



ISOC-AU Submission to Broadband Advisory Group 14 August 2002

Background

The Internet Society of Australia, ISOC-AU, is a non-profit, user-focused organisation, which promotes development of the Internet in Australia to benefit the whole community, including business, academic, professional, and individual Internet users.

ISOC-AU is committed to the positive evolution of the Internet. It is the Australian chapter of the worldwide Internet Society, ISOC - the parent body of the Internet Engineering Task Force: a large, open community of network designers, operators, vendors, and researchers which actually creates the protocols and standards that are fundamental to Internet operation.

Further information on our organisation is available on the World Wide Web at:
<http://www.isoc-au.org.au>
<http://www.isoc.org>

A Platform for Innovation

The Internet is completely novel communications technology that provides users with access to a highly flexibility and innovative platform. The usefulness of the Internet draws on convergence between computing and telecommunications. It allows the power of digital information processing to be applied to a world-wide communications network. It gives end users access to a single communications protocol, the Internet Protocol (IP), and hence allows them to implement any applications they need on the basis of this protocol. Development of the Internet Protocol is managed as an open standard process by the Internet Engineering Task Force (<http://www.ietf.org>) under the umbrella of the Internet Society.

Providing users with direct access to the communications protocol and its development through an open standards process has maximised the value of the Internet and been a significant driver of the massive growth in the popularity of Internet technology. Giving users access to a common protocol has provided them with substantial network benefits by allowing communications with a wide range of computers and potentially other devices. With the implementation of broadband access technology the potential for the Internet to remain a platform for innovation

that will drive continuing economic development and social and environmental benefit can continue to grow.

Broadband Internet, not just broadband

The current interest in developing broadband technology is based on the massive growth in success of the Internet. There have been previous technologies that have promised broadband communication that have not achieved the widespread appeal of the Internet. ISDN has been available in Australia since the 1980s. ATM became the transport mode for implementing broadband ISDN but pricing limited its appeal for small business and domestic users. The rollout of cable TV services in Australia has not been widely successful to date, although these cable products are now being modified to provide access to higher speed Internet connections. Existing operators do not (apparently) have current plans to expand the rollout of cable services beyond existing areas. It was not until the Internet provided users with flexible access to innovative services that the interest in accessing broadband services has increased. It is the peer-to-peer structure of the Internet that will drive broadband, as opposed to broadcast and 'compelling content'.

A recent survey by the Australian Consumer and Competition Commission (ACCC) has shown 100% growth in the take-up of broadband services in the nine months to March 2002. The number of broadband subscribers has increased to 250,000. Reportedly, the recent advertising campaign by Telstra in support of broadband access is fuelling new growth in the customer base. It is an unassailable assertion that all these areas of growth have been driven by demand for higher speed access to the Internet.

The boom in growth of the Internet during the late 1990s produced massive growth in the whole telecommunications sector, not only in demand for Internet technology. As users found the possibility of communicating easily over the Internet using applications such as email, the World Wide Web and FTP, they found their need for a range of telecommunications services also increased. The increase in demand was paralleled by reduced prices for telecommunication based in increased applications of digital technology in the core switching and transport technologies of the network. Subsequently, the whole sector has suffered from reductions in growth rates as growth forecasts have been revised. Nevertheless, the number of Internet users continues to grow rapidly and will continue to do so [needs a reference]. With this expansion, telecommunications services will continue to grow.

Despite promising rates of early take up of broadband access services, there is significant lack of awareness and understanding among potential customers of the nature of broadband services and their benefits. Even the use of the term broadband is confusing to people outside the telecommunications sector. Customers have come to understand the benefits of Internet technology, as argued above. Now the introduction of new terminology is introducing confusion. ISOC-AU acknowledges John Rimmer's contribution on this topic and recommends that in further discussion of broadband the sector adopt common terminology in describing the product as 'Fast Internet'. This recommendation relates closely to the difficulties in developing an acceptable definition of broadband services as discussed in the next section.

Recommendation: That the common terminology of 'Fast Internet' be adopted in describing access to broadband services to minimise customer confusion and maximise uptake.

