



TUANZ response to the Commerce Commission's Next Generation Network (NGN) Study Consultation Questionnaire

TUANZ welcomes this opportunity to contribute further to the development of this important study into the policy and regulatory framework for Next Generation Networks in New Zealand.

We recognize that the study is still at an early stage and that much of the terminology is quite broadly defined. Our comment focuses on those issues on which the user perspective is most relevant, and on which facilities providers or service providers may well have different interests and perspectives.

At the outset TUANZ recommends that as part of this study the Commerce Commission provide a robust and universally agreed definition of Next Generation Networks. We note that Telecom has used the NGN label for some time to describe its IP Network, however while this is an essential part of the NGN development in New Zealand, it does not encompass the entire national infrastructure.

TUANZ is an active member of the International Telecommunication Users Group (INTUG) which is the global forum of major telecommunication users and a federation of national user groups. INTUG has commissioned a thorough report into the regulatory and structural issues surrounding the implementation of NGN. The report is currently in an advanced draft prior to submission to an NGN Framework Review for the European Union. It provides important user-oriented analysis of many of the topics raised in this Questionnaire and others that are relevant to the Commission's study. We attach the draft INTUG study for the information of the Commission.

RESPONSES TO QUESTIONNAIRE

A. Retail and Wholesale Services

Commercial Models

A.1. What are your views on the appropriateness or otherwise of retaining the existing commercial models (e.g. PSTN interconnect) in the NGN environment?

A.2. What do you believe are the appropriate retail and wholesale commercial models for the various NGN services?

TUANZ expects that an appropriate NGN services structure will allow for continuity of some current service models, as well as the introduction of new service models on different commercial principles, both at wholesale and retail levels. The transition from legacy services to new NGN-enabled services will be market driven, in the same ways that adoption of cellular mobile services or internet telephony have competed with PSTN services and acquired market share on particular value propositions.

It should not be necessary to prescribe particular commercial models, so long as there is sufficient access regulation to prevent operators of facilities and wholesale services from creating and exploiting bottleneck control that stifles competition.

The terms of reference for this study define NGN as providing "unfettered access for users to networks and to competing service providers and services of their choice". This implies that related commercial models must not provide opportunities for particular operators to use technical or commercial means to restrict the access of competing service providers to any facility or wholesale service necessary to serve any end user.

Services and Facilities based competition

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

By definition, NGN must provide unfettered opportunity for services based competition, so that the subscriber to one NGN access network is able to offer NGN-based services to the subscriber of any other technically-compatible network. This employs the same principle as the "network neutrality" issue that is currently being fought out before United States regulators and courts.

Additionally, business end users expect NGN technologies to facilitate a much more open and competitive opportunity for the implementation of private networks and virtual private networks. We note that incumbent telecommunication operators will be attracted to models that require business users to buy managed services from service providers, whereas business users may well wish to build and manage their own private network services based on lower-level access to telecommunication carriage infrastructure and facilities.

TUANZ sees services based competition as complementary to facilities based competition, not as adverse to it. It has been shown repeatedly that a competitive telecommunication service market will grow a user base for new services more rapidly than monopolized or walled-garden services can do.

In the evolution of the public Internet, walled-garden consumer data services like the original CompuServe and Microsoft Network models were rapidly blown away by open Internet services offering access to the World Wide Web. The Internet Service Provision industry generally used the facilities of fixed network operators until the ISP market had grown to a scale that encouraged ISPs and third parties to make significant complementary investment in competitive network facilities.

Industry Agreement

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

A.5. Can you envisage any areas where policy support would likely aid or facilitate agreements?

Commercial agreements are most difficult to achieve in situations where one party has bottleneck power and where vertical integration creates a conflict of interest between a provider's retail arm and the provision of facilities or wholesale services to a retail competitor.

TUANZ has strongly supported the robust operational separation of Telecom's network services for this reason, and is conscious that some ways of implementing next-generation service platforms could potentially create new technical bottlenecks or reduce opportunities for competitive service delivery.

