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# NGN REVIEW BY COMMERCE COMMISSION: SUBMISSIONS FOR STUDY

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## Table of Contents

1	Executive Summary.....	3
2	The TCF, the Commission and Use of Regulatory Levers .....	7
3	Cabinetisation and the need for a “raw” bitstream service.....	10
4	The Proposed “Raw” Ethernet Service .....	11
5	Why an ALA service cannot wait .....	12
6	Passive Services .....	14
7	Active and Passive Services encourage NGA competition and investment .....	15
8	IP Interconnection.....	16
9	Telecom Separation Undertakings.....	21
10	FTTP Architecture (PON or P2P) .....	22
11	Developing Access in New Build Locations (Apartments, Subdivisions, etc) .....	23
12	Numbering, Emergency Services etc .....	23
	Selected Bibliography.....	25

## 1 Executive Summary

- 1.1 We thank the Commission for the opportunity to submit in relation to the NGN Study. We strongly support the Commission's initiative to undertake this Study, which is particularly important for the telecommunications sector and end-users. The Study provides the opportunity to deal with the opportunities and threats presented by NGN.

### **NGN Study can lead to more not less regulation**

- 1.2 With the focus we propose, the Study is a platform that can lead to an increased prospect of less not more regulation. For this reason, we consider that the Study should focus on the areas where regulation might be appropriate, and on what steps can be taken to minimise the need for regulation. For example, the Study's report can send regulatory signals, to encourage industry to resolve issues short of regulation. There are many NGN issues that can be resolved by industry, but some of the most important will need strong Commission input. The Commission's ability to take steps like this will be particularly important for the challenges posed by NGN.
- 1.3 The TCF has an important role to play, in helping resolve as many industry issues as possible.

### **Some regulation is needed – an Ethernet Service**

- 1.4 However, we recognise that, on some issues, regulation is likely to be needed. It is already apparent, with cabinetisation moving bottlenecks from one point to another, that there should be a high bandwidth, high QoS Ethernet bitstream service available over FTTx. This follows the trend in other countries such as the UK, the EU and Australia. (This is the service called the ALA service). Frequently, facilities-based competition will not be possible from the cabinets (the business case to unbundle at cabinets is hard to justify in many – but not all – cabinets). Therefore service-based competition should be encouraged via an ALA service.
- 1.5 The UBA products are too limited to provide that competition. They are also priced on the much criticised retail-minus model. Introducing a high quality Ethernet service provides the opportunity to move away from that retail-minus model.
- 1.6 While the technical specifications of such a service could be agreed, the description of the service, and its pricing, is unlikely to be resolved short of making it a regulated service. This is an immediate problem, in New

Zealand's specific market conditions. Leaving a Schedule 3 investigation until after the NGN Study will lead to considerable delay, to the detriment of end-users. It is possible to run a Schedule 3 investigation in tandem with the NGN Study. WIK-Consult overview some reasons why the ALA service should not wait:<sup>1</sup>

[Regulators] have to take care that incumbents do not receive first-mover advantages in NGA deployment such that possible replicability will de facto be jeopardised. This means in particular that relevant access products are not only available in principle but are effectively available in due time.

Regulators should do more than they did with regard to LLU to shorten the gap between imposing NGA related remedies and the actual availability of the relevant wholesale services. In the case of LLU the implementation delay in some countries amounted to several years. Given the relevance of first-mover advantages, similar gaps in NGA can endanger the (limited) potential of replicability even more or totally.

### **Active and passive services**

- 1.7 There is increasing international recognition that an array of services is required to ensure sufficient competition, both facilities-based and services-based. For example, in addition to an active ALA service as noted above, passive services, such as duct and pole access, and fibre unbundling, are necessary. This is recognised, for example, by Ofcom, EU and WIK-Consult. The NGN Study – and subsequent activities by the Commission – should also include consideration of unbundled or other access of a more passive nature than bitstream.
- 1.8 Having available this array of active and passive services enables competition, at each location, at the deepest level that is effective and sustainable. Additionally, these services can, together, be made available on the basis that the twin and key objectives of encouraging both competition and investment can be met.
- 1.9 The cost of civil works is a major barrier to further infrastructure build. Passive services such as ducting raise the issue of the regulatory challenges to infrastructure deployment, particularly the delays and difficulties caused by the RMA processes. They exacerbate the civil works barrier to entry.
- 1.10 We submit that regulatory challenges to infrastructure deployment, such as the RMA processes, should be part of the Study. The Commission is able to recommend other agencies to take steps to improve the position.

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<sup>1</sup> WIK-Consult Report to ECTA Paras 38 and 39

- 1.11 There are a number of related issues that are appropriate for review in the NGN Study, including Telecom's current inefficient practices of requiring a separate circuit for each service.

