BROADBAND CONNECT AND CLEVER NETWORKS

RESPONSE TO DISCUSSION PAPER

JANUARY 2006

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Executive Summary

The NSW Government fully supports Connect Australia, the Clever Networks program and the other related programs for improving telecommunications in regional and rural Australia. The NSW Government's commitment to the goals of these programs continues to be demonstrated by its continuing investment of recurrent funding for broadband service delivery to government offices and community initiatives across a broad range of sectors, such as libraries; emergency services; justice programs; environmental management; and utilities management. The NSW Government Broadband Services approach has and will continue to deliver innovative and truly competitive infrastructure and services across regional NSW, addressing the full range of government portfolios, programs and responsibilities.

The NSW Government has demonstrated a strong and consistent commitment to expanding telecommunications access

The experience of the Government of NSW in expanding broadband access across the State supports the premise that the development of competitive infrastructure, coupled with appropriate applications, can deliver a broad range of benefits.

These benefits, to all levels of our society, cannot be over-estimated. A recent US study[1] suggests the magnitude of such benefits even though they were only oriented to one segment of the population. While direct comparisons to Australia are impossible, the scale of the benefits suggests huge returns on investment – both financial and social – over the next twenty years.

In supporting the Clever Networks program, however, the NSW Government wishes to propose an alternative to one to one funding, demonstrating its commitment and buy-in to the programs instead through the following criteria:

- The significant recurrent spending devoted to broadband delivery across government interests – the largest user of telecommunications services in NSW
- The leverage from its current broadband successes, including unique intellectual property developed:
    - to manage open access, and
    - to implement quality of service across complex networks and multiple service providers
- The broadband applications it shares with other jurisdictions
- Its leadership in creating innovative broad-based partnerships, across the public and private sectors, to promote infrastructure initiatives and business outcomes
- The cash and in-kind contribution involved in its continued roll-out of broadband based State services across regional and remote NSW

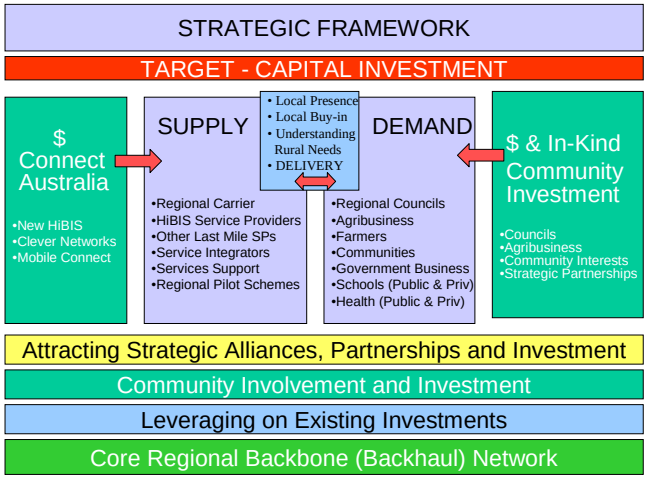
Project evaluation criteria should also support State priorities and initiatives, to assure sustainability of the outcomes through recurrent funding. Criteria should also include triple bottom line benefits – economic, social and environmental. *See Recommendations 1, 2 and 14*

[1] Litan – Great Expectations: Potential Economic Benefits to the Nation from Accelerated Broadband Deployment to Older Americans and Americans with Disabilities
http://www.newmillenniumresearch.org/

The NSW Government believes that an integrated and broadly encompassing approach to all of the **Connect Australia** initiatives is essential:

- To optimise the outcomes from all of these programs by reducing duplication;
- To leverage from past Commonwealth and NSW broadband initiatives; and
- To ensure long-term sustainability through continued alignment with NSW recurrent funding.

To this end we offer the following approaches to optimise outcomes from both the Broadband Connect and Clever Networks programs, while also considering the benefits of collaboration across the other Connect Australia programs.



See Appendix 1

The revised Commonwealth programs should be structured, planned and managed holistically, at both Commonwealth and State levels, in order to optimise their cumulative benefit and also to leverage existing infrastructure and current broadband initiatives of all participants. *See Recommendation 7* An enhanced State Broker mandate has a key role to play in this coordination scenario. *See Recommendation 6*

An expanded role for the broadband broker is envisaged

The broker role should also be broadened to pursue regional rather than local aggregation strategies and to engage industry sector participation, as both beneficiaries and sponsors. Broad stakeholder assessments indicate the critical nature of extensive strategic partnerships in developing viable business proposals.

Coordinating Clever Network projects evaluation with State Government objectives and initiatives will ensure long-term sustainability of project outcomes through the assurance of recurrent State program funding. *See Recommendation 2*

While continuing to evolve, broadband technologies are relatively stable. Convergence continues to change the marketplace, however, changing the demand requirements while demonstrating new value from broadband. One of the major stated objectives of the new programs is competitive infrastructure. Future government investment should therefore be directed to the creation of competitive and enduring infrastructure as an alternative to that of the dominant market player. Access to the funded infrastructure should be available on a fully open basis, without unreasonable restrictions of physical or technical access, or commercial / competitive restrictions. Such provisions will promote healthy competition, accelerated innovation and more rapid broadband uptake. The NSW Dept of Commerce has developed an “Open Access Regime” which would be a suitable base from which to develop the policy. *See Recommendation 3*

Open access to funded infrastructure is a pre-requisite

The NSW Government has committed investment into the most extensive and competitive 'high service' broadband network in Australia. This network consists of a series of open access nodes in 26 key locations around the state. NSW would propose seeking Connect Australia funding to extend this competitive infrastructure, building new links and open access nodes where competitive broadband availability does not exist.

Government applications will drive infrastructure deeply into regional communities

Past programs in Health and Education have been instrumental in delivering core infrastructure in communities which otherwise would not have achieved it under market conditions alone. The Clever Networks program should continue to sponsor long-lasting and far-reaching government applications, across a broader range of portfolios, as well as the infrastructure to facilitate their penetration more deeply into our communities. The deployment of these applications by the NSW Government will provide anchor tenancies and recurrent resources to ensure on-going sustainability of broadband services across regional NSW. *See Recommendation 2*

The NSW Government's emphasis in its submissions for participation in Broadband Connect and Clever Networks programs will focus on leveraging its past achievements in both infrastructure and applications deployment, its on-going position in the marketplace and its recurrent spend, to deliver direct benefits to the broader communities.

Longer-term revenue streams for service providers should be allowed to reflect the true *value* of the services to the market, and the on-going costs to provide them, rather than be prescribed by arbitrary conditions (and prices) defined by metropolitan markets. *See Recommendations 11 and 12*

The *value* of broadband services accrues to numerous stakeholders other than the direct recipients of the service. Governments at all levels, for example, anticipate tangible and intangible benefits from electronic service delivery. These benefits can only be realised when the intended recipients are capable of participation through electronic channels. Similarly, the economy-wide benefits from improvements in supply chain innovation and efficiencies from electronic services delivery only accrue when the value chain participation is continuous from end to end. The total social and economic benefits of ubiquitous broadband, to the State and the nation, are a long way from being fully realised or assessed.

