



**SUBMISSIONS TO THE COMMERCE COMMISSION FOR THE NGN REVIEW**

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# I Introduction and Executive Summary

## About InternetNZ

- I.1 The mission of InternetNZ (Internet New Zealand (Inc)), is to protect and promote the Internet for New Zealand. We advocate the ongoing development of an open and uncaptureable Internet, available to all New Zealanders. The Society is non-partisan and is an advocate for Internet, and related telecommunications, public and technical policy issues on behalf of the Internet community in New Zealand – both users and the Industry as a whole.

## The Commission's most important activity so far in telecommunications

- I.2 The NGN review (leading ultimately to decisions as to whether, and how, NGN-related services should be regulated) is the start of the most important activity yet undertaken by the Commission in the telecommunications sector. We strongly support the Commission's initiative to launch a strategic review of NGN, which we consider should take high priority relative to other initiatives.

- I.3 At stake are:

- (a) the considerable benefits resulting from NGN; and
- (b) the risk of negative impacts on competition and the long-term interests of end-users. (For example this can happen if NGN moves bottlenecks from one place to another).

- I.4 Next Generation Access (NGA) is a "now" problem not just a future problem, in relation to negative competition outcomes. The \$1.4Bn cabinetisation roll-out, with no viable business case for unbundling at the cabinet (except in isolated cases), means that the bottleneck, which was reduced by unbundling at the exchange, has come back again.

## We focus mainly on NGA

- I.5 While we address pivotal issues such as IP Interconnection, the focus of our submission is NGA. Key is FTTx but other technologies (such as LTE, WiMAX, etc) are part of the NGA world:<sup>1</sup>

In practice, the supply of super-fast broadband will be based on a range of different technologies, including fibre, satellite, cable, fixed wireless and mobile wireless. Each technology has its own benefits and costs. The best placed technology will vary depending on factors such as location, customer density, usage and demand for mobility.

## Applicable Principles

- I.6 We submit that the Commission should use 6 Ofcom principles to help determine the approach to NGA.
- I.7 The overriding principle of the six is: Competition at the deepest level that is effective and sustainable, supported by equivalence of access.

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<sup>1</sup> Para 1.10, Ofcom, *Delivering Super-fast Broadband in the UK*.

1.8 As Ofcom note:<sup>2</sup>

**How can and should regulation contribute to the future?**

Regulation must support investment by the private sector, while at the same time promoting competition wherever there are potential barriers to competitive delivery of services. This is especially true for fixed next generation access networks that are likely to display the characteristics of enduring economic bottlenecks. ....

On promoting competition, we do not think that the move to new, next generation access networks means we need to fundamentally change our current regulatory approach. We continue to believe that competition at the deepest level that is effective and sustainable, supported by equivalence of access, is the right approach. What might change is what this means in practice. How to deliver on this objective in the future is one of the key areas for decision in setting the regulatory regime.

The experience of current broadband shows that competition brings the most benefits in terms of consumer outcomes, investment and efficiency. Where there are substantial barriers to entry, it is therefore desirable to promote competition through regulation.

1.9 The remaining 5 principles are:

- (a) Contestability;
- (b) Maximising potential for innovation;
- (c) Equivalence;
- (d) Reflecting risk in returns;
- (e) Regulatory certainty.

**Our Primary Submission**

- 1.10 The Commission should restrain scope – of what could otherwise be a very large and unwieldy review – to the issues where the Commission can make a significant difference.
- 1.11 A general “thought piece” on NGN is helpful to stakeholders, and a Section 9A review can range outside the Telecommunications Act. It is also an opportunity to encourage regulatory and other activity outside the Commission’s power (such as the RMA and the Building Regulations).
- 1.12 However, there should be a strong focus on a Study report with specific outputs relating to what, if any, regulatory action should be taken. Such regulatory action includes regulatory signals, not just regulation such as adding services to the Act.
- 1.13 The Study should be the start of a progression from high-level strategic analysis, through to the detail: necessary regulation preceded by regulatory signals. This is the path that Ofcom has been taking in its NGA review over the last two years. Avoiding the need to reinvent the wheel, the process in Ofcom’s review provides best practice guidance as to how to proceed. We suggest that the Commission follow the Ofcom approach. This will also have the benefit of containing scope, while avoiding the reactive and acrimonious regulatory

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<sup>2</sup> Ofcom, *Delivering super-fast broadband in the UK*, paras 1.12 and 1.14

debate in Australia, driven by the A\$4.7Bn Government spend on the FTTN National Broadband Network.

- I.14 We agree with the Commission that the NGN Study should not be done with undue haste. The subject matter is too important for that approach. However, the additional time carries substantial negatives. We are concerned that, if regulatory action is not instigated until the review is finished, New Zealand will have lost much time in the process. In the meantime, key and sometimes irreversible decisions will have been made (often unilaterally by an incumbent). In this way, the time occupied by the review, and subsequent regulatory steps, play into the hands of those with bottleneck control.
- I.15 It is not easy to balance (a) the need for a careful study and careful consideration of regulatory options and (b) the need to expeditiously achieve the optimal market and regulatory conditions. However, specific regulatory action should commence early on, where that is shown to be in the best interests of end-users.
- I.16 Against that background, the need for a “raw” Ethernet service (an ALA service) over FTTx is already apparent. For example, Telecom’s cabinetisation programme has already moved, and increased, bottleneck control. An ALA service would provide services-based competition to help deal with that bottleneck.
- I.17 Regulators are describing the raw Ethernet ALA service as one over which the access seeker has a high level of Quality of Service control. This bitstream service is called an Active Line Access service (ALA service) to distinguish it from passive services such as duct and pole access, dark fibre, LLU, etc.
- I.18 The ALA product, which is very different from current regulated services, should have pricing to meet the twin, and reconcilable, goals, of fostering competition and investment. This would have the substantial benefit of moving away from the much criticised (including by the Commission) retail-minus pricing of regulated bitstream.
- I.19 We suggest that a Schedule 3 investigation into adding an ALA service is commenced in parallel with this Study. For example, the Commission could seek submissions later this year as to whether an investigation should be launched.
- I.20 We expect, as does Ofcom, that industry will resolve some issues, such as technical matters, but that others, such as price, cannot be resolved in that way. Instigation of a Schedule 3 investigation through to determination of price and non-price terms would take at least two years, based even on the unusually rapid speed of the recent LLU and bitstream determinations. Add the time to decide whether to investigate (and the timelines for the Study (optimistically, the report would come out no earlier than mid-2009), and the total elapsed time is considerable.

#### **Some regulation is needed anyway**

- I.21 We do not seek regulation for the sake of it. However, we consider that it is unlikely that NGN can flourish, with optimal competition and end-user outcomes, without some regulation. It is not realistic to conclude, for example, that industry will sort out all issues appropriately without intervention by the Commission or by Government.

- I.22 In any event the Commission has a role to play, as a regulatory backstop, to encourage resolution of issues by industry and others. We expect that industry, and the TCF, are more likely to produce satisfactory outcomes if there is regulatory pressure: that is what Ofcom is doing. Against that background, and the more comprehensive activities by the Commission (which will include stakeholders that are not parties to the industry discussions), InternetNZ supports industry endeavours to resolve as many issues as possible.

### **A Stronger Voice is needed for Industry and Consumers**

- I.23 Contributions to the regulatory debate are heavily distorted, reflecting the heavy dominance of incumbents, the small size of challengers, and the small size of the country. Incumbents are typically incurring substantial time and expense to provide high quality input. The opposite is typically happening from the challengers and other stakeholders such as consumers. The Commission and stakeholders are aware of this problem from experience over the years. We consider there are significant risks of distorted and wrong regulatory outcomes in relation to NGA, and that is why we are highlighting this issue.
- I.24 We consider that this is a problem, not only as to industry's involvement with this Study and subsequent steps, but also in relation to industry activities, such as at TCF level.
- I.25 This is not an easy problem to solve. Our suggestions include:
- (a) As this is one of the most important Commission initiatives in the telecommunications area, substantial resources should be devoted, and contracted in if necessary, by the Commission;
  - (b) The Commission taking additional proactive steps to engage industry and stakeholders in the Study, and subsequent steps
  - (c) We encourage the Commission to establish (or recommend the establishment of) a "think tank" similar to the UK Broadband Stakeholders Group (BSG). Something like this could be done as a "one off" for the NGN review, possibly to trial the model.

### **Overseas regulatory activity**

- I.26 The last two weeks has seen the arrival of several important reports and regulatory papers on NGA, which are listed in the bibliography. When preparing this submission, we have found this material to be very useful. We hope that the Commission will use those reports on many issues which are not covered in this submission. We decided it would not assist simply to repeat and summarise what has already been said. Rather, we have focussed on:
- (a) particular points; and
  - (b) the collection of September 2008 Ofcom Future Broadband reports in particular, as they have the most relevance to the Commission, as regulator.

