Conclusion

A Concluding Points

NN and innovation can work together. NN is an *underlying principle* for both NN specific regulations and competition law which can foster innovation and growth.

However, NN is a new idea. The practical consequences of such a doctrine (or indeed its express absence) are yet to be seen. There is no advantage of hindsight showing the long term benefits and costs of retaining (or doing away with) NN as an underlying principle, nor have there been any specific regulations to make this a mandatory legal requirement.

Nonetheless, the Internet architecture is unique. This paper has examined the NN principle under this architecture. It has weighed up the various arguments regarding the adoption of the NN principle, and concluded that it is a desirable principle to adopt. Specific issues and laws need clarification. A public discussion is a necessity and changes must follow.

B Looking Forward

We're probably neutral on net neutrality right now.¹⁵⁶

Technology is not stagnant. Every argument is subject to upcoming technological improvements. The FCC has revised its Notice of Proposed Rulemaking for implementing NN.¹⁵⁷ The Vodafone-Sky merger decision is due November 2016. Exciting times lie ahead.

This paper is not intended to completely resolve the issue of NN. The existence of a pro NN regulatory system itself raises issues. Jurisdictional issues need to be considered. Non ISPs have the potential to degrade data.¹⁵⁸ NN regulations also have implications for online privacy.¹⁵⁹ Such issues should be investigated once pro NN laws have been implemented.

Accordingly, there should be a continued local discussion on the NN principle. This paper focused on the benefits of NN laws to the consumer. It concludes that the NN principle is likely to be beneficial. This view is supported by experts.¹⁶⁰ However, any consumer based laws should have the consumers' support and awareness of the issue. Support in the United States has been unprecedented, but the discussion in New Zealand has been modest. Awareness and debate must precede revision of law.

The Internet is a unique phenomenon. The existing competition law mechanism is useful in certain aspects. However, it fails to wholly cover this complicated and specific

¹⁵⁶ Andrew Orłowski "Universal Music Chief Blasts Slashdot" (1 March 2006) The Register <www.theregister.co.uk>.

¹⁵⁷ "Protecting and Promoting the Open Internet NPRM" (15 May 2014) Federal Communications Commission <www.fcc.gov>.

¹⁵⁸ Content providers like Netflix can also degrade data. See for example Ryan Knutson and Shalini Ramachandran "Netflix Throttles Its Videos on AT&T, Verizon Networks" *The Wall Street Journal* (online ed, New York City, 24 March 2016).

¹⁵⁹ Natasha Lomas "FCC proposes new privacy rules for ISPs" (4 April 2016) TechCrunch <techcrunch.com>.

¹⁶⁰ See for example Tim Berners-Lee, founder of the World Wide Web, and Vint Cerf, one of the "fathers of the Internet". Tim Berners-Lee "Net Neutrality in Europe: A Statement From Sir Tim Berners-Lee" (26 October 2015) Web Foundation <webfoundation.org>; and "A Virtual Counter-Revolution" *The Economist* (online ed, London, 2 September 2010).

architecture. NN is a principle enshrining a multitude of issues. Any question of how the Internet should be regulated comes down to the values of the Internet users and consumers. This is how welfare and innovation are encouraged in the Internet. The law must follow suit.

VII Bibliography

A Cases

1 New Zealand

Commerce Commission v New Zealand Nutritionals (2004) Ltd [2016] NZHC 832.

Commerce Commission v Woolworths Ltd [2008] NZCA 276, (2008) 12 TCLR 194.

Tru Tone Ltd v Festival Records Retail Marketing Ltd [1988] 2 NZLR 352 (CA).

White v Chandler [2001] 1 NZLR 28 (HC).

2 Decisions of the Commerce Commission

Telecom Corporation of New Zealand Ltd and HKP Partnership of New Zealand [1995] NZCC 276.

Telstra Corporation Ltd and Clear Communications Ltd [2001] NZCC 447.

3 Australia

Jocelyn Edwards; Re the estate of the late Mark Edwards [2011] NSWSC 478.

4 United States

Association of American Railroads v Interstate Commerce Commission 797 F 2d 995 (DC Cir 1992).