### **IP Interconnection**

- 1.12 The Commission is aware that the industry has considerable concern about Telecom's peering arrangements, reflected also in Telecom's proposals for IP Interconnection in Telecom's discussion paper presented to the TCF. This submission does not deal directly with the issues currently being considered through the TCF. Rather, it outlines reasons why it is particularly important that the NGN Study deals with IP Interconnection including peering. In particular:

- (a) There are a number of IP Interconnection issues that are not being handled by the TCF (and IP Interconnection overall is a key aspect of NGN);
- (b) The Commission is able to control its approach so that there is no unnecessary overlap between the TCF and Commission workstreams;
- (c) IP Interconnection is too important for it to be left only to the TCF in any event.

- 1.13 IP Interconnection issues not being handled in the TCF include:

- (a) Peering and the currently controversial Telecom proposal to interconnect at 29 points, on the basis that Telecom can transit traffic to those peering points on a differential pricing basis for A to E level traffic. This issue overlaps into IP Interconnection but is not being dealt with by the TCF.
- (b) The need to review both transport and service level interconnection. As reports such as the ERG and WIK-Consult report to the EU show, it is essential to deal with interconnection at both levels. The TCF review does not do this (it is expressly confined to what is described as Service IP interconnection);
- (c) There are a number of issues that the TCF cannot deal with due to Commerce Act or other considerations. One is pricing. This is one of the most challenging areas to resolve, with the migration from legacy PSTN (with its largely CPNP model) to an IP model (and the Internet's largely transit based, and bill and keep based, approach);
- (d) Issues raised by NGN for mobile networks, including interconnection between fixed and mobile networks (WIK-Consult, in particular, in its

report to the EU, identifies the substantial impact that mobile interconnection and termination has upon NGN and transition to NGN).

### **Telecom Separation Undertakings**

- 1.14 The impact of the Telecom Separation Undertakings and appropriate variations should be part of the NGN Study, and subsequent Commission activities in relation to NGN.
- 1.15 The Undertakings need to evolve – and may need to be varied by the Minister – to reflect NGN developments. That is the approach being taken by Ofcom in the UK in relation to the BT Undertakings and NGN.

### **FTTP Architecture (PON or P2P)**

- 1.16 We submit that a matter for review in the Study is the choice between PON and Point to Point (P2P) architecture. P2P is significantly more pro-competitive than PON. A P2P rollout is moderately more costly than PON.
- 1.17 The Commission's options are not limited to regulation. For example, in relation to encouraging use of P2P (when a network provider is more likely otherwise to use PON), the Commission can consider advising, as part of its NGN Study report, that any local or central Government funding of a fibre rollout requires P2P architecture.

### **Developing access in new build locations such as apartments and subdivisions**

- 1.18 We consider this should be an issue for the NGN Study. Providing access to new apartments and subdivisions provides an opportunity to incrementally provide equivalent access, and to minimise the civil works costs of additional competition (for example by ensuring ducts are laid to enable additional fibre to be provided). The Commission could encourage local bodies to take facilitative or mandatory steps to encourage optimal outcomes, and review of the Building Regulations may assist.

### **Numbering, Emergency Services, etc**

- 1.19 The New Zealand numbering plan needs to be reviewed to ensure that access to number ranges and short codes is optimised to support new services.
- 1.20 If there is no progress in resolving these issues by industry, the Commission should look at taking further steps. We suggest that numbering is included in the list of matters for ongoing review in the NGN

Study. This should be treated more as a “bring up” item to ensure co-ordination with the Numbering Study and to ensure that industry is encouraged to resolve numbering issues.

- 1.21 The TCF is dealing with resolving issues and standards in relation to emergency calls, issues as to power supply to end user phones, etc, in the VoIP environment. We believe that the TCF is able to resolve these issues without regulatory intervention.


## **2 The TCF, the Commission and Use of Regulatory Levers**

### **Overview**

- 2.1 This part of our submissions deals with the importance of the Commission using its formal and informal range of regulatory levers. This would be complemented by the TCF’s work.
- 2.2 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. While much of this paragraph is well known to the Commission and industry, we outline it here, as it is particularly relevant to NGN developments. We draw attention to Ofcom’s approach, as it provides a very good example of how the Commission might focus on areas where it can make a difference (and avoid scope creep in this wide-ranging area). The Ofcom NGA workstream shows how this NGN Study and subsequent Commission activity could focus (at a strategic level moving toward the detail (ultimately, regulation if necessary)).

### **Suggested approach in the Study**

- 2.3 The Commission’s range of regulatory levers, used very effectively over the last 12 months, often avoiding the need for regulation, range from the less formal (e.g. correspondence with parties) through to the more formal (e.g. regulated services under the Telecommunications Act). In this submission, when we refer to regulatory action, we are referring to this array of regulatory levers.
- 2.4 In between, successes have included the draft Numbering Study report, which has prompted industry to take action to sort out numbering. We expect that the proactive NGN Study can have even better outcomes, if the right Study outputs are chosen, with the aim of less regulation as a result.