We observe that in some instances matters raised as technical disagreement may actually reflect lack of enthusiasm to provide the relevant service or facilities to a competitor. However, the sort of dispute resolution provisions required under Telecom's Operational Separation Determination should be adequate for most circumstances likely to arise in an NGN environment. Such provisions should be a minimum part of an NGN regulatory environment.

TUANZ trusts that aspirant providers of competitive NGN services will draw the Commission's attention to specific areas in which the Commission's powers may

need to be brought to bear in support of competitive service provision in new circumstances.

We expect that the Commission's report arising from this study will set out any principles needed to clarify how the Commission would exercise its powers for these purposes. We would also ask that the Commission review the Commerce Act and the Telecommunications Act to ensure they have sufficient provision to act against anti-competitive behaviour in the NGN environment.

Barriers to Entry

A.6. Can you envisage any areas where significant barriers to entry are likely to emerge?

TUANZ would consider that the most significant barrier to entry for new service providers is likely to be a lack of certainty over the scope and depth of access and interconnection rights between competing networks. Uncertainty will be a severe handicap to the raising of capital and the ability to attract customers, particularly business customers. We trust that this study and resulting Commission action will help minimize these barriers.

TUANZ would like to flag that consideration needs to be shown towards reaching a common understanding about what constitutes Open Access. This could take the form of agreed protocols around what access layer this can be most usefully applied to in order to stimulate competition at the service or application level of the network infrastructure.

B. Architecture

Ongoing interoperability

B.1. 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?

An important issue for major users is the ongoing interoperability of Customer Premise Equipment (CPE) across multiple networks. This needs to be kept in view during the transition from PSTN to IP networks.

B.2. What commercial 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?

N/A

Industry Work Groups

B.3. Which of these issues do you believe can be satisfactorily resolved through the current industry work groups in a timely manner?

TUANZ has supported the principle that industry working groups should attempt to resolve technical and related issues, and TUANZ has participated actively in such groups over time. But since TUANZ represents end users rather than service providers, we ask the Commission to recognize that a solution that is satisfactory to a group of service providers may not always be the solution that would best meet the needs of end users, nor a solution that would be consistent with the pro-competitive objectives of the Telecommunications Act.

For example, arrangements for mobile termination rates or for international mobile roaming were put in place by industry agreements, and have since been recognized as grossly unacceptable to end users.

We suggest that the Commission should take care that any issues referred to industry groups for resolution must also be subject to public and regulatory scrutiny with regard to the long-term interests of the end user. We'd also like to encourage the practice by the Telecommunications Carriers Forum of appointing an independent chair, both to the its board and for working parties charged with developing standards and processes for the NGN environment.

While the TCF has solved many issues in a competent and timely way, there have been isolated examples where the regulator could have been encouraged to step in and resolve outstanding disputes.

Interconnection and Peering

B.4. Do you envisage any issues in NGN interconnect or in relation to current peering arrangements?

B.5. Do you envisage any issues in NGAN to NGN interconnect?

B.6. Do you envisage any issues around NGN to service, content and application provider interconnect?

Interconnection raises the most critical set of issues for the successful deployment of NGN-based services. ISP peering is a particular form of interconnection arrangement practiced among ISPs, and incompatible with traditional telco traffic settlement arrangements.

The NGN suite of services, from carriage services to content and applications, depends upon a supply chain that may include many different owners and providers at any particular instance. TUANZ recognizes that each contributor is entitled to a reasonable return for its contribution to the supply, and this should

be reflected in the relations between suppliers. In most cases the end user will only have a commercial relationship with an access provider, perhaps a separate service provider, and possibly an itemized content provider.

The current Internet service ecology has proven that this layered service delivery market can thrive with competitive providers contesting market share, whilst sharing facilities and underlying services. It is critical that future NGN service provision allows for at least the same level of competition at each layer. Business users in particular expect access to lower-level carrier services as the infrastructure for self-managed private networks.