The broader socio-economic benefits of broadband should be considered in project evaluation criteria

The potential beneficiaries of improved broadband services include:

- **Industry** – through access to global markets, improved efficiency, skills training and development, support for apprenticeship programs augmented with on-line content delivery, supply chain management and real-time telemetry;
- **Businesses** – through access to remote workers, skills and expertise, as well as training, development of on-line delivery platforms for goods and services and potential to establish e-businesses, data mining and on-line trading;
- **Regional and/or sectoral economic development strategies** – through increased competitiveness of local firms and the retention of a skilled workforce;
- **Government** – through reduced cost of service delivery, the establishment of data libraries and data warehouses, on-line access to media rich content, and the opportunity to address acute skills shortages in a number of sectors;

- **Local government** – through retention of population in the local economy versus out-migration to urban centres and the ability to attract new businesses, new skills, and development of real employment opportunities, especially in new sectors such as knowledge areas which support high disposable incomes;
- **The environment** – through reduced non-essential travel for personal and business reasons and real-time monitoring of salinity, water flows and climate leading to better land management, animal husbandry and from efficiencies across various primary industry sectors such as forestry, agriculture and aquaculture, and
- **The telecommunications sector** - through increased markets, improved economies of scale and improved export potential of acquired expertise.

Triple-bottom-line benefits (economic, social and environmental) assessments should be considered in evaluating submissions for funding. *See Recommendation 14*

Sustainability of services to more remote regions depends on robust models for long-term revenue and expense streams. NSW Government programs and Clever Networks projects will deliver both infrastructure, value enhancing applications and recurrent funding to support sustainable broadband delivery. Backhaul remains a large operational burden for the sustainable provision of remote broadband services and cannot be met through one-time end-user grants alone. Either expectations for metropolitan price parity must be modified or additional operating grants for must be provided for future years. *See Recommendation 10 and 13*

The HiBIS program has been effective in expanding access to copper network broadband solutions and encouraging a number of providers to bring last mile and backhaul technologies and solutions to the marketplace. The scale and distribution of these solutions has been somewhat constrained, in particular in the deployment of wireless last mile solutions, by the lack of seed capital in advance of end-user connection. The current HiBIS program has to some extent provided a degree of sustainability, but only after providers needing to invest significantly "up front" in establishing bridging infrastructure. This has been perceived as a highly risky approach, particularly to small and start-up ISPs, and has limited the reach of solutions to near larger population centres and to smaller proportions of the community. Therefore, the current approach results in much of the HiBIS funding going to incumbent players, with little resultant expansion of the range of services or providers and little additional competitive infrastructure.

New approaches are required to expand geographic reach of new broadband services to more remote areas

Advance capital funding for 'bridging' infrastructure would facilitate more remote and / or larger regional deployments. This can be achieved without increased risk to the programs' outcomes through an enhanced Broker role in project evaluation. *See Recommendations 6, 9 and 13*

Telecommunications has not been a traditional domain of local government. The Demand Aggregation Broker role is changing perceptions and attitudes, with increasing recognition that regional community sustainability will increasingly depend on its participation in the digital economy.

In promoting local government engagement, brokers are encountering issues best dealt with at a national level. These include logistical, policy and risk issues for local governments, in addition to

National coordination of Local Government issues will facilitate their rapid engagement

the numerous national issues identified by the OECD paper on Next Generation Network Development[2].

In advocating local government leadership in issues such as council controlled 'pit and pipe' infrastructure, for example, the NSW Broker needed to explore current standards and approaches in other jurisdictions, rather than re-invent best practice. As these infrastructure assets become valued and used, further issues will arise over sharing access and liability for service interruptions occasioned by such sharing by multiple service providers. Similarly, in advocating access to council assets for the installation of antennas to facilitate wireless last mile deployment, security and liability issues have been raised which will ultimately affect all jurisdictions. In seeking broader engagement of local government and communities in general, resolution of these on a national basis would be beneficial. *See Recommendation 15*

[2] JT00177111 DSTI/ICCP/TISP(2004)4/FINAL 18 Jan 2005

Summary of Recommendations

Primary Recommendations

Recommendation 1 The NSW Government has consistently advocated that it does not subscribe to one to one funding. Rather, it proposes that its buy-in and commitment to these programs be measured by the following criteria:

- The significant recurrent spending devoted to broadband delivery across government interests – the largest user of telecommunications services in NSW
- The leverage from its current broadband successes, including unique intellectual property developed:
    - to manage open access (as demonstrated with GBS and the Mitchell Link), and
    - to implement quality of service across complex networks and multiple service providers
- The broadband applications it could share with other jurisdictions
- Its leadership in creating innovative broad-based partnerships, across the public and private sectors, to promote infrastructure initiatives and business outcomes
- The cash and in-kind contribution involved in its continued roll-out of broadband based State services across regional and remote NSW

Recommendation 2 Project evaluation criteria for Clever Networks proposals should give priority to those which correspond with the priorities and initiatives of the NSW Government – the largest user of telecommunications services in NSW – to ensure their continued sustainability through access to NSW Government recurrent funding.

Recommendation 3 Any infrastructure built with program funding must be managed with an open access regime, which provides a practical framework for physical, commercial and technical access and conditions of use. (NSW has an existing framework to serve as a blueprint for this management)

Recommendation 4 The balance between funding for infrastructure and applications should be changed to reflect the critical nature of government applications, their value contribution to communities, the replicable nature of these applications across NSW and other states and territories, and the stimulation they provide for broadband demand.

Recommendation 5 Whilst Health and Education are major programs benefiting from broadband applications and accessibility, similar community benefits should be funded for environmental, cultural, local government, justice, tourism, utilities and other economic development programs.

Recommendation 6 The State Broadband Demand Aggregation Broker role should be expanded to work with communities across the various Connect Australia programs, and across broad stakeholder communities, to identify the potential for collaboration and shared infrastructure amongst specific projects and to develop more robust business cases from such broad-based integration. Proposal assessment criteria should be published to clearly indicate the basis on which broader stakeholder input is evaluated.

Example:

Reaching Aboriginal communities with backhaul capability will inevitably demand infrastructure which can potentially supply capacity for other initiatives with minimal additional investment. In a parallel vein, specific programs targeted at Aboriginal communities can leverage infrastructure being delivered for other programs, in, say health, education and cultural sustainability. Similarly, extension of the application to other demographic groups, using the same infrastructure, could multiply the benefits with minimal additional investment. Through collaboration and integration of projects 1 + 1 = 3.

Recommendation 7 All of the Connect Australia programs should be coordinated, across both Commonwealth and State levels, to eliminate silos of interest, to reduce duplication and to optimise investment in both infrastructure and applications deployment, while recognising individual jurisdictional priorities.

Secondary Recommendations

Recommendation 8 Broadband Connect should provide specific *additional* grants and incentives to integrate multiple last mile solutions, which will fulfil **nearly all** identified community demand and avoid further segmentation within communities between those who have access to broadband and those who do not. End-user based grants are not sufficient, by themselves, to deliver ubiquitous broadband across communities.

Recommendation 9 **'**Long-haul leaps' or 'bridges' across difficult terrain to the nearest network backhaul access point, or for local loop extension, should be provided outside of any 'per user' funding through Broadband Connect. Some portion of this infrastructure should be eligible for payment in advance. Fundamental network infrastructure funding cannot be based solely on per-user grants. *See Appendix 3*

Recommendation 10 Scaled subsidies should be established within Broadband Connect, based on the existing structure, but with two additional criteria affecting the cost of delivering both backhaul and last mile infrastructure:

1. remoteness, as defined by the Department of Health and Aged Care for its Broadband for Health initiative
2. difficulty of terrain – some measure of density of undulations in topography

Recommendation 11 Service price limitations should be removed for remote locations. Metropolitan price parity is uneconomic for remote locations. Market forces will continue to shape supply and uptake of services but the perceived *value* of the service will be more of a driver, providing more flexibility for the provider community.

