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To: Assistant Secretary, Networks Competition Branch
Department of Broadcasting, Communications
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By email: regreform@dbcde.gov.au

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National Broadband Network:

Regulatory Reform for 21st Century Broadband

The Internet Society of Australia (ISOC-AU) welcomes this opportunity to comment on the National Broadband Network: Regulatory Reform for 21st Century Broadband: Discussion Paper (the Discussion Paper).

ISOC-AU's fundamental belief is that the Internet is for everyone. We provide broad-based representation of the Australian Internet community both nationally and internationally from a user perspective and a sound technical base. We also consistently promote the availability of access to the Internet for all Australians. Because the Internet is a central driving factor in the demand for broadband, ISOC-AU has a direct interest in the outcomes of the arrangements that will underpin the provision of the NBN.

ISOC-AU applauds the Government's commitment to establish a company to invest up to \$43 billion broadband to Australian homes and workplaces. High speed broadband will be the main driver not only for new, faster communications services, but a critical factor in the delivery of Government services such as e-health and online education and training, and for driving innovation. ISOC-AU has consistently put forward its objectives, on behalf of Internet users, for broadband access connectivity that is:

- High quality and bandwidth;
- As symmetrical in upstream and downstream capacity as possible;
- Accessible to all Australians, wherever they reside or work;
- Meets communications needs of people with disabilities;
- Affordable; and
- Provided in a competitive environment that will give Internet users genuine choice of service and service provider, and provide the market forces to encourage improvements in services and pricing.

Our submission is in three parts. The NBN will be rolled out by a company established and majority owned (initially) by Government (NetCo) Therefore, the topology of the network that is to be constructed will be under initial Government control. Because network

topology is critical in supporting (or preventing) an environment for competitive, differentiated services, the first part of our submission will recommend criteria that should be set for the new network. The second part of our submission will focus on the surrounding regulatory regime to ensure better outcomes both for a competitive environment and protections for consumers. Finally, we will respond to issues raised by the Discussion Paper on regulatory reform into the future.

Our specific comments are as follows:

1. NETWORK TOPOLOGY AND INTERCONNECTION

The topology of the network and the choices for interconnection methods are critical in supporting (or preventing) a robust competitive environment. Government policy objectives for the NBN are that it supports the provision of competitive, differentiated services. In building the new NBN, NetCo must ensure that the network will provide sufficient scope for access seekers to differentiate their services.

The NBN must be designed and provided in a way that ensures that there is a business case for service providers to provide competing, differentiated services, using a mixture of their own and the NBN network. The NBN must facilitate interconnection at multiple geographic locations using industry standards and readily available methods for service provision to optimise traffic flows.

1.1. Support access to multiple simultaneous Service Providers

Through the new network, end users will need to receive services simultaneously from many service providers. A competitive retail market requires that end users be able to receive their telephony services, Internet access, corporate VPN access, digital television services and so forth each from different suppliers if the end-user so chooses. To date, the regulatory approach has resulted in each of these services being required to be delivered through different and separate access networks, or that the underlying physical connection (a copper loop) be physically unbundled if the end-user wishes to choose a different retail supplier.

It appears unlikely that the new FTTH network will permit unbundling at the physical fibre level, so the active wholesale connectivity provided by the new network must allow each end-user to be connected simultaneously to multiple retail service providers. The most well-understood connection model for wholesale services is the Telstra Wholesale Layer-2 ADSL model. However this only permits an end-user to be connected to a single service provider. It is imperative that this retail-wholesale interconnection model be redesigned by the industry to facilitate retail choice by the end-user.

1.2. Support for differentiated services with multiple quality requirements

Many applications that are to be transported across the NBN system require special treatment by the network to ensure they achieve the required quality and outcome by the end-user. Real-time applications such as VoIP and video conferencing require the network to prioritise the traffic over non-realtime applications such as email and data transfer. With the NBN system forming an unavoidable bottleneck between service provider and end-user, it is essential that the new access network supports differentiated quality-of-service parameters for each service or connection – this is commonly referred to as a “quality-of-service (or QoS) enabled network”. Recognised international industry standards abound within Internet standards bodies and the ITU for implementing this support.

