REGIONAL NEXT GENERATION NETWORK INITIATIVES

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Synopsis

Governments across the south east Asian region are investing large sums in new telecommunications networks to ensure their markets' continued economic success. These 'next generation networks' will be Internet Protocol (IP) based and will provide high speed (and in some cases ultra-high speed i.e. 100 MB/s and above) broadband access to the general public.

Governments are encouraging operators to build 'ahead of demand' rather than relying upon market forces. This is in part a nation building exercise; to ensure that the country stays ahead or at least remain competitive with developments overseas. Governments also wish to stimulate new markets. This stimulation usually takes the form of a combination of public private partnership (PPP), cash subsidy and regulatory holiday, or a combination of all three.

Additionally, non-incumbent operators will sometimes combine into joint ventures in order to achieve sufficient scale to compete with the local monopolist or to achieve a marketing advantage.

Government involvement usually comes with 'strings attached'. This is usually in the form of an enhanced open access regulatory requirements. This is to ensure that the investments benefit the market at large rather than just the selected operators. In some cases open access is mandated contractually (or through a special access undertaking), in other cases it is achieved through special purpose legislation or adapting existing access legislation.

This paper considers:

1. Some of the different NGN funding, regulatory and commercial models that have been used across the region and some common threads binding them together.
2. The reaction of commercial operators to these models, including monopolists and their competitors.
3. The likely competitive impact of the different approaches.
4. Concluding with an analysis of the likely outcomes from the Federal Government's national broadband network initiative in light of regional learnings.

Introduction

The roll out and operation of the NBN will have significant implications for competition in the Australian telecommunications market. Telecommunications has strong natural monopoly characteristics which require a robust response from governments to prevent the transfer of benefits from customers to the dominant telecommunications company.

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* The views in this article are the personal opinions of the author and do not represent the views of Baker & McKenzie nor of any of its clients.

The purpose of this paper is to share with you some thoughts based on my experiences in the first wave of industry deregulation in the 1990s; some of the likely issues that will arise with the arrival of NBN; and the experiences from other countries.

At the outset it is important to articulate some of the assumptions that underly the public policy debate in deploying a Fibre to the Node (FTTN) network. Some of these assumptions are:

1. Consumers require access to FTTN technology and its associated services. This assumption is sometimes expressed that NGN is for the national good or part of national infrastructure.
2. Consumers will pay for FTTN services. This in itself assumes that the price for a FTTN service will be either lower than those for existing access services. Alternative, if it is higher, the service must show a clear value add over that available from existing broadband access services.
3. An increase in competition will drive better outcomes for consumers. The counter argument to this is that an increase in competition may actually lead to a an adverse outcome for consumers; because it discourages investment by the person whose facilities will be opened to access.
4. It is only economically efficient to build one FTTN network. Therefore, there will be no facilities based competition for this service in the telecommunication market.

How one views the correctness of each of these outcomes then drives one's thinking about the way in which NGN policy outcome should be framed. Regional governments have normally adopted one of three alternative approaches in regulating bottleneck infrastructure. These approaches are either: (1) a light touch/market forces approach, sometimes coupled with a regulatory holiday; (2) structural separation; and (3) mandating open access to the regulated infrastructure. Forms of separation can range from 'weak' forms, such as accounting, functional or corporate separation, to 'strong' forms, such as ownership separation, club ownership, and separation of ownership from control.[1] See Schedule 1 for a list of these forms of separation.

The decision which route to go down depends on the trade off between the desire to promote infrastructure investment versus the need to protect competition. The purpose of this paper is to look at the extent to which governments in the region have adopted and interpreted these assumptions.

Overview of Regional Approaches

Australia

The Australian Government has plans to roll out and operate a new, open access, high-speed, fibre-based broadband network. The National Broadband Network (NBN) will represent the single largest investment in broadband infrastructure in Australia's history.

A request for proposals was issued by the Minister for Broadband, Communications and the Digital Economy, Senator the Hon Stephen Conroy, on 11 April 2008.

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[1] Ibid p5.

