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12 September 2008

Committee Secretary
Senate Select Committee on the National Broadband Network
Department of the Senate
Parliament House
CANBERRA ACT 2600

By email: broadband.sen@aph.gov.au

Senate Select Committee on the National Broadband Network

Optus is pleased to provide the attached submission to the Senate Select Committee on the National Broadband Network (NBN) to assist the Committee's deliberation on the many issues associated with the Government's plans for the delivery of high speed broadband services to 98 per cent of the Australian population

Optus supports the Government's initiative to facilitate the roll-out of a high-speed NBN recognising that it has the potential to deliver significant long-term benefits to Australia such as improved productivity and competitiveness of Australian businesses and improved welfare for consumers through access to new and innovative services at affordable prices.

For these benefits to be realised, it is essential that services offered over the NBN are available to the widest possible number of Australians at the most affordable prices.

The success of the Government's broadband proposal is entirely dependent on a willingness to promote regulatory reforms that encourage a vibrant and competitive market.

Optus is concerned that some interested parties will attempt to use the NBN and associated regulatory reforms to undermine competition in the broadband market.

We look forward to an opportunity to discuss our submission with the Committee in the near future. For more information please contact Optus' Government Affairs Team on 02 8082 8005.

Yours sincerely

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Optus Submission
To The Senate Select Committee

Regulating the
National Broadband Network

September 2008

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Executive summary

- Optus supports the Government's initiative to facilitate the roll-out of a high-speed National Broadband Network. This network has the potential to deliver significant long-term benefits to Australia such as improved productivity and competitiveness of Australian businesses and improved welfare for consumers through access to new and innovative services at affordable prices.

- However, to achieve these benefits it is essential that services offered over the NBN are available to the widest possible number of Australians at the most affordable prices. This requires a vibrant and competitive market.

- Whilst considerations about the technical features, operational aspects and timing of an NBN roll-out are important, the more significant policy consideration is the regulatory framework that will apply to the NBN.

- The NBN will fundamentally alter the current competitive landscape based on unbundled access. The NBN will be an overlay network on the existing copper loop. Like the copper loop it will have strong bottleneck characteristics, but unlike the existing copper loop it will not be able to be unbundled. This means ULLS based competition in the form we know it will cease and Australia will move back down the ladder of investment towards a resale based model. Whilst existing HFC networks will provide some competition – the extent and geographic scope will be limited. Encouraging further build-out of these networks to provide infrastructure based competition, as Telstra suggests, is neither credible nor responsible policy option. It would further entrench the monopoly by promoting bankruptcy in the industry. Wireless networks, whilst important, will complement not substitute for services on the NBN. The NBN will be the sole means by which customers will have access to a range of potential new and innovative services, such as IPTV.

- Given this we should be alarmed by Telstra's brazen attempt to use the NBN to undermine competition and entrench its fixed line monopoly. Whilst Telstra publicly claims to support the principles of "open access" and "equivalence" the details of its regulatory submission to Government indicates that these are weasel words and that it supports neither principle. Telstra's position has not changed from that rejected by the previous Government. It claims that as a condition of its roll-out of the NBN, it should be freed from all regulatory oversight, with access given not as basic right but at Telstra's discretion. This would hand Telstra unrestricted control of the essential platform through which consumers and business would access their communication services, including access to all new services that rely on high-speed broadband connectivity. It would give Telstra a significant lever to extend its market dominance from telecommunications into new markets, such as the provision of content and media services. In such an environment current players will review the case for remaining in the fixed line market and exit is likely. The consequences for competition and Australian consumers under such a proposal would be dire. Telstra's position must be rejected.

- Given its monopoly characteristics Optus submits that the right to own an NBN must come with some fundamental social and policy obligations. The owner of the NBN must be required to make a fundamental commitment that access to the NBN will be open and competitive and not distorted by conflicts of interest. This requires **structural separation** of the NBN from any downstream retailing activity. It means that access seekers should have the right to receive the same products at the same prices and using the same operational support systems (**equivalence of inputs**). To safeguard these principles and ensure that competition and consumer interests are protected and enhanced access to the NBN must be subject to **oversight by the ACCC**.

- If properly constructed the regulatory framework should also provide investors with the certainty they require to undertake the substantial investment required to roll-out the NBN. Whilst the ACCC would have clear oversight powers – these could be more clearly defined than they are today and the need for the ACCC's day-to-day involvement in the sector will be reduced.

- These principles are consistent with the best practice approach being put forward by regulators in other jurisdictions where there is an increasing trend towards separation of the vertically integrated incumbents. In direct contradiction to the impression Telstra is seeking convey, that separation is a failure, early evidence suggests that these new regulatory arrangements have been very successful in changing the behaviour of the incumbent and fostering greater competition. Further, the need to maintain and enhance regulation in the move to a Next Generation Access is well accepted principle internationally. As Viviane Reding, the European Commissioner responsible for Information Society and Media, has recently noted;

  "Regulatory restraint as a carte blanche for incumbents to re-monopolise markets where the buds of competition are flourishing is not a policy option if we want competitive markets...access regulation which has been imposed in the past on dominant network operators will be continued, extended and if necessary reinforced also in case of a switch by the dominant player to a next generation network. Technological change should not, in itself, lead to a change of the regulatory rules in place".

- Australia will do well to follow the lead of its international peers to help ensure that competition on the NBN is vibrant and that the full benefits of the NBN can be realised.

1. Introduction

1.1 The Senate has established a Select Committee on the National Broadband Network (NBN) to consider the implications of the NBN for consumers in terms of:

(a) service availability, choice and costs;

(b) competition in telecommunications and broadband services; and

(c) likely consequences for national productivity, investment, economic growth, cost of living and social capital;

1.2 The committee has called for submissions in connection with its consideration of the above issues. This submission is put forward on behalf of Optus.

1.3 The focus of this submission is deliberately directed at the reforms that would need to be made to the regulatory framework should Telstra be chosen to construct and operate the NBN. That is, it consciously contemplates the "worst case scenario" for competition. This reflects our overriding concern that the new regulatory regime must be robust enough to withstand the serious threat to competition posed by an NBN operator which is also the dominant provider of retail voice and broadband services to consumers. It also reflects our belief that fundamental reform to the regulation of fixed line services is required regardless of whether the NBN proceeds – a position which is consistent with the emerging trend in many other jurisdictions.

1.4 However, whilst the arguments put forward in this submission are focused on Telstra, the principles and arrangements we put forward to regulate the NBN apply more generally – that is these principles should apply to whoever owns the NBN.

2. Broadband Developments within Australia

Why is Broadband important

2.1 It is universally accepted that the widespread adoption of high quality broadband services has the capability to deliver significant benefits to society in terms of enhanced productivity, innovation, and economic growth. This is why Government's and the Regulators around the world, including Australia, are examining policies to encourage the wider availability of broadband services and to move to the next level of development with higher speeds and greater reliability.

2.2 The importance of broadband to economic growth is widely recognised by governments and international economic bodies, such as the OECD, ITU and EU. The development of Information Communications Technology and more specifically broadband, have made a significant contribution to innovation across a range of industry sectors. In manufacturing, for example, broadband has enabled step–change reforms to supply chain management by enabling real–time sourcing and supply of commodities. In financial services, broadband has generated innovative applications to enable companies to exchange information with each other in real time, and for those companies to do the same with their customers. The demand for online services has exploded as customers are increasingly able to transact real-time using broadband applications.

2.3 When estimated in financial terms, the economic benefits are considered to be significant. In 2003, for example, Crandall, Jackson and Singer[1] estimated that the total

[1] Crandall and Jackson, Dot Econ & Criterion Economics Study, "Competition in broadband provision and its

annual consumer benefit from broadband in the US would be between US$64 billion and US$97 billion per year if 50 per cent of US households adopted broadband. If broadband achieved universal penetration, the benefit could be more than US$300 billion and it would increase total US GDP by US$180 billion per year and create 61,000 new jobs.

2.4 Similarly a 2003 study by the Centre for Economics and Business Research (CEBR) in the UK found that, based on forecast growth in the number of broadband connections, by 2015 annual UK GDP could be up to 21.9 billion pounds higher than it would otherwise have been. In addition, CEBR found that annual UK fixed investment would be approximately 8 billion pounds per annum higher and annual government borrowing around 13 billion pounds per annum lower than it would have been without broadband connection. To put these estimates into perspective, the forecast productivity gains of between 0.5 and 2.5 per cent from broadband by 2015 equate to an extra hour of work per week for all workers in the UK and compare well with other general purpose technology impacts, such as railways and electricity, whose impacts were 2-17 per cent 'social saving' after 35 years and 3.3 per cent after 65 years respectively[2].

2.5 Further, a study of the economic impact of broadband in the US, by Carnegie Mellon found that;

"... between 1998 and 2002, communities in which mass-market broadband was available by December 1999 experienced more rapid growth in employment, the number of businesses overall, and businesses in IT-intensive sectors, relative to comparable communities without broadband at that time".[3]

2.6 In Australia, work by Accenture in 2001 estimated that next generation broadband could produce economic benefits for Australia of between AUD$12-30 billion.[4]

2.7 There is also increasing awareness of the potential for broadband to drive significant social benefits through improving access to education, health care and other government services. These are specifically recognised as potential benefits of having more widespread access to higher speed broadband services. A recent OECD report noted that:

"... broadband is also very important for areas high government. These include tele-work, health, energy, education and government services".[5]

Competition the key affordability and take-up

2.8 Competition has been central to driving broadband take-up and, therefore, to delivering some of the benefits noted above. In contrast to the situation for other fixed line services, regulatory policy towards broadband access has been something of stand-out policy success within recent years in Australia. The key to this success has been the specific policy decision to require Telstra to open up its local copper loop network to competitors with the declaration of the Unbundled Local Loop Service (ULLS) and Linesharing Services (LSS).

2.9 These services have enabled competitors like Optus, Primus, Internode and iiNet to deploy their own electronic equipment in the Telstra exchange, known as a DSLAM, to

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implications for regulatory policy", 2003, p.10

[2] Broadband, fulfilling our potential, Broadband Industry Group UK, November 2003,

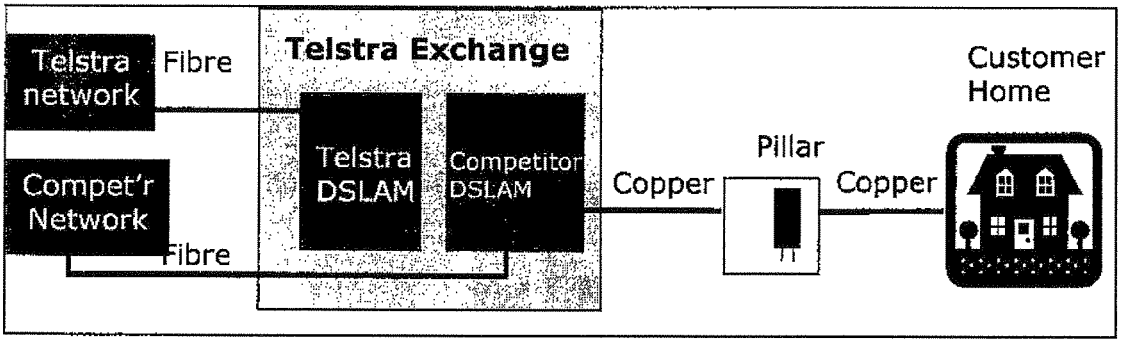
[3] "Measuring the Economic Impact of Broadband Deployment", Carnegie Mellon – page 3

[4] Innovation delivered – Broadband for Australia, An economic stimulus package, Accenture, 2001, p.8.

[5] OECD, "Broadband Growth and Policies in OECD Countries" – page 97

provide both voice and high-speed data services in direct competition to Telstra. Customers are connected to the competitor's equipment by leasing Telstra's last mile copper loops (the ULLS or LSS service) between the Telstra exchange and the customer premise.

Exhibit 1: Today's network with unbundling

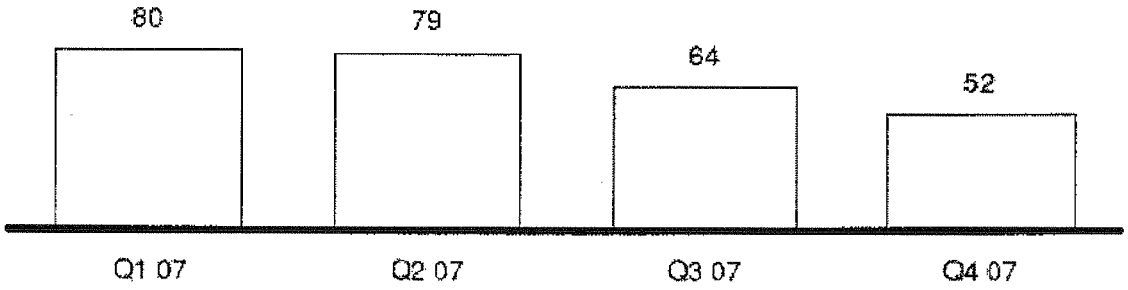


2.10 Roll-out out of these DSLAM networks commenced in 2005. By the start of 2008 some 1084 competitor DSLAMs have been deployed across metropolitan Australia[6] in some 387 exchanges. A recent report by the ACCC indicated that as at 30 September 2007, there were 644,488 unbundled lines being used being used to by Telstra's competitors to serve customers[7].

2.11 This development has driven important benefits to consumers – through lower prices, improved quality of service and greater innovation. Competitors are using their own infrastructure to deliver innovative services such as Optus' Fusion product ($79/month for broadband plus telephony with unlimited local, long distance and calls to Optus Mobile) and iiNet's Naked DSL ($49.95 for broadband – without the requirement to pay for line rental).

2.12 The improvements in pricing have been tangible and are demonstrated by the following chart, which shows how consumers have benefited from aggressive marketing of Broadband services, in particular through capped plans.

Exhibit 2: Average cost of data for standalone plans surveyed, if whole cap used ($/GB)



[6] Telstra "Local Carriage Service and Wholesale Line Rental Exemption Applications" – Supporting submission, 12 October 2007, page 2

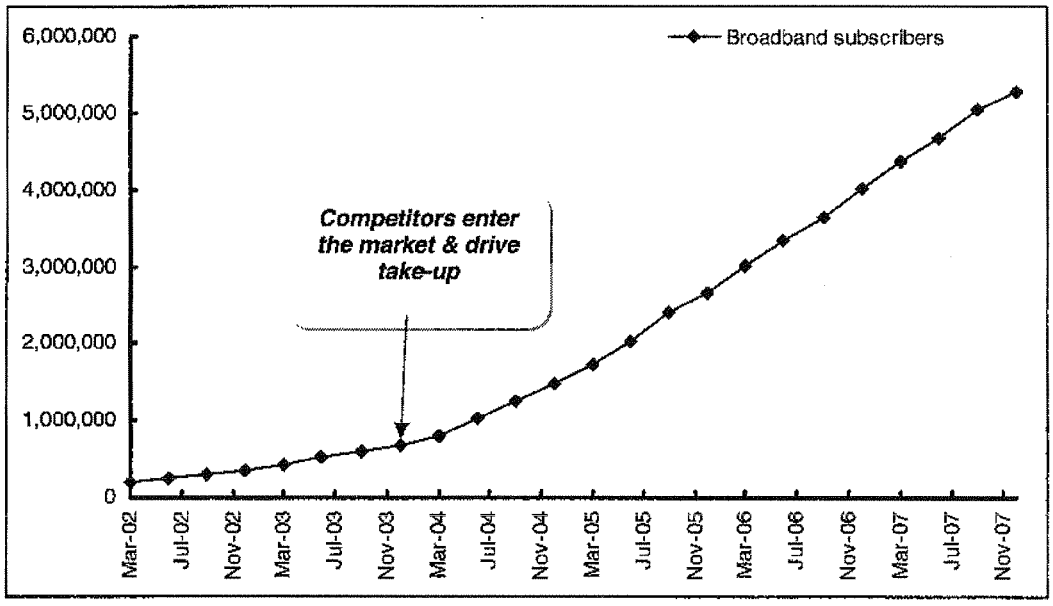
[7] http://www.accc.gov.au/content/index.phtml/itemId/836506/fromItemId/621277

2.13 The above chart is taken from a report for the Internet Industry Association by Spectrum Value Partners. Spectrum conclude that:

> *"As noted above, the other area where competition is manifesting itself is the cost of data. Operators are increasing data caps allowances without a corresponding increasing in price. For example, Optus has doubled the cap of their low end plans to 0.4GB and 2 GB without increasing the monthly charge."*[8]

2.14 The strengthening of competition has had a clear and demonstrable impact in helping to drive take-up of broadband services thereby helping Australia's broadband market to catch up with the world, recovering from a delayed and sluggish start. The chart below shows how growth jumped sharply once competitors entered the DSL market.

Exhibit 3: Australian broadband uptake[9]



2.15 The clear competitive benefits of unbundling have been recognised by the Chairman of the ACCC, Graeme Samuel, in a recent speech to the Australian Telecommunications Users Group:

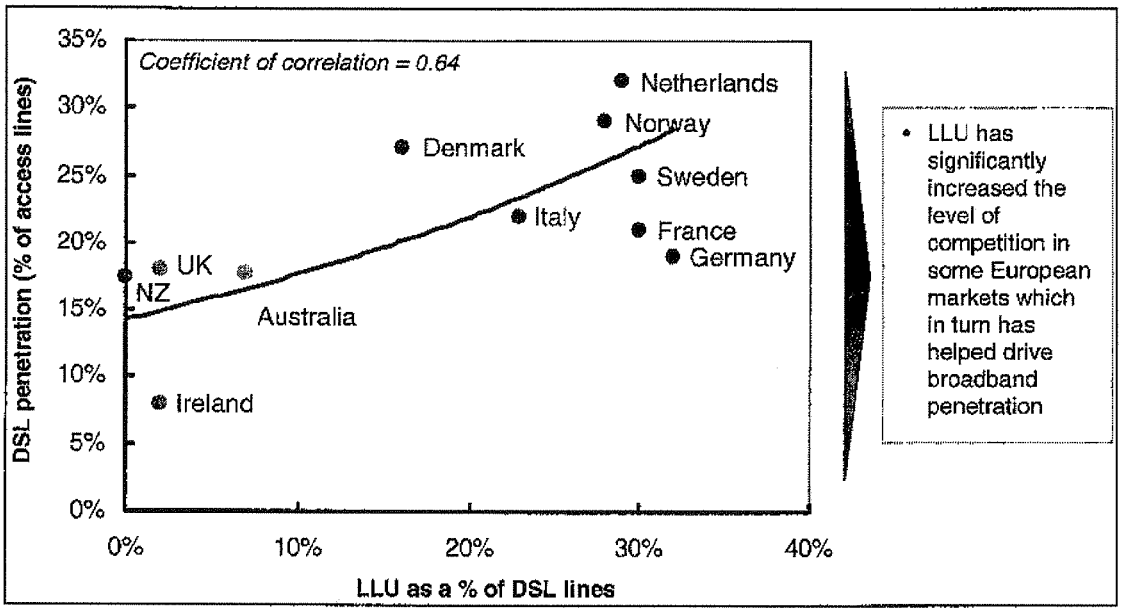
> *"Increased competition in the provision of broadband services has seen progressively lower broadband prices, increased data caps, better speeds and new innovation and products (such as naked DSL). This increased competition in broadband by other ISPs and carriers owes a significant debt to being able to obtain access to Telstra's copper loop. Competitors have this access through the declaration of the unconditioned local loop service (ULLS) and the line sharing service (LSS)"*[10].

[8] Spectrum/IIA Broadband Index – Fifth Edition (Q4 2008), 14 January 2008.

[9] Spectrum Value Partners analysis, ACCC Snapshot of broadband deployment (30-09-06), JP Morgan (17-03-08)

[10] ATUG 2008 Annual Conference, Graeme Samuel – 13 March 2008

Exhibit 4: DSL penetration vs. LLU share of DSL lines (%)



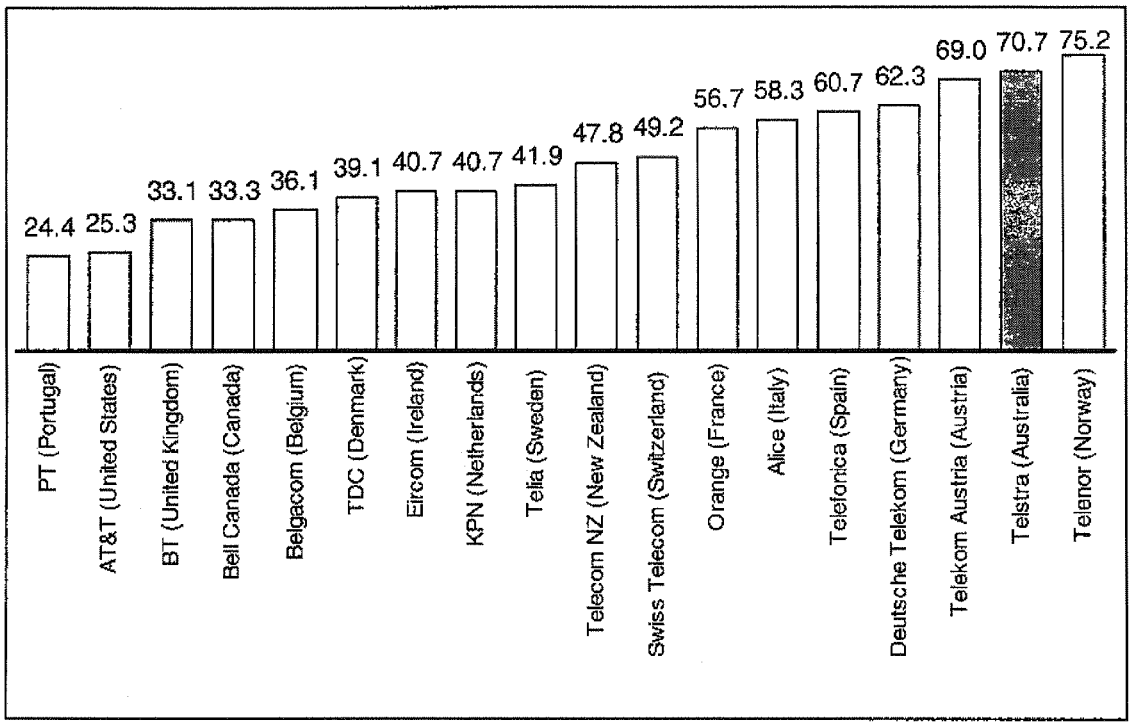
2.16 However, it has to be recognised that ULLS based competition is nascent and its impact to date in constraining Telstra should not be overstated, especially since Telstra faces little to no competition outside key metropolitan locations. For example, in recent full year results announcement Sol Trujillo boasted of Telstra's ability to grow both its broadband market share and its Average Revenue per User (ARPU);

"We've sustained both broadband market share gains and ARPU growth, a feat virtually unheard of among incumbents around the globe".[11]

2.17 Further, notwithstanding the emergence of competition a recent report prepared by Spectrum indicates that Telstra's broadband pricing remain high by international standards.

[11] http://www.telstra.com.au/abouttelstra/media/announcements_article.cfm?ObjectID=43142

Exhibit 5: Most economical 'Low' usage plan by monthly cost (AUD$, as at 1st June 2008)[12]



2.18 A central consideration for Government and policy makers as we contemplate the move to a National Broadband network based on a fibre-to-the node technology is how to preserve and, indeed strengthen competition. This is an issue that policymakers and regulators around the world are grappling with. In a recent press release following BT's announced fibre upgrade, Ed Richards, CEO of Ofcom, noted that:

"...we want to continue to promote a vibrant competitive environment as we enter the next generation of communications services .... we are already working closely with communications providers, and our wider stakeholders, to ensure there is a concerted dialogue on the regulatory environment to support investment and competition".[13]

2.19 This is a clear demosntration that pro-competitive regulation is at the forefront of considerations about NGN roll-out.

[12] Spectrum "Broadband Pricing Benchmarking Final Report", 9th June 2008 – chart shows most economical 'Low' usage plan by monthly cost, excluding plans with data caps less than 75% of the 'Low' usage level of 500MB (AUD$, as at 1st June 2008)

13 Source: Press release welcoming BT's plan to upgrade broadband network: Regulation to support investment and competition – 15 July 2008

3. Telstra's strategy is to use the FTTN to fully restore its monopoly

"Telstra supports open access to the NBN" – **Telstra** "Public submission on the roll-out and operation of a National broadband Network for Australia"

"His mind slid away into the labyrinthine world of doublethink. To know and not to know, to be conscious of complete truthfulness while telling carefully-constructed lies, to hold simultaneously two opinions which cancelled out, knowing them to be contradictory and believing in both of them; to use logic against logic, to repudiate morality while laying claim to it..." **George Orwell** "1984"

3.1 The reason that regulators are taking a close interest in Next generation technology, particularly fibre roll-outs, is that it presents some significant risks for emergent ULLS based competition. Telstra has been quick to realise this and has sought to use an FTTN for its own benefit. It is worth remembering that the proposal for a roll-out of a national FTTN network in Australia was first raised by Telstra in "The Digital Compact & National Broadband Plan" it put to the Howard Government in August 2005. [14]

An FTTN will face little or no infrastructure based competition

3.2 FTTN is an ideal technology for an incumbent with anti-competitive ambitions. Firstly, unlike the existing copper network, it cannot be unbundled. This means that if Telstra is able to build the FTTN network on the terms it proposes, it will be protected against infrastructure based competitive entry. The ULLS based competition that we have today will end as this infrastructure will be stranded. Whilst existing HFC networks will continue to provide some competition – this will be limited given that they address only around 15% of premises. Wireless networks, whilst important, will complement not substitute for services on the NBN. This fact has been recognised by Telstra. For example, in a presentation in April 2008, John Stanhope the CFO of Telstra when talking about the capabilities of fibre to deliver high speed access, noted that;

"Can wireless technologies achieve these same throughputs? While the capability and capacity of wireless technologies has improved markedly and will continue to do so, the fact is that wireless is a shared technology so the answer is no. While we are proud that our wireless customers will be the first in the world to get a 21Mbps HSPA+ network later this year, this is a peak throughput. With a lot of customers on the network simultaneously, there is just not sufficient spectrum capacity across the air-interface to guarantee these speeds". [15]

3.3 The NBN will be the sole means by which customers will have access to a range of potential new and innovative services, such as IPTV. Encouraging duplicate network investment to compete with the NBN, as Telstra and its cheerleaders[16] have argued in favour of is neither a credible nor responsible policy option. A simple example, will demonstrate this point. To deploy an FTTN to cover all metropolitan areas based on an overlay of the Telstra copper network would cost in the order of $4 to $4.5 billion. That network will have the advantage of having around 95% of all households and

[14] http://www.telstra.com.au/abouttelstra/investor/docs/tls339_briefingpaper.pdf

15 Presentation by John Stanhope, Chief Financial Officer at the ABN Conference, Communications in the Digital Age. 29 April 2008

[16] Refer Martin Cave comments in Communications Day 12 August 2008. Also refer Tony Warren speech 'Broadband: enabling the nation" - http://www.nowwearetalking.com.au/news/regulatory-lipo-sucking-value-out-of-investment

businesses connected from day one. In contrast, to extend the existing Optus HFC network to all metropolitan Australia would cost at least double that amount. The extended network would also have the clear disadvantage of having no customers connected from day one and having to win these across from the NBN. To suggest that this is an option is specious.

3.4 In reality the only competition will largely be in the form of resale based services off the NBN. Based on our experience of resale in Australia then if Telstra owns the NBN and is able to control the speed, grade of service and other features offered, it will be impossible for resellers to differentiate or to offer truly effective competition. Telstra will be the monopoly supplier — allowing it to keep prices high and capture monopoly rents.

3.5 These concerns were noted in a report by Dr Chris Doyle in which he outlines the competition risks raised by the NBN;

"Vertical competition concerns in telecommunications markets have heightened over the last few years. The strength of incumbent players like Telstra in wholesale local access markets raises justifiable concerns about discriminatory conduct. While competing infrastructures have lessened the extent to which market power can be exercised by incumbent operators, the migration to NGNs and Next Generation Access Networks (NGANs) will tilt the playing field against newer operators lacking network access ubiquity"[17].

What does an FTTN offer to Telstra?

3.6 This incentive to re-shape the competitive environment has been at the heart of Telstra's strategy to roll-out an FTTN, both under its proposal to the Howard Government and its present plans for the NBN. Telstra's motives for rolling out an FTTN where clearly articulated in "The Digital Compact & National Broadband Plan" of August 2005. In that plan it noted that;

(a) Telstra's traditional revenues in fixed line voice services were under pressure - indeed it referred to a "meltdown in the PSTN Business";

(b) Its growth revenues are in lower margin, highly competitive services such as mobile and data; and

(c) Competitor roll-out of ULLS posed a significant threat to its retail and wholesale revenues.

3.7 The combined impact of the above was to put Telstra's revenue growth and margins under serious pressure. Telstra's plan was to arrest the decline by committing to the roll-out of an FTTN – but subject to significant regulatory concessions (see below).

3.8 An FTTN has some very attractive benefits to Telstra if it can be rolled out on its terms. Specifically it has the potential to;

(a) Remove the threat of emergent facilities based competition. Competitors would have to hand-back ULLS lines to facilitate an FTTN roll-out. Further, the FTTN cannot be unbundled;

(b) Grow Telstra's Wholesale revenue since competitors would once again be forced to buy more of their services on a resale arrangement which Telstra is better able to control;

[17] Dr Chris Doyle, "Structural Separation and investment in the National Broadband Network Environment", page 2

(c) Weaken Retail based competition thereby increasing Telstra's Retail share and revenue;

(d) Establish Telstra as the gate keeper to the converged environment - as the owner of the monopoly platform it can extract significant value by controlling the delivery of new services over that platform; and

(e) Significantly reduce Telstra's cost base – since fibre is cheaper to maintain than copper; the planned roll-out would also enable Telstra to realise significant cost savings from rationalising its network (such as the closure and sale of many local exchange facilities).

3.9 In 2005, Telstra forecast that that these benefits could help restore its revenue growth; win market share; turn around its declining margin trajectory and raise its margins to 52 cents in every dollar – to world leading levels.

Significant Regulatory concessions are the key to Telstra's strategy

3.10 However, to realise the full benefits of an FTTN roll-out, Telstra understood that it would have to neutralise the threat that regulation could lock-in and enhance competition. Whilst an FTTN would end ULLS based competition Telstra could not rely on this measure alone. The very fact that ULLS based access would be denied on the FTTN would likely lead the ACCC to push for new regulations that would replicate the benefits of ULLS based competition on the FTTN.

3.11 Telstra therefore sought an "access holiday" from regulation of its investment in an FTTN. Specifically, it requested the following regulatory concessions;

(a) That the current regulations should not be applied to privately funded FTTN investment;

(b) That only legacy services should remain regulated;

(c) The ACCC powers to regulate those legacy services should be weakened – by a shift in bias to the access provider; and

(d) That Telstra should be able to price discriminate

3.12 These would enable Telstra to increase wholesale prices and margins. This in turn would put Telstra in the box-seat to extract additional market share and value at the retail level. These conditions on a Telstra roll-out of an FTTN were rightly rejected by the Government at that time.

Telstra's is seeking the same conditions for roll-out of the NBN

3.13 However, some 3 years on neither Telstra's incentives nor its position has changed. In its submission to the DBCDE on the Regulatory issues associated with the NBN, Telstra has indicated that as a condition of rolling-out the NBN it requires;

(a) A specific guarantee that services on the NBN will be excluded from the current regulations;

(b) That it would only be obligated to provide access to a limited set of "anchor products". These are the legacy services it provides today – it would have no obligation to provide new services;

(c) That it should have freedom to set wholesale prices based on "value" not "cost"; and

(d) There would be no restrictions on Telstra discriminating between the prices and delivery of both wholesale and retail services.

3.14 These conditions amount to the same claim for an access holiday that Telstra proposed in 2005. Of course Telstra has sought to dress up its claims by also claiming that it supports "open access", but this is a meaningless sound-bite. Its regulatory model is actually a form of discretionary access not open access – that is Telstra will provide access at its discretion and on its terms. The following recent statement by Kate McKenzie, the General Manager of Telstra's wholesale division, indicates that Telstra has no intention of treating wholesale customers on equal terms to its retail business;

"Whether we would sell exactly the same products in the wholesale division as the sorts of things that retail would be seeking for their end customers, not necessarily. Just like it is now, we sell a lot of things in wholesale that retail don't directly buy an equivalent of and I expect that would continue to be the case". [18]

Telstra's arguments to support its claimed access holiday are without merit

3.15 To obtain the above concessions Telstra continues to play a very aggressive form of brinksmanship with Government. It routinely threatens the Government with claims that;

(a) Only it can build an FTTN and that it will not invest in an FTTN if it does not get its way[19]; and

(b) That if any other party is chosen to build the FTTN it will lodge the "mother of all legal challenges" to deny access to the copper loop required to provide customer access to the FTTN.

3.16 Fortunately to date these threats have not been ignored, but if any evidence were needed of Telstra's market power it is the fact that it can brazenly make these threats to a Government. The reality, however, is that Telstra would invest. It cannot afford not to do so in the longer-term – because there is a clear and increasing opportunity to access new revenue streams from the provision of higher bandwidth services. This is evident from developments around the world were many incumbent telcos either are or have announced plans for major fibre upgrades. Further, the new network provides an opportunity to generate significant operational cost savings, especially since any legacy network will become ever more difficult to maintain as vendor support switches to the newer technologies.

3.17 In its submission on the regulatory arrangements that should apply to the NBN Telstra seeks to dress up its claims for significant regulatory concessions with policy arguments. It claims, for example, that;

(a) There is no non-price discrimination in Australia;

(b) It blames the ACCC for the delays and uncertainty in regulatory decision making;

(c) It also claims that the environment will be different under NBN, since the proliferation of competition in the retail services or application layer will diminish the ability of the platform owner to exercise market power; and

[18] Kate McKenzie interview with Alan Kholer, 17 July 2008

[19] Communications Day 14 April 2008

(d) It also claims that a bitstream access service, by its nature, will be less open to non-price discrimination.

3.18 The first two claims can be dealt with simply – they are wrong and not borne out by the facts that will be presented in the following section.

3.19 In respect of the latter two issues, Optus submits that there is no empiric evidence to suggest that either of these positions will be borne out. What we can say, with some confidence is that NBN will be a monopoly platform. The owner of that platform will, therefore, be in a very strong position to influence the terms of access to that network – both price and non-price. In consequence it will have the ability to have a significant influence on the nature and level of competition in downstream services. This is because the downstream retail providers will rely on the purchase of a carriage service for customers to access their content and ultimately this will need to be bought off the NBN owner. As noted by Rod Shogren:

"By contrast, the dominant carrier may be able to increase its market power in carriage services through vertical integration of the value chain – linking the carriage service with an ISP and add-ons such as an Internet portal".[20]

3.20 Telstra has a well developed strategy to be a key player in the converged multi-media world. In its proposed model for the NBN, it is not hard to imagine the difficulties a potential competitor would face in launching, for example, an IPTV service that provided a direct competitive threat to the FoxTel content provided on Telstra BigPond. The competitor would not get a look in. This is an issue the ACCC identified as far back as 2003 when it noted that:

"'Through its partial ownership of Foxtel, Telstra has the ability to veto supply of pay TV channels by Foxtel to other networks. This places Telstra in the unique position of controlling important inputs of supply for its potential and actual broadband network competitors, and for pay TV operators competing against Foxtel (on the Telstra HFC network)". [21]

3.21 But perhaps the most cogent evidence of how Telstra behaves in an environment of very light-handed regulation is to look at its track record with the provision of ADSL2+ services. The ADSL2+ service is not a declared service and as such is not subject to regulation under Part XIC. Notwithstanding that this service – a "Bitstream service" – has been provided to retail customers of Telstra for almost two years, Telstra still does not offer this service to its wholesale customers.

With weaker competition and a rampant Telstra consumers will pay dearly

3.22 The implications of Telstra's plans are very clear – it seeks to establish the NBN as a monopoly infrastructure, freed from the shackles of regulation, with limited scope for access that network. In such a scenario, the current emergent competition will be chilled, giving Telstra the freedom to exercise unfettered market power.

3.23 Telstra has publicly stated that as it migrates to a Next Generation Network it plans to sharply increase its profits, boosting its EBITDA margin to 50% from the current levels of around 42%.[22] Such a sharp jump in profit can only be achieved by charging customers

[20] "MARKET POWER IN BROADBAND", Rod Shogren – Paper prepared for the ACCC Regulation Conference 24-25 July 2008

[21] "Emerging market structures in the communications industry", ACCC, 2003, page xviii

[22] 'Transcript of Speech by John Stanhope, Telstra Corp' New Zealand Exchange Company Announcements, 7 March 2006, p7

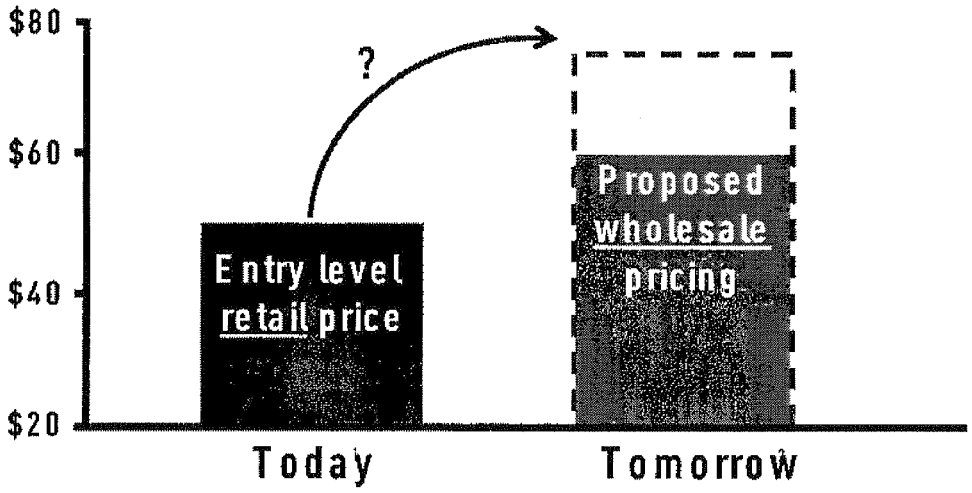
more for the voice and data services they get today. This fact has been publicly acknowledged by Telstra on several occasions. Dr Phil Burgess, Telstra's Group Managing Director, Public Policy & Communications recently said that Telstra aims to be "a premium provider charging premium prices"[23]. He also indicated that Telstra required a return on any investment in NBN "north of 18%"[24].

3.24 The return Telstra is seeking on its network is massively in excess of the returns normally allowed by the ACCC in setting prices for services delivered over a bottleneck infrastructure. It is also well out of line with the returns allowed by overseas regulators for incumbent telecommunication companies. If Telstra were able to charge such a rate, it would recoup its investment within 5 years. Yet the network will last 10 to 15 years at least. This can only mean high prices for consumers and a long period of monopoly profits for Telstra.

3.25 As clear evidence of this, in June 2007 Dr Burgess disclosed that Telstra's planned wholesale price for line rental plus entry level 512K broadband would be $59 per month[25]. This is significantly higher than the price that consumers pay today at retail for the same combination of products. Today Optus customers have access to an entry level DSL service (in fact with ADSL2+ speeds, rather than capped at 512Kbps) at $24.99 a month. When combined with Optus' entry level line rental price of $19.95 (Home Comfort Lite), this means that a customer would pay $44.94 for a retail service comprising line rental plus DSL – compared to Telstra's proposed wholesale price for the same combination of products of $59.

3.26 As demonstrated in the chart below, this means that under Telstra's model customers will be required to pay more tomorrow for the same broadband services that they get today – particularly bearing in mind that resellers will need to add a margin on top of the wholesale price charged to them by Telstra.

Exhibit 6: Potential impact on the price of entry level broadband services under Telstra's plans



[23] 'Stand-off in Rudd telco plan', Michael Sainsbury and Andrew Colley, The Australian, 4 December

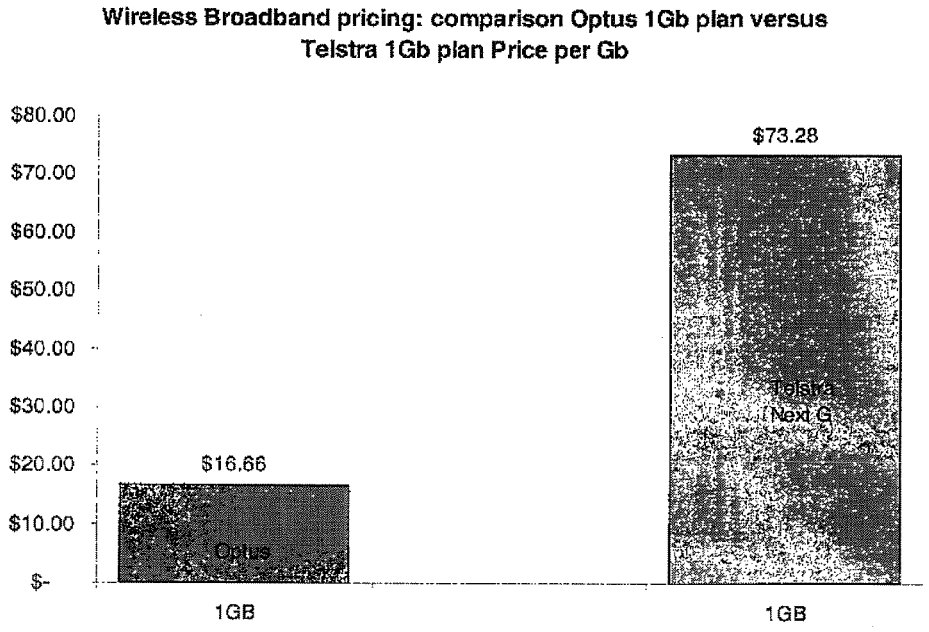
[24] 'Telstra wants network return 'north of 18pc', Jennifer Hewitt, The Australian, 22 March 2008.

[25] 'Telstra tries a fast one with 14-year offer', Terry McCrann, Herald Sun, 8 June 2007 also ' Telstra warns of G9 broadband price slug', Garry Barker, The Age, 8 June 2007

3.27 In mid 2007 informed speculation indicated that Telstra's proposed wholesale price for higher speed access services on the FTTN network would have been over $90 on average. Given the need to cover retailing costs and a retailer's requirement to earn a margin this would imply average retail prices for high-speed broadband services in the region of $120 – well above today's prices.

3.28 Further evidence of Telstra's behaviour when it has market dominance is provided by its remarkably high prices for broadband over its NextG network. For over twelve months Telstra had the only infrastructure for high speed wireless services until Optus and Vodafone launched competing services in December 2007. The following chart provides more evidence that when Telstra is not subject to competitive discipline, it will charge exceptionally high prices.

Exhibit 7: Comparison of wireless broadband prices[26]



3.29 The likely outcome for consumers under the model Telstra proposes is clear;

(a) Competition will be stifled;

(b) Prices will rise significantly;

(c) Innovation will be muted;

(d) Take-up of high-speed broadband services will be held-back;

(e) The IT revolution in schools will be threatened; and

(f) Productivity gains will not be realised.

3.30 In contrast, Telstra will be enriched as competition is marginalised. A recent report prepared by the Centre for International Economics for the CCC, indicates that Telstra's claimed return to build the NBN is at least 2 per cent above what an alternative investor

[26] Assumes usage of 1Gb per month. Prices calculated as the monthly price over the contract duration (excluding device). Telstra price assumes SuperG Fast Modem monthly plan (1Gb).

would require. This in turn would generate between $6.2 and $20.3 billion in additional revenue for Telstra over a 14 year term, depending upon the size of the required investment. CIE concludes that such an outcome would add to inflation and reduce Australia's GDP. The report found that the economy would be $897 million worse off if Telstra builds the NBN, and consumers would pay 15 per-cent

4. The current regulatory regime is not fit for purpose for an NBN world

4.1 There is no better evidence of why Telstra's claims for a lighter form of regulation should be rejected than consideration of how it has behaved under the present regime over the past 11 years. The current regulatory framework has been in place since 1997. Most objective commentators would accept that this framework has been less than effective in both controlling Telstra and stimulating competition, especially in respect of the provision of fixed line services. Consideration of the problems arising form the current system will actually help inform us of the changes that must be made to the regulatory framework as we move to an NBN environment.

4.2 In framing the current telecommunications regulatory regime which took effect in 1997, policy makers rejected took the view that level playing field in the provision of telecommunication services could be achieved by a combination of general competition law principles coupled with telecommunications specific access regulation. Hence, under the current regime, introduced in 1997, Telstra remains vertically integrated but subject to specific regulation of the Trade Practices Act (TPA). Part XI B of the TPA deals with abuse of market power and anti-competitive conduct whilst Part XIC regulates the terms of access to services.

Telstra remains one of the most vertically integrated carriers in the world

4.3 Whilst issues around Telstra ownership structure were considered these were not acted upon since it was felt that the ACCC armed with the telco specific powers could exercise effective control of Telstra. Telstra was, therefore, left intact as a powerful vertically integrated entity. In fact Telstra's position is somewhat unique amongst its peers since it has been permitted to participate and take a strong position in almost all sectors of the market. It is, for example;

(a) the owner of the copper loop access network;

(b) both the largest retail and wholesale provider of fixed line voice and broadband services through its control of the local copper loop;

(c) the owner of an HFC cable network – the second largest fixed access network in Australia after Telstra's own copper loop network;

(d) the dominant provider of pay-tv services in Australia through its 50% ownership in Foxtel, which is provided over its HFC cable network;

(e) the dominant provider of directory information services; and

(f) the largest mobile player in Australia.

4.4 Typically incumbent telecommunication providers have been restricted from providing certain services (see Exhibit 8 below). This is particularly the case with pay-tv services. This has been done to encourage the roll-out of competing local cable networks with pay-tv being used to drive take-up of a broader range of services by the cable provider such as voice (initially) and then broadband. This type of structural regulation has had clear benefits in helping to nurture viable local infrastructure based competitors.

Exhibit 8: Telstra remains a highly vertically integrated incumbent[27]

		BT	FT	DT	[illegible]	Telecom
Fixed services	✓	✓	✓	✓	✓	✓
Mobile	✓		✓	✓	✓	✓
Corporate services	✓	✓	✓	✓	✓	✓
Pay TV	(✓)(1)		✓			
Directories	✓			✓		
Operational separation		✓			(✓)	✓

4.5 The stand-out country in the table above is clearly Australia. Not only was Telstra not restricted from entering the pay-tv market, but it was able to neuter the one opportunity for Australia to have genuine fixed line infrastructure based competition when it was permitted to over-build the Optus HFC cable network literally street by street. As a result, whilst some Australians had a choice of two pay-tv networks, many had none. Further, Telstra's control of pay-tv content will become an issue of increasing concern with the migration to an NBN, since access to pay-tv content is likely to be a key driver of customer demand for higher-speed broadband services.

Vertical integration creates the wrong incentives for the development of robust competition

4.6 This decision to leave Telstra intact as a fully integrated provider of services has overhung the telecommunications market. Telstra's integration into so many related businesses has been a major obstacle to competition, since it gives Telstra both the opportunity to use its control of one asset (eg the pay TV business) to impede competition in a separate market (eg broadband). Telstra's structure has proved to a significant source of recurring problems and has been instrumental in raising barriers to the effective emergence of competition in the provision of fixed line services. As indicated in the table below this has manifested itself in significant price and non-price discrimination.

[27] Source: Spectrum value partners. Notes – Separation in the UK was formed under pressure and guidance from the regulator OFCOM. Separation in New Zealand resulted from an Act of Parliament. In Italy the move originates from Telecom Italia itself. However, Agcom (the Italian communications authority) issued last year a public consultation on the competition problem and is expected to take a position soon. (1) Telstra is a 50% owner of Foxtel the pay-tv operator.