Definition of broadband

Many definitions of broadband have been used over the years. This submission focuses on the needs of residential and small business users in particular. Larger corporate Internet users generally have sufficient access to high bandwidth services. However, it should not be forgotten that many of the network benefits arising from the Internet do so precisely because of the large number of users that are connected. For example, savings in the delivery of commercial and government services arise precisely because many domestic and small business users have access to the Internet.

Currently, products that provide between 100Kbps and 2Mbps are being described as broadband. However, the performance perceived by a user is dependent on the types of applications being used and end-to-end performance including the speed of access connection. For instance, 10Mbps access speeds may be necessary for high resolution video transmission that will allow viewing of real time continuous movement at an acceptable image size. In addition, performance of the Internet and various servers being accessed will also influence the performance perceived by a user. ISOC-AU supports a move away from a speed based definition of broadband towards a definition based on performance of various applications. Further, we support a general aim of increasing standard access speeds to at least 10Mbps to support a full range of Internet based applications including full motion video.

Recommendation: Adoption of an aim of increasing access speeds to at least 10Mbps to support a full range of Internet based applications.

Symmetric versus asymmetric

Current 'broadband' architectures are being designed with higher download speeds than upload speeds ie as asymmetric services. While symmetric services are available, they are generally priced at a higher level than asymmetric services. Implementation of asymmetric services may have stemmed from the view that the Internet operates like a broadcast technology, where users are mainly interested in accessing 'content' from centralised sources. In our experience, users require access to a full range of Internet services including the capacity to generate and distribute information. For example, research carried out by the Smart Internet Technology CRC's User Needs project is indicating that some young people want to compose online or sharing multi-media that they have created. Asymmetric services limit the capacity to generate information as well as receive it. Hence they limit the capacity to operate your own Web server or participate in peer-to-peer architectures. This limitation is particularly important for accessibility issues where the capacity to generate full motion video may be essential for some types of communication.

One immediate example of the importance of symmetric services is in the accessibility of telecommunications, including for instance deaf people's use of sign

language by video communication. This obviously has to be symmetric. An example of business take-up in this area is available at: <http://www.motion-media.com/html/video/application/deafcommunity.htm>

There is also a European Community project called Total Conversation that employs broadband for sign language communication by deaf people: <http://www.omnitor.se/english/totalconversation/index.html>

Recommendation: That implementation of high speed Internet access be based on symmetric access architectures to provide users with access to a full range of Internet applications.

Broadband Applications

There has been debate over the potential of broadband applications in Australia. Some proponents of this debate have been seeking the 'killer application' that will drive takeup of broadband technology. Others have been seeking thorough financial justification of the future potential of broadband technology. Both of these views deny the reality of economic planning. There is no commercial future without risk. It is the government's role to ensure that policy and regulatory settings are established that do not hinder innovation, market entry and competition. In looking at the massive growth in Internet use that has occurred over recent years, these factors have been the key drivers. They have given users access to the transport layer, the Internet Protocol, and the potential for choice in what digital communications technologies they wish to use. We argue below that users must continue to have central input into broadband development to achieve a similar or higher growth in demand. In effect, users are seeking a 'fast Internet' as discussed above. It is an Internet that becomes even more useful and that supports a wider range of applications because it is faster. There is a key interaction between Internet quality of service and bandwidth.

Key developments waiting on the effective rollout include:

- Education sector
- Health sector
- Small business - Broadband Xchange:
<http://www.broadbandxchange.org/>

Short, medium and long term issues

There are short, medium and long term issues that should be considered in planning broadband access in Australia; none of which should be ignored. The Broadband Advisory Group needs to consider all three areas that need to be planned in coordination to facilitate effective access to broadband technology. Long term issues arise because of the likely investment period required for construction of new infrastructure. ISOC-AU is aware of work in Canada in particular that is based on 20 year investment windows for new local fibre networks. Medium term issues arise from the investment window for new classes of applications and access technologies. The medium term is where architectures and designs for new groups

of applications is likely. Short term issues arise, particularly in relation to the policy settings for competition and regulation to establish a stable investment environment.