Recommendation 12 The *value* proposition for broadband should be promoted rather than a cost orientation. Clearly differentiating the base cost for service from the average price actually paid by urban users would also militate against unrealistic expectations, especially as new services test the capabilities of existing broadband offerings.

Recommendation 13 One-time infrastructure grants must be augmented by either assured recurrent revenue streams or should be of sufficient quantity to cover the short and medium-term operating costs associated with start-up and growing the revenue stream to achieve on-going sustainability. Ten percent of the initial grant should be available for the next three years.

Recommendation 14 Broader socio-economic benefits must be considered in evaluating project proposals**.** As a minimum, triple-bottom-line benefits (economic, social and environmental) assessments should be considered in evaluating submissions for funding.

Recommendation 15 Common logistical, liability and policy issues relating to local government participation in program outcomes should be coordinated at a national level, capitalising on existing best practice.

Introduction

The NSW Government is pleased to respond to the Commonwealth's call for responses on their discussion paper about the design of Broadband Connect and Clever Networks, the two recently announced regional broadband programs under the new $1.1 billion Connect Australia package.

The view being put forward is centred around demonstrating:

- The use of new technologies;
- New ways of developing infrastructure; and
- Strategic partnering arrangements in order to bring true sustainable competition in telecommunications services across regional NSW.

The Government is committed to expanding the implementation and use of broadband services in regional NSW.

The Connect Australia package offers an opportunity to achieve significant infrastructure development, within an orderly and strategic framework. The NSW Government is not without some significant experience in this area, having successfully delivered broadband infrastructure under earlier National Communications Fund (NCF) and Coordinated Communications Infrastructure Fund (CCIF) grants programs. Both programs have seen, or will soon see, the development of significant competitive (independent of the incumbent carrier) last mile and trunk fibre infrastructure, as a lasting legacy to rural and regional NSW communities. They have also enabled the NSW Government's aggregated investment on Health and Education telecommunications requirements to promote and encourage the rollout of broadband services into rural and regional areas, to the benefit of other users and to the communities as a whole.

The Connect Australia package has the potential to offer real and tangible benefits for a significant number of regional and rural communities across NSW in the delivery of broadband services for education, health and other Government and community needs.

The NSW Government submission comprises an overview of our position in general to the proposed program, then answers specific questions raised in the Discussion paper. In challenging some of the fundamental precepts of the program (especially metro equivalent pricing and minimum bandwidth capability) we are attempting to draw the Commonwealth's attention to the need to address the problems that some of these past policies – and rapidly evolving market dynamics – appear to have created, by adapting and shaping future policies and strategies across the new programs.

Background

The NSW Government has recognised the strategic importance of broadband services in delivering high quality outcomes for NSW schools and hospitals, as well as significant benefits for the NSW community and the NSW economy. The lack of competitive broadband infrastructure throughout regional NSW remains a major inhibitor to continuing growth and development and has perpetuated the "digital divide".

The continuing development and growth of the telecommunications sector in NSW is a cornerstone of the increasing prosperity and wellbeing of the State and its economy. Growth and competition in the sector has delivered significant benefits to NSW.

This is occurring on several levels, namely:

- As a direct contribution to the State's economy;
- By facilitating the efficient operation of an economy highly focussed on services industries; and
- By highlighting the place of NSW as a significant player in the information economy of Australia and the Asia Pacific region.

The NSW Government's Vision

The NSW Government is committed to using the power of telecommunications to improve the quality of life for the entire community of NSW through:

- Delivering broadband and flexible telecommunications for the more efficient and effective delivery of all government services, including education and health;
- Ensuring telecommunications supports a "Connected Society" by allowing all people to enjoy equitable access to services;
- National leadership in the deployment of telecommunications to position NSW at the forefront of the information economy; and
- Partnering with industry to promote an innovative and competitive telecommunications sector in NSW.

The NSW Government continues to aggregate its demand for data services to build a Broadband Services Network across regional NSW, which will assist in providing better services to regional communities. The leveraging flowing from the NSW Government's purchasing power for Broadband Services will also potentially benefit private schools and hospitals, Local Government and Non-Government Organisations and the broader community.

The NSW Government is leveraging its buying power to deliver broadband to the broader communities

The jointly funded NSW Broadband Demand Aggregation Broker has been in place for twelve months and has been very active in assisting community brokers to identify funding sources, promoting broadband to targeted local councils and identifying high value applications for general and specific communities of interest.

Demand aggregation leverages NSW Government infrastructure to expand services into the broader community. To achieve successful outcomes the Broadband Demand Aggregation process qualifies identified community demand to ensure a viable marketplace and facilitates engagement between communities with quantified demand and interested broadband service providers.

The past emphasis on price has inhibited strategic investment

The value of broadband to government and the community continues to increase, as does the demand for broadband services. However, the NSW Government contends that the value proposition has been somewhat ignored in the debate about the Commonwealth Government's responsibility to deliver broadband access ubiquitously across the nation. Conspicuous in this debate has been the Commonwealth's avoidance of providing any recognition of the social and economic significance to the nation of near-ubiquitous broadband access. Consequently, the demand for broadband remains price constrained, encouraging a focus on low cost and short-term, rather than strategic, investments.

NSW Government Environment

Education and Health, represent approximately 85% of broadband data usage in the NSW Government. As well NSW Police, the Roads and Traffic Authority, Attorney General's Department and the Department of Commerce are major users of data services across NSW. Their aggregated demand represents a substantial demand for services in regional and rural communities. The NSW Government has recognised this and has mandated the purchase of Government data services for the core on-budget sector agencies through the Government Broadband Service.

This approach has delivered significant competitive infrastructure to communities across NSW by providing anchor tenants and long-term revenue streams. Equally importantly, it has created the impetus to extend the reach of that infrastructure into the immediate and surrounding communities.

NSW Government Approach

The NSW Government Broadband strategy is underpinned by three critical components:

1. The development of a Core Network to connect all major health, education, justice and other Government sites in regional centres. This strategy is underway with Soul Converged Networks being contracted to build the backbone network into 24 priority regional centres by the end of 2005. This will provide scalable broadband connections, commencing at symmetrical 10Mbps services. It uses existing and new infrastructure and effectively leverages the investment in infrastructure delivered under the NCF and CCIF programs.

2. The establishment of a panel of suppliers for competitive Local Access Services providing connection to the Core Backbone Network for approximately 2,000 agency sites, with continuing potential to add more in the future. A number of suppliers have now been selected and these Local Access Services will provide scalable broadband connections using existing and new infrastructure, including the NCF local loop fibre infrastructure in 16 regional centres.

3. The establishment of an appropriate technical and commercial mechanism to facilitate open and transparent interconnection between the Core Network and the Local Access Services. The NSW Government has developed the Reference Interconnect Offer (RIO) with its Core Broadband Network provider, which now provides the transparent commercial and operational framework for interconnection, independent of the end customers, to Network Access Points (NAPs) established in the 24 regional centres where the local access and core networks are physically interconnected.

The NSW Government submission is focused on building on the achievements of the National Communication Funds (NCF 27) initiatives, the Coordinated Communications Infrastructure Fund (CCIF) Lithgow to Dubbo fibre trunk initiative and related nsw.net/Rural Link programs.

Key Discussion Points

Sustainability

The Broadband Connect program is intended to increase the penetration of competitive broadband infrastructure to areas where traditionally it has been recognised that commercially based decisions alone would not readily cause it to be built. The end-goal is to deliver economically and socially vital broadband and telecommunications services outcomes into the regions currently disadvantaged by their unavailability. But long-term sustainability is a key outcome to ensure that the facilities are delivered without Governments being burdened with ongoing costs. One-time infrastructure grants to viable and sustainable private enterprises are perceived as the appropriate incentive. Whilst important, sustainability also depends on long-term access to cost effective backhaul.