Many network operators have indicated preference for vertically-integrated models for NGN service provision. The likely outcomes have been demonstrated in some examples of the market strategies deployed by 2G and 3G cellular mobile network operators. Commonly, these services make access to "off-net" digital content prohibitively expensive while providing much cheaper access to "on-net" content from which the network operator derives income by subscription, advertising links, or other means. Similarly, gross differences between on-net and off-net point-to-point calling charges may also be used to penalize and discourage cross-network interconnection at the user level or the level of content and application service provision.

TUANZ recognizes the right of an integrated telco to provide competitive content offerings to its customers, but we are concerned that manipulative pricing of interconnection arrangements provides one avenue by which the open-access promise of NGN may be subverted in the interests of network operators' walled-garden service ambitions.

Therefore interconnection technology needs to be built on a platform that enables a low cost of interconnection between networks within NZ as well as internationally. In effect the cost to connect with another carrier should not be any more than to connect within a carriers own network. Carriers therefore need to work together to ensure they use technology that does not complicate the interconnection to the extent that it differentiates the price to the consumer. Today we have examples of TUANZ members who are charged more than five times the per minute cost to ring from a landline to a competitor mobile network versus calling a mobile from the landline providers network (in one example the difference is 5c versus 28c).

We suggest that the Commission commit to identifying world's best practice in principles for interconnection of NGN, NGAN and content/application providers. The competing or common interests of providers alone is not a sufficient source of reference, as the economic dividend from NGN may come from services and providers who do not yet exist, but will enter the market when terms of market entry are bedded down. The degree of openness that exists in Internet-based content and application service provision should be the benchmark for NGN content and application service provision.

At a minimum, any evidence that terms and conditions of interconnection and/or peering are preventing access of competitive service or content providers should be an immediate trigger for regulating those forms of access.

Quality of Service

B.7. Do you envisage any issues around agreement on appropriate parameters and values relating to Quality of Service in the NGN environment?

Quality of service parameters can be a two-edged sword in the context of an NGN platform that is packet-based and inherently flexible on many service parameters. NGN services should potentially cover a range of offerings from highly managed services with service level guarantees at one end, down to cut-rate best-efforts services at the other end.

TUANZ believes that service providers should be encouraged to compete for market share on any or all aspects of quality, features, or price. This is already the case in ISP and long-distance telephony services, where users may choose between different grades of quality of service offset across a range of prices.

The core issue on quality is that the end user who is paying for the service must be informed of the quality of service that is being offered, in order to make an informed choice. There may be a role for the Commission in devising common terminology that is available to users so they can better understand different service qualities without having to interpret complex industry jargon. TUANZ is happy to assist in this process.

On the other hand, quality of service parameters should not be used artificially to create obstacles to competition. Historically, there have been cases where incumbent telcos have set arbitrarily high technical standards for interconnecting services as a means to discourage, or raise costs for, competitors accessing their networks. Infrastructure and core network service providers must not be permitted to use quality of service control to be the pretext on which to recentralise control of the NGN in the hands of vertically integrated network operators.

Establishment of minimum quality standards, or for standard descriptions of quality grades of service, may be an appropriate area for industry work groups. In the NGN or Internet context this can be quite complicated, as packet flows can potentially be driven by active and dynamic content originating anywhere in the connected world.

Open Access Fibre Networks

B.8. Do you envisage any issues around the integration with the developing open access fibre networks?

TUANZ welcomes the development of open access fibre networks and sees no obstacle to their integration with the NGN. Open access networks are a better model for NGN business than are traditional PSTN or cellular mobile networks. The service provider accessing the fibre network may determine the most appropriate use of the fibre for whatever purpose is consistent with interconnecting NGN service platforms. TUANZ sees NGN integration as a matter of technical and related standards, which should be distinguished from ownership and control.