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- 2.5 The TCF has been increasingly successful in resolving industry issues without the need to resort to regulation. We strongly support this, and we will continue to take an active role in the TCF.
- 2.6 A significant reason for the TCF's success is the Commission's support of its work.
- 2.7 However, there are some issues that the TCF cannot resolve (so regulation is needed). Alternatively, and just as importantly, they cannot be resolved without the Commission applying an appropriate lever and ensuring there is an effective regulatory backstop to encourage resolution.
- 2.8 We consider that the NGN Study should strongly focus on that approach of achieving specific outcomes that reduce the need for regulation (or regulate where necessary). This is preferable to providing a discursive overview of NGN. NGN is a massive topic and we expect the Commission will seek to contain its scope. In doing so, the scope should, we submit, be aimed at producing a report that provides signals to the industry, aimed at reducing the need for regulation (but regulating where necessary).
- 2.9 In particular, the Study should indicate where regulation is likely in the event that industry cannot resolve the issues. It could also set timeframes and mechanisms for resolution of issues. There can be an expressly stated or implied backstop in place. If the issues cannot be resolved, the Commission can take the next step (for example, the launch of a Schedule 3 investigation).
- 2.10 The Commission has available a very good example of this approach working in practice: Ofcom's Future Broadband consultation. Over the last 2 years, Ofcom has been moving from a strategic high level approach, toward regulation if necessary. On the way, it is undertaking a series of consultations and reports. Each report (especially the most recent in September 2008) is giving more granular indications of likely regulation if industry cannot resolve matters. For example, the latest report notes that Ofcom will, in deciding whether to regulate, take into account industry discussions and resolution, aimed at agreeing the sort of Ethernet service noted above. In this way, Ofcom is clearly indicating what will happen if there is no industry resolution, and giving time to industry to sort out the issues against the background of the clearly articulated regulatory backstop.
- 2.11 Ofcom's approach also has the benefit of providing a co-ordinated, measured, and proactive platform to encourage industry to resolve issues

without the need to resort to regulation. As Ofcom describes its approach in its latest Future Broadband report:<sup>2</sup>

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.

- 2.12 We submit that the NGN Study and in particular the Study's Report should take exactly that approach, by focusing on likely regulation in the event that industry cannot resolve issues. We would firmly support the idea that the NGN Study would be part of an ongoing series of work by the Commission. For example, while we propose regulatory action for an Ethernet service, the Commission can give opportunities to industry at relevant points to agree provision of the service (for example, prior to seeking submissions on whether to launch the investigation).
- 2.13 We note particular support for the wider array of regulatory levers and activities introduced by the Telecommunications Commissioner in the last twelve months, as these can work strongly in the context of NGN/NGA issues. In our view, these have proven to be very effective and have reduced the need for regulation. Those levers range from less to more formal including, as examples:
- (a) The Commissioner's letter to Vodafone – which was effective in stopping locked SIM cards. Within days, this curtailed the possible need for competition law or regulatory action.
  - (b) The draft report on numbering (which contrasts New Zealand's numbering practices with best practice overseas). It has been effective in encouraging industry work to remedy the position, even though the final Commission report has not yet been produced.
  - (c) The Commission has used its first annual telecommunications report, in a very effective manner, to provide regulatory and other signals.
- 2.14 These regulatory levers will not of course be sufficient in themselves in all instances and the real prospect of regulatory action (e.g. a Schedule 3 investigation) remains important.

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<sup>2</sup> Ofcom, *Delivering Super-fast Broadband in the UK – setting the right policy framework* (para.2.14).

### 3 Cabinetisation and the need for a “raw” bitstream service

3.1 Cabinetisation is an aspect of NGN/NGA which, while providing considerable benefit to end users, also presents the prospect of substantially restrained competition. As we outline below, regulatory intervention is likely to be necessary in view of the bottleneck characteristics of cabinetisation in many locations. We explain why the Commission should consider launching a Schedule 3 investigation in parallel with the NGN Study, rather than waiting until its conclusion.

3.2 We support the Commission's draft determination on sub-loop unbundling. If the Commission's final SLU decision largely reflects the draft determination, there is the real prospect of access seekers providing services from many cabinets. That would push New Zealand ahead of other OECD countries and provide a world-leading platform for facilities-based competition, flowing from a pricing regime which in our view will benefit Telecom as well, as it grows its wholesale customer base. WIK-Consult, in its report to ECTA, notes the benefits to incumbents, in its empirical study in relation to Europe:

17. Our model results show that incumbents can reduce their own costs by infrastructure sharing, can increase the profitability of their NGA roll-out and can reach profitability with a lower level of retail market shares if they provide wholesale services (i.e. wholesale revenues can substitute for retail revenues to a significant degree). This result suggests that investment cases of incumbents may be supported rather than undermined through open access regimes, whilst delivering market outcomes that are more compatible with effective competition. ....A model in which wholesale fibre LLU or SLU was available would lower the critical retail market share for the incumbents' profitability whilst supporting a number of additional players

3.3 However, even assuming the SLU pricing in the draft determination, such facilities-based competition will not be commercially viable from a large number of cabinets, particularly in view of the small addressable market serviced by each cabinet.