The details the scope of the National Broadband Network include:[2]

- the network is intended to deliver broadband services to 98% of Australian homes and businesses;
- the service is expected to deliver minimum download speeds of 12 megabits per second;
- the network is to be made operational within five years, using fibre-to-the-node or fibre-to-the-premises technology;
- the technology is expected to support voice, data and video services, including symmetric applications such as high-definition video-conferencing;

The Government will provide the party selected to roll out and operate the NBN a funding contribution of up to $4.7 billion in the form of a public / private partnership. The contribution may take the form of debt or equity which would be required to earn a return. While the Government has previously indicated its preference for an equity investment, other forms of funding will also be considered.

The Government has stated that policy reasons for the NBN include;

- the potential for up to $30 billion in additional national economic activity a year;
- making Australian small businesses more competitive;
- creating new international and domestic markets for businesses and new jobs for Australians; and
- providing greater media diversity.
- ensuring the efficiency and international competitiveness of the Australian telecommunications industry.[3]

The Government has also stated that it sees the NBN as being a platform for future network upgrades. Accordingly, the Government has noted that proponents must demonstrate in their tender proposals, a clear upgrade path for the network to meet future consumer demand and service developments to at least 2020.

Singapore

The Singapore government has introduced the Next Generation National Broadband Network (NGNBN) to create faster broadband networks and a higher broadband take up by households and businesses. The stated policy reasons behind the initiative include creating greater productivity gains and new possibilities for working, living and learning, at best value-for-money.[4]

The Singapore Government is planning to give out $750m in subsidies for the deployment of a passive fibre network.

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2 Media Release 'Government Invites national Broadband Network Proposals' 11 April 2008 http://www.minister.dbcde.gov.au/media/media_releases/2008/government_invites_national_broadband_network_proposals

3 Australian Labor Party, Media Statement 'Building Australia's Prosperity — Federal Labor's New National Broadband Network' 21 March 2007 at http://www.alp.org.au/media/0307/mscomfinloo210.php

4 iDA Singapore 'Singapore's Next Generation National Broadband Network Project: Pre Qualification Document for Operating Company RFP' 3 March 2008

The Singapore Government proposes to create what it describes as a vibrant and competitive industry through what it calls, 'effective Open Access' with Next Generation National Broadband Network Separation Requirements.

Essentially, the Singapore Government wishes to create three distinct types of functional entities operating on the NGNBN;

- At the lowest layer, the 'NetCo' will be the company that is responsible for the design, building and operation of the passive NGNBN.
- The Singapore Government has stated that this company cannot be the same as the 'OpCo(s)', which are the middle layer companies that will be the wholesale operators, responsible for the design, building and operation of the active NGNBN infrastructure.
- On the third tier, and also structurally separated, are the retail service providers, who will purchase bandwidth connectivity form the OpCo(s) and compete with each other in providing competitive and innovative services to consumers.[5]

The Singapore Government has also expressed its willingness to consider legislation to achieve such effective open access for downstream operators in the next generation broadband market.[6]

Critics of the plan argue that a genuinely efficient and effective broadband network cannot be designed in a physical sense without knowledge of what the desired outcomes are in an electronic sense. And furthermore, such a separation could potentially work if a genuine one-to-one fiber pair connection were provided from the exchange to each and every site in Singapore. This would be expensive.

The Singapore government has launched two RFPs for the implementation of Singapore's Next Generation National Broadband Network (NGNBN), which is expected to bring ultra-high speed broadband connectivity to users nationwide by 2015. The RFP for Netco was awarded to the OpenNet Consortium (including Axia Netmedia and SingTel) on Friday 26 September 2008.

The RFPs are in respect of the NetCo and the OpCo layers of the NGNBN. Under the RFPs, the NetCo will be structurally separated from the rest of the industry, while the OpCo will need to be operationally separated.

The government is providing a grant of up to S$750 million towards the NetCo project, and is prepared to fund the OpCo project with up to S$250 million. The winner of the NetCo RFP is expected to be announced shortly, while the deadline for the submissions of proposals for the OpCo RFP is currently 14 November 2008.

Interested persons can find out more regarding the NGNBN project (including the identity of the bidders in each RFP) on IDA website at the following url: http://www.ida.gov.sg/Infrastructure/20060919190208.aspx.

