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CHORUS SUBMISSION ON THE COMMERCE COMMISSION'S NGN STUDY CONSULTATION QUESTIONNAIRE

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Background

1. The Commission has initiated a Study under section 9A of the Telecommunications Act (**Act**) into Next Generation Network issues (**Study**). The Commission states in the Study's Terms of Reference that the Study will consider the issues relating to both IP based core networks and their interconnection (**NGN**) and the issues relating to the IP based Next Generation Access Networks (**NGANs**) connecting end users to the NGNs.
2. On 23 June 2008, the Commission released an NGN Study consultation questionnaire seeking responses on a series of questions relating to the Study.

Chorus' submission

3. Chorus notes that this is a high level submission. A small organisation like ours has to be circumspect about the amount of effort we can expend; we inevitably have to direct our efforts to those processes that are most important for us. We are also particularly stretched at the moment with a range of regulatory and commercial projects that directly and immediately impact on our business. However, that said, we thought it would be useful to provide the Commission with our high level thinking on these issues. We are sure that a Telecom submission will likely provide a more detailed Group position on the fuller range of issues affecting and influencing NGN networks and services.

NGN Definition

4. The Commission proposes to use the International Telecommunications Union definition of NGN for the purposes of the Study:¹

A Next Generation Network (NGN) is a packet-based network able to provide Telecommunication Services to users and able to make use of multiple broadband, QoS-enabled transport technologies and in which service-related functions are independent of the underlying transport-related technologies. It enables unfettered access for users to networks and to competing service providers and services of their choice. It supports generalised mobility which will allow consistent and ubiquitous provision of services to users. [ITU-T Recommendation Y.2001 (12/2004) - General overview of NGN]

The NGN is characterised by the following fundamental aspects:

- Packet-based transfer
- Separation of control functions among bearer capabilities, call/session, and application/service
- Decoupling of service provision from transport, and provision of open interfaces
- Support for a wide range of services, applications and mechanisms based on service building blocks (including real time/streaming/nonreal time services and multi-media)
- Broadband capabilities with end-to-end QoS and transparency
- Interworking with legacy networks via open interfaces
- Generalised mobility
- Unfettered access by users to different service providers
- A variety of identification schemes which can be resolved to IP addresses for the purposes of routing in IP networks
- Unified service characteristics for the same service as perceived by

¹ <http://www.itu.int/ITU-T/ngn/definition.html>

- the user
 - Converged services between Fixed and Mobile networks
 - Independence of service-related functions from underlying transport technologies
 - Support of multiple last mile technologies
 - Compliant with all Regulatory requirements, for example concerning emergency communications and security/privacy, etc.
5. This definition is representative of the commonly held view of NGN. The key aspects from a Chorus perspective are that users are able to make use of multiple broadband, QoS-enabled transport technologies, and service-related functions are independent of the underlying transport-related technologies – this necessitates the support of multiple last mile technologies, converged services between fixed and mobile networks, decoupling of service provision from transport, and the independence of service-related functions from underlying transport technologies.
 6. The definition suggests certain principles that underlie the nature of the technology, and should guide the study of any potential regulatory interventions, in an NGN world. We go on to discuss these principles in the following section.

Underlying Principles

7. A number of principles suggest themselves from the definition set out above – others are drawn from Chorus’ understanding of the nature of the NGN environment.

Multiple technologies and networks

8. As the ITU definition notes, NGN is about multiple broadband transport technologies, converging fixed and mobile networks, multiple last mile technologies, and underlying transport technologies that are independent of service-related functions.
9. The Study should not focus on particular technologies or networks – to do so would be to limit the Commission’s investigations and understanding to an alternative, much narrower, definition of NGN than the one it proposes to use.
10. Instead, the Commission should consider all technologies and networks that may deliver NGN services and recognise that the majority of investment will be made the future, before concluding that regulation is required.

The key industry concern is likely to be on IP Interconnection

11. The key industry concern is likely to be on interconnection between NGNs. The definition states that NGN “enables unfettered access for users to networks and to competing service providers and services of their choice.” IP Interconnection is likely to be the key enabler for end users to obtain the widest possible range of services to be accessed.