Note that this is still consistent with the principles of ‘network neutrality’, which argues against discrimination of traffic from different sources or service providers – telephony

traffic may be prioritised relative to web traffic for example, provide that all telephony traffic from all service providers is treated equally.

1.3. Performance and Reliability Standards for the NBN

Service standards must be set for critical infrastructure service components to ensure the proper working of Internet services. Systems for ensuring the robustness of network routing, domain name services and so forth should be delivered from within the NBN infrastructure, or delivered across third party infrastructure closely aligned to the highest service standards.

A comprehensive set of appropriate performance standards must be established for network performance to ensure that users have appropriate levels of a range of performance metrics. Technical performance of latency, jitter, throughput, end to end response, and overall connectivity across the NBN must be taken into account. Some of this work has taken place under Communications Alliance in the past few years¹, but must be reviewed and possibly extended for the NBN network.

1.4. Symmetrical Speeds

One of the Government's earlier objectives for an NBN was that it 'supports symmetric applications'.² This objective should be retained. For services such as medical imaging, online education and training, services to regional and rural areas, as well as new interactive services and applications, upstream speeds will be as important as the downstream speed. Where the underlying technology provides for design choices that influence the degree of symmetry for upstream and downstream communication, ISOC-AU submits that the design choice should be towards increasing upstream capacity to as close as possible to the downstream capacity.

1.5. IPv6

The NBN must include full capacity for implementation of IPv6, a platform for transition keeping Australia abreast of international developments and for innovation. NBN must be seen not only as a provider of 100 Mb/s download transmission speed, but, with implementation of IPv6, a platform for innovation that that will create new opportunities for the Australian ICT sector, including:

- Building management – for energy minimisation
- Sensor networks – for environmental monitoring and water management
- Supply chains – e-business
- Emergency services – interoperability
- Consumer electronics – embedded systems
- Automotive industry – vehicle telemetry
- Developing ICT research – for innovation
- Enabling education and training – for digital learning

¹ Communications Alliance G632:2007 Quality of Service parameters for networks using the Internet Protocol, G634:2007 Quality of Service parameters for Voice over Internet Protocol (VoIP) services, and related guidelines

² Request For Proposals Clause 1.3.1(3)

2. REGULATORY FRAMEWORK

There are a number of unknowns both for the approximately eight years during which the NBN is being constructed and the environment post NBN construction.

Will Telstra's network (and other networks) form part of the NBN, and if so, what parts of the NBN? Specifically:

- Will (mainly) Telstra's copper network – the customer access network – be replaced over time by the NBN, and over what timeframe?
- Will Telstra's backhaul capacity be folded into the NBN, continuing the existing situation of lack of competitive back haul capacity in many rural and regional areas?
- Will the roll out of the NBN be a staged process, with construction to an optical splitter, and later, to individual premises?

The answer to each of the questions will impact on what an appropriate regulatory framework would look like in both the short and longer term. The challenge for government is to put in place necessary regulatory reform in the short term that can be adapted to an appropriate framework for the future communications environment once the NBN has been constructed and Netco is in private hands.

Because it is not clear what the post NBN environment will look like, we recommend that the telecommunications regulatory framework be reviewed within five years and, in any case, no later than the completion of the construction of the NBN.

2.1. *Part XIC Access Arrangements*

As the Discussion Paper notes, the current negotiate-arbitrate model provided for under Part XIC is 'ineffective, largely because there is a vertically integrated incumbent that has the incentive to discriminate in favour of its own retail business'.

To some extent, reforms suggested in Option 1 of the Discussion Paper have already occurred. The ACCC has already determined model terms and conditions for 'core services' – originating and terminating access to the PSTN, the unbundled local loop service and local carriage service. The ACCC has also published principles it will use to determine access pricing for a range of declared service. However, as the Discussion Paper notes, they have not served to make Part XIC an effective tool for access seekers.

Because it will be several years before the NBN is in place, we support the introduction of reforms suggested in Option 2 of the Discussion Paper. Those reforms will enhance opportunities for access to declared services until such time as different arrangements are in place.