Sustainable enterprises anticipate and react to the demands and expectations of their customers, the actions of their competitors and the opportunities which technology present, amongst other critical success factors. Sustainability cannot be mandated by Government, but it can be encouraged and developed through close interaction between Government and service providers. Broadband Connect and related programs, like their predecessor programs, provide financial incentives to deliver desired social and economic outcomes. Quite reasonably, these programs also place conditions upon the recipients of these incentives.

This submission argues that the depth of penetration of broadband into regional and rural Australia will only be increased beyond its current range through more balanced incentives and conditions in support of long-term sustainability.

Once-off financial incentives alone will not drive expansion into new geographic areas. Service providers have and will continue to invest and take risks to establish commercially viable services in those markets. The financial incentives that may be offered under these new programs will moderate, but do not eliminate, that risk. In developing the new programs, the Commonwealth needs to be cognisant that the conditions attached to these financial incentives may increase the risk for the enterprise and, by extension, for the provider of the incentive. The conditions, therefore, should be framed with consideration to their long-term impacts.

Risk Factors

In determining the framework surrounding the new incentive programs it is worth reflecting on the depth and breadth of risks with which start-up ventures need to contend in developing their strategies for market entry. Basic start-up investment is subject to detailed analysis and assessment of commercial and technical elements for establishing a facility, such as detailed assessment of various technical solutions, technical design, establishment of infrastructure, marketing and sales of services, customer installation costs, customer management and services billing.

Once established, there continue to be operating costs in repairs and maintenance, help desk services, additions, moves and changes and billing for services. And the market will continue to evolve and change. So service providers need to adapt to these changing markets, changes in technology and competitive pressures as others see opportunities in these markets – most of which are unpredictable.

All these factors introduce additional costs to the delivery of services whilst competition places constraints on the ability to generate and grow revenues.

Risk Mitigation Strategies

Organisations entering new markets do so after due diligence. Proper planning and expense estimating, along with realistic revenue and cash flow projections and timelines to become fully operational, are essential.

Sound business partnerships, secured by binding legal agreements will assist in stabilising cash flow, although more realistically on the expense side than the revenue side, since pursuing individual customers for breaches of term contracts is expensive and time consuming.

Any entry into a new market takes time to achieve breakeven and to achieve full market penetration. Various sectors of the marketplace will demand different value propositions. A prudent provider will introduce these supplementary offerings only after positive cash flow warrants additional investment.

The programs should therefore avoid unnecessary requirements on providers to diversify their product offerings in advance of clear market demands and business case assessment.

Risks Unique to Broadband Connect Partners

HiBIS pricing has been determined by fiat, based on what is happening in a highly competitive urban marketplace, which has significantly different operating costs and economies of scale from regional areas. Precluding price adjustment during the initial three-year period, regardless of unanticipated costs or competitive activity, is a potential risk.

The dominant player in the telecommunications marketplace faces newly realised threats to its legacy revenue streams from broadband and has demonstrated predatory practices – funded by the current program – to stifle competition in this new arena, before it is firmly established. Competition, while desirable in a macro economic sense, can eliminate the viability of one or all players within small markets.

The proposed reduction in the period within which the incentives are in place will reduce flexibility in establishing a sound economic and technical model for expansion across the community. This is highly relevant in the wireless marketplace, where hard to reach customers require significant infrastructure to add them to the network. Customers do not necessarily subscribe in the sequence which is technically or economically desirable. One year from start to finish is not long when technical tuning to achieve optimum performance and reliability is required prior to full-scale market penetration. It's better to expand successfully than to aggravate customers with unreliable service.

The additional requirement to commit to delivering advanced services that have not yet fully proven their value in the marketplace would impose a huge, unjustified, risk.

The Reality of Sustainability

Telecommunications infrastructure, like roads and railways, will inevitably need maintenance. Much of that maintenance can be undertaken by the direct beneficiaries of the infrastructure, but some will have no obvious economic patron. These components of an holistic network will always have a requirement for Government investment in maintaining and upgrading what will soon become vital elements of our society. Governments can do it continuously, or defer the more extreme consequences of abdication to subsequent administrations.

Short-term demands for self-sustainability may deprive Australia of its longer-term benefits from a robust regional society.

Governments will be significant beneficiaries from the economic boost which broadband will encourage and sustain. Alternatively

they will live with the well-documented economic consequences of the 'digital divide'.

"Future proofing" our broadband infrastructure demands that we encourage solutions whose bandwidth and quality of service is scalable to meet tomorrow's demands, rather than proliferate the current, un-scalable, low-speed product offerings which dominate the marketplace. **This, more than any other change, will ensure that the solutions built through these programs are sustainable in the longer term.**

Failure to pursue this imperative will see Governments once again being required to 'up-grade' the infrastructure to meet evolving 'minimum requirements' in the not too distant future. *See Appendix 2 – Net speeds off the pace*

Broadband Connect – Responses to Questions, with recommendations

Q1 How can the design and delivery of Broadband Connect be optimised to achieve long term sustainable quality broadband solutions for regional, rural and remote Australians?

Both initial capital expenditure and on-going operational expenditures increase with remoteness. Entropy is a much more significant factor in regional infrastructure than it is in metropolitan areas and thus should be factored into the program's design criteria. Imposing the metropolitan equivalent pricing on the provider, without providing greater incentives for remoteness, will inevitably inhibit penetration to the more remote areas, where potentially broadband is most valuable – by virtue of limited alternatives for telephony, data and video delivery.

Recommendation 10 Scaled subsidies should be established within Broadband Connect, based on the existing structure, but with two additional criteria affecting the cost of delivering both backhaul and last mile infrastructure:

1. remoteness, as defined by the Department of Health and Aged Care for its Broadband for Health initiative
2. difficulty of terrain – some measure of density of undulations in topography

Q2 What means can/should be used to encourage further capital investment in infrastructure that will support competitive networks and services under Broadband Connect and beyond?

Both per user and whole of network grants should be available.

Recommendation 9 **'**Long-haul leaps' or 'bridges' across difficult terrain to the nearest network backhaul access point, or for local loop extension, should be provided outside of any 'per user' funding through Broadband Connect. Some portion of this infrastructure should be eligible for payment in advance. Fundamental network infrastructure funding cannot be based solely on per-user grants. *See Appendix 3*

Q3 How can Broadband Connect funding be constructed to provide the best incentives for investment?

Both up-front and post-implementation funding should be provided, depending on the type of infrastructure developed. Special considerations will be required to ensure network investment to remote areas is made commercially attractive. See Recommendations 9 and 10

Q4 Is terrestrial or satellite the most appropriate means of delivering broadband in regional, rural and remote areas?

Terrestrial delivery can offer cost-effective delivery to many regional and rural areas once fundamental network infrastructure is in place. Wireless coverage can provide cost-effective blanket coverage of large areas, making it especially useful for SCADA applications in uninhabited areas but where specific applications can demand real-time control.

Q5 Can satellite be delivered as competitively as terrestrial service?

Satellite will inevitably remain a technology of last resort for broadband delivery to remote areas. Lower orbit satellites will minimise latency issues and reduce costs over time. It is unlikely to achieve cost comparability with terrestrial delivery mechanisms but undoubtedly has a value proposition where no other access capability exists.

It's about value, not cost!

Recommendation 11 Remove or modifying service price limitation for remote locations. Metropolitan price parity is uneconomic for remote locations. Market forces will continue to shape supply and uptake of services but the perceived *value* of the service will be more of a driver, providing more flexibility for the provider community.

