REGULATING NEXT GENERATION BROADBAND

LESSONS FROM AUSTRALIA

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This paper illuminates the field of telecommunications access regulation as it has applied to infrastructure capable of delivering next generation broadband services. It concludes with some lessons that can be learned when attempting to regulate the new government-sponsored National Broadband Network.

BACKGROUND

On 11 March 2008, the Minister for Broadband, Communications and the Digital Economy, Senator Stephen Conroy, announced a Panel of Experts to assess proposals to build a National Broadband Network that will deliver data speeds of at least 12 Mb/s, use fibre-to-the node (FTTN) or fibre-to-the home (FTTH) architecture and provide open access to wholesale broadband services.[1] The Minister foreshadowed that this proposed National Broadband Network would be predicated on a new policy and regulatory framework.

INTRODUCTION

Wireline telecommunication access networks are modern-day behemoths, extensive in coverage, expensive to build and slow to change. When each opportunity for change does arise, the occasion should be of national significance as the next opportunity may be decades away. The purpose of generational change is to significantly upgrade service capability and this is effected through a wholesale change in network architecture and system design.

Australian telecommunications witnessed a generational change of sorts with the roll-out by Telstra and Optus of hybrid-fibre coaxial (HFC) networks to the major capital cities and key regional areas. On the other hand, the TransACT network represented a real generational change albeit restricted to the national capital of Canberra.

This paper illuminates the field of telecommunications access regulation as it has applied to infrastructure capable of delivering next generation broadband services. Such infrastructure, involving optical fibre in the customer access network (CAN), creates a natural monopoly of an enduring nature – particularly in the Australian context. It is capable of giving rise to complex technical and commercial bottlenecks that strongly encourage anti-competitive behaviour. The first deep penetration of optical fibre into the CAN will be the last installed.

The approach taken in this paper is to first examine the experience of applying Australian telecommunications access regulation to the services of wireline access infrastructure that has supplanted the paired copper-based CAN, called here 'post-PSTN' infrastructure. The next step is to examine Australian experience in applying regulatory incentives to such telecommunications infrastructure or services. The analysis, limited to non-price considerations, concludes with some lessons that can be learned when attempting to regulate the new government-sponsored National Broadband Network.

THE REGULATORY SCORECARD

The only significant examples of 'post-PSTN' infrastructure are that of the hybrid fibre coaxial networks rolled out by Telstra and Optus from 1995 to 1997 and the TransACT network rolled out commercially from 2000. The Optus HFC network is not discussed as it did not attract regulatory attention. To this actual regulatory experience is added what is known of Telstra's attempt to gain regulatory forbearance for its proposed FTTN investment and the 'G–9' consortium counter-proposal.

HYBRID FIBRE COAXIAL NETWORK

The process of gaining access to Australia's dominant cable television network has been tortuous and time consuming, and remains unfulfilled. For the first two years from 1995 to 1997, a Ministerial mandate denied open access on the promise of competition which was never effective and is now basically stymied. Between 1997 and 1999, deeming and declaration by the ACCC made open access legally possible but impractical due to regulatory uncertainty. That period was followed by yet another two years of public legal challenges involving the access providers, access seekers and the regulator, running in parallel with private arbitration of the access disputes by the regulator. The end result of these political, regulatory and commercial processes has been nine years of delay in the provision of access to competitive parties.

The then ACCC Chairman Professor Alan Fels expressed his clear frustration with such processes in a speech on 26 March 2001:[2]

> … potential suppliers of retail programming need to have access to the networks if competition is to develop in digital service provision and diverse service choices are to be made available to consumers.
>
> Telstra and Foxtel have frustrated every effort to open up access to competitors. They have engaged in a lengthy campaign to prevent access to competing pay TV providers and slow down the processes. They are clearly both able and willing to devote considerable energy and resources to such activities.