Open Access

12. Open access to NGNs is an important issue, and should be at the appropriate layer to retain incentives to invest in the widest possible range of access technologies. We believe that regulating infrastructure yet to be built, or business cases that were formed on the assumption of a reasonable regulatory environment, is not in the interests of the industry, the Government, or of end users.

13. Defining open access is important – the criteria for choosing the appropriate layer include:
- (1) the layer at which most Service Providers are able to access the NGNs. Open access at Layer 0 or 1 may limit a number of Service Providers from taking full advantages of the opportunities of open access by virtue of the investment commitments required to gain enough business to generate a viable return on the assets, yet may be best for market viability;
 - (2) the dynamic efficiency implications of regulation – care should be taken in regulating layers that require huge amounts of investment over many years as the distortions this could create will likely continue to impact the local market for years to come;
 - (3) multiple Service Providers should be able to provide services (e.g. IPTV, QoS VOIP) over an NGN to the same customers providing consumers mix and match solutions to meet their particular needs;
 - (4) the key enabler for competition and end user benefit is to ensure there is an environment where NGNs can interconnect and enable the service providers to develop their range of service offerings.

NGN regulation needs to be technology and investment neutral

14. Regulation should not define or delineate technology choices or promote one technology over another and rather address service or market irregularities. The regulation of the delivery platforms for NGN services needs to encourage investment in NGN infrastructure, including existing NGN regulation such as sub-loop unbundling. The key elements to encourage investment we believe are:
- (1) regulatory certainty to invest in significant physical infrastructure with economic lives in excess of 10 years;
 - (2) a holistic, whole of Government approach to provide consistent policy treatment of investments and operations;
 - (3) regulation only in the event of demonstrable market failure to correct irregularities for so long as those irregularities continue.

Equivalence of Inputs, non-discrimination and Chorus' existing obligations

15. The definition proposed notes that NGN enables unfettered access for users to networks and to competing service providers and services of their choice. Chorus provides reciprocity and does not discriminate between the Service Providers that purchase its services. This is and will be a fundamental characteristic of the New Zealand NGN environment that distinguishes us from almost all other, otherwise comparable, jurisdictions. This characteristic provides the key to unlocking the full potential of NGNs in New Zealand.
16. It is essential that the Study consider existing regulatory obligations – such as those set out in the Undertakings – that distinguish New Zealand from most other jurisdictions. For example, a persuasive argument in favour of regulation of NGN infrastructure in a comparable jurisdiction without operational separation, may be inappropriate, unnecessary, or even impractical, in jurisdictions where operational separation has already occurred.

Industry co-operation as the first, best choice

17. Inherently, the members of the telecommunications industry are best placed to understand their networks, their businesses and the needs of their customers. Industry co-operation is the first, best choice for developing NGN frameworks, standards, access arrangements, etc.
18. Regulation should only be considered in circumstances of demonstrable market failure; this is especially true in dynamic industries. Used with a broad brush, regulation can supplant industry arrangements, slow investment, slow product development and responsiveness to customer needs, add cost and complexity, and stifle innovation. "As much market as possible, as much regulation as necessary", is invariably the best approach.

NGN regulatory issues from a Chorus perspective

19. We thought it might be useful to set out some of the key regulatory issues, from our perspective, that the Commission may wish to consider.

Sub-loop regulation is NGN Regulation

20. Regulation of sub-loop access services is NGN regulation. The Commission should be aware that its approach to this first piece of regulation that crosses into the NGN world will influence investors and operators in that world.

Regulated services and operational separation

21. The Commission might wish to keep in mind during the Study that Telecom's NGN services will be split across operationally separated boundaries.

The range of issues that affect NGN service delivery

22. Issues such as home wiring are critical to the delivery of NGN services. Chorus considers this means that the Commission needs to:
 - take a holistic view in studying the NGN world;
 - co-ordinate its thinking with broader government and regulatory agencies, such as Standards NZ;
 - consider the implications of downstream and upstream demarcation points.

Funding FTTN and FTTH

23. Telecom's Exchanges are not valuable enough to fund FTTN or FTTH through their sale, and are often integrated into the mobile network, while the few Exchanges that are sufficiently valuable are key to the NGN network. Telecom also has obligation under the Public Works Act to address when it wishes to dispose of some of these sites.
24. This means that Telecom cannot use Exchange Building sales to fund FTTN or FTTH – this is a key difference between New Zealand and some overseas jurisdictions, such as Belgium, where the value of the relinquished real estate is sufficient to fund NGN development.