Recommendation: That the Broadband Advisory Group ensure that it considers relevant long, medium and short term issues in developing its views and recommendations on broadband rollout, particularly to develop a stable investment environment.

Data pricing and interconnection

Current Australian data pricing regimes are limiting the access of users to Internet services. Australian pricing regimes differ from those generally applying in other countries where there is no 'download' cap applied to Internet access. In Australia, users can pay as much as 19 cents a megabyte for data traffic above as much as 300Mbytes a month. Naturally, as access speeds increase, then users are interested in moving larger amounts of data. The introduction of download caps up to 3Gbytes per month has been helpful but still user access to services such as video and audio streaming is limited in Australia compared with other countries.

Recommendation: That pricing regimes be adjusted to allow for removal of download caps.

Government recognition and action in relation to interconnect charging has been welcome but is yet to substantially contribute to resolving the problems of data pricing, particularly for small Internet users. ISOC-AU understands that Australians continue to pay for data traffic both ways across the Pacific to and from the United States. This problem is compounded because much of Australia's Internet traffic to the rest of the world is routed through the United States. Policies that have made hosting in Australia less attractive, such as ambiguous content regulations, tend to compound the issue. We welcome the Government's initiatives to encourage investment in new undersea fibre cables. Improving the mesh structure of international data routes will improve Australia's position in relation to interconnect charging. However, the current slowing in growth of demand for telecommunications will mean that new investments are still a way off.

Recommendation: That Australia continue to pursue policies that provide better access to international interconnect arrangements including supporting investment in mesh international data architectures and more equitable interconnect pricing arrangements.

Within Australia, interconnect arrangements are also essential to provide users with access to competitive data pricing. Government actions in this area have been welcome such as its response to the Productivity Commission report. However, pricing and practical barriers continue to frustrate effective access and competition for wholesale bandwidth. In regional and rural areas, there may be less access to choice in provider and this may be where interconnect issues come to the fore. Access to dark fibre is a key element of development of the wholesale bandwidth market. The Australian Communications Authority and the Australian Consumer and Competition Commission must work closely together to ensure effective competition.

Consideration of unified communications regulation may also assist and this is the subject of a separate submission by ISOC-AU.

Recommendation: That Australia's regulatory agencies be charged specifically with monitoring of the practical as well as pricing aspects of competition in wholesale bandwidth particularly in relation to provision of access to dark fibre.

Infrastructure independence

Development of competition policy for telecommunications needs to support a full range of infrastructure providers to support effective rollout of broadband. Technical developments such as spectrum sharing mean that competitive markets are possible at almost all layers of telecommunication infrastructure from dark fibre to the local loop. Further technical developments will enhance this situation over the next five years. Policy should be established to allow development of a range of competitive business models, including for instance the separation of infrastructure from service provision.

The one area of infrastructure provision that is unlikely to develop as a competitive base is access to communications ducting and easements. The struggles over access to easements were one factor in slowing the rollout of cable television and justifiable concerns were expressed in some areas relating to visual aspects of cable rollout. The current arrangements for access to ducting can frustrate the competitive rollout of infrastructure and the provision of competitive access to dark fibre. In the context of discussion of sale of Telstra, ISOC-AU is seeking that the national infrastructure of ducting be retained in public ownership because of its inherent monopoly situation. Development and access to the national ducting infrastructure should be placed under the control of a national public authority with transparent scrutiny of its operations through Parliament.

Recommendation: That Australia's national infrastructure of telecommunications ducting be retained in public ownership with development and access controlled by a national public body subject to transparent scrutiny of its operations through Parliament.

Regional and rural dimensions of broadband

The Broadband Advisory Group should separately address delivery of broadband technologies in regional and rural areas. Too frequently, Australia has been allowed to plan effective rollout of technology for city and urban areas without considering the network benefits of national coverage. There is a strong need for detailed affirmative policy to ensure effective delivery in regional, rural and remote areas. In telecommunications, universal service obligation has been used to ensure effective service in these areas where the business and individual need could be argued to be even greater than urban areas due to transport challenges. Such detailed affirmative policy needs to be more coordinated than previous efforts under programs such as Networking the Nation. In the broadband context, we should not seek to revisit the