The IDA is also separately conducting a public consultation on whether IDA should have the powers to order structural and operational separation in respect of other telecommunication

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5 For further information, see Hock Yun, Khoong 'Next Generation National Broadband Network for Singapore (Next Gen NBN)' at http://www.ida.gov.sg/doc/News%20and%20Events/News_and_Events_Level2/20080407164702/OpCoRFP7Apr08.pdf

6 Boong Yang, Dr. Lee 'Media Briefing for the launch of Next Generation National Broadband Network Request-for-Proposal', 11 December 2007 at http://app.sprinter.gov.sg/data/pr/20071211992.pdf

operators. This is however still pending decision from IDA. The consultation paper and responses received can be downloaded from the following url: http://www.ida.gov.sg/Policies%20and%20Regulation/20080417153248.aspx

Malaysia

The Malaysian telecommunications industry has many of the characteristics of a developing communications industry in South East Asia. The Government in 2004, decided that it would like to implement a plan to improve broadband services to the entire country.

Therefore, the National Broadband Plan (NBP) was approved by the Malaysian Government in October 2004. To facilitate the achievement of the NBP, a full-time NBP secretariat was formed within the Ministry of Energy, Water and Communications which works closely with the Malaysian Communication and Multimedia Commission (MCMC). The MCMC is the chief regulating agency, particularly in terms of implementation and regulatory matters.

Malaysia has two major telecom operators , Telekom Malaysia and Maxis Communication Berhas. Telekom Malaysia began operations in1984 and is the Malaysian incumbent. The Malaysian Government chose to partner with Telekom Malaysia in a public-private partnership arrangement to implement its NBP.

The Malaysian Ministry for Energy, Water and Communications stated in a media release on 15 May 2008 that the reason that the Government took the Public-Private Partnership approach with Telekom Malaysia was because it recognises that the initiative will require 'full scale infrastructure roll-out…. and this may not be viable for a single or entirely private sector implementer'.[7]

The Minister stated that Telekom Malaysia's ownership of 95% of the existing fixed line infrastructure made it the 'best natural choice' to upgrade the existing network, fulfilling the Government's goal of rolling out the NBP quickly and cost-efficiently.[8]

The Malaysian Government has described the key to its NBP lies in the 'Critical Mass' theory whereby the Government sustained the initial deployment of broadband infrastructure using public funding for the public sector.[9] The Government has stated that its primary focus is on addressing the broadband needs of the public sector first, in particular those of public health and education institutions.[10]

Following this, the Malaysian Government aims to increase broadband penetration to half of all Malaysian homes by 2010, up from15–18 percent now. This compares with neighbouring Singapore's rate of 78 percent and Hong Kong's figure of 80 percent.

Policy rationale

The Malaysian Government's policy rationales for the implementation of its NBP stems from the fact that the country is still considered developing, and that the Government has embarked on a robust agenda to turn Malaysia into a developed country by 2020.

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7 Minister for Energy, Water and Communications, Press Statement, 'Implementation Strategies to Widen Broadband Penetration in Malaysia' 15 May 2008 at http://www.skmm.gov.my/Admin/WhatIsNew/CCD/BB_PS_MEWC.pdf

8 Ibid

9 Malaysia Communications and Multimedia Commission 'The National Broadband Plan' Second Edition, August 2006 http://www.ktak.gov.my/images/NBP.pdf pp12–13.

10 Ibid at p10.

The Malaysian Government has also identified the following as rationale for the NBP;[11]

- Malaysia has an aspiration to turn itself into a Communications and Multimedia Global Hub and one of the essential elements of this will be an efficient and reliable broadband network;
- broadband will contribute to the number of quality services which are available and affordable and address the changing infrastructure requirements to satisfy all elements of society;
- it will enable Malaysia to get economically competitive overseas as broadband becomes an increasingly important tool for business;
- the availability of basic broadband services is typically needed if new and varied multimedia content and application services are to flourish;
- Malaysia is striving to create and internationally competitive business environment. The maintenance of business productivity levels in line with those of international competitors and the ability of Malaysian businesses to interact with the international business community are essential components of this.