Exhibit 9: Examples of behaviour designed to undermine competition

Because Telstra is **vertically integrated**, it has strong incentives to undermine retail competition:

- Telstra can **refuse to sell** services to its retail competitors. For example, Telstra refused to provide access to its Business Grade DSL service to Optus and other competitors for well over a year, giving it the opportunity to lock-away the most valuable customers in the important early phase of this service. Telstra has refused to provide wholesale access to its competitors to its ADSL 2+ service meaning that in many areas customers have only one choice of supplier.
- Telstra can provide **higher performance standards** to its retail customers than wholesale customers – for example, it routinely offers better connection times to its retail customers than it will provide to wholesale customers. As an example, Optus was recently forced to seek an ACCC ruling to improve the process by which Telstra connected customers in apartments through its ULLS access service. Whilst Telstra Retail is able to provide connection remotely at the flick of a switch – Telstra applied a cumbersome process for wholesale customers requiring two separate technicians to visit the customer premise and taking several days to complete.
- Telstra can impose a **retail-wholesale price squeeze** – for example, when Optus entered the residential DSL market in 2004, Telstra reduced its entry level package price from $59.95/month to $29.95, well below the price it charged wholesale customers; and in December 2005 Telstra increased wholesale line rental prices by $3.10 while not changing its retail line rental prices – thus subjecting its wholesale customers to a significant margin squeeze.
- Telstra can **undermine investment** in competitive infrastructure. For example, through its "telephony defence strategy" Telstra sought to impede Optus' entry into the fixed line services market by overbuilding the Optus cable network - such action was economically irrational absent the benefits associated with impeding competition. As Martin Cave has observed, this "acknowledged loss-making investment in a network for the delivery of broadcast services" was "used anti-competitively" since it was justified "on the grounds that it was a 'telephony defence measure' - it prevented a rival operator proposing to offer telephony and broadcast services on a single network from making headway in the telephony market." [28] More recently Telstra has sought to stall the impact of competitor investment in DSLAM infrastructure by capping capacity at certain key exchanges.

4.7 Notwithstanding, that Telstra is subject to notional operational separation arrangements, such non-price discrimination continues today.

4.8 The claims Telstra has made in its regulatory submission that there is no evidence of non-price discrimination are simply not true. This is an important issue – since the claimed absence of non-price discrimination in Australia is used to argue against the case for structural reform of the industry. In his submission for Telstra, Kip Meek's notes that:

"Overall, my view is as stated at the beginning of this report – the UK model of functional separation worked in the UK, but (as with any radical policy) it had downsides as well as upsides; the situation is very different in Australia and in particular the problems of non-price discrimination are not as severe in the UK; and that consequently adopting the UK model may not be the right approach".[29]

[28] Martin Cave – "Six Degrees of Separation", page 8

[29] Operational Separation in Australia and the UK - Report by Kip Meek, Chairman, Ingenious Consulting Network, 24 June 2008

4.9 However, Mr Meeks' report contains a very significant caveat – that simply undermines its objectivity and utility:

"This report has been written on the basis of a week long trip to Australia, an interview programme with Telstra executives and an extensive review of the documentation associated with regulatory issues and approaches in Australia and the UK (the most important documents I reviewed are listed in Appendix A). While the evidence I have seen has suggested very strongly that the issues of non-price discrimination do not have the salience they had in the UK in 2004, ***I have not discussed the issue with (for example) Telstra's wholesale customers*** *and my report has to be read in this context". (Emphasis added)*

4.10 Indeed, had Mr Meek's interviewed Telstra's competitors, Optus submits that he would have reached a very different conclusion. Not only is there ample historical evidence of non-price discrimination, as demonstrated in Exhibit 9 above, there is also ongoing evidence of discrimination[30].

Gaming the Regulatory system

4.11 It was anticipated by policy makers that Telstra could behave in the ways described above to undermine competition. For this reason, the 1997 reforms equipped the regulator with specific powers to promote competition and address anti-competitive conduct (in the provisions of Part XIC and Part XIB Trade Practices Act). With over eleven years experience, we now know that these provisions have proved inadequate to control Telstra and to provide a genuine level playing field for competitors seeking to compete with Telstra in the provision of fixed line services.

4.12 The negotiate/arbitrate model under Part XIC has proven to be a failure. It has provided Telstra with both the incentive and means to game the system to its advantage. Telstra has a well rehearsed game plan to frustrate the decision making processes:

(a) It employs a take it or leave it approach to commercial negotiations, which are treated merely as a stalling device. It rarely engages on issues and blatantly uses information asymmetries to undermine the negotiating process.

(b) The undertaking process is used a means to undermine the ACCC's price signalling processes and delay arbitral decisions.

(c) The arbitral process is stymied by constant questioning of due process and issues of jurisdiction.

4.13 This has resulted in a merry-go-round of regulatory disputes and delay, legal challenges and rule changes to reinforce the powers of the regulator. The cause of fixed line competition and consumer interests has been very poorly served by the system.

4.14 Evidence of the problem is provided by the table in Appendix 1 which shows the tortuous process for arriving at a final price ruling on ULLS – an essential building block of competition in the fixed line network. Given the competitive opportunity ULLS has opened up Telstra subjected the ULLS regulations to the full blast of its legal armoury. This includes using the Australian Competition Tribunal, the Federal Court and even the

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[30] Optus has recently lodged a dispute in response to Telstra's policy of capping access to space in its exchanges. We have alleged that Telstra's policy is in breach of its requirements to provide access to ULLS on terms which are equivalent to those it provides to itself.

High Court to challenge the ACCC. It is not surprising, therefore, that after nine years after the service was first declared the ACCC has only just issued a final ruling on access prices – and that ruling expired in June 2008 with the debate set to ignite again, as Telstra has lodged yet another ambit claim[31]. This process has resulted in significant uncertainty for access seekers and has arguably held back investment.

4.15 Part XIB was intended to provide an alternate mechanism for the ACCC to take rapid enforcement action to address anti-competitive conduct. But the provisions of Part XIB are far too weak. It takes a long time for the ACCC to be able to act; it is very expensive; and it requires complainants to discharge a burden of proof that is not achievable given asymmetries of information. In the fast moving telecommunications industry, Telstra can enjoy months and even years of benefit from anti-competitive conduct before a matter is investigated and sanctions imposed. Where the sanction is a competition notice, Telstra generally ignores it for months and ultimately pays a minor speeding ticket type fine through a backroom settlement with the ACCC to make the issue go away.

4.16 Although five actions having been commenced by the ACCC – all against Telstra – no enforcement action has resulted. The table below provides a summary of the notices issued against Telstra.

Exhibit 10: Competition Notices issued under Part XIC

May 98	• ACCC issues competition notice against Telstra, regarding Telstra's anti-competitive conduct in the internet market – in place until June 1999. No action taken.
Aug 98	• ACCC issues competition notice against Telstra regarding Telstra's customer transfer process ('commercial churn'). Three subsequent notices were issued and the ACCC commenced Federal Court action before the ACCC and Telstra reached a settlement agreement in February 2000.
Sep 01	• ACCC issues competition notice against Telstra regarding its supply of wholesale and retail ADSL services to its wholesale and retail customers – in place until May 2002. No action taken.
Mar 04	• ACCC issues a Competition Notice to Telstra with respect to the pricing of Telstra's broadband internet service - revoked in February 2005 following agreement between Telstra and the ACCC.
Dec 05	• ACCC issues a Consultation Notice to Telstra with respect to wholesale line rental price increase – revoked in February 2007 following successful Telstra ADJR challenge against the notice.

4.17 The ACCC has all but signalled its unwillingness to continue to use its powers under Part XIB to control Telstra given the high evidentiary hurdles and the difficulties of enforcement.

4.18 Part of the problem is that the ACCC's powers to regulate access are often ill-defined and limited by various rights of appeal. This latter point has blunted the tools available to the ACCC to regulate Telstra by Telstra's increasing use of appeals processes and legal challenges. The legal strait jacket within which the ACCC has to operate is

[31] Telstra is claiming a ULLS Band 2 price of $30 – notwithstanding the fact that its claim for a nationally averaged ULLS price of $30 across all bands was comprehensively rejected by both the ACCC and the Australian Competition Tribunal.

demonstrated by the ACCC's recent revelation that it is currently involved in 47 legal actions initiated by Telstra[32]. This includes:

(a) 1 appeal to the Full Federal court;

(b) 12 ADJR actions in the Federal court;

(c) 1 Federal court ADJR action regarding administration of retail price controls; and

(d) 33 applications to the Administrative Appeals Tribunal for review of ACCC decisions on Freedom of Information requests (a clear abuse of the FOI provisions).

4.19 This use of legal means to block or challenge decisions by the regulator leads to a degree of paralysis within the regulatory process whereby the ACCC is unable to fulfil its statutory decision making function with any degree of timeliness. These difficulties arise because as a vertically integrated supplier with a dominant market position Telstra has strong incentives to continue to game the regulatory processes. Telstra's Board can justify such action as being consistent with its obligations to protect and enhance shareholder value.

The operational separation arrangements that apply to Telstra are wholly ineffective

4.20 Whilst Telstra was notionally required to implement "operational separation" under the Telecommunications Amendment (Competition and Consumer Issues) Act 2005, the changes these brought about are cosmetic and have had no impact on Telstra's behaviour.

4.21 Commenting on the arrangements that apply in Australia Professor Martin Cave concludes that;

> *"This approach seems singularly ill-equipped to achieve any kind of equivalence in the services offered by [sic] to internal and external customers, as it exaggerates the differences in institutional arrangements between them".*[33]

4.22 Similarly, in the attached reports Dr Chris Doyle notes that the current arrangements in Australia are "weak" and that;

> *"Notably there is nothing in the operation separation plan that would appear to prevent Telstra from changing prices that resulted in a price squeeze or require Telstra to rectify its conduct by offering prices that would alleviate the price squeeze".*[34]

4.23 Further, appearing before a recent Senate Estimates committee, the Chairman of the ACCC admitted that the current form of virtual separation that applies to Telstra has been a failure. In response to a question as to whether this regime has proved to be an effective mechanism for promoting equivalency between Telstra and its competitors, Graeme Samuel noted that;

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32 http://www.accc.gov.au/content/item.phtml?itemId=813049&nodeId=32c362ff87670ac1c5a59b6203bcf909&fn=Regulatory%20Update%20for%202008.pdf

33 Martin Cave – "Six Degrees of Separation", page 7

34 Chris Doyle "Structural separation and investment in a National Broadband Network environment", page 42

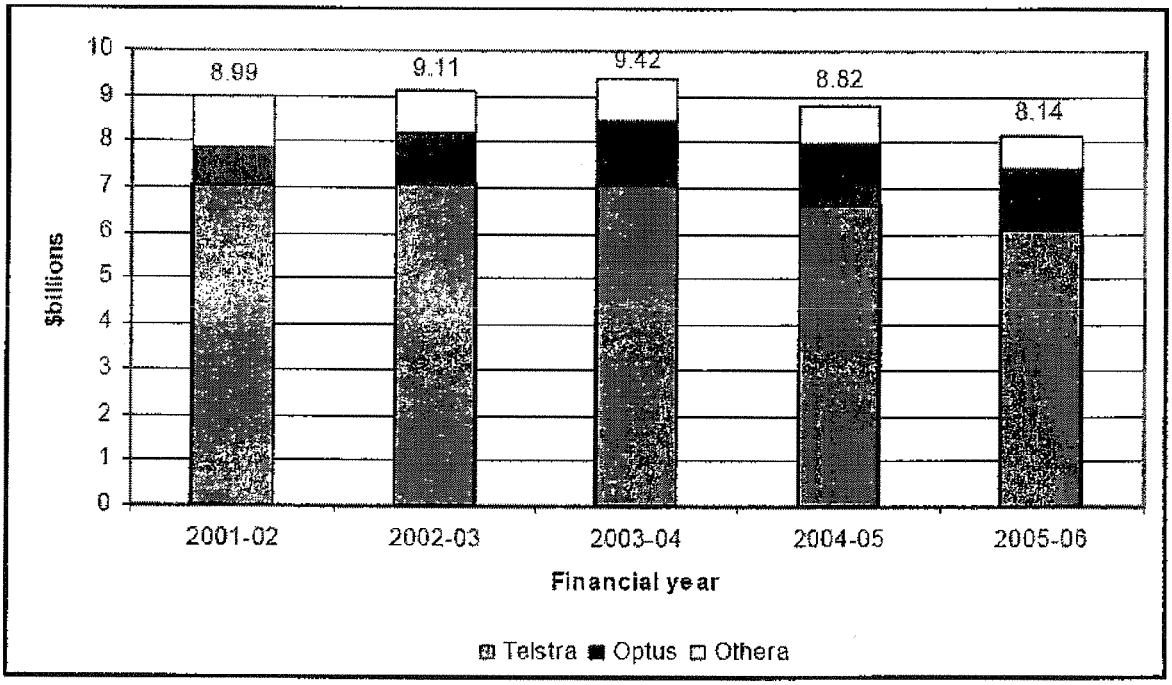
"I can give a short answer to that or a slightly longer one. The short answer is probably no. We continue to receive complaints of conduct that suggest that the objective of equivalence, which was the objective of the regime, is not being achieved".[35]

4.24 The committee further heard that the Commission had investigated and reported three breaches of the operational separation rules yet no action was taken against Telstra. It is quite clear, that these arrangements offer no constraint over Telstra.

Overview of competition

4.25 The result of the problems and behaviour noted above is that competition in fixed line telecommunications has failed to develop to more than a limited extent since 1997. Telstra continues to dominate the market, especially in the provision of fixed line services. It generates over 70% of the fixed line revenue at margins of between 55-88%[36] on its fixed line revenues.

Exhibit 11 Total PSTN services revenue 2000-01 to 2005-06



4.26 In summary, the current regulatory system has not effectively controlled a powerful vertically integrated incumbent that is uncompromisingly determined to restrict competition. There is simply no case, as Telstra argues, for relaxing regulations. Rather we must look to re-shape the regulatory framework to put competition fairly and squarely at the heart of the NBN.

[35] Senate Economics Committee Estimates Hearing http://www.aph.gov.au/hansard/senate/commttee/S10864.pdf

[36] Telstra briefing paper "A digital compact and National Broadband plan", released 7 September 2005

5. Regulatory reform is critical to achieving the Government's policy objectives

5.1 Optus submits that delivering competitive access to the NBN and ensuring affordability of access should be the overriding objective for the Government in delivering a high-speed national broadband network.

5.2 There are key principles which must apply whoever builds the network. The Government and its advisors must objectively and critically assess all proposals against the base case – which is the substantial progress Australia is today making towards a competitive broadband market featuring lower prices and higher speeds than ever before. If the Government cannot get an outcome that enhances competition over and above the base case, then it should not proceed with any proposal. In commenting on this very point in the context of the migration to Next Generation Network technology in the UK, Ofcom has noted that:

> *"Although we are keen to ensure regulation is not a barrier to companies investing in next generation access when it makes sense for them, this investment should not be achieved at any cost. In particular, it should not be detrimental to consumers, for example in having to pay higher prices for today's service, nor by sacrificing competition"*[37].

5.3 Australia is not alone in its consideration of these issues – there is growing debate around the world on these matters – in many of these jurisdictions the Regulatory authorities are leading the debate on the changes required to ensure that whilst on the one hand Next Generation Access (NGA) investment occurs, such investment does not undermine competition. The issues under consideration are common, and include;

(a) Recognition that new NGN networks will likely be monopoly networks. For example European Regulators Group, has noted that;

> *"[next generation access network] investments are likely to reinforce the importance of scale and scope economies, thereby reducing the degree of replicability, potentially leading to an enduring economic bottleneck. The degree to which this is the case will vary depending on the specific technology deployed, but may mean that effective competition will increasingly require significant scale in order to compete with incumbents' deployments of NGA, even though for the time being it is uncertain what the minimum scale exactly is.*
>
> *It may be the case that, to some degree and in certain locations, these scale economics mean that there is a natural monopoly in certain areas of the electronic communications value chain."* [38]

(b) To ensure that investment occurs by providing appropriate certainty to investors; and

(c) Given the difficulties of unbundling the next generation fibre networks – how to preserve and further enhance competition as we take a step back down the ladder of investment from where we are today with local loop unbundling.

5.4 In discussing these very issues in a speech on 25 June, Viviane Reding the Member of the European Commission responsible for Information Society and Media, made the following key points that;

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[37] Ofcom "Future of Broadband – Policy approach to Next Generation Access", page 6.

[38] European Regulator Group Opinion on Regulatory Principles of NGA, ERG (07) 16rev2.

"A key element in my vision for Next Generation Access regulation is to ensure that all parties, entrants or incumbents have sufficient incentives to move in these markets.

Regulatory restraint as a carte blanche for incumbents to re-monopolise markets where the buds of competition are flourishing is not a policy option if we want competitive markets.

First of all, access regulation which has been imposed in the past on dominant network operators will be continued, extended and if necessary reinforced also in case of a switch by the dominant player to a next generation network. Technological change should not, in itself, lead to a change of the regulatory rules in place".

5.5 Consistent with the principles articulated by overseas regulators, Optus submits that there are two essential reforms to provide certainty to investors and to ensure that competition is not only protected but enhanced with the move to an NBN;

(a) Firstly , the network should be subject to either **structural separation** or at the very least robust functional separation; and

(b) The **ACCC should be given a clear role to regulate the terms of access** to the network. The ACCC's powers should be appropriately defined to ensure that investors have sufficient certainty as to the regulatory settings that will apply to the NBN.

Structural Separation is the key to delivering enhanced competition

5.6 One of the central challenges for Government in implementing the necessary regulatory reform is to address the issues associated with market power. As we have indicated, the NBN will be a monopoly network. From the start almost all fixed voice services will be on this network and over time it will carry a larger and larger volume of broadband. In due course virtually the entire fixed telephony and broadband market will be delivered on this one network.

5.7 It is essential, therefore, that the interface between the NBN and all access seekers is regulated to ensure that there is genuine equivalence of access. Past experience has demonstrated that relying on general competition law and even specific telecommunications laws does not work to guarantee non-discriminatory access or to prevent abuse of market power do not work. Equivalence must be structurally guaranteed. This means that it must result from the structure of the NBN – rather than be set out in a series of vague statements of intent such as those that might be given in competition law or an undertaking both of which can only be enforced after the event.

5.8 The first best policy response to enhance competition in an FTTN environment is to ensure that there is structural separation between the owner of the NBN and a retail service provider.

5.9 The Government should insist that as a condition of rolling out the NBN, the entity that owns and manages the NBN is structurally separate from any downstream affiliated retail entities. What this means in practice is that the critical components of the NBN must be owned by a company ("NBN Owning Entity") which is distinct from – and does not have shared ownership beyond a specified level – with any retail telecommunications provider. The critical components of the NBN would include the deployed fibre, the electronic equipment in the nodes, backhaul infrastructure, interconnection equipment and any relevant facilities from any related entity. The restriction on shared ownership beyond a specified level would require that;

(a) No retail telecommunications provider had majority ownership or control of the NBN Owning Entity

(b) The NBN Owning Entity did not have any ownership stake in a retail telecommunications provider.

5.10 Structural separation will also require that the NBN Owning Entity would have separate facilities, systems, staff and separate ownership from any retail operator, be that Telstra or any other operator. As a standalone business the incentives of the NBN Owning Entity would differ markedly from those of Telstra today. The NBN owning Entity would be legally separated from any retail entity. It would be required to have its own board of directors and management team and it would have a fiduciary duty to operate the network in its best interests and not those of any related retail entity. Compared to the vertically integrated Telstra of today, it would have a significantly reduced incentive to discriminate in favour of one particular purchaser of wholesale services (namely, Telstra Retail) against all others.

5.11 This will assist in addressing the core problems associated with a vertically integrated Telstra today that have so blighted the industry. The NBN Owning Entity will give first priority to its own interests and financial performance. It will have very strong incentives to maximise use of the network. By contrast, today Telstra Wholesale gives priority to the interests and financial performance of the overall Telstra business.

5.12 Structural separation will mean that the NBN Owning Entity should;

(a) Engage in efficient pricing and ensure that all access seekers face the true economic costs in wholesale prices;

(b) Respond favourably to requests by access seekers to develop innovative services.

(c) Offer differentiated levels of access to the network – although these would be offered to all on a non-discriminatory basis.

(d) Have no incentive to engage in price or non-price sabotage against a particular access seeker;

(e) Provide all access seekers with equal access to information important to their planning processes; and

(f) Have a lower cost of capital revealed in financial markets reflecting its lower risks as a standalone network owner.

5.13 This change in incentives for the network owner can be expected to flow through to a more competitive and diverse broadband market. This in turn will deliver very tangible benefits to customers in the form of lower prices and more innovative services. Further, it will best enable the Government to achieve its objectives for the NBN, which include;

(a) Driving future economic prosperity and employment opportunities by opening access to new markets and providing the basis and opportunity for businesses to operate more efficiently and generate significant costs savings and productivity gains;

(b) Improving the competitiveness of small businesses through reduced telephony bills and ensuring they are kept on a level playing field with larger corporate businesses both in Australia and internationally, and

(c) Providing Australian families with access to innovative services in e-education, e-health care and new media and entertainment.

5.14 This is why the case for structural separation is a strong one. It has always been a strong one, quite independent of the arrival of the NBN. These benefits have been recognised by the ACCC:

> *"a vertically separated ownership model could reduce incentives for the access provider to discriminate between downstream users of the access service and, therefore, facilitate strong and effective competition between access seekers in retail markets"*[39].

5.15 However, the development of the NBN provides a unique opportunity to implement this fundamental reform and unlock the true benefits of the NBN through enhanced competition. In this respect Dr Chris Doyle has noted that;

> *"Current arrangements for dealing with discrimination in the Australian regulatory environment are weak. At the very least regulatory policy with regard to the NBN should adopt a more robust functional separation model as the case of New Zealand. If policy makers wish to avoid the additional regulatory intrusion and complexity of functional separation, then structural separation would be the obvious alternative remedy to apply".*[40]

Structural Separation is entirely consistent with Government's plans for the NBN

5.16 It is also worth emphasising that structural separation appears to be entirely consistent with Government's policy objective for the NBN. If the Government holds an equity stake in the entity which owns the NBN, then even if Telstra is the successful private sector bidder, the entity which owns the NBN will be partly owned by Telstra and partly owned by the Government. It will be a legal entity with different ownership to Telstra (including Board representation by Government) and under ordinary principles of company law it will be required to contract with Telstra at arm's length in supplying it with wholesale services. This is a structural separation model – albeit one with a significant degree of common ownership between the NBN operator and the retail level.

5.17 Optus supports a structural separation model – including one based on the NBN Owning Entity being partly government owned.

The ACCC should retain a central role in regulating access to the NBN

5.18 As discussed above, structural separation will be a significant positive step change since it will help to address the issues associated with market power. However, there will be a continued need to regulate the terms of access to the NBN. There are two limbs to the required regulation.

(a) Firstly, the owner of the NBN will be the owner of a network that is the monopoly provider of fixed line voice and broadband services throughout Australia. This will require prices to be regulated.

(b) Secondly, it is also likely that, notwithstanding structural separation, there will be some common ownership. By this we mean that an access seeker, or retail telecommunications provider, may also have an ownership stake in the NBN,

[39] ATUG 2008 Annual Conference, Graeme Samuel – 13 March 2008

[40] Structural separation and investment in the National Broadband Network environment, page 45

either directly or via intermediaries. Should this be the case rules will be required to prevent abuse of such common ownership.

5.19 The ACCC should, therefore, have a central role in regulating access to the NBN.

Setting efficient access prices

5.20 Optus submits that the regulatory model to apply to the NBN should be one that delivers outcomes which are in the long-term interest of end-users. It should encourage efficient investment in infrastructure and provide investors with appropriate certainty, but it should **not** promote investment at the expense of competition. Whilst structural separation will help to set the correct incentives to promote competitive use of the NBN, given the monopoly nature of this infrastructure there will need to be some clear rules to prevent monopoly pricing and ensure that competitive outcomes are promoted.

5.21 Accordingly, a condition for roll-out of the NBN should be the continued ACCC oversight of prices. The ACCC should be concerned to ensure that;

(a) costs are incurred efficiently;

(b) prices are structured in an efficient manner;

(c) revenues do not unreasonably exceed costs; and

(d) investors are able to realise a reasonable return on capital which reflects their true costs of capital. This return should recognise the long-term stable cashflows that are likely to be generated and should not overstate the risk of alternate technologies (which are unlikely to offer close substitutes for NBN services).

5.22 Prices should be set through the application of a price control mechanism with periodic review and approval of those prices by the ACCC. The ACCC would not necessarily be required to sign-off all individual prices rather it would ensure overall reasonableness of pricing. This will require the NBN owner to put forward a detailed price proposal which should include;

(a) full transparency of all the proposed costs, including additional capital expenditure requirements;

(b) the demand forecasts for the next period;

(c) target addresses (during the roll-out period); and

(d) any other assumptions underlying those prices.

5.23 The ACCC should be required to approve the price proposal. However, in a change from today's processes, if the ACCC is not satisfied that the cost inputs, the demand estimates or other assumptions will lead to prices that are reasonable and efficient, then the ACCC should have the power to set prices which it believes are reasonable. Further, an ACCC ruling on prices should have immediate application across the market. This will avoid problems with the negotiate/arbitrate/appeal model that currently blights the industry.

5.24 Optus notes that the above model is consistent with the current provisions for setting prices under the Gas Code. It is also consistent with the powers of telecommunication regulators in many other jurisdictions.

5.25 Implementation of this proposal will necessarily require changes to the current provisions of Part XIC. These should intrinsically recognise that the services to be provided on the

NBN are to be regulated and that such regulation should be implemented by the ACCC. However, investor certainty can be achieved by better defining the precise scope of the ACCC's powers and limiting its day-to-day involvement.

Enforcing separation

5.26 In the event that there is common ownership (i.e. an entity with a significant interest in the NBN also has a related retail affiliate) rules will need to be put in place to prevent abuse of that common ownership by the owner of the NBN and to ensure that there is genuine 'open access' to the network services. These are commonly termed **ring-fencing rules** that will define the governance arrangements between the NBN owner and any jointly owned access seeker. These ring-fencing provisions would include measures to achieve equivalence, on an **equivalence of inputs** basis, for both price and non-price terms of access thereby ensuring that any entity with a common ownership could not abuse its position to discriminate against other access seekers.

5.27 The key elements to effective ring-fencing arrangements will include rules that require the Network owner to;

(a) Implement strict separation of the NBN business from any jointly owned entity, including separate offices and IT systems, accounting and reporting;

(b) Implement strict separation of any directors, managers and employees of the NBN and any jointly owned entity;

(c) Ensure that the salaries and incentives of the managers and directors of the NBN are not influenced by the performance of any related entity;

(d) Separate strategy, marketing and service development functions between network and jointly owned downstream businesses;

(e) Provide wholesale access to all services provided by the network to all access seekers;

(f) Have identical non-price terms and conditions for all services provided on the network (or quality adjusted prices) for all access seekers;

(g) Undertake genuine arm's length transactions (codified by contract) by allowing all access seekers (including any jointly owned downstream operations) to access the same platform for ordering, provisioning, invoicing, billing, fault rectification and reporting;

(h) Commit to provide access pricing on an equivalent and non-discriminatory basis and subject itself to detailed price imputation testing to ensure that such rules are adhered to;

(i) Prohibit information sharing between the NBN and jointly owned downstream businesses (both retail and wholesale) by separating IT systems, prevent staff sharing and prohibiting management overlaps;

(j) Ensure confidential information provided by an access seekers should only be used for the purpose for which it was provided and should not be disclosed to any person without the access seekers express consent;

(k) Have independent oversight over controls between the NBN and any jointly owned downstream businesses; and

(l) Provide a report to the ACCC on compliance with the ring-fencing provisions.

ACCC should enforce any ring-fencing rules

5.28 To ensure that the ring-fencing rules operate effectively or can be enforced, the ACCC should be required to approve the terms of access to the NBN. Any changes to those terms over time should also require ACCC approval. The ACCC should also have the power to take immediate enforcement action to rectify any breach of the ring-fencing provisions. Again Optus notes that the above provisions are consistent with the approaches taken in respect of Access Arrangements made pursuant to the Gas Code.

5.29 To ensure that the ring fencing rules operate effectively and to minimise incentives for gaming those rules the ACCC should be given specific divestiture powers to remedy repeated breach of the provisions.

6. International developments on NGN access

6.1 As noted earlier in this submission, the issues faced by Australia are not unique, they are ones that have arisen in many jurisdictions. Optus submits that in determining the appropriate regulatory framework to apply to the NBN we should look to draw from international best practice from jurisdictions with similar market characteristics to Australia. In this respect, we note that there is growing international support for some form of separation to address the problems associated with vertical integration that we have outlined in detail in this submission. These developments are particularly occurring in those markets – such as Australia – where there is limited infrastructure based competition to the incumbent telecommunications provider.

6.2 The dominance of local access by incumbent telephone companies has been a concern of regulatory and competition authorities since the liberalisation of telecommunications markets. It is an issue faced in many markets. In some markets – most notably the US – infrastructure based competition from cable operators is starting to exercise an important counterweight to the traditional market power of the incumbent telecommunications providers. This has lead some US regulators to pursue a policy of regulatory forbearance – particularly with respect to new fibre investments. However, in other markets where infrastructure based competition is limited (as is the case in Australia) regulators have started to look at more fundamental structural solutions to control the still dominant incumbent telcos.

6.3 To date, a number operators have functionally (or operationally) separated; BT (UK), Telecom NZ (New Zealand), TeliaSonera (Sweden) and Telecom Italia (Italy). eircom has also agreed to functionally separate following a failed attempt to undergo structural separation. In direct contradiction to the impression Telstra is seeking convey, that separation is a failure, early evidence suggests that these new regulatory arrangements have been successful in changing the behaviour of the incumbent and fostering greater competition. Further details on the UK and New Zealand arrangements are set out below.

United Kingdom

6.4 In the UK BT has separated the assets of its local access network into a functional separate Division know as Openreach. This is responsible for maintaining the wires, fibres and connections linking end-users to communications providers' networks (usually at the local exchange but sometimes via backhaul extension from the local exchange to the network of a communications provider). The main products offered by Openreach are wholesale line rental (WLR), local loop unbundling (LLU), extension services (ES) and wholesale leased lines (WLL). Effectively the UK has applied a LoopCo model, addressing competition concerns in a legacy model that arose in around 2003.

6.5 The separation of the local access network emerged from undertakings offered by BT to the regulator Ofcom at the end of a 'Telecoms Strategic Review' (TSR) undertaken during 2004-05 using powers under UK competition legislation. A remedy openly considered by Ofcom during its strategic review was structural separation.

6.6 The Ofcom review of BT was happening at a time when the company was at an advanced stage in developing plans for implementing the rollout of its NGN and it was anxious to resolve regulatory uncertainty about a possible break-up. BT decided that offering functional separation was strategically superior to a possible break-up of the company.

6.7 As a result BT gave legally binding undertakings that;

(a) establish an operationally separated access services division (subsequently named Openreach which came into being in January 2006), located on separate premises;

(b) ensure full equivalence for key access products by agreed dates;

(c) establish an independent Equality of Access Board (EAB) to police the undertakings;

(d) separate operational and management information systems;

(e) ensure greater transparency of processes and erect internal Chinese walls; and

(f) provide for consultation on the development of its next generation networks.

6.8 On 23 June 2005 Sir Christopher Bland, Chairman of BT was reported as saying that the deal with Ofcom struck *"the right balance"* for every player in the market. He also stated that the process *"has been a tough journey but it is important that we have regulation that encourages investment and innovation"*. In the same report Ofcom's then chief executive Stephen Carter welcomed BT's proposal *"on the critical assumption that BT does not merely deliver the letter of the undertakings, but also the spirit"*.[41]

6.9 Despite being in place for only two and half years, the BT model of functional separation has largely been judged as a success. Ofcom has pointed to the facts that nearly three million lines have been unbundled, the large number of competing operators in the market and the new innovative broadband/bundled offerings which have entered the market. BT has also pointed to the fact that it now benefits from a reduction in regulation and that separation has *"created a climate of confidence for infrastructure competition, investment and innovation"*. [42]

6.10 In stark contrast to the line Telstra has pushed about separation stifling investment it is noteworthy that the additional regulatory certainty has enabled BT to recently announce a proposed major investment in an FTTN/FTTP roll-out. Further, in response to criticisms of the UK approach, Ian Livingstone the CEO of BT recently put the record straight in an interview with the Australian newspaper. In responses to Telstra's criticisms he noted that Telstra's executives and directors "might be talking up their own book". He went on to note that:

"A lot of people from these countries tend to be critical of where we have come from but tend not to have the statistics we have,"

"The UK now has the most diverse, competitive and vibrant communications market in the world,'"

"Six years ago, broadband take-up was probably on par with Albania. Today it has higher take-up than Spain, Germany, France and Italy. You might say, you would expect that, but it's also higher than Japan and the US".

"We've also got some of the lowest prices in the world. And there's 200 different companies you can get broadband from in the UK -- everyone from Arsenal Football Club to Z Internet -- and that shows the vibrancy of the market".

[41] See 'BT ducks break-up with price cuts' BBC News at http://news.bbc.co.uk/1/hi/business/4122060.stm

[42] Grant Forsyth the Head of Global Regulatory and Interconnection for BT

New Zealand model

6.11 Building upon the experience in the UK, New Zealand Telecom has recently agreed to implement an enhanced form of functional. This plan includes;

(a) the establishment of at least three separate business units – a stand-alone, arms-length fixed network business network (referred to as the Access Network Services (ANS) unit in the Minister's Determination), one or more arms-length wholesale units, and one or more arms-length business units that provide one or more other functions (for example, retail services);

(b) the establishment of an independent oversight group; and

(c) transparency and equivalence of supply of relevant services and access to Telecom's network.

6.12 Again these measures arose out of a review of the telecoms sector undertaken by the government. The review started in December 2005 in response to evidence that New Zealand was slipping behind its OECD peers in broadband services. The review noted that other OECD countries had moved in the direction of more rigorous pro-competitive regulatory frameworks (including the UK). Analysis undertaken in the review supported the view that the current performance gap would not be resolved by application of current regulatory provisions. The stocktake found that the market for the local loop access bottleneck service dominated by Telecom was restricting the development of effective competition. The government acknowledged that new entrants needed access on fair and non-discriminatory terms to Telecom's network.

6.13 Whilst the New Zealand model has only recently been implemented it has already received much favourable comment. For example, Ernie Newman, Chief Executive, Telecommunications Users Association of New Zealand has recently noted that;

"Operational separation of Telecom NZ has been a huge success. It is all positive; there are no negatives. From the moment the government announced the Separation plan on 3 May 2006, Telecom's behaviours in the market place changed. Before separation it viewed its wholesale customers as unwelcome campers on its network. The moment separation became inevitable, it immediately started to recognise them as valued business partners."

Separation consistent with the migration to NGN

6.14 The specific developments that have emerged in the both the UK and New Zealand above were designed to deal with legacy issues – in particular to help facilitate the development of competition based on local loop unbundling. Critics of separation – such as Telstra and its cheer leaders – point to this as reason not to embrace separation for the NBN. The argument put forward is that separation was implemented to address a specific concern that will no longer exist in a Next Generation Network environment. Further, they point to how changes in technology can make the lines of separation blurred.

6.15 These arguments are wrong on a number of counts.

(a) Firstly, separation was implemented to address fundamental concerns about the incentives of powerful vertically integrated incumbents. This doesn't change with the migration to an NBN – as we have demonstrated in this submission in many respects the problems is exacerbated with the migration to NBN; and

(b) Secondly, in both the UK and New Zealand it was specifically contemplated that the new arrangements whilst applying existing to services would also encompass future services. In this respect the following obligations were applied to Telecom New Zealand;

"A requirement that any future commercial fibre-to-the-premises and access to the NGN core be provided on a non-discriminatory basis; and

A requirement for an arms-length wholesale division that will provide access to key fixed network regulated services, including advanced bitstream services to all service providers (including Telecom)". [43]

(c) Thirdly, local loop technology has not changed for many decades. We can expect that once deployed the Next Generation access technology (such as fibre to the node) will be in place for many years.

Conclusion

6.16 In conclusion Optus submits that policy makers should look to draw from and indeed improve upon international best practice by implementing structural separation. This would represent a clear enhancement to functional forms of separation; it is better suited to an NBN environment and would be less complex to police.

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http://www.beehive.govt.nz/sites/all/files/Telecom%20Operational%20Separation%20Backgrounder%2031%20March%202008_0.pdf

APPENDIX 1

Setting a ULLS Price the Australian way: A tangled web

1999	2002	2003	2004	2005	2006	2007	2008
Aug ULLS declared	**Apr** ACCC Pricing Principles set Band 2 Price 35	**Jan** Telstra AU lodged – Band 2 price $40	**Dec** Telstra revised AU – Band 2 $22	**Aug** ACCC draft decision to reject Telstra's AU	**Jun** ACCC draft decision to reject Telstra $30 AU	**Feb** Telstra commences constitutional challenge to ULLS declaration in High Court	**Jan** ACCC final access dispute ruling – Band 2 price of $14.30
		Oct ACCC model prices Band 2 - $22		**Nov** Optus lodges access dispute	**July** ULLS declared for a further 3 years	**May** ACT rejects Telstra appeal and supports ACCC ruling to reject $30 ULLS	**Mar** Telstra replaces Dec 07 AU with a new AU - $30 for Band 2
		Nov Telstra revised AU – Band 2 $22		**Dec** Telstra withdraws Dec 04 AU and submits 2 new Aus for the period to Jun 08 - $30 averaged national price	**Aug** ACCC interim determination – sets Band 2 price at $17.70 dispute with Telstra	**Dec** Telstra lodges undertaking for Band 2 ULLS only, at $30	**Mar** High Court rejects Telstra challenge
					Aug Telstra appeals ACCC decision to reject AU to ACT	**Dec** Telstra informs carriers that it will charge $30 for ULLS when interim determination	**Apr** ACCC draft pricing principles for 2009 – Band 2 $15.20
							May Telstra indicates it will charge $30 from 1 July

'yes' OPTUS

12 September 2008

Committee Secretary
Senate Select Committee on the National Broadband Network
Department of the Senate
Parliament House
CANBERRA ACT 2600

By email: broadband.sen@aph.gov.au

Senate Select Committee on the National Broadband Network

Optus is pleased to provide the attached report (*Structural Separation for a National Broadband Network*) to the Senate Select Committee on the National Broadband Network (NBN) to assist the Committee's deliberation on the many issues associated with the Government's plans for the delivery of high speed broadband services to 98 per cent of the Australian population

The attached report by CEG was commissioned by Optus to inquire into the economic costs and benefits of structural separation in the specific context of the deployment of the NBN.

The key findings of the report are:

- Without structural separation, Telstra will have very powerful incentives to damage competition in downstream markets that rely on access services provided by the NBN. In fact, regulation of access prices without structural separation may *increase* the incentives of damaging competition in downstream markets.
- These incentives are unchanged by accounting or operational separation regimes.
- Operational separation is likely to reduce the benefits of vertical integration without significantly deterring anti-competitive conduct. Another downside is the fact that effective operational separation will likely see regulation creeping from the monopoly part of the network to potentially competitive areas.
- There are international precedents for structural separation in the telecommunications industry in the context of an NBN.

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Should the Committee be interested in hearing from the author of this report, the author's contacts details are:

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We look forward to an opportunity to discuss our submission with the Committee in the near future. For more information please contact Optus' Government Affairs Team on 02 8082 8005.

Yours sincerely

Maha Krishnapillai
Director, Corporate and Government Affairs

Structural Separation for a National Broadband Network

A report for SingTel Optus

May 2008

Table of Contents

1. Introduction

1.1. Background

SingTel Optus has asked CEG-Asia Pacific to provide a high-level report on the economic costs and benefits of structural separation in the specific context of the deployment of a national broadband network (NBN). In particular we have been asked to consider the economic consequences of a model of separation in which the owner of the NBN, including the local loops, digital subscriber line (DSL) and backhaul equipment is separated from other network and retail activities. An important context to this report is the recent Request for Proposals for the deployment of a high-speed broadband network issued by the Federal Government.

1.2. Summary of main conclusions

The key findings of this report are:

- Without structural separation, Telstra[1] will have very powerful incentives to damage competition in downstream markets that rely on access services provided by the NBN. In fact, regulation of access prices without structural separation may increase the incentives to damage competition in downstream markets.

- These incentives are unchanged by accounting or operational separation regimes.

- Operational separation is likely to reduce the benefits of vertical integration without significantly deterring anti-competitive conduct. Effective operational separation is likely to mean that regulation will creep from the monopoly part of the network to potentially competitive areas.

- International surveys suggest that operational separation has not worked as some had hoped. There are international precedents for structural separation in the telecommunications industry in the context of an NBN.

The basic question facing policy makers is whether monopoly networks should be vertically separated[2] from activities that are open to competition. The key advantage of vertical separation is that it removes the incentives for the owner of the network to act anti-competitively toward its rivals where they face competition.

Structural separation greatly reduces the job of regulating the monopoly network because the regulator no longer has to deal with the efforts of the network owner to 'get around' the access regulation and transfer its monopoly to the competitive part of the market. Of course, regulation of the monopoly activity is still needed, but it no longer

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[1] These incentives would apply to any other vertically integrated owner of the NBN.

[2] We use the terms vertical separation and structural separation to mean full legal separation of the monopoly network and downstream activities. Alternatives to legal separation, including operational separation are considered in a later section of this report.

needs to include the difficult task of monitoring the vertically integrated network owner's efforts to favour its downstream affiliate.

The task of monitoring this activity should not be underestimated. As we discuss, the range of options available to the vertically integrated network owner to either lower the quality of their rival's competitive offers and/or raise their rival's costs is significant, and the assignment for the regulator to sift through 'good' and 'bad' discrimination is arduous and, inevitably, can be only be done imperfectly. .

Vertical separation may result in the loss of other potential efficiencies - the greater the economies of scope between the network and competitive activity, the greater the cost of separation. In the context of the NBN and the separation model discussed in this report these do not appear to be significant and certainly not as significant as they are sometimes portrayed.

1.3. Structure of this report

The remainder of this report is structured as follows:

- Section 2 provides the background to the NBN and provides some theoretical context to the debate regarding structural separation.
- Section 3 outlines the extent of behavioural regulation designed to address vertical foreclosure in the telecommunications industry.
- Section 4 examines the case for structural separation of the NBN.

2. What are the issues?

On 11 April 2008 the Federal Government issued a Request for Proposals for the deployment of a high-speed broadband network to 98 percent of the Australian population. The Request for Proposals specifies a minimum bandwidth of 12Mbps. We understand that such a minimum speed cannot be delivered under the traditional copper local loop architecture and therefore proponents will likely need to deploy more equipment into the local access network.

Regulators have maintained the potential of next generation access networks to promote competition in telecommunication markets. For example Vivian Reding has said that:[3]

> *"For traditional telecom operators full IP networks represent a serious hazard, because it means that services can be platform neutral: we can expect the IP business model of flat rate charging to become increasingly important in traditional telephony as well as added value market.*
>
> *In short: while the decline in revenue from fixed line users has been so far been somewhat offset by the rise of broadband subscriptions, operators are now faced with the VoIP business model that will expose them to a new frontier of competition on their core voice revenues. This might explain some of their reluctance to invest."*

We have discussed the potential reasons for delays in investing in an NBN in a separate report.[4] We note that as the owner of the local loop, Telstra has an incentive to 'hold-up' investment in next generation networks in order to secure regulated terms of access which are above cost.

We understand there is a range of technical solutions that offer so-called next generation capabilities, such as a minimum 12Mbps. These include combinations of fibre and copper with xDSL equipment, or fibre and wireless. We understand that the likely transition path for many areas served currently by copper from exchanges involves replacing some of the copper with fibre optic cable. The resulting increase in broadband capability depends on how close the fibre optic cable gets to the home or business.

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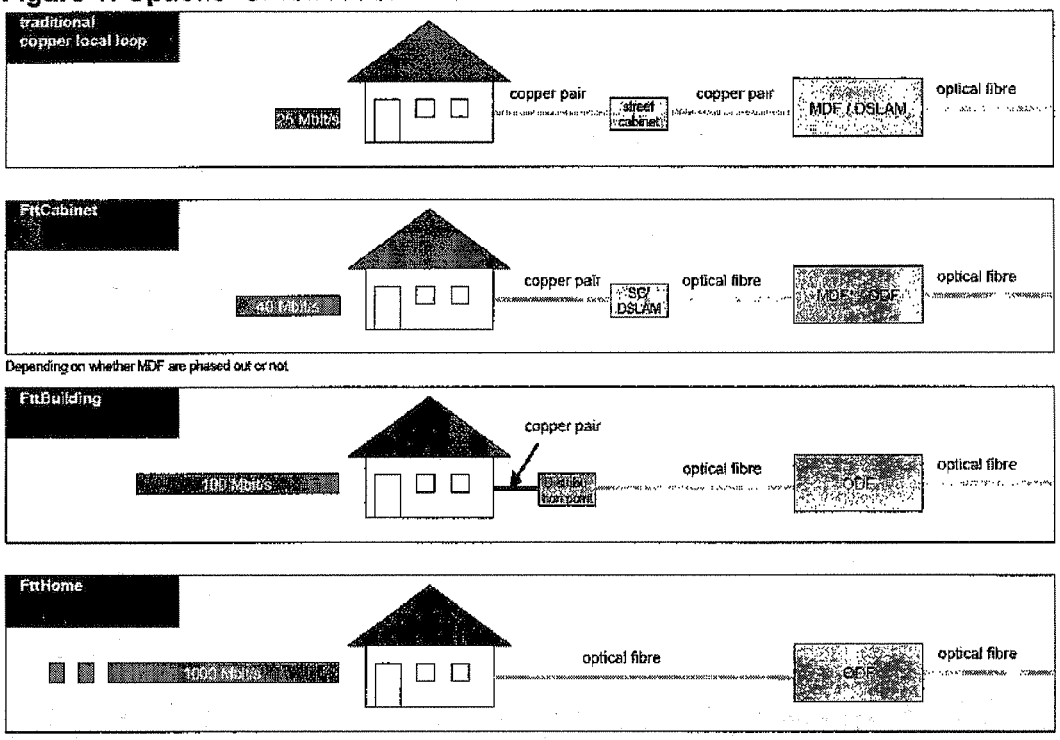
[3] Viviane Reding, Member of the European Commission responsible for Information Society and Media Connecting up the Global Village: a European View on Telecommunications Policy Conference of the International Telecommunications Union (ITU): "Telecom World 2006" Hong Kong, China, 4 December 2006.

[4] CEG (2007), *Economic analysis of sub-loop access*, Report for the G9 Consortium, 5 September.

Figure 1: Options for rollout of fibre



Source: ERG

The Request for Proposals from the Government requires that services provided by the network be subject to an 'open access' model. Various options for physical unbundling (access) of NBNs have been canvassed by regulators[5]. Most involve competitors locating facilities in street side cabinets in order to offer equivalent services to the vertically integrated network owner. In order to do this, competitors would require access to the sub-loop of copper between the street cabinet (or node) and the home. There is a general consensus that the economics of competing deployments at this level of the network will be significantly worse than what exists today with unbundling at the exchange, given the smaller number of customers off a node compared to an exchange. That is, relying on unbundling of the copper loop at the street cabinet (node) will make partial facilities based competition (via accessing the unbundled local loop service) more costly and less attractive than it is today.

If the economics of sub-loop unbundling fails to materialise, competitors currently engaging in partial facilities based competition (via unbundling at the exchange) will need to migrate to service based competition in which they acquire some form of access product – a bitstream service – from the network owner.[6]

2.1. Economics of the local loop and next generation broadband networks

[5] Ofcom (2007), Future broadband: Policy approach to next generation access, 26 September.

[6] We understand that it is conceivable that competitors could continue to provide services using equipment located in exchanges if this is permitted by with the vertically integrated operator. This possibility is not considered in this report.

Vertical integration of the monopoly infrastructure owner and a downstream service provider gives the monopolist a potential incentive to discriminate against (foreclose) its downstream competitors.

In the case of the local loop, a potential constraint on the vertically integrated owner's ability to damage competition is the ability of competitors to bypass (duplicate) the local loop. If a small but significant increase in price above cost by the network owner causes competitors to duplicate the network then the owner will not have the ability to damage downstream competition. That is, the network owner will not have market power because competitors can economically avoid paying monopoly prices or unfair non-price terms by simply duplicating the network.

The economics of duplicating the local loop depends heavily on the density of customers but also on their demand characteristics. Less dense areas increase the average cost of deploying local loops because the bulk of the costs of the local loop is in upfront investments in network infrastructure. Greater demand for high value services, such as subscription television, increase the average revenues available to operators. Replication of the local loops by facilities based competitors has been fairly limited in Australia. The main exceptions being the cable deployed by Optus, Transact and others in some densely populated metropolitan areas.

The courts have noted that facilities based competitors do not provide effective competitive constraint on Telstra's behaviour in most telecommunications markets.[7] Perhaps for these reasons regulation has most recently focused on unbundling the local (copper) loop.

