

***Broadband Connect and Clever Networks:
Supporting Investment in Sustainable Broadband Infrastructure***

Discussion Paper

Tasmanian Government Submission

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1. INTRODUCTION

This Tasmanian Government submission has been prepared by the Department of Premier and Cabinet in consultation with other Tasmanian Government Departments, particularly the Departments of Health and Human Services, Education, Treasury and Finance, and Economic Development.

The Tasmanian Government welcomes the Commonwealth Government's strategic, integrated, cooperative and inclusive approach to determining parameters for distributing the \$1.1 billion of Connect Australia funding.

This submission focuses on opportunities for activity to be funded in Tasmania, through Broadband Connect and Clever Networks. It is noted, however, that these programs are part of a broader context, including a range of other Commonwealth Government initiatives.

While opposed to the sale of Telstra, the Tasmanian Government welcomes the Commonwealth Government's commitment to:

- legislative and regulatory reform, and
- funding for telecommunications enhancement.

In particular, although the Connect Australia funding package is very large, it is less significant in terms of potential impact on telecommunications markets than the planned structural separation of Telstra. The Tasmanian Government applauds the Commonwealth Government's commitment to structural separation and encourages the Commonwealth Government to ensure that the final regime:

- requires full transparency and equivalence in the way Telstra provides access services to its own downstream operations relative to those of its competitors,
- is robust, binding and enforceable, and
- is accompanied by a maintenance or enhancement of the existing regime providing the market with access to critical infrastructure (that is, the Trade Practices Act Part XIB and XIC provisions, such as declaration of services).

2. CURRENT INITIATIVES IN TASMANIA

The Connect Australia program will build on the Commonwealth Government's significant history of investment in regional telecommunications. While both Tasmania and Queensland received considerable supplementary funding for regional information and communications in the early years of *Networking the Nation*, in more recent years the State Government has been a more significant investor, and Tasmania's benefits under the various Commonwealth Government programs have been no greater than the island's per capita share.

The following five initiatives in Tasmania, some already involving the Commonwealth Government, create special opportunities for the Broadband Connect and Clever Networks programs.

2.1 TasGovNet

TasGovNet is a partially-lit, on-island, optic-fibre backbone owned by the Tasmanian Government, connecting North, South and North-West Tasmania. The Tasmanian Government is currently extending and enhancing this cable and developing a strategy to make it available to the private sector.

2.2 TasCOLT

TasCOLT is a two-year evaluation of the commercial viability of ultra-high-speed broadband networks, based around fibre to the premises (FTTP) technology. TasCOLT includes construction of a small distribution network supported by a full carrier-grade head end capable of supporting 60 000 properties. The majority of the investment so far has been in this head end equipment, making TasCOLT effectively a stand-alone telecommunications network with links to the Internet and the switched telephone network. The head end includes a network operations centre and switching equipment, Internet gateway, video-on-demand and broadcast TV storage and delivery equipment, and network storage equipment for other content and applications. The Tasmanian Government's initial investment in TasCOLT has been doubled twice over by financial and in-kind contributions from private sector participants.

2.3 Networking Tasmania II

Networking Tasmania II is a project to create new whole-of-Tasmanian-Government data network purchasing arrangements, to commence operation from February 2007. Networking Tasmania II will be used by all Tasmanian Government Departments and many other customers in Tasmania, including local councils, government business enterprises, private schools and hospitals.

2.4 Tasmanian Research and Education Network

The Tasmanian Research and Education Network will connect Tasmanian higher education and research providers to each other, and the worldwide research community, using the TasGovNet optic-fibre and other assets. The Tasmanian Government is working with the University of Tasmania and other higher-education institutions with presence in Tasmania to develop TREN. The University is the lead institution, in conjunction with national higher-education carrier AARNet Pty Ltd, CSIRO, the Australian Antarctic Division, and the Australian Maritime College. Other research and higher-education organisations in Tasmania may also join.