Q6 Should participating providers be required to commit formally to service areas they identify in registration applications?

No. Viability and sustainability cannot be determined at the initial stage

Q7 Should annual renewal of funding agreements specify timeframes for commencement of services in areas of greatest need?

How is greatest need to be determined? If by a solid business case, presumably industry will respond. If, however, it is based on some other social desirability index then other incentives, rather than further conditions, will be required.

Without pre-commitment or apparent demand by customers to procure the services there should be no demand to provide them. Viability and sustainability are fundamental to provider survival. Coercion is not an incentive.

Q8 Should a system of prioritised funding for services connected in areas of greatest need be introduced?

Yes. Both priority and graded incentives should be used to promote consideration of infrastructure development in areas of greatest need. (See Recommendations 9 and 12)

Q9 What can be done further to overcome barriers to capital investment in sustainable technologies in less commercially viable regional areas? See Recommendation 9

More creatively, projects should look for valuable non-population based applications for the infrastructure, worthy of funding by either commercial or public sectors. Real-time monitoring, capture and communication of a range of data, from weather to ground moisture, or control of water flows and at-source data capture in primary resource industries are increasingly available and in demand. Increases in petrol costs will continue to sway the business case for wider use of SCADA technologies.

Broadband brokers should be engaged to target specific industry sectors and engage the peak bodies and major regional players in leading and/or participating in community initiatives.

Q10 How can the high cost of some technologies be reconciled with increasing customer expectations for higher speeds and usage allowances especially in remote areas?

Recommendation 12 The *value* proposition for broadband should be promoted rather than a cost orientation. Clearly differentiating the base cost for service from the average price actually paid by urban users would also militate against unrealistic expectations, especially as new services test the capabilities of existing broadband offerings.

As identified elsewhere some 70% of current so-called broadband users will face similar issues as the newer, more bandwidth intensive, applications become widely sought after.

Q11 Should it be mandatory for program participants under Broadband Connect to provide additional information as a condition of registration?

Intended future service areas and timetable for commencement?

No. Deployment will need to reflect rapidly changing demand, social and political priorities, evolving technical capability and the overall competitive marketplace.

The viable geographic reach of broadband services from the central transmission points for service delivery?

No. The reach is highly variable, even for a specific technology, depending on geography, geology, topography etc. It is best to leave the evaluation to Demand Aggregation Brokers to explain the strengths and weaknesses of alternative proposed solutions.

Technical barriers limiting the application of providers' technology in regional communities?

No. As immediately above. Additionally, the technology, and perhaps the regulatory environment, is rapidly advancing, changing the barriers.

The capacity of the providers' technology to support varying types of broadband traffic and use?

Yes. This is predictable, although it too will evolve during the period of the providers' registration. It would be a useful tool in helping prospective users to understand the relative values of alternative services as well as any cost differential. Providers should be able to clearly specify different costs for each value-added use or package of capabilities.

The range of service speeds the providers' technology would be able to support?

Yes. However, caution is required, since speed alone does not define a capability. Latency and QoS are important qualifiers, for example, in the health system's use of video for effective telepresence in providing remote support for critical care.

The capacity of the providers' technology to provide services now and to accommodate new developments such as increased speed, usage and applications in the future?

What provider doesn't believe that their solution is scalable, flexible, resilient and robust and that their technology will evolve faster than the demands placed upon it?

More succinctly, who will sort through the smoke and mirrors?

The particular relevance of the technology to other communication services?

Yes, but will require validation.

A summary of the broad nature of the technology they employ?

Probably a waste of resources to provide and to assess.

Anticipate timing and targets for their technology deployment in regional Australia?

No. As per first bullet of Q11 response.

Q12 On what basis could it be argued the certain technologies will have the most impact on the delivery of regional broadband services in the next three to five years?

The demonstrated scalability of the bandwidth and current availability to deploy will be the significant factors in defining impact, more so than the raw numbers installed.

Q13 How can the relative effectiveness of technologies in the marketplace be compared?

Through their range of speeds, breadth of application functionality and their ability to meet a significant majority of the community's identified need. Ubiquity and functionality!

Q14 To what extent will broadband technologies be able to augment capacity to meet rapidly expanding consumer expectations for higher bandwidth and more advanced applications?

DSL will be challenged. As acknowledged by Telstra[3]

Fibre will be virtually unlimited, but not within the required time frames.

Wireless solutions will be limited by spectrum availability.

Satellite will be limited by latency.

All will be limited by consumers' expectations of price versus value. Backhaul costs might play a larger role in determining scalability (i.e. cost increases) than any particular last mile solution.

Q15 Can complementary technologies provide a better solution to delivery of services in regional Australia?

Yes, hybrid solutions will have a place in many situations. We should avoid building duplicate and redundant last mile infrastructure, however, except so far as it is required for adequate service delivery and resiliency.

Q16 What innovative approaches should Broadband Connect adopt in its program design to utilise these technologies most effectively and efficiently?

Recommendation 8 Broadband Connect should provide specific *additional* grants and incentives to integrate multiple last mile solutions, which will fulfil **nearly all** identified community demand and avoid further segmentation within communities between those who have access to broadband and those who do not. End-user based grants are not sufficient, by themselves, to deliver ubiquitous broadband across communities.

Q17 What capacity do existing technologies have to accommodate the introduction of new developments, such as increased speeds, usage and other applications?

See Q14. Last mile solutions will generally be more limiting than backhaul. DSL technologies, especially, appear to be limited in the potential for ubiquitous speed increases – relative to regional geographic considerations.

Q18 Should the current system of incentives be retained?

Yes, with the augmentations suggested elsewhere.

Q19 Would an upfront method of payment be more effective?

Yes, for backhaul and last mile 'bridging' infrastructure across difficult geography, based on proven demand and consumer connectivity commitments by the service provider.

Q20 How else could the method of payment be adjusted to achieve more satisfactory outcomes in regional and remote Australia?

See recommendations 8, 9, 10, 11, 12 and 13

[3] Net speeds off the pace – James Ridley, The AustralianIT 10/1/06 – See Appendix 2
http://australianit.news.com.au/articles/0,7204,17773684%5E15318%5E%5Enbv%5E15306,00.html

Q21 Should specific funding be provided:

Based on the number of customers connected?

Yes.

The number of potential premises with potential access?

No.

A combination of both methods.

No. See Recommendation 8 as an additional incentive for total community solutions.

Q22 If funding was based on the number of premises with potential access, should it then only be provided for infrastructure?

Yes, on a cost recovery plus margin basis rather than on the multiplier of the premise incentive.

Q23 How can methods of payment be better structured to ensure that providers are not overcompensated for the supply of broadband services? See Recommendation 9

The amount of incentive for **additional** customers serviced by that fundamental infrastructure might then be reduced (or eliminated if there are no other costs involved) **after** these target numbers have been achieved.

Example – Wireless network in Remote location
200 premises over large area – not exceptional terrain

Two long haul towers from NAP – fully funded as fundamental infrastructure – not under per client regime

Central community tower - $200,000 servicing whole community – fully funded on basis of $1000 per ultimate user

Six multi-point antennas at $10,000 per to service 120 remote users – fully funded at $500 per ultimate user

200 x $500 – fully funded for customer premise equipment.

Recommendation 10 Scaled subsidies should be established within Broadband Connect, based on the existing structure, but with two additional criteria affecting the cost of delivering both backhaul and last mile infrastructure:

1. remoteness, as defined by the Department of Health and Aged Care for its Broadband for Health initiative
2. difficulty of terrain – some measure of density of undulations in topography

Question 24 Should the current HiBIS threshold model for speed and usage be maintained at existing levels under broadband connect?