The deployment of an NBN will change the economics of local loop networks. For example the ERG has noted:[8]

> *"[next generation access network] investments are likely to reinforce the importance of scale and scope economies, thereby reducing the degree of replicability, potentially leading to an enduring economic bottleneck. The degree to which this is the case will vary depending on the specific technology deployed, but may mean that effective competition will increasingly require significant scale in order to compete with incumbents' deployments of NGA, even though for the time being it is uncertain what the minimum scale exactly is.*
>
> *It may be the case that, to some degree and in certain locations, these scale economics mean that there is a natural monopoly in certain areas of the electronic communications value chain."*

2.2. Vertical integration

Structural separation, by definition, would result in the loss of any benefits that come from vertical integration. As such, it is important to understand what these might be.

The boundary of the firm has been extensively explored in the economic literature, indeed the existence of the firm and its boundaries is in many ways the foundation of

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[7] Telstra Corporation Ltd (No 3) [2007] ACompT 3 (17 May 2007) at [79] and [80].

[8] European Regulators Group *Opinion on Regulatory Principles of NGA*, ERG (07) 16rev2.

the *Industrial Organisation* literature. In deciding to integrate an activity the business owner takes a decision to bypass the market mechanism and to no longer rely on the information inherent in the market price for that activity. In the words of Coase:[9]

> *"Outside the firm, price movements direct production, which is coordinated through a series of exchange transactions on the market. Within a firm, these markets transactions are eliminated and in place of the complicated market structure with exchange transactions is substituted the entrepreneur co-ordinator, who directs production."*

By vertically integrating a service or activity, the firm avoids the cost of transacting with the market for that service. These transaction costs come in the form of searching and identifying trading partners and writing contracts, but also in the costs of being unable to fully specify a contract and the adverse consequences if this is the case. The savings made by vertically integrating are offset by the loss of efficiency from using the market mechanism (i.e., prices) to signal resource use within the firm's production processes.

Absent the existence of significant market power and the likelihood of vertical foreclosure, policy makers need not be particularly concerned whether the economy is better off from a particular firm integrating an activity or alternatively separating the activity and buying services at arm's length. The efficient answer to the question of what activity should be integrated in the firm will likely come from experimentation in a competitive market by entrepreneurs.[10]

2.3. Vertical foreclosure

There may be a number of reasons why a vertically integrated network owner may favour its downstream affiliate and not make the same cost structure (marginal cost-based prices) available to downstream rivals.[11] This contrasts with the case of a structurally separate network owner who would have strong incentives to make price discrimination available to all downstream operators. This is because by making efficient price structures available to all downstream operators they are more likely to be reflected in retail prices (therefore stimulating sales as intended) and will not distort downstream competition, reducing the potential for double marginalisation.

For the vertically integrated operator, discriminating against its rivals may involve some short term costs in the form of foregone sales because the downstream affiliate does not supply the entire downstream market and may not be as efficient as its rivals. However, under most plausible forms of competition the operator will have an incentive to discriminate against its rivals. For example, economies of scale in downstream markets may give incentives to increase share in that market and scope economies between the downstream market and other markets may give the vertically integrated

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[9] Coase, R. 1937, 'The Nature of the Firm', Econometrica, 4.

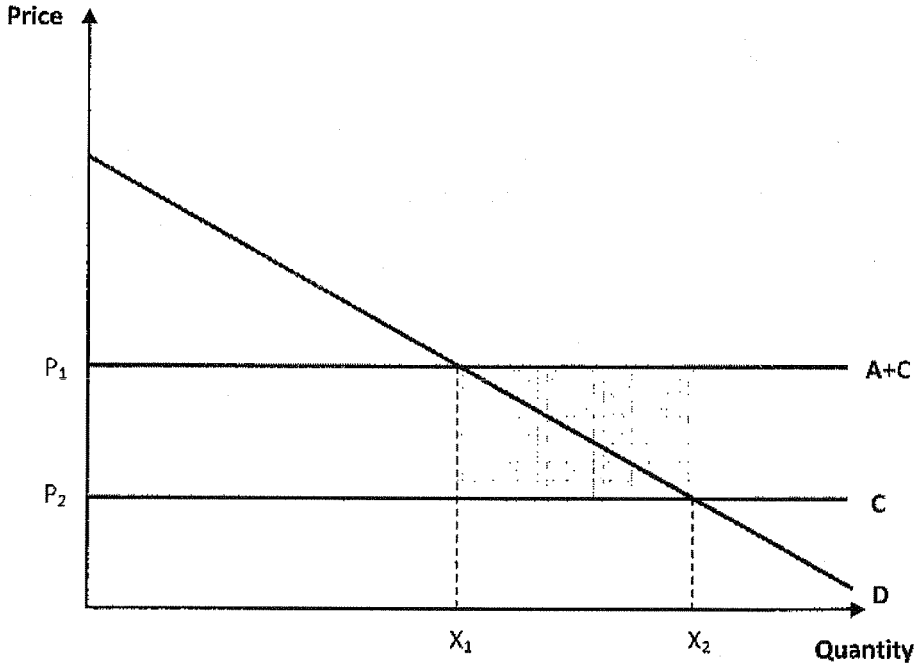
[10] Famously, Hayek has advised policy makers that "If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them. We cannot expect that this problem will be solved by first communicating all this knowledge to a central board which, after integrating *all* knowledge, issues its orders. We must solve it by some form of decentralization." In "The Use of Knowledge in Society", by Friedrich A. Hayek. *American Economic Review*, XXXV, No. 4; September, 1945.

[11] Noll (1995) "The Role of Antitrust in Telecommunications", *Antitrust Bulletin*, Fall edition.

firm the ability to leverage the ownership of the essential facility into other (unregulated) markets.

In addition, the high fixed costs for the vertically integrated monopolist will give it an incentive to implicitly 'price discriminate' through its downstream affiliate rather than for all access seekers. This makes it less likely that other access seekers can compete on an equal footing. This can be seen in the following simple diagram. In this diagram all consumers are assumed to be identical. The marginal cost of producing the access service is assumed to be zero, whilst the average cost (A) is equal to the access charge. The cost of converting the access service to a retail service (C) is constant and assumed to be the same for all operators. The non-affiliated access seekers have a constant unit cost of $P_1 = A + C$. By setting a variable usage charge of P_1 the access seeker can compete profitably with the downstream affiliate of the vertically integrated operator but only if that operator also charges a price equal to P_1.

Figure 2: Asymmetric price discrimination



If, however, the vertically integrated downstream affiliate offers a two-part tariff in the downstream market with a fixed charge of $(P_1-P_2)*X_1$ and a variable price of $P_2=C$, then the access seeker can no longer profitably compete for customers. This is profitable for the vertically integrated firm because, for it, the marginal cost of access is not the access price (A) but the true marginal cost (zero) so their total marginal cost is $C= P_2$. If the access seeker were to match the two-part tariff then it would make a loss of $(P_2-P_1)*(X_2-X_1)$. This is because, for the access seeker, their total marginal cost is $A+C=P_1$. Thus, by selling the additional units (X_2-X_1) at a price P_2 they make a loss of $(P_2-P_1)*(X_2-X_1)$.

Whilst in this case, with the integrated operator's profits held constant, welfare is increased in the short run, competition is foreclosed. This foreclosure of competition allows the vertically integrated downstream affiliate to raise prices and profits in the long run – effectively transferring its monopoly power to the (unregulated) downstream market.

A clearly superior solution to this problem is to have an access charge that is the same for all access seekers (i.e., a fixed charge for all access seekers). With structural separation the monopolist has a strong incentive to do just this in order to maximise total sales. However, this incentive is dampened or reversed in the presence of a downstream affiliate through whom both price discrimination and foreclosure can be given effect.

Regulation, in the form of imputation tests, can potentially be used to limit such conduct. As discussed in the next section, this necessarily involves limits on the pricing behaviour of the vertically integrated downstream affiliate. However, this effectively involves the creep of regulation from the monopoly services (access) to the competitive services in the downstream market. Structural separation offers the potential to make redundant this layer of regulation in the competitive market segment.

We also note that in more complicated demand scenarios (i.e., where all consumers are not identical) the optimal access pricing structure will be considerably more complicated than a single flat charge, involving a mixture of different quality of service and price combinations. The only way that the optimal pricing structure can be determined is if the access provider has an incentive and free reign to find it (a regulator cannot hope to accurately determine this pricing structure as it will never be close enough to customer demand patterns). However, a regulator cannot afford to give a vertically integrated monopoly free reign to set access price structures as it will always have an incentive to do so in a manner that damages its downstream rivals (e.g., increasing prices for quality standards used by rivals disproportionally more and *vice versa*).

Regulations have even more difficulty in addressing 'non-price' discrimination. This is because in the absence of true arm's length transactions and (in the case of a vertical integrated operator) the likely lack of motivation to design efficient ways of serving downstream rivals, reasonable non-price terms are difficult to define. In the context of service design, the potential for non-price discrimination appears higher under an NBN compared to local loop unbundling. This is because under the NBN the technical characteristics of the access product (or service) define the scope for competition, whereas in local loop unbundling the access seekers xDSL equipment and backhaul defined the potential of its service. The unbundled copper loop is after all simply a piece of copper, whilst the bitstream service offered by the NBN operator has, we understand, various layers of internet protocol attached to it which effect the capability of downstream services supplied by access seekers.

Mandy and Sappington identify two broad forms of non-price sabotage:[12,13]

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[12] Mandy & Sappington, (2007). "Incentives for sabotage in vertically related industries," *Journal of Regulatory Economics*, vol. 31(3).

[13] Mandy and Sappington find that depending on the nature of competition in downstream markets, the vertically integrated operator may favour one or the other form of sabotage. If competition does not give parties price setting power in the downstream market, the operator may favour strategies to increase the cost of their rivals supplying the market - by increasing their rivals' cost, the vertically integrated operator gives itself pricing freedom in the downstream market. If this is not the case, and operators' quantity choices in downstream markets affect price (e.g., Cournot style competition), then the vertically integrated operator may have a greater incentive to reduce the attractiveness of its downstream competitor's service.

"Although some forms of sabotage (e.g., engaging in protracted litigation and imposing standards that are particularly costly for rival producers to adopt) may increase rivals' operating costs, other forms of sabotage (e.g., degrading the relative quality of competitors' products and limiting the ability of competitors to test new products and deliver them to customers) may primarily reduce the demand for rivals' products."

Each of these forms of sabotage is considered in the context of the NBN in the following sections.

3. Is Operational Separation the answer?

In the case of a vertically integrated owner of an essential facility, many of the benefits of access can be lost if measures are not put in place to control potential anti-competitive leverage into downstream and related markets. Access regimes which have left the vertically integrated operator competing with access seekers in downstream markets have often been accompanied by behavioural rules on price and non-price discrimination.

These rules are often supported by accounting separation to calculate the transfer prices used by the vertically integrated network owner. These accounts have also been used to test for margin squeezes. Rules to prevent non-price discrimination are increasingly being adopted. These price and non-price rules are sometimes packaged up and described as 'operational separation'. Falling short of structural separation, operational separation may nevertheless involve extensive rules that go to the heart of a network owner's activities.

It must be recognised that operational separation regulations may impose significant transaction costs on the vertically integrated network owner. Operational separation typically involves restrictions on interactions between staff and managers of the business divisions, reporting and monitoring by regulatory officials and the imposition of systems and process that would not otherwise be needed.[14]

The effort to promote competition (such as by unbundling of the local loop) has required more regulation than would be warranted if there was structural separation of the local loop. As access price regulation removes profits from supplying access to essential infrastructure, the monopolist has increased incentives to recapture the profits from its monopoly (lost by access regulation) by distorting competition in the downstream market - perhaps by damaging downstream rivals using non-price means. As Mandy and Sappington note:[15]

> *"Although input prices above marginal cost can induce inefficient consumption patterns, they also can increase the integrated firm's opportunity cost of engaging in sabotage that reduces the demand for the firm's upstream product."*

The cost of behavioural remedies is particularly high if there are significant vertical externalities between the parts of the business being separated. That is, an effective operational separation regime will obstruct the efficiency enhancing co-ordination between the activities and investments of the retail business and the access network activities. This criticism of operational separation is also the customary objection to structural separation.

Notwithstanding the extent of operational separation and behavioural rules, the effectiveness of behavioural regulation in limiting anti-competitive incentives is generally regarded as limited.[16]

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[14] See Section 3.2 for a brief discussion of the scope of operational separation in the UK.

[15] Mandy & Sappington, (2007). "Incentives for sabotage in vertically related industries," *Journal of Regulatory Economics*, vol. 31(3).

[16] Laffont and Tirole (2000), *Competition in Telecommunications*, MIT Press.

For example, pricing rules are unlikely to prevent anti-competitive price discrimination. They are inevitably cumbersome and involve all the well understood pitfalls associated with regulating against 'predatory pricing'.[17] That is, the regulator must understand the dynamics in the competitive sector and must decide when low prices are 'pro-competitive' or 'anti-competitive'. The regulator will often not have the information to be able to determine this accurately, nor the ability to take action in a timely fashion through the courts or other processes.

This is exacerbated by the fact, as discussed above, that access prices are typically based on long run average costs, which in high fixed cost networks (such as the NBN) are significantly greater than marginal costs. This means that whilst an access seeker will base its downstream pricing decisions on the calculated access price, the downstream division of the vertically integrated network owner will have a strong commercial incentive to base its decisions on the true economic cost of the service even if there are detailed operational rules to set transfer prices. As observed above, only the downstream firm will faces the true cost of additional services on the network which will allow it to engage in retail level price discrimination that is unprofitable for access seekers.

3.1. Behavioural separation rules in Australia

In the case of the local loop in telecommunications, the interaction between the local loop and other aspects of the vertically integrated operator's activities are potentially intricate. Policing anti-competitive conduct in these circumstances is difficult. As a result in many jurisdictions, including Australia, the regulations to control the potential for anti-competitive behaviour have been multifaceted.

Since competition was introduced in Australia, telecommunications operators including Telstra have been subject to specific rules regarding their commercial behaviour. These include a specific anti-competitive conduct regime (Part XIB) and record keeping rules which have required accounting separation for some retail and wholesale activities and reporting of imputation tests. The Telecommunications Legislation Amendment (Competition and Consumer Issues) Act 2005 requires operational separation of Telstra. It requires that Telstra maintain separate divisions for retail, wholesale and network services. The purpose of the legislation is "to provide transparency that Telstra is not favouring its own retail activities over the activities of its wholesale customers, while allowing Telstra to obtain legitimate benefits from vertical integration".[18] The Telstra operational separation plan, required under the Act, specifies various and optically significant organisational and operational rules.[19]

Despite the significant extent of behavioural regulation in Australia, competitors and the competition authorities continue to accuse Telstra of anti-competitive discrimination against its downstream rivals. For example:

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[17] Edwards, G (2002) "The Perennial Problem of Predatory Pricing" Australian Business Law Review, Vol. 30, June.

[18] The Parliament of the Commonwealth of Australia, Senate, Telecommunications Legislation Amendment (Competition and Consumer Issues) Bill 2005, Explanatory Memorandum.

[19] http://www.telstrawholesale.com/dobusiness/customer-commitment/operational-separation.htm

- On 12 April 2006, the ACCC issued Telstra with a Competition Notice alleging anti-competitive conduct because Telstra i) increased the price of its unbundled wholesale line rental product; ii) increased the price of its unbundled retail line rental product; and iii) kept the price of its bundled retail line rental products constant. The ACCC Notice alleges that the effect of Telstra's conduct is to raise the cost of its rivals as well as hinder competitors competing for a particular class of customer termed "low spend" customers.

  It is interesting to note that the final allegation is consistent with the conduct discussed above in section 3.2. That is, Telstra as a vertically integrated operator has the ability to discriminate at retail, profitably serving customers that are unprofitable for access seekers to serve because Telstra does not offer the same level of price discrimination at retail that it does at wholesale. In other words, it only offers the efficient pricing structures to its downstream affiliate, not to its downstream rivals.

- On 18 November 2005, Optus lodged an access dispute in relation to the unbundled local loop service alleging a lack of equivalence in the price and non-price terms of access to the service. The ACCC is yet to publish its determination in relation to this dispute. The ACCC has, however, published its determination of a dispute between Optus and Telstra on access to the local loop service in multi-dwelling units, albeit more than 12 months after the dispute was lodged. These lengthy periods, likely following long periods of negotiations, demonstrate the difficulties in sifting through legitimate and illegitimate non-price terms and addressing concerns regarding non-price discrimination.

  To the extent that these disputes relate to non-price terms such as the equivalence of ordering and provision of the unbundled local loop services, then they relate specifically to questions regarding whether Telstra can degrade the quality of their rival's competitive offer. We would suspect that the time taken to order a new service, say when a person is moving house, is an important potential quality differentiator between the vertically integrated operator, Telstra, and its rivals.

- As at 6 May 2008, it has been reported that Telstra has around 47 matters before various courts including the Full Federal Court (1)[20], the Federal Court (13)[21], Administrative Appeals Tribunal (33)[22] and Access Disputes (18)[23]. Protracted litigation is likely to increase the cost of rivals. Telstra has itself been vocal regarding the cost of regulation[24], but anecdotally it appears recently to have increased its use of the courts to resolve regulatory issues.

Whilst it is clearly not within the scope of this report to comment on the merits of each action described above, it appears obvious that within the scope of the existing

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[20] Graeme Samuel's speech 13 March 2008

[21] 12 ADJR actions in the Federal Court on ULLS and LSS arbitration determinations, 1 Federal Court ADJR action regarding administration of retail price controls –Graeme Samuel's speech 13 March 2008

[22] 33 applications to the Administrative Appeals Tribunal for review of the ACCC decisions on Freedom of Information requests –Graeme Samuel's speech 13 March 2008.

[23] ACCC website.

[24] http://www.nowwearetalking.com.au/features/telstra-on-regulation

regulations and the examples described above that there is plenty of potential for the vertically integrated operator, Telstra, to engage in actions that both raise its rivals' costs and degrade the quality of its rival's service.

Critically, if a similar regime were adopted for the NBN then we see no reason for such actions to cease. In fact, these problems may get worse to the extent:

- The additional complexity of the quality dimensions for access of the NBN network make non-price discrimination easier/more effective; and

- The higher fixed costs and greater variety of services to be supplied over the NBN increased importance of price discrimination in the downstream market.

3.2. Operational separation in the UK

Ofcom's Strategic Review of Telecoms concluded that behavioural and organisational changes by BT leading to "real equality of access" for its competitors were necessary to support the growth of greater competition, innovation and investment certainty in the UK telecommunications sector.[25]

Faced with an implied threat of structural separation if it did not make the changes required by Ofcom,[26] BT proposed a legally binding undertaking to form an operationally separate unit called Openreach to manage its access and backhaul networks and the establishment of an Equality of Access Board (EAB) to oversee its implementation. BT also undertook to create two separate divisions within its wholesale division to be responsible for the management of products in which it had significant market power (BTWS) and other products of significance to other operators (BTS) respectively. BT agreed to apply "Equality of Inputs" on certain products, requiring that all customers of its upstream units, including BT Retail, be provided with the same product or service on the same timescales, terms and conditions by means of the same systems and processes with the same commercial information about such products, services, systems and processes.

In order to ensure the equality of access sought by Ofcom, BT made commitments to the behavioural separation of Openreach, BT Wholesale and BT Retail, and between BTWS and BTS within BT Wholesale. The extent of this separation includes staff, management team premises, objectives, performance measurement, incentive remuneration, financial results and operational support and management information systems.

In terms of non-price discrimination, Ofcom's survey of BT wholesale customers in 2006 revealed optimism amongst some about the restructuring but also highlighted concerns about the operation of Openreach.[27] These included:

- Problems with restructuring and delays in service delivery;

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[25] Ofcom (2004), Strategy Review of Telecommunications Phase 2 Proposals, News Release 18 November.

[26] Specifically, Ofcom said "should [operational separation] not deliver real equality of access, a reference under the Enterprise Act, which would no doubt lead to the issue of structural separation being actively considered, might be the only viable option". Page 14.

[27] Ofcom (2006), Survey of BT's wholesale customers, April.

- Fear of compliance issues 'paralysing' some Openreach staff, particularly at the junior levels; and

- Ensuring that equality of inputs does not result in "equally poor instead of equally good" services for all and that Openreach would be able to provide differentiated products to those who wished to purchase these.

Customers rated BT as a "below average" supplier and had not observed any improvements in service quality in the months since Openreach was created.

In terms of BT's pricing in the retail market, we are unaware of any evidence to the effect that the institution of Openreach has had any effect.

4. What is the case for Structural Separation?

Implementing structural separation requires that particular assets and activities of the vertically integrated operator are divested. Whilst horizontal separation has been implemented in some jurisdictions[28] the focus of regulatory debates today is largely around vertical separation between the access network and other network assets and activities. In an NBN environment this might involve separation of the access network including the local loop, deployed fibre, xDSL equipment in nodes and interconnection equipment.[29] Under this model, the majority of network assets and activities will remain in one network operating company.

As discussed above, structural separation needs to be based on a presumption that the network will continue to be an economic bottleneck with enduring monopoly characteristics. As noted by Bijl:[30]

> *"... structural separation makes sense only if local access is a bottleneck or an essential facility, that is, if it is essential to provide services to end-users, and it cannot be economically reproduced because of substantial sunk costs. Since technological change may eliminate the bottleneck nature of certain network elements, one should add the condition that bottlenecks will remain persistent, or at least are expected to do so with a large likelihood."*

In the context of access to an essential (monopoly) network, structural separation has two clear advantages over allowing the network owner to operate in downstream markets. Structural separation:

- Removes the incentive to engage in price or non-price sabotage against particular access seekers and allows all downstream operators to compete on an equal footing; and
- Provides a strong incentive to engage in efficient pricing at the wholesale level such that all access seekers face the same access prices and importantly, face prices that reflect the true economic cost of using the services of the network.

4.1. Assessing separation of the NBN

If competition is foreclosed due to anti-competitive behaviour then the benefits of competition will be lost. Structural separation will protect the benefits of competition. The benefits from structural separation therefore are essentially the benefits of competition that would otherwise be foreclosed. However, there are potential costs of

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[28] In the US, the Bell system was broken up into a long distance provider (AT&T) and seven regional bell operating companies with exclusive franchises over local access markets but prohibited from offering long distance services. The relevance of the success of this form of separation is questionable for case of vertical separation between network and retail functions, because of the absence of retail complementarities in the latter case.

[29] This contrasts with proposals for structural separation of the local loops only.

[30] Bijl, P. (2005), Structural Separation and Access in Telecommunications Markets, Cesifo Working Paper No. 1554 Category 9: Industrial Organisation, September.

structural separation and proposing structural separation requires a careful consideration of the costs and benefits.[31]

Structural separation will tend to be most desirable where:

- Structural separation does not result in a reduction in efficient price discrimination to end users as a result of poorly implemented regulation or if information available to the separated access provider is reduced as a result of separation;
- The greater the importance of the downstream industry segment (and, hence, the greater the benefits of vibrant competition in that sector); and
- The greater the ability to use contracts to effectively co-ordinate activity between the network and downstream market participants.

4.1.1. Price discrimination vital for the NBN to succeed

The costs of the NBN are largely fixed investment costs made at the time the network is deployed. Price discrimination to end users of services on the network is likely to be vital in order to make the investment financeable and to ensure utilisation of the infrastructure is maximised. Offering different quality products at different prices is widely recognised as the most efficient means to ensure that fixed costs are recovered.

Price discrimination is also needed to ensure that end users with low valuations are not 'priced out the market'. For example, if only a single 'maximum speed' product is offered the price that has to be charged to recover fixed costs may need to be so high that some customers, with low valuations of internet usage, may find it unattractive. In this scenario, it will be welfare enhancing to also provide a lower priced 'slower speed' product.

As described in section 2.3, a vertically integrated network owner (and access provider) will have an incentive to engage in price discrimination to end users through its downstream affiliate. This can have positive efficiency effects to the extent that it promotes usage of the network. However, the vertically integrated network onwer will have an incentive to deny access products to its rivals that support the same pricing structures for end users. The end result is that price discrimination occurs through the integrated affiliate and rivals are foreclosed.

However, if vertical separation will result in the elimination of price discrimination to end users then this will involve a cost that must be offset against the benefit associated with avoiding foreclosure of rivals. Potential reasons why a structurally separated access provider will not provide price discriminated access prices are:

- Regulation may explicitly deny it that opportunity or it may give it little financial incentive to do so; and

[31] OECD, (2001), Recommendation of the Council concerning structural separation in regulated industries, Paris.

- The separation of the access provider from the end customer may result in the access provider having insufficient information to accurately determine efficient price discrimination strategies.

In our view, these considerations are of limited concern in the current context. So long as regulation of the structurally separated network owner provides it the incentive to increase usage (sales) and sufficient flexibility in pricing then the network owner will have both the ability and incentive to engage in efficient price discrimination. In the Special Access Undertaking offered by FANOC such a pricing model has been proposed – a weighted average price cap. Under this pricing model, FANOC will derive a financial benefit if it can increase utilisation of the network. Moreover, if the objective of equivalence of access to the bitstream service offered by the NBN is to be achieved then quality differentials will need to occur at the wholesale level rather than at the retail level.

In terms of gathering information on end users demand, the network owner will be able to determine this directly as variations in demand at the end user level will impact on demand for its own access products. In any event, the structurally separated network owner and access seekers will have an incentive to share information to seek efficient prices. For example, if any access seeker believes that a particular price/quality combination would be popular they can request that the structurally separated network owner provide that combination.

Structural separation may also provide more certainty for access seekers to invest in service innovation, simply because they face less risk of being discriminated against by a rival who may seek to strand that investment by, for example, modernising the network in such a way as to make the investment obsolete or at least less commercial. A consequence of the next generation of networks appears to be a greater independence between services and the technology of the access lines. This may be in part because of the move from circuit-switched communication to completely or partly IP-based.

4.1.2. Potential for innovation on the NBN

The more important the downstream industry segment in which competition occurs, the greater are the potential gains from competition. Competition drives productive and investment efficiencies that will be larger with more facilities based competition. As observed above, the likely access model in the NBN involves limited facilities based competition because of the difficulties of unbundling the network elements and hence a return to service based competition. However, it is commonly reported that service based competition in the NBN environment will be rich in applications, service platforms and content (e.g., television). If this is borne out then the cost of access will not be as significant a component of the overall charge for services delivered on the network, implying there are potentially significant gains from separation at the service layer. In fact, if this were not the case then it would be optimal not to provide access at all – and simply regulate the retail prices of a vertically integrated monopolist directly.

The greater the potential for innovation in the downstream market the more valuable to society is vibrant competition in that market. We understand, as discussed above, that there is substantial scope for innovation in the retailing of NBN products. Consequently, a key benefit of structural separation would be promotion of that innovation (by removing the threat of vertical foreclosure).

4.1.3. Contracts in a structurally separated environment

A potential cost of structural separation exists if vertical integration allows the network owner's business divisions to avoid costly contract negotiations – where the costs include not just legal fees but also any limitations to the sophistication with which contracts between separated parties can be written. For example, a firm where IT is critical to their business might prefer to employ its IT team in-house rather than outsourcing due to the difficulty of specifying a contract that ensured they had access to the quantity and quality of IT professionals when they needed them. That is, the difficulty of fully specifying a contract might make vertical integration with IT preferable to outsourcing IT.

Opponents of structural separation are typically pessimistic of the ability of contracts to co-ordinate activity.[32]

However, this sort of consideration does not appear to be as relevant for the NBN. The type of services provided will, we understand, be able to be clearly specified in contracts. Indeed, even under vertical integrated operations it is envisaged that such contracts will be used by the non-affiliated retailers (the so-called open access model). In addition, and as noted previously, separation of the local access network in an NBN environment at a point above the xDSL and transmission equipment limits the extent of scope economies between the retail and operational functions because control of most network assets is under the control of one entity. This fact makes co-ordination between activities at the service provider level more easily dealt with by contracts and limits the likelihood of hold-up.

The potential for contracts to address objections to structural separation has been summarised by Cave and Doyle as:[33]

> *"There are thus numerous examples, some of them discussed above, others summarised in literature reviews and collections, of how flexible and sophisticated contract design can overcome problems of opportunism. Examples of such methods are long-term contracts, take or pay arrangements, demand projections made by disinterested third parties, and customer engagement. These methods do not solve all the problems which result from regulation in conditions of asymmetric information, but they can solve or mitigate problems associated with separation, and allow consumers to benefit from the advantages of separated structures."*

It is difficult to know with certainty what model would prevail in the industry absent the incentive created for the owner of the (regulated) monopoly network to be vertically integrated. However, it is evident from the analysis in the report that in the context of the NBN the vertical externalities in the operation of the NBN and downstream service provision appear more limited, certainly more limited than in the case for separating the local loop. As noted below, the threat of strict controls on anti-competitive vertical activity may create incentives to voluntarily separate activities and the example of eircom should be noted as a case where this theory appears to be reflected in practice. In other words, absent the ability to implement vertical foreclosure strategies it appears eircom is itself pursuing vertical separation. A strategy which suggests that that absent

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[32] Ergas (2007) Vertical Integration, Vertical Separation and the Efficiency Consequences of the G9 SAU, 6 August.

[33] Cave, M. & Doyle, C (2007), *Contracting across Separated Networks in Telecommunications - Lessons from Theory and Practice.*

the anti-competitive aspects of a vertical relationship the vertical externalities are not as significant as they are portrayed.

4.2. Experience with structural separation

Structural separation has been the default form of regulation in the electricity and gas industry in Australia and in many jurisdictions. Structural separation has also been implemented in a number of other industries including water and rail. The success of structural separation, particularly in rail, has been criticised. Compared to other industries such as railways, telecommunications appears to be favoured in the literature as a more natural candidate for separation.[34]

In telecommunications, voluntary separation has been proposed by both Telecom in New Zealand and by eircom in Ireland. We understand that in New Zealand, Telecom is now proposing a form of operational separation but eircom appears to be continuing to pursue voluntary structural separation. The motives for voluntary separation appear to be two-fold, i) the risks for investors in particular assets would be more clearly defined and ii) an increase in regulatory certainty.

We understand that mandatory separation is unlikely to be legal in many European countries[35] (with an important exception being the UK) and hence the European Commission does not have structural separation as a "remedy" but it does have the capacity to approve functional separation models imposed by regulatory authorities in the EU.[36] In the UK, Ofcom canvassed structural separation of BT but in the end accepted operational separation. Ofcom specifically considered recommending an investigation into structural separation by the Competition Commission. It noted:

> *"Such an investigation would be wide-ranging. The Competition Commission would be able to impose structural remedies. It could, for instance, examine whether the only solution to the problem of inequality of access would be the separation of BT's wholesale network operations and its retail service provision. In our view structural separation of the network infrastructure would be a complex and difficult task, nor would it eliminate the need for regulation. It would represent a seismic change to the UK industry structure, but it may unlock value and improve customer service, innovation and competition in the mid to long term."*

Arguably because of the capacity of Ofcom to threaten structural separation, it maintains greater control over BT's conduct as a vertically integrated operator.[37]

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[34] See Gomez-Ibanez J (2003) *Regulating Infrastructure: Monopoly, Contracts and Discretion*, Harvard University Press.

[35] Cave, M. & Doyle, C (2008), *Separation and Investment in Telecommunications Networks: A Review of Recent Practice.*

[36] European Commission (2007) Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and services, and 2002/20/EC on the authorisation of electronic communications networks and services, COM(2007) 697 final.

[37] Bijl, P. (2005), Structural Separation and Access in Telecommunications Markets, Cesifo Working Paper No. 1554 Category 9: Industrial Organisation, September.

Structural separation has been mandated by regulators and competition authorities, in merger cases, in a number of jurisdictions. Cave and Doyle (2008) survey various cases of structural separation in the US, Germany, Mongolia and Portugal.[38]

Closest to home and in the context of a tender for an NBN deployment, the regulator in Singapore is including structural separation of the network company (the owner of the passive fibre and ducts) as a requirement of proponents responding to its request for proposals. The regulator has said that: [39]

> *"It is also critical for the Next Gen NBN to provide effective open access to downstream operators. This will create a more vibrant and competitive broadband market. As a policy, we have therefore decided to adopt separation between the different levels of the Next Gen NBN to achieve effective open access. The RFP to construct the network will therefore provide for structural separation of the passive network operator from the downstream operators."*

The regulator has, however, only imposed operational separation between the operational company, the company that owns the switches and transmission infrastructure, from any of its downstream retail affiliates. It is worth noting in this regard that in Singapore there are a number of operators with local fibre loops.

[38] Cave, M. & Doyle, C (2008), *Separation and Investment in Telecommunications Networks: A Review of Recent Practice.*

[39] Media Release, Singapore's Ultra-high Speed Digital Highway Ready by 2015, Singapore, 11 December 2007.

'yes' OPTUS

12 September 2008

Committee Secretary
Senate Select Committee on the National Broadband Network
Department of the Senate
Parliament House
CANBERRA ACT 2600

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Senate Select Committee on the National Broadband Network

Optus is pleased to provide the attached report (*Structural Separation and Investment in the National Broadband Network Environment)* to the Senate Select Committee on the National Broadband Network (NBN) to assist the Committee's deliberation on the many issues associated with the Government's plans for the delivery of high speed broadband services to 98 per cent of the Australian population

The attached report by CEG was commissioned by Optus. The author is Dr Chris Doyle, an Associate of the Centre of Management under Regulation at the Warwick Business School and the Department of Economics, University of Warwick, United Kingdom.

The report considers investment and innovation effects of vertical separation remedies applied to a next generation network (NGN) operator in Australia offering fibre to the node (FTTN).

It notes that the measures to ensure non-discrimination on the part of Telstra fall woefully short of the regulatory measures that have been applied in New Zealand and the United Kingdom. In the latter, regulators have facilitated functional separation and accepted legally binding undertakings submitted by the respective incumbents.

The report concludes by arguing that structural separation has a number of attractive features in the context of the Australian NBN process.

Should the Committee be interested in hearing from the author of this report, the authors contacts details are:

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We look forward to an opportunity to discuss our submission with the Committee in the near future. For more information please contact Optus' Government Affairs Team on 02 8082 8005.

Yours sincerely

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Director, Corporate and Government Affairs

Structural separation and investment in the National Broadband Network environment♦

A report for Optus
FINAL

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♦ This is a revised version of a paper having the same title that was made public on 18 June 2008.

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About the author

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He has a Ph.D. in economics from the University of Warwick and has held senior positions at Cambridge University, London Business School, and Gonville and Caius College, Cambridge. He has also held visiting positions at Charles University, Prague; INSEAD in Paris and Queen's University, Canada.

Dr. Doyle work on regulation and competition issues in telecommunications has been published widely, and he has presented seminars and lectures at numerous universities and major industry conferences.

He is currently advising a number of clients on matters related to the separation of incumbent operations, and provided advise to the incumbent operator Eircom in Ireland (owned by Babcock & Brown) on voluntary structural separation. Dr. Doyle also advised the Communications Regulatory Commission in Mongolia earlier this year on the implementation of a government sponsored structural separation policy.

Dr. Doyle provides independent economic consulting services to a broad range of private and public sector clients in the telecommunications sector and is currently advising several national regulatory authorities on a range of issues including: market liberalization, licensing, spectrum management policy and competition policy.

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Executive Summary

The Australian Government is committing $4.7 billion of public funds to enable the extension and development of a high-speed National Broadband Network (NBN) delivering services reaching out to 98% of the population. In this report the author examines the impact of proposals for structural separation in the context of the NBN.

The economic arguments for and against structural separation are elaborated. On the one hand, the costs of a network might be higher as a result of structural separation because coordination between retail activities lying downstream and investment activities in the network upstream are disconnected. On the other hand, structural separation is favourable for downstream competition as it removes the incentives for discrimination – the regulated monopoly network which is independent of the downstream retailers is interested in maximising profits by selling to as many of the retailers as possible. Competition effects may dominate investment effects.

Structural separation is argued to be more appealing than alternatives such as operational or functional separation as it requires a lighter regulatory framework. It is also unclear whether the costs of requiring structural separation in the NBN context would be greater than the costs associated with implementing an alternative regulatory environment that would deliver equivalence of inputs and non-discrimination, such as functional separation.

The paper addresses the conceptual arguments surrounding separation and discusses some of the literature that has examined the impact of separation on investment. To date, it appears there is little compelling evidence on this issue, but a number of academics have noted that structural separation does not appear to jeopardise investment. As investment harm forms the cornerstone of the opponents' position on structural separation, the author suggests in the context of the NBN that this concern may be over-stated.

The author discusses in detail the application of vertical separation remedies in telecommunications and focuses on the application of measures in Australia, New Zealand and the UK. He argues that the measures to ensure non-discrimination on the part of Telstra fall woefully short of the regulatory measures that have been applied in New Zealand and the UK. In the latter, regulators have facilitated functional separation and accepted legally binding undertakings submitted by the respective incumbents.

The arrangements operating in New Zealand and the UK have not been in place for long enough to determine their effectiveness, with functional separation not completely implemented in both countries. Nevertheless, the structures that have

been erected are elaborate and embed and deepen regulatory activities. One communications provider in the UK has stated:

> *"The creation of Openreach* [the access network services company formed as a result of functional separation] *is fundamentally flawed because if Openreach is to work properly, the way the regulator wants it to, you are asking the main board directors of BT to make decisions that are not in the best interests of shareholders. I find it odd that anyone would have thought it could possibly work given that structure and the fundamental conflict involved."*

And went on further to state that:

> *"BT selling Openreach is one route to what I have always advocated, which is a full structural separation of the business"*[1]

The report concludes by arguing that structural separation has a number of attractive features in the context of the Australian NBN process. At the very least, policy with respect to the NBN should adopt a robust functional separation model as in the case of the New Zealand approach towards its vertically integrated incumbent operator Telecom New Zealand.

[1] John Pluthero, CEO of Cable & Wireless UK (one of BT's main wholesale competitors). See The Guardian newspaper in the UK, May 29, 2007, available online at http://www.guardian.co.uk/media/2007/may/29/internet.digitalmedia.

1. Introduction

The purpose of this report is to consider investment and innovation effects of vertical separation remedies applied to a next generation network (NGN) operator in Australia offering fibre to the node (FTTN). It has been proposed by the Terria consortium[2] bidding for the National Broadband Network (NBN) tender that structural separation is desirable:

> *"The G9 submits that the only appropriate policy response to protect and promote competition on the NBN, regardless of who builds the network is to ensure that there is structural separation between the entity which owns the NBN and any entity which delivers retail services over the NBN."*[3]

Where structural separation is offered voluntarily, as is the case by the Terria consortium, it seems reasonable to adopt a permissive stance, as argued by Cave and Doyle (2007a):[4]

> *"For this reason we believe that no barriers should be placed in the way of proposals from operators to separate vertically"*

The debate on the effects of vertical separation in telecommunications has a long history[5] and focuses on two key areas:

1. Investment; and
2. Competition.

It is often contended, though rarely substantiated, that mandated vertical separation is bad for investment. It is often asserted that vertical separation undermines *coordination*[6] among the different parts of the value chain and in the case of large scale durable and irrevocable investments this may precipitate *opportunistic* behaviour. Both these effects, in theory, would tend to dampen investment incentives. It is then argued

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2 The Terria consortium was formerly known as the G9 consortium.

3 Para. 2.3 in the G9 'Submission to the Expert Panel for the National Broadband Network', 28 March 2008.

4 See also Lehr and Hubbard (2003) on the case for voluntary structural separation.

5 A recent collection of papers on vertical separation in telecommunications in the context of the NBN debate can also be found in the *Telecommunications Journal of Australia*, May 2008, volume 58, number 1.

6 For example, Cave (2002) raises investment coordination as the main factor against structural separation in modern telecommunications networks. This position was also robustly presented in Crandall and Sidak (2002). Cadman and Carrier (2002) responded to Cave and argue "while there would certainly be a need for co-ordination of investment activities in a structurally separated market, this is no different to the situation today and is actually likely to be better. Indeed it could be argued that greater investment coordination would be a good problem to have as it suggests that both investment and innovation are more intense" (page 11).

by many commentators and economists that the best organisational form is vertical integration, as this overcomes both problems.[7]

On the other hand linking upstream and downstream activities via vertical integration can and has been shown to compromise competition. In particular competition concerns arise where some parts of the value chain can accommodate competition (such as the retailing of telecommunications services) whereas others are better suited to monopoly (such as the provision of fibre to the node and related access network facilities). Vertical integration in this setting poses competition dangers, as an integrated entity will be tempted to *leverage* market power residing in the monopoly segments into the prospectively competitive segments.

As von Hirschhausen *et al.* (2004) state in their review of utility regulation:

> *"In many and probably most cases, vertically integrated utilities have strong incentives to discriminate against potential competitors"*

This point is also echoed by Joskow (2006) in a survey on vertical integration:

> *"there is little support for the antitrust law's traditional suspicion of and hostility toward vertical integration and related non-standard vertical contractual arrangements except under extreme conditions where firms controlling bottleneck monopoly facilities have the incentive and ability to exercise an anticompetitive foreclosure strategy."*

Finally Economides (1998) reinforces the message regarding firms that control bottleneck facilities:

> *"This paper finds that a monopolist in the essential input market has an incentive to practice non-price discrimination against its downstream rivals."*

1.1. Non-price discrimination or *sabotage*

Vertical competition concerns involving non-price discrimination in telecommunications markets have heightened over the last few years and have prompted debate in the economics literature.[8] One of the areas of inquiry in the academic literature is a focus on the incentives for a vertically integrated firm to engage in anti-competitive *non-price* discrimination against non-integrated downstream competitors, a situation referred to as 'sabotage' in the literature.[9]

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[7] Vertical integration as the preferred organisational form was essentially the thrust of the argument in an appendix of a Telstra submission concerning the NBN, see Ergas (2007).

[8] For example see Bernheim and Willig (1996), Economides (1998), Kang and Wiseman (2001), Reiffen, Schumann and Ward (2000) and Zimmerman (2003).

[9] See Beard, Kaserman and Mayo (2001).

Sabotage can involve strategies intended to *increase rivals' costs* and/or strategies to *reduce rivals' demands*, for example by limiting the ability for competitors to test products and deliver them to customers.[10] Sabotage has the effect of depressing competitive constraints downstream – which is good for the integrated firm's downstream profits – but it also has the effect of reducing demand for upstream wholesale inputs, which is bad for the integrated firm's profits.

The net effect of sabotage will in practice depend on competitive conditions in the downstream market, on the direct costs of applying sabotage strategies and on the magnitude of the countervailing upstream effect. Mandy and Sappington (2007) have presented an analysis of the different forms of sabotage within a stylized theoretical setting. They show that cost-increasing sabotage is typically profitable under both Cournot and Bertrand competition. By contrast, demand-reducing sabotage is typically profitable under Cournot competition, but unprofitable under Bertrand competition. They also show that as products become more homogeneous the incentives for sabotage often increase. This is due to the fact that sabotage will result in a larger favourable demand shift for the integrated firm's downstream affiliate and a lower demand reduction for upstream wholesale elements.

Concerns about non-price discrimination or sabotage have resulted understandably in calls for regulatory intervention. Ofcom's *Strategic Review of Telecommunications* in the UK, which was launched in April 2004, focussed in part on these concerns.[11] The Ofcom Review considered the merits of structural and functional (operational) separation of the incumbent BT. In the end Ofcom elected not to mandate structural separation and instead accepted legally binding undertakings for functional (i.e. operational) separation.[12]

A number of economists have also inquired into the merits of partial or complete divestiture – equivalent to functional and structural separation – see Crew, Kleindorfer and Sumpter (2005) and Sappington (2006).[13] Crew *et al.* examine vertical divestiture by highlighting the central trade-off between sabotage (bad) and scope economies or synergies (good). Separation inevitably compromises scope economies but can eliminate the incentives for sabotage. While their analysis is theoretical, it provides a useful framework for assessing the merits of vertical divestiture in practice. Sappington demonstrates that vertical separation is preferable to vertical integration for end-users when the costs of the non-integrated rivals "are sufficiently similar".

The academic debate on the merits of separation is not complete, Sappington (2006) states that many of the issues await further research. Nevertheless, economists have

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[10] Mandy and Sappington (2007).

[11] Ofcom (2004).

[12] Ofcom (2005a,b)

[13] Crew *et al.* address an industry structure in which downstream competition is assumed to be Cournot (the strategic variable is quantity or capacity). Sappington considers the case of Bertrand competition – where firms choose price to maximize profits.

in recent years developed a clearer understanding of the effects of sabotage and there are circumstances where vertical separation – either structural or functional in form – would result in enhanced economic welfare.

1.2. Next generation access and discrimination

The consumption of telecommunications services by end-users, residential and business, has evolved over the last ten years or so from being voice centric to data centric. In particular, the increasing pervasiveness of broadband has transformed the sector. Enabling this change has been the development of Digital Subscriber Line (DSL) technologies, the use of IP technologies and the deployment of fibre optic cables.

In Australia broadband services are offered over both wireless and fixed platforms, with the majority of end-users receiving services via fixed infrastructures. Figure 1.1 illustrates the degree of broadband penetration in Australia against its OECD peers at December 2007. It can be seen that Australia lies above the OECD average and is comparable to the United States. Most broadband services in Australia are currently provided over DSL technologies.

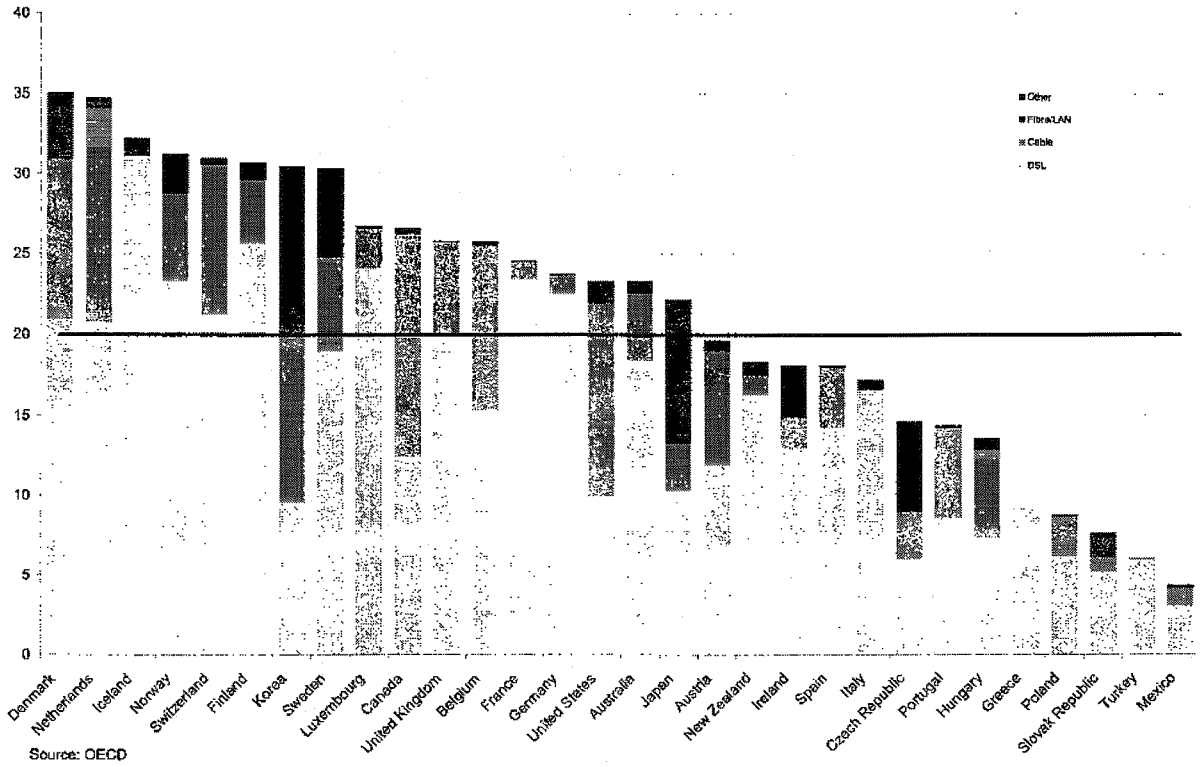
DSL technologies are able to offer speeds up to a theoretical maximum in excess of 100Mbps using VDSL (very 'high bit rate' DSL). However, these speeds are only achievable under optimal conditions and on lines in very close proximity to local exchanges. Optical fibre offers symmetric bit rates over 100Mbps over distances far beyond the capability of VDSL. The NBN is designed to blend the advantages of VDSL (high-bit rate local delivery) and fibre (high-bit rate over distance) by supporting a roll-out of FTTC (Fibre to the Cabinet) (which is equivalent to FTTN).