2.5 Tasmanian Electronic Commerce Centre

The Tasmanian Electronic Commerce Centre (TECC) is jointly owned by the Tasmanian Government and the University of Tasmania and mainly works with small and medium enterprises, in regional communities, to encourage the sustainable roll-out of broadband infrastructure, and the take-up of broadband services. The TECC has also been contracted by the company which is project managing TasCOLT, CEOS, to provide assistance and support on the ground in Tasmania.

3. PROJECT OPPORTUNITIES IN TASMANIA

The following list describes some of the ways in which Broadband Connect and Clever Networks could lever off existing initiatives to quickly achieve significant outcomes, outside the scope of existing Government and private sector activity.

3.1 Distribution and access off TasGovNet

There are opportunities to work with carriers to fund distribution and access infrastructure connecting to the TasGovNet backhaul network.

The Tasmanian Government optic-fibre backbone, TasGovNet, extends into Tasmania's major regional centres. The State Government is in the process of making this infrastructure available to the market, to lower the barrier to entry for alternative carriers and carriage service providers. Combined with Broadband Connect subsidies, this may create an excellent opportunity for new carriers to invest in access services in Tasmania.

(See also *Cash-flow support for access roll-out* below.)

Example

Regional towns on the highway between Launceston and Hobart may be viable locations for wireless broadband technology serving both local and drive-through or brief-stay population. Targeted, customised Broadband Connect funding could assist a carrier to install a mast for wireless equipment (eg WiMAX, WiFi). Alternatively, Mobile Connect funding could be applicable. Clever Networks could subsidise the creation of a break-out point and short distribution cable from TasGovNet. The TECC, operating as a Clever Networks funded regional broker, could promote and facilitate take-up in the community.

The approach could partially resemble that used for the Tasmanian Research and Education Network (TREN) project, in which both the Tasmanian Government and the Commonwealth Government are involved in assisting the Tasmanian research and higher-education sector to develop a sustainable research network. The Commonwealth Government has provided capital funding up-front. The Tasmanian Government is providing access to the TasGovNet fibre at less than commercial rates. The member users are providing the operational funding to maintain and operate the network in the long-term. (Note that an exact parallel may not be possible for TasGovNet as the Tasmanian Government could enter into an exclusive relationship with one or more private sector providers to develop and wholesale the TasGovNet fibre.)

Regional centres along the route of the existing fibre include Brighton, Jericho, Isis, Longford, Carrick, Rosevale, Westbury, Deloraine, Railton, Spreyton, Gawler, Wynyard, Port Latta, Bell Bay, Oatlands, and Georgetown. The cable could also be extended into North East and Eastern Tasmania, enabling more communities to benefit from access to independent backhaul. Additional points of presence in Greater Hobart and suburban Launceston could also be valuable.

3.2 New footprints off TasCOLT head end

As well as taking advantage of the TasGovNet backhaul network, innovative, independent access roll-outs could be connected to the TasCOLT distribution network, avoiding the necessity to backhaul back to mainland Australia for access to head end equipment. This would enhance the commercial viability of alternative last mile access, and allow this viability to be tested in a controlled manner, alongside the existing TasCOLT trials of Fibre-To-The-Premises (FTTP) and Power Line Carrier (PLC). Initiatives could include pilots of WiMAX wireless broadband (both fixed and mobile), ADSL 2+, or Fibre-To-The-Node (FTTN).

Access to the TasCOLT head end would be a key differentiator from other alternative last mile trials. Coupled with the establishment of content repositories around the State, this could provide the capacity to test clever network topography, relying on access to competitive intra-state backhaul such as that being developed under TasGovNet.

In effect, there are opportunities to double or triple the TasCOLT footprints at low marginal cost (as the Tasmanian Government and commercial sponsors have funded the expensive head-end infrastructure).

Particular opportunities to explore alternative intra city distribution infrastructure include:

- Trialling of new photonics technology, which could enable partial wavelengths to be split off optic-fibre optic backhaul routes (using DWDM technology) into rural and regional centres, increasing the capability to provide cost effective high speed broadband services and applications into these locations;
- Interconnection of various independent optic-fibre cables (utilised for specific purposes) to allow spare fibre capacity to be aggregated into a logical network; and
- deployment of WiMAX masts at the network boundaries of the TasCOLT project to extend bandwidth reach into adjoining areas.