### **The report we have commissioned from Network Strategies**

- I.27 InternetNZ has engaged Network Strategies to research and report on broadband strategy options for a proposed New Zealand Broadband Infrastructure (NZBI), taking into account

Government's funding model (the Broadband Investment Fund), National's FTTH proposals, and the New Zealand Institute's FTTH proposal.

- I.28 The Phase 1 report is provided with this submission. It scopes the issues, following a discovery process and literature review, and provides some preliminary findings.
- I.29 Phase 2 will involve a more comprehensive analysis of two possible NZBI models:
- (a) a public-private partnership, which will address suitable models for New Zealand with a number of different variants, with different levels of participation; and
  - (b) utility business expansion (which will look at a suitable model for New Zealand with reference also to local utilities that have already entered the market).
- I.30 We will provide the Phase 2 report to the Commission around November 2008.

### **Access to both Active and Passive services needed**

- I.31 We agree with the views of Ofcom and others (such as the draft EU Recommendation) that wholesale access to both active and passive services (with regulated access where necessary) is appropriate to enable both facilities-based and services-based competition. Either active services (e.g. ALA) or passive services (e.g. dark fibre, duct access, and sub-loop unbundling) alone will not be enough.

### **Open Access, Equivalence, and Operational or Structural Separation**

- I.32 Open access, equivalence, and operational or structural separation are related areas which we propose should be at the forefront of the NGN Study. This cannot just be left to the industry even though (a) there are industry consultation obligations and (b) industry will be able to solve a number of NGN issues without regulatory intervention.
- I.33 Achieving clarity and common understanding about what is meant by open access in varying contexts will be a valuable output of the Study. One person's open access is another's walled garden. This is a definitional issue as well as one of substance.

### **Local and Central Government involvement**

- I.34 While the Commission is able to provide its views to assist Government, a key point is that Government funding and regulation are intertwined issues, as is illustrated by the National Broadband Network debate. This should be taken into account in the NGN Study and subsequent activity.

### **IP Interconnection**

- I.35 Historically, interconnection has been dominated by use of market power and regulation to alleviate the problems. IP Interconnection can be expected to move bottlenecks from one place to another. Controversial Issues such as peering and net neutrality are involved. While industry can be expected to resolve many interconnection issues, satisfactory resolution of key issues, in the interests of end-users, cannot be expected, in the absence of the Commission's involvement. That extends well beyond attending work party meetings.

- I.36 Thus, IP Interconnection should be a major part of the NGN Study.
- I.37 In view of the importance of this area, and the imbalance in the contribution to the debate noted above, we propose that the Commission obtains an expert's report on IP Interconnection.
- I.38 We would welcome the opportunity to talk to the Commission about coordinating our work on peering with the Commission's NGN Study workstreams

### **Should Government and regulatory intervention be delayed?**

- I.39 The Caio Report to BERR suggests that Government funding and regulatory intervention should be delayed. However, as that report carefully notes, in its comparison with other countries, it is essential to look at the specifics of each country.
- I.40 Centre-piece to the Caio conclusion was the development of BT's VDSL FTTN network, and Virgin's upgrading of its cable network. Our lack of those developments is one key reason, among others, why such delay is not justified in this country. We would like to submit further on this when Network Strategies has finished its Phase 2 report.

### **New build subdivisions and apartments**

- I.41 These provide an opportunity to make small advances, where there is no issue around copper overlay. Getting some "runs on the board" is of value.

### **ENUM**

- I.42 Numbering will be an important feature of NGN. We will provide a separate submission, in view of the Commission's Number Management Study.

### **IPv6**

- I.43 The depletion of IPv4 addresses is a significant problem. The Commission is able, in its Study Report, to, as well as providing leadership and guidance: draw attention to the issues; encourage Government to provide leadership and migrate the GSN to IPv6, and send an indication that regulation might be a possibility if all else fails. (We recognise that regulation would be an extreme approach).

## **2 Applicable principles**

2.1 We submit that it is helpful, in this NGN Study and the Commission's subsequent work, to use guiding principles. This will help achieve the aim of creating a framework that strikes a balance between securing investment and promotion of competition in telecommunications, for the benefit of end users and the economy.

2.2 As we outline below, we submit that Ofcom, which has been undertaking an NGA review for over two years, has developed a best practice model for dealing with NGA issues. Ofcom's approach is particularly relevant to New Zealand, because the UK and New Zealand are the

only countries to adopt full operational separation with its equivalence principle. Equivalence is one of Ofcom's principles that it applies to NGA.

- 2.3 We propose that the Commission utilise Ofcom's five principles, which we outline below, together with Ofcom's overriding principle:

**Competition at the deepest level that is effective and sustainable, supported by equivalence of access.**

- 2.4 That overriding principle, also adopted in New Zealand for operational separation, is summarised by Ofcom in its September 2008 NGA consultation as follows:<sup>3</sup>

**How can and should regulation contribute to the future?**

Regulation must support investment by the private sector, while at the same time promoting competition wherever there are potential barriers to competitive delivery of services. This is especially true for fixed next generation access networks that are likely to display the characteristics of enduring economic bottlenecks. ....

On promoting competition, we do not think that the move to new, next generation access networks means we need to fundamentally change our current regulatory approach. We continue to believe that competition at the deepest level that is effective and sustainable, supported by equivalence of access, is the right approach. What might change is what this means in practice. How to deliver on this objective in the future is one of the key areas for decision in setting the regulatory regime....

The experience of current broadband shows that competition brings the most benefits in terms of consumer outcomes, investment and efficiency. Where there are substantial barriers to entry, it is therefore desirable to promote competition through regulation.

- 2.5 Supporting that primary principle are 5 other principles. They are, as Ofcom states in its September 2008 consultation document, *Delivering super-fast broadband in the UK*:<sup>4</sup>

- **contestability:** we aim to create the conditions that allow any operator who considers that there is a business case for deploying next generation access infrastructure to invest, as soon as they wish;
- **maximising potential for innovation:** we believe that the scope for innovation and differentiation is essential for competition in next generation access;
- **equivalence:** strong competition in current generation broadband has been helped by ensuring that all operators are able to buy exactly the same wholesale products at the same price as operators with market power. We propose to apply this principle to next generation access;
- **reflecting risk in returns:** anyone who makes investments in next generation access is likely to face significant commercial risks. Regulation should reflect these risks in order to provide appropriate incentives for investment;
- **regulatory certainty:** it is also important that the regulatory regime we adopt is clear and in place for a reasonable period of time, to allow investors the clarity that they need to invest with confidence.

These principles are embodied in all of the more detailed issues explored in [the Ofcom 2008 NGA consultation] document. The principles of contestability, innovation and equivalence underpin all of our thinking on prospective wholesale access products in a next generation environment. Our discussion of pricing approaches is a practical application of our belief in recognising the actual level of risk incurred in any investment in new networks. Outlining a framework for transition from copper to fibre access networks is a specific example of

<sup>3</sup> Ofcom, *Delivering super-fast broadband in the UK*, paras 1.12, 1.14, and 1.16

<sup>4</sup> Ofcom, *Delivering super-fast broadband in the UK*, paras 2.16-2.17; 5.1-5.3.

providing greater regulatory certainty and clarity to support both investment decisions and existing business models.....

....The two key challenges facing Ofcom on next generation access investment continue to be the same: how to secure efficient and timely investment in next generation access while at the same time continuing to promote effective competition.

Some may argue that these challenges cannot both be met at the same time. This argument is based on the idea that investors will be less willing to deliver next generation access infrastructure if early, strong competition means they would earn less from providing next generation access services. Ofcom has a different view. We believe that by following the principles for regulation that we set out [above], we can promote competition both when the next generation access networks are being built and afterwards when services are being delivered, and that we can do this without deterring network investment.

The development of next generation access networks is a historic change and we believe that regulatory policy decisions should support this change. Part of how we propose to do this is to take a principled but pragmatic approach to the regulation of next generation access. However, we must consider how private sector decisions to invest can be influenced by Ofcom's actions and decisions on how to regulate next generation access. It is vital that the regulatory framework for next generation access is considered at the start, both so that networks are designed in ways that promote competition for the long-term benefit of citizens and consumers but also provide the right incentives for investment. However, the framework will necessarily evolve as we learn lessons from these new deployments.

### **3 The Network Strategies report on Broadband Strategy Options, commissioned by InternetNZ**

#### **Introduction**

- 3.1 We consider that the Commission should focus primarily on the regulatory options available to it. We explain why below. This means that a number of matters, that the Commission could consider, would be out of the scope that we are suggesting. However, Government's investment plans are so relevant to regulation that they should form part of the Commission's consideration. For example, Government funding of large network infrastructure impacts the need – or otherwise – for regulation. Regulation is relevant to Government funding and vice versa. This is demonstrated by what is happening in Australia around the A\$4.7Bn investment by Government in the National Broadband Network.