FTTC/FTTN takes fibre from the local exchange to the street cabinet, thereby extending higher speed lines closer to the end-user. Copper from the street cabinet to the end-user, being relatively short in distance, will enable VDSL to be deployed. Furthermore, it is possible that wireless distribution may be used from the street cabinet, though its performance is less likely to match that of VDSL. An alternative to FTTC is FTTH (fibre to the home), but this involves considerably much more investment as fibre is needed to be rolled out to each end-user's premises.

Because high bit rate access technologies can support a richer array of services, in particular video and high definition TV, there are increased economies of scope. The substantial set up costs of a NBN and the economies of scope across services enabled on the platform suggest it would be economically sensible for Australia to roll out only one high-bit rate national network. This viewpoint was also echoed in comments made by the European Regulators Group (ERG) on NGA (next generation access) technologies:[14]

[14] ERG (2007) pages vi and vii.

Figure 1.1: OECD Broadband subscribers per 100 inhabitants, by technology, December 2007



http://www.oecd.org/sti/ict/broadband

"NGA investments are likely to reinforce the importance of scale and scope economies, thereby reducing the degree of replicability, potentially leading to an enduring economic bottleneck....It may be the case that, to some degree and in certain locations, these scale economies mean that there is a natural monopoly in certain areas of the electronic communications value chain...NGA may be likely to, at least, provide the same competition challenges to regulators as current generation wireline access networks."

The strength of incumbent players like Telstra in wholesale local access markets raises justifiable concerns about discriminatory anti-competitive conduct or sabotage. While competing infrastructures have lessened the extent to which market power is exercised by incumbent operators, the evolution to NGN (next generation networks) and NGA will tilt the playing field against newer operators lacking network access ubiquity.

NGA coupled with simultaneous roll-out of NGN in Australia would likely reinforce and entrench market power. In this context Marcus and Elixmann (2008) have remarked recently on the regulatory implications of NGN and NGA:[15]

"it is clearly premature to assume that market power will no longer be a concern Unfortunately, some familiar forms of market power are likely to persist well into the future – most notably, access associated with last mile facilities."

1.3. Structural separation remedies to counter sabotage

The emergence of new technologies and the observation that incentives for sabotage will be strong in the presence of bottlenecks has led regulators to seek appropriate remedies. These can take the form of *behavioural remedies* – which act on the conduct of firms (such as regulation of access prices) – or *structural remedies* which change the organizational form of a firm found to possess market power and consequently change the structure of the market. In recent times there has been a shift towards considering and applying structural remedies for dealing with problems of sabotage.

The move to separate vertically integrated incumbent telecommunications operators has gathered momentum in Europe since the functional separation of BT in 2006. Legislators in Sweden will shortly enact legislation to allow the regulator PTS to mandate functional separation. The regulators in Italy and Poland are also actively considering additional measures to vertically separate their respective incumbent operators. The European Commission (EC) is also proposing amendments to legislation to allow national regulatory authorities to apply functional separation.[16]

Leveraging market power in telecommunications is a live and real issue and is becoming more pertinent in the context of NGN and NGA investments.

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[15] Marcus and Elixmann (2008) page 23.

[16] See PTS (2007) and EC (2007).

1.4. Overview

In this paper I discuss whether structural separation, undertaken to deal with vertical competition problems, would compromise investment incentives in telecommunications. I start by looking at the economics of vertical industries and whether the economic case for integration is self-evident in the context of NGN and NGA evolution. I conclude that vertical integration is not the default or only organisational form for a company offering FTTN facilities.

This is followed by a look at the different vertical separation remedies available to regulators. I show that there are essentially three broad classes of remedies available. I address, by way of case study analysis, the application of different vertical separation remedies in the UK, New Zealand and Australia. I conclude by arguing that current arrangements in Australia for dealing with non-discrimination and the leverage of market power are weak and do not constitute the robust models of functional or operational separation applied in New Zealand and the UK.

I also conclude overall that structural separation in modern telecommunications and in the context of the NBN need not jeopardise investment. Further, in the NBN setting structural separation would help simplify and lighten the regulatory burden. The simplification of regulation point is echoed by Kirsch and von Hirschhausen (2008) in their discussion on NGNs:

> *"Structural separation can supplement access regulation where the potential for infrastructure competition is low"*

And the view that investment need not be jeopardised is supported by von Hirschhausen *et al.* (2004) in a review of investment effects across a range of regulated utilities:

> *"The vertical separation of utilities may lead to new, more complex coordination mechanisms, but this is not necessarily bad for investment"*

Gomez-Ibanez (2003, pp. 326-339) in an extensive review of regulated infrastructures estimates that the net benefits of separation in telecoms are *positive*, and *higher* than in any other 'mass market' sector he considers, despite the presence of some interdependence of network elements.

2. Vertical integration and telecommunications

The supply of electronic communications services to end-users involves the use and sale of network elements (physical infrastructure – pipes and access nodes), the provision of content and applications (voice telephony, email, video streaming, messenging, etc.) and customer retail management (billing, customer care, etc.). Firms operating in the sector decide what to 'make' and what to 'buy' – that is they supply services through a combination of in-house production and out-sourcing.[17] For example, a telecoms company may build and operate its own network and outsource customer care services. Alternatively, a telecoms company may choose to outsource network build and operation to a specialist company and choose to concentrate on customer relationship management.

In a recent survey of vertical integration and firm boundaries by Lafontaine and Slade (2007), they highlight three factors influencing the make versus buy decision.[18] Before discussing these, it is helpful to illustrate the framework used by economists to characterise firms operating in a vertical framework.

At the apex of the vertical structure lies the principal (shareholders) who designs an incentive scheme (contracts) for managers lying below. Because shareholders are usually unable to observe all the events that affect a firm's day-to-day performance, contracts need to be carefully constructed to reward (and therefore induce) effort rather than luck. Hence contracts feature more reward for better performance. On the other hand, employees may prefer to be sheltered from exposure to bad outcomes arising from events beyond their control. Insurance may be provided in contracts in the form of stable salaries. The insurance role and effort inducement role of contracts are important factors which determine what to make rather than what to buy.[19]

The Lafontaine and Slade three factors influencing the make versus buy decision are discussed in the following sections.

2.1. Moral hazard

Where (downstream) managerial effort is important and information about factors influencing performance not easily obtained, it may be better to organise production via contracts (buy) rather than produce in-house.[20] This is because production in-house runs a risk of moral hazard, as insurance provided within a firm (in the form of a basic salary) does not induce sufficient effort. By outsourcing functions, a firm can negotiate

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[17] The decision by firms of what to buy-in as opposed to what to make has been extensively analysed in the academic economics literature, building upon the seminal contribution of Coase (1937). It is a decision that telecoms companies make taking into account operational and strategic consequences.

[18] See also a survey on the theory and the empirical literature applicable to vertical integration by Joskow (2006).

[19] See Laffont and Martimort (2001).

[20] The converse also holds – the more important upstream effort the more likely an integrated structure is superior.

contracts that provide better incentives for external (usually downstream) agents to behave appropriately and therefore minimize moral hazard. However, in riskier environments the value of insurance is higher and this may better suit in-house production.
Comment: Arguably the evolution towards IP networks and the greater emphasis on service diversity raises the significance of downstream effort. This suggests that downstream managerial effort will become more important as the nature of end-products becomes more sophisticated. Therefore companies are likely to find that there are increasing benefits to be obtained by separating retail activities from upstream wholesale network activities.

2.2. Transactions costs

Transaction costs are the costs of establishing and administering business relationships within and between firms. These costs include those associated with opportunistic behaviour and haggling *ex post*. Writing contracts is costly and it may not be possible to cover all contingencies (as some are not foreseeable and others may be too complex). Where contingencies are not easily captured in a contract this can give rise to *ex post* opportunism, particularly if parties to a transaction have made investments that have greater value inside than outside the relationship (what is sometimes referred to as *asset specificity*).[21] In these circumstances one party may try and *hold-up* the other party in a relationship. Vertical integration lessens the extent of the hold-up problem. Economic theory predicts that vertical integration is more likely when transactions are complex, involve specific investments, and investments are durable and the quality of the assets difficult to verify. Uncertainty also favours integration, as does scale – the larger the specific investments, the more attractive is in-house production.[22]

Comment: Cave and Doyle (2007a) note that companies in a number of high technology industries are able to engage via contracts despite the possibility of hold-up. Cremer et al. (2006), however, show in a specific model where it is assumed to be difficult to protect investments in a network via contracts, an upstream firm will not take into account the interests of its clients when choosing its size and so will tend to under-invest in capacity. This effect can be mitigated by allowing it to own part of the downstream industry. Inevitably they conclude that ownership separation is more detrimental to welfare than legal unbundling. However, regulation offers a possibility to remedy such hold-up problems. Crocker and Masten (1996) illustrate how regulatory intervention can help overcome problems of opportunism, and Bös (1999) shows in a

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[21] The issue of asset specificity is developed by Klein, Crawford and Alchian (1978), who show that as assets become more specific, the scope for opportunistic behaviour grows. Assets might be specific for a number of reasons (Williamson 1985 pp. 95-6); they might be site-specific, or designed to serve a particular area; their specificity might be due to their functionality – for example, they might only be useful for highly specialised purposes, and for that reason lack resale value; or they might be dedicated to producing goods or services for a particular buyer. In some cases one contracting party has specific assets. In others they both do – in other words the assets are co-specialised. It is clear that assets providing wireline access for telecommunications services satisfy these conditions.

[22] Closely related to the transactions cost approach is that known as the property rights or incomplete contracting approach, see Hart (1995). I do not focus on that here but note that it may have some bearing on the issues under consideration.

theoretical model that regulation can enable the social optimum to be achieved. As telecommunications is a sector featuring regulation, this suggests that opportunism in a separated context may be less of a concern than is often perceived to be the case.

2.3. Market power

If parties in a vertical relationship have market power, this may result in outcomes which are inferior to those which can be achieved by integrating activities. An extreme example of this is when a monopoly upstream faces a monopoly downstream. Each monopolist selects a price which marks-up above cost, but because the cost of the downstream firm is the price set by the upstream firm, the effect on the downstream firm's profit of the upstream firm's price is not factored into the decision making (this is known as an *externality*).[23] These externalities under separation result in investment and aggregate profit falling below levels that would occur were the two entities vertically integrated. Hence, vertically integration may be motivated by a desire to eliminate the harmful effects of conflicting market power.[24]
Comment: Cremer et al. (2007) state that the economic profession has provided little guidance that would enable regulators to weigh up the cost and benefits of different ownership and management structures in more sophisticated ways. Nevertheless, Bolle and Breitmoser (2006) demonstrate that ownership separation can be more beneficial for end-users than legal separation because the reduced price of network elements results in competitors expanding outputs, more than offsetting losses that arise from lost scope economies.

2.4. Behavioural remedies

The market power effect has had a profound influence on the application and form of behavioural remedies in telecommunications. This is because vertically integrated incumbent operators competing in downstream markets against non-vertically integrated rivals' pose the biggest danger to the development of effective competition. A vertically integrated firm can leverage market power to squeeze the (profit) margin available to competitors by setting wholesale charges above cost and/or engaging in cross-subsidy to set retail rates below costs. A combination of the two would make it difficult for competitors to achieve market share and earn a normal return. Competitors who may be more efficient than the incumbent in the downstream elements of the market would be foreclosed and consumers would be denied benefits.

It may appear straightforward to remedy the problem of margin squeeze via price regulation. Through a combination of a price ceiling on wholesale charges and a price floor on retail rates, a regulator should be able to safeguard consumers and hence competitors. Nevertheless, it is challenging to acquire all the relevant accounting data to ensure that price regulation is effective in these circumstances. At the very least the

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[23] The double marginalization effect, originally due to Spengler (1950).

[24] Other market power factors such as the application of vertical foreclosure may also impact upon the vertical integration decision.

regulator needs the incumbent to present detailed separated financial accounts that are subject to appropriate external and independent audit. It is also essential that the regulator is able to trace all the transactions within the integrated firm to ensure that internal terms accord with regulated external rates.

Accounting separation has been part of the regulatory armoury for dealing with margin squeeze problems for many years, but experience suggests that on its own it fails to deliver effective competition. While suitably designed accounting separation may deal adequately with anti-competitive *price* discrimination – the setting of different prices by an incumbent favouring its own affiliates – the problem of using other variables to exercise discrimination, notably through lowering quality of service, non-price discrimination or sabotage, presents a more formidable challenge. Much of the UK case in favour of the functional separation of BT rested on the proposition that the company was practising non-price discrimination and was likely to persist in doing so (Cave, Correa and Crocioni (2006)).

3. Separation remedies and vertical competition problems

The persistence of market power held by vertical integrated incumbent telecoms operators has resulted in the application by regulators of separation obligations that seek to deter the application of anti-competitive discriminatory practices. Accounting separation is widely applied on incumbent operators having market power in one or more wholesale markets and/or retail markets. However as discussed above, the complexity of accounting data and the fast changing nature of the market have compromised the efficacy of accounting separation.

As a result, more robust forms of vertical separation, such as functional separation, have been applied by regulators (for example by Ofcom and by the Ministry of Economic Development in New Zealand) to promote effective competition in markets where persistent bottlenecks may be used by dominant operators to leverage market power through discriminatory conduct (see also EC (2007), MED (2007a,b) and Box 3.1 below).

3.1. Forms of vertical separation

Table 3.1, based in part on Cave (2006), contains a specification of the vertical separation options available to regulators. At the bottom of the regulatory options lies accounting separation and at the top is full ownership or structural separation.

Table 3.1: Forms of vertical separation

6	Ownership separation (in whole or part)	Full structural separation – may involve club ownership of bottleneck
5	Legal separation (separate legal entities under 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 functional separation
3	Functional separation	
2	Virtual separation	Variants on accounting separation
1	Creation of a wholesale division	
	Accounting separation	

Accounting separation entails the compilation of separate profit and loss statements and balance sheets for the separate entities within an organisation. This can be

accompanied by the creation of a special wholesale (or otherwise named) unit, with a dedicated management (1 in Table 3.1). This will be responsible at a managerial level for the production and supply of the relevant products, but with no guarantee, at this degree of separation, of non-discrimination between affiliated and competitive access seekers. Such accounting separation has been a regulatory obligation on most EU telecommunications incumbents since 1998 and appears close to the form of separation operating in Australia at present (discussed in section 4.4 below).

Under this regime, the regulator can make attempts to ensure some loose equivalence between services to affiliated units and to competitors. However, these efforts are hampered by two factors in particular:

- The absence of a precise target level of equivalence – an ambiguity which leads to opportunities for the incumbent to continue to discriminate;

- The fact that the incumbent's network, IT systems and business processes were broadly designed within the context of a fully integrated firm supplying end-users directly, but not supplying access services to third parties; the historic situation was thus "discriminatory" at that time of market liberalisation, when access products were grafted onto the network through the adoption of special procedures and technological fixes; commercial motives then perpetuated discrimination, whether intentional or unintentional.

Virtual separation (2) is the *modus operandi* of many European telecommunications incumbents at present, given the obligations for non-discrimination imposed on them since 1998. Companies typically establish retail, access, and wholesale divisions and service level agreements are intended to ensure that discrimination does not occur. The key issue here is the actual and perceived feasibility of achieving full equivalence of treatment of affiliated and unaffiliated downstream or upstream organisations in such circumstances.

Functional separation (3) of a telecoms company requires the reworking of underlying business practices and not just changes at the transaction boundary, as with virtual separation. The aim is to segregate particular assets and other inputs within a separate unit, which then trade using *identical processes* with both internal and external customers in ways that can be verified. Key functions are identified and assigned to specific divisions and where necessary information exchanged between the different divisions is anonymous to deter discriminatory practices. In practice functional separation will necessitate new training for the workforce, to enable employees to appreciate the importance of respecting newly erected Chinese walls. Box 3.1 reproduces the European Commission's description of functional separation.

Box 3.1 European Commission view on functional separation

The purpose of functional separation, whereby the vertically integrated operator is required to establish operationally separate business entities, is to ensure the provision of fully equivalent access products to all downstream operators, including the vertically integrated operator's own downstream divisions. Functional separation has the capacity to improve competition in several relevant markets by significantly reducing the incentive for discrimination and by making it easier for compliance with non-discrimination obligations to be verified and enforced. In exceptional cases, it may be justified as a remedy where there has been persistent failure to achieve effective non-discrimination in several of the markets concerned, and where there is little or no prospect of infrastructure competition within a reasonable timeframe after recourse to one or more remedies previously considered to be appropriate. However, it is very important to ensure that its imposition preserves the incentives of the concerned undertaking to invest in its network and that it does not entail any potential negative effects on consumer welfare. Its imposition requires a coordinated analysis of different relevant markets related to the access network, in accordance with the market analysis procedure set out in Article 16 of the Framework Directive. When performing the market analysis and designing the details of this remedy, national regulatory authorities should pay particular attention to the products to be managed by the separate business entities, taking into account the extent of network roll-out and the degree of technological progress, which may affect the substitutability of fixed and wireless services. In order to avoid distortions of competition in the internal market, proposals for functional separation should be approved in advance by the Commission.

Source: Recital 43 from the proposed DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directives 2002/21/EC on a common regulatory framework for electronic communications networks and services, 2002/19/EC on access to, and interconnection of, electronic communications networks and services, and 2002/20/EC on the authorisation of electronic communications networks and services. Brussels, 13.11.2007 COM(2007) 697 final.

A higher level of functional separation (4) involves incentives for senior managers in the separated entity, and/or separate governance arrangements. A further escalation of measures in a similar vein would require the creation of a divisional board with non-executive directors independent of the group, or of a special scrutiny regime to enforce separation. This could take the further form of legal separation (5), a regime in which a separate board is created and separate statutory accounts are filed – all designed to emphasise and support the independence of the separated entity.

The final option (6) requires separate ownership of the separated assets. This could be incomplete, in the sense that the group might exercise partial ownership.

An assessment of the pros and cons of functional versus structural separation as presented in OECD (2001) is shown in Table 3.2 below.

Table 3.2: The pros and cons of functional and structural separation

Policy	Advantages	Disadvantages
Ownership Separation	Eliminates incentives for discrimination; allows for lighter-handed regulation of downstream entities	Potential loss of economies of scope; may require costly and arbitrary separation
Functional Separation	May facilitate control of discrimination and anti-competitive behaviour	Possible lack of profit motive reduces incentive to provide innovative and dynamic services

Source: OECD (2001)

It should also be noted that functional separation has the additional disadvantage of maintaining the conflict of interest with respect to key strategic investments at the group level. Ideally a functionally separated entity should have as much operational discretion as possible, but full independence is clearly impossible because of the need to retain shareholder accountability.

In addition to determining the best form of separation to achieve competition goals, an important closely related issue is the position of the boundary of separation. This matter is taken up in the next section.

3.2. Where to separate – the debate applied to legacy networks

In a complex business like telecommunications there is enormous scope for choosing different points of separation, not least because the number of different activities involved is very large. Separation may be chosen voluntarily, in which case the decision rests largely with the firm in question. Under mandatory separation, the regulator may have the last word, though in practice negotiation will typically be involved.

In either case, the decisions are likely to reflect economic considerations addressing benefits and costs, see de Bijl (2005). For example, the greater the degree of separation the higher the threat might be to the co-ordination of investment and according to some (e.g. Crandall and Sidak (2002)) this could present a considerable cost. On the other hand, the more robust is separation the more likely would discriminatory practices be eliminated and effective competition promoted.

It is concerns about discrimination and market foreclosure that are used by policy makers to justify some form of mandatory separation. The boundary of separation should occur between markets where an incumbent exercises persistent market power (and hence is able to discriminate with anti-competitive effect) and markets which are potentially competitive – as proposed by de Bijl (2005). It follows from this that the appropriate division depends upon current and predicted market developments. These will vary with the size of the economy which the telecommunications sector is serving: in a small country the scope for competition will probably be smaller.

Until recently the regulatory debate surrounding separation focussed on current generation access networks – notably copper loops providing DSL services. While structural separation had been considered by a few regulators and applied in some instances, the last few years has seen the momentum shift towards making more effective the application of non-discrimination obligations. This has resulted in a number of regulators seeking to apply what is known as functional separation.

In public policy discussions on separation within the context of legacy networks, the two principal candidates for making a single split were to do so between retail and wholesale (the "NetCo" model) and between access or the local loop and all non-access services including retail (the "LoopCo" model). Underlying this are competing two-way and three-way classifications, as shown in Table 3.3. The transport layer in the core network is omitted from this table, but this is presumed to be 'largely' effectively competitive.

While the NetCo model has been applied in other utilities (such as electricity), it has not been attempted in its purest form in telecommunications. Typically regulators have addressed economic bottlenecks by focussing on the local loop. This has been the case in both New Zealand and the UK. In New Zealand, as discussed in section 4.3 below, the regulator has partitioned the incumbent into three functionally separate entities.

Table 3.3: Two and three-way classifications in legacy networks

Segment	Services	Separation model	
1. Retail	Marketing and selling services to end-users and managing the end-user relationship	Competitive Retail	Competitive Retail
2. Network (non-access)	Core network services Call origination, call termination, transit, etc. Trunk segments of leased lines Some backhaul	NetCo	Wholesale
3. Network (access)	Copper loops Fibre to the node/cabinet or to the home Ducts Wholesale line rental Some backhaul Tail segments of leased lines		LoopCo

3.3. Separation and the NBN

In the evolution to NBN the location of separation also falls into two- and three-way categories, but is different in flavour to that associated with legacy networks. Table 3.4 below illustrates the framework that applies in a NGN and NGA setting.[25]

Table 3.4: Two and three-way classifications in a NGN and NGA setting

	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 access[26])	Wholesale bitstream products, DSLAMs, optical line terminals	WholesaleCo (much of what might constitute NBNCo)	OpCo
3. Network (Passive line access[27, 28])	Copper lines, optical fibres, ducts		NetCo

Structural separation in accordance with the 2-way separation model would result in a regulated NBNCo business offering equivalent wholesale services to equivalent competing downstream service providers. In many ways the 'active' services offered would be analogous to the wholesale bitstream products offered currently.

This approach would necessarily place a greater emphasis on competition between service providers. Some hold the view that such competition is unlikely to result in sustainable effective competition and that a preferable model would be to promote infrastructure based competition.[29] However, as discussed above, it is unlikely that a second NBN will be constructed in the near future to compete against the government funded NBN.

As enduring economic bottlenecks are associated with the NBN, structural separation and the provision of bitstream wholesale products is a regulatory solution. A much

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[25] The reference to NBNCo is interpreted in the way I understand Optus is seeking to separate structurally the NBN. I understand certain inter-exchange links would also fall within NBNCo under the Optus proposals.

[26] Active line access refers to wholesale products based on both the active electronics and the physical elements of the access network. Telstra's current bitstream products are an example.

[27] Passive line access refers to wholesale products based on direct access to physical elements of the access network, excluding any form of electronics.

[28] Ofcom (2007) has articulated opinion on the regulatory treatment of NGA suggesting that the most likely regulatory remedies will comprise (i) sub-loop unbundling (or what is termed *passive line access*) and (ii) *active* line access.

[29] The so-called ladder of investment theory is predicated on such a view; see for example the discussion in section 4.6 of ERG (2007).

voiced criticism with regard to this solution refers to adverse effects on innovation. Ofcom (2006) presents a typical example of this concern in relation to bitstream (but *not* structural separation) and NGA:[30]

> *"This option would imply competition in the network moving away from the customer* [that is down the ladder of investment] *towards service provider-based competition. This could risk reduced prospects for innovation in next generation access services, because it would mean that competitive operators did not have control over the technology and solutions deployed in the access network. These decisions would be made by the bottleneck asset owner."*

While it would be the case operationally service providers downstream would not have control on a day to day basis, it is far too simplistic to suggest that influence over technologies deployed is non-existent. Furthermore, innovation within networks is often steered and certainly significantly influenced by companies such as Nortel, Ericsson, Nokia, *etc.* residing upstream and lying outside day to day network management operations. These manufacturing companies (vendors) are able to work closely with service providers and network companies, much like Airbus and Boeing do with airlines in the aviation sector.

Furthermore, Ofcom (2007) has indicated that:[31]

> *"Our initial work indicates that the net benefit of passive input based competition over the active alternative may reduce under next generation access".*

It is also worth noting that active line access will lead to more product differentiation in a NGA setting than in current copper based networks, a view recently expressed by Ofcom:[32]

> *"Active line access could allow much more effective competition than today's equivalent bitstream products"*

To date there has no mandated separation of a national network incorporating a NGN core and NGA, though discussion is occurring or has occurred in various parts of the world (e.g. Japan[33] and Singapore[34]). The absence of such regulatory action reflects in part the novelty of NGA, and the fact there are few examples to be found in operation. Ofcom's discussion in the UK centres on one of its principles, that of *equivalence*, the foundation for functional separation. This is taken up in the next section.

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30 Ofcom (2006) para 4.85.

31 Ofcom (2007) para. 6.22.

32 Phillips (2008).

33 MIC (2008).

34 IDA (2008). The approach proposed in Singapore is to separate the government sponsored next generation national broadband network (NGNBN) into three components along the active (what is called the OpCo), passive (what is called the NetCo) and retail service providers dimensions.

3.4. Key elements of functional separation

Functional separation involves the judicious compartmentalisation of company assets so that a business operates on a non-discriminatory basis and applies full equivalence (parity between the vertically integrated incumbent and downstream competitors) while retaining common ownership and a single legal entity. It builds on the foundation of accounting separation but requires substantial changes to the internal operations of a firm so as to ensure that non-discrimination occurs in practice leading to Equivalence of Inputs (EoI). As I note below, functional separation involves considerable set-up costs and imposes a substantial regulatory burden onto the incumbent and competing communications providers.

There are six key components of functional separation which are shown in Table 3.5.

Table 3.5: Six key components of functional separation

1	Separation of functions
2	Separation of brand
3	Separation of employees
4	Separation of information
5	Financial separation
6	Transparency requirements and compliance

Separation of functions (1), which leads to the name functional separation, is only one part of functional separation. This involves the creation of a separate business unit responsible for the supply of products in question. This can be likened to the formation of a new wholesale division in Table 3.1 above. This new business unit would be obliged to supply all customers (its own affiliate and other operators) on equal terms (i.e. equivalence). Crucial to enabling non-discrimination is that the Operational Support Systems (OSS) must also be separated in accordance with the new business unit.[35] The latter is likely to be non-trivial and involve considerable resources.

The new business unit should be seen by other operators as a distinct brand – in the UK, which is discussed more fully below, BT established Openreach as a BT Group business dealing with access network services distinct from BT Retail and BT Wholesale.

Separation of employees (3) can take a number of forms but essentially involves the creation of a separate management board for the new business unit. Importantly this board should be independent of the management elsewhere in the group but

[35] The OSS are computer systems that deal with the telecom network itself and support processes such as maintaining network integrity, provisioning services, configuring network components, and managing faults.

understandably will report to the group CEO to comply with stakeholder accountability requirements. Employees in the new business unit should not be allowed to work at the same time for other units in the group. The need to separate employees will also necessitate the physical separation of offices and places of work to minimise the prospects for information to pass hands and be used in a discriminatory manner. Incentive schemes should be designed to reflect the performance of the new business unit and not the group. Employees should sign up to a code of conduct that emphasises confidentiality of information.

Separation of information (4) will require a structure to be put into being that limits information flow between the new unit and other parts of the group, through the establishment of firewalls and Chinese walls. Management information systems will need to be separated.

Financial separation (5) will strengthen existing accounting separation obligations and ensure that the new business unit compiles its own profit and loss accounts and balance sheet data. Financial budgets should be separated and as much financial autonomy granted as possible. Given the magnitude of some investments, however, it is likely that group wide investment decisions will need to be taken. Note, as discussed in the Introduction, this is always likely to handicap functional separation compared to structural separation.

Finally functional separation features transparency requirements (6). These are intended to ensure that (1)-(5) operate satisfactorily and involve a system for monitoring compliance with obligations and performance targets. There needs to be a system in place for reporting breaches of compliance and an independent committee that oversees the compliance regime. Performance and compliance reports should be published.

4. Mandating separation in telecommunications

4.1. Introduction

In this section I present a number of case studies looking at functional (operational) separation and other forms of separation in telecommunications. I start by looking in detail at BT Openreach, where there is over two years experience of working with a functionally separated local access network division. I follow this with an examination of the three-way separation model applied in New Zealand, which took the Openreach model as a starting point. Finally, I contrast the position in these countries with current arrangements in Australia for dealing with discrimination in telecommunications markets.

4.2. BT Openreach

The most talked about example of functional separation is that of BT – the assets separated, in a division known as Openreach, comprising BT's local access network (or the first mile as it is sometimes known). Openreach is responsible for maintaining the wires, fibres and connections linking end-users to communications providers' networks (usually at the local exchange but sometimes via backhaul extension from the local exchange to the network of a communications provider).[36] The main products offered by Openreach are wholesale line rental (WLR), local loop unbundling (LLU), extension services (ES) and wholesale leased lines (WLL). Effectively the UK has applied a LoopCo model, addressing competition concerns in a legacy model that arose in around 2003.

The separation of the local access network emerged from undertakings offered by BT to the regulator Ofcom at the end of a 'Telecoms Strategic Review' (TSR) undertaken during 2004-05 using powers under UK competition legislation, the Enterprise Act 2002, rather than its sector-specific regulatory powers.[37] The Enterprise Act 2002 enables competition authorities (which includes Ofcom) to make a reference to the Competition Commission[38] to investigate a market where it has reasonable grounds to suspect that features of a market, prevent, restrict or distort competition. A market investigation which leads to the finding that there are adverse effects on competition requires the Competition Commission to take such action as it considers to be reasonable and practicable to remedy, mitigate or prevent the adverse effects. A remedy openly considered by Ofcom during its strategic review was structural separation, and this would have been one option considered by the Competition Commission under a referral if the investigation had found adverse effects.

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[36] Openreach manage the connections between the Main Distr bution Frame (MDF) and the BT Wholesale/Local Loop Unbundling (LLU) termination points located in the exchange, often referred to as jumper connections.

[37] Ofcom (2005b).

[38] The Competition Commission is an independent public body operating under provisions in the Competition Act 1998 and the Enterprise Act 2002. The Commission undertakes market investigations in accordance with powers under the Enterprise Act 2002. A market investigation may only be initiated following a referral from the Office of Fair Trading (OFT) or another legal body holding concurrent powers, such as Ofcom.

The TSR launched with a consultation paper on 18 November 2004, in which a concern was expressed about non-discrimination being applied by Significant Market Power[39] (SMP) operators, notably BT, in input markets. Three broad options were put forward in the consultation:

1. Rely on existing *ex ante* regulatory obligations and the application of competition legislation to deal with the problems;

2. Structurally separate BT using powers under the Enterprise Act 2002; and

3. Impose a stronger '*per se*' prohibition and functionally separate BT.

BT and many other respondents to the consultation favoured option 3. There was a strategic reason for BT to offer functional separation in the form of undertakings. The Ofcom review of BT was happening at a time when the company was at an advanced stage in developing plans for implementing the rollout of its NGN called 21CN[40] and it was anxious to resolve regulatory uncertainty about a possible break-up. BT decided that offering functional separation was strategically superior to a possible break-up following a referral to the Competition Commission, and that closing the regulatory review rather than having a further two or more years regulatory intervention and uncertainty about separation was preferable for the operations of the business. On 23 June 2005 Sir Christopher Bland, Chairman of BT was reported as saying that the deal with Ofcom struck "the right balance" for every player in the market. He also stated that the process "has been a tough journey but it is important that we have regulation that encourages investment and innovation". In the same report Ofcom's then chief executive Stephen Carter welcomed BT's proposal "on the critical assumption that BT does not merely deliver the letter of the undertakings, but also the spirit."[41]

In the event of BT offering undertakings, a referral to the Competition Commission did not materialise as the undertakings were regarded by Ofcom appropriate remedies for the problems in the market it identified.[42] The problems identified largely stemmed from unequal treatment (discrimination) between rival competition providers and BT's retail and wholesale affiliates, notably in the fast developing broadband service markets. While accounting separation remedies worked reasonably well at ensuring equal price terms, and the obligation of non-discrimination worked effectively where verification was relatively straightforward (for example, when dealing with prices), there were

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[39] Significant market power is the term used in European regulation to characterise situations where an operator possesses market dominance, meaning an operator is perceived as being able to act to an appreciable extent independently of competitors.

[40] See for example a presentation by Ittai Hershman, Director, 21CN Commercial Development, BT Wholesale, 22 June 2005 to the EU Open Workshop on NGN Policy and Regulatory Issues available at http://ec.europa.eu/information_society/policy/ecomm/doc/info_centre/public_consult/ngn/comments/hershman.ppt

[41] See 'BT ducks break-up with price cuts' BBC News at http://news.bbc.co.uk/1/hi/business/4122060.stm

[42] Under section 154 of the Enterprise Act 2002 a firm can offer undertakings to Ofcom, which if accepted as appropriate in the circumstances, would not result in a referral.

numerous and growing numbers of competition concerns related to non-price discrimination matters. Ofcom found "no equality of access to bottlenecks (e.g. access and backhaul networks)"[43] in the TSR.

The undertakings formed the basis of the functional separation and Ofcom accepted them in September 2005.[44] The undertakings are legally binding and are enforced by a newly established Equality of Access Board (EAB, see below) and Ofcom. Any breaches of the undertakings carry the possibility of a fine and can trigger legal action by injured parties. There is also an element of self-regulation with self-imposed penalties (by way of compensation to communications providers) for some relatively minor breaches of the Undertakings.

The BT Undertakings are expressed in a 55-page document (Ofcom 2005a), are, as follows, to:

- establish an operationally separated access services division (subsequently named Openreach which came into being in January 2006), located on separate premises;
- ensure full equivalence for key access products by agreed dates;
- establish an independent Equality of Access Board (EAB) to police the undertakings;
- separate operational and management information systems;
- ensure greater transparency of processes and erect internal Chinese walls; and
- consult on the development of its next generation networks.

To date, an access services division has been established under the name of Openreach; fully equivalent services are available for a number of products; the EAB has been established; and collaboration on NGNs has progressed via an industry group called NGNUK. BT has also recorded its progress in meeting its key performance indicators, though it has failed to meet a number of deadlines and Ofcom has expressed concerns (Ofcom 2007).

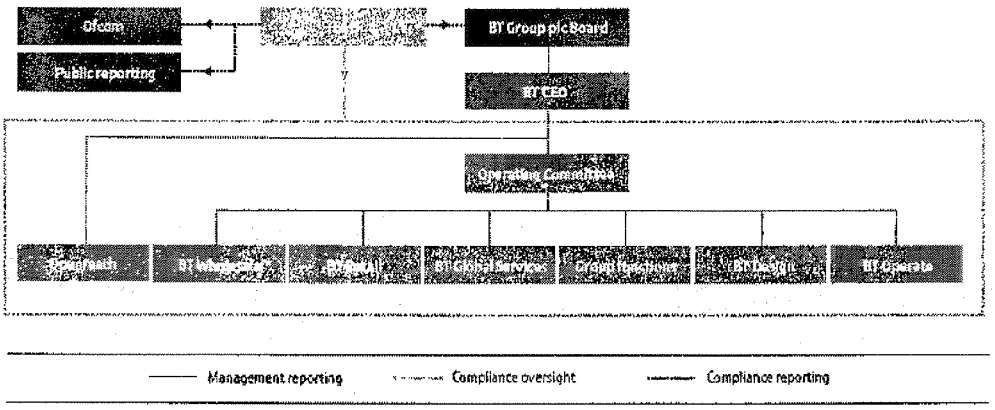
Openreach was established in January 2006 and has around 20,000 employees – the employees came almost equally from BT Retail and BT Wholesale. For the 2007 financial year, Openreach reported for the first time as a separate line of business. Revenues were £5,177 million and assets are estimated to be worth about £8 billion.

[43] Alex Blowers "Functional Separation – the UK 'Openreach' Model", Anacom 10th Seminar, Lisbon 9 November 2007.

[44] Ofcom (2007) "Report on the implementation of BT's Undertakings" – Fifth quarterly report, 12 February.

Figure 4.1 illustrates the governance and new corporate structure following the implementation of the undertakings bringing about functional separation and creation of Openreach.

Figure 4.1: Modified corporate structure under functional separation



Source: Equality of Access Board Annual Report 2008.[45]

The BT group comprises five main divisions with Openreach having greater autonomy than the other four. The EAB acts as an important 'independent' enforcer of the undertakings and acts as a bridge between the BT group board and the regulator Ofcom. Communications Providers may submit complaints to the EAB if there are reasonable grounds to suspect BT has violated its undertakings. The first complaint was made in August 2006 by IDT Direct Limited (trading as 'Toucan'), which was not upheld.

The BT undertakings sought to assure Ofcom that it could restructure its business under common ownership and deliver effective downstream competition by removing anti-competitive obstacles from Openreach systems and processes. At the heart of the undertakings is a commitment to provide equality of access to access services, information and product development. The cornerstone for equality in Openreach is the concept of Equivalence of Inputs (EoI), whereby both BT and external customers of Openreach:

- use the same ordering systems,
- have the same ability to influence, and

[45] In April 2007, BT announced a new structure, which includes two new business units. With effect from 1 July 2007, BT Design has been responsible for the design and development of the platforms, systems and processes which support services across the Group; BT Operate is responsible for their deployment and operation. Around 20,000 BT employees – from design, operations, IT and networks – have moved into the new units, BT (2007).

- are offered the same prices, terms and conditions and have access to the same sets of services and commercial information.

In addition to providing EoI for any new or replacement wholesale services to be developed on its Next Generation Network (NGN), BT has committed to EoI for the following existing services:

- IPStream, which is a Layer 3 IP based bitstream service provided by BT Wholesale - EoI ready for service in December 2005 and all services migrated by December 2006

- Local Loop Unbundling (LLU) provided by Openreach - EoI ready for service in June 2006 and all services migrated by December 2006. LLU has two products (Metallic Path Facility (MPF) which is full unbundling, either at the local exchange or remote concentrator (sub-loop unbundling), and Shared Metallic Path Facility (MPF) which is partial unbundling whereby a non-BT communications provider typically supplies a broadband service but relies on BT for voice service). The LLU obligations are second in size only to the Wholesale Line Rental (WLR) obligations. Ready for Service June 2006 was achieved.

- Wholesale Line Rental (WLR) provided by Openreach. Wholesale Analogue Line Rental (WLR analogue voice). Conventional Public Switched Telephone Network (PSTN) access service where Openreach provides the physical access line, telephone number and basic calling capability. Openreach purchases the electronic services required for telephone calling from BT Wholesale and packages them with the access line to provide a single point of sale for wholesale customers. Wholesale ISDN2 and ISDN30 Line Rental (digital voice). This is identical to the analogue line rental service described above, except that ISDN provides a digital access line with either two (ISDN2) or thirty (ISDN30) independent voice channels. WLR EoI ready for service by June 2007 and all services (existing customers) migrated by June 2010.

- Broadband Ethernet access and Backhaul Extension Services (BES) provided by Openreach. Wholesale Extension Service (Ethernet partial private circuits (PPCs) from customer to the first BT exchange). Ofcom identified fibre based broadband Ethernet access as a key access bottleneck in the UK. It is a managed service transport capability which could be used by the communications providers to supply broadband access to their IP based service capabilities, such as Voice over IP (VoIP) and Data Centres. It is, equivalent to an ISO Layer 2 Data Link service, requiring electronic interface capability which must be purchased from BT Wholesale by Openreach. Backhaul Extension Service (BES) (Ethernet partial private circuits from first exchange to a customer point of presence (POP) or second exchange). This is simply an extension of the wholesale broadband Ethernet access service to reach access seekers who do not currently have network capability near to the BT exchange which is closest to the access seeker's customer. Ethernet access and backhaul EoI

ready for service in September 2006 and any existing customers migrated by March 2007.

With the exception of some aspects of the Ethernet access product, all of these specific services for which BT is to provide EoI can be classified as *legacy services*.

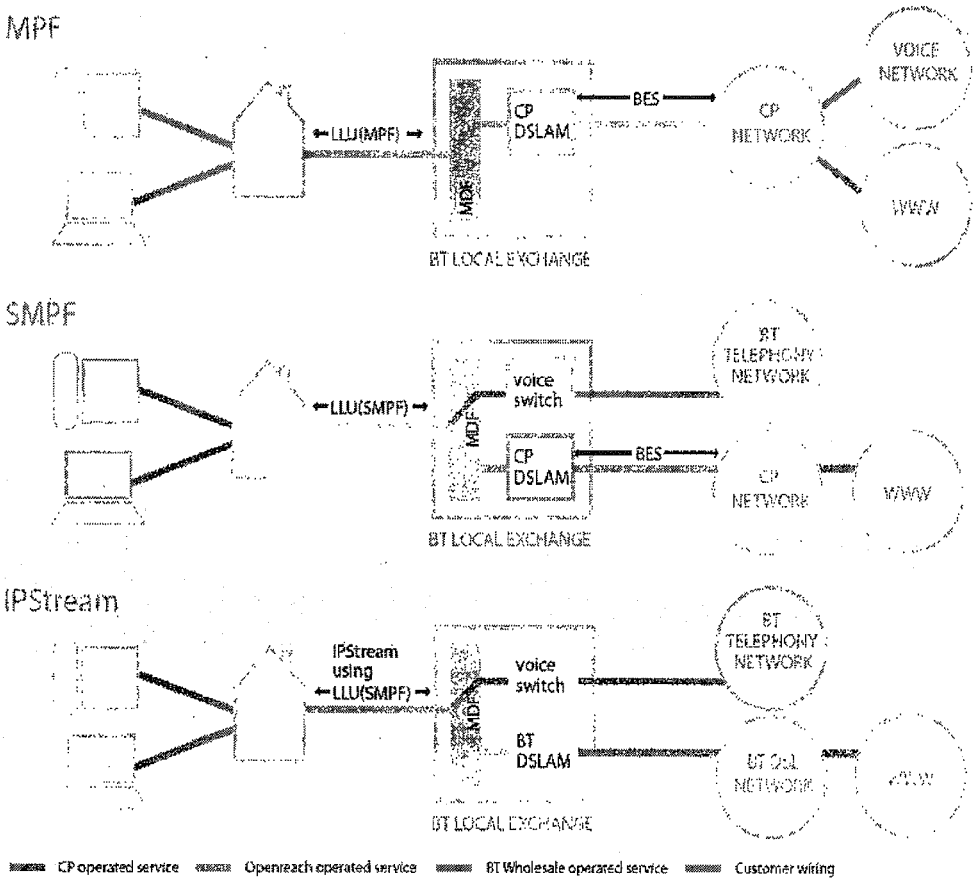
BT agreed a staged EoI implementation timetable for each of the named services, specifying when EoI must be "ready for service" (RFS) for use in provisioning service to new customers and when all end-users must be migrated to the EoI system. The EoI migration timetable extends out to 2010.

By March 2007 BT had met most of its EoI milestones on or before time, with the exception of three deadlines deemed trivial by the EAB. In the future, EoI is expected to apply to all Openreach products and to:

- IP based successor products to BT's IPStream and DataStream (DataStream is the current layer 2 ATM based bitstream product which supports IPStream)
- any successor to wholesale line rental provided over the NGN, which may be "broadband dial-tone" (assuming that BT is deemed to retain SMP).

In Figure 4.2 some of the key Openreach LLU products are illustrated. The products shown enable non-BT communications providers to lease local loop infrastructure so as to offer telephony and broadband services to end-users. Communications providers can offer a broadband service by investing in their own access facilities, purchasing LLU from Openreach or by buying IPStream from BT Wholesale. Buyers of the IPStream products use LLU as an input but also rely on BT Wholesale supplied products. The Undertakings required BT to reach RFS for MPF and SMPF by 30 June 2006. The EAB validated the delivery of LLU RFS in October 2006. BT achieved its target by installing a new Equivalence Management Platform (EMP) over which MPF and SMPF orders from the RFS date are handled.

Figure 4.2: Local loop unbundling and IPstream portfolio



Source: EAB Annual Report 2007

Delivering EoI to meet the expectations and standards required by Ofcom involves creation of new service ordering and management gateways to be used by all customers (including BT) and separating out the operations and information systems which previously held data and functionality for many unrelated services. This systems separation is potentially very costly and time consuming, especially for older fully integrated systems designed for BT's previous company structure.

The EMP is the system designed to handle the majority of transactions for EoI products. The EMP was established in June 2006 and is the largest IT capability of its kind in the UK telecommunications industry. It is designed to deliver service with a greater degree of automation, processing up to 100,000 orders a day and with the capacity to carry out up to 60,000 line checks an hour. However, testing,

implementation and deployment of the EMP "has been a major cause for industry concern reported to the EAB with recurring problems leading to system downtime".[46]

According to BT in 2007 capital expenditure on property, plant and equipment and computer software was £1,108 million, an increase of 7% in the 2007 financial year. BT argued that this reflected significant investment in new systems to ensure compliance with the Undertakings and increased spend to meet LLU demand.[47] Additionally BT claims that over 2006 and 2007 the cost of establishing Openreach was £100 million.[48] Other communications providers have reported to the EAB that "the introduction of newly-equivalent products by BT can require costly and time consuming systems changes in order to use those products".[49]

4.2.1. Openreach functional separation in practice

The functional separation of BT is being undertaken in accordance with the Undertakings and with subsequent modifications to the Undertakings agreed with Ofcom. The Undertakings set out a timetable specifying RFS dates and other key deliverables. Compliance with these targets is enforced through the new governance structures brought into being as a result of functional separation. Within BT the role of the EAB is pivotal in this regard. Externally the regulator Ofcom reports on a quarterly basis on the implementation of BT's Undertakings.

The EAB was set up to monitor, report on, and advise BT regarding the implementation of the Undertakings. The terms for establishing the EAB are set out in the Undertakings in section 10. This required that the EAB be established within six months of the Undertakings taking effect. The EAB was established in November 2005 and comprises five members. It is chaired by a non-executive director of the BT Group (Carl Symon). Of the other four members, three are independent and the other a senior manager from within BT (currently Himanshu Raja, the Chief Financial Officer of BT Operate). The Undertakings provide certain restrictions on the eligibility of EAB members to ensure as much as possible independence and to avoid a conflict of interest. The BT Group Chairman appoints the Chairman of the EAB and the BT senior manager committee member. The Chairman of the EAB appoints the three independent members, subject to agreement with the BT Group and in consultation with Ofcom.

The EAB operates as a committee of the BT Group plc Board with a structure and membership unlike any other Board committee because of the obligations to Ofcom. The EAB oversees the whole of BT in order to ensure compliance with the Undertakings. The EAB is supported by the EAB Secretariat and the Equality of Access Office (EAO). The EAO monitors BT's performance in delivering the

[46] EAB Annual Report 2007 page 9.

[47] BT Annual Report and Form 20-F 2007 page 37.

[48] BT Annual Report and Form 20-F 2007 page 40.

[49] EAB Annual Report 2007 page 3.

Undertakings and assesses complaints regarding the Undertakings from communications providers. The EAB Secretariat arranges EAB meetings and briefs individual members.

One of the EAB's main responsibilities is monitoring and reporting on BT's delivery of the Undertakings. On behalf of the EAB, the EAO monitors BT's performance in a number of areas, including:

- Progress towards delivery of key Undertakings deadlines;
- Ongoing compliance;
- Product KPIs; and
- Behavioural measures and other measures relating to the spirit of the Undertakings.

The EAO reports on all these areas in detail to the EAB on a monthly basis. In addition the EAO performs validation reviews for all key Undertakings in order to verify for the EAB whether BT has delivered all requirements of the Undertaking and that it has mechanisms in place to demonstrate compliance on an ongoing basis.

Validation reviews are based on a set of success criteria that have been agreed between the EAO and BT, and begin once BT has provided all the detailed evidence that is required to demonstrate that the success criteria have been achieved. The EAO may choose to conduct these reviews itself or employ the services of internal audit. Once the delivery of the Undertaking has been validated, and confirmed by the EAO Director, then it will be subject to regular ongoing compliance reviews.

Additionally, the EAO monitors BT's compliance with any additional obligations arising from exemptions to the Undertakings or the amended or varied Undertakings agreed by Ofcom.

The EAO also holds regular meetings with communications providers to discuss progress towards the delivery of the Undertakings. These discussions can result in the EAO conducting an informal review of issues and concerns raised during meetings. These reviews take place on a confidential basis when requested, and the EAO will advise both the communications provider and BT of the outcome of the review as appropriate.

During 2007 the EAB devoted much of its resources to understanding and assessing the operations of Openreach. The Openreach CEO met regularly with the EAB to discuss the annual operating plan, the division's response to service challenges, the development of the EMP and plans for influencing employee behaviour. The EAB also consults with industry and in particular with communications providers using products supplied by Openreach.