It would be possible to improve the services available in all 4 major centres, as well as testing technology in smaller towns. As above, a combination of Clever Networks and Broadband Connect could be involved, together with carrier investment, and in-kind contributions from the Tasmanian Government.

Example

Add 1000 premises in Launceston, 800 in Burnie, increase Devonport to 800, and add 100-200 premises in Oatlands, Deloraine, Westbury, Wynyard, and Longford.

3.3 Digital industries content cluster

There is an opportunity through Clever Networks to develop a focussed approach to digital industries development based around content management principles, to support access to a broader level of digital content at the local (geographical) level. This would reduce the impact of bottle-necks in the network on both transmission speed and bandwidth utilisation.

This would be an excellent area for new broker/advocate activity, particularly by the TECC.

3.4 New TasCOLT case studies

The TasCOLT trial includes the delivery of services over the infrastructure, including case studies of specialised services for customers with particular needs (such as clusters of medical service providers). There is an opportunity to fund the development, perhaps by brokers such as the TECC, of additional TasCOLT case studies. The emphasis under TasCOLT is on establishing a value proposition which connects demand and supply, rather than funding one or the other (or both, without bringing the two together).

3.5 Broadband for Rural Tasmania II

There is an opportunity under Clever Networks to fund broadband services into key underserved institutions in rural and remote areas, especially health care institutions, leveraging off new Networking Tasmania II arrangements. This would be similar to the successful Broadband for Rural Tasmania (BRT) project which was funded under the National Communications Fund, but without the need for a separate tender because of the Networking Tasmania II arrangements.

Another option would be to subsidise carrier-owned fibre rings to allow delivery of higher-bandwidth services in regional centres, anchored on use by education and health centres and other government service locations (such as local government, *Service Tasmania*, Online Access Centres and libraries police and justice facilities), [eg Telstra Wave service or equivalent] again leveraging off Networking Tasmania II. This would be similar to BRT, but providing higher-bandwidth services to less remote but still non-commercial areas.

There may also be a case to upgrade some of the original BRT services.

3.6 Broadbanding Health Broker

There is an opportunity for broker/advocate activity to bring together the potential of the multiple relevant Commonwealth funded IT programs for health, including the Health Connect project, which is being rolled out Statewide in Tasmania, the Broadband for Health project (previously Broadband for GPs), and the recently announced funding for IT for aged care places.

3.7 Community IT package for low-income households

There is an opportunity to fund a program delivering a complete package of support to low income households across whole communities (critical mass derives from involving a community, rather than isolated individuals across the State) critical mass would require not just one or two), anchored on education needs (including computer, IT support, web-based services 'parent-web') or health-centred version of the same. This could potentially fit well with a regional TasCOLT footprint.

3.8 Cash-flow support for access roll-outs

The Tasmanian Government could work with the Commonwealth Government to pilot an approach to Broadband Connect funding, for use in special circumstances, which maximises the strategic benefit by:

- including a mechanism to aggregate the available per site subsidies to create viable investment business cases,
- providing the funding up-front to help finance the infrastructure, instead of well after the expenditure occurs,
- selecting the subsidy level according to an assessment of the local circumstances which is more detailed than merely the distance from a major centre, the existence of ISDN capability, or the type of technology supplied, and potentially
- providing a degree of exclusivity for a small window, to allow a selected supplier to develop a sustainable user community.

This may be particularly relevant to small or medium sized service providers with some form of affinity to the location where a network is being established. Under HiBIS, these groups bear all the capital risk up front, to be off-set by redeemable HiBIS payments. Larger carriers, reluctant to initiate developments yet concerned in losing customers, could wait for such stimulation to appear and then drop distance-limited (ADSL) technology into the local exchange, wiping out the business case of the initial provider.