3.2 We set out what we have asked Network Strategies, to do, in relation to the intertwined issues of Government funding and regulation.

- 3.3 Network Strategies have finished Phase 1 of their work and are commencing Phase 2, which we describe below. At this point, we provide a work-in-progress update, to be followed by another update when the Phase 2 report is available.

#### **Discussion**

3.4 Network Strategies are researching and reporting on broadband strategy options for New Zealand, taking into account Government's funding model (the Broadband Investment Fund), National's FTTP proposals, and the New Zealand Institute's FTTP proposal. The focus is a proposed New Zealand Broadband Infrastructure (NZBI).

- 3.5 The Phase 1 report is provided with this submission. It scopes the issues, following a discovery process and literature review, and provides some preliminary findings.
- 3.6 Phase 2 will involve a more comprehensive analysis of two models for a proposed New Zealand Broadband Infrastructure (NZBI):
- (a) a public-private partnership, which will address suitable models for New Zealand with a number of different variants, with different levels of participation; and
  - (b) utility business expansion (which will look at a suitable model for New Zealand with reference also to local utilities that have already entered the market).
- 3.7 For each of these variants, Network Strategies will develop a high level business case that illustrates how the NZBI might operate in each scenario. This will include, for the NZBI model:
- outline of its costs
  - description of the services provided
  - indicative tariffs and/or ARPU's
  - likely take-up levels
  - funding options
  - possible road-maps for deployment
  - a discussion of the roles of the different stakeholders
  - identification of any barriers or constraints (for example legal/regulatory, local planning)
- 3.8 Key inputs into the business case will be a technology/architecture analysis and a market/service/economic analysis. Network Strategies will scope ballpark costs of the NZBI options, based on average unit costs that would be appropriate for New Zealand.
- 3.9 A sensitivity analysis will also be undertaken to identify key inputs, assumptions and potential risks. Indicative costs will be benchmarked against costs per home passed by the network. While such costs will be influenced by local characteristics – in particular duct costs and population densities – they will be a useful check on the results of Network Strategies' cost models.
- 3.10 Network Strategies' analysis will also involve a comparison of the future with the NZBI, as against the "status quo" situation. It will examine differences and the likely trends in take-ups, tariffs, and broadband service features.
- 3.11 InternetNZ would like the opportunity to provide the Phase Two report to the Commission to assist it in the NGN study, when that report is available in approximately November 2008.

## 4 Network Strategies' views

### 4.1 The views in Network Strategies' Phase One report are preliminary. As to the status quo (i.e. if there is no further public investment), Network Strategies state:<sup>5</sup>

Our review of current and pending broadband infrastructure and service offerings indicates that, in the absence of further public investment in broadband infrastructure, improvement in New Zealand infrastructure will be made only on a commercial basis. This will see enhanced services in the larger cities, and either lower-standard (or non-existent) services or high-cost services in other areas. We expect that rural and remote users will not see much improvement beyond the expensive satellite services that are available today.

### 4.2 Network Strategies have provided some preliminary views on the costing of Labour Party, National Party and New Zealand Institute proposals. They conclude:<sup>6</sup>

Both Labour and National have put forward proposals involving supporting open access networks but with considerable differences in detail, cost and scope ... The New Zealand Institute (NZI) has another proposal which includes nationalisation of existing access infrastructure. The Labour Party proposal does not claim to achieve InternetNZ's desired 75% coverage of the population, while the National and NZI proposals do make this claim. Although the costs require further investigation, the assumptions of the proposal with the highest cost (NZI) cause us to doubt the accuracy of the estimate. We believe it to be an under-estimate of the true cost in attaining the desired level of coverage. As a consequence at this initial stage of our investigation we conclude that the financial proposals of the two major political parties would also not realise the InternetNZ target [of 100 Mb/s for domestic users and 1 GB/s for commercial users] within ten years.

Telecom has committed NZD1.4 billion to deploying fibre to the node systems providing 10Mbit/s or better ADSL2+ access capability to virtually all lines in areas that it defines as Zones 1, 2 and 3 by 2012. While the planned FTTN network could be upgraded for higher speed broadband and wider coverage, options for this are likely to be very expensive.

### 4.3 Network Strategies then conclude:<sup>7</sup>

So, what models may be appropriate for New Zealand? Due to the lack of infrastructure competition for high bandwidth services, government must look to an infrastructure provider or wholesale provider model, rather than a vertically integrated provider. In terms of a business model, we consider that those with the greatest chance of success would be public-private partnerships and utility business expansions. There is also clear evidence that demand-side initiatives (demand aggregation and stimulation) may have an important role in achieving desired take-up and ongoing viability of the venture, and thus should not be neglected when developing broadband strategies.

### 4.4 Network Strategies have also drawn a number of conclusions from overseas models for the development of broadband infrastructure. They note that it is clear that:<sup>8</sup>

- incumbent operators tend to deploy high speed fibre broadband only when faced with effective infrastructure competition
- in a number of markets, infrastructure competition is not feasible, except possibly in certain highly populated areas
- open access to networks is seen to be crucial to ensure consumers obtain the benefits of competition in the absence of infrastructure competition

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<sup>5</sup> Network Strategies Stage I report page i.

<sup>6</sup> Network Strategies Stage I report page ii.

<sup>7</sup> Network Strategies Stage I report page iii.

<sup>8</sup> Network Strategies Stage I report page iii.

- some legal or regulatory intervention may be required to remove barriers to broadband expansion
- the choice of intervention model should be driven by factors specific to the local market, including (but not restricted to) the level of competition, the legal/regulatory environment and strength of local organisations
- local government is an important player in the establishment of broadband infrastructure, via active participation, as a provider of public funding, as anchor tenant, or as facilitator of comprehensive infrastructure planning across multiple utilities.

4.5 They emphasise, as does Ofcom in its September 2008 report, that each country's conditions are unique. While experience overseas is useful, it is important to address specific market conditions.

## 5 What Regulatory Intervention is Appropriate?

### Introduction

- 5.1 In this section of our submission we deal generally with the type of regulatory intervention that we are proposing. This includes the various levers available to the Commission, many of which do not require actual regulation.
- 5.2 While much of this section is well known to the Commission and industry, we outline it here, as it is particularly relevant to NGN developments, and we draw attention to the specifics of Ofcom's approach.
- 5.3 We also raise specific proposals about how this NGN Study and subsequent Commission activity should focus (at a strategic level moving toward the detail (ultimately, regulation if necessary)). We suggest Ofcom's NGA review as providing an ideal model for the way that the Commission deal with this NGN Study and the flow-on activity.

### Discussion

5.4 Regulatory intervention of course is not just about regulation, such as adding a service to the Telecommunications Act. The Commission uses a range of regulatory levers, relying on the underlying principle that regulation is generally a backstop. There is a preference for resolution of issues by the market. The Commission can take action ranging from relatively informal (such as correspondence with industry players) through to formal steps (such as a Schedule 3 investigation leading to regulation of a service).

5.5 When we talk about regulatory intervention, we are referring to this range of levers that is available to the Commission.

5.6 We have restated these self-evident points because we consider that they are particularly important in relation to NGN. We consider that the Commission should use these levers in a careful and structured manner largely along the lines adopted by Ofcom in its NGA activities. We outline this in more detail below, as we consider that the Ofcom approach represents best regulatory practice in relation to NGN.

5.7 We expect that the industry (either directly between providers or through the TCF) will be able to resolve a number of challenges and issues raised by NGN. An example is the

technical issues that arise for IP Interconnection and the technical aspects of the ALA service that we outline below.

- 5.8 Some issues will be not be resolved satisfactorily unless the Commission sends regulatory signals or otherwise robustly participates (the commercial aspects of IP Interconnection is an example of this, as we note below).
- 5.9 However, we consider it is already clear that it is unlikely that industry will be able to satisfactorily resolve NGA wholesale access issues (such as the proposed ALA service) without formal regulatory intervention. It is likely that services such as ALA will need to be added to the Schedule of services in the Telecommunications Act so that access seekers can apply for determinations.
- 5.10 So, there is an array of potential responses available to the regulator on various facets. That NGA issues have developed to differing levels, and call for differing responses, is also the experience of Ofcom. Ofcom has been undertaking a careful and proactive review of NGA since 2006. The wheel does not need to be reinvented.

5.11 While there are a number of other overseas reviews, the Ofcom approach is particularly useful as a model. It is robust and proactive. Uniquely, only New Zealand and the UK have fulsome operational separation with the entrenched concept of equivalence, which is important for NGA.