Citizens United v Federal Election Commission 558 US 310 (2010).

Comcast Corporation v Federal Communications Commission 600 F 3d 642 (DC Cir 2010).

Langdon v Google Inc Civ Act No 06-319-JJF (D Del 2007).

United States Telecom Association v Federal Communications Commission USCA-15-1063 (DC Cir 2016).

Verizon v Federal Communications Commission 740 F 3d 623 (DC Cir 2014).

B Legislation

1 New Zealand

Commerce Act 1986.

Fair Trading Act 1986.

New Zealand Bill of Rights Act 1990.

Telecommunications (TSO, Broadband, and Other Matters) Amendment Act 2011.

2 United States

Telecommunications Act of 1996 Pub L No 104-104, § 706, 110 Stat 56 (1996).

Open Internet Report and Order FCC 10-201 (2010).

Open Internet Report and Order FCC 15-24 (2015).

C International Materials

BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules BoR (16) 127.

Regulation 2015/2120 [2015] OJ L310/1 laying down measures concerning open internet access.

D Books and Chapters in Books

Petra Butler "When is an Act of Parliament Appropriate Form of Regulation? – Regulating the Internet as an Example" in Susy Frankel and Deborah Ryder (eds) *Recalibrating Behaviour: Smarter Regulation in a Global World* (LexisNexis, Wellington, 2013) 489.

Lindsay Hampton and Paul Scott *Guide to Competition Law* (LexisNexis, Wellington, 2013).

Lawrence Lessig *Code: Version 2.0* (2nd ed, Basic Books, New York City, 2006).

Paul Scott "Competition Law and Policy: Can a Generalist Law be an Effective Regulator?" in Susy Frankel and Deborah Ryder (eds) *Recalibrating Behaviour: Smarter Regulation in a Global World* (LexisNexis, Wellington, 2013) 139.

Paul Scott and David de Joux "Uncertainty and Regulation: Insight From Two Network Industries" in Susy Frankel and Deborah Ryder (eds) *Recalibrating Behaviour: Smarter Regulation in a Global World* (LexisNexis, Wellington, 2013) 385.

Michael Wigley "New Zealand" in Gemma Bridge (ed) *Telecoms, Media & Internet Laws & Regulations 2016* (9th ed, Global Legal Group, London, 2015) 175.

E Journal Articles

Babette Boliek "FCC Regulations Versus Antitrust: How Net Neutrality is Defining the Boundaries" (2011) 52 Boston Coll Law Rev 1627.

Arturo Carrillo "Having Your Cake and Eating It Too? Zero-Rating, Net Neutrality and International Law" (2016) 19 Stan Tech L Rev (forthcoming).

CE Clark "The Function of Law in a Democratic Society" (1942) 9 U Chi L Rev 393.

Richard Epstein "The Neoclassical Economics of Consumer Contracts" (2007) 92 Minn Law Rev 803.

JL Goldsmith "The Internet and the Abiding Significance of Territorial Sovereignty" (1998) 5 Ind J Global Legal Studies 475.

Jan Krämer, Lukas Wiewiorra and Christof Weinhardt "Net Neutrality: A Progress Report" (2013) 37 Telecommunications Policy 794.

Robin Lee and Tim Wu "Subsidizing Creativity through Network Design: Zero-Pricing and Net Neutrality" (2009) 23 J Econ Perspect 61.

Rita Yi Man Li and Yi Lut Li "The Role of Competition Law: An Asian Perspective" (2013) 9 Asian Social Science 47.

JCR Licklider and Welden Clark "On-line Man-Computer Communication" (1962) International Workshop on Managing Requirements Knowledge 113.

Ernest Mandel "In Defence of Social Planning" (1986) 159 New Left Rev 5.

GR Roberts "The NCAA, Antitrust, and Consumer Welfare" (1996) 70 Tul L Rev 2631.

JH Saltzer, DP Reed and DD Clark "End-to-End Arguments in System Design" (1984) 2 ACM Trans Comp Syst 277.

JG Sidak "A Consumer Welfare Approach to Network Neutrality Regulation of the Internet" 2 JL Econ 349.