For example

Broadband Connect could work with the Tasmanian Government to create a revolving fund providing cash-flow support to carriers waiting to attract customer, and receive Broadband Connect subsidies. This could be combined with 3-6 month roll-out window before other registered providers may apply for subsidies in a defined special area. This would facilitate the roll-out of technologies, such as wireless, which would provide greater reach and coverage outside the centre of a defined community than a technology such as ADSL.

One option would be to establish a proportion of the Broadband Connect funds in a trust account managed by the Tasmanian Government's Infrastructure Development Agency. Funds could then be allocated to a service provider in an up front lump sum on the basis of a satisfactory assessed development proposal, backed by relevant market support (demand aggregation evidence or unique selling point).

Multiple service providers could submit proposals for the same location but only one provider funded, subject to the sustainability of its business model and based on KPI's:

- % of population within the specified location that could be serviced reliably by the proposed network development;

- Range of services to be offered;

- Guaranteed speeds accessible across the network;

The funding provided could be capped at a level equivalent to 100 Broadband Connect subscriber payments, as defined for that location.

The service provider would need to be registered under the Broadband Connect scheme and would then claim back in the normal manner a subscriber subsidy for each customer it signs up to use its network (based on existing guidelines). This payment would then transfer directly back to the State based trust account to offset the initial Grant.

4. IMPLICATIONS FOR PROGRAM GUIDELINES

To take advantage of the opportunities described above, Broadband Connect and Clever Networks guidelines would need to allow:

- 1) Recognition of relevant elements of the Tasmanian Government's existing commitments as valid contributions to a new project.

(For example, access to the Tasmanian Government's multi-million dollar TasCOLT head end could be the Tasmanian Government's contribution to a project to increase the Fibre to the Premises footprint, or to connect alternative access infrastructure to the existing distribution footprint.)

- 2) Involvement of suitable private sector partners or suppliers already selected through proper Government processes, rather than necessarily requiring a separate tender.

(For example if the Tasmanian Government goes to tender to select a range of data networking providers in 2006 (Networking Tasmania II), those providers could be used in a project to provide new broadband services into rural and remote health care institutions.)

- 3) Aggregation and potentially up-front payment of Broadband Connect subsidies for strategic projects, in certain circumstances.
- 4) Integrated applications to multiple elements of the Connect Australia programs.
- 5) Emphasis on creating access to backbone and metro fibre networks.
- 6) Flexibility to involve existing institutions and programs in broker work.

(For example, the Tasmanian Electronic Commerce Centre is ideally placed to engage in brokering projects, particularly leveraging off TasCOLT.)

5. GENERAL COMMENTS ON PROGRAM GUIDELINES

Commonwealth Government telecommunications initiatives in recent years have focussed on:

- delivering sustainable services to regional and remote areas, and
- achieving competition.

The Tasmanian Government supports these objectives but considers that greater attention should be paid to:

- service delivery in underserved urban areas
- cooperation between carriers,
- investment in next-generation technology, and
- strategic investment.

5.1 Services in urban areas

Commercially unsustainable service delivery environments, and outright market failure, are found in large and small pockets throughout urban Australia, as well as in remote and rural areas.

For example, in Tasmania:

- *All* of the island, including the capital city Hobart, is remote from Australia's major metropolitan markets and trunk routes, and has a telecommunications supply market which resembles that of regional Australia more than of Sydney, Canberra or Melbourne.
- Areas which are uneconomic or marginal to serve because of hilly topography, low population density, or older than usual Telstra infrastructure, are scattered across the island, including throughout the four major regional centres of Hobart, Launceston, Devonport and Burnie.

There is no simple metropolitan/regional divide when it comes to broadband access. Fringe metropolitan areas and locations adjacent to larger regional centres often face many of the same issues as small regional towns and rural areas. The degree of assistance required may vary - some areas may need long term subsidies, while others could achieve a sustainable commercial solution with limited, short-term support.