5.12 This structured approach can be contrasted with the reactive, unsatisfactory, and acrimonious review of NGA in Australia. Government, the industry and ACCC are having to deal with NGA regulatory issues in reaction to the A\$4.7Bn funding of the National Broadband Network.

5.13 Ofcom commenced its NGN consultation in 2006, and produced major consultation papers in 2006, 2007 and in September 2008. Ofcom is moving from a strategic and proactive review of NGA to the detail. It will end up with regulation, but it is, with each new consultation, providing more granular regulatory signals. For example, their 2007 consultation paper signalled the ALA service which we consider should be a centre piece of the NGA regulatory response. Last month's Ofcom paper sent stronger signals by detailing the shape of that service, along with an overview of proposed pricing.

5.14 Having got beyond the equivalent of the Commission's NGN Study phase, Ofcom describes its approach in the latest paper, *Delivering Super-fast Broadband in the UK – setting the right policy framework*:<sup>9</sup>

One of our key objectives is to create an environment that facilitates investment, supports competition, but first and foremost brings benefits to consumers and citizens. It is imperative for us that regulation does not become an impediment to investment.

In order for us to be effective in this role, we believe that now is the right time to move from high-level policy principles to much more detail on regulatory and operational issues. In some cases, our views on the detailed issues are more fully formed, and we seek feedback on them through this document. In other cases, it is still too early for such detail; in these cases we have set out firm plans to address the outstanding issues and provide maximum regulatory certainty as quickly as possible.

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<sup>9</sup> At paras. 2.11 to 2.14.

5.15 That approach, in our submission, is how the Commerce Commission should deal with NGN, including NGA. The NGN Study Terms of Reference facilitate a strategic approach to review of NGN principles. Specific outputs of the Study should include (and be dominated by) the sort of regulatory signals that Ofcom has sent in its reports. The Study's report might also make other recommendations too: for example, we submit below that the Commission should support the introduction of the equivalent of the United Kingdom's Broadband Stakeholders Group.

5.16 This specific output from the Study can then be moved forward, as Ofcom is doing. In particular, the Commission can move to the detail of regulation, where appropriate.

5.17 While a "thought piece", as an output from the Study, has uses, we submit that it is far more important to have outputs that drive specific action. As the Commission is the regulator, the most powerful outputs will relate to what the Commission is able to do to achieve results (specifically, regulatory action in its widest sense, as outlined above).

5.18 Ofcom provide a very useful example of how the Commission can use its regulatory levers to advance NGA, without necessarily regulating. Ofcom is leaving it to industry to try and sort out some aspects of NGA wholesale access but has sent a regulatory signal making it clear that it will intervene if necessary. As it noted in its September 2008 Consultation document:<sup>10</sup>

Openreach's consultation on its proposed next generation active product, Generic Ethernet Access, is the first move from industry to explore the potential of future wholesale access products. We look forward to the outcomes of this discussion and consultation. Our final regulatory decisions will be heavily influenced by the outcome of these industry discussions.

5.19 That approach of giving industry an opportunity to resolve matters but making it clear that regulatory decisions are a prospect, should be part of the Commission's approach. This of course continues existing Commission practice.

5.20 Finally, we are concerned that this Study, followed later by, say, a Schedule 3 investigation, creates substantial delays, which also play into the hands of those that can establish bottlenecks. The proactive process, ironically, can have this effect. We deal with this issue in Section 8.

## **6 A Stronger Voice is needed for Industry and Consumers**

### **Introduction**

6.1 In this part of our submissions we deal with the imbalance between incumbents and others, in terms of contribution to the regulatory debate, and how that impacts the debate and distorts outcomes. The problem extends to industry discussions (IP Interconnection is an example). This is a general issue, but one that is acute for the NGN debate. We suggest some solutions, which include recommending that New Zealand has the equivalent of the UK Broadband Stakeholders Group.

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<sup>10</sup> Ofcom, para 1.21, Delivering Super-fast Broadband in the UK.

## Discussion

- 6.2 Contributions to the regulatory debate are heavily distorted, reflecting the heavy dominance of incumbents, the small size of challengers, and the small size of the country. Incumbents are typically incurring substantial time and expense to provide high quality input. Challengers and other stakeholders such as consumers do not have the same resources available. This plays out in industry discussions too. The Commission and stakeholders are aware of this problem from experience over the years. We consider there are significant risks of distorted and wrong regulatory and market outcomes.
- 6.3 While the Commission is able to take some steps (such as undertaking its own research and commissioning expert advice etc), the position remains that there is a considerable imbalance in the contributions to the debate. The Commission can only do so much, as it has a regulatory not an adversarial role (and does not get the benefit of fully hearing views on all sides).
- 6.4 We are emphasising this point in this context, even though it applies generally to telecommunications, as it is particularly critical for the NGN debate. As we note above, we consider that the NGN study and subsequent steps by the Commission are the most important activities that the Commission has yet undertaken in the telecommunications area.
- 6.5 We are expecting that Telecom will engage extensively in the process given the large threats and opportunities it faces. We expect that the range of other submissions that the Commission will receive for the NGN Study will reflect the limited contribution from the rest of industry and other stakeholders to this important debate for the future of telecommunications. In some instances, providers will be constrained in their contribution as they have bigger fish to fry overseas.
- 6.6 All this adds up to limited input to the Commission's review and subsequent steps. The Commission has seen this play out repeatedly and we expect it will happen again for the NGN review. Likewise in industry discussions.

### Example:

**Telecommunications Act information disclosure.** In response to the Commission's consultation on reporting requirements under the new information disclosure regime, the Commission received substantial submissions from Telecom and little from others apart from InternetNZ.

Recognising the prospect that there would be only limited response from other stakeholders, InternetNZ decided to provide substantial submissions. However, InternetNZ can only go so far in terms of time and cost. Additionally, its mandate is limited (for example, it would not submit on issues outside InternetNZ's role).

A key initiative – information disclosure – did not receive substantial input from industry, apart from the main target of the regime: Telecom.

- 6.7 Finding solutions to this ongoing problem is not easy.

## **Our proposals**

We make the following suggestions:

- 6.8 As this is one of the most important Commission initiatives in the telecommunications area, substantial resources should be devoted, and contracted in, if necessary, by the Commission. In view of its strategic and long-term importance, it may be appropriate to prioritise this activity ahead of other areas of more short term concern (although NGA is already a “now” issue).
- 6.9 A framework should be established, following the Ofcom model, which moves from an overall strategic approach to detailed regulation, via regulatory signals. The NGN study and subsequent steps should be focused and scoped in this way. This will help contain time and cost, while ensuring the key issues are covered. This builds on the excellent initiative of the Commission to commence the study and to hold a conference with international speakers;
- 6.10 Find ways to more proactively engage with industry and other stakeholders. For example, extend the excellent initiative of an NGN conference (and the Commission’s discussions with industry), to include regional meetings with stakeholders, focussed on specific NGN issues. Ofcom are using a blog, and that could be considered too. Our own members’ discussion groups (among whom, many are knowledgeable on NGN-related issues), are active. This indicates that you may get valuable input from a blog.
- 6.11 We especially encourage the Commission to establish (or recommend the establishment of) a “think tank” similar to the UK Broadband Stakeholders Group (BSG).<sup>11</sup> Something like this could be done as a “one off” for the NGN review, possibly to trial the model.

## **7 A Broadband Stakeholders Group**

7.1 The BSG was established by the UK Government in 2001 to tackle the strategic issues affecting the broadband food chain by facilitating cross-sector collaboration. It is currently focusing on NGA and its aim is:

- (a) to work with stakeholders to create the right conditions in the UK to enable efficient investment in NGA services; and
- (b) to ensure their timely and widespread availability for the benefit of UK citizens, businesses and public sector.<sup>12</sup>

7.2 As the BSG website notes:<sup>13</sup>

- The BSG is the UK government’s leading advisory group on broadband.
- It provides a neutral forum for organisations across the converging broadband value-chain to discuss and resolve key policy, regulatory and commercial issues, with the ultimate aim of helping to create a strong and competitive UK knowledge economy.

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<sup>11</sup> <http://www.broadbanduk.org/>

<sup>12</sup> <http://www.broadbanduk.org/content/view/31/4/>

<sup>13</sup> <http://www.broadbanduk.org/content/view/30/3/>

- The BSG's diverse network includes telecoms operators, manufacturers, investors, ISPs, broadcasters, new media companies, mobile operators, content producers and rights holders, as well as government departments (BERR, DCMS), Ofcom, Regional Development Agencies, devolved administrations and others.

7.3 The BSG has been particularly effective in the debate in the United Kingdom.

7.4 Even in a country of the size of the United Kingdom, there can be difficulties in getting stakeholders (such as smaller telecommunication providers and consumers) to actively contribute to the regulatory and economic debate. Ofcom has noted concerns, for example, that the amount of material that providers are required to deal with in the NGN UK initiative is overwhelming, leading in turn to reduced and poor contributions.