3.4 Other countries and regions (such as the EU and the UK) have recognised that services need to be available to provide both facilities-based and services-based competition. No one solution is sufficient. A variety of services are needed. This enables, in each particular circumstance and location, a key policy outcome to be met:

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

- 3.5 There is increasingly strong acceptance that an ALA service is needed to allow services-based competition. For example, Ofcom is promoting this service in its September 2008 report, *Delivering Super-Fast Broadband in the UK – setting the right policy framework*. Likewise in the European Commission's September 2008 *Draft Recommendation on regulated access to Next Generation Access Networks*. The same position is taken in the WIK-Consult report to ECTA and in the Australian Government's requirements for the National Broadband Network.
- 3.6 Therefore, at least in areas where unbundling at the cabinet is not commercially viable, we submit that a bitstream service (the ALA service), which enables services-based competition, will be critical to minimise the bottleneck.
- 3.7 Such a service is consistent with the policy objective of competition at the deepest level that is effective and sustainable. It is also consistent with encouraging future investment in facilities-based NGA (the ladder of investment effect):<sup>3</sup>
- Policy makers should promote service competition and infrastructure-based competition at the same time. Provided the wholesale price is correctly established and allows a fair return, regulated access to fibre does not preclude and can provide a platform for further infrastructure duplication where this is efficient. Our model shows that reasonably priced access is also compatible with and enables fibre investment with lower retail market shares and less risk than would otherwise apply.
- 3.8 We describe this service in more detail in the next section. It is a service which gives a high level of control to the access seeker. It differs markedly from the current UBA services, which are restricted and predominantly internet grade.
- 3.9 An ALA service can also solve a current pricing problem. Running against the tide of international practice and views, the UBA services are priced on a retail-minus basis. This has been demonstrated to be an unsatisfactory pricing model and does not appropriately support services-based competition.<sup>4</sup> The opportunity is presented to reduce or eliminate the pricing distortion, in light of relevant regulatory action overseas since the UBA pricing was enacted.

## 4 The Proposed “Raw” Ethernet Service

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<sup>3</sup> WIK-Consult report to ECTA at Para 32

<sup>4</sup> Michael Wigley, *Problems for NZ's UBS Pricing Apparent from New UK Judgment* (January 2007) <http://www.wigleylaw.com/Articles/LatestArticles/problems/>

- 4.1 As noted above, the ALA service is quite different to the UBA services, which do not provide the necessary appropriate services-based competition. An appropriate service description of the ALA service is as follows:<sup>5</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 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.
- 4.2 We consider that it is most unlikely that Telecom will voluntarily provide such a service, despite international support for ALA services. In any event, we expect that there will be issues around, for example, the pricing of the service. While many of the technical requirements for this service are capable of agreement through the TCF<sup>6</sup>, other aspects of an ALA service would require regulation, or, at least, considerable regulatory pressure.
- 4.3 Alternatively, and if appropriate and effective, the Commission can encourage public sector funders of the network (in particular Government funding) to require an appropriate ALA service as a condition of funding.

## 5 Why an ALA service cannot wait

- 5.1 Above, we encourage a measured and proactive approach to NGN regulation, based on the Ofcom approach. Should regulating an ALA service wait until the NGN Study reports? In our view, the delay in taking that path indicates that the Commission should move to instigate a

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<sup>5</sup> <http://www.ofcom.org.uk/telecoms/discussnga/eala/eas/>  
<http://www.ofcom.org.uk/telecoms/discussnga/eala/eas/>

<sup>6</sup> Ofcom have already developed a *Technical Requirements* document for ALA.