No. Emerging application demands will shortly create dissatisfaction amongst current minimum standard solution users that cannot scale up to meet those demands. Future new customers should be offered services that meet a broader range of needs for both speed and download limits. For example, access to medical imaging

services freely available in metropolitan areas is severely constrained in rural and remote settings.

Question 25 Should the model be retained with increased minimum speed and/or usage requirements?

Yes. New benchmarks, and commensurate prices, would better convey the value of broadband, rather than appeal to the lowest use/value of unsophisticated first-time users.

Q26 Should two separate minimum speeds with different subsidy levels be established?

No. The sound medium-term benefit will best be derived from moving market expectations, and value perceptions, up market. Continuing to promote narrow-band offerings as a broadband solution will delay better offerings and increase the customer base of disaffected users, who will ultimately seek new support incentives to upgrade.

Q27 Do threshold requirements need to be expanded to accommodate other issues such as latency?

No. The current requirements are already imperfectly understood by prospective first-time users. More terms will only confuse the issue further. Providers should, however, be required to define for customers, in their marketing materials, which prospective applications amongst the 'converged' service offerings their solutions can realistically support (based on current technology). It is too early to mandate any of the emerging converged services as many providers need first to establish an economic market before negotiating with service providers to deliver these additional services.

Q 28 Should the Broadband Connect Stage 1 price caps be maintained under Stage 2?

Yes.

Q29 Should a greater range of price caps be introduced than the two currently available?

No. The market should determine the value of more complex offerings in the marketplace.

Q30 Should the current funding cap level of 60% continue under Broadband Connect?

No. The cap for the current dominant player should be **reduced** unless it enters the market with a faster service and commits to more ubiquitous coverage within the communities into which it enters.

Clever Networks

The Broadband Broker Program

Insufficient resources have been devoted to marketing the Broker and HiBIS programs in the target markets. The socio-economic benefits of ubiquitous broadband have not been communicated to politicians, senior government bureaucrats or to prospective users. All emphasis has been placed on price comparability to metropolitan markets with no emphasis, and generally no understanding, of the value. The Clever Networks initiatives provide the opportunity to redress these deficiencies by ensuring that broad-based broadband deployment outcomes are identified for each project.

An expanded involvement of industry and commerce will bring about a more profound understanding of the value propositions to the broker's role. Matched with their interest in extending broadband to the community in their Broadband Connect role, brokers can exercise a more broad-based outcomes focus.

Recommendation 6 The State Broadband Demand Aggregation Broker role should be expanded to coordinate activity across the various Connect Australia programs, and across broad stakeholder communities, to identify the potential for collaboration and shared infrastructure across specific projects and to develop more robust business cases from such broad-based integration. Proposal assessment criteria should be published to clearly indicate the basis on which broader stakeholder input is evaluated.

Example:

> Reaching Aboriginal communities with backhaul capability will inevitably demand infrastructure which can potentially supply capacity for other initiatives with minimal additional investment. In a parallel vein, specific programs targeted at Aboriginal communities can leverage infrastructure being delivered for other programs, in, say – health, education and cultural sustainability.

Recommendation 13 One-time infrastructure grants must be augmented by either assured recurrent revenue streams or should be of sufficient quantity to cover the short and medium-term operating costs associated with start-up and growing the revenue stream to achieve on-going sustainability. Ten percent of the initial grant should be set-aside for the next three years.

Recommendation 14 Broader socio-economic benefits must be considered in evaluating project proposals**.** As a minimum, triple-bottom-line benefits (financial, social and environmental) assessments should be considered in evaluating submissions for funding.

Recommendation 9 **'**Long-haul leaps' or 'bridges' across difficult terrain to the nearest network backhaul access point, or for local loop extension, should be provided outside of any 'per user' funding through Broadband Connect. Some portion of this infrastructure should be eligible for payment in advance. Fundamental network infrastructure funding cannot be based solely on per-user grants. *See Appendix 3*

Clever Networks can provide the core competitive infrastructure which will make reality of community attempts to achieve ubiquitous broadband availability and broader participation in the innovation society.

The value of the infrastructure will be more rapidly recognised as desirable applications are delivered by it. Clever Networks must fund the development and deployment, to regional areas, of both government and industry programs which both demonstrate and derive tangible benefits from cost-effective connectivity to regional areas.

Clever Networks – Responses to Questions, with recommendations

Q1 Is the current DAB program structure the best model for catalysing broadband developments in regional, rural and remote Australia, or how should it evolve?

Broking within small communities, while successful in some instances, provides limited ability to effect major change and broad-based deployment across Australia. Regional and/or industry sectoral brokers could work on a broader canvas to engage more stakeholders with more of a value focus and more financial and leadership resources to bring to the table. Regional economics will overcome some of the issues of financing 'bridging' infrastructure *between* viable communities while delivering economies of scale to negotiations for backhaul and value-add services. Operational and maintenance support options are also more viable within larger regional settings.

Q2 What role should the broker play in promoting or facilitating use of broadband application in order to capture the transformational benefits of broadband?

Understanding and promoting the benefits of broadband to a wide range of stakeholders is essential to success in the DAB program. This requires a deep understanding of those opportunities across the stakeholder spectrum, at both a micro and macro economic level and within specific sectors and industries.

Q3 What other resources or programs should the broker be aware of in this role?

An holistic understanding of both telecommunications programs and social / government programs will ensure that Commonwealth and State Government funds are effectively used in a collaborative manner to meet a range of economic and social agendas.

Broad contacts into the commercial sector through regional development and area consultative committees would ensure that commercial agendas and resources are fully utilised in a collaborative way with government initiatives.

An understanding of all the technologies and how they can be combined to deliver higher value services is also essential.

Q4 Should the role include increased focus on 'effective use' outcomes, and how can this be achieved?

Successful brokers will have been demonstrating this focus. It can be improved through the dissemination of promotional collateral across the broker network, perhaps with training and facilitation in its consistent use and evolution. Opportunities are evolving rapidly. Coordination and research across the broker network(s) warrants additional resources.

Q5 Should specific user groups be targeted, and if so, which ones?

Major value-enhancing opportunities exist in the local government sector and in primary industries. Case studies of successful deployments in specific sectors should be promoted at industry conferences, identified through engagement with peak bodies and with the provider community.

Q6 How might brokers play a role in facilitating / supporting community-wide connectivity and community-wide (cross sectoral) networks?

By identifying synergies, common goals and objectives and by espousing collaboration and *coopetition* (building a bigger pie from which to compete for a larger slice) amongst competitors, collaborators and customers in their respective 'value chains'.

Q7 Should future demand aggregation activities be focused in areas that have yet to receive terrestrial broadband services under HiBIS to support the delivery of the new Broadband Connect program?

Not exclusively. There are undoubtedly opportunities to use current centres of success as launching pads for incremental expansion. Wireless solutions especially provide excellent mechanisms to expand along highways and valleys, providing multi-path redundancy and self-backhaul and potentially extending mobile coverage to the areas as well as broadband service.

The Murray Regional Development Board CountryTell initiative is an excellent example of regional and incremental expansion, involving communities, government sectoral interests and several commercial sectors. CountryTell has demonstrated he benefits of integrating broadband and mobile services along with a broad sector of service providers to deliver a range of value enhancing services to each.

Question 8 Are health, education, emergency services and local government the appropriate targets for Clever Networks?