Exploitation of delay in the regulatory process has highly favoured the now dominant access providers, Foxtel and Telstra, and conversely highly disadvantaged any third parties wishing to gain access. The Seven Network foresaw such an outcome in its submission to the Senate inquiry into the Telecommunications Competition Bill 2002: (Seven Network Supp 2002: 17)

> … in the telecommunications and pay TV industries time is of the essence. Access delayed is access denied. Delays in obtaining access entrench the position of incumbents, thereby defeating the purpose of the regime by stripping access-seekers of the intended benefits of access and making it difficult, if not impossible, to generate competition from access-seekers at a later date.

By itself, delay wouldn't have been so strategically beneficial if it wasn't for multiple occasions when the telecommunications access legislation was deliberately skewed in favour of the HFC network providers and against any access seekers. Of the three instances of access exemptions,

one arose from a threat to withhold investment and another was exploited in association with a separate threat.

The **first access exemption** arose in late 1994 when the Minister for Communications was confronted with a dilemma – agree with the Optus proposal to create a new broadband cable network for the delivery of pay television, data and telephony provided it was closed to other parties, or witness a refusal to invest in a new wireline local telephone service that would compete with that of Telecom Australia's. If Optus was rejected, the government's policy of encouraging facilities-based (that is, infrastructure) competition during the 1992–1997 telecommunications duopoly phase would be stymied. The alternative would be duplicated HFC cable infrastructure and the exclusion of independent service providers. The Minister relented and legalised the proposed access discrimination through the instrument of a Carrier Associates Direction that would operate until 1 July 1997.

The **second occasion for an access exemption** derived from a right to exclude access seekers from utilising capacity that had been contracted to another party yet not taken up. This became known as a 'protected contractual right' and arose from Telstra and Foxtel lobbying the incoming Howard coalition government for protection from third-party access, insisting that Telstra had already contracted all cable capacity to Foxtel. Accordingly, new provisions of the Trade Practices Act 1974 absolved an access provider of any standard access obligation if there would otherwise be an insufficient amount of the service available to meet the 'reasonably anticipated requirements' and any person would be deprived of a right under a contract in force at the beginning of 13 September 1996. Not surprisingly, Telstra and Foxtel had signed their Broadband Cooperation Agreement on 12 July that year.

The **third instance** arose from an amendment to the Trade Practices Act enabling access providers to be exempted from the standard access obligations prior to an investment being made in a telecommunications service, that is, they could seek 'anticipatory exemption'. The sole purpose of the amendment was claimed to be to promote investment in telecommunications infrastructure by reducing the regulatory uncertainty. After threatening not to upgrade to digital working, an outcome that would have perpetuated the inherent shortage of analogue channel capacity, Foxtel and Telstra subsequently gained regulatory approval from the ACCC via agreed undertakings that permitted third party access to both their analogue and digital pay television service infrastructure. After so many years of delay and lost opportunities for access seekers, these undertakings would presage an illusory outcome.

Both Telstra and Optus also exploited their HFC networks to provide data capacity via high speed cable modems for their respective ISPs. Not surprisingly, neither voluntarily offered to provide third party access. Yet it does remain a puzzle as to why no Australian ISP has ever approached the ACCC to declare a cable modem service so that it would become subject to the standard access obligations of the Trade Practices Act. The matter of cable modem access has been the defining one in the United States but remains stillborn in Australia.

TRANSACT NETWORK

Services of the TransACT network are subject to the same standard access obligations under Australian telecommunications and competition law as any other. However, being intentionally designed to accommodate multiple video and Internet access service providers, none of the services were ever declared by the ACCC and so no access regulatory experience has arisen.

FIBRE-TO-THE-HOME NETWORK

In a formal sense, the experience of applying access regulation to FTTN or FTTH networks is presently non-existent. That is simply because Telstra has to date avoided attracting formal regulation of services from either network. Instead, it has opted for applying pressure on the government and ACCC through public announcements, coupled with limited confidential discussions with the ACCC – seemingly adopting a strategy of 'regulatory shadow boxing'.

Commencing mid-2005, Telstra resolved that any new wireline infrastructure and services must be exempted from the standard access obligations under Part XIC of the Trade Practices Act, justified on the following grounds:

- Only true bottlenecks should be subject to regulated competitor access and in much of the CAN, Telstra was no longer a monopolist;
- Since any new network would be Telstra's private property, it could do with it what it wished.