Box 4.1 below[50] summarises some of the recent activities undertaken by the EAB. The material in this box is the detail of regulation required to ensure that functional separation succeeds in practice.

Box 4.1: Recent activities undertaken by the EAB in the UK

Undertakings delivery update: OSS separation (30 June 2007)
The EAB completed a validation of BT's delivery of the first stage of Operational Support Systems (OSS) separation (User Access Controls) at 30 June 2007. The validation covered OSS access controls for Metallic Path Facility (MPF), Shared Metallic Path Facility (SMPF) and Wholesale Line Rental (WLR) and included sample testing of the user access controls. Based on this sample the EAB raised concerns with BT that access controls for one of the twenty relevant systems had not been adequately applied. This was because some users had inappropriate access to a search engine for almost three months after the milestone date.

BT investigated these concerns further and notified the EAB of a trivial breach of the Undertakings. As required by Ofcom the milestone is also the subject of an external audit currently in progress by PwC. The audit includes testing of the user access controls of all 20 systems in scope of the changes and the findings are due to be reported by June 2008.

The EAB confirmed that this was a trivial breach of the Undertakings and considered that although BT delivered the majority of this milestone by the required date of 30 June 2007, it only met the milestone in full in late September 2007 when the breach was remedied. That aside, the rest of the systems tested appeared to have satisfactory controls in what was a large and complex systems development programme undertaken by BT.

21CN validations
The EAB has validated the delivery of the first two products in BT's 21st Century Network (21CN) programme. Although not strictly a 21CN network access product, the EAB monitored the delivery of NGN Virtual Interconnect Circuit product (VIC) as a trial run ahead of the forthcoming NGN product validations. It found that BT had met the necessary requirements for delivery of this product, although the EAB made some minor recommendations to BT regarding aspects of the product. The EAB validated that a second NGN product, NGN Openreach Network Backhaul Services (ONBS) was delivered compliantly by BT. ONBS was launched on 9 October 2006 to support the start of the 'Pathfinder' trial in the Cardiff area.

Breaches
In March 2008 the EAB reported that it had been notified of four new breaches of the Undertakings. One of these was classified by the EAB as non-trivial and the remainder as trivial. The EAB had been notified of a breach concerning the delivery of the Openreach Special Faults Investigation (SFI) product. The SFI product enables

[50] Source: http://www.bt.com/eab

communications providers to have an extensive range of tests undertaken on the Openreach access network and at the end customer's premises to resolve broadband faults. BT reported to the EAB that two aspects of this product did not comply with the Equivalence of Input (EoI) requirements. The EAO investigated the non-compliant aspects and found that the design of the SFI product had failed to encompass fully the EoI requirements even though it had been launched months after Openreach's establishment. The EAB considered this to be a non-trivial breach of the Undertakings.

Reporting: NGN and 21CN update
The EAO provided a regular update to the EAB on progress towards the implementation of 21CN. The EAO updated the EAB on industry concerns regarding IPStream migrations. It also described how Ofcom requested that BT publish its 21CN 'plan of record' on a quarterly basis to provide some reassurance for plans going forward. It also explained that as BT's 21CN programme had started before the Undertakings were signed, some early decisions were not consistent with the principles of the Undertakings. As a result, the EAB recommended to BT that it should review all design decisions to ensure equivalence was built in wherever appropriate.

Openreach quarterly report
Openreach gave a regular update to the EAB in February 2008. It explained that the creation of BT Design and BT Operate had tested the existing understanding of how it should work on an end-to-end basis with the rest of BT.

4.3. Telecom Corporation New Zealand

In May 2006 the New Zealand government announced a package of measures that were intended to promote "faster, better broadband Internet services".[51] The measures included a requirement for the incumbent operator Telecom Corporation New Zealand (Telecom) to unbundle the local loop and sub-loop copper-wires to allow other Internet Service Providers to compete "fully" with Telecom. There was also a measure aimed at improving transparency by a requirement for Telecom to separate its financial accounts.

These measures arose out of a 'Stocktake' review of the telecoms sector undertaken by the government.[52] The review started in December 2005 in response to evidence that New Zealand was slipping behind its OECD peers in broadband services. The review noted that other OECD countries had moved in the direction of more rigorous pro-competitive regulatory frameworks (including the UK). Analysis undertaken in the review supported the view that the current performance gap would not be resolved by application of current regulatory provisions. The stocktake found that the market for the local loop access bottleneck service dominated by Telecom was restricting the

[51] Statement made by Communications Minister David Cunliffe, 3 May 2006, see http://www.beehive.govt.nz/node/25636

[52] For further details on the Telecommunications Stocktake see http://www.med.govt.nz/templates/ContentTopicSummary____20266.aspx

development of effective competition. The government acknowledged that new entrants needed access on fair and non-discriminatory terms to Telecom's network.

A wide range of options were considered, ranging from the status quo through to the structural separation of Telecom's wholesale and retail businesses. A key factor that was to influence the government's policy was the balance to be struck between facilitating increased competition through intervention at the wholesale level in the local loop and incentives for investment in new infrastructure such as fibre, wireless and satellite. The final package produced the following measures:

- LLU
- Greater range of unbundled bitstream products including naked DSL
- Accounting separation of Telecom's wholesale business
- Compliance measures
- Undertaking further analysis on the desirability of structural and operational separation options

The Government noted that the operational or structural separation of Telecom were options the Government were prepared to consider in order to facilitate non-discrimination and equality of access to wholesale telecommunications markets. The Government indicated that if the full benefits of separation could be achieved by an operational split, then a full structural split might not be required. The Government proposed new legislation in the form of an amendment to the Telecommunications Act 2001, The Telecommunications Amendment Bill, which included the Stocktake measures and provisions for operational separation.[53] The operational separation required a "robust" three way operational separation of Telecom. In late November 2006 the Bill was submitted to Parliament and the Telecommunications Amendment Act (No. 2) 2006 came into force on 22 December 2006.

Part 2A of the Act outlines the detailed provisions requiring the operational separation of Telecom. Under the amended Act the Minister was required to issue a determination of further requirements for separation of Telecom (section 69F of the Act). A consultation document was published on 5 April 2007 seeking comment on the Ministry's preferred model for implementation of Telecom's operational separation, upon which it was intended the Minister's Determination would be based.[54]

Part 2A of the Act stipulates that operational separation:

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[53] The Telecommunications Amendment Bill implemented changes arising from the 2004 Implementation Review of the Telecommunications Act 2001 in addition to the 'Stocktake' package.

[54] Telecommunications Act 2001 "Development of requirements for the operational separation of Telecom", April 2007 Consultation Document Ministry of Economic Development, New Zealand.

- To promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services in New Zealand; and
- To require transparency, non-discrimination, and equivalence of supply in relation to certain telecommunications services; and
- To facilitate efficient investment in telecommunications infrastructure and services.

The operational separation of BT provided a key reference model to the authorities in New Zealand and greatly informed the policy rationale upon which the proposed separation model was based. However, the separation model proposed contained a number of differences with that in the UK. The New Zealand proposal became known as the '3-way model' and is summarised below:

1. The separation of Telecom into separate Access Network Services, Wholesale and Retail business units (*3-way split*)

2. A requirement for Access Network Services to be operated on a stand-alone basis and for Telecom Wholesale to be operated at arms-length from any retail business units; (*key difference with BT*)

3. The establishment of an Independent Oversight Group, backed up by Commerce Commission enforcement, to ensure Telecom faithfully implements the Separation Plan; (*similar to the EAB and Ofcom*)

4. A requirement that relevant products, especially LLU and unbundled bitstream access services, are available to all market participants on equivalent terms. (*analogous to the EoI measures in the UK*)

The split in New Zealand builds on the Openreach model by reinforcing separation between the wholesale businesses and retail businesses. In the UK, BT's retail and wholesale divisions are controlled by the same management board.

An Independent Oversight Group (IOG) was proposed having the responsibility for monitoring implementation and compliance with Telecom's Separation Plan. The IOG was expected to play an important internal scrutiny role within Telecom and be charged with monitoring Telecom's operational separation commitments. The IOG is analogous to the EAB.

The IOB members would be appointed by the Telecom Board in consultation with the Commerce Commission, and would have a majority of independent members, including an independent chair. The IOG would be supported by an IOG office having access to necessary information required for it to fulfil its functions. The IOG would not be a sub-committee of the Telecom Board (unlike the EAB which is a committee of the BT Group Board), nor would it perform any management functions, or approve any management or capital plans. It may, however, have a role in investigating and reporting on the

consistency of any corporate plans with relevant obligations on Telecom under the operational Separation Plan.

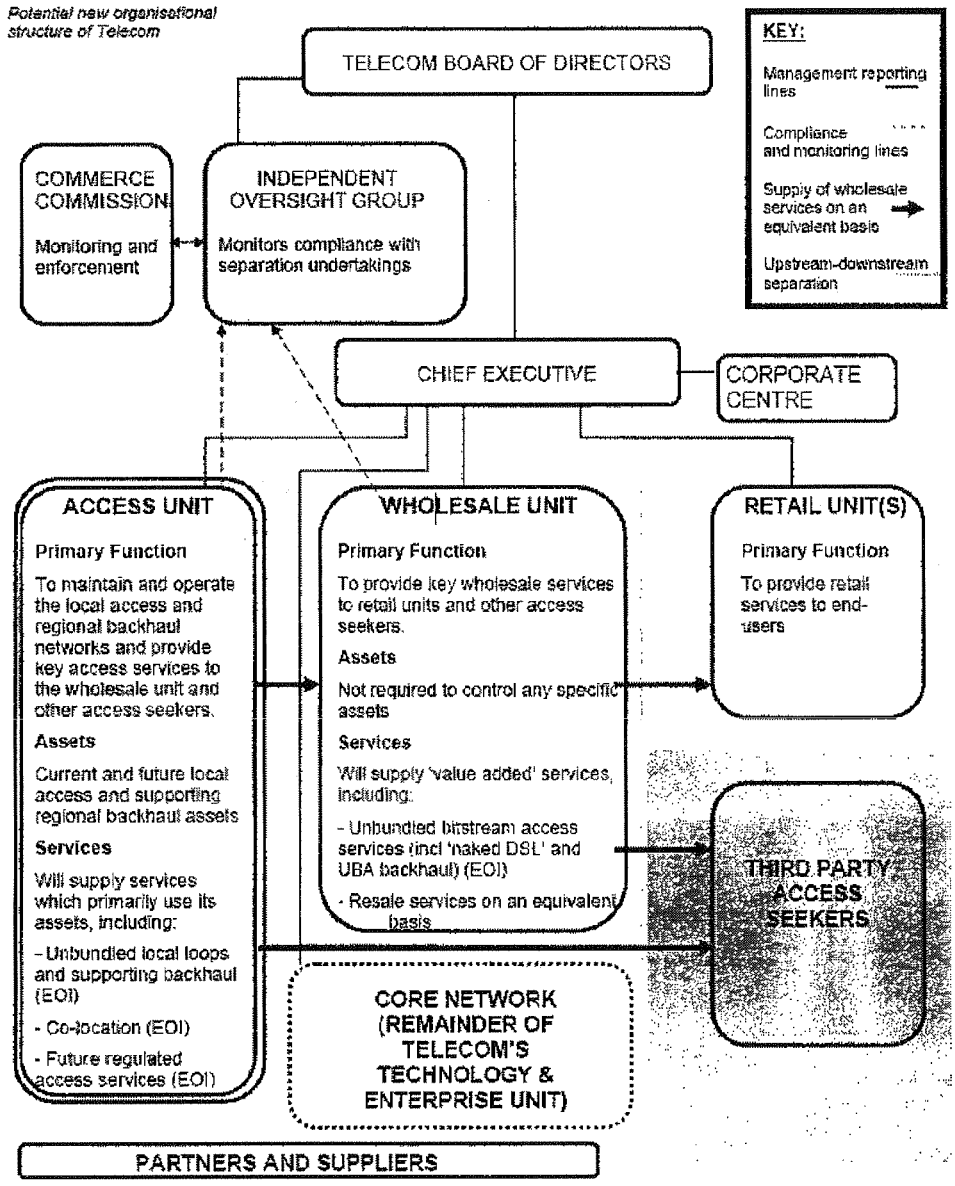
As in the UK, it was proposed that the regulator (the Commerce Commission) would have formal responsibility for enforcing Telecom's operational separation undertakings. In practice, however, it was recognised that there would likely be a practical delineation between the work of the Commerce Commission and the IOG that would evolve over time.

It was expected that implementation in full would take between 2 and 5 years, though in some areas, such as the establishment of an Access Network Services (ANS) unit and the IOG implementation would take a matter of months. The timeframe is similar to that in the UK for the Openreach model.

The Act required Telecom to develop a separation plan which would contain undertakings, analogous to the Undertakings provided by BT to Ofcom. The undertakings would be legally binding and breaches can result in financial penalties (section 156L and 156M of the Act).

The proposed separation model proposed in the consultation is illustrated in Figure 4.3 below.

Figure 4.3: Proposed 3-way split of Telecom New Zealand



Source: MED (2007a).

Following the public consultation, the Minister published a determination on 26 September 2007.[55] The Minister decided to apply the 3-way split outlined in the consultation, with some revisions to improve the efficacy of the separation and provide better incentives for network upgrade investments. 31 March 2008 was set as the official Separation day and Telecom had 20 working days from the date of the Determination to prepare and submit a draft separation plan. On 26 October 2007 Telecom submitted a draft separation plan which was then the subject of a public consultation, which closed on 23 November 2007.

Following the conclusion of the public consultation, Telecom had to prepare an Amended Separation Plan in consultation with the Minister within 15 working days. The Minister could approve or decline to approve the Amended Separation Plan. On 24 December 2007 the Minister invited comments on the Amended Separation Plan, which were due before 25 January 2008. On 29 February 2008 the Minister declined to approve Telecom's Amended Separation Plan, as allowed under section 69K of the Act. The Minister gave notice of requirements of further changes needed to the Telecom undertakings in order to finalise the operational separation process. Two areas of contention had arisen during the public consultation. These were group based incentives and matters connected with IP interconnection. The Minister required Telecom to revise the separation plan and submit it by 25 March 2008. On 30 March 2008 the Minister approved the revised separation plan submitted by Telecom.[56] The main elements of operational separation are shown in .

Box 4.2: Elements of operational separation in New Zealand

A requirement to establish a separately branded, stand-alone ANS unit that will control all present and future access network assets, including fibre and wireless access assets. This will ensure broad and comprehensive service coverage, and ensure the unit is forward-looking and future-proofed.

Generally speaking no Telecom employees are allowed access to ANS unit commercial or customer confidential information unless the service provider that provided that information consents.

A requirement that any future commercial fibre-to-the-premises and access to the NGN core be provided on a non-discriminatory basis.

A requirement for an arms-length wholesale division that will provide access to key fixed network regulated services, including advanced bitstream services to all service providers (including Telecom).

[55] MED (2007b).

[56] Telecom (2008) Telecom Separation Undertakings as provided to the Minister of Communications on 25 March 2008 in accordance with section 69k(2)(c) of the Telecommunications Act 2001.

A requirement that the definition of relevant wholesale services include IP interconnection, and Telecom to provide details of its future consultation programme with service providers regarding IP interconnection.

A requirement that the key regulated services be supplied to an "Equivalence of Inputs" (EOI) standard, and that ANS services (including fibre and access to the NGN core) be developed to be "EOI ready" to underpin future non discriminatory access.

A requirement for Telecom to develop all necessary EOI infrastructure and transition all its services to that infrastructure within a four-year window. Telecom may (and has) propose migration plans for its legacy services to EOI compliant networks within four years as an alternative.

Strict governance and arms-length rules that enable the Telecom group to be managed consistently with a robust operational separation, including the ability for the Telecom CEO to direct units subject to transparency requirements.

Formal oversight of Telecom's implementation and internal compliance by an Independent Oversight Group (IOG) backed up by Commerce Commission enforcement.

A requirement for Telecom to meet key organisational change requirements by "separation day", which must be no later than 31 March 2008.

4.4. Current arrangements in Australia

Telstra was the monopoly provider of telecommunications services in Australia until 1989 when Optus entered the market. Telstra was privatised in three stages beginning in 1997 when the telecommunications market was opened to full competition.

Telstra remains as the monopoly provider of fixed line services over the local copper loop. It also owns mobile, transmission and cable networks. Telstra faces competition from mobile networks and from cable networks operating in higher density areas in most state capital cities. Broadband markets have also been opened up to competition by unbundling of the local loop. As at 31 January 2007, ACMA reports that around 460 exchanges have had more than two digital subscriber line operators installing infrastructure. At this time Telstra retains a market share of around 40% of broadband services in Australia.

Since competition was introduced in Australian telecommunications markets, the government has imposed accounting separation, of various forms, on telecommunications carriers. Recently, the government has imposed a loose form of operational separation on the local loop incumbent, Telstra.

Accounting separation was first introduced under the *Telecommunications Act 1991*. The Act required the regulator (AUSTEL) to develop an accounting separation regime

referred to as the chart of accounts (COA) and a cost allocation manual (CAM). The regime required horizontal accounting separation between each carriers' retail services.

Vertical accounting separation was introduced by the new regulator (the ACCC) in 2001 under its Telecommunications Industry Regulatory Accounting Framework (Record-keeping rules) issued under section 151BU of the *Trade Practices Act 1974*. The first generation of the rules required accounts to be kept on an historic cost accounting basis and reported revenues and costs for Telstra's retail and wholesale services (including its 'internal' wholesale services) separately.

The second generation of the rules (implemented in June 2003) brought the accounting separation under a current cost accounting basis. These coincided with a direction from the then Minister to the ACCC to implement an enhanced form of accounting separation of Telstra's wholesale and retail accounts. In addition to current cost accounting the direction required the ACCC to report on key performance indicators for non-price terms and conditions that compare service performance between retail and wholesale supplied services and also report imputation tests for some key wholesale services supplied to access seekers.

Operational separation was introduced under the Telecommunications Legislation Amendment (Competition and Consumer Issues) Act 2005 and subsequent ministerial determinations made under the Telecommunications Act.

The stated objective of the operational separation framework was to provide greater equivalence and transparency in Telstra's supply of certain key wholesale services. The framework required Telstra to prepare its own framework for separation (the operational separation plan or OSP) and have for it approved by the Minister. The ACCC was given the role to monitor and report on the implementation of the Telstra separation plan once it had been approved by the Minister, though Telstra itself produces quarterly and annual reports on its compliance with the OSP. The Minister approved Telstra's OSP on 23 June 2006.

Under its plan, Telstra has divided itself into three business units – a wholesale business, a retail business and a 'key network' service business unit. The key network service business provides service activation and provisioning as well as fault notification, handling and rectification services. Telstra has undertaken that these businesses will operate "substantially separate" from one another. For example, an employee of the retail business unit must work principally for that unit and they are "not permitted to undertake any work" for the wholesale business unit. The level of the separation is however relatively mild, allowing:

- employees of the key network and wholesale business units to work for another business unit as long as it "only forms a small part of that employees role";
- "legitimate" short-term secondments or transfers; and

- employees of the "corporate business unit" to operate across each of the separated units.

The principal focus of the separation is between the wholesale business and the retail business with various undertakings to separate offices, staff and activities. For example:

> *"the staff of the Wholesale Business Unit are located in premises that are physically separate from any premises occupied by staff of the Retail Business Unit (although this does not mean that the staff need to be located in a separate building) [and] have security measures in place that prevent a member of the staff of the Retail Business Unit from gaining access to the premises where staff of the Wholesale Business Unit are located"*

Importantly, no similar provisions seem to apply to separate staff between the network business unit and the retail business unit, likely making the operational separation plan distinctly less effective than operational separation plans adopted in overseas jurisdictions, including the United Kingdom and New Zealand.

Telstra's OSP adopts a number of 'strategies' for matters such as 'service quality', 'information equivalence', 'information security' and a 'customer responsiveness. These strategies variously require Telstra to prepare reports (overseen by a "Director of Equivalence") and adopt protocols to demonstrate that the service provided to wholesale customers is equivalent in some respects to the service provided to Telstra's own retail business unit. Though notional contracts will be put in place between the key network services unit and the wholesale and retail business units, the provisions do not require Telstra to use the same systems or platforms to service wholesale customers as they do their own retail business unit. For example, the OSP indicates:

> *"The Strategies will assist in the **achievement of equivalence in the operational quality** of Designated Services supplied to wholesale customers and the Retail Business Unit by describing, among other things, the measures Telstra will implement: (a) to ensure that the standard of delivery of Designated Services supplied to wholesale customers is equivalent to the standard of delivery of Designated Services provided to the Retail Business Unit, through a commitment to the implementation of processes to promote the principle of equivalence of supply by the Key Network Services Business Unit of Fault Detection, Handling and Rectification, and Service Activation and Provisioning"*

The Telstra OSP could be described as one that seeks to report on 'equivalence of output'. This is in contrast to more detailed separation models such as that for which required more fundamental separation designed to provide 'equivalence of inputs'. For example, the UK operational separation regime required the separated Openreach entity to use the same ordering system to all customers including BT's retail business unit.

Telstra's OSP also imposes an imputation test under the guise of a 'Price Equivalence Framework' with the intention of assessing the impact of Telstra's price changes on the margin available to an efficient competitor. The principles by which the imputation test was to be developed were as follows:

(a) *"the price equivalence framework should focus on services and markets where there are bottlenecks such that there is a significant concern that pricing behaviour may raise concerns about compliance with the Trade Practices Act;*
(b) *the price equivalence framework should not impose unreasonable costs or delays on Telstra and should allow Telstra to obtain legitimate benefits from vertical integration;*
(c) *the price equivalence framework does not duplicate, replace, affect or extend the Trade Practices Act but will be consistent with that Act;*
(d) *the implementation of a price equivalence framework will not directly affect Telstra's pricing conduct or pricing decisions nor is it a price setting mechanism;*
(e) *the price equivalence framework should provide the ACCC with greater transparency and understanding of Telstra's pricing behaviour, and will enable the ACCC to provide public assurances about the degree of transparency available to it (which, for the avoidance of doubt, does not include allowing the ACCC to disclose to the public or a wholesale customer any pricing strategy of a Retail Business Unit);*
(f) *outcomes resulting from the application of the price equivalence framework will not be determinative of whether Telstra has or has not acted inconsistently with the Trade Practices Act and any test results will remain confidential; and the ACCC will not be inhibited in its exercise of its functions under Parts XIB and Part XIC of the Trade Practices Act by any material resulting from, or by the application of, the price equivalence framework."*

An imputation test is conducted whenever there is a material change in retail prices (material is defined as resulting in a 3% change in retail revenue). The imputation test is conducted for residential and business customers separately as well as together. The scope of the imputation test in terms of retail services includes ADSL and PSTN voice telephony services. The OSP matches the retail services to the 'least cost' wholesale service (or "Designated Services". For example, the retail bundle of ADSL and PSTN is matched with the ULLS rather than the LCS and wholesale ADSL Layer 2 Service. The matching from the OSP is as follows:

Designated Services	Relevant retail service(s)
1. Domestic PSTN Originating Access Service	National long distance calls, International long distance calls, Fixed-to-mobile calls
2. Domestic PSTN Terminating Access Service	National long distance calls
3. Local Carriage Service (LCS)	Basic Access and Local Calls
4. Wholesale ADSL Layer 2 Service	BigPond ADSL
5. Line Sharing Service (LSS) aka Spectrum Sharing Service (SSS)	BigPond ADSL
6. Unconditioned Local Loop Service (ULLS)	Basic access, Local calls, National long distance calls, International long distance calls, Fixed-to-mobile calls and BigPond ADSL
7. Domestic Transmission Capacity Service	BigPond ADSL

The imputation test adopts the following major inputs:

- ***"Internal Wholesale Price**: The internal wholesale price for Designated Services used in Telstra's imputation test will initially be based on the average wholesale yield calculated across all wholesale customers taking the relevant Designated Service. Telstra may also run its imputation test using the internal wholesale price set at the wholesale yield associated with the lowest available or actual wholesale price.*

- ***Avoidable Transformation Cost**: Telstra's imputation test will incorporate the avoidable cost of transforming the Designated Service to a retail service to the extent practicable. If sufficient estimates of avoidable costs are not available, Telstra may use the average costs of transforming the Designated Service to a retail service.*

- ***Revenues**: In general, Telstra's imputation test will incorporate all revenues derived from the relevant retail services associated with the full relevant customer base, regardless of whether customers were on superseded plans."*

The imputation test is broad and seeks to identify equivalence in an ex post context. That is, it asks whether the result of the actions by Telstra resulted in an unequal

outcome for wholesale customers compared to Telstra's retail business unit. Notably there is nothing in the operation separation plan would appear to prevent Telstra from changing prices that resulted in a price squeeze or require Telstra to rectify its conduct by offering prices that would alleviate the price squeeze.

Imputation test are, by nature, complex and involve a number of choices regarding inputs that might draw attention to or away from potentially anti-competitive conduct. Choices regarding the treatment of bundled revenues, costs (average versus incremental), the timeframe for the test and treatment of customer segments or customer plans are likely to have a significant impact on the results.

Cave (2008) is sceptical about the efficacy of current vertical separation arrangements in Australia remarking:

> *"a loose form of separation was implemented by Telstra in 2006. It involved the creation of a separate wholesale division, to be responsible for sales by the incumbent to competitors. Exactly how this would achieve the goal of equivalence was not clear."*

This echoes an earlier negative position expressed in Cave (2006) on the then proposed approach in Australia:

> *"seems singularly ill-equipped to achieve any kind of equivalence in the services offered by to internal and external customers, as it exaggerates the differences in institutional arrangements between them. In any case, these considerations suggest that creation of a wholesale division by itself will be ineffective."*

The current arrangements in Australia are variants on accounting separation and are not comparable to the robust arrangements erected in New Zealand or the UK. At best they conform to the model of virtual separation, but fall short of the regulatory rules required to make effective non-discrimination.

5. Conclusion – Australia needs more separation

In 2007 the Australian Labour Party set out a position advocating equivalence in the context of investment in higher speed broadband services and the NBN by promising to:[57]

> *"Ensure competition in the sector* [telecommunications] *through an open access network that provides equivalence of access charges and scope for access seekers to differentiate their product offerings."*

The principle of equivalence should be enshrined in regulatory practice, but when asked at a Senate Hearing[58] by Senator Lundy whether the current operational separation plan is "an effective mechanism for promoting equivalency between Telstra and its competitors", Graeme Samuel, Chairman of the ACCC, responded:

> *"The short answer is probably not. We continue to receive complaints of conduct that suggest the objective of equivalence, which was the objective of the regime, is not being achieved...in summary, we would have to say that the regime is fundamentally unduly complex. There is a lot of discretion left to Telstra. There are limited self-regulatory mechanisms and unduly convoluted processes to implement any corrective action if a problem is identified."*

There do not appear to be any insuperable obstacles to specifying contracts referring to active and passive wholesale services provided over the NBN. This is an important observation, as it is likely to diminish transactions costs and make the case for structural separation more attractive. The potential for contracts to address objections to structural separation has been summarised by Cave and Doyle (2007a) as:

> *"There are thus numerous examples, some of them discussed above, others summarised in literature reviews and collections, of how flexible and sophisticated contract design can overcome problems of opportunism. Examples of such methods are long-term contracts, take or pay arrangements, demand projections made by disinterested third parties, and customer engagement. These methods do not solve all the problems which result from regulation in conditions of asymmetric information, but they can solve or mitigate problems associated with separation, and allow consumers to benefit from the advantages of separated structures."*

Structural separation requires ownership separation of the network and other business divisions (the NBNCo model). In this setting the network owner ought to behave in a neutral manner and treat all equivalent purchasers similarly. Needless to say, separation would result in some lost economies of scope (vertical economies) –

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[57] ALP (2007) Executive Summary.

[58] Senate Hearing 2008.

though it is unclear whether these would be significant given the capacity for market participants to design contracts to deal with many contingencies.

But the key advantage of structural separation is that it removes the incentives for the owner of the network to behave in a discriminatory manner. While scope economies mean operating costs may be slightly higher when compared against an integrated structure, the promotion of more effective competition downstream could confer benefits that outweigh these. Furthermore, structural separation greatly reduces the job of regulating the principle of non-discrimination – which substantially lessens the regulatory burden. Notwithstanding, regulation of the monopoly network would be needed – but this would be the case in the event of an integrated entity.

By contrast **functional separation** requires an elaborate regulatory monitoring and compliance apparatus able to make effective Chinese walls and non-discriminatory procedures. The task of monitoring activities is considerable and compliance checks need to be extremely thorough if they are to succeed in achieving a level playing field. As discussed in the BT and Telecom New Zealand case studies above, functional separation needs sophisticated governance structures to be effective.

The judicious identification of appropriate physical boundaries for separation in a telecommunications IP network and structural division (through ownership or legal separation) would likely involve a substantial one-off cost, but would provide greater regulatory clarity and more assurance of a level playing field over the longer-term. These benefits could outweigh adverse coordination issues. Other separation remedies would appear insufficient to deal with the magnitude of the vertical competition problems that could arise and in any case tend to entrench and deepen regulation (both self-regulation and externally applied regulation).

The case against structural separation in telecommunications rests heavily on the notion that coordination between upstream and downstream elements confers substantial benefits. However, there is little supporting evidence to substantiate this claim. Indeed, Gomez-Ibanez (2003) has noted that the net benefits of separation in telecoms are positive.

Nevertheless, it is evident that there are few illustrations of voluntary divestiture in the industry – which may suggest that separation benefits are limited. However, voluntary separation is motivated by private benefits and would not take account of wider social benefits associated with the pro-competitive effects arising. Furthermore, the prospect of regulatory appropriation of private gains associated with voluntary separation, in addition to costs associated with persuading regulators to allow separation, are likely to be factors that weigh against actioning voluntary separation. Finally, it is only in very recent times with the advent of NGN and NGA that the WholesaleCo model of separation has become realistically feasible. It is unsurprising therefore that there have been so few cases of voluntary vertical separation.[59]

[59] The Irish incumbent operator Eircom proposed in 2007 to separate along the lines of the NetCo model by spinning-off its retail operations and creating a separate network company. The Irish regulator ComReg is assessing whether

The Terria proposal for structural separation of the NBN has merits and should not be dismissed on the nebulous grounds that coordination difficulties would adversely affect investment. While coordination may confer benefits within an integrated vertical structure, these are likely to be offset by the economic costs associated with anti-competitive conduct arising from non-discriminatory practices enabled by market power residing in bottlenecks.

As confirmed above, current arrangements for dealing with discrimination in the Australian regulatory environment are weak. At the very least regulatory policy with regard to the NBN should adopt a more robust functional separation model as the case of New Zealand. If policy makers wish to avoid the additional regulatory intrusion and complexity of functional separation, then structural separation would be the obvious alternative remedy to apply.

this proposal is consistent with the policy objectives for telecommunications set out in Irish law. TeliaSonera in Sweden and Telecom Italia have recently established separate access divisions.

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'yes' OPTUS

12 September 2008

Committee Secretary
Senate Select Committee on the National Broadband Network
Department of the Senate
Parliament House
CANBERRA ACT 2600

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Senate Select Committee on the National Broadband Network

Optus is pleased to provide the attached report (*Plan for the Separation of the NBN Operator)* to the Senate Select Committee on the National Broadband Network (NBN) to assist the Committee's deliberation on the many issues associated with the Government's plans for the delivery of high speed broadband services to 98 per cent of the Australian population

The attached report is a 'Plan for the Separation of the NBN Operator' and has been prepared by Optus.

The plan sets out a detailed blueprint for the separation and operation of the NBN and is intentionally directed at a situation where Telstra is selected as the preferred bidder for the NBN – regarded by many in the industry as the worst case scenario for competition.

However, the principles outlined in this plan can be, and are intended to be, applied to any successful bidder for the NBN.

The document is set out in two parts:

Part A sets out the:

- principles and rules that should apply to the operator of the NBN, including the legal structure of the NBN operator.
- need for the NBN operator to provide equivalence of inputs to all NBN users.
- Regulatory steps needed to establish the NBN, including effective use of existing network infrastructure.

Part B outlines in greater detail a legislative and regulatory framework to give effect to these principles and rules.

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We look forward to an opportunity to discuss our submission with the Committee in the near future. For more information please contact Optus' Government Affairs Team on 02 8082 8005.

Yours sincerely

Maha Krishnapillai
Director, Corporate and Government Affairs

Plan for the Separation of the NBN Operator

Plan for the Separation of the NBN Operator

Introduction

The purpose of this document is to set out a detailed plan for the separation and operation of the National Broadband Network (**NBN**). It supplements the Optus submission.[1] Like that submission, it is intentionally directed at the situation where Telstra is selected as the preferred bidder for the NBN; the worst case scenario for competition. The principles outlined in this plan can be, and are intended to be, applied to any successful bidder for the NBN.

While detailed arguments in favour of the structural separation of the NBN are set out in the Optus submission, and other supporting submissions[2] this document also examines some of the policy principles and rules which should apply to a vertically separated NBN operator.

This document is structured in two parts:

Part A sets out the principles and rules that should apply to the operator of the NBN: including the legal structure of the NBN operator; the need for the NBN operator to provide equivalence of inputs to all NBN users; and the regulatory steps needed to establish the NBN, including effective use of existing network infrastructure. (**Annexure A** summarises the key principles set out throughout this document.)

Part B outlines, in greater detail, a possible legislative and regulatory scheme to give effect to these principles and rules.

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Optus supports the Australian Government's favoured policy of investing in the NBN by means of equity, rather than debt.

The Government's decision to invest $4.7 billion in the NBN recognises:

(a) the importance of the NBN to Australia's future prosperity;

(b) the need for the Australian Government to facilitate the roll-out of the NBN through significant financial support; and

(c) the desirability of the Australian Government, acting in the national interest, to have a direct say in the development and ongoing operation of the NBN.

Depending on how it is structured, an equity investment increases the likelihood that the Australian Government will achieve its objectives, while generating an acceptable Return on Invested Capital (**ROIC**).

In the case of infrastructure investment such as the NBN, the level of ROIC achieved will, in large part, be determined by the rules governing its operations, and most particularly the permitted level of access charges, any rate of return regulation, and the NBN operator's own capital management practices.

It follows that a key consideration for the Government will be the inherent tension between investing with a desire to generate a market ROIC while achieving its other stated objectives, including:

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[1] *Optus Submission – Regulating the National Broadband Network*, June 2008 (the **Optus Submission**).

[2] See, in particular, Dr Chris Doyle, *Structural Separation and investment in the National Broadband Network Environment*, 25 June 2008 (**Doyle Report**).

- the foundations for long-term sustainable prosperity;
- the promotion of the long-term interests of end-users; and
- the efficiency and international competitiveness of the Australian telecommunications industry.

Competition has long been recognised as the best means to achieve these objectives. However since the NBN is likely to be – and should be – a monopoly asset (to avoid unnecessary and wasteful infrastructure duplication), the achievement of objectives unrelated to ROIC could be compromised if the ROIC objective is given primary significance over other competition, innovation and efficiency objectives.

In attending to the inherent tradeoffs between acting as policy-maker and investor, how the Government sets the terms of its equity participation will be extremely important. Optus considers that it is desirable for a new entity to be formed to facilitate NBN investment, separate from the Future Fund's interest in Telstra Corporation or any other approach that could be adopted. Throughout this submission, the proposed new entity, formed to own and operate the NBN, is described as '**NBNCo**'.

Optus considers it unsurprising that Telstra has said that it would prefer the Government to act as a lender, providing debt to NBNCo, rather than as a co-equity investor. It will be easier for Telstra to profit maximise from this position as the NBNCo majority owner and operator.

This submission outlines a regulatory approach intended to avoid this outcome.

Part A – Rules and Principles

1. The NBN operator

1.1 Establishing a new and separate NBNCo to own and operate the NBN will improve transparency compared to other alternatives. It will also allow the Government to set parameters around the terms of its equity investment, for example by way of a Shareholders' Agreement or the inclusion of specific provisions in NBNCo's Constitution to ensure that, in determining what constitutes the 'best interests of NBNCo', its directors are required to have regard not only to profit and ROIC maximisation, but also to competition and other stated objectives.[3]

1.2 The extent of the Government's ownership of NBNCo will obviously depend on the overall value of the business relative to the Government's investment of $4.7 billion. Given the estimated cost of the NBN, it is probable that the Australian Government will be a minority shareholder in NBNCo. It is not essential that the Government owns a majority, or even half, of the capital of NBNCo. However, in establishing NBNCo:

(a) its Constitution will need to reflect the main purposes and principles under which NBNCo will operate. In particular, NBNCo's Constitution should specify that the directors and officers of NBNCo are to act exclusively in the interests of NBNCo, and are not to have regard to the interests of any shareholder;

(b) a Shareholders' Agreement should exist between the Australian Government and the selected co-investor(s) to ensure:

(i) the representation of the Australian Government on NBNCo's board;

(ii) the main purposes and principles governing NBNCo's operations (as set out in its Constitution);

(iii) other interests of the Australian Government as a minority shareholder.

1.3 The Australian Government's policy objective is not to re-enter the telecommunications market as an active retail market participant, but rather to invest in the development of critical communications infrastructure that will allow next generation communication services to be supplied in a competitive retail market. It follows that NBNCo should not be permitted to vertically integrate by developing and supplying carriage services in the retail market, nor should any retailer of communication services be permitted to be directly involved in the operation of NBNCo. Any vertical integration of NBNCo would provide it with the incentive and ability to discriminate against other downstream competitors. A vertically integrated NBNCo would have the ability to stifle competition in downstream markets, as outlined in chapters 6 and 7 of the Optus Submission[4]. In other words, structural separation of NBNCo, meaning legal and operational separation, is both necessary and desirable.

1.4 To prevent the vertical integration of NBNCo, it will be necessary that NBNCo's formation documents (as well as potentially a carrier licence and/or legislation) make it clear that NBNCo may not engage in the retail supply of services, either by itself, through a subsidiary, or jointly with any other service provider.

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[3] See comments in Doyle Report, Chapter 5.

[4] *Ibid*, Chapter 2.

The NBN Operator – Principles

A. The Australian Government's $4.7 billion investment in the NBN should be made by way of equity in a newly created NBNCo.

B. The constitution of NBNCo should enshrine the main purposes and principles governing its operation, including the requirement that its directors and officers act exclusively in NBNCo's interests, without regard to the interests of any carrier etc, that is related to NBNCo.

C. There should be a Shareholders' Agreement to protect the interests of the Australian Government as a minority investor, including:

(a) representation on NBNCo's board of directors;

(b) binding the parties to the main purposes and objectives governing NBNCo's operations, including specifically the non-financial objectives (as described in the NBN tender documents, and summarised on page 5 of Part A of this document). In making its decisions, the Board of NBNCo should be required to give equal consideration to each of NBNCo's stated objectives, both financial and non-financial. Non-financial objectives should be prescribed to ensure that NBNCo maximises usage of the NBN and operates to ensure equivalence of inputs to all access seekers; and

(c) agreeing that NBNCo is not permitted to engage in the retail supply of carriage services, either alone, through a subsidiary or jointly with another person (this could also be prohibited by legislation and/or licence condition).

2. Structural separation of NBNCo

2.1 Paragraphs 7.29 to 7.34 of the Optus Submission recognise that there may be common ownership between NBNCo and a downstream retail supplier of carriage services (simply because most interested bidders for NBNCo will be associated with telecommunications carriers operating in the retail market). On the assumption that Telstra is selected to operate the NBN, this is a certainty.

2.2 In order to protect competition in retail markets, there will be a need for the legislation to contain a series of structural separation rules, to provide for the legal and operational separation of NBNCo from Telstra. The structural separation rules should include the measures set out in section 3 below.

2.3 If NBNCo is legally and operationally separated from Telstra, with an independent Board and management, many competition difficulties and concerns, and design difficulties in terms of regulatory structure, will be resolved.[5] An independent NBNCo, even if associated with Telstra, will not have the same incentives as an integrated firm to favour itself in terms of access to, and use of, the NBN. Provided NBNCo is established on this basis, it can be prevented from doing so under the terms of its incorporation.

2.4 However, assuming NBNCo is majority owned by Telstra, its incentives to favour Telstra Retail will not be eliminated entirely (see paragraph 7.32 of the Optus Submission). Measures will still be needed to ensure that NBNCo does not give preferential treatment to Telstra. Further, issues unique to Telstra are likely to arise given the architecture of the NBN – which, in order to

[5] *Ibid*, Chapter 5.

minimise unnecessary asset duplication, will require use of existing Telstra infrastructure (see sections 6.1 to 6.15 below).

2.5 While it is a matter of regulatory design, the Government has a range of options for how it implements structural separation. These include by:

- legislation;
- licence conditions (possibly via amendments to the *Telecommunications Act 1997* (Cth));
- formation documents for NBNCo, including its Constitution and a Shareholders' Agreement;
- a combination of the above.

2.6 Issues for the Government to consider include whether it wishes to impose penalties for breach of the structural separation rules, what regulatory oversight will be needed (and by which regulators) and the benefits of enforcement by private action (as shareholder). This submission recommends that a combination of mechanisms be adopted.

Structural Separation – Principles

D. Even if NBNCo is a separate legal entity, there will be a need for structural separation rules to ensure that NBNCo does not give preferential treatment to its owners in terms of access to, and use of, the NBN.

E. There are a range of options by which this can be done, including legislation, licence conditions, NBNCo's formation documents, or a combination of all three.

3. Structural separation rules

3.1 Key aspects of the structural separation rules are detailed below.

Directors and officers

3.2 The rules for structural separation should provide that no director or officer of NBNCo can be a director, officer or employee of any other carrier or service provider.[6]

3.3 This measure recognises that the directors and officers of NBNCo will have an irreconcilable conflict of interests and duties if they must concern themselves, simultaneously, with the interests of NBNCo as well as the interests of another carrier or service provider. Managing actual or potential conflicts of interest within any boardroom is a complex, and potentially disruptive, matter. At a management level, it is next to impossible. If it is a requirement of NBNCo's Constitution that its directors and officers act exclusively in NBNCo's interests as specified, it follows that the directors of NBNCo should not simultaneously serve another carrier or service provider as a director, officer or employee. This rule will ensure the independence of NBNCo's Board and management.

3.4 This rule is not limited to a carrier or service provider that is a shareholder in NBNCo. It would be an odd result if a director of Telstra (as the majority owner of NBNCo) was prohibited from being a director in NBNCo, but a director of Optus could be. Similar conflicts of interests and duties would exist. A strict prohibition on common directorships reflects the policy objective of separating the board of NBNCo from the Board and management of all access seekers of the NBN. It should apply across the industry, irrespective of whom holds NBNCo's shares. We note,

[6] *Ibid*, pp 19-20.

in this respect, similarities with the approach to the Independent Oversight Group under New Zealand's operational separation rules.[7]

Employees

3.5 The rules for structural separation should provide that no employee of NBNCo can be an employee, officer or director of any other carrier or carriage service provider.[8]

3.6 In other ring-fencing regimes, the separation of staff is limited, e.g. under section 4.1(h) and (i) of the *National Third Party Access Code for Natural Gas Pipeline Systems* (**Gas Code**), separation is limited to 'marketing staff'. However, stricter obligations are imposed by other telecommunications regimes. For example, in New Zealand, the Minister has determined that no employee working for the access network services unit of Telecom Corporation of New Zealand (**TCNZ**) may work for any other TCNZ business unit.[9]

3.7 Section 3.5 above proposes a stricter separation of staff than the Gas Code. The prohibition on sharing marketing staff under the Gas Code is part of a generic ring-fencing regime for gas pipelines. It recognises that a single service provider may, without harming competition, own more than one pipeline system, but should, with only a few exceptions, be permitted to operate those pipeline systems using a single group of staff. The NBN is different. This will be a single network forming the backbone of Australia's next generation communications infrastructure for decades to come. The regime set out in this paper is a regime for the full structural separation of NBNCo from any other carrier or service provider. This is intended to avoid the otherwise strong incentives for any entity offering retail market services through an associate of NBNCo to seek or obtain commercial advantage if NBNCo staff are simultaneous employed by the related entity. For example:

(a) management will make commercial decisions on the terms and conditions of access to all services supplied over the NBN (noting, as highlighted in the Optus submission, that these services will, for economic reasons, in all likelihood be 'resale' based, not infrastructure based);

(b) engineering and technical staff will require advance notice of the requirements of access seekers and will need to make decisions about the provisioning of the NBN, fault detection and rectification, and network innovations to enable new services; and

(c) sales and marketing staff of NBNCo will have advance notice of the requirements of access seekers, and will be privy to the commercial terms and conditions on which access seekers use services supplied over the NBN.

3.8 At every level of NBNCo, its staff will have a conflict of duties and interests if they must deal with access seekers in an equivalent manner, while also being employed by a carrier or service provider that competes with those access seekers. In a regime for the separation of NBNCo, in which directors must be independent, it naturally follows that all staff should also be independent of any other carrier or service provider.

3.9 For the reasons in section 3.4 above, it is necessary that NBNCo staff are separate from all carriers and service providers, not only Telstra.

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[7] *Telecommunications (Operational Separation) Determination 2007*, (the **NZ Determination**) Part 6.

[8] Doyle Report, pp 19-20.

[9] NZ Determination, cl 30.

3.10 The terms and conditions of employment for NBNCo employees should be set only by reference to NBNCo's operations. Specifically, no aspect of any employee's remuneration or performance incentives should be affected by any related entity's performance. The requirements of the *Telecommunications Act 2001 (NZ)* (the **NZ Act**), and Ministerial determination, in relation to separation of employees are relevant in this respect: see Annexure B, paragraph 4.16.

Premises

3.11 The rules should provide that NBNCo occupy separate premises from any other carrier or service provider.[10]

3.12 One of the chief objectives of structural separation is to ensure that the confidentiality of commercially sensitive information provided by access seekers to NBNCo is protected. In order to achieve this objective, it is essential that staff of other carriers or service providers do not have access to the premises of NBNCo.

3.13 This approach has been adopted in other countries, for example New Zealand. Under section 69D(1)(b) of the **NZ Act**, TCNZ must operate its fixed network access service at arm's length from any other TCNZ business unit. Clauses 40(1) and (2) of the NZ Determination (made pursuant to the NZ Act) provides:

> *(1) The separation undertakings must provide that all employees working for the ANS unit must be located in access-controlled accommodation that is separately secured from all other Telecom business units.*
>
> *(2) The separation undertakings must provide that after 12 months after the separation day all employees working for the ANS unit must be located in accommodation that is separately located from all other Telecom business units.*

These requirements are adopted in paragraphs 36.1 and 36.2 of TCNZ's separation undertaking dated 25 March 2008 (**NZ Undertaking**).

3.14 In relation to NBNCo, the regulatory regime should specify requirements relating to security and access to premises, and could require NBNCo to set out these measures in its Separation Plan.

Information Technology

3.15 NBNCo should have IT systems that are separate from any other carrier or carriage service provider's IT networks for the same reasons as those governing the recommendation relating to separate premises.[11]

3.16 It may be argued that the separation of premises and IT systems would impose unnecessary costs by requiring the separation of services that could be supplied more efficiently on a joint basis (e.g. by sharing common facilities and IT systems). However, any increased costs must be weighed against:

(a) the potential harm that will be caused by the transfer of confidential information from NBNCo to a carrier or service provider through shared facilities; and

(b) the cost of more complex and intrusive regulatory oversight that will be necessary if these facilities can be shared, including:

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[10] Doyle Report, pp 19-20.

[11] *Ibid.*

(i) the cost of developing, implementing, and monitoring more intrusive behavioural rules; and

(ii) the costs of accounting for and reporting on joint facilities and other assets.

3.17 In particular, it is anticipated that Telstra will argue that the inability to operate a vertically integrated network, with use of shared network and support services, will result in an economic cost to the economy through efficiency losses associated and with forgone economies of scale and scope. In arguing this case, the onus should be on those doing so to demonstrate:

(a) the magnitude of these efficiency losses (if any) on a basis that can be audited and assessed by policy-makers; and

(b) that the losses are not outweighed by gains arising from a more competitive and efficient industry, stimulated by a structurally separated NBN treating all access seekers on an equivalent basis, and avoiding unnecessary and uneconomic network duplication through the achievement of a shared NBN platform.

Other assets

3.18 The rules should prohibit joint ownership by NBNCo and other carriers (etc) of other assets, such as installation and maintenance equipment, vehicles, communications technology, etc.