Barbara van Schewick "Network Neutrality and Quality of Service: What a Nondiscrimination Rule Should Look Like" (2015) 67 SLR 1.

Tim Wu "Network Neutrality, Broadband Discrimination" (2003) 2 JTHTL 141.

F Seminars and Papers Presented at Conferences

Subhajyoti Bandyopadhyay and others "The Vertical Integration of Content and Broadband Services: The Net Neutrality Debate" (paper presented to Pacific Asia Conference on Information Systems, Hyderabad (India), July 2009).

Annette Markham "Metaphors Reflecting and Shaping the Reality of the Internet: Tool, Place, Way of Being" (paper presented to the Broadening the Band: Conference of the International Association of Internet Researchers, Toronto, October 2003).

Christopher Marsden "Network Neutrality: History, Regulation and Future" (paper presented at the 7th International Conference on Internet, Law & Politics, Catalonia, 11 July 2011).

Rüdiger Schollmeier "A Definition of Peer-to-Peer Networking for the Classification of Peer-to-Peer Architectures and Applications" (paper presented at the Proceedings of the First International Conference on Peer-to-Peer Computing, Linköping (Sweden), August 2001) 101.

G Parliamentary and Government Materials

1 New Zealand

Mergers and Acquisitions Guidelines (Commerce Commission, July 2013).

Notice Seeking Clearance: Vodafone Europe BV and Sky Network Television Ltd (Commerce Commission, 29 June 2016).

Statement of Preliminary Issues: Vodafone Europe BV and Sky Network Television Ltd (Commerce Commission, 14 July 2016).

Letter from Torrin Crowther and Glenn Shewan (solicitors acting for Vodafone New Zealand) to Susan Brown (Commerce Commission) containing Vodafone's interim response on submissions on the Statement of Preliminary Issues over the Vodafone-Sky merger (23 August 2016).

Freeview Submission by Freeview to Commerce Commission in relation to the clearance application by Sky and Vodafone (12 August 2016).

InternetNZ Submission by InternetNZ to Commerce Commission in relation to clearance application by Vodafone and Sky (12 August 2016).

Ministry of Economic Development *New Zealand Government Ultra-Fast Broadband Initiative: Invitation to Participate in Partner Selection Process* (October 2009).

2 *United States*

Testimony of Robert McDowell, former Federal Communications Commissioner "Net Neutrality: Is Antitrust Law More Effective than Regulation in Protecting Consumers and Innovation? Hearing Before the Subcommittee on Regulatory Reform, Commercial and Antitrust Law" Senate, 113th Congress 19.

Testimony of Bruce Owens, Professor of Public Policy "Net Neutrality: Is Antitrust Law More Effective than Regulation in Protecting Consumers and Innovation? Hearing Before the Subcommittee on Regulatory Reform, Commercial and Antitrust Law" Senate, 113th Congress 44.

Barbara van Schewick *T-Mobile's Binge On Violates Key Net Neutrality Principles* (report to the Federal Communications Commission, 29 January 2016).

Testimony of Tim Wu, Professor of Law "Net Neutrality: Is Antitrust Law More Effective than Regulation in Protecting Consumers and Innovation? Hearing Before the

Subcommittee on Regulatory Reform, Commercial and Antitrust Law" Senate, 113th Congress 70.

H Reports

1 New Zealand

Annual Telecommunications Report 2015 (Commerce Commission, May 2016).

Sean Mosby and Jerome Purre Toward Universal Broadband Access in New Zealand (Ministry of Economic Development, case study, November 2010).

2 Other

Broadband Networks and Open Access (Organisation for Economic Co-operation and Development, Digital Economy Paper 218, March 2013).

Frank La Rue *Report of the Special Rapporteur on the Promotion and Protection of the Right to Freedom of Opinion and Expression XVII A/HRC/17/27* (2011).

I Presentations and Speeches

Amy Adams, Minister for Communications "Keynote Address at NetHui" (NetHui 2014, SkyCity Convention Centre, Auckland, 10 July 2014).

Al Gore, Vice President of the United States "Remarks Prepared for Delivery by Vice President Al Gore" (speech to the Television Academy, Royce Hall, Los Angeles, 11 January 1994).