The initial plan was for a joint investment of RM15.3bil but this was scaled down to RM11.3bil of which the Government will contribute RM2.4bil in a public/private partnership (PPP) to roll out HSBB in high-density areas in Malaysia.

There are no plans for a second high speed broadband (HSBB) network.

TM HSBB programme director Ahmad Azhar Yahya said TM had called for tenders and would now work with vendors to fine-tune its requirement to meet its roll-out timeline of 2012 where 1.3 million premises would be linked offering speeds of 2Mbps to 1Gbps.

HSBB is only for the high-density areas. For other areas, broadband will be made available at speeds of up to 10Mbps.

To wire up the rural areas with broadband infrastructure, Energy, Water and Communications Minister Datuk Shaziman Abu Mansor said tax incentives would be considered besides the Universal service provision fund that could be used over three years for the implementation.

The Malaysian Government claims that competition policy issues are at the forefront of its priorities in implementing the NBP.[12]

With several operators looking to submit proposals for an alternative network amidst concerns that a single HSBB network might limit competition, the government has, however, issued assurances that it will ensure open access to TM's infrastructure; operators have been instructed to submit an application for a network facilities provider (NFP) licence so that the government can begin work on the process of creating access policy for the new network. Pahang-based High Speed Broadband, one of the groups who had submitted an alternative proposal for the scheme has confirmed it will apply for both a NFP and NSP (network service provider) licence.[13]

However, the nature of the Public-Private Partnership means that it is likely that Telekom Malaysia will have a competitive advantage in the wholesale market for the broadband

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[11] Ibid at pp 8–9.
[12] Ibid at p17.
[13] www.teleogeography.com; reported 17 September 2008 'No plans for second HSBB Network'.

services, and furthermore, the Malaysian Government has stated that it envisaged that the incumbent operator will command a substantial proportion of the retail market.

However, the Malaysian Government has stated that by 2008 it expects a substantial push into the market from aggressive newly licensed small to medium scale broadband providers.[14]

The Government has described how, it expects that each licensed operator will have a niche in its own way of 'packaging its technology, pricing as well as content and application services' which will provide the Malaysian public with the eventual ability to choose between providers, 'with market forces dictating the pace under a competitive environment'.[15]

The Government has also stated that in the long term, the Ministry of Energy, Water and Communications and the MCMC will work together to improve the competitive landscape in the broadband industry to intensify competition and promote infrastructure sharing.[16]

The ACCC's approach to Structural Separation to date

The Government has stated that it believes open access will be important to ensure that access is provided on equivalent price and non-price terms and conditions.[17]

The Government has stated in the tender document that it will give proponents the opportunity to provide wholesale only services, or retail and wholesale services. If a Proponent proposes to supply both wholesale and retail services, it must demonstrate what structural measures or models it proposes be put in place and maintained to prevent inappropriate self-preferential treatment and ensure that effective open access is achieved on the terms required by the Commonwealth.[18]

The Government has specified that access prices should be set as low as possible, with the reasoning to ensure the best outcome for consumers, while allowing Proponents to earn a rate of return on their investment commensurate with the risk of the project.

History is informative. In May 2007, FANOC Pty Ltd, a group of nine Telstra-competitors (the 'G9'), presented the ACCC with a draft Special Access Undertaking for third party access to its wholesale network. The document described FANOC as a structurally separated wholesale provider of bit-stream and telephony services for all service providers, charging regulated prices for its services.

In December 2007, the ACCC rejected FANOC's Special Access Undertaking based on FANOC's price terms, stating that it,

> cannot be satisfied that the [Special Access Undertaking] will result in access prices that promote competition or efficient use of and investment in infrastructure.[19]

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14 Ibid.
15 Ibid.
16 Ibid at p18.
17 Department of Broadband, Communications and the Digital Economy 'Request for Proposals to roll-out and operate a National Broadband Network for Australia' 11 April 2008. http://www.dbcde.gov.au/__data/assets/word_doc/0005/86072/Request_for_Proposals_-_DCON-08-18.doc
18 Ibid
19 ACCC, 2007'Assessment of FANOC'S Special Assessment Undertaking in Relation to the Broadband Access Service', Draft Decision, December, www.accc.gov.au/content/iten.phtml?itemId=806090&nodeId=4c6aac5ae5acc43dcb477d74fcc8d17c&fn=ACCC%20draft%20decision%20on%20FANOC%20SAU%20(Dec%2007).pdf ; at p 98.