C. Transition

IPv4 to IPv6

C.1. Can you comment on the need or timing to migrate from IPv4 to IPv6 and any role you see for government in this transition?

The migration needs to be driven by IP address exhaustion, and there will need to be support for both styles of addressing. TUANZ believes that commercial dictates, rather than mandated timelines, should determine the transition.

There is a major role for the Commission and government in the education of ISPs and end-users who need to ensure they are investing in technical resources and the upgrade of existing equipment that is IPv6- capable. TUANZ is happy to assist in this process.

Numbering Plan

C.2. Can you comment on the need for revisions to numbering plans for new services, and the need or otherwise for non-geographic codes recognising increasing user nomadicity?

TUANZ sees a place for both geographic and non-geographic codes in the mix of services. Number portability and the mass adoption of mobile telephony have already eroded the nexus between a terminal device identifying number and a fixed geographic point in a network. Since numbers are understood to be an unreliable indication of fixed location, other location technologies have become more common.

One of the purposes of geographic numbering has traditionally been to give the calling party an indication of the level of call charges being applied. However,

this has been somewhat eroded over time and TUANZ considers it inevitable that numbering will continue to become divorced from geography. Therefore end users will require technological solutions as a means of ascertaining, in advance, the call rates that might apply in different circumstances to calling the same number. These might be drawn from a menu of options appropriate to each user and include the facility to enquire the cost of a call in advance, a warning tone if the charge exceeds pre-set parameters, or a tone alert to any mobile or toll call.

The core issue on numbering is the principle that numbers are recognized as a public resource to be administered in the interests of the end user, whether by a transparent industry process or by a regulatory authority. We note that the idea that a country's number system is a national resource is endorsed by the World Trade Organisation.

TUANZ recognises that a network number or identity that is assigned to an end user becomes part of the user's personal or business contact information. Private costs are incurred in establishing that identity information in the relevant community. TUANZ therefore supports the concept that users should have a legal right to the continuing use of that number or identity, subject only to fair and explicit terms and conditions for cancellation or reassignment, which must be on reasonable technical or other grounds.

Stranding of Assets

C.3. Do you have a view as to the best approach in dealing with stranded assets in the event of significant network rearrangements?

The attached INTUG paper provides some detailed comment on the issue of asset-stranding and the effect on competition in the access network.

TUANZ shares the view that the extension of optical fibre networks deeper into the network must not result in reduction of competitive opportunity by stranding of competitive access assets.

Any reconfigured network topology that affects the viability of competitive access investment must be balanced by regulated access obligations that restore retail competitive opportunity. This issue is of particular importance to business users who are concerned about private and virtual private network access to locations that may lose competitive DSLAM access.

TUANZ would also like to call for a National Digital Architecture. That is a high level understanding that is endorsed by government about what the country's digital architecture in the age of high speed broadband is going to look like. For example, a considered approach to how the interface between Open Access networks and the value of facilities based competition will be achieved. It is important from an end-user perspective that there is clarity and transparency

around the industry's plans in the NGN environment in order to avoid, where possible, the costly deployment of redundant CPE.

Persistence and Location

C.4. Do you have a view on emergency service, mains powering and location information in an NGN environment?

On persistence and location of telecommunications devices that interconnect with the public network, the important issue is that users should always know what category of service is provided by the relevant service or device.

Sophisticated users have become used to the hazards of power loss through battery rundown on mobile devices, to loss of signal in certain locations, and to variability in quality of internet-based telephony or data services.

There is a need for general user education in this area (eg, understanding about the provision for battery powered back up etc) as imposing costly technological solutions could make the implementation of some VoIP services too complex to implement.

TUANZ supports the view that any service that is offered as a substitute for a standard telephone service must be provided on terms that clearly describe any features of the service that do not match the standard telephone service: for example loss of service on loss of mains power, or an undefined "best efforts" availability standard.

D. Environment

Infrastructure Sharing

D.1. Is access to physical infrastructure such as ducts, poles and rights of way likely to impact on NGN rollouts?