5.2 Carrier cooperation and infrastructure sharing

Given the inherently marginal nature of capital investment in many regional areas, it is important that both regulatory and funding initiatives facilitate carrier cooperation and infrastructure sharing. Existing and proposed initiatives address this in relation to carrier access to infrastructure owned by other carriers, but barely in relation to encouraging and assisting carriers, and potentially other interested parties such as land-owners councils and communities, to work together to construct and share long-term infrastructure such as local loop fibre or ducting.

To facilitate greater competition, the effect of registration and compliance requirements on the accessibility of programs for smaller players should also be considered.

5.3 Investment in next-generation infrastructure

Programs should support conditions for investment in new-generation infrastructure. Without Government encouragement, the very long-term nature of the investment required could lead to over-investment in short-term technology and underinvestment in infrastructure to support future services.

Australia should be targeting in the next few years:

- FTTP where it can be commercially viable, in new housing developments ;
- progressive upgrades to higher grade DSL (such as ADSL 2/2+) in established neighbourhoods;
- innovative wireless platforms providing greater coverage and competition to fixed broadband; and
- next-generation network-enablers, services and applications such as IPv6, VOIP and digital content.

Current entry-level broadband will not be adequate for long. Government initiatives need to encourage investment in scalable technologies, eg ADSL 2 over ADSL, fibre, WiMAX over WiFi.

Consideration should be given to capping the level of support under Broadband Connect for ADSL technology.

5.4 Strategic investment

The Tasmanian Government supports the concept of “strategic initiatives” funded out of Broadband Connect, or Clever Networks which are not contested but developed in conjunction with State Governments and the private sector to stimulate new benchmarks for broadband services (in terms of speed and pricing). Such projects should provide significant (and not incremental) increases to current commercial delivery.

5.5 Broadband Connect

The Tasmanian Government welcomes the allocation of \$878 million in ‘subsidies for broadband services, building on the results of the HiBIS program’.

Development of the program should take into account the flaws of the HiBIS model, including that:

- the accelerated rollout of basic ADSL and satellite services could hollow out potential markets for next-generation services;
- Telstra’s scale allows it to aggregate individual subsidies and to invest capital before receiving the subsidy, but smaller carriers may be unable to do so. (The Tasmanian Government supports the continuation of the current funding cap of 60 per cent for any one supplier.)
- the two subsidy levels, combined with the per-site nature of the subsidy, may unnaturally favour satellite services in areas where this is not the most viable technology;
- many sites which cannot access broadband services are ineligible because they are considered to be in metropolitan areas¹, and
- the emphasis on basic broadband access will not facilitate investment in other services which may be bottlenecks to economic benefit, such as higher-grade broadband services (ADSL 2+, Fibre to the Home ...) and foundation applications (voice and video over IP, IPv6).

5.6 Clever Networks

The Tasmanian Government welcomes the allocation of \$113 million for ‘investment in innovative broadband infrastructure, especially for health and education service delivery’.

Development of the program should take into account the learnings from implementation of the National Communications Fund (NCF) and the Coordinated Communications Fund programs, including:

- The allocation of a small proportion of any infrastructure grant to cover application development or change management activities could assist in ensuring that tangible benefits are derived from infrastructure improvements,
- For projects involving State and Territory Governments, a relaxation of the requirement to undertake a discrete competitive tender in favour of the use of existing Government procurement arrangements could shave six to twelve months

¹ The \$50 M Metropolitan Broadband Connect program acknowledges this problem to a degree.

from implementation times, and ensure better strategic integration with existing services.

- Geographic and sectoral brokers are actively in tension.
- Regional advocate or broker activity should be flexible enough to involve existing structures, rather than duplicating them.
- It may be useful to provide resources to assist local governments to enable planning processes and infrastructure guidelines which facilitate new infrastructure development, such as the consideration of broadband technology needs as part of housing developments.
- As noted, other key initiatives may involve extension of backhaul and build of metro rings where normal commercial pressures have thus far not seen this occur. In Tasmania's case this could mean extending the TasGovNet fibre into North East Tasmania, and installing a metro ring in Launceston (outside of Telstra's network).