- Schedule 3 investigation now. The Ofcom review has been underway for 2 years now. New Zealand is only just starting. Most importantly, market conditions in New Zealand differ from conditions in the UK. Cabinetisation is already a reality here, and we do not have substantial actual or likely facilities-based competition such as the major investment plans in the UK of HFC provider, Virgin Media. Such investment here is relatively isolated.
- 5.2 If action does not commence soon, the moved bottleneck created by cabinetisation could remain for 2-3 years taking into account (a) the time for the NGN Study to report, followed by (b) consideration of whether there should be a Schedule 3 investigation, (c) that investigation itself, and then (d) dealing with an application for determination.
- 5.3 WIK-Consult describe the position as follows:<sup>7</sup>
- [Regulators] have to take care that incumbents do not receive first-mover advantages in NGA deployment such that possible replicability will de facto be jeopardised. This means in particular that relevant access products are not only available in principle but are effectively available in due time.
- Regulators should do more than they did with regard to LLU to shorten the gap between imposing NGA related remedies and the actual availability of the relevant wholesale services. In the case of LLU the implementation delay in some countries amounted to several years. Given the relevance of first-mover advantages, similar gaps in NGA can endanger the (limited) potential of replicability even more or totally.
- 5.4 The unsatisfactory outcome of deferring a Schedule 3 investigation would – in practice – mean a regulatory holiday of some years for Telecom when early enablement of services-based competition produces better market outcomes. The Commission can request submissions as to whether to launch a Schedule 3 investigation in co-ordination with this NGN Study (say, early next year). The Schedule 3 and NGN Study streams can be coordinated and run in parallel.
- 5.5 Additionally, take, as example the acrimonious and reactive debate about access to such an ALA product in Australia: it demonstrates that a more measured and proactive approach by the Commission is to be preferred. This is accomplished by moving shortly to launch an investigation as to the ALA service.
- 5.6 That also provides greater certainty for the market, whether network investors or network users. This is an important issue. For example, it is one that was handled carefully by the Singaporean regulator, when setting out the regulatory landscape, in advance, so that the tenderers knew what

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<sup>7</sup> WIK-Consult Report to ECTA Para 38 and 39

the environment would be under their new Government-funded structure. The Australian National Broadband Network shows how this can go wrong, for industry, Government and the regulator.

## 6 Passive Services

- 6.1 There is increasing international recognition that an array of services is required to ensure sufficient competition, both facilities-based and services-based. For example, in addition to an active ALA service as noted above, passive services, such as duct and pole access, and fibre unbundling, are necessary. This is recognised, for example, in the Ofcom, EU and WIK-Consult Reports referred to above. Such steps are being taken in, for example, France and the UK, to encourage access to ducts and sewers. Additionally, Ofcom is mapping the availability of duct access.
- 6.2 The NGN Study – and subsequent activities by the Commission – should also include consideration of unbundled or other access of a more passive nature than bitstream. For example, if PON architecture is used, then providing wavelengths (WDM-PON) is becoming an increasingly viable proposition. WIK-Consult suggests a further unbundling option.<sup>8</sup>
- 6.3 The key policy principle, in considering the approach, is: competition at the deepest level that is effective and sustainable supported by equivalence of access.
- 6.4 Taking a technologically neutral approach which has copper unbundling replicated in some form over fibre, advances that principle which also underlies operational separation.
- 6.5 Passive services such as ducting raise the issue of the regulatory challenges to infrastructure deployment, particularly the delays and difficulties caused by the RMA processes. The cost of civil works is a major barrier to further infrastructure build. We support the NZCID initiative for reform of the RMA and supports the TCF's initiatives in addressing the lack of consistency on consenting processes across local government authorities.
- 6.6 We submit that regulatory challenges to infrastructure deployment, such as the RMA processes, should be part of the Study. The Commission is able to recommend other agencies to take steps to improve the position.

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<sup>8</sup> Paras 38 and 39, WIK-Consult Report to ECTA.

## 7 Active and Passive Services encourage NGA competition and investment

- 7.1 Having available this array of services enables competition, at each location, at the deepest level that is effective and sustainable. Additionally, as Ofcom explains in its latest report, these services can, together, be made available on the basis that the twin and key objectives of encouraging both competition and investment can be met.

### **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. ...

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.

## 8 IP Interconnection

### Introduction

8.1 The review in the Study should integrate with the work by the TCF, Telecom and Telecom's Separation Undertakings. (The InternetNZ peering review has finished).. The Commission is aware that the industry has considerable concern about Telecom's peering arrangements reflected also in Telecom's proposals for IP Interconnection in Telecom's discussion paper presented to the TCF. This submission does not deal directly with the issues currently being considered through the TCF. Rather, it outlines reasons why it is particularly important that the NGN Study deals with IP Interconnection including peering. In particular:

- (a) There are a number of IP Interconnection issues that are not being handled by the TCF (and IP Interconnection overall is a key aspect of NGN);
- (b) The Commission is able to control its approach so that there is no unnecessary overlap between the TCF and Commission workstreams;
- (c) IP Interconnection is too important for it to be left only to the TCF in any event.

### Overview of IP Interconnect

8.2 The ITU definition of NGN, adopted by the Commission<sup>9</sup>, reflects some key issues for IP interconnection:

- (a) IP Interconnection is a platform for a wide range of services including voice, data and video;
- (b) NGN is about all forms of telecommunications, not just fixed line. It includes mobile services;
- (c) Service is provided over a different layer than transport. As to these 2 layers, there is a "decoupling of service provision from transport, and provision of open interfaces."<sup>10</sup>
- (d) Quality of Service (QoS) and managing QoS across interconnected networks.