Quoting the mantra of 'legacy regulation for legacy network, new arrangements for new networks', Telstra further resolved that unless it received this exemption there would be no investment in FTTN infrastructure. If granted such an exemption, Telstra would probably agree to third party access provided the price and non-price terms of access rewarded their risk and enterprise, i.e. access would be on 'commercial terms'.

Both the Minister and the ACCC reiterated that the current framework of the Trade Practices Act could provide Telstra with regulatory certainty if it submitted an access undertaking or sought an exemption from the access regime. Telstra was clearly loath to do this, recalling the adverse ruling by the Australian Competition Tribunal in December 2004 regarding an anticipatory exemption granted by the ACCC to its HFC network.

Arguing that any exemption for Telstra would further entrench its CAN monopoly, most of Telstra's competitors banded together and put forward a proposal for cooperative investment in new nationwide FTTN infrastructure. With a more open design of the network, participating companies could offer differentiated services to customers. Telstra rejected this proposal which now appears to have been shelved. The 'G-9' consortium of competitors[3] was well aware that any roll-out without Telstra was highly likely to confront an immediate overbuild – reminiscent of the disastrous dual HFC roll-out. In the meantime, Telstra's own FTTN investment has been subject to a 'capital strike'.

But what of Telstra's FTTH roll-out in selected 'greenfield' or new estates? Being initially trials and clearly evolving on a patchwork basis across Australia for a number of years, none of the resulting services have been declared by the ACCC and Telstra has not sought exemption. Hence there is currently no access regulatory experience to discuss pertaining to fibre-to-the-home networks.

HOLIDAYS, HARBOURS & INCENTIVES

The record of Australia's regulatory experience with 'post-PSTN' wireline access infrastructure provides salutary lessons: the Telstra/Foxtel HFC network remains effectively closed, Telstra's FTTN investment remains 'on strike' and the G-9 co-operative proposal remains stillborn.

If nothing changes, Australia is unlikely to obtain a fibre-based access network capable of delivering next generation broadband and certainly not an 'open access' one. Simply put, the player with the greatest market power in the wireline access arena demands exemption from standard access obligations. In the jargon of regulatory economics, Telstra is seeking an 'access holiday' on the basis that this will give them an incentive to invest in the new infrastructure. Telstra would then regard that infrastructure as being parked in a 'safe harbour' – safe from the desires of access seekers. The strategic intent is to maintain, if not increase, market power.

The very term 'access holiday' can sound deceptively innocent, yet access holidays are antithetical to the principle of open access. This section explores what is conventionally understood with the regulatory vehicle of an 'access holiday', whether access holidays by another name have already been provided, and to what extent recent regulatory experience with the HFC network could be construed to have provided 'public benefit'.

ACCESS HOLIDAYS

The regulation of existing 'bottleneck' or 'essential' infrastructure, such as Telstra's CAN, taps into quite different industry dynamics than that of new infrastructure. For a start, existing infrastructure can't go away whilst new infrastructure won't necessarily get built. Yet the in-situ infrastructure of the existing wireline CAN and the market power it creates can have an overwhelming bearing on the regulatory and competitive outcomes for new infrastructure.

According to the Productivity Commission, the stated aim of access regulation is to promote competition in markets that use the services of bottleneck infrastructure facilities, without compromising incentives to develop and maintain such facilities (PC 2001b, 39).

> In the absence of regulation, providers of essential infrastructure services may be able to earn monopoly rents through inefficient pricing or denial of access to those services. If access regulation reduces the scope for such practices, investment in essential infrastructure will potentially be more efficient. As well, investment in markets that use the services of that infrastructure will be facilitated (PC 2001b, 279).

In its review of the generic national access regime,[4] the Productivity Commission canvassed some specific measures that could be used to exempt from the purview of Part IIIA of the Trade Practices Act proposed infrastructure projects expected to be only marginally profitable, namely (PC 2001b, 282)

- 'Access holidays';
- Exemption from the regime for 'greenfield' investments; and
- Provision for a higher regulated rate of return on risky new investments.