In the ACCC's draft decision in relation to FANOC's Special Access Undertaking (see above under point 3.1), the ACCC expressed concern that access seekers could have an ownership interest in FANOC and the control incentives were not sufficient to ensure that FANOC would not be able to distort competition in the downstream retail market and also considered that the oversight of FANOC (by a body representing the access seekers collectively) was not sufficient.[20]

The ACCC criticised the discretion afforded to FANOC in relation to access prices and the fact that the Special Access Undertaking expressly allowed for a degree of vertical integration.[21]

The ACCC said in its draft decision that 'any methodology for setting access prices to essential bottleneck infrastructure would required effective, independent regulatory audit or review of the key inputs and parameters where the undertaking period is very long, regardless of whether the access provider is vertically integrated….this could be achieved through providing the ACCC with a power to audit or review the key inputs in the pricing methodology at appropriate intervals'.

FANOC's Special Access Undertaking has since been withdrawn in light of the Government's offer of the NBN. It will be interesting to see if the ACCC will apply the same level of rigidity to the structural separation required for the NBN, particularly given the Government's apparent urgency to provide a single national solution.

Likely future directions for Australia?

In regulating for the long-term interests of broadband users, the Government will need to strike a balance between lower prices now and more investment in the future, to enable even greater bandwidth to be delivered.[22] Lower prices can be provided by smaller and medium sized telecommunications companies if they are allowed access to the incumbent's infrastructure, as has been the case with the unbundled local loop regulation that gave smaller telecommunication companies access to Telstra's exchanges and its copper lines.

The NBN therefore poses a regulatory challenge to the Government and the ACCC. Competition services will need to be promoted and supported through an open access regime, open to all access providers. On the other hand, in order to provide an incentive to investors, who are needed to provide a multi-billion amount in the next 5 years alongside the government's $4.7 billion, the Government must enable the proponent to gain a significant return on their investment to make it attractive.

Bearing this in mind, from a policy perspective it is imperative that the following issues be addressed, either structurally or through appropriate access undertakings:

1. The provision of appropriate and equivalent information to all access seekers and downstream users about service specification and proposed major and minor network changes;
2. Effective procedures for ordering and provisioning of equivalent quality for all parties;

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[20] ACCC, 2007 'Assessment of FANOC'S Special Assessment Undertaking in Relation to the Broadband Access Service', Draft Decision, December, www.accc.gov.au/content/iten.phtml?itemId=806090&nodeId=4c6aac5ae5acc43dcb477d74fcc8d17c&fn=ACCC%20draft%20decision%20on%20FANOC%20SAU%20(Dec%2007).pdf at p20.

[21] Ibid at p6

[22] Molloy, Simon 'Why a Single Nation FTTN Network is no Answer (But Competition Is)' Media International Australia No. 127 May 2008 pp28.

3. Effective procedures for fault detection, handling and rectification of equivalent quality for all parties;
4. Equivalent treatment in respect of other operational and technical matters.

SCHEDULE 1

Types of 'Separation'

Forms of separation can range from 'weak' forms, such as accounting, functional or corporate separation, to 'strong' forms, such as ownership separation, club ownership, and separation of ownership from control.[23]

The following table provides a demonstration of spectrum of separation remedies available to regulators;[24]

Level	Separation Type	Description
6	Ownership separation (whole or in part)	Full structural separation – may involve club ownership of bottleneck
5	Legal Separation (separate legal entities under a common ownership)	Legal Separation (which may or may not embody elements of functional separation)
4	Functional Separation with localised incentives and/or separate governance arrangements	Variants on Structural Separation
3	Functional separation	
2	Virtual Separation	Variants on Accounting Separation
1	Creation of wholesale division	
	Accounting Separation	

The pros and cons of functional and ownership separation are as follows;[25]

Policy	Advantages	Disadvantages
Ownership Separation	Eliminates incentives for discrimination; allows for lighter hand regulation or down stream entities	Potential loss of economics of scope; may require costly and arbitrary separation; transaction costs for consumers may increase: system reliability may fall when investments are not made jointly; accountability for interface problems may be difficult to assign.