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<sup>9</sup> Para 2, Terms of Reference.

<sup>10</sup> ITU definition quoted in para 2 of the NGN Study Terms of Reference.

## The TCF/Telecom work, and the reality of the bottlenecks for interconnection and termination

- 8.3 It is a desirable goal to negotiate interconnection solutions and we firmly support the TCF endeavours in this regard. No doubt many issues can be resolved between industry (such as the technical aspects of inter-operability<sup>11</sup>).
- 8.4 However interconnection, and the closely entwined issue of termination with the end-user, are among the most intractable of problems in telecommunications. Historically, regulation has proven to be necessary. With both mobile and fixed NGN, the bottlenecks at the interconnection and termination levels have moved, and may even have become larger and more problematic. They have not been eliminated. Termination to the end-user is termination into a monopoly market, as is well established by regulatory decisions.
- 8.5 One of the main conclusions in WIK Consult's Report on IP Interconnection to the European Commission (this is a different report from the report to ECTA), is that IP Interconnection does not remove that termination monopoly. SMP issues around interconnection remain generally in place as well.
- 8.6 Therefore, solving the IP interconnection service, as defined in the Undertakings, does not solve for the overall interconnection and termination problem. In its report on IP interconnection, the European Regulators Group notes:<sup>12</sup>
- Today the abuse of the physical termination bottleneck can be considered the main regulatory problem concerning interconnection. Each market for call termination on an individual fixed/mobile network is a monopolistic market with no tendency towards effective competition (1 network – 1 market). The reason for these monopolies is not only control over access lines and necessary routing information behind E.164 numbers. The CPNP charging principle allows to exploit the physical termination bottleneck. Therefore under CPNP a method of cost-based regulation is necessary.
- By applying Bill & Keep, a billing regime without payment flows at the wholesale level, the abuse of the physical bottleneck for termination could be avoided if there is sufficient competition at the retail level.
- 8.7 History, and the reality of interconnection, termination and market power, indicate that it is unrealistic to consider that industry alone will be able to resolve all issues. Either regulation will be needed (which might include

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<sup>11</sup> Although even there, there are a number of contentious issues.

<sup>12</sup> The ERG report at page 18.

variation of the Telecom Separation Undertakings), or sufficient regulatory pressure is needed to encourage satisfactory commercial resolution. For this and other reasons, interconnection should be part of the NGN Study.

- 8.8 Telecom's discussion paper on interconnection confirms that additional regulatory pressure is needed. The Telecom paper really boils down to little more than a commercial negotiation model. The paper also leaves unanswered many more issues than are answered. Contrary to the impression given that Telecom's model is a simple Bill & Keep model, that appears not to be the case.

### **Telecom Undertakings**

- 8.9 We outline the position under the Undertakings as it is a key part of the overall situation. Only two forms of interconnection must comply with the requirements of the Undertakings: interconnection of voice and VPN services.<sup>13</sup> These are described as Service level services. As noted above, there are two levels of interconnection to consider: Service and Transport. The Undertakings appear only to be dealing with one level, and the TCF review is scoped to deal with only one level as well (what it describes as Service IP Interconnection).
- 8.10 It is important to note the limited boundaries of these two services. Termination on the Telecom side is at "the first switch within Telecom's NGN core".<sup>14</sup> Therefore, for example, in relation to the voice service, carriage of the traffic from the first switch to the end user is outside the service within the Undertakings. So, for example, voice termination on an E.164 number, with the end user, is not a matter within the service described in the Telecom Undertakings. There is the option for industry to agree that additional services, such as this end-user termination component, can be added, and that the Undertakings are varied accordingly.<sup>15</sup> Telecom, in its discussion paper, maintains that this component should not be included as "there are no residual issues that require addressing by this mechanism ...".<sup>16</sup> They appear to be saying that such termination is a matter only for commercial negotiation. Given the

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<sup>13</sup> This is the effect of clause 45.2(a)(v) of the Undertakings. Clause 45.2 defines the Relevant Wholesale Services. Under clause 66.8 other forms of Service IP Interconnection are covered in a minimal way. Telecom must provide those services on commercial terms that are fair and reasonable in the circumstances. That is a heavily constrained commitment compared to those in the Undertakings, and what might be expected under regulation pursuant to the Telecommunications Act.

<sup>14</sup> See the definitions in clause 1 of the Undertakings for IP Interconnection for Virtual Private Network Service and IP Interconnection for Voice Service.

<sup>15</sup> Clause 66 Undertakings.

<sup>16</sup> Telecom discussion paper para 203.

historical interconnection and termination issues, and associated SMP considerations, which have not diluted with the NGN, this is a substantial leap in the analysis.