3.19 This measure is primarily designed to ensure transparency in the cost of providing services. There will be a need for NBNCo to keep regulatory accounts, in a form to be specified, in order to accurately allocate costs to services for the purposes of ensuring that access prices are based on efficient costs and to demonstrate that equivalent treatment is provided.

3.20 While the requirement to use separate assets may increase the costs to both NBNCo and a related carrier (etc), these costs must, again, be weighed against the regulatory costs that will be incurred if NBNCo is permitted to share assets with a related carrier, including the costs of developing and complying with rules for asset allocation, accounting and reporting.

3.21 To attempt to prescribe the classes of assets that must be separated is an invitation for regulatory gaming, delays and increased costs. A more efficient and effective approach is to require the complete separation of NBN asset ownership. This could be achieved by legislation, while permitting the Minister to exempt assets or classes of assets from this rule through a legislative instrument (as appropriate).

Additional rules

3.22 While the measures described above are the critical measures that need to be put in place, it is possible that there may be further rules required over time. The Minister should therefore have the ability to impose additional structural separation rules by legislative instrument. Additional rules could, for example, include a requirement for NBNCo to:

(a) seek approval for incentive arrangements for NBNCo staff that encourage staff to act in the commercial interests of NBNCo and exclude the interests of a related entity;[12]

(b) develop and use branding that is distinct from the branding of a related entity.[13]

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[12] e.g. NZ Determination, cl 39; see also Doyle Report, pp 19-20.

[13] e.g. NZ Determination, cl 41; BT undertaking, cl 4.58; see also Doyle Report, p 19-20.

Structural separation rules

F. No director or officer of NBNCo can be a director, officer or employee of another carrier or carriage service provider.

G. No employee of NBNCo can be an director, officer or employee of another carrier or carriage service provider.

H. NBNCo must not share with another carrier or carriage service provider:

(a) premises;

(b) IT systems;

(a) other assets (unless exempted by legislative instrument).

4. Equivalence of inputs

4.1 Even if NBNCo is structurally separated from Telstra, it will continue to be subject to powerful incentives to discriminate in favour of any related entity for the reasons described in section 2 above. Rules will be required to ensure that all access seekers are afforded fully equivalent treatment in relation to the inputs used to supply services over the NBN.

4.2 A requirement to afford equivalent (or 'non-discriminatory' or 'no less favourable') treatment has been a feature of the Australian telecommunications regime since the start of competition,[14] and is a treaty obligation imposed on Australia by the General Agreement on Trade in Services (**GATS**), the Australia-US Free Trade Agreement[15] and the Singapore-Australia Free Trade Agreement.[16]

4.3 Non-discriminatory treatment is described in the GATS in the following terms:

> *...terms and conditions no less favourable than those accorded to any other access seeker of like public telecommunications transport networks or services under like circumstances.*[17]

4.4 While different terms are used in different contexts, the basic concept of equivalent treatment applies to:

(a) the supply of like services; and

(b) in like circumstances.

4.5 It is implicit in this basic concept that differing treatment is permissible if it is justified because it relates to a different service, or to the supply of a comparable service but in different circumstances. However, there must be limits to this principle. It might, for example, be argued that Telstra is in different circumstances to other access seekers because it is a shareholder in NBNCo. Clearly, this is not a distinguishing factor that should justify more favourable treatment for Telstra.

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[14] *Telecommunications Act 1991*, Part 9, Division 4; *TPA*, s 152AR(3) and (5); *Telecommunications Act 1997*, Schedule 1, Part 8.

[15] Article 12.7.

[16] Article 10.9.1.

[17] *Annex on Telecommunications*, paragraph 5(a) (and footnote).

4.6 Relying on a high level definition of 'equivalence of inputs' will invite on-going argument and litigation on the meaning of this term and the circumstances in which non-equivalent treatment may be permissible. A more detailed statutory definition will be required if the regulatory regime for the NBN is to deliver prompt and effective outcomes. **Annexure B** outlines the different formulations of this concept that have been expressed in statute and treaty, and judicial treatment of this concept.

4.7 The regulatory regime needs to ensure that NBNCo provides 'equivalence of inputs', rather than an 'equivalence of outputs' approach of the type taken by Telstra under its operational separation plan.[18] Based on this objective, and the meaning given to this concept in other regimes, a proposed definition of 'equivalence of inputs' is set out in sections 4.2 to 4.4 of **Part B**.

Services

4.8 Chapter 10 of the Optus Submission discusses the key services that NBNCo should, as a minimum, be required to offer over the NBN. The specification of the key services that must be provided by NBNCo is vital to ensure that:

(a) all access seekers have access to the essential services that are required to enable them to compete in downstream markets;

(b) prices are based on efficient costs; and

(c) there is a robust process of regulatory review and approval of price and non-price terms and conditions.

4.9 It is important to distinguish between efficient cost prices and equivalence:[19]

(a) NBNCo could provide equivalent treatment to all access seekers of the NBN, while still charging all access seekers prices that could not be justified by reference to efficient costs;

(b) NBNCo could charge most access seekers prices based on efficient costs, yet still damage competition by supplying services to Telstra at a discount, contrary to the requirement to provide equivalence of inputs.

4.10 If the regulatory regime for the NBN is to be effective, both principles must apply. This distinction is recognised in **Part B**, which recommends separate rules for:

(a) the approval of access prices for 'reference' services by the ACCC (section 2); and

(b) separation and equivalence of inputs (sections 3 and 4).

4.11 The regulatory regime needs to provide for the specification of the NBN services that will be required by access seekers in order to enable them to compete in downstream markets. For these 'reference services', key terms and conditions, in particular prices, will need to be assessed and approved in advance in order to ensure that access seekers can acquire these services at cost based prices in a timely manner. Access seekers should be consulted on the nature and precise specification of the services. As outlined in the Optus Submission, the negotiate/arbitrate model that has applied to declared services under Part XIC is ineffective and would be a barrier to competition in downstream markets if applied to the NBN. It has been rejected in other parts of the world, for example the United Kingdom and New Zealand. Accordingly, section 2 of **Part B** outlines a process for the specification of reference services, the setting of prices by the ACCC, and the approval of non-price terms and conditions.

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[18] See Doyle Report, pp 37-42.

[19] *Ibid,* Chapter 2.

4.12 At the same time, it is important that the regulatory regime does not restrict the services that NBNCo can provide, or limit NBNCo's ability to develop new services to respond to the needs of the market. An independent NBNCo would have incentives to develop new services, and new combinations of price and quality, in order to meet the demands of its customers. The objective of the regulatory regime for the NBN is not to interfere with these incentives, while ensuring that NBNCo does not give preferential treatment to a related access seeker. To this end, NBNCo should be free to supply 'additional services' on terms and conditions to be agreed between NBNCo and an access seeker, provided that:

(a) there is transparency and regulatory scrutiny with respect to these additional services; and

(b) equivalence of inputs if provided.

4.13 To facilitate this, there should be a requirement for NBNCo to notify the ACCC where it proposes to:

(a) supply a reference service at a price other than the approved price; or

(b) supply an additional service for the first time or at a different price.

4.14 As recommended in the Optus submission, the ACCC should set the initial prices for access to the NBN, with involvement from an industry oversight group. In relation to additional services, the ACCC should have the power to review and, if necessary, disallow these prices – and set prices thereafter. The proposed pricing rules are described in greater detail in section 5 of **Part B.**

4.15 Accordingly, the equivalence rules should provide that:

(a) NBNCo must, on request, supply any reference service to an access seeker;

(b) the regulator can specify reference services and require that NBNCo submit terms and conditions of access for approval;[20]

(c) NBNCo may supply additional services provided that, if NBNCo supplies an additional service to one access seeker it must:

(i) notify the ACCC of the proposed price in accordance with the tariff filing rules; and

(ii) if requested, supply the reference service to any other access seeker on an equivalence of inputs basis.

(d) the ACCC should set the initial prices for access to the NBN.

Prices

4.16 Chapter 9 of the Optus Submission discusses, at some length, the appropriate methodology for ensuring that NBNCo supplies services at prices based on efficient costs.

4.17 In most Australian access regimes, the price approved by the regulator is the maximum price that cab be charged by the service provider. Service providers and access seekers are typically free to negotiate terms and conditions of access, including lower prices. The price approved by the regulator becomes relevant only in the event that the parties are unable to agree on terms and conditions of access, in which case the approved price applies, avoiding the need for arbitration. While in practical terms, the approved price is almost always applied (especially in

[20] The regulator can amend this instrument to specify new services as required, triggering a requirement on NBNCo to propose terms and conditions for the new reference services.

telecommunications markets), parties remain free, at least in theory, to negotiate alternative terms and conditions.

4.18 Whether this principle should apply to NBNCo is an important question. If NBNCo is related to Telstra, it will have an incentive to supply services to Telstra at prices below the approved price, thus giving Telstra a competitive advantage in downstream markets. This submission recommends that the ACCC sets initial prices for NBN reference services. It is argued that NBNCo should be forbidden from supplying a reference service at a price other than at the price approved by the ACCC, recognising that the regulatory approval of prices can lag behind improvements in efficiency that could genuinely justify prices below the approved price. The issue of whether different prices (see section 4.11) can be charged to different access seekers based on cost differences arising through for example volume, or factors such as contract term, is complicated, given the competition and innovation objectives associated with the formation of NBNCo. While such price differences might be possible, it should require ACCC review and approval.

4.19 Hence, it is proposed that access seekers remain free to negotiate prices for reference services that are different from the prices approved by the regulator provided that, if NBNCo supplies a reference service at a price that is lower than the price approved by the regulator, it must notify the ACCC of the price in accordance with the tariff filing rules and obtain the ACCC's approval for the price differences.

4.20 The process for documenting, reporting and publishing terms and conditions of access is discussed in section 7 of **Part B**.

Non-price terms and conditions

4.21 Just as NBNCo must not be permitted to supply services to Telstra on favourable terms, Telstra must not be permitted to obtain a competitive advantage in relation to non-price terms and conditions of access.

4.22 A strict requirement that all access seekers acquire services on identical non-price terms and conditions has the potential to stifle innovation and development of new services. However, NBNCo should be under an obligation to ensure that any combination of price and non-price terms and conditions provided to Telstra is also made available, on request, to any other access seeker. Again, this will need to be the subject of transparency measures discussed in section 7 of **Part B**.

Other aspects of access

4.23 At every level of the relationship between access seekers and NBNCo, there are opportunities for NBNCo to favour Telstra over its downstream rivals. This is why equivalence of inputs must be applied to all aspects of access to, and use of, services supplied over the NBN, including (without limitation):

(a) ordering and provisioning;

(b) access to facilities such as pillars and underground facilities;

(c) billing;

(d) fault detection and rectification;

(e) access to network information.

4.24 This list is illustrative only. Any attempt to specify each area where equivalence of inputs is required will inevitably exclude an area in which discrimination might then become possible.

Accordingly, NBNCo should be subject to a general obligation to provide equivalence of inputs in relation to all aspects of access, including (but not limited to) those identified above. As specified in the Optus submission, an industry oversight group should be established to facilitate the outcome.

Confidential information

4.25 NBNCo will be in possession of commercially sensitive information provided by access seekers, including future requirements and commercial terms and conditions of access. Consistent with other regulatory regimes, it is essential that confidential information provided to NBNCo is not:

(a) unlawfully disclosed; or

(b) used for any purpose other than the purpose for which it was provided;

without the consent of the provider of the information.

Equivalence rules

I. NBNCo must provide all access seekers with equivalence of inputs in relation to:

- **(a) services offered;**
- **(b) quality of service;**
- **(c) price;**
- **(d) non-price terms and conditions;**
- **(e) other aspects of access including (without limitation);**
  - **(i) ordering and provisioning;**
  - **(ii) access to facilities;**
  - **(iii) billing;**
  - **(iv) fault detection and rectification;**
  - **(v) access to network information; or**
- **(f) any combination of the above.**

J. The ACCC should have the power to:

- **(a) specify the key 'reference services' that must be supplied to NBNCo; and**
- **(b) set prices for reference services.**

K. Without limiting the above:

- **(a) NBNCo must, on request, supply any reference service to an access seeker;**
- **(b) if NBNCo supplies a reference service at a price that is lower than the price approved by the regulator NBNCo must:**
  - **(i) comply with the tariff filing rules; and**
  - **(ii) on request, supply the reference service to any other access seeker, on an equivalence of inputs basis, at that lower price;**

(c) NBNCo may supply additional services provided that:

(i) it complies with the tariff filing rules; and

(ii) if NBNCo supplies an additional service to one access seeker it must, on request, supply that service to any other access seeker, on an equivalence of inputs basis.

L. Confidential information provided to NBNCo must not be:

(a) unlawfully disclosed; or

(b) used for a purpose other than the purpose for which it was provided;

without the consent of the provider of the information.

5. NBN Separation plan and Undertakings

5.1 **Part B** of this document outlines a regulatory framework to give effect to structural separation. As a key part of this, NBNCo must submit an NBN Separation Plan and Undertakings that spell out specific measures to be undertaken by NBNCo to comply with the structural separation and equivalence rules. This follows, in general terms, the NZ Act approach; and section 3.13 above gives an example of the type of measure that might be required. As set out in **Part B**, the Minister should be able to specify additional or more detailed measures to be included by NBNCo in the NBN Separation Plan and Undertakings to ensure equivalence of inputs to all access seekers.

As an example of how this might work: Section 69D(1)(f) of the NZ Act requires TCNZ to ensure there is equivalence in relation to the supply of relevant services. Pursuant to s 69F of the NZ Act, the Minister made a determination, clause 43 of which states:

> ***43 Consultation about changes to access network, etc***
>
> *(1) The separation undertakings must ensure that the ANS unit must consult with service provider customers if the ANS unit consults with any Telecom business unit before making any significant decision that may affect relevant network access services in relation to –*
>
> *(a) changes to the access network:*
>
> *(b) changes to the specifications or functionality of any relevant network access service:*
>
> *(c) introduction of any new relevant network access service or any variant of an existing relevant network access service.*
>
> *(2) The separation undertakings must ensure that the extent of the consultation, and the time when consultation occurs, must be equivalent for all service provider customers and Telecom's other business units.*

5.2 These requirements are reflected in paragraph 39 of the Telecom Separation Undertakings (which are made as part of its Separation Plan) in the following terms:

> *39.1 If the ANS Unit consults with a Required Telecom Business Unit before making any significant decision in relation to:*

(a) changes to Telecom's Access Network;

(b) changes to the specifications or functionality of any Relevant Network Access Service that the ANS Unit provides to Service Providers; or

(c) the introduction of any new Relevant Network Access Service that the ANS Unit intends (at the time) to provide to Service Providers or any variant of an existing Relevant Network Access Service that the ANS Unit provides to Service Providers;

and that decision may affect a Service Provider's use or experience of a Relevant Network Access Service, then the ANS Unit will also consult with the affected Service Providers.

39.2 The ANS Unit will ensure that the extent and timing of consultation under clause 39.1 will be comparable in effect for each Required Telecom Business Unit and affected Service Provider.

5.3 This is a useful example of the cascading levels of regulation, and the interworking between legislation and ministerial determinations, and NBNCo's required Separation Plan and Undertakings.

5.4 Further, the Minister may, for example:

(a) specify the use of certain processes or systems in order to ensure that equivalence of inputs is provided or require NBNCo to do so in its Separation Plan; or

(b) specify arrangements to enable NBNCo to transition access seekers to equivalent systems to those used to supply services to Telstra (or require NBNCo to include such measures in its Separation Plan).

NBN Separation Plan and Undertakings

M. The Minister should be able to specify, by legislative instrument:

(a) additional rules relating to structural separation and equivalence of inputs; and

(b) more specific measures that NBNCo must put in place to provide for structural separation and equivalence of inputs.

N. NBNCo must submit an NBN Separation Plan and Undertakings in accordance with these additional requirements.

6. NBNCo's assets

6.1 Paragraphs 5.1 to 5.8 of the Optus Submission explain that the architecture of FTTN, and why the re-location of equipment from the exchange to the node will make it economically not viable to unbundle the NBN.

6.2 It has been recognised since the emergence of Internet Protocol (**IP**) technology that, as circuit switched networks are progressively replaced, IP services – including voice over IP – will be provided differently from current network services, with a greater emphasis on the management of Quality of Service (**QOS**) for different IP applications. For example, in a 2005 Department of Communications, IT and the Arts (**DCITA**) report, it was noted that:

A fundamental shift is occurring as telecommunications providers begin the transition to NGNs. Over the next few years, carriers are expected to renew the switches at the core of the network, replacing the circuit switches that were designed to open and close voice circuits with new switches designed for handling data. This 'next generation' network will enable packet-based

data, including voice traffic, to be transmitted across the whole network. Another change coming with NGNs, although it might take longer, is the widespread take-up of broadband terminal equipment to connect directly into the new IP- based networks.[21]

6.3 The same report stated:

It is widely agreed that VOIP services can provide a very high quality of service, particularly when using fully managed networks. Conversely, quality of service can be highly variable when using the public Internet as a result of:

- *congestion on the public Internet*
- *variations in the quality of broadband access services*
- *the use of multiple providers in delivery*
- *the way customers use and equip their broadband and VOIP services.*[22]

6.4 Next generation IP networks, of which the proposed NBN will form a crucial component, being managed networks where QOS becomes critical to service delivery and differentiation at a retail level, must be seen as distinct from traditional circuit switched networks. Part XIC of the TPA was framed around access and competition concerns in a traditional telecommunications (circuit switched) environment. The NBN cannot simply be treated as a network element or series of network elements, to be declared and regulated under Part XIC of the TPA. Rather, the NBN will be a fundamentally new and different communications network.

6.5 What is the significance of this? While it is superficially attractive to think of the NBN as simply the extension of fibre feeder and inter-exchange networks, and the relocation of electronics from the exchange to the node, to do so would mistake the end-to-end nature of fully managed IP networks.

6.6 This creates an important issue for the Government to consider when deciding on how the NBN will be built. This submission, together with the Optus submission, contends that it would be economically undesirable for NBNCo to replicate infrastructure which already exists today – just as it also contends that, in order to have only one NBN, it will be necessary to restrict overbuild by regulation. Otherwise, Telstra, with its extensive network infrastructure, market power, significant free cashflows, and ability to cross-subsidise would render any other NBN investment unviable.

6.7 If this logic is accepted, it follows that a structurally separated NBNCo should control all infrastructure necessary to provide network services for a fully managed IP network. This means not only the new fibre rolled out as part of the NBN project, but also:

(a) the local loop;

(b) associated facilities and equipment, such as pillars, ducts, etc;

(c) the inter-exchange network to the point of IP interconnection; and

(d) all necessary router equipment.

6.8 Access to the unconditioned loop is already a requirement of the access regime under Part XIC of the TPA. However, as the NBN is rolled out, the local loop as it is operated today will cease to

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[21] *Examination of policy and regulation relating to Voice Over Internet Protocol (VOIP) Services, A Report to the Minister for Communications, IT and the Arts*, DCITA, November 2005, page 23.

[22] *Ibid*, page 28.

exist. It will not be feasible to acquire access to each individual pair at each of the 70,000 nodes that will eventually be deployed as part of the NBN. For the reasons outlined in the Optus submission, FTTN access will be provided as a 'resale' service, not by means of infrastructure access. If Telstra is permitted to deny or delay use of the local loop it will, in effect, be able to veto the roll out of a NBN by anyone other than itself. Given the commitments already made by the Australian Government, and the process that has been embarked upon through the NBN tender, it is a necessary pre-condition to a competitive tender process that the NBN operator will be able to control the local loop, as well as related pillars and underground facilities.

6.9 There are, in broad terms, two ways that this can be achieved:

(a) ownership of assets required by NBNCo is transferred;

(b) assets required by NBNCo are leased on a long-term basis from existing owners.

6.10 The second option would enable assets to be leased to NBNCo progressively as the NBN is rolled out to each node. While there are similarities between this approach and the current access regime, the option of leasing the local loop goes further, cutting over each copper pair to the node as the NBN is rolled out, and providing access to any other infrastructure which would otherwise require duplication. This is similar to the proposal outlined by the G9 consortium in its May 2007 submission that accompanied FANOC's special access undertaking to the ACCC.[23]

6.11 The roll out of the NBN may duplicate and eventually strand certain network assets, regardless of who is chosen to operate the NBN.[24] Whether this occurs depends on whether NBNCo chooses (or is permitted) to:

(a) build a network that by-passes (and thereby strands) existing exchanges;[25] or

(b) continue to use existing exchanges to serve nearby end users.

6.12 At paragraphs 10.5 to 10.6 of the Optus Submission, a roll-out schedule is proposed that will maximise the time that existing assets, including the feeder network, will remain in service. In the event that these facilities are to be by-passed by the NBN, this schedule will ensure that these assets remain in service as long as possible before being stranded. A process for approval of this roll-out schedule is set out in section 9 of **Part B**.

6.13 Even if these facilities are to remain in use as part of the NBN, the feeder network, the backhaul network and the exchanges (and equipment located therein) should remain in the hands of their current owners until NBNCo is ready to take responsibility for these end-users in accordance with its roll-out schedule. This will presumably occur once NBNCo has rolled out the NBN to surrounding areas. At this stage, the NBN will need to lease these facilities from existing owners. The equipment located in existing exchanges is likely to be stranded at this point.

Pricing

6.14 Even with Telstra as the majority shareholder, it will still be necessary for NBNCo (which will be part owned by the Australian Government) to acquire control of sub-loops and associated facilities. Determining access prices for sub-loops is discussed in section 9 of the Optus Submission.

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[23] *Statutory amendments to facilitate competitive proposals for the construction of an Australian next generation broadband network – Submission to the Federal Government by the G9 consortium*, 30 May 2007.

[24] See Chapter 12 of the Optus Submission. E.g. Fibre connecting the node to the exchange (feeder network); exchanges; backhaul transmission (other than inter-capital transmission)

[25] This is illustrated in paragraph 6.2 of the Optus Submission.

6.15 Compensation for access to or transfer of assets to NBNCo would also be required. The process for determining compensation will need to recognise that, if Telstra is the majority shareholder in NBNCo, it will have incentives to inflate these terms, resulting potentially in a windfall gain for itself and higher charges for access seekers and end users.

NBNCo assets – Principles

O. As the NBN is rolled out to each node, NBNCo must acquire (whether by lease or transfer):

(a) the nodes (i.e. existing pillars);

(b) the sub-loops running into the nodes;

(c) associated underground facilities;

at rates to be determined by the Government.

P. Once NBNCo rolls out the NBN to an area (in accordance with its roll out schedule), NBNCo must acquire (whether by lease or asset transfer):

(a) the feeder network;

(b) the exchange;

(c) backhaul transmission facilities;

at rates to be determined by the Government (and provided these assets will remain in service as part of the NBN).

Part B – Legislation and Regulation

1. Introduction

1.1 The proposed vertical separation of NBNCo is unlike anything undertaken previously in regulating the Australian telecommunications industry.

1.2 It has been proposed because of the failure of the current regulators approach to create effective competition in the provision of fixed line services.

1.3 It is clear that the current access regime in Part XIC TPA was not designed to facilitate the roll-out of the NBN. The central objective of Part XIC has been to allow access seekers to acquire access to declared services, including unbundled network elements, in order to enable them to compete in downstream markets. As noted in **Part A**, the NBN is not a network element that can be declared and then made subject to a negotiate/arbitrate regime; nor can NBNCo be expected to build the NBN by acquiring access to existing network elements through the existing regime. Further, as outlined in the Optus submission, the negotiate/arbitrate model upon which Part XIC is built, has failed.

1.4 While there are elements of Parts XIB and XIC that can and should be utilised, a new legislative regime, dealing with specifically with the NBN, is required.

1.5 Fortunately, examples of how to design such a regulatory regime exist overseas, e.g. in the United Kingdom and New Zealand.

1.6 In New Zealand, the legislation requires TCNZ to implement operational separation and to follow a series of procedural steps to have a separation plan approved by the Minister (NZ Act, Part 2A). The key constituent elements of the separation plan are outlined in the NZ Act (s 69D). The Minister has the power to determine further requirements for a draft separation plan by ministerial determination (NZ Act, s 69F)

1.7 The Minister also has the power to amend TCNZ's draft separation plan (NZ Act, s 69L) and may prepare a separation plan if TCNZ fails to deliver within specified timelines (NZ Act, s 69M).

1.8 It is recommended that Australia should follow a similar framework, which has the advantages of:

- leveraging overseas experience; and
- to the extent that something like the New Zealand legislative approach is adopted, aligning Trans-Tasman laws, consistent with harmonisation objectives.

1.9 Obviously the New Zealand approach is based around operational separation. The differences between what Optus recommends, and the New Zealand approach, are largely driven by the Australian Government's investment in NBNCo. It is submitted that this is a material difference justifying legal and operational separation of NBNCo from existing carriers and carriage service providers. For the reasons outlined in **Part A** of this submission, the formation of a vertically separated NBNCo creates a number of commercial, legal and regulatory benefits.

1.10 Whether or not a framework similar to New Zealand is adopted, the new Australian telecommunications regime will need to provide for:

(a) access to services and approval of price and non-price terms and conditions;

(b) structural separation rules;

(c) equivalence rules;

(d) approval of the NBN Separation Plan and Undertakings;

(e) transparency requirements;

(f) dispute resolution, enforcement and remedies; and

(g) lease of assets or asset transfer to NBNCo.

1.11 It is a matter of legislative design whether the proposed separation plan is approved by the Minister or the ACCC. For the purposes of this submission, it is assumed that the ACCC should be the approving body, though, given the proposed role of the Minister to make determinations on a range of matters, this should be considered in detail when regulatory design issues are further advanced. In New Zealand, the Minister clearly took a direct role, separate from the Commerce Commission, to ensure a clear regulatory result, and to guarantee the Government's policy objects were achieved. This significantly reduced the risk of gaming by TCNZ and ensured the Government was taken very seriously in negotiations.

2. Access to services

Legislative Instrument

2.1 The legislation should empower the ACCC/Minister to prescribe, by legislative instrument:

(a) the services that must be offered by NBNCo to access seekers (reference services);

(b) matters in relation to each reference service (in addition to those prescribed in the legislation) that must be addressed in an access undertaking to be provided to the ACCC by NBNCo, e.g:

(i) non-price terms and conditions;

(ii) procedures for ordering, provisioning, billing, etc;

(c) the supporting information that must be submitted by NBNCo together with its access undertaking.

2.2 The ACCC/Minister should make such an instrument with 3 months of commencement.[26]

NBN Separation Plan and Undertaking

2.3 NBNCo should submit a Separation Plan, and Undertakings consistent with it, to the ACCC. It is important to note that this is not an access undertaking under Division 5 of Part XIC. While elements of Part XIC could potentially be used in establishing this regime, there will be a need for additional requirements relating to the approval of prices. Consideration should also be given to streamlined review and enforcement mechanisms.[27]

2.4 The Separation Plan should be submitted first for approval, preferably within 3 months of commencement of the legislation. Once approved, NBNCo should then be required to submit to the ACCC the NBN Undertakings containing, for each reference service:

(a) the matters specified in the legislative instrument described in section 2.1 above;

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[26] Section 33(3) of the *Acts Interpretation Act 1901* (AIA) should apply to this instrument. For example, the ACCC could amend the instrument to specify a new reference service, in which case NBNCo would be required to submit proposed terms and conditions relating to that service.

[27] Alternatively, the potential exists to progressively simplify the post 1997 telecommunications regulatory regime, but this concept is outside the scope of this submission.

(b) such other matters as NBNCo wishes to include in the NBN Undertakings.[28]

2.5 The NBN Undertakings should be accompanied by the information specified in the ACCC's legislative instrument.

Criteria for acceptance of NBN Undertakings

2.6 The ACCC must not accept NBN Undertakings unless it is satisfied that the terms and conditions in the NBN Undertakings are reasonable.[29]

Pricing

2.7 Upon acceptance of the NBN Undertakings, the ACCC must also set the prices to apply to the NBN reference services, in accordance with the pricing methodology prescribed in the legislation.[30]

Assessment process

2.8 The ACCC should publish the NBN Separation Plan and the Undertakings and invite submissions from interested parties, including the industry oversight group..

2.9 The ACCC should have regard to:

(a) the material provided by NBNCo;

(b) submissions received within the timeframe specified by the ACCC;[31]

(c) other information the ACCC considers relevant.

2.10 The ACCC should publish a draft decision:

(a) stating whether or not the ACCC accepts the NBN Access Undertaking;

(b) if the ACCC does not accept the NBN Access Undertaking, specifying the amendments that are necessary in order for the ACCC to accept it; and

(c) setting out the draft prices that the ACCC proposes NBN Services.

2.11 The ACCC must publish its reasons for its draft decision.

2.12 If the ACCC does not approve the NBN Undertakings, NBNCo must revise the undertakings to:

(a) make the amendments specified by the ACCC; or

(b) otherwise address the ACCC's grounds for not accepting the undertaking,

but may not otherwise amend its undertakings.

2.13 NBNCo may make any other submission it sees fit in response to the ACCC's draft decision.

2.14 If NBN Co fails to do so, the ACCC may set the terms to apply to access to the NBN.

2.15 If the ACCC is satisfied that NBNCo has:

(a) made the amendments specified by the ACCC in the draft decision; or

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[28] Where the legislative instrument is amended to specify an additional reference service, NBNCo must, within 3 months, submit amendments to its access undertaking containing the matters described in section 2.4 of **Part B**.

[29] see TPA, s 152AH.

[30] see ch 9 of the Optus Submission.

[31] The ACCC should permitted, but not bound to, consider submissions received after this date.

(b) otherwise addressed the ACCC's grounds for rejecting the undertaking in the draft decision,

the ACCC must publish a final decision accepting the NBN Undertakings.

2.16 If the ACCC is not satisfied in accordance with section 2.15 it must publish a final decision:

(a) rejecting the access undertaking proposed by NBNCo; and

(b) publishing its own terms to apply to NBNCo services.

Procedural matters

2.17 The ACCC should also have powers (similar to Division 10A of Part XIC) to make procedural rules for the assessment of the NBN Undertakings.

Merits review

2.18 A person affected by the ACCC's decision to accept or reject the NBN Undertakings should be able to seek merits review of the ACCC's decision in the Australian Competition Tribunal.[32]

2.19 While NBNCo should be able to seek review of a decision rejecting the NBN Undertakings, *any* access seeker should have standing to seek review (i.e. an access seeker must also have the right to seek review of a decision to accept the NBN Access Undertaking).

2.20 The ACCC's decision in relation to pricing of NBNCo services should not be subject to merits review.

3. Structural separation rules

3.1 The legislation should prescribe structural separation rules consistent with **Part A**, section 3 of this submission.

4. Equivalence rules

4.1 The legislation should prescribe equivalence rules consistent with **Part A**, section 4 of this submission.

Equivalence of inputs

4.2 'Equivalence of inputs' should be defined to mean:

(a) in relation to a service:

(i) the supply of the same service offered or supplied to a related access seeker:

(A) in the same time frame;

(B) on the same terms and conditions (including price and quality of service);

(C) by means of the same systems and processes (including operational support processes);

(ii) providing the same product information about a service provided to a related access seeker; and

[32] sub-division C of Division 5 of Part XIC sets out a model for 'limited' merits review that could be applied.

(b) in relation to any other aspect of access to, or use of, the NBN, the same treatment that is provided to a related access seeker in like circumstances.

4.3 For the purposes of section 4.2:

(a) '*the same*' means identical, subject only to:

(i) trivial differences;

(ii) differences relating to:

(A) credit-worthiness;

(B) matters of national security and law enforcement, or any other security requirements specified by the Minister by legislative instrument;

(C) occupational health and safety requirements;

(iii) differences specified by the Minister by legislative instrument;

(b) '*related access seeker*' means:

(i) a carrier; or

(ii) a service provider,

that has a direct or indirect interest in the shares of NBNCo;

(c) '*product information*' means:

(i) confidential information that relates to a service, including information relating to:

(A) service development;

(B) pricing;

(C) marketing strategy and intelligence;

(D) service launch dates;

(E) costs;

(F) projected sales volumes;

(G) network coverage and capabilities; but

(ii) excludes any information or type of information specified by the Minister by legislative instrument.

4.4 For the purposes of section 4.2(b) the Minister should, by legislative instrument, be able to specify matters:

(a) that are to be treated as constituting like circumstances between a related access seeker and another person; or

(b) that are to be disregarded in determining whether a related provided and another person are in like circumstances.

5. Tariff filing rules

5.1 Following the setting by the ACCC of the initial prices to apply to NBNCo services, for future services, or amendments to the NBN Undertakings or prices, at least 20 business days before NBNCo:

(a) supplies a reference service at a price other than:

(i) the price approved by the ACCC; or

(ii) a price previously notified to the ACCC for the service; or

(b) supplies an additional service:

(i) for the first time; or

(ii) at a price other than a price previously notified to the ACCC for the service,

NBNCo must notify the ACCC of:

(c) the price at which the service is to be supplied; and

(d) such other information prescribed by the ACCC by legislative instrument (e.g. specifications of the service; non-price terms and conditions).

5.2 The ACCC may approve the price notified by NBNCo, or the amendment to the NBN Undertakings, if the ACCC is satisfied that the supply of the service at the price notified by NBNCo or the amendment to the NBN Undertakings will not:

(a) substantially lessen competition; or

(b) or result in NBNCo exceeding its price control or other revenue control applicable to it.

5.3 The ACCC's decision should not be subject to merits review or appeal, but the Minister may make a determination requiring the ACCC to reconsider its decision and to take additional matters into account.

5.4 NBNCo must not supply a service in the circumstances described in section 5.1 if:

(a) it has not notified the ACCC; or

(b) the ACCC has disallowed the price.

6. Additional rules and other matters

6.1 The Minister should be empowered to make a legislative instrument that:

(a) prescribes additional structural separation rules and equivalence rules;

(b) prescribes specific measures relating to the structural separation rules and equivalence rules;

(c) specifies matters that must be addressed in the NBN Separation Plan and Undertakings to be lodged by NBNCo;

(d) specifies information to be provided to the Minister together with the Separation Plan;

(e) specifies procedural rules to apply to the assessment of NBNCo's Separation Plan;

(f) specifies other matters that may be prescribed by legislative instrument.

7. Transparency

Terms and conditions

7.1 The legislation should provide that NBNCo must record, in writing, all terms and conditions on which it supplies services to access seekers. NBN must keep and maintain these written agreements.

7.2 The ACCC should be empowered to make a record keeping rule (**RKR**) under Division 6 of Part XIB of the TPA that specifies:

(a) the manner and form in which agreements must be kept;

(b) which agreements must be provided to the ACCC;

(c) when this must be done.[33]

7.3 The ACCC should be able to:

(a) disclose under s 151BUA; or

(b) order, under s 151BUB, the disclosure of,

information reported under this RKR where the ACCC considers that disclosure is necessary to assist access seekers to determine if NBNCo is complying with the equivalence rules.

Regulatory accounting and reporting

7.4 The ACCC should be empowered to make a RKR that sets out requirements for NBNCo to:

(a) keep and maintain regulatory accounts; and

(b) provide such accounts to the ACCC in accordance with the RKR.

Imputation testing

7.5 The legislation should provide that the ACCC can make a RKR for a related access seeker (as well as NBNCo) for the purpose of conducting imputation testing in relation to the supply of carriage services by the related access seeker.

7.6 If, as a result of its imputation testing, the ACCC is satisfied that NBNCo is not complying with the equivalence rules:

(a) ACCC must publish a report of the results of its imputation testing;

(b) the ACCC must consider whether to amend the legislative instrument described in section 2.1 to require NBNCo to submit amendments to its access undertaking (e.g. the ACCC might require NBNCo to supply additional reference services and submit terms and conditions);

(c) the Minister must consider whether to amend the legislative instrument described in section 6.1 to require NBNCo to submit amendments to its Separation Plan (e.g. the Minister might require specific behaviour to ensure NBNCo is affording equivalent treatment to access seekers).

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[33] For example, the ACCC may require NBNCo to provide:

(a) copies of all agreements for the supply of a reference service, where the terms and conditions differ from those set out in the access undertaking;

(b) copies of all agreements for the supply of a non-reference service.

(c) a list of its customers, the services they acquire, the dates from which service are acquired, etc.

8. Dispute resolution, enforcement and remedies

Failure to afford equivalent treatment

8.1 The legislation should provide that if an access seeker believes it has been, or is being, denied equivalence of inputs, the access seeker may notify a dispute to the ACCC.

8.2 The ACCC should be empowered to:

(a) resolve the dispute;[34] and

(b) make a determination requiring NBNCo to take specific action to ensure that it affords equivalence of inputs.[35]

8.3 The legislation should also provide that the ACCC/Minister can have regard to its determination and the material provided by the parties in deciding whether to

:

(a) amend the legislative instrument described in section 2.1; and

(b) accept or reject amendments to the NBN Undertakings.

(c) amend the legislative instrument described in section 6.1; and

(d) accept or reject amendments to NBNCo's Separation Plan.

Access disputes in relation to reference services

8.4 If an access seeker and NBNCo are unable to agree on:

(a) terms and conditions of access to a reference service; or

(b) an aspect of access to a reference service,

either party may notify an access dispute to the ACCC.

8.5 The ACCC should be empowered to resolve the dispute.[36] For the purposes of resolving the dispute, the NBN Undertakings and prices approved by the ACCC should apply in the resolution of any dispute.

Breach of the structural separation and equivalence rules

8.6 In the event that NBNCo contravenes:

(a) the structural separation rules;

(b) the equivalence rules;

(c) any additional rules made by the Minister under the legislative instrument; or

(d) the Separation Plan,

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[34] The procedures in Division 8 of Part XIC could be adopted if they are considered suitable.

[35] For example, the ACCC could order that NBNCo supply a specified service on specified terms.

[36] The procedures in Division 8 of Part XIC could be adopted if they are considered suitable.

the ACCC should have the power to institute proceedings in the Magistrates Court or Federal Court seeking:

(e) a pecuniary penalty;

(f) declarations;

(g) injunctions;

(h) an order that NBNCo compensate anyone who has suffered loss or damage as a result of the breach.

8.7 The legislation should create a private right of action for damages in the event a person suffers loss or damage as a result of a breach described in section 8.6.

8.8 The ACCC should have the ability to use s 155 of the TPA to investigate a possible breach. If necessary, this can be done by amending the definition of '*designated communications matter*' in s 155(9).

8.9 The Government, as shareholder in NBNCo will also have rights of action for breach of the Shareholders' Agreement, which should also set out the Government's NBN objectives.

9. Assets to NBNCo

Roll out schedule

9.1 For the reasons outlined in **Part A**, section 6, certain assets should be transferred to, or leased to, NBNCo by Telstra to ensure that NBNCo is a stand-alone next-generation network, not just a component of one. While asset transfer may seem an extreme step, the aim explicitly is to ensure that the next-generation network is vertically separated from all retail functions to avoid the competition problems associated with fixed line services today. Clearly, assets can be compulsorily acquired under a Commonwealth Act , although it may be a requirement that this be done on just terms. Alternatively, an access regime can ensure that the required assets are made available on a long-term basis.

9.2 The legislation should provide that, within 3 months commencement, NBNCo must submit to the ACCC a roll out schedule that set outs:

(a) NBNCo's timetable for the roll out of the NBN;

(b) a schedule of the assets in each area that will need to be acquired or leased by NBNCo from Telstra;

(c) when, and for how long, these assets will be required;

(d) proposed terms and conditions (including prices) on which NBNCo proposes to acquire or lease the relevant assets from Telstra.

9.3 If the Government decides, as a policy matter, to press for the transfer of assets from Telstra to NBNCo, it should determine (and legislate) the terms on which this should occur. This submission assumes that access to Telstra assets is achieved by regulatory determination. It is assumed that this regulatory determination is made before NBNCo submits its rollout schedule to the ACCC. The process by which the Government should determine the terms for providing access to Telstra assets for NBNCo is a complex matter and outside the scope of this paper.

9.4 As with the NBN Separation Plan and Undertakings to ensure a regulatory fall-back, the legislation should empower the ACCC to make a legislative instrument specifying, among other things:

(a) the manner and form the roll out schedule must take;

(b) the assets or classes of assets that must be provided to NBNCo for Telstra;

(c) any information that must accompany the roll out schedule.

9.5 The ACCC must assess the roll out schedule in accordance with the procedure set out in sections 2.8 to 2.20 of **Part B** above.

9.6 The ACCC must make a decision:

(a) accepting the roll out schedule; or

(b) rejecting the roll out schedule and publishing a roll out schedule to apply to NBNCo.

9.7 The ACCC must not accept the roll out schedule unless it is satisfied:

(a) the proposed timetable for the roll out of the NBN is reasonable and achievable;

(b) the schedule of assets that are to be acquired or leased by NBNCo:

(i) is consistent with the design of the NBN approved by the Australian Government; and

(ii) will minimise uneconomic duplication of the NBN.

9.8 The ACCC can, at the request of NBNCo, approve modifications to the roll out schedule.

Compliance with the legislation and roll out schedule

9.9 In the event that NBNCo or Telstra contravenes legislative requirements relating to the rollout schedule, the ACCC should have the power to institute proceedings in the Federal Court seeking:

(a) a pecuniary penalty;

(b) declarations;

(c) injunctions;

(d) such other orders as the court considers appropriate.

Annexure A

Annexure to Plan for the Separation of the NBN Operator

The NBN Operator – Principles

A. **The Australian Government's $4.7 billion investment in the NBN should be made by way of equity in a newly created NBNCo.**

B. **The constitution of NBNCo should enshrine the main purposes and principles governing its operation, including the requirement that its directors and officers act exclusively in NBNCo's interests, without regard to the interests of any carrier etc, that is related to NBNCo.**

C. **There should be a Shareholders' Agreement to protect the interests of the Australian Government as a minority investor, including:**

(a) **representation on NBNCo's board of directors;**

(b) **binding the parties to the main purposes and objectives governing NBNCo's operations, including specifically the non-financial objectives (as described in the NBN tender documents, and summarised on page 5 of Part A of this document). In making its decisions, the Board of NBNCo should be required to give equal consideration to each of NBNCo's stated objectives, both financial and non-financial. Non-financial objectives should be prescribed to ensure that NBNCo maximises usage of the NBN and operates to ensure equivalence of inputs to all access seekers; and**

(c) **agreeing that NBNCo is not permitted to engage in the retail supply of carriage services, either alone, through a subsidiary or jointly with another person (this could also be prohibited by legislation and/or licence condition).**

Structural Separation – Principles

D. **Even if NBNCo is a separate legal entity, there will be a need for structural separation rules to ensure that NBNCo does not give preferential treatment to its owners in terms of access to, and use of, the NBN.**

E. **There are a range of options by which this can be done, including legislation, licence conditions, NBNCo's formation documents, or a combination of all three.**

Structural separation rules

F. **No director or officer of NBNCo can be a director, officer or employee of another carrier or carriage service provider.**

G. **No employee of NBNCo can be an director, officer or employee of another carrier or carriage service provider.**

H. **NBNCo must not share with another carrier or carriage service provider:**

(a) **premises;**

(b) **IT systems;**

(a) **other assets (unless exempted by legislative instrument).**

Equivalence rules

I. **NBNCo must provide all access seekers with equivalence of inputs in relation to:**

(a) **services offered;**

(b) quality of service;

(c) price;

(d) non-price terms and conditions;

(e) other aspects of access including (without limitation):

(i) ordering and provisioning;

(ii) access to facilities;

(iii) billing;

(iv) fault detection and rectification;

(v) access to network information; or

(f) any combination of the above.

J. The ACCC should have the power to:

(a) specify the 'key reference services' that must be supplied by NBNCo'; and

(b) set prices for reference services.

K. Without limiting the above:

(a) NBNCo must, on request, supply any reference service to an access seeker;

(b) if NBNCo supplies a reference service at a price that is lower than the price approved by the regulator NBNCo must:

(i) comply with the tariff filing rules; and

(ii) on request, supply the reference service to any other access seeker, on an equivalence of inputs basis, at that lower price;

(c) NBNCo may supply additional services provided that:

(i) it complies with the tariff filing rules; and

(ii) if NBNCo supplies an additional service to one access seeker it must, on request, supply that service to any other access seeker, on an equivalence of inputs basis.

L. Confidential information provided to NBNCo must not be:

(a) unlawfully disclosed; or

(b) used for a purpose other than the purpose for which it was provided;

without the consent of the provider of the information.

<u>NBN Separation Plan and Undertakings</u>

M. The Minister should be able to specify, by legislative instrument:

(a) additional rules relating to structural separation and equivalence of inputs; and

(b) more specific measures that NBNCo must put in place to provide for structural separation and equivalence of inputs.

N. NBNCo must submit an NBN Separation Plan and Undertakings to the Minister in accordance with these additional requirements.

NBNCo assets – Principles

O. **As the NBN is rolled out to each node, NBNCo must acquire (whether by lease or transfer):**

(a) the nodes (i.e. existing pillars);

(b) the sub-loops running into the nodes;

(c) associated underground facilities;

at rates to be determined by the Government.

P. **Once NBNCo rolls out the NBN to an area (in accordance with its roll out schedule), NBNCo must acquire (whether by lease or asset transfer):**

(a) the feeder network;

(b) the exchange;

(c) backhaul transmission facilities;

at rates to be determined by the Government (and provided these assets will remain in service as part of the NBN).

Annexure B

Annexure to Plan for the Separation of the NBN Operator

ANNEXURE B – EQUIVALENCE AND RELATED CONCEPTS

1. INTRODUCTION

1.1 The purpose of this Annexure is to provide an overview of the different formulations of the concept of 'equivalence' and related concepts such as 'non-discrimination' and 'no less favourable treatment'.

2. EXECUTIVE SUMMARY

2.1 The principle of equivalence is used in the Australian telecommunications context in Part 8 of Schedule 1 to the *Telecommunications Act 1997* (Cth) (**TA 1997**). However, it is not defined in the legislation.

2.2 Under the former *Telecommunications Act 1991* (Cth) (**TA 1991**), dominant carriers were prohibited from discriminating between acquirers of telecommunications services. The term 'equivalence' was not used.

2.3 Both New Zealand and the United Kingdom have developed and applied the concept of 'equivalence' to the operation of Telecom Corporation of New Zealand (**TCNZ** or **Telecom**) and British Telecom (**BT**) respectively. Generally, the concept has required that TCNZ and BT deliver *the same* treatment to access seekers or other services providers in relation to:

(a) services;

(b) timescales;

(c) terms and conditions;

(d) systems and processes; and

(e) the treatment of the commercial information.

2.4 'Equivalence' and 'equivalent' have been discussed judicially in other contexts. Courts have generally given the term 'equivalence' its ordinary meaning unless legislation provides otherwise. Its ordinary meaning is determined by reference to its dictionary definition, that is, being 'equal in value', 'corresponding' or 'having the same result'. Whether equal in value means 'identical' or 'the exact same' depends on the context of the case and the intention of the legislature.

2.5 On their plain meaning, it could be argued that 'equivalent' treatment is different to treatment that is 'no less favourable'. However, when equivalence is considered in the context of access regulation, this is debatable.

2.6 Given this uncertainty, it is recommended legislation using the term 'equivalence' will need to contain a clear definition of the principle, supported by specific requirements to ensure that no user of the NBN is able to obtain an unfair advantage, through preferential treatment, that could lessen competition in downstream markets for carriage services.

3. AUSTRALIA

1997 Telecommunications Act

3.1 The TA 1997 applies a 'principle of equivalence' to the supply of services by Telstra under the operational separation regime. Section 48, in Part 8 of Schedule 1 to the TA 1997, provides:

(2) *The objects of this Part are as follows:*

(a) *to promote* ***a principle of equivalence*** *in relation to the supply by Telstra of designated services to:*

(i) *Telstra's wholesale customers; and*

(ii) *Telstra's retail business units;*

...