[23] Ibid p5.
[24] Doyle, Chris Competition Economists Group 'Structural Separation and Investment in the National Broadband Network environment' A Report for Optus 25 June 2008 p12
[25] Ibid at p 15

Policy	Advantages	Disadvantages
Functional Separation	May facilitate control of discrimination and anti-competitive behaviour	Possible lack of profit motive reduces inventive to provide innovative and dynamic services; maintains conflict of interest with respect to key strategic investments at the group level.

The benefits and costs of each form of separation should be considered when determining what is appropriate for the NBN. For example, higher degrees of separation may represent threats to investment incentives, however, it is likely to increase competition and therefore have positive outcomes for consumers.

Regulators in the UK and New Zealand have focussed on what is known at the 'LoopCo' model of separation, in which there is a split between the local loop and all non-access services including retail.[26] The introduction of the NBN however, requires a slightly different separation method, as the local loop is no longer relevant for separating the services provided.

The following table represents the options available for NGN regimes;

	Services	2-way separation model	3-way separation model
1. retail	Marketing and selling services to end-users and managing the end-user relationship	Retail	Retail
2. Network (Active Line Services[27])	Wholesale bitstream products, DSLAMs, optical line terminals	WholesaleCo (much of which might constitute NBNCo)	OpCo
3. Network (passive line services[28])	Copper lines, optical fibres, ducts		NetCo

Under the 2-way separation model, the regulated NetCo would offer equivalent wholesale services to competing downstream service providers, placing greater emphasis on competition between the providers. Critics have argued that the approach should be shifted to a model which encourages facilities-based competition, however, as discussed in the assumptions, it is likely that there will be no facilities-based competition in the Australian telecommunication market.[29]

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[26] See 9 at p16.

[27] Refers to wholesale products based on both the active electronics and the physical elements of the access network. For example, Telstra's current bitstream products.

[28] refers to wholesale products based on direct access to physical elements of the access network, including any form of electronics.

[29] See 9 at p17.

Australia

Recently in Australia, the Government has imposed the weakest form of separation, accounting separation, on Telstra in an attempt to reign in the incumbent's market power.

The form of accounting separation that is now required by the ACCC involves Telstra providing the ACCC with reports that are consistent with the Telecommunications Industry Regulatory Accounting Framework used under s 151BU of the *Trade Practices Act 1974*. The requirements include;

- regulatory accounting records for core services based on current costs as well as an historical cost basis;
- an imputation analysis comparing Telstra's retail prices with the costs to competitors of Telstra's core wholesale services;
- key performance indicators on non-price terms and conditions that compare Telstra's service performance between its retail and wholesale customers.[30]

The imposition of accounting separation requirements on Telstra were criticised for a number of reasons, which included;

- it did not change the incentives of such a highly integrated firm
- the account were reviewed by the ACCC approximately 1–2 years after any actual anti-competitive activities had taken place, and therefore, the damage may have already been done to Telstra's competitors;
- it was open to creative accounting practices which could result in misleading and erroneous outcomes.

In light of these limitations, operational separation was introduced under the *Telecommunications Legislation Amendment (Competition and Consumer Issues) Act 2005*. Telstra was required to submit its own operational separation plan, in which it divided itself into three divisions – the wholesale business, the retail business and a key network service business unit.[31]

The level of separation under the arrangement was mild however, and has been criticised as being a 'loose form of separation'[32] where, 'exactly how this would achieve the goal of equivalence was not clear'.[33]

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30 Parliament of Australia Research Note no. 39 2003–04 Enhancing Competition in Telecommunications: Accounting Separation of Telstra's Operations http://www.aph.gov.au/library/pubs/rn/2003-04/04rn39.htm

31 See 9 at p38

32 Cave (2008) 'Separation and Investment in telecommunications networks, a review or recent practice' Centre for Management Under Regulation discussion paper, Warwick Business School, February: in Doyle, Chris, Competition Economists Group 'Structural Separation and Investment in the National Broadband Network environment' A Report for Optus 25 June 2008 p42

33 Ibid p42.