The Productivity Commission broadly defined an 'access holiday' as a time-limited exemption from exposure to any access requirements, and then entertained possible variations relating to the length of time and permitted rate of return. During this time, the infrastructure providers would be freely able to charge monopoly prices or deny access to competitors (Gans and King 2003). Third party access could be allowed but on terms dictated by the infrastructure provider.

Concurrently, the Productivity Commission examined the impact of access regulation on Australia's telecommunications, highlighting concern that the access regime should not overly weaken the incentives for access providers to invest in core infrastructure (PC 2001a: 9.6). Investments in telecommunications were seen to be 'fast moving, risky and innovative' and could be put at risk by 'fallible regulators' through mandated access. One solution would be to introduce 'holidays' from the standard access obligations for a period of time, similar to that enjoyed by a patent owner. There could still be scope for the regulator to declare a service after the holiday period, if the carrier concerned developed substantial market power. (PC 2001a: 9.6)

The Productivity Commission canvassed industry views and found no consensus – at one end of the spectrum Telstra was strongly in favour and at the other end the ACCC was strongly against the introduction of access holidays. That was in 2001 and continuing at least to early-2008 Telstra's investment in fibre-to-the-node infrastructure remains 'on strike' until they win an exemption from the obligations under Part XIC of the Trade Practices Act.

EXEMPTIONS AND THEIR BENEFITS

Kelso (2008: Ch.4) has considered three instances of access exemptions enjoyed by the HFC network providers to give investment certainty at the expense of the common carriage/open access principle. These are now examined from the perspectives of whether each was tied to a specific infrastructure deployment outcome or failing that, whether some other benefit to the public could be construed. A fourth instance is also considered; it refers to the 2005 amendment to the definition of long-term interests of end-users that requires the ACCC to place greater weight on incentives for and the risks involved in investment in new infrastructure.

As to what could be interpreted by the 'public benefit', the obvious response is whatever satisfies the 'long-term interests of end-users'. However, this particular test is now framed and interpreted so as to significantly elevate the importance of network investment and downplay the relevance of 'any-to-any connectivity'. In particular, the test of satisfying the long-term interests of end-users is now strongly biased against the provision of access to third parties. Although the 'public benefit' is not defined by the Trade Practices Act, the ACCC accepts a broad understanding which recognises public benefits of an economic and non-economic nature (ACCC 2001). Within the quoted range of possible benefits, the following nominal tests are easily encompassed:

- Would any-to-any connectivity be enhanced?
- Would sustainable competition be more likely?
- Would end-users benefit in some other manner that otherwise could not be possible?

Effective from 1995 to 1997, **the Carrier Associates Direction of 1995** granted exemption from the standard access obligations in return for the roll-out by Optus of an HFC network that, *inter alia*, gave major Australian cities and some regions the first wireline access infrastructure in competition to that of Telstra. Whilst the Ministerial Direction did not prescribe the roll-out, there was a strong presumption that a roll-out would immediately occur. Despite the investment having been substantially written-off a few years later, the infrastructure remains in place and continues to operate. Though not appreciated at the time, the Ministerial Direction did signal the beginning of the end of open access to post-PSTN wireline access infrastructure. On balance,

it would be reasonable to conclude that the Optus HFC network had potential to deliver some benefit to the Australian public but that this was not realised in the longer term.

Dependent on a contract sunset date of 13 September 1996, **the protected contractual right defence** was effectively applied until 1999/2000 as a means to thwart legal challenges from access seekers. The defence failed in the courts but the delay in having to provide access was a strategic success in the eyes of the access providers. When this new provision was written into the Trade Practices Act, it was not accompanied by any off-setting requirement. The HFC network roll-out had ceased by end-1997 in any case and thereafter each HFC network continued to be monopolised by its respective owner. Unless an argument could be put that a vertically integrated monopoly is superior to service-level competition via shared infrastructure, it must be concluded that the protected contractual right defence has delivered no benefit to the Australian public.