In the longer term, depending on the industry structure, the access regime might need to be revisited. The telecommunications specific access regime was seen as necessary because the current incumbent is both the owner of the underlying infrastructure and itself a customer for services provided by that infrastructure. What Part XIC attempted to do was ensure that access seekers could gain access to services that were considered 'bottleneck' services. When those 'bottleneck' services are declared, the service provider must provide those services on equivalent basis to all access seekers. If the underlying infrastructure and wholesale provider of services is no longer a retailer of those services as well, there may be no need to 'declare' underlying bottleneck services. That is, it will be in the best interests of the wholesale service provider to provide services to all on equivalent terms rather than favour itself in service provision.

2.2. Part XIB Anti-competitive conduct provisions

As the Discussion Paper notes, Telstra remains 'one of the most integrated telecommunications companies in the world... More than ten years after competition reforms were introduced, Telstra retains a dominant position in many telecommunications markets.' The most effective reform of Part XIB would be to strengthen the existing requirements on Telstra for operational separation to ensure there is a genuine split between the wholesale and retail arms of Telstra, and that services provided to all access seekers are done on a genuine equivalence basis.

2.3. Operational/Functional Separation

As the Discussion Paper notes, the current operational separation requirements on Telstra have 'not promoted genuine equivalence of access for access seekers in the Australian telecommunications industry'.

The Discussion Paper lists key principles for a functional separation regime. If a functional separation regime is to be effective, however, there must be very detailed requirements on Telstra that ensure genuine separation of business units into infrastructure, wholesale and retail units, genuine equivalence of service offerings and sufficient mechanisms of transparency and accountability to ensure functional separation achieves its policy objectives.

The undertakings made by British Telecom to the UK regulator, Ofcom, provide an example of the sorts of requirements that have been seen as necessary to ensure that the infrastructure arm of a telecommunications infrastructure provider (in the case of BT, called Openreach) provides all of its customers (including its own retail arm) with an equivalence of inputs, and provides the incentives within its infrastructure arm to do so.³ We recommend that the current rules on Telstra for Operational Separation be considerably strengthened to more closely match requirements now on British Telecom for functional separation.

2.4. Structure of NetCo

The Government's commitment is for legislation to ensure that the NBN is a 'wholesale only' provider and operates on an 'open access basis'. As the Discussion Paper observes, this should remove the incentives for NetCo, as the owner of the network, to engage in anti-competitive behaviour.

While the Government will encourage private sector investment in the company, NetCo will be majority Government owned from the time that the building of the NBN starts. After five years of the NBN being built, NetCo will be privately owned and, the Discussion Paper states, legislation will ensure that no one customer of the network will control NetCo.

Proposed legislation should, as well, address concerns set out by the ACCC when it declined to approve FANOC's special access undertaking in December 2007.⁴ The likely investors in NetCo will most likely, as with FANOC, be industry players. Like NetCo, FANOC would not have provided retail services and no single access seeker would be permitted to have control over FANOC. Nevertheless, the ACCC expressed concerns on whether there was sufficient separation of ownership between the network owners and downstream retail

³ See Ofcom. Final Statement on the Strategic Review of Telecommunications, and undertakings in lieu of a reference under the Enterprise Act 2002, 22 September 22 2005, pp 57-111.

⁴ ACCC, Assessment of FANOC's Special Access Undertakings in Relation to the Broadband Access Service: Draft Decision, December 2007.

providers and whether there were sufficient monitoring and reporting requirements. These issues will need to be addressed in legislation that establishes NetCo.

2.5. *Horizontal Separation*

The ACCC recommended that Telstra divest its ownership of the FOXTEL cable, largely because it meant that Telstra would not own both the existing telecommunications network and a PayTV network that could be used as telecommunications infrastructure.⁵ It is not clear whether or to what extent functional separation of Telstra will be introduced. It is also not clear whether or to what extent Telstra's network will be incorporated into the NBN. Therefore, it is not clear whether there is still a case for Telstra's divestiture of the hybrid fibre coaxial network on infrastructure grounds.

However, the issue raised by the Discussion Paper raises a different issue: Telstra as both owner of infrastructure and content accessed on that infrastructure. There were cross media rules for telecommunications providers controlling subscription broadcasting licences for satellite licences,⁶ which suggests that the issue of transmission providers also controlling content services was a live issue at the time. The issue is one more appropriately addressed in any review of cross media ownership and control, and is addressed below, in the Section on Regulatory Reform.