International comparators

25. Care needs to be taken in drawing international comparisons with New Zealand as we move into an NGN environment. International regulatory approaches need to be critically reviewed in light of the aspects of New Zealand regulatory environment that are specific to us, such as:

- Exchange building sales in some jurisdictions (e.g. Belgium) are funding FTTN or FTTH activity;
- Population density and/or urbanisation;
- NZ cities are more spread out than European cities, with more single detached dwellings;
- Operational separation has created a completely different environment in NZ (and the UK) – our regulatory regime is not directly comparable to European states.

Questionnaire

26. Chorus has not sought to answer all of the questions asked by the Commission. We have restricted ourselves to those questions that most touch on our business.

Q. A.3 – What are your views on the opportunities, merits or desirability of fostering an environment facilitating service based versus facilities based competition in the evolving NGN market?

- (1) Any potential regulation should be focused on encouraging services and facilities (i.e. infrastructure) investment that generates competition and innovation in an NGN environment;
- (2) It is not advisable to focus on regulation that might foreclose technical options in the future and prevent efficient network deployment. For example, dynamic spectrum management (**DSM**) cannot be implemented in unbundled cabinets;
- (3) Any potential regulation should be for fair and equivalent access, not to make NGN investments viable;

Q. A.4 – Can you envisage any areas where industry limitations are likely to prevent (e.g. commercial or technical) agreements?

- (1) The Commission should not pre-judge market failure, inefficiencies or irregularities;
- (2) The Commission should support the industry group discussions and solutions, and empower the industry to lead the resolution of industry issues.

Q. A5 – Can you envisage any areas where policy support would likely aid or facilitate agreements?

- (1) The process should always start with the industry and industry forums – generally speaking the industry is capable of doing it and this requires the Commission to empower and support industry resolution of issues as the preferred approach;
- (2) A process where the industry can get guidance from an experts' group that facilitates agreements may be useful to encourage and supplement industry resolution of the issues.

Q. A6 – Can you envisage any areas where significant barriers to entry are likely to emerge?

- (1) It will likely only make economic sense for the first mover to invest in FTTH in a specific area or region.

Q. B1 - What technical issues need to be resolved to allow you to offer the services you would like to be able to offer today, and over the next 1-3 years?

- (1) Some technical options are likely to be foreclosed by certain or detailed intrusive or prescriptive NGN regulation – for example, dynamic spectrum management cannot be implemented in unbundled cabinets;
- (2) Testing performance – absent Access Seekers agreeing to provide Chorus with access to management information collected by Access Seekers and Telecom Wholesale, about the performance of copper pairs, Chorus will have a limited ability to manage its network and provide assurance to Access Seekers for their services.

Q. B3 – Which of these issues do you believe can be satisfactorily resolved through the current industry work groups in a timely manner?

- (1) To the extent issues impact on current regulation they can be resolved through regulatory processes. For other issues, industry lead solutions are preferable.

Q. B5 – Do you envisage any issues in NGAN to NGN interconnect?

- (1) Need to define NGAN – our response is specific to the Chorus' network and takes into account the divisions made by operational separation, but NGAN should not be defined by reference to all NGANs;
- (2) There will be issues around demarcation – issues that go beyond the boundaries of the Telecom's, Chorus' and other providers' networks, but need to be further considered once definitions and demarcations are discussed through the industry. For example, we currently face an issue of this nature with UCLL Backhaul, where we are required to provide services that rely on underlying infrastructure that we do not own.

Q. D1 – Is access to physical infrastructure such as ducts, poles and rights of way likely to impact on NGN rollouts?

- (1) Need to take an appropriately wide view and carefully consider dynamic efficiency;
- (2) There is no valid argument for access to this infrastructure;
- (3) However, in studying access to this infrastructure, the Commission needs to include in its consideration all relevant assets of all infrastructure owners, both within the telecommunications industry and outside.

Q. D4 – Do you have a view on whether or how the “Ladder of Investment” model could operate in the NGN environment?

- (1) The ladder of investment is an economic theory that cannot be meaningfully applied in an NGN world. It only makes economic sense for the first mover to invest in FTTH in a specific area or region.