- 8.11 There is a wider obligation for Telecom to consult on NGN, which would extend to interconnection beyond these two defined services.<sup>17</sup> While in theory the TCF Working Party should deal with wider issues, in reality the approach so far, reflected in the Telecom discussion paper, is significantly more constrained.
- 8.12 We note that the obligation to consult under the Undertakings is limited only to fixed services and does not extend to mobile. However mobile services are clearly part of NGN.<sup>18</sup> As this NGN consultation is restricted in this way, that is further reason why the Commission's NGN Study should be undertaken.
- 8.13 The Undertakings, and the Telecommunications Act, envisage that the Undertakings can be varied where appropriate in response to NGN developments.

### **Telecom's Discussion Paper**

- 8.14 IP interconnection raises numerous issues of which only some are handled in the Telecom discussion paper. Generally, only the position promoted by Telecom is set out in that paper. It is not a paper that presents different views and options.
- 8.15 What is clear is that the key theme of the Telecom paper boils down to a simple proposition: interconnection, including interconnection that fully enables termination with Telecom's end user, is a matter for commercial negotiation, not regulation. The only exception appears to be the compulsory inclusion of the limited voice and VPN services noted above, which are subject to EOI obligations etc. However, even there, many of the issues are effectively taken out of the Undertakings and are left to be handled by commercial negotiation. There are default rules but they are just that. There are already indications that the default rules might be overridden.

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<sup>17</sup> Clause 67 Telecom Undertakings.

<sup>18</sup> For the purposes of the Telecom Undertakings "NGN" is artificially defined as referring to a "packet-based" fixed network. We expect that "fixed" is intended to refer to fixed location telecommunications (whether terrestrial or radio communications-based). This excludes mobile.

- 8.16 The work of Coase and other economists is relied upon in support of this conclusion. It is a conclusion that is starkly at odds with the historic reality (unaltered by NGN) of the need to regulate interconnection and termination due to monopoly power.
- 8.17 It is one thing to have commercial negotiations followed by regulatory activity if necessary (for that reason we support the TCF/Telecom initiative). It is quite another thing to suggest that interconnection is capable of commercial resolution – without regulatory input – regardless. That is what Telecom is saying is achievable. This is not realistic. That view strengthens the concern we have that the Commission should be more actively involved than attending the TCF meetings and should maintain its regulatory involvement, initially via having interconnection in the NGN Study. This is confirmed in the WIK-Consult report to the European Commission, when it notes that a Coasian type of solution is inappropriate where there are market power issues.
- 8.18 As noted above, it is difficult to discern fully why Telecom is able to say that its proposed solution overcomes market power problems in relation to interconnection and termination with the end user, even if the solution is solely Bill and Keep (which it is not). It seems to rely upon the availability of UCLL, UBA and resale.<sup>19</sup> However, that confuses the issues and does not answer the market power problems for a number of reasons including that:
- (a) These are **access** services and here we are dealing with interconnection and termination (a different problem from access); and
  - (b) Those access services do not in themselves overcome market power problems in relation to access, particularly as these services (e.g. UBA with its predominantly internet-grade qualities) will be inadequate for an NGN future.

### **IP Interconnection and peering issues outside the TCF's work**

- 8.19 As noted above, even as to issues within scope for the TCF, it is appropriate for the NGN Study to engage in the same issues. This can be done on a pragmatic basis, to avoid duplicated effort. Coordination between the two workstreams should be easy. For example, if the TCF work is producing good results, the NGN Study report only needs to confirm this fact, without more.

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<sup>19</sup> Para 123 Telecom discussion paper.

8.20 However, there are issues beyond the TCF's work which show that the NGN study should include IP Interconnection and peering. They include:

- (a) Peering and the current controversial Telecom proposal to interconnect at 29 points, on the basis that Telecom can transit traffic to those peering points on a differential pricing basis for A to E level traffic.
- (b) The need to review both transport and service level interconnection. As reports such as the ERG and WIK-Consult report to the EU show, it is essential to deal with interconnection at both levels. The TCF review does not do this (it is expressly confined to what is described as Service IP interconnection (which does not seem to map directly to either transport or service level interconnection));
- (c) There are a number of issues that the TCF cannot deal with due to Commerce Act or other considerations. One is pricing. This is one of the most challenging areas to resolve, with the migration from legacy PSTN (with its largely CPNP model) to an IP model (and the Internet's largely transit based, and bill and keep based, approach);
- (d) Migration from the PSTN to NGN and the issues that entails (this is covered in the TCF material but only to a limited degree);
- (e) Issues raised by NGN for mobile networks, including interconnection between fixed and mobile networks (WIK-Consult, in particular, in its report to the EU, identifies the substantial impact that mobile interconnection and termination has upon NGN and transition to NGN).