Yes, but not exclusively. The social services sector includes health but goes well beyond, encompassing the efforts of some 5000 non-government organisations in NSW alone. The NSW Human Services Network (HSNet) hosts several key applications which enable this network of service providers to work effectively together to improve health and social service outcomes across a broad range of communities.

As with HSNet, the health and education focus needs to be broadened to take the capability outside of the established bricks and mortar. In-home delivery of health and education are increasingly demonstrating value in convenience, cost reduction, improved participation and outcomes.

All health jurisdictions are progressing towards the establishment of an electronic health record that is accessible across time and regardless of setting. The Coalition of Australian Governments at its next meeting will be considering a range of national infrastructure investments to support a common framework to achieve this.

In NSW the first instance of such a system will go live in the second quarter of this calendar year. That implementation will include the capacity for direct consumer access and input to the record. It can be anticipated that there will be continued and increasingly complex consumer interaction with the health system through future ehealth developments. Ubiquitous access throughout the patient communities is therefore essential.

Q9 Should there be priorities within this group?

No pre-defined priorities are necessary. In health care there are clearly national pressures arising from an ageing population causing an increasing burden of chronic disease combined with some critical workforce issues but such priorities will become apparent and justify special treatment as appropriate. See Recommendation 14

Q10 What other sectors should be considered?

Many government portfolios provide essential services in regional and remote communities. In addition, environmental and resource sectors can benefit significantly from remote access via broadband-capable SCADA devices.

Q11 Should there be a focus on particular applications / sectors which will require and drive network or industry capability.

SCADA technology is used by numerous primary industries as well as the public sector. Wireless broadband technologies will dramatically expand the usefulness and feasibility of this technology, enabling our industries to save time, money and natural

resources monitoring and safeguarding our natural and man-made resources in regional and remote areas.

Patient self-management and remote monitoring combined with tele-video conferencing, in areas such as diabetes and chronic heart failure, are major cost and life-saving opportunities for wireless broadband. Griffith University leads the world in this application. Australian Resource Centre for Healthcare Innovation, the Centre for Health Informatics should also be considered partners in this expansion of stakeholders. Developed in Australia, this industry has application to over 40% of the world's population living in rural and remote areas. http://www.mja.com.au/public/issues/179_05_010903/cel10001_fm.html provides interesting reading on the potential for this technology.

Q12 What strategies should be incorporated into the design to ensure that investment provides the greatest holistic community benefit?

Demand Aggregation Brokers should be kept abreast of all the current and emerging opportunities which technology can deliver through ubiquitous broadband. Their focus should be deliberately broad, in applications, sectors and geographies. DCITA should ensure that all initiatives are fully cross-fertilized on a frequent basis, to ensure that each independent program can provide feedback to the others.

Q13 How can the balance between infrastructure and applications be identified?

Investment in application delivery depends on finding a critical mass of need within a geographic area. As such, areas need to be larger than individual communities. Generally, the value of an application is readily assessable, the stakeholders identifiable and therefore the investment criteria easy to evaluate.

Q15 Would proposals be improved by encompassing both infrastructure and applications aspects?

Proposals should focus on *outcomes*. Infrastructure by itself does not deliver outcomes, neither do applications.

Recommendation 4 The balance between funding for infrastructure and applications should be changed to reflect the critical nature of government applications, their value contribution to communities, the replicable nature of these applications across NSW and other states and territories, and the stimulation they provide for broadband demand.

Q16 What key strategic investments in broadband infrastructure have the potential to provide the best outcomes?

Long-haul infrastructure, premised on open access, will provide the basis for a wide range of competitive end-user delivery projects across regional, rural and remote communities.

Q17 Are there complementary sources of funding / contributions which should be included in the guidelines?

Bidders for funding should consider a broad range of government and private sector sources of funds, based on the interests and circumstances of the communities they are attempting to address. Contributions encompass a broad range of in-kind and recurrent funding, along with business case facilitation, project management and access management.

Q18 Should there be a specified minimum broadband specification for Clever Networks and how should they be determined?

Yes. Clever Networks needs to lift the bar, by a significant amount, on minimum acceptable bandwidths and latency, along with Quality of Service – the determining factor for significant 'killer applications' , for example, medical imaging.

Q19 What steps / mechanisms should be incorporated to ensure that communities can progressively transition to higher bandwidth networks?

Basic Clever Network infrastructure should be mandated at high levels, as discussed in Q18.

Q20 New technologies are demonstrating superior performance to DSL. What strategies should be adopted to encourage and support deployment of these new technologies and to ensure that emerging technologies are not precluded during the lifecycle of the program?

As suggested under *The Reality of Sustainability*, DSL should be eliminated from the subsidy scheme. Our answers Broadband Connect Questions 24, 25 and 26 provide the rationale.

New technologies imply some measure of risk. However, innovation should be encouraged in measured ways, so that pilot projects can test the feasibility and sustainability of new technologies. Timely information on trials and results should be communicated across the broker network.

Q21 What supporting information should be required in order for sustainability beyond the life of the program to be effectively evaluated, and what factors should be considered in determining sustainability?

Realistic assessments of lifetime costs and short and long term recurrent benefits, from a diverse range of stakeholders, are the best predictors of sustainability. That said, some foundation infrastructure is not, in and of itself, sustainable. As primary beneficiaries of any social and economic benefit, governments of all levels should assume some responsibility for maintenance. There are no benefits without obligations.

Q22 For any new infrastructure created or made available, should there be specified minimum infrastructure access arrangements for parties other than infrastructure owners, such as wholesale-rate backhaul?

Absolutely. See Recommendation 3

Q23 How realistic is such a requirement, and how tangible are the likely benefits of the approach?

Only a committed monopolist could object. The clearly tangible benefit is that communities served by the infrastructure cannot be held hostage by the owner / controller of the infrastructure.

Q24 How can an appropriate charging regime for such access be determined?

Pro rate portion of fully factored lifetime cost of ownership of the infrastructure divided by portion used, annualised over remaining lifetime.

LCO = $1,500,000 15 year lifespan 10GB capacity

Annual cost for 2GB = 1500000/15x5 = $20,000

If entered in second year, proportion is the same but lifespan becomes 14 years

1500000/14x5 = $21,428

Obviously, if the capacity was previously used by another party, the years of annualisation increase by that period of use, not just the remaining years.

Q25 What other programs should be considered in determining Clever Network program eligibility and entitlement?

Along with Broadband Connect, Clever Networks should consider programs which collaborate in the development of infrastructure and regional economic and social development. Mobile Connect is an obviously synergistic program since some of the infrastructures of each can readily support the other. Towers are the principal infrastructure for both mobile and wireless broadband deployment. Spectrum is the other major infrastructure component of both services. Any program to effect availability across regional Australia of appropriate spectrum should be considered as a viable desirable partner.

Additionally, the Area Consultative Committees program for regional development under DOTARS should be encouraged to work with and co-sponsor all programs under the new DCITA programs. This collaboration should be recognised as a strategic partnership opportunity rather than as 'double dipping'.

Q26 Having regard to the possible diversity of the activities under Clever Networks, what strategies can/should be considered in the program evaluation criteria?

A comprehensive and deliberately broad socio-economic evaluation process should be adopted to encourage the exploration and feasibility assessment of non-core benefits. See Recommendation 14

Business cases are more robust and sustainable when multiple stakeholder groups and multiple outcomes are aggregated, rather than relying on one beneficiary group and one service.

Proposal sponsors should be encouraged to go beyond single communities, sectors (government, business and social) and jurisdictions, drive for ubiquity within the nominated communities and seek triple bottom line benefits.

As identified in Q25, 2+2 =5 opportunities should also be encouraged where the network benefits are part of a larger community initiative for regional renewal.