7.5 Overwhelming providers and others with screeds of material can of course be gamed, as a strategy of the well-resourced to achieve their outcomes.

7.6 If there is a need for a contribution from an organisation such as BSG in the United Kingdom, there is an even greater need in our much smaller country, marked by the greater dominance of incumbents, smaller challengers, and more limited resources available to the Commission than are available to Ofcom.

7.7 The cost to Government of this initiative would be greatly exceeded by the benefit.

7.8 The BSG structure may need to be altered to fit with New Zealand conditions (for example, to work optimally around the TCF and the Digital Development Council).

7.9 In an ideal world, none of this would be necessary. Those with aligned interests (such as challenger Telcos and ISPs) would work together, obviating the need for a resource such as the BSG. In the real world, this is unlikely to happen. There is too much at stake with NGN and NGA for the position to be left as is. An example of this risk is IP Interconnection, which we cover in Para 17 below. IP Interconnection is too important to be left to an industry in which a large group of participants do not actively engage.

## 8 NGA is an immediate issue, not just something in the future

### Introduction

8.1 NGA is already negatively impacting competition. This Study may have the effect of prolonging the problems. We submit that there should be a Schedule 3 investigation as to whether there should be an ALA service, in parallel with the Study. The Commission could do an issues paper, for comment, as to whether to launch the investigation, later this year.

### Discussion

8.2 NGA applies to a variety of access services ranging from mobile (such as LTE and WiMAX) through to FTTN and FTTH.

8.3 Telecom's \$1.4Bn cabinetisation programme is an NGA project.

- 8.4 It provides great opportunities, providing FTTN to allow 75% of the population to get ADSL2+ speeds (and this provides a platform to increase to VDSL speeds later, although Network Strategies note that the VDSL upgrade would be expensive).
- 8.5 On the other hand, the cabinetisation programme presents a serious threat to competition. It moves Telecom's bottleneck control to the cabinet in relation to most end-users, and drops markedly the reality of facilities-based competition via LLU from the exchange.
- 8.6 Internationally, there is no business case, so far, justifying unbundling loops from cabinets (except in isolated instances). The access seeker's cost of doing that, relative to the small addressable market from a cabinet, is too high. It is hard to see why the much smaller New Zealand market would fare any differently.
- 8.7 There is some prospect that, if the pricing in the Commission's draft Sub Loop Unbundling determination remains unchanged, some access seekers may be able to unbundle in cabinets.
- 8.8 However, even on that basis (which would run against the international tide) it is unlikely that this will happen in the great majority of cabinets. The business case still wouldn't exist. Cherry-picked cabinets will be limited.
- 8.9 Cabinetisation amounts to change of bottleneck control change from one place to another. It also amounts to widespread loss of facilities-based competition via exchange-based LLU.
- 8.10 Viable facilities-based competition is unlikely in the medium term (at the minimum) where the business case does not exist to unbundle at the cabinet.
- 8.11 This leaves the only relevant regulated service via cabinets as the regulated bitstream services (BUBA and EUBA). Both however are constrained and predominantly internet grade services. They are, contrary to international practice, priced on an unsatisfactory retail-minus basis. They do not provide suitable services-based competition over FTTN.
- 8.12 Operational separation does not overcome that bottleneck control even though it alleviates it. For example, Professor Martin Cave, father of the ladder of investment, and long-time commentator on operational separation, considers that operational separation does not deal with one key issue: price equivalence.<sup>14</sup>
- 8.13 The market will not produce services-based competition but that can and should be facilitated by regulation (principally by an ALA service, as outlined below). Unfortunately, the substantial time taken with NGN study, followed by steps such as a Schedule 3 investigation, leave the new bottleneck in place for a long and damaging period. This entrenches the incumbent's position, and means that other providers cannot build up scale and thereby climb the ladder of investment.
- 8.14 This is a "now" problem.

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<sup>14</sup> M Cave, *Vertical Integration and the Construction of NGA Networks*  
[http://www.dbcde.gov.au/communications\\_for\\_business/funding\\_programs\\_and\\_support/request\\_for\\_submissions\\_on\\_regulatory\\_issues/submissions](http://www.dbcde.gov.au/communications_for_business/funding_programs_and_support/request_for_submissions_on_regulatory_issues/submissions)

- 8.15 Instigation of a Schedule 3 investigation to add an ALA service through to determination of price and non-price terms would take at least two years, based even on the rapid speed of the recent LLU and bitstream determinations.
- 8.16 We agree with the Commission that the NGN review should not be done with undue haste. The subject matter is too important for that approach. However, we are concerned that, if regulatory action is not instigated until the review is finished, New Zealand will have lost several years in the process. In the meantime, key and sometimes irreversible decisions will have been made (often unilaterally by an incumbent), the challengers cannot build scale and climb the ladder of investment.

- 8.17 In this way, the several years occupied by the review and subsequent regulatory steps play into the hands of those with bottleneck control.
- 8.18 Without more, the NGN Study would be counterproductive because it introduces delay.
- 8.19 It is not easy to balance (a) the need for a careful study and careful consideration of regulatory options and (b) the need to expeditiously achieve the optimal market and regulatory conditions.
- 8.20 We submit that the right balance is achieved by running a Schedule 3 investigation into an ALA service, in parallel with the NGN Study. They raise overlapping issues and can be coordinated to run together. We consider the case already is made out to at least launch that investigation (the Commission does not currently have to decide whether in fact it will recommend the service be added to the Act). We propose that the Commission seek submissions on whether to launch an investigation later this year.

## 9 The Ethernet ALA Service

9.1 As we note below, wholesale access to “passive” services, such as ducting and LLU, remain important. However, there is a clear regulatory trend accepting and favouring the need for an NGA service that provides a “raw” Ethernet service for access seekers.

9.2 While this is most comprehensively articulated by Ofcom, it is also:

- (a) a key component of the European Commission’s September 2008 *Draft Recommendation on regulated access to Next Generation Access Networks*;
- (b) recommended by WIK-Consult in their report to ECTA; and
- (c) a requirement upon the successful bidder for the Australian National Broadband Network.

9.3 We propose a service dimensioned as Ofcom describes the ALA service:<sup>15</sup>

Ethernet ALA is a set of technical requirements which enables Communications Providers (CPs) to offer competitive services to customers through a wholesale bitstream product that is as

<sup>15</sup> <http://www.ofcom.org.uk/telecoms/discussnga/eala/eas/>

close as possible to the infrastructure. It can be used where it is not practical for shared passive access to the physical network. As an Ethernet bitstream product, Ethernet ALA should provide CPs with scope for innovation and control, as they would be able to do with access to the infrastructure.

The five key characteristics of Ethernet ALA are:

- Flexible range of aggregation points, as the most economical point to aggregate traffic will vary between communications providers.
- Support for flexible Customer Premise Equipment (CPE), which may determine the consumer experience
- Multicast, for the economic distribution of audio-visual content
- Quality of Service, for prioritising traffic where appropriate, in order to provide an acceptable user experience to customers
- Security, to ensure that data is carried safely over this network.

9.4 Such a service bears little relationship to the restricted Unbundled Bitstream Access services in New Zealand (BUBA and EUBA).

9.5 Ofcom has done considerable work and commissioned reports which we believe will be of value to the Commission and stakeholders. Their discussion paper, *Ethernet in the Access - International Case Studies*, provides a valuable overview of various Ethernet ALA solutions. Ofcom's *ALA Technical Requirements* document focuses on technical issues rather than the economic and commercial aspects.

9.6 Ofcom points out that the technical requirements are separate issues, which are likely to be resolved by industry. That leaves the commercial issues to be resolved (such as price terms and the dimensioning and service features of the ALA service). Ofcom correctly delineates these two areas (the technical from the commercial/pricing issues).

9.7 Controversy over price terms (even if the underlying price model is resolved) is such that we firmly submit that regulation is very likely to be needed. Industry resolution is unrealistic to expect. That is a key reason to launch a Schedule 3 investigation now.

9.8 This price controversy is most acutely apparent in the acrimonious debate in Australia.

9.9 New Zealand also has a nearly unique pricing model for bitstream which is out of step with the rest of the world: retail-minus. An ALA service enables New Zealand to, at last, escape the shackles of the much-criticised Privy Council decision, *Telecom v Clear*. The retail-minus model was firmly criticised by the Commission in its submissions to the Finance and Expenditure Select Committee (when dealing with the 2006 Telecommunications Bill).<sup>16</sup> It is shunned by nearly every other economy. And there is increasing regulatory and appellate criticism of the model, to go with the strong criticism in the economics literature. Except among incumbents getting the benefit of retail-minus/ECPR pricing, support for the theory is rare.