(3) ***In determining the principle of equivalence*** *covered by paragraph (2)(a),* ***regard must be had to:***

(a) ***terms and conditions relating to price or a method of ascertaining price****; and*

(b) ***other terms and conditions****.*

(4) *Subclause (3) does not limit the matters to which regard may be had.* [Emphasis added]

1991 Telecommunications Act

3.2 The TA 1991 was more specific. Part 9, Division 4 of the TA 1991 set out a number of requirements relating to non-discrimination:

(e) Section 183

(1) *A carrier that is in a position to dominate a market for a particular kind of telecommunications service must not discriminate, between persons who acquire in that market telecommunications services of that kind, in relation to:*
(a) *the charges for the services; or*
(b) *the terms and conditions on which the services are supplied.*

(2) *Subsection (1) does not apply in relation to prescribed telecommunications services.*

(f) Section 184

(1) *A carrier must not, in relation to the supply of basic carriage services, discriminate against a person for the reason, or for reasons including the reason, that the person:*
(a) *supplies, or proposes to supply, eligible services under a class licence; or*
(b) *uses, or wishes to use, eligible services supplied under a class licence.*

(2) *In subsection (1):*
discriminate' includes discriminate in relation to:
(a) *the charges for the service concerned; or*
(b) *the performance characteristics of the service concerned; or*
(c) *other terms and conditions on which the service concerned is supplied.*

(3) *A carrier must not vary a charge for a basic carriage service that the carrier supplies, or proposes to supply, to a person if the reason, or one of the reasons, for the variation is that the carrier also supplies, or does not also supply, other telecommunications services to the person. (note: amended 67/1994)*

3.3 Section 187 provided that a dominant carrier was not to favour itself when using its own basic carriage services:

(1) This section has effect for the purposes of section 183 where:

(a) a carrier supplies a basic carriage service (in this section called the `primary service') of a particular kind and uses it for or in relation to the supply by the carrier of a higher level service (in this section called the 'secondary service') of a particular kind; and

(b) the carrier is in a position to dominate a market for that kind of basic carriage service, being a market in which other suppliers of higher level services of that kind acquire basic carriage services of that kind for use for or in relation to their supply of such higher level services.

(2) This section also has effect for the purposes of section 183 where:

(a) because of a direction under section 181, a carrier must supply a basic carriage service of a particular kind to the public generally; and

(b) the carrier uses a basic carriage service of that kind (in this section also called the 'primary service') for or in relation to the supply by the carrier of a telecommunications service (in this section also called the 'secondary service) of a particular kind; and

(c) the carrier is in a position to dominate a market for that kind of basic carriage service, being a market in which other suppliers of telecommunications services of that kind acquire basic carriage services of that kind for use for or in relation to their supply of such telecommunications services.

(3) The carrier is taken to acquire the primary service in that market.

(4) The charges for the primary service are taken to be so much of the total of the amounts shown in the carrier's books of account as the costs of supplying the secondary service as those books treat as being attributable to the supply of the primary service.

(5) The terms and conditions on which the primary service is supplied are taken to be the terms and conditions on which it is reasonable to expect that the primary service would have been supplied if:

(a) the part of the carrier's undertaking that is concerned with the supply of basic carriage services of the same kind as the primary service; and

(b) the part of that undertaking that is concerned with the supply of higher level services or telecommunications services, as the case may be, of the same kind as the secondary service;

had respectively belonged to distinct legal persons dealing with each other at arm's length.

4. NEW ZEALAND

Background

4.1 The *Telecommunications Act 2001* (NZ) **(NZ Act)** was amended in late 2006 following a review of the telecommunications sector in New Zealand. The amendment inserted a new Part 2A into the Act which:

(a) provides for the operational separation of TCNZ;

(b) sets out the process and main requirements for the Minister and TCNZ to settle and implement a separation plan following public consultation (sections 69D-69P);

(c) contains statutory provision for enforcement of the separation plan (sections 69Q to 69S); and

(d) sets out the process for variation of the separation plan (sections 69T-69X).

4.2 The amendment also inserted a new Part 2B into the Act which set out information disclosure requirements for TCNZ.

4.3 The NZ Act contains provisions for enforcement in Part 4A (also inserted in late 2006).

4.4 On 26 September 2007, the Minister, in accordance with the NZ Act, issued the *Telecommunications (Operational Separation) Determination 2007* (the **NZ Determination**). The NZ Determination outlined the further requirements and details with which the separation plan under Part 2A of the Act must comply including:

(a) arm's-length rules;

(b) rules for the establishment, assets and services to be offered by each separate operational unit of TCNZ;

(c) requirements and rules for the establishment of the independent oversight group; and

(d) other transitional requirements for TCNZ.

4.5 Under Part 2A, section 69D(1)(f) of the NZ Act, TCNZ must ensure 'transparency and equivalence in relation to the supply by TCNZ of relevant services'.

Equivalence

4.6 'Equivalence' is defined in section 69E of the NZ Act:

> *Section 69D(1)(f) requires equivalence of supply of wholesale telecommunications services and access to Telecom's network so that third party access seekers* ***are treated in the same or an equivalent way*** *to Telecom's own business operations, including in relation to pricing, procedures, operational support, supply of information, and other relevant matters.*
> [Emphasis added]

4.7 The NZ Act refers to both equivalence and non-discrimination at s 69A. Section 69A provides that the purpose of Part 2A includes: 'to require transparency, *non-discrimination* and *equivalence of supply* in relation to certain telecommunications services.' Non-discrimination is not defined in the NZ Act and the difference (if any) between these terms is not evident.

Equivalent of inputs

4.8 Equivalence of inputs (**EOI**) is defined in clause 9 of the NZ Determination to mean:

> *If Telecom is required to provide a relevant service to an access seeker,—*
>
> *(a) Telecom must provide the access seeker and Telecom itself with the* ***same service****; and*
>
> *(b) Telecom must deliver that service to the access seeker and to Telecom itself on the* ***same timescales and on the same terms and conditions*** *(including price and service levels); and*
>
> *(c) Telecom must deliver that service to the access seeker and to Telecom itself by means of the* ***same systems and processes*** *(including operational support processes); and*

(d) *Telecom must provide the access seeker and Telecom itself with the **same commercial information** about those services, systems, and processes; and*

includes, if Telecom is required to provide a relevant service to an access seeker, the use by Telecom of services, systems, and processes that access seekers must be able to use in the same way, and with the same degree of reliability and performance, as those services, systems, and processes are used by Telecom; and

***The same** means exactly the same, subject only to—*

(a) *trivial differences; and*

(b) *differences relating to—*

(i) *credit requirements and vetting procedures:*

(ii) *payment procedures:*

(iii) *matters of national and crime-related security, physical security, security required to protect the operational integrity of the network, or any other security requirements agreed by Telecom and the Commission:*

(iv) *provisions relating to the termination of supply:*

(v) *contractual provisions relating to dispute resolution (to the extent necessary because Telecom is one company):*

(vi) *requirements for a safe working environment; and*

(c) *differences that are agreed by Telecom and the Commission in writing; and*

(d) *differences that are specified elsewhere in this determination; and*

(e) *differences relating to terms required by a residual terms determination.* [Emphasis added]

Resale equivalence standard

4.9 Resale equivalence standard is defined in clause 10 of the NZ Determination to mean, in relation to a particular resale services, that:

(i) *the service characteristics and functionality of the resale service must be **the same** (except for trivial differences) as the service characteristics and functionality of the corresponding retail service; and*

(ii) *the operational systems, processes, and procedures used by Telecom to supply the resale service must give access seekers the ability to provide end-users with the **same or a substantially similar** service delivery experience to that experienced by Telecom's end-users of the corresponding retail service; and*

(iii) *overall, the operational systems, processes, and procedures used by Telecom to supply the resale service **must not place access seekers at a material disadvantage**, when compared to the operational systems, processes, and procedures used by Telecom to supply the corresponding retail service to Telecom's end-users.* [Emphasis added]

4.10 The New Zealand regime prescribes additional, specific, measures to separate the network services and wholesale business units of TCNZ. The principles guiding the separation of TCNZ fall into four categories:

(a) general principles (contained in Parts 2 and 3 of the NZ Undertaking (dated 25 March 2008) and Parts 1 and 5 of the NZ Determination);

(b) principles for the Access Network Services (**ANS**) unit (the unit that controls the access network and operation of the network) (contained in Part 4 of the NZ Undertaking and Part 2 of the NZ Determination);

(c) principles for the Wholesale unit (the unit that provides the wholesale function for relevant services of TCNZ) (contained in Part 5 of the NZ Undertaking, and Part 3 of the NZ Determination); and

(d) principles for the Retail unit (the unit that provides the retail function for the relevant services of TCNZ) (contained in Part 6 of the NZ Undertaking, and Part 4 of the NZ Determination).

Separation principles

Non-discrimination

4.11 Clause 14(2) of the NZ Determination requires that a TCNZ employee must not, in doing or omitting to do anything, discriminate in favour of one required TCNZ business unit (or its customers, suppliers, or employees) at the expense of another required TCNZ business unit (or its customers, suppliers, or employees).

Quarantine of Access Network Services Unit

4.12 The NZ Determination requires that the separation undertakings must provide that no employee of TCNZ who is not working for the ANS unit may –

(a) except through mechanisms and processes that are also available to all other service providers on an equal basis, directly or indirectly participate in the formulation or making of—

(i) the annual and long-term corporate plans and technology plans of the ANS unit; or

(ii) other plans of the ANS unit; or

(iii) the commercial policy of the ANS unit; or

(b) have access to ANS unit commercial information unless that information is also available to all other service providers on an equal basis; or

(c) have access to ANS unit customer confidential information unless that information is also available to all other service providers on an equal basis.

(NZ Determination, clause 14(4)).

Quarantine of Wholesale Unit

4.13 The NZ Determination also requires that the separation undertakings must provide that no employee of TCNZ who is not working for the wholesale unit may,—

(a) except through mechanisms and processes that are also available to all other service providers on an equal basis, directly or indirectly participate in the formulation or making of—

(i) the annual and long-term corporate plans and technology plans of the wholesale unit; or

(ii) other plans of the wholesale unit; or

(iii) the commercial policy of the wholesale unit; or

(b) have access to wholesale unit commercial information unless that information is also available to all other service providers on an equal basis; or

(c) have access to wholesale unit customer confidential information unless that information is also available to all other service providers on an equal basis.

(NZ Determination, clause 14(5)).

4.14 Clause 15 of the NZ Determination requires that, if the TCNZ or the chief executive of TCNZ wishes a business unit to act in a way the unit cannot, the person must:

(a) give a direction in writing to the required TCNZ business unit to act in that way; and

(b) give a copy of the direction to the Commission and the Independent Oversight Group (**IOG**), as soon as practicable after the direction is given; and

(c) certify to the Commission and the IOG that, in the person's opinion,—

(i) the direction is consistent with the robust operational separation of TCNZ; and

(ii) the reason that the direction is given is that it is in the best interests of TCNZ as a whole; and

(d) report to the Commission and the IOG on whether the direction undermines any of the purposes set out in paragraphs (a) to (c) of section 69A of the Act.

ANS Unit requirements

4.15 The NZ Undertakings, and the NZ Determination contain provisions that govern how the Access Network Services (**ANS**) unit of TCNZ that controls the access network and the operation of the network is to act and operate.

4.16 Under the NZ Undertakings and NZ Determination:

(a) the ANS unit is to act on a stand-alone basis and at arm's length from any other TCNZ business unit (NZ Undertaking, paragraph 24.1, NZ Determination, clause 28).

(b) the ANS unit will have separate management and reporting lines, and TCNZ will ensure that at all times, one person is appointed to have responsibility for the management of the ANS unit (NZ Undertaking, paragraph 25.1, NZ Determination, clause 29).

(c) The manager of the ANS unit will:

(i) work solely on matters relating to the ANS unit and not have responsibility for other parts of TCNZ;

(ii) manage the ANS Unit in a way designed to secure compliance with the provisions of the NZ Undertaking that apply to the ANS Unit and to optimise the commercial interests of the ANS Unit in accordance with the ANS Unit's scope of business; and

(iii) report directly to the CEO.

(NZ Undertaking, paragraph 25.2, NZ Determination, clause 29).

(d) Employees working for the ANS unit will not work for any other part of TCNZ (NZ Undertaking, paragraph 26.1, NZ Determination, clause 30).

(e) The ANS is only able to do technical or operational work for another part of TCNZ where:

(i) the ANS Unit and that part have entered into a written agreement for the ANS Unit to do that work on commercial terms;

(ii) the written agreement and the work covered by the agreement comply with the Arm's-Length Rules and do not circumvent the intent of the NZ Undertaking; and

(iii) TCNZ provides a copy of the written agreement to the IOG as soon as practicable after the agreement has been entered into, and after there has been any material change to the agreement (NZ Undertaking, paragraph 26.2).

(f) The ANS has the sole responsibility for

(i) the implementation of the plans approved by the TCNZ board; and

(ii) the day-to-day management of the ANS unit (NZ Determination, clause 32).

(g) The ANS must formulate its own commercial policies (NZ Determination, clause 33).

(h) All transactions between the ANS unit any other TCNZ business unit for the provision by ANS of relevant network access must be in writing and include all the terms of the transaction, including price or appropriate transfer charges (NZ Determination, clause 36).

(i) The ANS unit and all its employees, agents and contractors must not disclose customer confidential information or commercial information to any other TCNZ business unit unless the services provider to which the information relates consents. (NZ Undertaking, paragraphs 33 and 34, NZ Determination, clauses 37 and 38).

(j) All incentive remuneration of employees working for the ANS unit must reflect solely the objectives and performance of the ANS unit (NZ Undertaking, paragraph 35, NZ Determination, clause 39).

(k) All employees working for ANS will be located in access-controlled accommodation separately secured from all other parts of TCNZ (NZ Undertaking, paragraph 36.1, NZ Determination clause 40).

(l) Employees working for the ANS unit do not need to be located in separate accommodation if:

(i) the Employee works in a place where the ANS Unit does not have a significant number of Employees; and

(ii) the Commission has agreed, on application by TCNZ, that it would be impracticable or unreasonably expensive to comply with the requirement for separate accommodation in relation to that employee and appropriate procedures are in place in relation the employee to ensure with the arm's length rules applying to the ANS Unit (NZ Undertaking, paragraph 36.3, NZ Determination clause 40(3)).

(m) The following employees are required to work solely for ANS:

(i) all Employees who are directly involved in the provision, installation, maintenance, fault restoration, and repair of TCNZ's Access Network, except to the extent that those persons work for Shared Services;

(ii) all Employees who are directly involved in the planning, design, implementation, and in-life service management of Relevant Network Access Services, except to the extent that those persons work for Shared Services;

(iii) all Employees who are directly involved in providing a wholesale sales function in respect of Relevant Network Access Services, except to the extent that those persons work for the Wholesale Unit and are involved with the provision of this sales function in order to comply with arrangements made in accordance with clause 94;

(iv) the managers of the Employees referred to in paragraphs (i) to (iii) (excluding the managers of Employees who work for Shared Services or the Wholesale Unit) up to and including the Manager of the ANS Unit;

(v) those Employees who carry out activities that are ancillary to those described in any of paragraphs (i) to (iii) except to the extent that those persons work for Shared Services or the Wholesale Unit; and

(vi) all Employees who are directly involved in providing legal or regulatory advice to the ANS Unit in respect of Relevant Network Access Services

(NZ Undertaking, paragraph 38, NZ Determination clause 42).

(n) The ANS Unit will develop, and only use, its own separate brand which does not include the word TCNZ (NZ Undertaking paragraph 37.1, NZ Determination clause 41).

4.17 However, under the NZ Undertaking, the ANS unit also has sufficient influence over any TCNZ network assets that are not under its control but that are used to provide Relevant Network Access Services to the extent required to provide those services in accordance with the NZ Undertaking, but all such arrangements must be in writing and a copy provided to the IOG as soon as the arrangement is entered into. (NZ Undertaking, paragraph 16).

Wholesale unit requirements

4.18 The NZ Undertakings and the NZ Determination contain provisions that govern how the wholesale division of TCNZ will exercise its wholesale function for all relevant services

4.19 Under the NZ Undertakings and NZ Determination:

(a) The Wholesale unit will act at arm's length from the retail unit (NZ Undertaking, paragraph 52.1, NZ Determination clause 57).

(b) The arm's lengths rules that apply to the Wholesale and Retail units will be applied in a manner to enable the Wholesale Unit to:

(i) obtain the information or advice needed from the Retail Units to provide Resale Services, including information and advice in relation to:

(A) price changes;

(B) service change, grandfathering or withdrawal notifications;

(C) technical provision details;

(D) terms and conditions, policies, user guides, collateral, business rules or service delivery rules; and

(ii) participate in the development of Retail Unit services to the extent necessary to be able to develop the corresponding Resale Service; and

(iii) have access to the Retail Units' assets that are required to provide Resale Services.

(NZ Undertaking, paragraph 52.5, NZ Determination clause 57(5)).

(c) TCNZ will ensure that one person is appointed to have responsibility for the management of the Wholesale unit. Where the Wholesale unit is part of the TCNZ business units, the person will be the manager of the TCNZ business unit (NZ Undertaking, paragraph 53.1, NZ Determination clause 58(1)).

(d) The Manager of the Wholesale unit will:

(i) not have any responsibility for the ANS Unit or any of the Retail Units (but may also have responsibility for any other TCNZ Business Unit);

(ii) manage the Wholesale Unit in a way designed to secure compliance with the provisions of the NZ Undertakings that apply to the Wholesale Unit; and

(iii) report directly to the CEO.

(NZ Undertaking paragraph 53.3, NZ Determination clause 58(3)).

(e) Employees of the Wholesale unit will not work for the Retail units (NZ Undertaking, paragraph 54.1, NZ Determination clause 59).

(f) Employees of the Wholesale unit are not prevented from doing technical or operational work for a retail unit where:

(i) the Wholesale Unit and the Retail Unit have entered into a written agreement for the Wholesale Unit to do that work on commercial terms;

(ii) the agreement and the work covered by the agreement comply with the Arm's-Length Rules and do not circumvent the intent of the NZ Undertaking; and

(iii) TCNZ provides a copy of the written agreement to the IOG as soon as practicable after the agreement has been entered into, and after there has been any material change to the agreement.

(NZ Undertaking, paragraph 54.2).

(g) The Wholesale unit will formulate its own commercial policies in respect of wholesale services and may, in formulating the policy, taking into account the direct consequences that arise from the resale service being based on a corresponding retail services (NZ Undertaking, paragraph 55, NZ Determination clause 60)

(h) The Wholesale unit and all its employees, agents, and contractors must not disclose customer confidential information or commercial information to any other TCNZ business unit unless the service provider to which the information relates consents or the information is also available to all other service providers on an equal basis (NZ Undertaking, paragraphs 58 and 59 NZ Determination, clauses 63 and 64).

(i) the Wholesale unit must provide that all incentive remuneration for employees working for the wholesale unit must reflect solely the objectives and performance of the wholesale unit (NZ Undertaking, paragraph 60 NZ Determination, clause 65).

(j) All employees working for the wholesale unit will be located in access controlled accommodation that is secured from the retail units (NZ Undertaking, paragraph 61.1, NZ Determination clause 66).

(k) Employees working for the Wholesale unit do not need to be located in separate accommodation if:

(i) the Employee works in a place where the Wholesale unit does not have a significant number of Employees; and

(ii) the Commission has agreed, on application by TCNZ, that it would be impracticable or unreasonably expensive to comply with the requirement for separate accommodation in relation to that employee and appropriate procedures are in place in relation the employee to ensure with the arm's length rules applying to the Wholesale unit.

(NZ Undertaking, paragraph 61.2, NZ Determination clause 66).

(l) Persons who are:

(i) all employees who are directly involved in the management of the planning, design, implementation, and in life service management of relevant wholesale services and ancillary activities; and

(ii) all employees who are directly involved in providing a wholesale sales function in relation to relevant wholesale services; and

(iii) the managers of the employees referred to in paragraphs (i) and (ii), up to and including the manager of the wholesale unit

must either be:

(iv) employees of TCNZ who work solely for the wholesale unit; or

(v) employees who work solely for the wholesale unit and any other TCNZ business unit (other than the ANS unit) that manages the supply of wholesale services to service providers.

(NZ Undertaking, paragraph 62, NZ Determination, clause 67).

(m) All employees who are directly involved in providing legal or regulatory advice to the wholesale unit must be primarily accountable to the manager of the wholesale unit for the advice that they provide to the wholesale unit, and strict Chinese walls must be maintained between all employees who are directly involved in providing legal or regulatory advice to the wholesale unit and any employees who provide advice to the retail unit, including a rule that legal and regulatory staff that advise one of those units on an issue cannot also advise the other unit on that issue or any related issue (NZ Undertaking, paragraph 63, NZ Determination, clause 68).

Retail unit

4.20 The NZ Undertakings and the NZ Determination contain provisions that govern how the retail unit of TCNZ that provides a retail function for all relevant services

4.21 Under the NZ Undertakings and NZ Determination:

(a) no person who is an employee working for the retail unit may work for the ANS unit, the wholesale unit, or any TCNZ fixed network business unit (NZ Undertaking, paragraph 71, NZ Determination clause 74).

(b) the retail unit all its employees, agents, and contractors must not influence or attempt to influence the commercial policy of any of TCNZ's fixed network business units, except through mechanisms and processes that are also available to all other service providers on an equal basis (NZ Undertaking, paragraph 72, NZ Determination, clause 75).

(c) No person who is an employee working for any TCNZ fixed network business unit may work for the retail unit (NZ Undertaking, paragraph 71, NZ Determination, clause 77)

(d) Every TCNZ fixed network business unit and all its employees, agents, and contractors must not disclose customer confidential information to the retail unit unless the service provider to which the information relates consents (NZ Determination, clause 78).

(e) Every TCNZ fixed network business unit and all its employees, agents, and contractors must not disclose TCNZ fixed network business unit commercial information to the retail unit unless that information is also available to all other service providers on an equal basis (NZ Determination, clause 79).

5. UNITED KINGDOM

Background

5.1 Telecommunications regulation in the United Kingdom takes place under the European Regulatory Framework, incorporated into United Kingdom law through the *Communications Act 2003*.

5.2 In December 2003, Ofcom (the independent regulatory and competition authority in the United Kingdom for communication industries) announced that a strategic review of the United Kingdom telecommunications sector would commence in January 2004. The object of the review was to establish a strategic approach to the way the European Regulatory Framework should be implemented in the United Kingdom. The review was undertaken in three phases and commenced on 28 April 2004.

5.3 After completion of the first two phases, Ofcom identified the following two key problems:

(a) An unstable market structure in fixed telecoms, dominated by BT and with alternative providers are, in the main, fragmented and of limited scale.

(b) The continuance of a complex regulatory mesh, devised over twenty years of regulation and in many areas dependent upon intrusive micro-management to achieve its purposes in aggregate has failed effectively to address the core issue of BT's control of the UK-wide access network.

5.4 Ofcom presented three possible options to address these issues:

(a) **Full deregulation.** Removing the existing mesh of regulation entirely and relying instead on ex post competition law to resolve complaints would significantly reduce intervention in fixed-line markets. However, given BT's continued market power, this would be unlikely to encourage the growth of greater competition and as such would not serve the best interests of the consumer.

(b) **Enterprise Act investigation.** Ofcom could investigate the market under the *Enterprise Act 2002* (UK), with the potential for a subsequent referral to the Competition Commission.

(c) **BT to deliver real equality of access.** Ofcom could require BT to allow its competitors to gain genuinely equal access to its networks. This option would also require BT to commit to behavioural and organisational changes to ensure that its competitors benefited from access to products and processes which were truly equivalent to those offered to BT's own retail businesses.

5.5 The first option was not favoured by any respondents to Ofcom's phase 1 consultation. The second option was considered to be too disruptive and expensive. The most favoured option, and the option ultimately accepted by Ofcom, was the third option.

5.6 In June 2005, the Board of BT offered draft undertakings to the Board of Ofcom to deliver real equality of access. The undertakings were subject to consultation and were formally accepted in September 2005 (**BT Undertaking**) pursuant to section 154 of the *Enterprise Act 2004* (UK). The BT Undertakings were accepted on the basis that Ofcom considered the undertakings to represent as comprehensive a solution as was reasonable and practicable to the competition problems identified. Under the BT Undertakings Ofcom was still able to open an investigation with a view to making a Market Investigation Reference to the Competition Commission. (However this could not be done in relation an issue covered by the undertakings within 12 months of having accepted the undertakings unless the Ofcom considered that there had been a breach of the undertakings and Ofcom had given BT notice of such breach.)

5.7 The BT Undertakings were also accepted by Ofcom in lieu of an investigation of the market by Ofcom and/or the Competition Commission pursuant to Chapter 1, Part 4 of the *Enterprise Act 2002* (UK). It was estimated that the market investigation would have taken about two years to complete with some uncertainty over the outcome. The decision could then have been appealed, creating further delay and uncertainty.

5.8 The BT Undertaking consists of approximately 230 separate undertakings and commits BT to substantive structure, product and governance changes affecting both its current and future networks. The BT Undertaking included the following commitments:

(a) the establishment of a new access services division, which BT launched as Openreach (BT Undertaking, paragraph 5);

(b) delivery of equivalence of inputs for certain key wholesale products and increased transparency for others (BT Undertaking, paragraph 3);

(c) ensuring fair access and migration for other communication providers (BT Undertaking, paragraphs 3.7-3.8);

(d) publishing and making available to all BT people a code of practices explaining what they must do to comply with the Undertakings (BT Undertaking, paragraph 9);

(e) separation of operational and management information systems (BT Undertaking, paragraphs 5.44 and 8);

(f) greater transparency of processes and internal Chinese walls (BT Undertaking, paragraph 4); and

(g) the creation of an Equality of Access Board (**EAB**) to monitor and report on BT's compliance with the Undertakings and the code of practices. The EAB is supported by its own Secretariat and the Equality of Access Office (**EAO**). The EAB issue an annual report to Ofcom as well as directly advising the BT Group Board on BT's compliance with the Undertakings (BT Undertaking, paragraph 10).

5.9 Provisions for the enforcement of the undertakings are contained in Chapter 3 of the *Enterprise Act 2002.*

Equivalence

5.10 BT's Undertakings are similar to those of TCNZ, which is unsurprising given that the New Zealand regulatory approach was established after close examination of the UK model.

5.11 Paragraph 2 of the Undertaking provides that **'Equivalence of inputs'** or EOI is defined to mean that BT provides:

... in respect of a particular product or service, the same product or service to all Communications Providers (including BT) on the ***same timescales, terms and conditions (including price and service levels) by means of the same systems and processes****, and includes the provision to all Communications Providers (including BT) of* ***the same Commercial Information*** *about such products, services, systems and processes. In particular, it includes the use by BT of such systems and processes in the same way as other Communications Providers and with the same degree of reliability and performance as experienced by other Communications Providers.*

*In this context '****the same*** *means exactly the same subject only to:*

(a) trivial differences;

(b) such other differences as may be agreed by Ofcom in writing;

(c) differences relating to the following:

(i) credit vetting procedures;

(ii) payment procedures;

(iii) matters of national and crime-related security, physical security, security required to protect the operational integrity of the network and such other security requirements as agreed between BT and Ofcom from time to time;

(iv) provisions relating to the termination of a contract; and

(v) contractual provisions relating to requirements for a safe working environment; or

(d) such other differences as are specified elsewhere in these Undertakings, including where Commercial Information is provided in accordance with these Undertakings to any of the nominated individuals, and individuals occupying the roles and functional areas (and their relevant external advisers, subcontractors and agents) listed in Annex 2. [Emphasis added]

5.12 Again, BT has given undertakings that contain further, specific measures to achieve separation and equivalence.

Access Services

5.13 Paragraph 5 of the BT Undertakings outline the duties of Access Services, the division of BT dealing with the managing and selling of wholesale products (**AS**).

5.14 Under the BT Undertakings:

(a) AS is to be a separate division within BT (BT Undertaking, paragraph 5.23).

(b) The AS CEO is to report solely and directly to the BT Group plc CEO (BT Undertaking, paragraph 5.25).

(c) The AS CEO is not to be a member of the BT Group Operating Committee, however may attend for matters pertaining to AS and where such attendance is appropriate. The EAO is to be notified of such attendance s (BT Undertaking, paragraph 5.26).

(d) The AS Management Board is to manage AS in a way designed to secure compliance with those sections of the BT Undertakings applicable to AS and shall operate to terms of reference agreed by the BT Group plc CEO following consultation with Ofcom. The terms of reference will be notified to Ofcom (BT Undertaking 5.27).

(e) From the start of BT's financial year 2006/2007, the regulatory financial statements of BT will also separately present the financial results of AS. Information about the financial results of AS will include the following: headline revenue, cost of sales (or gross margin), sales, general and administration expenses, Earnings Before Interest, Tax, Depreciation and Amortisation, depreciation, operating profit and capital expenditure, revenues broken down into the broad product groups that the AS provides and further split between internal and external sales, separately identified payments to other parts of BT for products that form inputs to AS products (e.g. electronics); and a commentary that explains any changes in the basis within which the above figures are presented. BT's regulatory financial statements will reconcile AS's revenue and operating profit (and other such items as may be agreed between BT and Ofcom) with information about AS shown in BT Group plc's annual report and accounts. The independent audit of BT's financial statements will include AS (BT Undertaking 5.31).

(f) No employee or agent of BT (including its external advisers and sub-contractors), who is not working for AS shall:

(i) directly or indirectly participate in the formulation or making of, or influence or attempt to influence, the Commercial Policy of AS except through such mechanisms and processes that are also available to other Communications Providers; or

(ii) have access to Commercial Information of AS held by any employee or agent of BT working for AS unless it is of the nature that would be provided to other Communications Providers in the ordinary course of business.

(BT Undertaking, paragraph 5.38).

(g) BT employees working for AS shall not disclose AS Customer Confidential Information to BT employees working for the Upstream or Downstream Divisions except:

(i) with the relevant customer's consent; or

(ii) to the minimum extent that disclosure to BT employees working for the Upstream Division(s) is necessary to operationally enable AS to deliver products provided by AS under section 5 of the BT Undertakings; or

(iii) where an order is transferred from one part of BT to another pursuant to these Undertakings and the information is disclosed solely for the purpose of that transfer.

(BT Undertakings, paragraph 5.39).

(h) No employee or agent of BT (including its external advisers and sub-contractors), who is working for AS, shall influence or attempt to influence, the Commercial Policy of the Downstream Divisions or Upstream Division(s) of BT except:

(i) through such mechanisms and processes that are also available to other Communications Providers;

(ii) as required for the delivery of these Undertakings, for example for the development of AS services utilising network assets managed by Downstream and Upstream Divisions of BT, or for the planning and implementation of BT's NGN;

(iii) if they are nominated individuals or individuals occupying the roles and functional areas (or their relevant external advisers, sub-contractors and agents) listed in Part A of Annex 2;

(iv) as otherwise provided for in these Undertakings; or

(v) if otherwise agreed with Ofcom.

(BT Undertakings, paragraph 5.40).

(i) AS may draw upon support services from any part of BT or BT's agents and sub-contractors and may use BT's centres of excellence (including billing), provided that doing so will not require the disclosure of Commercial Information of AS (BT Undertakings, paragraph 5.42).

(j) Within 12 months of the undertakings taking effect, BT was required to logically partition its Management Information Systems such that these systems could run separately for AS and the rest of BT and not lead to undue discrimination against other Communications Providers. (BT Undertakings, paragraph 5.45).

Organisational separation

5.15 Paragraph 8 of the BT Undertakings outline the requirements for organisational separation for BT.

5.16 Under the BT Undertakings:

(a) BT is to maintain an organisational separation between the Upstream Division(s) and the Downstream Divisions. BT will maintain a strong organisational separation of people, Commercial Information and Management Information Systems, between the sales functions of the Upstream Division(s) and the sales functions of the Downstream Divisions (BT Undertaking, paragraph 8.1).

(b) BT shall logically separate its systems which hold Commercial Information and Customer Confidential Information between AS on the one hand and the Upstream and Downstream Divisions on the other (BT Undertaking, paragraph 8.5).

(c) Except in the case of those nominated individuals (if any), BT employees working for the Downstream Divisions may not directly or indirectly unduly influence or attempt to unduly influence the Commercial Policy of BTWS (the unit responsible for the product management of BT Wholesale's SMP Products) or BTS (the unit responsible for the product management of other products of significance to other Communications Providers), except through mechanisms and processes identical or similar to those available to other Communication Providers. (BT Undertaking, paragraph 8.6).

6. SINGAPORE

Background

6.1 On 23 March 2006, the Infocomm Development Authority of Singapore (**IDA**) released a Request for Concept (**RFC**) in relation to the implementation of a Next Generation National Broadband Network for Singapore (Next Gen NBN). The aim of the RFC was to solicit industry inputs to shape the Next Gen NBN initiative. The RFC closed on 15 June 2006 with a total of 33 submissions received from both local and international telcos and hardware and software providers.

6.2 Following the RFC, IDA announced that the Next Gen NBN would comprise of three key industry layers:

(a) a Network Company (**NetCo**) – responsible for the design, build and operation of the passive infrastructure;

(b) Operating Companies (**OpCo**) – who will leverage the NetCo passive infrastructure and be responsible for the design, build and operation of the active infrastructure to provide wholesale broadband connectivity to other operating companies and downstream operators such as retail service providers (**RSPs**); and

(c) RSPs – who will compete to provide services to end-users.

6.3 In order to ensure open access to this infrastructure by downstream operators, the Singaporean Government decided to adopt separation between these different layers. Following a year-long industry consultation and study of deployments internationally, IDA released two requests for proposals (**RFPs**) to interested parties in relation to the design, build and operation of both the passive and active infrastructure of Singapore's proposed Next Gen NBN.

6.4 The first RFP was released on 11 December 2007 and sought submissions for the NetCo. Two submissions for the 11 December 2007 RFP had been received by closing on 6 May 2008. The submissions were received from:

(a) Infinity Consortium (lead by City Telecom (H.K) Limited, members: MobileOne Ltd and StarHub Ltd); and

(b) OpenNet Consortium (lead by Axia NetMedia Corporation, members: Singapore Press Holdings Ltd, Singapore Telecommunications Pte Ltd and SP Telecommunications Pte Ltd).

6.5 The second RFP was released on 7 April 2008 and sought submissions for the OpCo. Submissions will close on 20 August 2008.

6.6 There is currently no legislation in Singapore to achieve open access, however the Minister for Information, Communications and the Arts has stated that the government will consider implementing legislation if required.

Equivalence

6.7 Equivalence does not appear to have been defined as yet in the context of the Singaporean Next Gen NBN.

Network Company requirements

6.8 NetCo will be required to:

(a) be structurally separate from downstream operators and vice versa;

(b) maintain strict separation by ensuring that there is no control over the management and major operating decisions of its downstream operators and vice versa; and

(c) ensure that it and its downstream operators are separate entities with fully autonomous decision-making considerations.

6.9 IDA will also assess the level of cross-shareholding between NetCo and its downstream operators.

Operational Company Selection

6.10 According to the IDA, the OpCo will be subject to less stringent requirements for separation in comparison with NetCo as it will be allowed to retain full shareholding ownership of its downstream operating units.

6.11 OpCo will be the entity that offers wholesale broadband access to downstream RSPs. OpCo will be required however, to be *operationally* separate the Next Gen NBN OpCo and RSPs.

6.12 OpCo will be required to:

(a) be established as a separate legal entity and maintain a separate board, management and staff;

(b) provide equivalence of inputs to all downstream operators; i.e. provide its services at the same prices and terms, with the same processes and information;

(c) offer fair and non-discriminatory wholesale broadband services with prices and terms and conditions to be regulated by IDA;

(d) meet all reasonable requests by an operating company or downstream RSP for access to a basic set of wholesale services;

(e) be independent from its affiliated downstream operating units and:

(i) operate in all respects on a stand alone basis, separate from its affiliated downstream operating units;

(ii) be located in separate premises;

(iii) independently formulate & make its own decisions on its assets and commercial policy;

(iv) not allow its affiliated downstream operating units to have unequal influence on the formulation of commercial policy, or to have access to commercial information or customer confidential information;

(v) ensure that OpCo's board of Directors, management and employees do not have responsibilities in any of its affiliated downstream operating units;

(vi) require all remuneration and incentive schemes for the OpCo's board of directors, management and employees not to be linked to the performance of its affiliated downstream operating units; and

(vii) ensure compliance with the separation requirements, through:

(A) the maintenance of a comprehensive governance manual;

(B) compliance to a set of operational separation performance indicators; and

(C) appropriate reporting to the Monitoring Board.

6.13 Eleven companies have pre-qualified to submit bids to this Next Gen NBN OpCo RFP:

(i) Alcatel-Lucent Singapore Pte Ltd;

(ii) Axia NetMedia Corporation;

(iii) BT Singapore Pte Ltd;

(iv) City Telecom (H.K) Limited;

(v) Deutsche Telekom Asia Pte Ltd;

(vi) MobileOne Ltd;

(vii) Nippon Telegraph and Telephone West Corporation;

(viii) Nokia Siemens Networks Singapore Pte Ltd;

(ix) Singapore Computer Systems Ltd;

(x) Singapore Telecommunications Ltd; and

(xi) StarHub Ltd.

7. TREATY OBLIGATIONS

General Agreement on Trade in Services

7.1 Under Article 5 of the Telecommunications Annex to the *General Agreement on Trade in Services* (**GATS**), member states are required to:

> *... ensure that any service supplier of any other Member is accorded access to and use of public telecommunications transport networks and services on **reasonable and non-discriminatory terms and conditions**, for the supply of a service included in its Schedule.* [Emphasis added]

7.2 A footnote to that provision provides that:

> *The term **'non-discriminatory' is understood to refer to most-favoured-nation and national treatment** as defined in the Agreement, as well as to reflect sector-specific usage of the term to mean **terms and conditions no less favourable than those accorded to any other user of like public telecommunications transport networks or services under like circumstances'**.* [Emphasis added]

7.3 In *Mexico – Measures Affecting Telecommunications Services (WT/DS204R) Report of the Panel, 2 April 2004*, the WTO dispute panel stated that the definition of 'non discriminatory' in the context of the Article 5(a) of the Annex to Telecommunications:

> *...clarifies that **no discrimination is permitted** with respect to other foreign suppliers, **under like circumstances**. The word 'non-discriminatory' therefore addresses the conditions of competition of service suppliers in relation to other suppliers who are users of public telecommunications transport networks and services. The word 'reasonable' would, on the other hand, appear to include obligations that go beyond the non-discrimination requirement.* [Emphasis added]

7.4 Related concepts have been used in a number of other treaties to which Australia is a party:

(a) In Article 12.25(10) of the Telecommunications Chapter (Chapter 12) of the Australia – United States Free Trade Agreement non discrimination is defined as:

> *... **treatment no less favourable** than that accorded to any other user of like public telecommunications services in like circumstances.* [Emphasis added]

(b) In Article 9(1) of the Telecommunications Services Chapter (Chapter 10) of the Singapore – Australia Free Trade Agreement (**SAFTA**) a similar definition is adopted, whereby non discrimination is taken to require that each party:

> *...ensure that major suppliers in its territory accord suppliers of public telecommunications networks or services of the other Party **treatment no less favourable** than such major supplier accords to itself, its subsidiaries, its affiliates, or any non-affiliated supplier of public telecommunications networks or services regarding:*
>
> *(i) availability, provisioning, rates, or quality of like public telecommunications networks or services; and*

(ii) availability of technical interfaces

where such suppliers of public telecommunications networks or services and subsidiaries, affiliates and non-affiliates of the major supplier are in like circumstances.[37] [Emphasis added]

8. JUDICIAL TREATMENT OF EQUIVALENCE IN OTHER CONTEXTS

8.1 The principle of equivalence is not defined in the TA 1997, nor has it been considered judicially in the telecommunications context in Australia. The concept has been, however, judicially considered in other contexts. Courts have generally given the term 'equivalence' its ordinary meaning unless legislation provides otherwise. Its ordinary meaning is determined by reference to its definition being 'equal in value'. Whether equal in value means 'identical' or 'the exact same' depends on the context of the case and the intention of the legislature. For example:

(a) O'Loughlin J, in *Moore v Inspector General in Bankruptcy* (1997) 77 FCR 292, considered that, in the context of the *Bankruptcy Act 1966* (Cth) which required under s133(3A) that an applicant hold equivalent qualifications:

> *The ordinary meaning of the word 'equivalent' is 'equal in value'.*

(b) The court in *Director of Public Prosecutions for Western Australia v Mansfield and Others* [2004] WASC 116 held that equivalent under section 1400(2) of the *Corporations Act 2001* (Cth) which stated that 'On the commencement, the person acquires, accrues or incurs a right or liability... equivalent to the pre-commencement right or liability...' meant:

> *...equal in value, measure, force, effect and significance.*

(c) In relation to the same section 1400(2), the court stated in *R v Frawley* [2005] NSWCCA 66 that:

> *The word 'equivalent' does not mean 'identical'. It does no more than identify the extent of the replacement 'right or liability'. A fundamental object of the 2001 Act was to re-enact, as Commonwealth legislation, the scheme that had evolved over the decades of Commonwealth-State co-operation, in order to avoid some of the difficulties that had emerged under the Corporations Law.*

(d) In *Minister for Industry and Commerce v Western Mining Corporation Ltd* (1985) 7 FCR 67, the court held that in determining whether particular local goods are a 'suitable equivalent' for imported goods:

> *...the ultimate question is, taking the various qualities of both products all in all and considering the purpose to which they were to be applied and considering the purpose to which they were to be applied, could it be said that the local product would not perform its intended function about as well as the imported product.*

(e) In *Commissioner of Taxation v Radilo Enterprises Pty Ltd* (1997) 72 FCR 300, the respondent's entitlement to a rebate pursuant to s46(2)(b) and s46D of the *Income Tax Assessment Act 1936* (Cth) was considered. Section 46(D)(2) provided that: 'a dividend is a debt dividend... only if... the payment of the dividend may reasonably be regarded as equivalent to the payment of interest on a loan'. The court stated that:

---

[37] Both of these FTA's build on the commitments made by Australia in GATS. It is reasonable to conclude that the use of the term 'non-discrimination' has the same meaning in each treaty.

*For an occurrence to be said to be equivalent to another it must have **equality in value or significance**; or **correspondence** in import, characteristic or meaning; or **have identical effect** or **be virtually the same thing**: see the Oxford English Dictionary: 'equivalent'. In our opinion, Parliament applied the word 'equivalent' in ss46C and 46D in this sense in that there is a requirement that the circumstances under which the dividend is paid on a share in a company **must correspond with the circumstances** in which interest is payable on a sum borrowed.* [Emphasis added]

(f) Fox J, in *Linhart v Elms* (1988) 81 ALR 557, considered that equivalence is not easy to judge except by reference to some standard or purpose:

> *What exactly is meant by an act or omission being equivalent to an act or omission is not easy to determine. Inasmuch as **equivalence can only be judged according to some standard, or purpose, or other external factor**, there would seem to be an ellipsis* [Emphasis added].

(g) In *Riley v the Commonwealth* (1985) 159 CLR 1, Gibbs CJ, Wilson and Dawson JJ stated:

> *The reference in the sub-section to an **'equivalent act or omission'** is to an act or omission which would be the **same as** the act or omission which is an element of the offence against the law of the foreign state were it not for the fact that the law of the foreign state requires (whether or not for reasons of jurisdiction) that the act or omission should have occurred in or in relation to some place or thing in or connected with a foreign state. For example, the act of importing narcotics into Australia is an 'equivalent act' to the act of importing narcotics into the United States.* [Emphasis added]

8.2 English courts have considered the application of the term 'principle of equivalence' in the context of testing the validity of UK legislation against EU requirements. For example:

(a) In *Matra Communication SAS v Home Office* [1999] 3 All ER 562, in determining whether a new regulation was in compliance with Community law the court used the term 'principle of equivalence' to prescribe that the regulation that imposed a limitation period **could not be less favourable than that relating to similar domestic claims**. Buxton LJ stated that:

> *[the] principle of 'equivalence' really does mean what it says. The domestic court, in applying the principle, must look not merely for a domestic action that is similar to the claim asserting Community rights, but for one that is in juristic structure very close to the Community claim.*

(b) In *Halstead v Manchester City Council* [1998] 1 All ER 33 it was held that there was no scope for a claim for interest in certain cases, because if the claim was allowed the claimant would receive a windfall benefit in excess of what was necessary to compensate him for his actual loss, thereby breaching the principle of equivalence.

9. IS 'EQUIVALENT' THE SAME AS 'NO LESS FAVOURABLE'?

9.1 It is arguable that, given their ordinary meanings, the terms 'equivalent' and 'no less favourable' embody different concepts. 'Equivalence' would suggest that a related and non-related access seeker must receive the same treatment, while 'no less favourable' suggests that the non-related could potentially receive treatment that is equal to, *or more favourable than*, the treatment afforded to the related access seeker, provided it does not receive less favourable treatment.

9.2 That said, it might be thought that the object of an access regime, designed to protect competition in downstream markets, is to ensure only that there is no favourable treatment afforded to the related access seeker (since this is the incentive on the part of the NBN operator that must be overcome). Such a regime might not be concerned if more favourable treatment is given to a non-related access seeker, provided its treatment is no less favourable. In this context, it might be argued that 'equivalent' should have the same meaning as 'no less favourable'.

9.3 It is clear that these are terms capable of generating considerable controversy and debate. If the regulatory regime for the NBN is to be effective, it is vital that it does not encourage argument and litigation over the meaning of the basic concepts that underpin the regime. The current reference in the TA 1997 to the 'principle of equivalence', without further elaboration, makes this a real possibility.

9.4 Instead, there is a clear need to follow the example set by New Zealand and the United Kingdom and define the concept of equivalence in comparable terms, supported by specific measures that are necessary to ensure that the NBN operator is properly structured and will give equal treatment to all users of the NBN. Such measures have been proposed in this submission.

ENDS

'yes' OPTUS

12 September 2008

Committee Secretary
Senate Select Committee on the National Broadband Network
Department of the Senate
Parliament House
CANBERRA ACT 2600

By email: broadband.sen@aph.gov.au

Senate Select Committee on the National Broadband Network

Optus is pleased to provide the attached report (*Broadband Pricing Benchmark*) to the Senate Select Committee on the National Broadband Network (NBN) to assist the Committee's deliberation on the many issues associated with the Government's plans for the delivery of high speed broadband services to 98 per cent of the Australian population

The attached report by Spectrum Value Partners was commissioned by Optus. The report reveals that Telstra charges its DSL broadband customers some of the most expensive prices of incumbent telecommunications providers in eighteen OECD countries.

It also notes that Telstra ranked as the second most or most expensive provider, compared to its peers, at all usage levels greater than 500 megabits (MB) per month.

Optus believes the report has important implications for plans for a National Broadband Network and reinforces the critical need to protect Australian broadband consumers from Telstra's plans to regain a broadband monopoly - and charge consumers sky high prices.

Key findings of the report include:

- Telstra ranks as the second most or most expensive provider, compared to its peers, at all usage levels greater than 500MB per month. Of the 72 plans surveyed, 68 offer data caps greater than 500MB.

- Only seven of the eighteen surveyed providers offer capped plans (under which the monthly amount of data that the user may download is capped at a specified amount, with any downloads beyond that cap, either charged at an excess data rate, or 'throttled' to a lower speed). All of Telstra's plans are capped. *Of those that charge excess usage, Telstra has the highest rates of any provider, six times more than the next most expensive provider.* All other Telstra plans throttle excess usage back to dial-up speeds of up to 64kbps.

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- Telstra's initial DSL modem and connection fees rank as the second highest of all surveyed plans. The most expensive modem and connection fee is charged by 'Alice', (the retail brand of Telecom Italia); however this includes modem rental and free 'Alice TV' with access to more than 200 channels as part of the package.

- Only three of the seventytwo plans analysed offer advertised speed of 256kbps or below; two out of the three are from Telstra.

- Over 90% of plans analysed offered advertised download speeds of greater than 1Mbps; while 78% of Telstra's plans offer advertised download speeds of greater than 1Mbps.

Should the Committee be interested in hearing from the author of this report, the authors contacts details are:

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We look forward to an opportunity to discuss our submission with the Committee in the near future. For more information please contact Optus' Government Affairs Team on 02 8082 8005.