## 9 Telecom Separation Undertakings

- 9.1 The impact of the Undertakings and appropriate variations should be part of the NGN Study, and subsequent Commission activities in relation to NGN.
- 9.2 The Undertakings need to evolve – and be varied by the Minister – to reflect NGN developments. That is the approach being taken by Ofcom in the UK in relation to the BT Undertakings and NGN.
- 9.3 The Telecom Undertakings provide a framework for NGN and both the Undertakings and the legislation anticipates variation if needed. For example there is IP interconnection which we deal with above.

- 9.4 A further example is FTTP. There is a platform in the Undertakings for developing a more comprehensive approach to FTTP bitstream.<sup>20</sup> There is currently only a limited non-discrimination provision<sup>21</sup> applicable to FTTP, and development of an FTTP bitstream service would require variation of the Undertakings for more comprehensive provision on matters such as EOI. There are also issues as to whether Chorus should provide access to passive components in relation to FTTP.
- 9.5 We consider that the relationship of the Undertakings and NGN, and any possible need to vary the Undertakings, should be included in the Study. The Study of course can recommend to the Minister that he or she consider varying the Undertakings.
- 9.6 In many cases ducts into interconnection locations are already well utilised. Telecom's current inefficient practices of requiring a separate circuit for each service is likely to create problems. Also, lack of access to ducts and poles for fibre providers could reduce fibre penetration. Access to roof-top sites is also likely to be a restriction for wireless providers, particularly at interconnection locations. We consider that these are issues that should be reviewed in the NGN Study: they are closely related also to IP Interconnection.

## 10 FTTP Architecture (PON or P2P)

- 10.1 We submit that a matter for review in the Study is the choice between PON and Point to Point (P2P) architecture. Unless required or encouraged to do otherwise, Telecom is expected to roll out a PON rather than a P2P network. However P2P is significantly more pro-competitive than PON. Additionally it is not as constrained as PON for future technologies (for example P2P allows higher speeds over fibre, in response to technological and commercial developments). A P2P rollout is moderately more costly than PON. The incremental cost has been estimated at between 10 and 15%.<sup>22</sup>
- 10.2 P2P can much more effectively provide "competition at the deepest level that is effective and sustainable, supported by equivalence of "access". This is so significant that the Commission should consider steps to

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<sup>20</sup> Clause 65 Telecom Undertakings. This clause refers only to a bitstream service (in accordance with the definition of FTTP Access Service in clause 2.

<sup>21</sup> Clause 65.3.

<sup>22</sup> See para 8.3, WIK-Consult, *The Economics of Next Generation Access – Final Report* and also Analysys Mason Final report for the Broadband Stakeholder Group – *The costs of deploying fibre-based next-generation broadband infrastructure* (report for Broadband Stakeholders Group) (8 September 2008).

encourage or require Telecom and other fibre operators to use P2P architecture.


- 10.3 The Commission's options are not limited to regulation. For example, in relation to encouraging use of P2P, the Commission can consider advising, as part of its NGN Study report, that any local or central Government funding of a fibre rollout requires P2P architecture.

## **11 Developing Access in New Build Locations (Apartments, Subdivisions, etc)**

- 11.1 This is one of the questions raised by the Commission, and we consider it should be an issue for the NGN Study. Providing access to new apartments and subdivisions provides an opportunity to incrementally provide equivalent access, and to minimise the civil works costs of additional competition (for example by ensuring ducts are laid to enable additional fibre to be provided). The Commission could encourage local bodies to take facilitative or mandatory steps to encourage optimal outcomes, and review of the Building Regulations may assist.
- 11.2 Ofcom's September 2008 Report, *Next Generation New Build - Delivering super-fast broadband in new build housing developments*, provides useful guidance and information for this Study

## **12 Numbering, Emergency Services etc**

- 12.1 The New Zealand numbering plan needs to be reviewed to ensure that access to number ranges and short codes is optimised to support new services. Geographic number codes are useful for informing a caller as to who will pay for the costs of a call. Therefore, going forward, it needs to be clear – as far as possible – to consumers what charges will be incurred when calling particular numbers.
- 12.2 This problem has been recognised by the Commission in its draft numbering study. That and other issues – recognised as New Zealand shortfalls against international best practice in the draft study – should be resolved by the and the NAD. Completion of the Commission's final report on numbering will assist this.
- 12.3 If there is no progress in resolving these issues by industry, the Commission should look at taking further steps. Numbering is an integral feature of NGN, as the draft Commission report on numbering points out. We suggest that numbering is included in the list of matters for ongoing review in the NGN Study. This should be treated more as a "bring up" item



to ensure co-ordination with the Numbering Study and to ensure that industry is encouraged to resolve numbering issues.

- 12.4 The TCF is dealing with resolving issues and standards in relation to emergency calls, issues as to power supply to end user phones, etc, in the VoIP environment. We believe that the TCF is able to resolve these issues without regulatory intervention.

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