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[http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/GeneralInformation/ContentFiles/Documents/49205\\_9\\_4.pdf](http://www.comcom.govt.nz/IndustryRegulation/Telecommunications/GeneralInformation/ContentFiles/Documents/49205_9_4.pdf)

- 9.10 For a recent and significant summary of the position, and rejection of the *Telecom v Clear* Privy Council decision (and therefore the retail-minus/ECPR theory), see *Albion Water v Dwr Cymru* in the UK Competition Appeal Tribunal.<sup>17</sup>
- 9.11 It will be hard enough to get the price right on a costs or other principled basis, so that the provider rolling out the network gets an appropriate rate of return, while the wholesale price encourages services-based competition. With retail-minus, the position is impossible (and much worse than at present).
- 9.12 A new ALA Ethernet service will enable the Commission to consider moving away from retail-minus.

## 10 “Passive” wholesale services

- 10.1 As noted above, an active (ALA) service is essential. However, there are a range of potential solutions to apply in different places and in differing combinations, to encourage facilities-based competition where possible, or services-based competition. This includes duct and pole access where possible. (In relation to solutions that are outside the Commission’s control, we submit that the Commission should recommend activities (regulatory or otherwise, such as by local government) that achieve open access).
- 10.2 There is now a strong recognition of this, in the work by, among others, Ofcom and the EU (and this is confirmed by WIK).
- 10.3 This is consistent with the proposed major principle for reviewing what should happen: Competition at the deepest level that is effective and sustainable, supported by equivalence of access.

- 10.4 As it is particularly significant, we quote an extensive passage from Ofcom’s September 2008 report, *Delivering super-fast broadband in the UK*:<sup>18</sup>

### **Ensuring competition remains key to our approach**

The experience of current broadband shows that competition brings the most benefits in terms of consumer outcomes, investment and efficiency. Where there are substantial barriers to entry, it is therefore desirable to promote competition through regulation.

In the future, it remains likely that effective competition will depend on regulation, at least in some locations. As with today’s broadband market, promoting competition may require regulated access for third parties to the networks and products of operators with market power.

One of the key questions for industry and Ofcom is what form any wholesale products should take. In our last consultation, we identified two types of wholesale product: ‘passive’ products, relying on access to physical network elements, like copper, fibre, or duct; and ‘active’ products relying on access to the electronic equipment that is connected to the physical infrastructure.

Active and passive products both have different strengths. Active products may result in lower costs, but can limit product and price innovation and differentiation to competing providers. Passive products on the other hand offer much more opportunity for differentiation, but suffer from the risk of duplicative investment and fragmentation, increasing the cost of competition.

<sup>17</sup> The Competition Appeal Tribunal’s decision is at [2006] CAT 23, [2007] Comp AR 22. The judgment on the unsuccessful appeal is at [2008] EWCA Civ 536. However, leave to appeal the ECPR/retail-minus issue was refused.

<sup>18</sup> Para 1.16.

We believe that passive products offer the most desirable means to promote of competition where economically sustainable. However, in practice we are likely to need a mix of active and passive inputs initially, allowing scope for technical and economic experimentation. As is the case today with current broadband, both may be required into the future. However, the distinction may not be as simple as a choice between active and passive products. In reality, both active and passive products can take a number of forms, each with subtly different characteristics.

Openreach's consultation on its proposed next generation active product, Generic Ethernet Access, is the first move from industry to explore the potential of future wholesale access products. We look forward to the outcomes of this discussion and consultation. Our final regulatory decisions will be heavily influenced by the outcome of these industry discussions.

Responses to our previous consultation, stakeholder discussions and third party analysis all suggest that widespread use of some options for passive access may be uneconomic on a mass scale. This is because of the potential for higher costs and smaller scale at each location than today.

However, passive access could take many forms, based on different network deployments or commercial models. Some of these may improve the underlying economics making these products more attractive. We think that industry needs an opportunity to explore such options, and to look at innovative ways of making competition based on passive access work economically and practically. ....

Duct access is another passive product that is receiving significant interest across Europe. We are undertaking a survey of BT's ducts, with the aim of publishing results before the end of the year. At the same time, we welcome thoughts on how far duct and pole access is a necessary part of any future regulatory regime and what interest there is in using these products. This complements the recommendations from the recent Caio review, which considered how greater use of new poles and co-ordination of street works could reduce the cost to build these new networks.

## 10.5 WIK recommend the following approach:<sup>19</sup>

36. A range of access products are needed for a competitive NGA market:

- 36.1 Duct and dark fibre access increase the level of infrastructure replicability, but are not alone sufficient for viable competition.
- 36.2 Physical collocation at the street cabinet level increases the limited degree of replicability in case of FTTC.
- 36.3 Fibre full local loop unbundling (at metro core locations) and fibre sub-loop unbundling (at OSDF) increase the scope for competition significantly, and are particularly relevant for established mass-market broadband providers.
- 36.4 Bitstream access remains important to maintain existing levels of competition where full LLU is not technically feasible, to support the ladder of investment concept, for less urban areas where unbundling is not economically viable and for business service providers whose market shares are unlikely to reach critical levels.
- 36.5 In addition, the regulatory framework has to deal with the sunk investments of competitors related to LLU infrastructure to enable a viable migration path to NGA.

**10.6 We submit that these active and passive wholesale products should be reviewed in the NGN Study, with a view to making recommendations as to their regulation, in the Study's final report.**

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<sup>19</sup> Para 36, WIK-Consult, *The Economics of Next Generation Access – Final Report*

## II “Unbundling” Fibre Access over FTTP

- 11.1 We now deal with one facet of passive services: fibre unbundling in an FTTP context. This does not apply to FTTN services, and therefore does not dilute the case for an ALA service.
- 11.2 It appears likely that, absent any incentive or regulation, large providers rolling out fibre networks will use PON not Point to Point (P2P) architecture.
- 11.3 P2P is significantly more pro-competitive than PON. It more readily enables unbundling of fibre circuits and is therefore more pro-competitive. It is also a more flexible platform for developments in the future (such as higher speeds over fibre). The benefits are so significant that, in the interests of end-users, the additional roll-out cost (currently estimated by WIK at less than 10% in Europe) is justified.<sup>20</sup>
- 11.4 That is a matter which we submit should be considered in the Study. Regulating to require access providers to build according to specific regulation would be unusual and generally inappropriate. But it should be considered in these circumstances given the unique scale and impact of this large change (likely to be by a dominant carrier).
- 11.5 The Commission, anyway, can recommend that P2P be a condition of any Central or Local Government funding. In particular, this may be a condition of Government funding of FTTP if National win the election.
- 11.6 If we assume, however, that the current approach will continue, the FTTH architecture will be predominantly PON-based rather than P2P. Issues then arise as to whether there can be the equivalent of copper local loop unbundling in respect of PON. If possible, this option should be available in addition to the ALA service and other regulatory options such as wholesale duct access.
- 11.7 We consider that the Commission should review the options, during the Study. There are two possible developments which have unbundling characteristics similar to those for copper, which are suitable for PON (but each have challenging aspects):
- (a) WIK, in their report for ECTA, note the possibility of a third party provider connecting its own fibre at, in the simplest case, a splitter where the fibre travels to the end user’s premises. This would involve an overlay of fibre adjacent to the incumbent’s fibre<sup>21</sup>; and
  - (b) the possibility of unbundling by wave length should be considered. It appears that, until recently, separating out wave lengths over PON technology (WDM – PON) was too immature and too costly to employ, except in limited instances. However a number of vendors are starting to make commercial WDM – PON product available. For example in late September, Nortel announced:<sup>22</sup>

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<sup>20</sup> Para 8.3, WIK-Consult, *The Economics of Next Generation Access – Final Report*.

<sup>21</sup> Pages 78-89, WIK-Consult, *The Economics of Next Generation Access – Final Report*

<sup>22</sup> <http://tinyurl.com/3papi7>. See also announcements at <http://tinyurl.com/3papi7>, <http://newsletters.pennnet.com/lightwavedirect2/29878784.html>, [http://techon.nikkeibp.co.jp/english/NEWS\\_EN/20080923/158374/](http://techon.nikkeibp.co.jp/english/NEWS_EN/20080923/158374/), <http://tinyurl.com/3fkqfk>.

### **Nortel brings WDM-PON to market**

Sep 30, 2008 Nortel and LG-Nortel today introduced a new Ethernet Access system to help service providers prevent bandwidth bottlenecks in the critical "first mile" of their networks. This will allow for faster and more reliable delivery of data between high-speed core networks and individual user access points. The Ethernet Access technology was developed by LG-Nortel, a joint venture of LG Electronics and Nortel.