2.6. *Consumer Protections*

2.1.6 Universal Service Obligation (USO)

ISOC-AU made a detailed submission to the Department's review of Universal Service (see <http://www.isoc-au.org.au/Submissions/index.html>). We called for a new definition of a service that should be available to all Australians with the essential elements of availability, accessibility and affordability.

The newly defined market service would have the following elements:

- **Service or Transmission capacity**
The public are increasingly making choices about the communications technology they are using; the concept of requiring simply the provision of voice telephony has the effect of confining that choice to a minimum technology and transmission capacity. What should be reasonably accessible to all Australians is a broadband transmission service with speeds at least comparable to what is available in metropolitan areas to support new communications technologies. As technology develops, what is considered as 'metro comparable' must be updated.
- **Advantage to education and training**
Education and training are the future of Australia. To that extent education and training should be advantaged in accessing and utilising the internet. Leading countries in the world have advantage education and training with great success eg USA with E-Rate and Finland, are but two examples vis. OECD. If Australia wishes to join the leaders in the knowledge economies then education and training (schools, training and higher education) access to the internet must be advantaged over and above the retail consumer. This is consistent with the Digital Education Revolution and extends the concept to all

⁵ ACCC, *Emerging Market Structures in Communications Sector: A Report to Senator Alston, Minister for Communications, Information Technology and the Arts*, 2003, p. 57.

⁶ Section 96A Broadcasting Services Act 1992 (repealed in 2006)

education and training sectors without further cost impost as recommended in recent Australian research studies eg Education.au.

- **Any to Any Connectivity**

The existing USO is to provide a service for voice telephony (or equivalent) that passes the any to any connectivity test. Under the connectivity test, a customer of the service must be able to communicate with other customers of the service, regardless of network provider. This requirement must be preserved in any new requirement. It should also reflect that customers are, increasingly, requiring communication between platforms (e.g., SMS to Internet) and for non-voice services (eg SMS, Internet).

The Glasson Report proposed a 'Communications Service Standard' (CSS), to be determined by the Minister, that should be available to all, with standards for voice, broadband, mobile phones and payphone services. The Government would then implement a 'plan of measures' to ensure all residents and small businesses had access to those services on an equitable basis wherever they reside or work in Australia. An independent body would audit implementation of the CSS for its effectiveness in the delivery of the services.⁷

We welcome the implicit recognition in the proposed CSS that the delivery of fixed voice telephony no longer meets the communications needs of Australians. However, we would not support a CSS being set by a Government. Because of the growing importance of communications to all Australians, an updated definition of a communications service available to all Australians should be in legislation.

The elements of the newly defined service that should be universally provided include availability, affordability and accessibility. While those elements are still critical for a universal service, how they are delivered will change in the NBN environment.

2.7. Availability – geographic coverage

The Glasson Report makes it clear that:

regional, rural and remote Australians do not have access to broadband on equitable terms to those applying to urban areas with regard to price, speed and download limits (Finding 2.2.3)

The Government's earlier Request for Proposals looked towards an NBN that would deliver 12 Mb/s to 98% of the population. The latest Government proposal is to have fibre to the premises that delivers 100Mb/s to 90% of the population. While that means significantly higher broadband speeds to 90% of the population, there are no guaranteed broadband speeds for the 8% of the population that will no longer be covered by the NBN.

The Glasson Report recommended that measures should be introduced to provide enhanced broadband services to those areas that will not be served by the NBN in an equitable timeframe, and certainly prior to the completion of the NBN. And there should be interim solutions until the NBN is accessible in regional areas.⁸

This is all the more urgent given that it is now ten percent of the population that will not benefit from very high speed broadband. The Government should include plans to immediately upgrade services to regional and rural Australians that deliver at least 12 Mb/s (that was promised for those areas in the earlier NBN proposal) and upgraded as appropriate technology allows.

⁷ Regional Telecommunications Independent Review Committee Report 2008: Framework for the Future, September 2008 (Glasson Report) Recommendation 3.1.1

⁸ Recommendation 2.2.1.