Yours sincerely

Maha Krishnapillai
Director, Corporate and Government Affairs

{spectrum} | VALUE PARTNERS | yes OPTUS

BROADBAND PRICING BENCHMARKING

FINAL REPORT

Thursday, 19th June 2008

Contents

1 Executive Summary

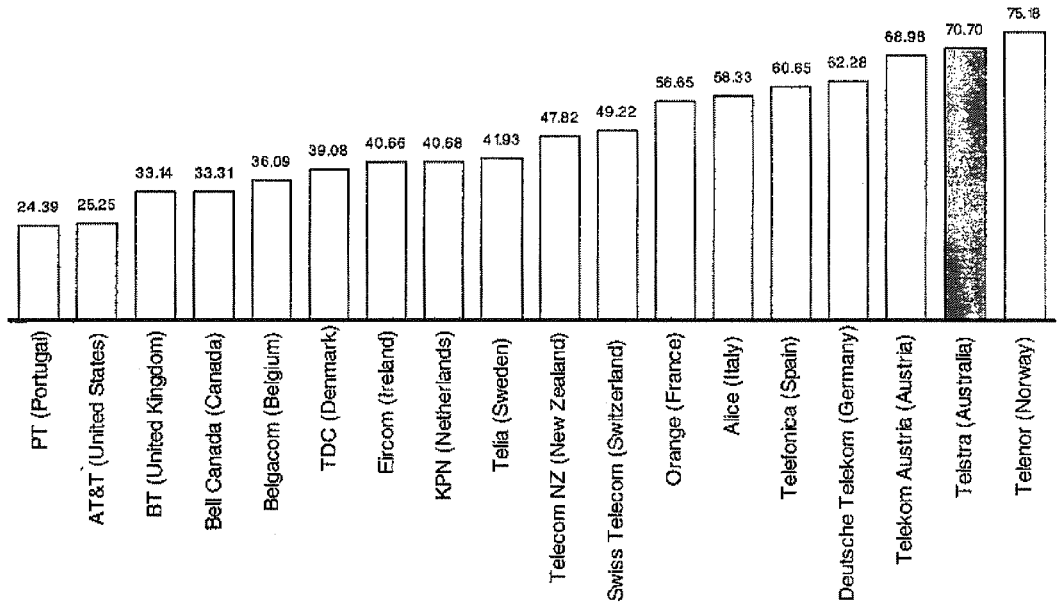
Spectrum Value Partner's has analysed the consumer DSL broadband pricing plans of the incumbent telecommunications providers of eighteen OECD countries. In total, seventy two individual consumer plans were reviewed and categorised based on advertised speed and usage levels (represented by five monthly usage levels). The 'Total Cost of Broadband' to subscribers was calculated for each of the seventy two plans. All costs were considered, including start up costs, headline monthly fees plus any usage charges, all averaged over a 12 month contract period.

The approaches of incumbents vary widely as might be expected. However, some interesting trends have emerged:

- Telstra ranks as the second most or most expensive provider, compared to its peers, at all usage levels greater than 500MB per month. Of the 72 plans surveyed, 68 offer data caps greater than 500MB.
- Only seven of the eighteen surveyed providers offer capped plans (under which the monthly amount of data that the user may download is capped at a specified amount, with any downloads beyond that cap either charged at an excess data rate, or 'throttled' to a lower speed). All of Telstra's plans are capped. Of those that charge excess usage, Telstra has the highest rates of any provider, six times more than the next most expensive provider. All other Telstra plans throttle excess usage back to dial-up speeds of up to 64kbps.
- Telstra's initial DSL modem and connection fees ranks as the second highest of all surveyed plans. The most expensive modem and connection fee is charged by Alice, (the retail brand of Telecom Italia); however this includes modem rental and free Alice TV with access to more than 200 channels as part of the package.
- Only three of the seventy two plans analysed offer advertised speed of 256kbps or below; two out of the three are from Telstra.
- Over 90% of plans analysed offered advertised download speeds of greater than 1Mbps; while 78% of Telstra's plans offer advertised download speeds of greater than 1Mbps.

In order to compare pricing plans across operators, we have determined the provider's most economical ("best value") broadband offering based on Total Cost of Broadband for each usage level (five categories; 'Ultra Low' (200MB per month), 'Low' (500MB per month), 'Medium' (2GB per month), 'High' (10GB per month) and 'Ultra High' (30GB per month)). We recognise that at a given usage level users will not select plans that would incur unnecessary excess usage charges. As such, for a given usage level, we disregard all data capped plans that are less than 75% of the given usage level (uncapped plans are still included). Exhibit 1 shows the best value package for a 'Low' (500MB per month) user. On this basis, Telstra is the second most expensive of the eighteen carriers analysed.

Exhibit 1: Most economical 'Low' usage (500MB per month) package (AUD$ pm, at 1st June 2008)



Note Throttled plans are excluded if the cap is less than 75% of the monthly usage level
Source: Spectrum Value Partners analysis, company websites

A summary of Telstra's rankings based on the Total Cost of Broadband for each usage level is presented in Exhibit 2. At all usage levels of 500MB per month and above, Telstra ranks either 17th or last out of the 18 operators analysed.

Exhibit 2: Incumbent provider 'best value' ranking by usage level

Usage profiles	Telstra ranking (1st = least expensive, 18th = most expensive)
Ultra Low (200MB)	11th
Low (500MB)	17th
Medium (2GB)	18th
High (10GB)	18th
Ultra High (30GB)	18th
Number of operators	18

Note: Excludes bundled offerings, DSL contracts are 12 months, user has a fixed line with the incumbent, user has no modem and is a new broadband user/customer, lowest cost modem is used, self-service installation where possible, and excludes any promotional deals.

Source: Spectrum Value Partners analysis, company websites.

Telstra's plans are more affordable at lower download speeds. For example, its most affordable plan for a 10GB per month user is actually a 256kbps plan. Given Telstra's more affordable pricing for plans at lower downloads speeds and its majority market share, it is no surprise that 49% of all Australian broadband users have plans at less than 512kbps downstream (Australian Bureau of Statistics, December 2007). Australians looking for the best value broadband package are currently attracted towards plans at the lower end of potential download speeds.

2 Introduction

Optus has asked Spectrum Value Partners ("Spectrum") to objectively compare the consumer broadband service offerings from Telstra with those offered by a mix of incumbent operators globally. On this basis, Spectrum Value Partners has analysed the DSL broadband pricing plans of eighteen OECD incumbent telecommunications providers. In total, seventy two individual plans were reviewed and categorised based on advertised speed (five categories) and usage levels (five categories). Finally the Total Cost of Broadband was calculated (i.e. start up costs plus headline fees plus usage charges) of subscribing to each of the seventy two plans for each of the customer usage profiles.

The methodology used was the same as is employed in the Internet Industry Association (IIA) / Spectrum Quarterly Broadband Index which compares broadband plans from five leading Australian providers. This methodology is detailed in Appendix A.

Spectrum Value Partners has previously undertaken work for both Optus and Telstra. Spectrum Value Partners is currently acting as an advisor to Optus and to the Terria Group on the NBN process.

The report authors are Justin Jameson and Ainkaran Krishnarajah. Justin Jameson is the lead Partner of Spectrum's Sydney office. He has over fourteen years experience advising clients in the media, telecommunications industries. He specialises in corporate strategy, commercial business development, operational support and regulatory strategy. Ainkaran Krishnarajah is a Senior Associate in Spectrum's Sydney office, with over ten years experience in telecoms, having worked in a number of roles from 3G R&D, 3G standardization, product management, and account management (sales) at a leading telecoms infrastructure vendor during this time.

3 DSL pricing plan results

The DSL plans of eighteen incumbent internet service providers (ISPs) have been compared and analysed. In total, seventy two individual plans were reviewed and categorised based on advertised speed and usage levels (five categories: 'Ultra Low' (200MB per month), 'Low' (500MB per month), 'Medium' (2GB per month), 'High' (10GB per month) and 'Ultra High' (30GB per month)). It is important to note that the definition of the advertised speed varies between operators; either being a guaranteed speed to the end user or an expected maximum (peak) speed. In all cases the maximum advertised speed was used. Based on the methodology in Appendix A, the cost of the most economical ("best value") broadband offering based on Total Cost of Broadband for each user profile was calculated with the results given in Exhibits 3 – 7.

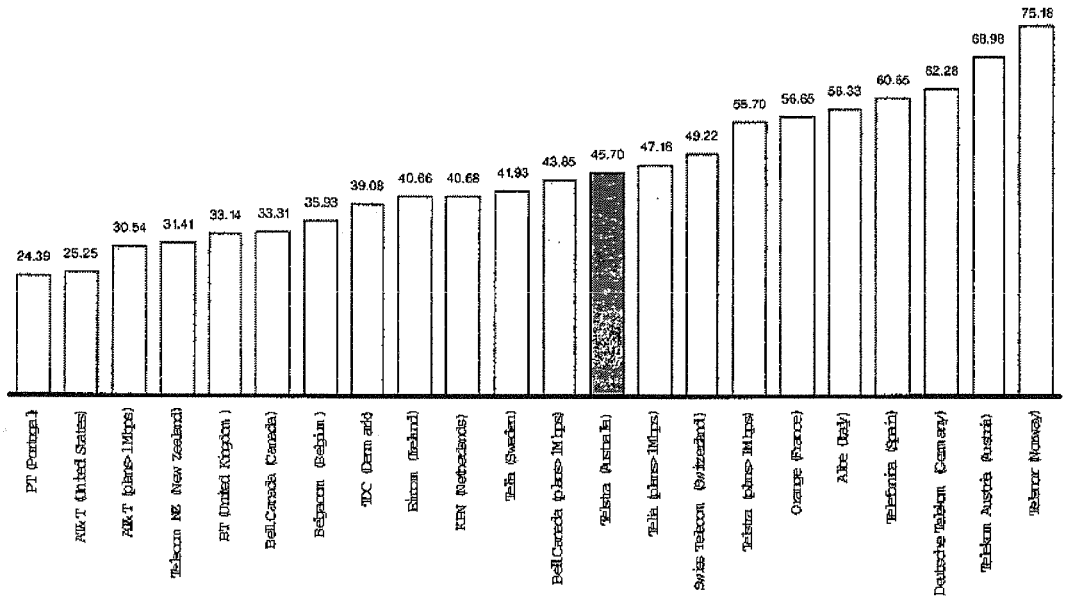
The approaches of incumbents vary widely as might be expected. However, some interesting trends have emerged:

- Telstra ranks as at least the second most expensive provider, compared to its peers, for all usage levels greater than 500MB. In contrast, 68 out of the 72 plans surveyed offer data caps greater than 500MB.
- Only seven surveyed providers offer capped plans (under which the monthly amount of data that the user may download is capped at a specified amount, with any downloads beyond that cap either charged at an excess data rate, or 'throttled' to a lower speed). The others only offer uncapped plans. Telstra only offers capped plans. Where excess usage is charged, Telstra has the highest excess usage rates of any provider, six times more than the next most expensive provider. All other Telstra plans throttle excess usage to dial-up speed of up to 64kbps.
  - For the limited (capped) data plans, excess usage is either; charged by volume ($/GB) at generally modest rates, or traffic shaped (usually to speeds of circa 64kbps)
- Telstra's initial DSL modem and connection fees ranks as the second highest of all surveyed plans. The most expensive modem and connection fee is charged by Alice (telecom Italia's retail brand); however this includes modem rental and free Alice TV with access to more than 200 channels as part of the package, representing significant value.
  - Most European providers offer a free DSL modem and connection fee
- Two out of the three plans offering advertised download speeds of 256kbps or below are from Telstra. In fact, 93% of plans analysed offered advertised download speeds of greater than 1Mbps, whereas only 78% of Telstra's plans were for speeds of greater than 1 Mbps. The majority of these plans (53%) offer advertised speeds of between 1-7 Mbps. This would suggest that Telstra caters for plans at the lower end of surveyed download speeds. Given Telstra's majority market share and more affordable pricing for plans at lower downloads speeds it is no surprise, as indicated by the Australian Bureau of Statistics, that 49% of all broadband users have plans less than 512kbps downstream (ABS, December 2007). Australians looking for the best value broadband package for a given usage are skewed to lower end download speeds.
  - Advertised data speeds vary from specifying guaranteed levels to peak speeds only. Some providers do not advertise any download speeds (i.e. Telecom New Zealand)
  - Two out of the five plans offering advertised download speeds of less than 1 Mbps are from Telstra:
    - Australia Telstra 'Fast 256/64kbps'
    - Australia Telstra 'BigPond Liberty Fast 256/64kbps'
    - Sweden Telia 'Telia Bredband 0.25Mbps'
    - United States AT&T 'Basic Plan 512kbps'
    - Canada Bell Canada 'Total Internet Essential 512 kbps'

Exhibits 3 – 7 compare the most economical ("best value") broadband offerings for each operator based on Total Cost of Broadband for each usage category. Plans of all speeds are included. The analysis shows that once customers get to 500MB of usage a month, Telstra's Total Cost of Broadband is over AUD$70, whereas in most markets plans are still available at a Total Costs of Broadband of under AUD$50 even at 30GB of monthly usage. If low speed and / or plans that throttle speeds back are excluded, these numbers get worse for some operators, including Telstra.

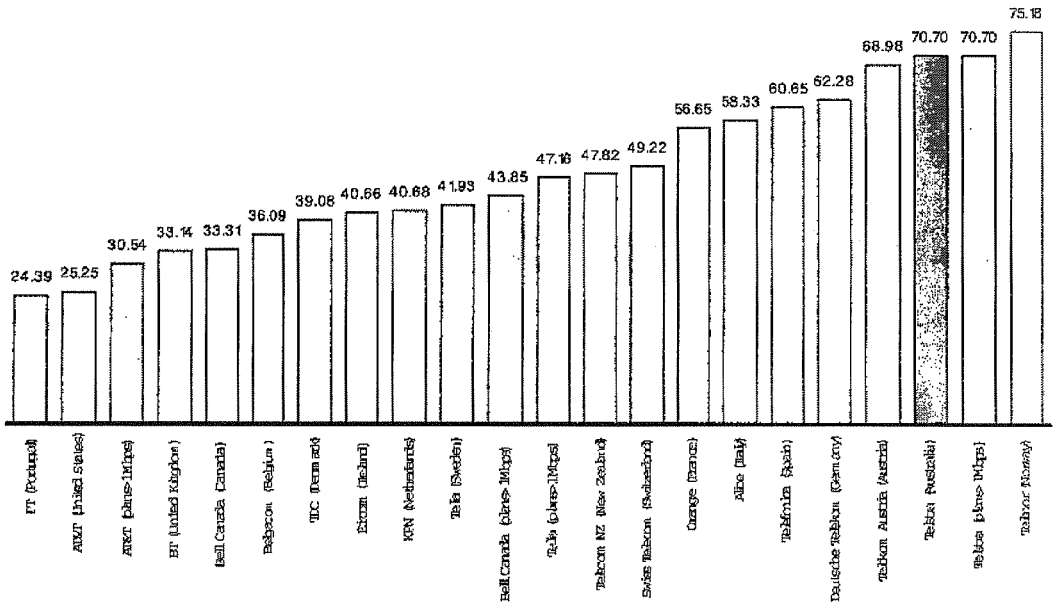
If we consider that users value download speed as an important factor in choosing a plan, then we show the impact on the 'best value' for each usage level if plans with speeds < 1Mbps are removed. This relates to four providers that offer very low speed 'broadband' plans: Telstra (Australia), AT&T (United States), Bell Canada (Canada) and Telia (Sweden) with plans < 1Mbps download speed.

Exhibit 3: Most economical Ultra Low usage plan by monthly cost, excluding plans with data caps less than 75% of the 'Ultra Low' usage level of 200MB (AUD$, as at 1st June 2008)



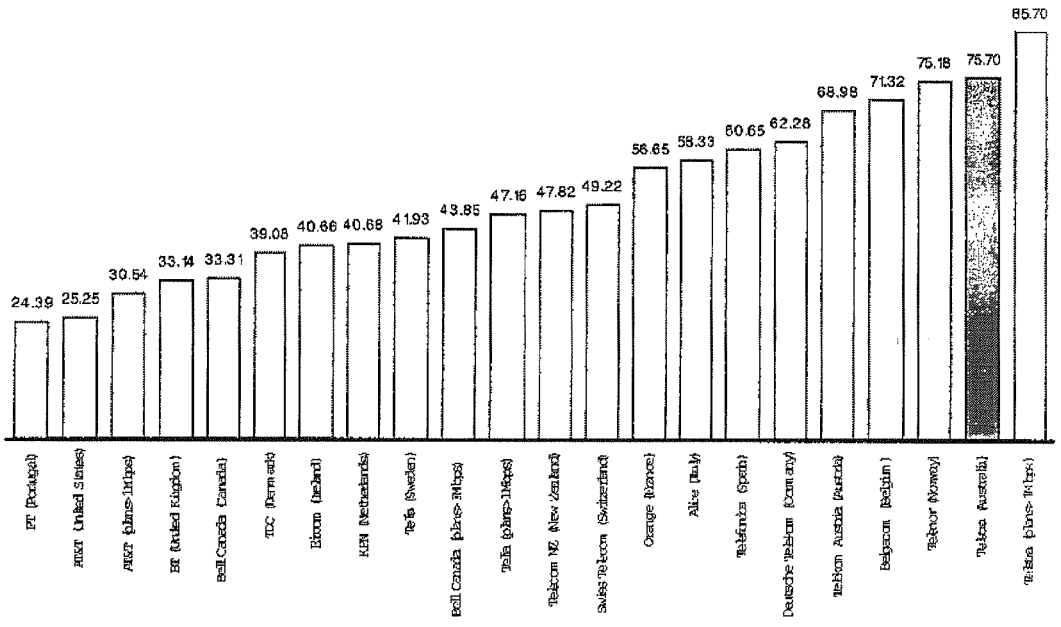
Source: Spectrum Value Partners analysis, company websites

Exhibit 4: Most economical 'Low' usage plan by monthly cost, excluding plans with data caps less than 75% of the 'Low' usage level of 500MB (AUD$, as at 1st June 2008)



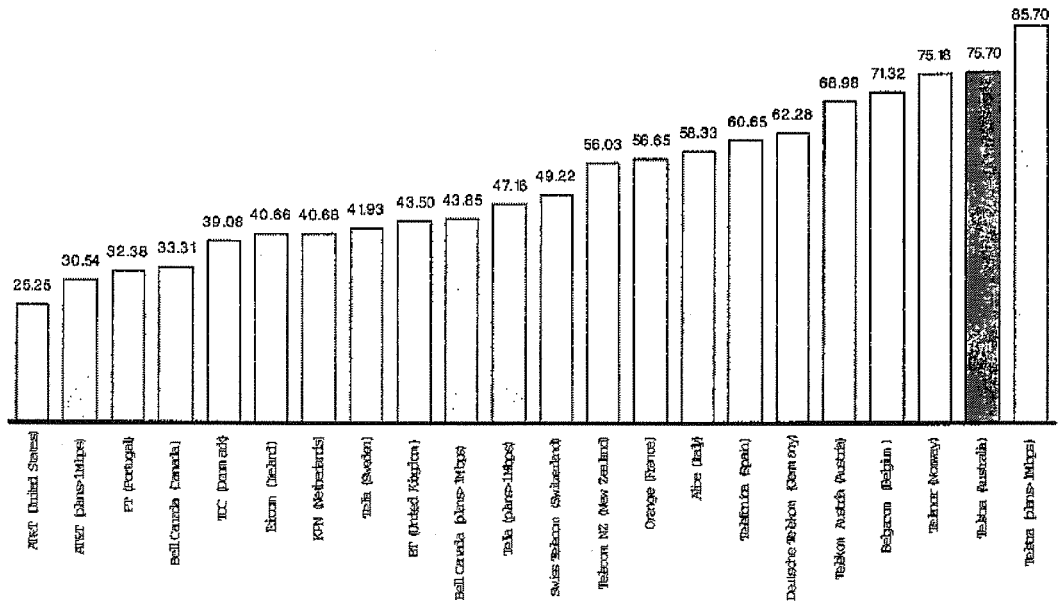
Source: Spectrum Value Partners analysis, company websites

Exhibit 5: Most economical 'Medium' usage plan by monthly cost, excluding plans with data caps less than 75% of the 'Medium' usage level of 2GB (AUD$, as at 1st June 2008)



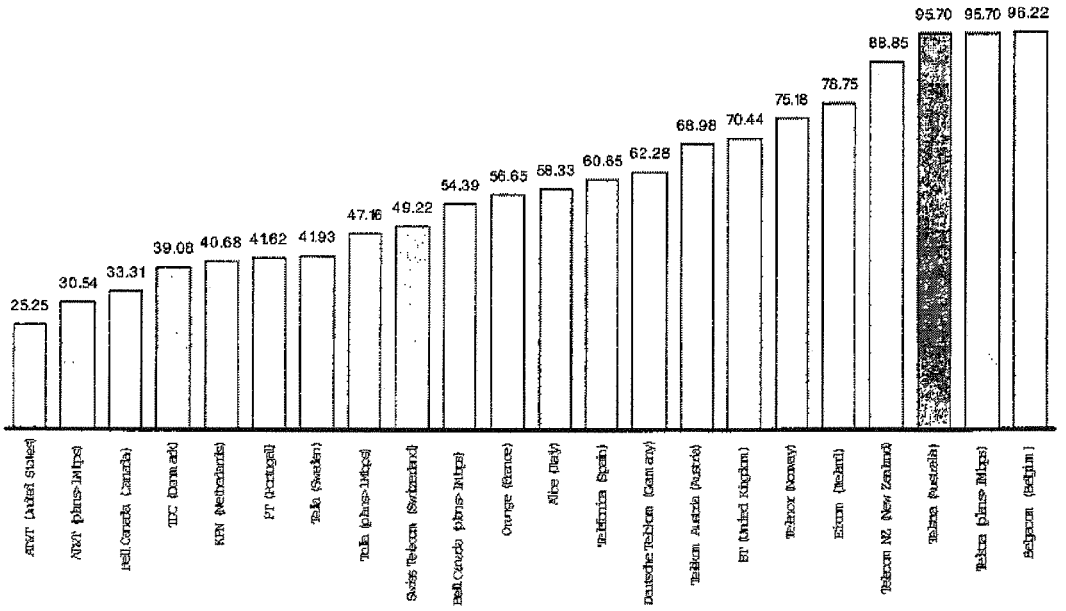
Source: Spectrum Value Partners analysis, company websites

Exhibit 6: Most economical 'High' usage plan by monthly cost, excluding plans with data caps less than 75% of the 'High' usage level of 10GB (AUD$, as at 1st June 2008)



Source: Spectrum Value Partners analysis, company websites

Exhibit 7: Most economical 'Ultra High' usage plan by monthly cost, excluding plans with data caps less than 75% of the 'Ultra High' usage level of 30GB (AUD$, as at 1st June 2008)



Source: Spectrum Value Partners analysis, company websites

A summary of Telstra's rankings based on the Total Cost of Broadband for each usage level is presented in Exhibit 8.

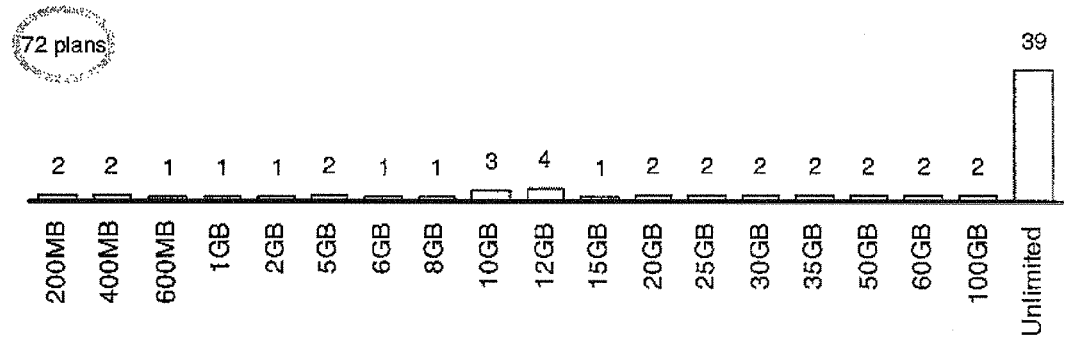
Exhibit 8: Incumbent provider 'best value' ranking by usage level

Usage profiles	Telstra ranking (1 = lowest expense, 18 = highest expense)
Ultra Low (200MB)	11th
Low (500MB)	17th
Medium (2GB)	18th
High (10GB)	18th
Ultra High (30GB)	18th
Number of operators	18

Note: Excludes bundled offerings, DSL contracts are 12 months, user has a fixed line with the incumbent, user has no modem and is a new broadband user/customer, lowest cost modem is used, self-service installation where possible, and excludes any promotional deals.

Source: Spectrum Value Partners analysis, company websites.

Exhibit 9: Download cap distribution for surveyed plans



Source: (1) Spectrum Value Partners analysis, company websites

As shown in Exhibit 9, 54% of plans offered unlimited data plans. Unlimited data plans were offered by thirteen of the surveyed providers:

- Alice (Italy)
- AT&T (United States)
- BT (United Kingdom)
- Deutsche Telekom (Germany)
- KPN (Netherlands)
- Orange (France)
- PT (Portugal)
- Swiss Telecom (Switzerland)
- TDC (Denmark)
- Telefonica (Spain)
- Telekom Austria (Austria)

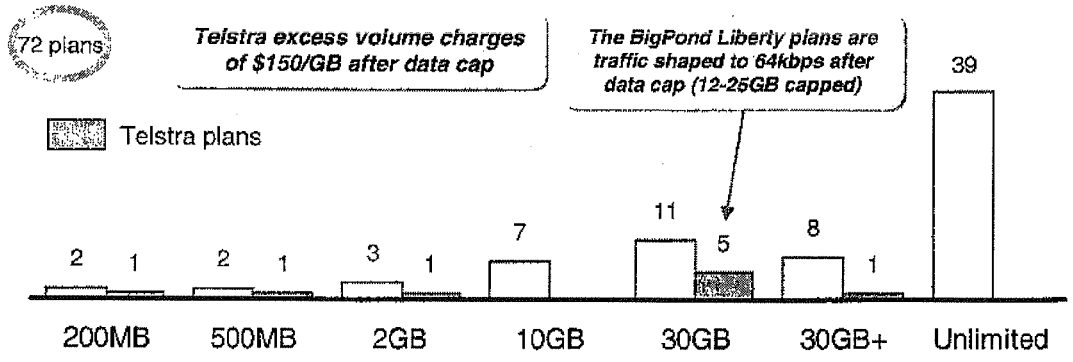
- Telenor (Norway)
- Telia (Sweden)

Capped data plans were only offered by seven of the surveyed providers:

- Belgacom (Belgium)
- Bell Canada (Canada)
- BT (United Kingdom)
- Eircom (Ireland)
- PT (Portugal)
- Telecom NZ (New Zealand)
- Telstra (Australia)

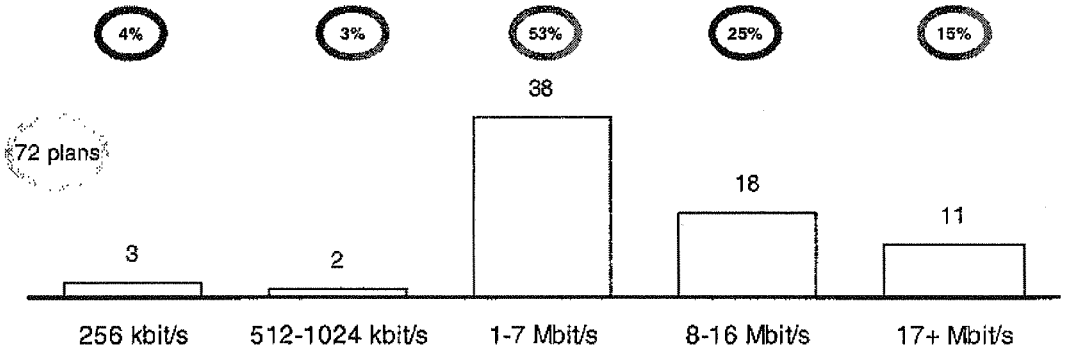
Telstra's BigPond Liberty plans appear tailored for users with heavier download demands (12-25GB), however, traffic is shaped to speeds up to 64kbps once data caps have been exceeded (Exhibit 10). Additionally, 53% of plans analysed offered advertised download speeds of between 1-7 Mbps and 40% offered speeds above 7 Mbps (as shown in Exhibit 11).

Exhibit 10: Number plans with download caps by user profile for all surveyed plans



Source: (1) Spectrum Value Partners analysis, company websites

Exhibit 11: Speed category distribution for all surveyed plans

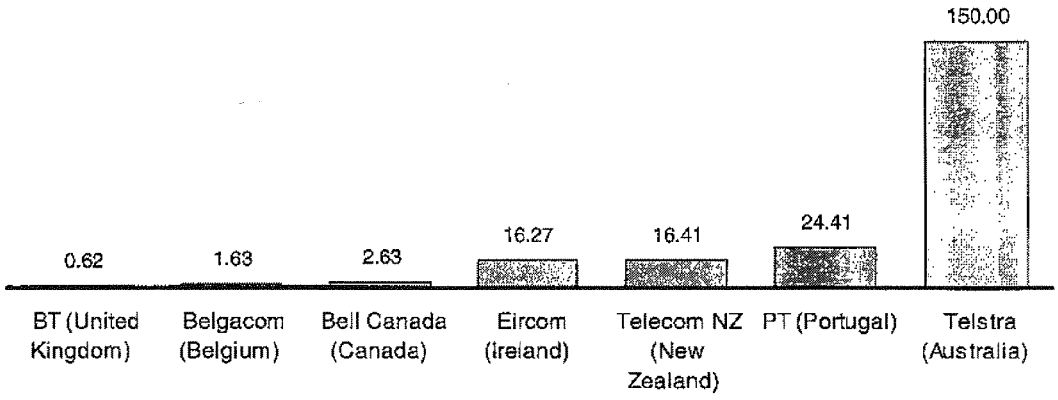


Source: (1) Spectrum Value Partners analysis, company websites

For all limited (capped) data plans, usage exceeding the volume cap is either; charged by volume ($/GB), or data speeds are reduced (traffic shaped or throttled) to speeds of up to 64kbps (dial-up). No volume usage charges are applied when a service is being throttled.

Telstra's 'Fast', 'Faster' and 'Fastest' plans (refer Appendix B) apply excess volume charges of AUD$150/GB once data caps have been exceeded (Exhibit 12). It is clear that for all limited (capped) data plans where an excess usage charge is applied Telstra ranks as the highest by cost per GB, as shown in Exhibit 12. This is six times more expensive than the next most expensive provider, PT (Portugal).

Exhibit 12: Excess usage charges on capped plans (AUD$/GB, as at 1st June 2008)

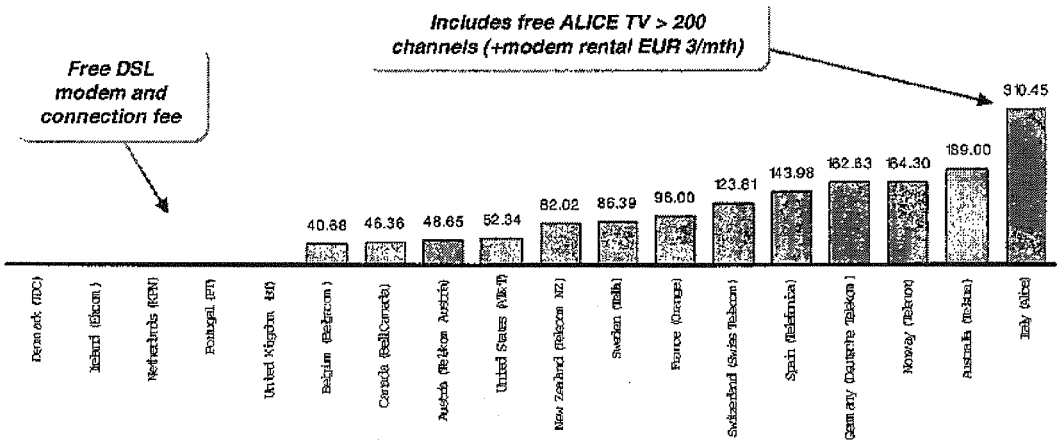


Source: Spectrum Value Partners analysis, company websites

As shown in Exhibit 13, all offers where a DSL modem and connection fee is provided for free these have been offered by European providers. The most expensive modem and connection fee is charged by Swiss Telecom but this includes a VDSL modem, whilst the second most expensive charge is by Alice (Italy). However, charges by Alice include modem rental and free Alice TV services as part of the standalone package. Telstra appears at the high end of the spectrum with the third highest modem and connection charges.

Broadband Pricing Benchmarking

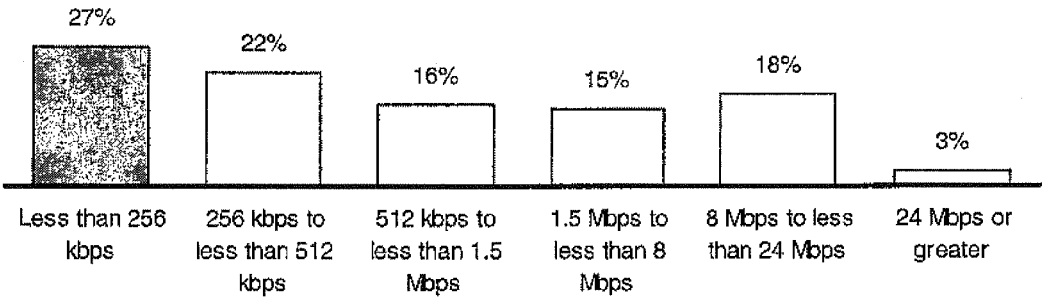
Exhibit 13: One time modem and connection charges (AUD$, as at 1st June 2008)



Source: Spectrum Value Partners analysis, company websites

The impact of these pricing plans can be seen in the most recent Australian Bureau of Statistics ISP Survey results (Dec 2007) which indicate that in Australia, 49% of all broadband users have taken plans that offer less than 512kbps downstream (Exhibit 14).

Exhibit 14: Australian broadband subscriber download speeds



Source: Australian Bureau of Statistics, Dec 2007

Appendix A: Methodology

In this report, we analysed the incumbent telecommunications providers in eighteen (18) countries in order to calculate the monthly cost to a subscriber over a 12 month contract period. The data was extracted directly from the company websites in the last week of May 2008. In total, seventy two individual plans were reviewed and categorised based on advertised speed (five categories) and usage levels (five categories).

We categorised each plan as follows:

User/subscriber: Has an *existing* fixed (PSTN) line service with the incumbent. Has no DSL modem or DSL accessories and is a new broadband customer to the incumbent. The user will self-install the DSL modem.

Operator: The providers chosen are the largest by market share in their respective home country as at December '07 (Informa database).

Technology: The analysis includes plans offering the following access networks: DSL only.

Speed: We have classified each plan by the maximum advertised download speed (256kbps, 512-1024kbps, 1-7Mbps, 8-12Mbps, 17+Mbps). Upload speeds also vary across packages.

Cost: We created five user profiles based on hypothetical usage levels: 'Ultra Low' (200MB per month), 'Low' (500MB per month), 'Medium' (2GB per month), 'High' (10GB per month) and 'Ultra High' (30GB per month). We then calculated the monthly cost of each pricing package for each user type.

The 'Total Cost of Broadband' of each package includes the following elements:

- Monthly subscription charge
- Cheapest available connection and modem fee amortised over a 12 month contract period. Where no modem cost is tabled, EURO 29.90 is assumed.
- Any additional charges if usage exceeds the monthly data allowance (or cap). Where the usage profile exceeded the data cap, we did include packages which do not charge additional data usage fees but 'throttle' download speed for the remainder of the month

For example, the monthly cost to a 'Low' user of a 0.2GB 12 month plan with a monthly subscription charge of $49.95, an initial charge of $189 for the modem and connection fee and an excess data usage fee of $150 per GB would be:

$49.95 + ($189/12) + ((0.5-0.2)$150) = $110.70*

We have excluded from the analysis:

- Special offers and promotions available for a limited period (e.g. connection fees waived for a limited period have been included)
- Business plans
- All bundled plans (i.e. with TV services, mobile, cable, satellite etc)
- All plans based on time (duration) charges
- For each usage level ('Ultra Low', 'Low', 'Medium', 'High', and 'Ultra High') analysis, plans with data caps that are less than 75% of the given usage level (i.e. 200MB, 500MB, 2GB, 10GB and 30GB).

After calculating the monthly cost of every package for each usage level, we identified the 'most economical' package, i.e. the cheapest plan for each of the five user types by incumbent operator.

Appendix B: Provider DSL plan data

Exhibit 15: Input country and provider data

Country	Provider	Plan name	Max download speed (Mbps)	Max upload speed (Mbps)	Usage limit (GB)	Monthly charge (Local currency)	Additional charge (Local currency/GB)	Modem and Connection Fee (Local currency)
Australia	Telstra	Fast 256/64kbps	0.256	0.256	0.2	29.95	150	189.00
Australia	Telstra	BigPond Liberty Fast 256/64kbps	0.256	0.256	12	59.95	0	189.00
Australia	Telstra	Faster 1500/256kbps	1.5	1	0.4	39.95	150	189.00
Australia	Telstra	BigPond Liberty Faster 1500/256kbps	1.5	1	12	69.95	0	189.00
Australia	Telstra	BigPond Liberty Faster 1500/256kbps	1.5	1	25	79.95	0	189.00
Australia	Telstra	Fastest	20	17	0.6	59.95	150	189.00
Australia	Telstra	BigPond Liberty Fastest	20	17	12	89.95	0	189.00
Australia	Telstra	BigPond Liberty Fastest	20	17	25	99.95	0	189.00
Australia	Telstra	Fastest	20	17	60	149.95	150	189.00
Austria	Telekom Austria	aonPur Flat 2 Mbit	2	1	No cap	39.90	0	29.90
Austria	Telekom Austria	aonPur Flat 4 Mbit	4	1	No cap	59.90	0	29.90
Belgium	Belgacom	ADSL Budget	1	1	0.4	20.00	1	25.00
Belgium	Belgacom	ADSL Light	2	1	1	31.55	1	25.00
Belgium	Belgacom	ADSL Go	4	1	12	41.75	1	25.00
Belgium	Belgacom	ADSL Plus	4	1	35	57.05	1	0
Belgium	Belgacom	VDSL Boost	17	17	35	62.15	1	59.90
Canada	Bell Canada	Total Internet Essential	0.5	0.512	2	27.95	2.50	44.00
Canada	Bell Canada	Total Internet Essential Plus	2	1	20	37.95	2.00	44.00
Canada	Bell Canada	Total Internet Performance	7	1	60	47.95	1.50	44.00
Canada	Bell Canada	Total Internet Max	16	8	100	67.95	1.00	44.00
Denmark	TDC	TDC Broadband 1 Mbit	1	1	No cap	179.00	0	0
Denmark	TDC	TDC Broadband 2 Mbit	2	1	No cap	219.00	0	0
Denmark	TDC	TDC Broadband 4 Mbit	4	1	No cap	259.00	0	0
France	Orange	8 mégamax	8	8	No cap	29.90	0	59.00
France	Orange	16 mégamax	18	17	No cap	34.90	0	59.00
Germany	Deutsche Telekom	Call & Surf Basic Internet flatrate DSL 2000	2	1	No cap	29.95	0	99.95
Germany	Deutsche Telekom	Call & Surf Comfort DSL 6000	6	1	No cap	39.95	0	99.95
Germany	Deutsche Telekom	Call & Surf Comfort Plus DSL 16000	16	8	No cap	49.95	0	99.95
Ireland	Eircom	Broadband home starter	1	1	10	24.99	10	0
Ireland	Eircom	Broadband home plus	2	1	20	29.99	10	0
Ireland	Eircom	Broadband home professional	3	1	30	48.40	10	0
Italy	Alice	Alice ADSL 7 Mega	7	1	No cap	19.95	0	190.80
Italy	Alice	Alice ADSL 20 Mega	20	17	No cap	24.95	0	190.80
Netherlands	KPN	Internet KPN Go	1.5	1	No cap	25	0	0
Netherlands	KPN	Internet KPN Lite	3	1	No cap	30	0	0
Netherlands	KPN	Internet KPN Basic	6	1	No cap	50	0	0
New Zealand	Telecom NZ	Basic	8	8	0.2	29.95	20	99.95
New Zealand	Telecom NZ	Explorer	8	8	6	49.95	0	99.95
New Zealand	Telecom NZ	Adventure	8	8	10	59.95	0	99.95
New Zealand	Telecom NZ	Pro	8	8	15	79.95	20	99.95
New Zealand	Telecom NZ	Pro Advanced	8	8	30	99.95	20	99.95

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New Zealand	Telecom NZ	Pro Ultra	8	8	50	149.95	20	99.95
Norway	Telenor	Online ADSL Mini	1.5	1	No cap	299	0	799.00
Norway	Telenor	Online ADSL Basic	3.5	1	No cap	349	0	799.00
Norway	Telenor	Online ADSL Plus	4.5	1	No cap	419	0	799.00
Norway	Telenor	Online ADSL Extra	6	1	No cap	499	0	799.00
Norway	Telenor	Online ADSL Max	16	8	No cap	549	0	799.00
Norway	Telenor	Online ADSL Turbo	16	8	No cap	399	0	799.00
Portugal	PT	Internet SAPO ADSL 2Mb	2	1	5	14.99	15	0
Portugal	PT	Internet SAPO ADSL 6Mb	6	1	10	19.90	15	0
Portugal	PT	Internet SAPO ADSL16Mb	16	8	50	25.58	15	0
Portugal	PT	Internet SAPO ADSL 24Mb	24	17	100	44.50	15	0
Portugal	PT	Internet SAPO ADSL 6Mb (Unlimited)	6	1	No cap	27.40	0	0
Portugal	PT	Internet SAPO ADSL16Mb (Unlimited)	16	8	No cap	33.08	0	0
Portugal	PT	Internet SAPO ADSL 24Mb (Unlimited)	24	17	No cap	52.00	0	0
Spain	Telefonica	Dúo ADSL 1MB	1	1	No cap	29.90	0	88.49
Spain	Telefonica	Dúo ADSL 3MB	3	1	No cap	40.90	0	88.49
Spain	Telefonica	Dúo ADSL 10MB	10	8	No cap	44.90	0	88.49
Sweden	Telia	Telia Bredband 0.25	0.25	0.256	No cap	199	0	495.00
Sweden	Telia	Telia Bredband 24	2	1	No cap	229	0	495.00
Sweden	Telia	Telia Bredband 8	8	8	No cap	279	0	495.00
Sweden	Telia	Telia Bredband 24	24	17	No cap	329	0	495.00
Switzerland	Swiss Telecom	DSL standard	3.5	1	No cap	49.00	0	0
Switzerland	Swiss Telecom	DSL extra	5	1	No cap	59.00	0	0
Switzerland	Swiss Telecom	Infinity (VDSL)	20	17	No cap	69.00	0	123.25
United Kingdom	BT	BT Total Broadband Fast & reliable	8	8	5	15.99	0	0
United Kingdom	BT	BT Total Broadband Heavy user	8	8	8	20.99	0	0
United Kingdom	BT	BT Total Broadband UNLIMITED	8	8	No cap	24.99	0.30	0
United States	AT&T	Basic Plan	0.768	0.512	No cap	19.95	0	49.99
United States	AT&T	Express Plan	1.5	1	No cap	25.00	0	49.99
United States	AT&T	Pro Plan	3	1	No cap	30.00	0	49.99
United States	AT&T	Elite Plan	6	1	No cap	35.00	0	49.99

Note: Excludes bundled offerings, assumes 12 month DSL contracts, user has a fixed line with the incumbent, user has no modem and is a new broadband user/customer, lowest cost modem is used, self-service installation where possible, and excludes any promotional deals.

Source: Company websites.

Appendix C: Data tables

Exhibit 16: Total monthly cost (AUD) of most economical broadband packages (as at 1st June 2008)

	Telstra (Australia)	[illegible] (Austria)	[illegible] (Belgium)	Bell [illegible] (Canada)	TDC (Denmark)	Orange (France)
256 Kbps						
Ultra Low	45.70	-	-	-	-	-
Low	75.70	-	-	-	-	-
Medium	75.70	-	-	-	-	-
High	75.70	-	-	-	-	-
Ultra High	75.70	-	-	-	-	-
512-800 Kbps						
Ultra Low	-	-	-	33.31	-	-
Low	-	-	-	33.31	-	-
Medium	-	-	-	33.31	-	-
High	-	-	-	33.31	-	-
Ultra High	-	-	-	33.31	-	-
1-3 Mbps						
Ultra Low	55.70	68.98	35.93	43.85	39.08	-
Low	70.70	68.98	36.09	43.85	39.08	-
Medium	85.70	68.98	71.32	43.85	39.08	-
High	85.70	68.98	71.32	43.85	39.08	-
Ultra High	85.70	68.98	96.22	54.39	39.08	-
8-12 Mbps						
Ultra Low	-	-	-	96.54	-	56.65
Low	-	-	-	96.54	-	56.65
Medium	-	-	-	96.54	-	56.65
High	-	-	-	96.54	-	56.65
Ultra High	-	-	-	96.54	-	56.65
17+ Mbps						
Ultra Low	75.70	-	109.25	-	-	64.79
Low	75.70	-	109.25	-	-	64.79
Medium	105.70	-	109.25	-	-	64.79
High	105.70	-	109.25	-	-	64.79
Ultra High	115.70	-	109.25	-	-	64.79

Note: Excludes bundled offerings, assumes 12 month DSL contracts, user has a fixed line with the incumbent, user has no modem and is a new broadband user/customer, lowest cost modem is used, self-service installation where possible, and excludes any promotional deals.

Source: Spectrum Value Partners analysis, company websites.

Exhibit 17: Total monthly cost (AUD) of most economical broadband packages (as at 1st June 2008)

	Deutsche Telekom (Germany)	Eircom (Ireland)	Alice (Italy)	KPN (Netherlands)	Telecom NZ (New Zealand)	Telenor (Norway)
256 Kbps						
Ultra Low	-	-	-	-	-	-
Low	-	-	-	-	-	-
Medium	-	-	-	-	-	-
High	-	-	-	-	-	-
Ultra High	-	-	-	-	-	-
512-800 Kbps						
Ultra Low	-	-	-	-	-	-
Low	-	-	-	-	-	-
Medium	-	-	-	-	-	-
High	-	-	-	-	-	-
Ultra High	-	-	-	-	-	-
1-3 Mbps						
Ultra Low	62.28	40.66	58.33	40.68	-	75.18
Low	62.28	40.66	58.33	40.68	-	75.18
Medium	62.28	40.66	58.33	40.68	-	75.18
High	62.28	40.66	58.33	40.68	-	75.18
Ultra High	62.28	78.75	58.33	40.68	-	75.18
8-12 Mbps						
Ultra Low	94.83	-	-	-	31.41	95.74
Low	94.83	-	-	-	47.82	95.74
Medium	94.83	-	-	-	47.82	95.74
High	94.83	-	-	-	56.03	95.74
Ultra High	94.83	-	-	-	88.85	95.74
17+ Mbps						
Ultra Low	-	-	66.47	-	-	-
Low	-	-	66.47	-	-	-
Medium	-	-	66.47	-	-	-
High	-	-	66.47	-	-	-
Ultra High	-	-	66.47	-	-	-

Note: Excludes bundled offerings, assumes 12 month DSL contracts, user has a fixed line with the incumbent, user has no modem and is a new broadband user/customer, lowest cost modem is used, self-service installation where possible, and excludes any promotional deals.

Source: Spectrum Value Partners analysis, company websites.

Exhibit 18: Total monthly cost (AUD) of most economical broadband packages (as at 1st June 2008)

	PT (Portugal)	Telefonica (Spain)	Swisscom (Switzerland)	Swisscom (Switzerland)	BT (United Kingdom)	AT&T (United States)
256 Kbps						
Ultra-Light	-	-	41.93	-	-	-
Light	-	-	41.93	-	-	-
Medium	-	-	41.93	-	-	-
Heavy	-	-	41.93	-	-	-
Ultra High	-	-	41.93	-	-	-
512-800 Kbps						
Ultra-Light	-	-	-	-	-	25.25
Light	-	-	-	-	-	25.25
Medium	-	-	-	-	-	25.25
Heavy	-	-	-	-	-	25.25
Ultra High	-	-	-	-	-	25.25
1-3 Mbps						
Ultra-Light	24.39	60.65	47.16	49.22	-	30.54
Light	24.39	60.65	47.16	49.22	-	30.54
Medium	24.39	60.65	47.16	49.22	-	30.54
Heavy	32.38	60.65	47.16	49.22	-	30.54
Ultra High	44.58	60.65	47.16	49.22	-	30.54
8-12 Mbps						
Ultra-Light	41.62	85.06	55.89	-	33.14	-
Light	41.62	85.06	55.89	-	33.14	-
Medium	41.62	85.06	55.89	-	33.14	-
Heavy	41.62	85.06	55.89	-	43.50	-
Ultra High	41.62	85.06	55.89	-	70.44	-
17+ Mbps						
Ultra-Light	72.41	-	64.61	79.63	-	-
Light	72.41	-	64.61	79.63	-	-
Medium	72.41	-	64.61	79.63	-	-
Heavy	72.41	-	64.61	79.63	-	-
Ultra High	72.41	-	64.61	79.63	-	-

Note: Excludes bundled offerings, assumes 12 month DSL contracts, user has a fixed line with the incumbent, user has no modem and is a new broadband user/customer, lowest cost modem is used, self-service installation where possible, and excludes any promotional deals.

Source: Spectrum Value Partners analysis, company websites.

Contact information

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