## **12 Local and central government's role**

12.1 In this section, we will introduce this topic but we wish to make further submissions later when Network Strategies have provided their Phase 2 report. (This is also one of the reasons why we have not focussed extensively on specific regional and rural needs).

12.2 The role of central and local government is integral to any review of NGA including its regulatory aspects.

12.3 There is to be substantial funding by government, of course, including if National wins the election this year. It is useful to look at what is happening in Australia as an indication of what should and should not happen here. The Australian government is contributing \$4.7Bn to the National Broadband Network (NBN), a FTTN service to 98% of the population. A comprehensive regulatory debate is under way revolving particularly around (a) the structure of the successful operator (for example, whether it will be operationally or structurally separated); (b) non-price terms (for example, what does "open access" really mean?); and (c) as to price. ACCC has a role in this, and regulation is likely.

12.4 The debate in Australia, while comprehensive, is also largely reactive (that is, reactive to government's proposed investment) and acrimonious.

12.5 We submit that it would be better for the Commission to take a more strategic approach, following that adopted by Ofcom.

(a) To take an example, if National becomes the government and its proposed NZ\$1.5Bn FTTH roll-out becomes reality it is preferable for the inevitable regulatory issues (such as price and non-price wholesale access terms) to be resolved in a structured and proactive way.

12.6 The role of local government is relevant also to this study and, ultimately, regulatory options. In addition to local government's ability to coordinate and fund broadband developments, it is also able to take steps – such as in relation to roadworks, ducting, pole access, etc, which can both reduce the cost of civil works (the major cost for fibre roll out) and expedite roll out.

12.7 In summary, the Commission can recommend action by local and central Government, and should, in making regulatory decisions, take into account the Government facet.

### 13 NGA and New Build Homes and Apartments

- 13.1 New build housing and apartments provide an opportunity to move immediately to an FTTH solution without the concern of overbuilding existing copper access networks.
- 13.2 One of the advantages of ensuring open access fibre roll-out in new builds is the ability to get improvements incrementally, one small step at a time. A “runs on the board” approach. Small steps build into larger outcomes.
- 13.3 New build developments provide an opportunity to move rapidly to fibre deployments that, as Ofcom notes in its September 2008 *New Build Statement* can promote competition which in turn provides consumers with the benefit of choice.<sup>23</sup> Ofcom seeks to avoid a situation where the consumer in a new build development, with fibre, has access to the service and products of only a single communications provider. Ofcom therefore wants to ensure that appropriate wholesale access products are available ranging from passive (for example, spare capacity in ducts to ensure there is capacity to support duct sharing in the future) through to the provision of an ALA service to support effective competition between service providers.
- 13.4 This is an area in which the Commission, in line with Ofcom’s approach, can encourage telecommunication providers, developers, local and central government to achieve positive solutions (for example, by amendment of the Building Regulations if necessary or possible).
- 13.5 If necessary, the Commission is able, as Ofcom has indicated it might do, to regulate services (or indicate it will do so if there are unsatisfactory solutions). In relation to fibre builds such as this, solutions such as unbundled copper local loop, UBA and BUBA will no longer be available, so other solutions are needed anyway.

### 14 Open Access, Equivalence, and Operational or Structural Separation

#### Introduction:

- 14.1 Open access, equivalence, and operational or structural separation are related areas which we propose should be at the forefront of the NGN Study. This cannot just be left to the industry even though there are industry consultation obligations.
- 14.2 However, the open access concept is used in different ways in different contexts. Achieving clarity and common understanding about what is meant by open access will be a valuable output of the Study. One person’s open access is another’s walled garden. This is a definitional issue, as well as an issue about the substance of open access in various contexts.

#### Discussion:

- 14.3 Equivalence is one of the five principles that we proposed, in section 2 above, should underpin the approach to NGA:<sup>24</sup>

<sup>23</sup> Ofcom, *Next Generation New Build - Delivering super-fast broadband in new build housing developments*

<sup>24</sup> Section 2 above, and Ofcom, *Delivering super-fast broadband in the UK*, paras 2.16-2.17

**equivalence:** strong competition in current generation broadband has been helped by ensuring that all operators are able to buy exactly the same wholesale products at the same price as operators with market power. We propose to apply this principle to next generation access

14.4 The equivalence principle underpins the Telecom Undertakings. However, like the BT Undertakings, many NGA issues are left for later resolution (even though some NGA issues are covered, such as FTTH, NGN and voice/VPN consultation<sup>25</sup>, along with the sub-loop unbundling service in Schedule I of the Telecommunications Act).

14.5 As Ofcom has said it will do in its September 2008 consultation, it will be important for the Commission to review the Telecom Undertakings in the context of NGA developments, looking to endorse or seek change (or further development) as to particular approaches.

14.6 It is not enough to leave this at the level of industry. As we note above, while some issues can be resolved, and industry should, through the TCF, be seeking to resolve issues, there at least needs to be regulatory backstops in action. There also needs to be a more comprehensive analysis beyond that being undertaken pursuant to the Undertakings. Of course, this can be done in a coordinated way to avoid unnecessary overlap.

14.7 We note also that the FTTP and VPN/voice consultations pursuant to the Undertakings name only Service Providers as consultees. That of course does not include other stakeholders such as consumers (the ultimate focus of the regime). The NGN Study can and should have a wider remit.

14.8 The NGN consultation under the Undertakings, supposed to be industry-wide, either is seen as not involving parties such as InternetNZ, or the consultation thus far is more limited than we would have expected of what is required by Clause 67 of the Undertakings. We have not seen anything that comes close to a “comprehensive industry-wide NGN consultation programme” which was to have been established by 31 March 2008 under Clause 67.<sup>26</sup>

14.9 There have been informal approaches to us, but, collectively, the industry activity, including Telecom’s, is far less than is required by the sort of comprehensive review that the Commission should in any event undertake.

14.10 Separation issues generally are tied up with the NGA Study. For example, if National are elected and its \$1.5Bn FTTP proposal takes effect, this raises questions as to whether equivalence is best achieved by structural or operational separation of the entity or entities that are asked to roll-out that network.

14.11 Open access is a requirement anyway for Government’s Broadband Investment Fund, in urban areas. This raises equivalence, and, again, whether separation best achieves equivalence. See the Ministry of Economic Development’s documents:

(a) *Broadband Investment Fund – Urban Criteria*;<sup>27</sup> and

(b) *Broadband Investment Fund: Know How Guide – Infrastructure*<sup>28</sup>

<sup>25</sup> Clauses 65.1, 66 and 67, Telecom Undertakings

<sup>26</sup> Clause 67, Telecom Undertakings

<sup>27</sup> At Para 5

<sup>28</sup> At Para 6.2

14.12 To avoid the reactive approach to these issues in Australia, these matters should be a proactive part of the NGN Study.

14.13 Open access overlaps with equivalence, and is also integrally connected with consideration of operational and structural separation options (as a means to achieve equivalence and/or open access).

14.14 Open access, equivalence and separation are not a one-way incursion into incumbents: they can receive the benefits. As was said about the award in late September 2008 of the Opco contract, in Singapore, to a consortium including Singtel:<sup>29</sup>

OpenNet will make use of SingTel's passive infrastructure assets, such as ducts, manholes and exchanges to facilitate the deployment of its fibre network.

To meet the open access requirement of the RFP, SingTel has committed, subject to obtaining relevant approvals, to transfer this infrastructure to a separate wholly-owned entity, 'AssetCo' within two years, and to reduce its stake in the AssetCo within five years to a level that meets the regulator's requirements.

The company has recognised that, under the regulatory regime proposed by the government these assets will confer no competitive advantage and thus present an opportunity. SingTel CEO Allen Lew said: *"In an open access environment envisaged under the iN2015 plan, passive network assets like ducts and manholes will no longer be a telco's competitive advantage as every service provider has equal access to the infrastructure.*

*"Therefore, SingTel will view the AssetCo as an opportunity to unlock value. The capital released will be redeployed to other businesses and for capital management initiatives. SingTel's focus on its business will also shift from network to customer-centric services to drive its customer and revenue growth."*

14.15 One step the NGN Study can undertake is to proactively provide a better understanding of what is meant by "open access" in different contexts, and the implications of this. One person's open access is another's walled garden. We suggest that the Commission develop, for consultation, definitions of open access. There is a helpful start for these issues in the MED papers referred to above, including issues around open access at different service layers. This is a definitional issue as well as one of substance.

## 15 Should Government and regulatory intervention be delayed?

15.1 The Caio report for BERR notes that the UK Government should delay before investing more money, and that Ofcom should be circumspect before making major regulatory change. It notes that competition (especially from cable) is achieving positive outcomes.

15.2 However, as Caio notes, it is critical to look at the position in each country as they differ markedly. His report carefully takes that approach by comparing other countries with the UK.