Effective from 2002 and ongoing, the Trade Practices Act has been amended via **the anticipatory exemption provision of 2002** to allow network providers to seek an exemption from the standard access obligations prior to the making of an investment or the declaration of a service. The amendment was intended 'to provide certainty for potential investors in telecommunications infrastructure and services in relation to access to that infrastructure or service in the future' by increasing 'the level of competition and investment in the telecommunications market to the benefit of consumers and business'.

Telstra/Foxtel exploited this exemption on the grounds that without it they could not justify conversion of their HFC network to digital working. The Australian Competition Tribunal found this to be untrue – digitisation was going to occur regardless, as the supply of analogue set top boxes was ceasing. Although the new anticipatory exemption provision was generic as to which investments were to be favoured, Telstra/Foxtel gave a voluntary undertaking to digitise their HFC network and permit third party access on terms that they prescribed. The exemption provision was also intended to increase the level of competition, yet following the successive legal and regulatory barriers arising from the Carrier Associates Direction of 1995 and the protected contractual right defence of 1997, the strategic and commercial advantage remains overwhelmingly with Telstra and Foxtel. There is still no service-level competition.

It is difficult to conceive how the anticipatory exemption provision has benefited the Australian public, since the same outcome of digitalisation of the HFC network would have arisen without it. As at early-2008, no other network providers have attempted to exploit this provision.

A key but easily overlooked aspect about the anticipatory exemption regime is that it refers to services not infrastructure. At a Senate Committee hearing, Dr Tony Warren, Telstra's General Manager of Regulatory Affairs confirmed that: (ECITA 2006)

> ... we actually do not invest in services but in infrastructure. The current regime as it is written gives exemption for services, so one of the problems we have is trying to fully disclose and describe all of the services that we would need an exemption for when many of those services have not even been thought of yet. So that is part of the problem with the way the legislation is currently drafted.

If access regulation continues to focus only on offered services, then network operators are encouraged to 'de-rate' the service capability so as to disguise the strategic potential of the access fibre infrastructure.

Effective from 2005 and ongoing, the **investment incentive and risk allowance of 2005** now requires the ACCC to specifically consider incentives for, and the risks involved, in investment in new network infrastructure when assessing the long-term interests of end-users. This benefit for a network provider compounds with that possible from the provision for anticipatory exemption. The import of the allowance is to elevate further the interests of network providers against those of access seekers.

When the amendments were made to section 152AB of the Trade Practices Act, there was no added requirement to also ascertain whether the investment risk could be lowered if the infrastructure in question was to be shared by multiple service providers, thereby conceivably increasing network utilisation and growing the overall market. Whilst the jury is still out on the effectiveness of this added allowance in favour of investment, there is currently no evidence that decisions based upon the amendments will lead to new infrastructure and services that ultimately benefit the Australian public.

Of the above four instances actually resulting in or providing scope for access exemption, the first two are now expired. The first was specifically addressed to serve the interests of the Optus pay television business, whilst there is strong circumstantial evidence that the second and third were specifically addressed to serve the pay television interests of Telstra and Foxtel. As to the likelihood of the third and fourth means enhancing the prospects of investment in next generation telecommunications infrastructure in the longer term, there is every chance that network providers other than Telstra will not exploit these means for fear of being overbuilt by Telstra. In other words, the third and fourth instances for seeking regulatory forbearance would appear in practice to primarily serve the interests of Telstra, being the player with dominant market power in the arena of wireline access infrastructure and services.

A LESS PERMISSIVE HOLIDAY

In its 2001 report on telecommunications competition regulation, the Productivity Commission floated the idea of a 'less permissive access holiday', whereby a network investor would enter an 'open access regulatory compact' with the ACCC (PC 2001a, 292–294). It noted that in telecommunications there is a substantial concern that vertically integrated incumbents could lever off upstream (that is, network access) investments to foreclose[5] downstream (that is, retail) markets. The report only cursorily noted the risks of foreclosure possible with forthcoming generations of broadband networks.