2.8. Affordability

The current USO scheme makes provision for price caps on services provided under the USO. While that provision has not been used, the price cap regime on Telstra has had the same effect.

An alternative way to address issues of affordability could be through a combination of measures at both the wholesale and retail level. At the wholesale level, the ACCC must still be able to ensure that NetCo offers its wholesale services based on both network and technical efficient costings. At a retail level, the Government's Broadband Service Guarantee scheme offers a different model than price caps: a provider qualifies for a subsidy under the BSG scheme if their service meets requirements on set standards (for the BSG, minimum ADSL speeds, minimum free downloads per month within a set price to the consumer.). This model allows for customer choice of provider, while ensuring affordability of the service.

2.9. Accessibility

People will make the difference in the successful uptake of advanced broadband technologies and therefore applications should meet the needs of all Internet users. It is important, therefore, that new infrastructure development incorporate an understanding of how various groups in the community will use broadband technologies.

High-speed broadband can facilitate improved participation by people with disabilities in the community. For example, Deaf people will more easily be able to use AUSLAN (Australian Sign Language) through symmetric video communications links. People with hearing impairments can use video technologies for lip reading to assist in comprehension of spoken conversations.

The current regulatory framework requires Telstra, as the USO provider, to, under regulations and the effect of the Disability Discrimination Act, also provide its customers with disabilities with specialised telecommunications equipment at the same price as standard equipment for the same purpose. Because that specialised equipment would be more expensive or not available from other suppliers, the effect is to tie people with disabilities to the USO provider – Telstra – for moderately priced equipment they need to communicate.

The Government is currently conducting a feasibility study into an independent disability equipment program. Any outcome of that study must also take account of the regulatory framework under the NBN to ensure that disability equipment is provided in a way that ensures service provider choice for people with disabilities.

2.10. TIO jurisdiction

Providers of a standard telephone service for residential and small business customers, a public mobile telecommunications service and an Internet access service must now be part of the TIO Scheme and subject to its jurisdiction.⁹ If, as we argue, the definition of a standard telephone service should be expanded to a new communications service, all providers of such a service must also be members of the TIO scheme.

2.11. Infrastructure Installation

The Discussion Paper notes that the Government will allow fibre to be rolled out overhead on existing poles and allow carriers access to poles, ducts and pipes of other utilities.

⁹ Ss 127-8, Telecommunications (Consumer Protection and Service Standards) Act 1999.

Strong community objections in the past, particularly to the roll out of overhead pay television cables and, later, the installation of mobile phone towers, should alert the government to real community objection to communications infrastructure that is obtrusive or perceived as hazardous.

Those concerns were addressed through a number of instruments including:

- the Telecommunications Act 1997, particularly Schedule 3;
- the Telecommunications Code of Practice 1997 issued by the Minister, made under Schedule 3;
- the Telecommunications (Low Impact Facilities) Determination 1997; and
- laws and regulations at State Territory and Local Government level.

We strongly argue that all of the laws and instruments made under those laws are followed to ensure continued community support for the NBN. Where all other utilities are underground, every effort must be made to install the NBN underground.

3. REGULATORY REFORM

The Discussion Paper raises a number of issues raised by the changing communications environment. For example, the same content can be subject to significantly different rules under the Broadcasting Services Act simply because it is delivered using different platforms. Cross media rules now only cover providers of broadcasting services; they do not address competition issues raised by providers of carriage controlling important sources of content. Because the intelligence in the underlying network is moving out to the edges, other players (e.g., equipment or software providers) are becoming important in communications although not now covered by the regulatory framework. And increasingly, communications issues are global issues.

Any one of those issues raised would merit a review on its own. For the purposes of this review, however, the focus must stay on the importance of delivering high speed broadband that is:

- High quality and bandwidth;
- As symmetrical in upstream and downstream capacity as possible;
- Accessible to all Australians, wherever they reside or work;
- Meets communications needs of people with disabilities;
- Affordable; and
- Provided in a competitive environment that will give Internet users genuine choice of service and service provider, and provide the market forces to encourage improvements in services and pricing.

We will be happy to provide any further comments on issues raised by the Discussion Paper.

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