Lawrence Lessig, Professor of Law "Cyberspace's Architectural Constitution" (9th International World Wide Web Conference, Amsterdam, May 2000).

Lawrence Lessig, Professor of Law "The Politics of Innovation" (Wired BizCon 2014, Museum of Jewish Heritage, New York City, 13 May 2014).

Dwayne Winseck, Professor of Journalism and Communication "Consumer Segment Issues" (The Future with High Speed Broadband: Opportunities for New Zealand Conference, SkyCity Hotel, Auckland, February 2012).

Joshua Wright, Commissioner of the Federal Trade Commission "Broadband Policy & Consumer Welfare: The Case for an Antitrust Approach to Net Neutrality Issues" (Information Economy Project's Conference on US Broadband Markets in 2013, George Mason University School of Law, Arlington (Virginia), 19 April 2013).

J Interviews

Interview with Tim Berners-Lee, creator of the World Wide Web (Scott Laningham, IBM developerWorks, 22 August 2006) transcript found at IBM <www.ibm.com>.

Interview with Andrew Cushen, Acting Chief Executive of InternetNZ (Andrew Patterson, Sunday Business, National Radio, 9 June 2016).

Interview with John Fellet, Chief Executive of Sky Television (Eric Frykberg, Checkpoint, National Radio, 9 June 2016).

Interview with Russell Stanners, Chief Executive of Vodafone New Zealand (Eric Frykberg, Checkpoint, National Radio, 9 June 2016).

K Internet Resources

1 News articles

"A Virtual Counter-Revolution" *The Economist* (online ed, London, 2 September 2010).

"Data Use Doubles as Kiwis Spend More Time Online" *Radio New Zealand* (online ed, Wellington, 14 July 2016).

"What Netflix Offers New Zealand Viewers" (24 March 2015) Stuff <www.stuff.co.nz>.

Jacqui Cheng "Comcast settles P2P throttling class-action for \$16 million" (23 December 2009) Ars Technica <www.arstechnica.com>.

Jacqui Cheng "Evidence mounts that Comcast is targeting BitTorrent traffic" (20 October 2007) Ars Technica <www.arstechnica.com>.

Nick Corasaniti "Seeking the Presidency, Bernie Sanders Becomes Facebook Royalty Through Quirky Sharing" *The New York Times* (online ed, New York City, 18 May 2015).

George Gilder "Cap and Trade for the Internet" *The Wall Street Journal* (online ed, New York City, 15 March 2010).

Jamie Gray "Sky TV - Vodafone confirm merger talks" *The New Zealand Herald* (online ed, Auckland, 8 June 2016).

Adrienne Jeffries "The Worst Company in America" (19 August 2014) The Verge <www.theverge.com>.

Ryan Knutson and Shalini Ramachandran "Netflix Throttles Its Videos on AT&T, Verizon Networks" *The Wall Street Journal* (online ed, New York City, 24 March 2016).

Natasha Lomas "FCC proposes new privacy rules for ISPs" (4 April 2016) TechCrunch <techcrunch.com>.

Marius Oiaga "Microsoft and Google Server Farm Face-Off" (22 January 2007) Softpedia <news.softpedia.com>.

Andrew Orlowski "Universal Music Chief Blasts Slashdot" (1 March 2006) The Register <www.theregister.co.uk>.

David Post "Does the FCC really not get it about the Internet?" The Washington Post (online ed, Washington DC, 31 October 2014).

Tom Pullar-Strecker "NZ Needs Net Neutrality Debate" (10 July 2014) Stuff <www.stuff.co.nz>.

Tom Pullar-Strecker "Sky Television's Neon to launch in hours" (12 February 2015) <www.stuff.co.nz>.

Blayne Slabbert "Freeview to Revamp Service" (24 March 2015) Stuff <www.stuff.co.nz>.

Blayne Slabbert and Tom Pullar-Strecker "Spark hits back at Netflix prices, drops Lightbox cost" (23 March 2015) Stuff <www.stuff.co.nz>.

Tom Zeller "The Internet Black Hole That Is North Korea" The New York Times (online ed, New York City, 23 October 2006).