D.2. What is your view on the ability to provide services into multi-tenant buildings, and the potential to share optical line termination equipment?

TUANZ is in favour of infrastructure-sharing in any circumstances where this enables competition that otherwise would not be viable, and TUANZ supports the application of regulated access or standard terms arrangements if these are necessary to facilitate appropriate and reasonable sharing terms.

In addition, the right of infrastructure owners to replace copper wires with fibre-optic cable across existing corridors (that is ducts, poles etc) should be automatic and not be subject to the Resource Management Act.

TUANZ also commends the work done by INTUG (see attached report) on the potential for independent long-term investment in access infrastructure as a separate business from the higher-risk, shorter-cycle technology businesses further up the NGN service layers. Such investment, where implemented, offers the advantages of structural separation without the problems of divesting existing ownership of infrastructure assets.

Regulation and Self-regulation

D.3. Do you have a view of the role of the regulator and other industry bodies (e.g. TCF) in the evolving NGN environment?

TUANZ can see nothing in the prospective development of NGN and NGAN that would suggest a diminished role for the regulator in areas related to competition, as prescribed by the Telecommunications Act. If anything, the foreseeable changes in network topology driven by extension of fibre are likely to reduce the opportunities for competitive infrastructure investment, and this can only be balanced by vigilant regulatory oversight and by policies that encourage open-access facilities development.

If NGN delivers the expected diversification of service provision at higher layers in the more capable network, the role of the TCF may require review. Already it is clear that communities of service providers utilizing the Internet require different industry consultation arrangements, such as the current work being undertaken with regard to peering arrangements.

NGN is expected to converge these two previously distinct business environments and operational cultures, so industry consultation and self-regulation arrangements may warrant some review as well.

Ladder of Investment

D.4. Do you have a view on whether or how the "Ladder of Investment" model could operate in the NGN environment?

The principle hazard to competition in NGN transition is that incumbent investment in extended optical fibre networks may restrict opportunities for localized investment in access infrastructure, by increasing the granularity of access nodes to the point that entrants starting with low market share can not justify DSLAM or equivalent investments. Typically, these have been an important stage in the "ladder of investment" growth of competition in the fixed network.

Wireless access systems are unlikely to offer viable long-term access alternatives to the levels of service available through FTTN or FTTP, though in the medium

term they may provide some "ladder-of-investment" business opportunities in medium-density population zones.

The requirement for any ladder of investment is that the market entrant is able to build sufficient market share and investment return on the first ladder step to justify further investment on the next ladder step. Therefore, terms of wholesale access, interconnection, and interoperability for all service providers must be such that the first step is a successful investment. In other words, there should be scope for sustainable business models at any level of the network where it makes economic sense without the risk of anti-competitive behaviour preventing this from occurring.

Spectrum Issues

D.5. Do you see any issues or opportunities relating to the access to and use of spectrum now, and potentially emerging from the current Telecommunications and Broadcasting convergence?

TUANZ looks forward with interest to long-term changes in spectrum use, particularly as wireless access services evolve that are fully interoperable with NGN and 3G mobile communication services.

For the end user, the technology of spectrum use is normally transparent, but users are very interested in the geographic scope of access, the reliability of wireless bandwidth when carriers are shared, and the interoperability of wireless-accessed services.

The user cost-benefit reflects the highest possible degree of standardization as the basis for low-cost consumer equipment and competitiveness of services. For example, incompatible transmission standards in 2G cellular telephony have been costly for New Zealand users, by increasing the costs of switching from one provider to another (due to the need to purchase a different handset) and thereby reducing competitive market pressure on MNOs.

TUANZ also notes that it is important that there be sufficient allocations of spectrum to support multimedia services and that there are sufficient "use it or lose it" clauses to prevent hoarding.

Attachment: INTUG Draft Position Paper on NGN (INTUGNGN.PDF)

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26 September 2008