15.3 While we are suggesting that the Commission have strong regard to the UK situation and material such as Ofcom reports, it is essential to address the market conditions in New Zealand.

15.4 They are markedly different than the UK. It is misconceived simply to apply Caio's conclusions directly to New Zealand, without qualification.

<sup>29</sup> <http://www.itwire.com/content/view/20875/1095/>

- 15.5 Key in the UK, for example, is that Virgin has an extensive cable network in competition with BT. Both networks are being upgraded (to VDSL FTTC for BT and an improved HFC standard and network for Virgin). Those network developments are centre-piece to the Caio conclusions.
- 15.6 We do not have that position in New Zealand. There is far less competition or prospect of commercially funded facilities-based competition. Even the Telecom FTTN (where New Zealand is in an advanced position) is ADSL2+ not VDSL.
- 15.7 We will address this again when we receive Network Strategies' Phase 2 report.

## 16 Backhaul and International bottlenecks

- 16.1 Backhaul is a major part of NGA/NGN and is problematic. Vertically integrated operators can discriminate on backhaul.
- 16.2 International connectivity is increasingly a bottleneck for NGN. This study is appropriately wide enough to cover international connectivity and potential solutions.

## 17 IP interconnection

- 17.1 In this section of the submissions, we propose that IP Interconnection should be a key part of the NGN study, taking the strategic approach adopted by Ofcom in its *Future Broadband* consultation. We propose that the Commission obtains an expert's report on IP Interconnection.
- 17.2 Beyond technical interconnection issues (which industry can be expected to resolve), IP Interconnection raises complex and difficult price and non-price matters. This includes issues such as bottlenecks (in particular, the prospect of incumbents moving bottleneck controls from one place to another), peering and net neutrality.
- 17.3 Highly controversial issues such as net neutrality and peering are only part of the issues that IP Interconnection raises.
- 17.4 We would welcome the opportunity to talk to the Commission about coordinating our work on peering with the Commission's NGN Study workstreams.
- 17.5 Historically, interconnection has been one of the most disputed and regulated areas in telecommunications. Regulated because that proved to be necessary in view of the way dominant market power was used. Regulation of PSTN Interconnection to move away from the retail-minus model permitted by the *Clear v Telecom* litigation. Regulation of mobile termination rates in view of a mobile operator's monopoly in the termination market for its network
- 17.6 This history confirms the likelihood that there will be market power problems with IP Interconnection.
- 17.7 Bottlenecks can, and likely will, move from one place to another.

- 17.8 We particularly note mobile termination rates to demonstrate both the trends to harmonise different platforms, and also that IP Interconnection overlaps onto various platforms, not just fixed line. There is a rapidly increasing view that: (a) mobile termination rates should be Bill and Keep; and (b) one reason for this is that interconnection between all types of networks (fixed or mobile) should be harmonised to a Bill and Keep model. This is outlined in the September 2008 NZ Communications, CallPlus, Kordia, Orcon and Woosh submissions in relation to the Commission's Issues Paper on termination rates.
- 17.9 Telecom, as required under its Undertakings, is consulting industry on NGN Interconnection as to VPNs and voice. To its credit, Telecom's initial, and complex, Discussion Paper for industry covers IP Interconnection generally, beyond its expressly stated undertaking commitments<sup>30</sup>. TCF has established a Working Party to deal with IP Interconnection.
- 17.10 While this is a positive sign (Telecom and industry endeavouring to resolve issues without regulation, through TCF), InternetNZ considers that the Commission should closely review IP Interconnection in this study for a number of reasons, including:
- (a) the criticality of IP Interconnection (ultimately with regard to the NZ economy and end-users);
  - (b) the reality that there are market power issues, extending in some instances to the likelihood of bottlenecks moving from one place to another;
  - (c) as we note at Para 6, there is the reality that the industry –beyond Telecom - will not be able to contribute adequately to the debate, and negotiate to the level reflected in Telecom's discussion paper. Distorted outcomes can be expected. The issues in that paper raise complex matters, and Telecom draws upon complex (and controversial) economic theories. The theories support a commercial negotiation model to resolve all issues, which, it seems to us, is a recipe for use of market power.
  - (d) the history of interconnection is one of heavy use of market dominance, dispute and regulation. This indicates that regulatory oversight may be important (which includes a well understood regulatory backstop to encourage appropriate commercial resolution);
  - (e) The Telecom Undertakings do not resolve concerns except to a limited extent;
  - (f) We understand from industry that Telecom's proposed local peering solutions are unsatisfactory to some.

17.11 InternetNZ is not suggesting premature or unnecessary regulation on IP Interconnection. Indeed, regulation in this area requires a careful approach. Mirroring the Ofcom approach to Future Broadband, we are submitting that IP Interconnection should form part of the NGN Study, on a strategic basis, moving to the detail of regulation if necessary.

17.12 This is a proactive approach, rather than a reactive approach down the track. This extends substantially beyond the Commission having an observer at relevant TCF meetings.

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<sup>30</sup> Although wider IP Interconnection issues would be part of the wider NGN consultation under Clause 67 of the Undertakings.

17.13 In line with this, we suggest that the Commission obtains an expert report (from within or outside the Commission) to review Telecom's proposed approach. This will have the significant additional benefit of better informing industry in its discussions.

## 18 ENUM

18.1 Numbering will be an important component of NGN, and this is outlined in the Commission's draft *Report on Numbering Management in New Zealand*. We will provide a separate paper for the Commission, for both its NGN and Numbering Management Studies, on this topic.

## 19 IPv6

19.1 The Internet is currently reliant on IPv4 as the network layer IP addressing protocol. The entire IPv4 address space amounts to around 4 billion addresses and exhaustion of this address space is likely to occur within the next two years.

19.2 There is growing urgency for the Internet to migrate from IPv4 to the newer IPv6 IP addressing protocol, which offers around 10 billion billion billion times as many IP addresses, compared to the 4 billion IPv4 addresses.

19.3 The conversion from IPv4 to IPv6 for operators is not a trivial task, and there are many technical challenges that arise on a network by network basis. IPv6 and IPv4 do not interoperate, so a network deployed using IPv6 must "dual stack" with IPv4 addressing in order to reach the entire Internet. This will remain an issue until the final connections of IPv4 on the Internet are cancelled, which could take more than 20 years to complete.

19.4 While the NZ Government's Digital Strategy 2.0 acknowledges the rapidly looming exhaustion of IPv4 addresses, it does not fully acknowledge the urgency related to IPv6 network conversion.

19.5 Network operators which have sufficient IPv4 addresses for their medium or long term needs may pragmatically choose not to migrate to IPv6 until they have to. The current trend is to ensure that new network equipment purchases are "IPv6 compatible", to ensure future-proofing of the network.

19.6 There appears to be a low level of use of IPv6 within New Zealand, the notable exceptions being the REANNZ KAREN network, and InternetNZ's deployment of native IPv6 DNS resolvers for the .nz domain name.

19.7 Internationally there are small pockets of IPv6 networks emerging, and major moves to this protocol are more apparent in technically savvy economies such as Korea, Taiwan and Japan.

19.8 Governments are increasingly concerned with the lethargy of conversion, and the USA and Australian Governments are showing determination to migrate, particularly in the area of their Defence Forces.

19.9 But there is an opportunity for NZ to show some leadership in an NGN environment and move to deploy IPv6 extensively, thus conserving the scarce IPv4 resources and giving the

ability to return some of these resources to the IPv4 pool, allowing new operators the opportunity to secure some IPv4 space and therefore the ability to reach the entire Internet.

19.10 The NZ Government could also show leadership in terms of converting its GSN Network to IPv6, and could serve as an enthusiast and promoter of IPv6.

19.11 An extreme solution would be to regulate.

19.12 The Commission is able, in its Study Report, to, as well as providing leadership and guidance: draw attention to the issues; encourage Government to provide leadership and migrate the GSN to IPv6, and send an indication that regulation might be a possibility if all else fails. (We recognise that regulation would be an extreme measure).

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## **Glossary**

**ALA:** Active Line Access service (generally, a “raw” ethernet wholesale product over FTTx) which gives the access seeker a high level of Quality of Service control

**BUBA:** Basic Unbundled Bit stream Access (this is a bitstream service provided under current regulation which provides only for an internet grade service)

**EUBA:** Enhanced Unbundled Bitstream Access

**FTTN:** Fibre to the Node (by which the end user gets access over copper between the Cabinet and the end user’s premises)

**FTTP:** Fibre to the Premises (which includes FTTB (Fibre to the Business))

**FTTx:** This encompasses FTTN and FTTP

**NGA:** Next Generation Access

**NZBI:** New Zealand Broadband Infrastructure (the infrastructure being investigated for InternetNZ by Network Strategies)