Via an 'open access regulatory compact', the network provider would be free to establish whatever access price it saw fit, regardless of the infrastructure posing a bottleneck. However, this freedom would be contingent on maintaining a genuine open access network – taken to imply that all access seekers agreeing to the price and non-price conditions would have to be allowed access, provided those conditions also apply to any retail business operated by the network provider (PC 2001a, 292–294). The TransACT network, just one year into commercial operation by the time of the report, was quoted as an example of such an open access network.[6]

The Productivity Commission envisaged regulatory compacts applying where the risk of foreclosure was high, such as where:

- the competition, market power, national significance and other declaration tests are likely to apply;

- technology and demand is moving rapidly and first mover advantages are substantial; and
- there is substantial scope for new services by entrants based on access that might threaten incumbent interests – thus risking foreclosure in the absence of a requirement for open access.

A possible area of application of a regulatory compact was suggested to be the digitisation of the HFC networks. In the end, the report made no such recommendation to the government – which instead adopted a separate recommendation by the Productivity Commission that called for anticipatory exemption provisions, an outcome somewhat antithetical to achieving an open access regulatory compact. Clearly, the Productivity Commission and the government ranked the need for investment incentives above that of the adverse impacts of foreclosure.

COMMENTARY

Parties such as the Productivity Commission (2001b) and economists Gans and King (2003) speak of access holidays as new measures yet to be introduced to promote network infrastructure investment. What they fail to acknowledge is that any exemption from the standard access obligations of section 152 of the Trade Practices Act is also tantamount to an access holiday and that such measures already exist in abundance.

CONCLUSIONS

This paper, dealing only with non-price considerations, paints an unflattering picture of government attempts to facilitate investment in 'post-PSTN' telecommunications infrastructure in Australia and reveals the adverse consequences for end users and third party access seekers. History illustrates that once a government becomes preoccupied with reaching a 'quick fix' solution it will inevitably make compromises embodying unforeseen consequences.

How can the Rudd government policy to sponsor a National Broadband Network through specific policy and regulatory fiat improve on this track record? Furthermore, once the NBN is so facilitated, what happens to the remaining telecommunications regulatory regime? These are critical questions that must be addressed. The first National Broadband Network is likely to be the last constructed for decades to come.

To date, four access holidays have been applied to investments in post-PSTN telecommunications infrastructure and two remain as active measures. Until these are proved to be ineffective, it is questionable whether new types of access holidays should be entertained.

The most recently introduced access holiday directs the ACCC to specifically consider incentives for, and the risks involved, in investment in new network infrastructure when assessing the long-term interests of end-users. However the 2005 amendment to the Trade Practices Act fails to guide the ACCC on how to judge claims that any given investment would entail risk that needs to be ameliorated. It is only natural for access providers to exaggerate their claims of risk. Surely truly open access optical fibre in the CAN, shared by all service providers but in effect a new natural monopoly, must embody a lower investment risk?

Perhaps the most glaring omission from section 152 of the Trade Practices Act, also not identified by the Productivity Commission in its 2001 report, is the failure to appreciate that a vertically integrated telecommunications operator is much more likely to seek an access holiday, whereas one whose carriage and content businesses are structurally separated (or alternatively

that of a common carriage operator) is much less likely to seek a holiday. An access regime that does not care whether an access provider is vertically integrated or structurally separated is blind to a significant factor in successfully achieving open access.

ENDNOTES

1 Refer to the BCDE Departmental website on the proposed National Broadband Network at http://tinyurl.com/2fcpan, accessed on 26 March 2008.

2 Refer to ACCC Press Release 'Cable owners put on notice' MR 064/01, issued 26 March 2001, at http://www.accc.gov.au/content/index.phtml/itemId/87682, accessed 26 March 2008.

3 Refer to 'G9 FTTN Proposal Progress Update' at http://tinyurl.com/34jvw6, accessed 26 March 2008.

4 That is, Part IIIA is generic whereas Part XIC is telecommunications specific.

5 Foreclosure is the exclusion of other parties by means of strategic behaviour; a denial of access.

6 This wasn't exactly correct as TransACT saw no need to reach any compact with the ACCC yet operated as an open access network regardless.

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