A further requirement should be for competitive and open source infrastructure.

Summary

The NSW Government approach should deliver a significant long term legacy of sustainable competitive broadband infrastructure across regional and rural NSW, delivering long term real and tangible benefits from significantly enhanced broadband services for schools, hospitals, other Government agencies, universities and research institutions which have established campuses in regional centres. The development of access to competitive Optical Fibre Infrastructure through earlier initiatives has demonstrated that long term sustainable competitively priced broadband services can be achieved. Continuation and expansion of similar initiatives under the Broadband Connect and Clever Networks programs will go some way towards delivering value and containing costs for broadband services.

The benefits from the NSW Government approach are:

a) A significant improvement in broadband infrastructure that addresses a critical gap in existing telecommunications infrastructure;

b) The opening up of the competitive broadband backhaul telecommunications infrastructure to bring measurable improvements in the range and price of broadband services to a substantial part of regional New South Wales;

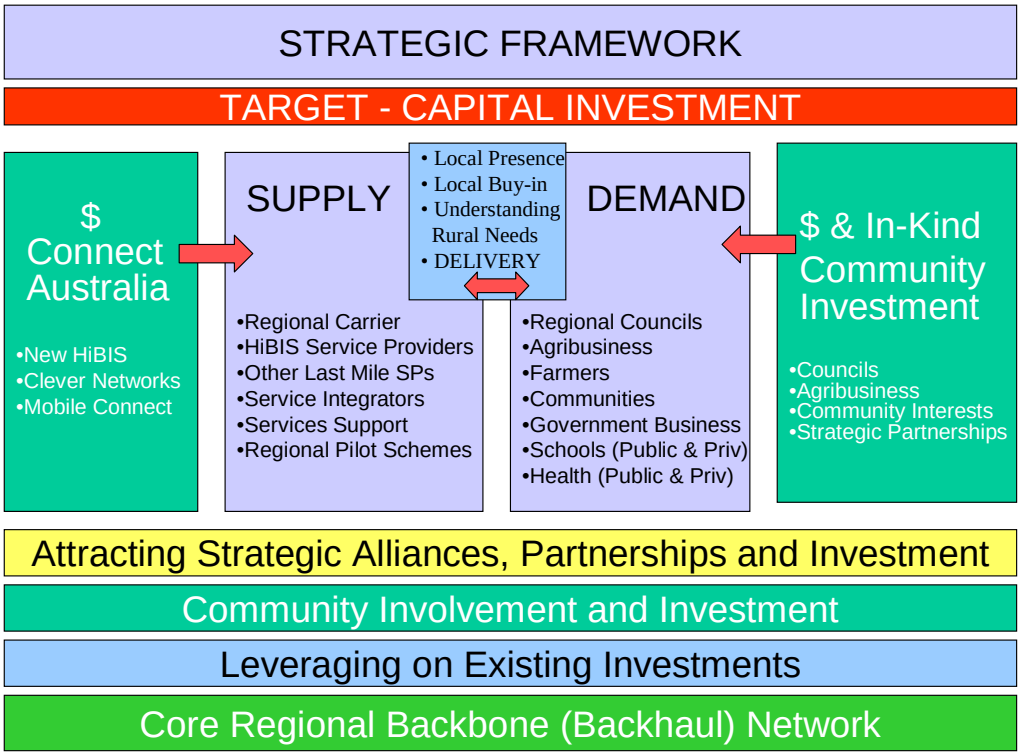
c) The communities targeted by the Government's proposal will gain significantly in price and range of scaleable broadband services;

d) New South Wales Government's continuing role in leveraging its purchasing power, and not inconsiderable internal broadband demand, to provide the long term sustainability for any competitive infrastructure that may be developed through the new programs into the future;

e) A significant improvement in the quality of broadband services delivered to Health and Education institutions, including private schools;

f) Additional valuable government applications, across diverse portfolios, delivering benefits to user communities; and

g) The development of competitive infrastructure, which will provide sustainable competition in the marketplace and will deliver significant benefits in price and quality for broadband services, not only to the Government but also regional and rural businesses and the broader community.



Appendix 1 - A Framework for Collaborative Investment

Appendix 2 - Net speeds off the pace

Net speeds off the pace - James Ridley
The AustralianIT January 10, 2006

BROADBAND internet connections in homes and small businesses have doubled in the past 12 months, but critics warn that Australians are being lumbered with a snail's-pace service, compared with the rest of the advanced world.

More than 1.2million new customers signed up for high-speed internet services last year, with a 20 per cent increase in the September quarter, the Australian Competition and Consumer Commission reports in a survey released yesterday.

Australia's market penetration for broadband is improving by international standards but is well below the leaders. And just as Australia sheds its reputation as a laggard in adopting high-speed internet services, experts now say the broadband we have is too slow, far behind accepted speeds in the rest of the developed world.

Industry consultant Paul Budde says while many advance nations regard broadband as a data transfer speed of 4 megabits per second, Australia defines speeds as slow as 256 kilobits -- 16 times slower -- as broadband. "What is happening in other countries is a move to much faster broadband speeds and that's where we are now lagging behind," he said. "While the rest of the world is now enjoying internet telephony and TV, we are still to make that leap to higher speeds."

The latest survey has renewed the debate between Telstra and the regulator over how the next generation of high-speed internet should be introduced.

The ACCC's quarterly Snapshot of Broadband Deployment reports there were nearly 2.6million broadband services connected in Australia at the end of September last year.

The survey does not distinguish between business and residential connections, although the ACCC says services into homes would represent more than one million of the new broadband customers.

"As with the results of the previous quarter, this represents an increase of over one million customers, or 98 per cent, over the preceding 12-month period," ACCC commissioner Ed Willett said. "This outcome continues the growth of broadband take-up that was stimulated by a more competitive broadband market that emerged during 2004-2005."

But Telstra said these customers were already starting to demand faster services, such as movie downloads, that cannot be offered using current technology.

"Let's remember it was Telstra that kickstarted this boom by lowering prices -- and that drew nothing but criticism from the ACCC," said Telstra spokesman Rod Bruem. "What Australia needs to do to keep up with the

rest of the world is a fibre rollout as Telstra has proposed.

"But Telstra can't proceed with a fibre rollout under current laws. So the broadband numbers announced today are a bit of an illusion, because as soon as customers start to demand these new kinds of high-speed services, they are going to run into roadblocks."

Telstra has proposed a multi-billion-dollar rollout of fibre to the home to give customers much faster download speeds for multimedia services, but it wants government to give it regulatory conditions that will guarantee a profit return on the investment.

Australia's demand for faster downloads seems tepid compared with other developed nations.

Korea is ranked first, with 25.5 broadband subscribers per 100 inhabitants, followed by The Netherlands (22.5), Denmark (21.8), Iceland (21.7) and Switzerland (20.3). Australia had 10.9 broadband subscribers per 100 inhabitants at June 30, according to the Organisation for Economic Co-operation and Development.

Appendix 3 – Establishing costs for fundamental infrastructure

With only limited research it should be possible to establish ranges of costs for fundamental infrastructure costs, by element and by technology. Elements include major structures (eg exchanges, network access points or towers), multi-customer breakout points (eg DSLAMS, wireless grid multi-point antennas) and customer premise equipment. Each of these elements should be eligible for funding in so far as they are essential to deliver services to end users at some value per user to be determined. So for example – using only notional values, a $200,000 tower might be reasonable if it could be demonstrated as required to service 100 customers, whilst a DSLAM at $12,000 might be justifiable if some dozen customers were connected.