2 *Other*

"2degrees Home Broadband Offer Summary" (28 June 2016) 2degrees Mobile <www.2degreesmobile.co.nz>.

"Broadband Customer Terms and Conditions" (24 March 2016) Spark <www.spark.co.nz>.

"Broadband Terms & Conditions" Slingshot <www.slingshot.co.nz>.

"Censorship DCEFS" Department of Internal Affairs <www.dia.govt.nz>.

"Comcast and Netflix Team Up to Provide Customers with Excellent User Experience" (23 February 2014) Comcast <corporate.comcast.com>.

"Fast Broadband" (11 December 2015) Ministry of Business, Innovation and Employment <www.mbie.govt.nz>.

"Get Spotify" (accessed 21 July 2016) Spark <www.spark.co.nz>.

"Glossary of Industrial Organisation Economics and Competition Law" Organisation for Economic Cooperation and Development <www.oecd.org>.

"How Censorship Works in China: A Brief Overview" (2006) Human Rights Watch <www.hrw.org>.

"Net Neutrality and Online Content" (December 2008) Wigley & Company <www.wigleylaw.com>.

"Network Neutrality in New Zealand: Public Discussion Document – June 2015" (June 2015) InternetNZ <internetnz.nz>.

"Port 25" Spark <www.spark.co.nz>.

"Protecting and Promoting the Open Internet NPRM" (15 May 2014) Federal Communications Commission <www.fcc.gov>.

"Save the Internet" Save the Internet <www.savetheinternet.com>.

"Statistics: Key ICT Indicators for Developed and Developing Countries and the World (Totals and Penetration Rates)" (2015) International Telecommunications Union <www.itu.int>.

"Terms - Unlimited Broadband" (1 September 2015) Vodafone <www.vodafone.co.nz>.

"We Stand Together – Take Action" Google <www.google.com>.

"Welcome!" (3 February 2015) Bigpipe <pages.bigpipe.co.nz>.

Tim Berners-Lee "Information Management: A Proposal" (March 1989) W3 Archives <www.w3.org>.

Tim Berners-Lee "Net Neutrality in Europe: A Statement From Sir Tim Berners-Lee" (26 October 2015) Web Foundation <webfoundation.org>.

JA Eisenbach "The Economics of Zero Rating" (2 March 2015) *NERA Economic Consulting* <www.nera.com>.

Christopher Ingham "The death of #NetNeutrality, in one chart. With @MaxEhrenfreund" (25 April 2014) Twitter <www.twitter.com>.

Barry Leiner and others "Brief History of the Internet" (15 October 2012) Internet Society <www.internetsociety.org>.

Daniel Nations "What is a Web Application?" About Tech <webtrends.about.com>.

Gary Sims "What is a VPN - Gary explains" (6 June 2016) Android Authority <www.androidauthority.org>.

Spark "Spark on Twitter: '@pipes We're definitely not shaping, and we're in no position to comment on how other providers manage their traffic. ^TRF'" (25 May 2014) Twitter <www.twitter.com>.

Erik Stallman and RS Adams "Zero Rating: A Framework for Assessing Benefits and Harms" (13 January 2016) *Centre for Democracy and Technology* <cdt.org>.

David Tennenhouse "Microsoft voices support for FCC's net neutrality announcement" (24 February 2014) Microsoft <blogs.technet.microsoft.com>.

Tom Wheeler "Setting the Record Straight on the FCC's Open Internet Rules" (24 April 2014) Federal Communications Commission <www.fcc.gov>.

Tim Wu "Why You Should Care About Network Neutrality" (1 May 2006) Slate <www.slate.com>.

L Other Resources

Code for Broadband Product Disclosure Information, New Zealand Telecommunications Forum (endorsed 23 October 2013, effective 1 March 2014).

Letter from Tim Wu (Professor of Law, University of Virginia) and Lawrence Lessig (Professor of Law, Stanford University) to Marlene Dortch (Secretary of the Federal Communications Commission) regarding Network Neutrality in the United States (22 August 2003).

Word count

The text of this paper (excluding abstract, table of contents, footnotes, and bibliography) comprises exactly 7,991 words.