Submission on Regional and Regulatory Issues associated with the National Broadband Network

Submitted by
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1 EXECUTIVE SUMMARY

Galbraith & Company appreciate the opportunity to make this submission on both regional and regulatory issues that we consider of national interest associated with national broadband policy in general and the National Broadband Network in particular.

With decades of experience of working across the telecommunications, information technology and media industries, both locally and around the world, we consider broadband policy and regulations as a fundamental driver of any national economy. There is considerable research published that supports this claim. When considered in the light of other closely related nation building issues such as: digital economy (including education, healthcare, digital media and other content-based industry sectors); innovation; infrastructure (including smart metering etc.); and sustainability, the import of appropriate policy and regulation is only amplified.

We have divided this submission to best address our recommendations with regard to both the more general national broadband issues and the specific issues relating to regional broadband.

Our overall philosophy is to ensure that 100% of the community will have equitable and price competitive access to broadband services under a single NBN allowing that the most appropriate broadband technology may be adopted to best suit the commercial and geographic needs of any single subscriber.

We propose a set of overarching principles that could be applied to any NBN agreements.

- An open access, nation-wide high-speed core backbone infrastructure model that delivers wholesale sustainable, consistent and affordable services.
- Standard operating procedures and structures that support a national wholesale broadband infrastructure with fixed interchange tariffs agreed by the ACCC whether retail access network be urban, rural or remote.
- A national protocol that would allow access to service providers who could meet the technical, and operating requirements for quality, efficiency, cost and security.
- A network that can be utilized by the most appropriate technologies suited to local conditions. These may include: FTTx, BPL, Wi-Fi, WiMAX, 3G, 4G, etc.
- Spectrum bands preserved to ensure current and emerging technologies have guaranteed access especially for rural and remote areas.

- Consider a "no over-build" principle that recognizes previous contributions and investment, to address anti-competitive behavior.

We would be pleased to expand on the issues raised in this submission if appropriate but for the purposes of this submission we have endeavoured to identify what we believe are the key issues that should be considered if the nation is to achieve optimal economic and social benefit that ensue from an innovative national broadband service.

2 NATIONAL ISSUES

This section addresses some of the broader national issues that should be considered as the shape and scope of the nation's crucial broadband infrastructure is considered.

This matter is bigger and more important than the interests of any special interest group and given that the build-out of this infrastructure will be seeded by Commonwealth Government funding we suggest that matters of national interest should be considered.

2.1 TECHNOLOGY

Moore's Law has demonstrated that computing price/performance, which has effectively doubled every 12-18 months for the last twenty years, can continue and even increase over the next twenty years. The big winner in this continuous innovation is ultimately the consumer. The communications industry in the past has not had the competitive pressures that have been apparent in the computer industry and without these competitive pressures innovation is not required. Hence the communications industry has been dominated by a limited number of local operators and international equipment providers that enjoy a mutually rewarding symbiotic relationship. In more recent times industry deregulation and progressive regulators have seen the emergence of a range of new equipment providers that closely adhere to industry standards and are more like computer industry players than traditional telecommunications players have ever been. This can only be good for the consumer too.

Accordingly, we suggest that the framework for any national broadband infrastructure should be "standards-based", "technology-agnostic" and "network-neutral". By adopting this approach, any ultimate network operator can invest in the technologies from vendors that are most appropriate to deliver a service that is cost and performance effective.

2.1.1 CORE VS. ACCESS NETWORKS

At this time optic fibre is clearly the most effective technology for fixed "core" networking. However, there is a case to argue that the dynamics of core networks and both static and mobile access networks are very different and should be considered separately. There is evidence to suggest that although FTTH/FTTP should be the ultimate goal for fixed broadband access it will not be economically sustainable across large tracts of Australia and that alternative access network technologies should be considered.

We recommend that there should be a clear regulatory line drawn between wholesale core network and retail access networks. We recommend that there should be open competition at retail access network services and that, wherever possible, open and consistent wholesale pricing should be available to any parties that may elect to build access networks and provide services over these networks.

2.1.2 FIXED VS. MOBILE BROADBAND

We are seeing a trend towards an ever increasing demand for "personal mobile broadband" where an individual subscriber can configure their broadband service to their own particular needs based on their personal requirements and device preferences.

It is in the interest of incumbent operators to separate their fixed broadband services from their mobile broadband services to ensure maximum revenue opportunity.

Much of the innovation in communications is resulting in highly mobile data services that complement existing mobile voice services.

Should an innovative approach be adopted with regard to the core vs. access network debate then it would be possible to offer both the consumer and business an optimal common national broadband network that offers both fixed and mobile broadband services across a common infrastructure utilising the same consumer devices, whether in the home/office or the street/campus.

This also raises the issue of spectrum allocation/regulation and the digital dividend that may be appropriate to this debate.

2.1.3 BROADBAND VS. BROADCAST

The broadband and the broadcast industries have evolved from very different business models. The FTA broadcast model effectively operates a national broadcast network and delivers rich content to the consumer for free based on advertising. The broadband model is traditionally based on telephone operators who could charge for telephony service over time and distance. This has been very profitable over the years. As "convergence" accelerates we suggest that these two models could converge also. Many experts would suggest that digital broadcast networks are the most cost effective technology for the distribution of rich content on a one-to-many basis while digital broadband networks are most effective for packet-based interactive communication on a one-to-one basis.

We suggest again the core vs. access network is highly valid in both these cases and should be considered accordingly.

2.2 PRICING

In our experience neither the consumer nor business really cares what type of technology is utilised to deliver the content services they require, whether this be analogue-digital TV or copper-fibre-cable broadband. The most sensitive issue is the price of these services. If the price is too high, despite the technology being excellent, then the consumer will simply not subscribe. In Australia, a fine example of this is the early attempts to provide broadband services through ISDN. These services were priced at such a point that the subscriber did not sign-on. We fear that a similar issue will occur with NBN if there is an undue focus on the technology and not adequate focus on both wholesale and retail price points.

2.2.1 NATIONAL VS. INTERNATIONAL TRAFFIC

It is now generally agreed that the cost of building a FTTC/FTTN network covering 98% of the population will be significant. Given that unlike many other nations which are viewed as broadband benchmarks, Australia's broadband consumers are seeking significant amounts of their content from off-shore, predominantly USA and Europe. This effectively, despite local high-speed broadband speeds, can throttle the effective throughput of the network unless appropriate international bandwidth is available.

We suggest that the NBN should also consider the implications of (and perhaps investment in) adequate and competitive international links or the value of the local infrastructure investment may be diminished.

2.2.2 CAPPED PLANS

Congruent to the national vs. international traffic issue, broadband programs that cap downloads/uploads and shape traffic speeds downwards can undermine the NBN asset. We have high-speed xDSL and/or cable access in Australia today in many locations. The fact that, according to the subscriber data plan, these can be re-shaped to 64kb/sec, effectively dial-up modem speed, then the value of the service to the consumer is severely hindered.

We also recommend that capped broadband plans should also be considered as a component of the overall NBN model. We are not advocating any particular cap plan at this time, we suggest that more analysis is required, but it is worthy of note that some economies not dissimilar to Australia's do not have download/upload caps.

2.3 METRO VS. REGIONAL

The relative RoI on a metro and regional NBN is significant. We are now hearing incumbent operators indicate that the costs of delivering NBN to regional areas will increase significantly as distance from CBD's increases. We suggest a flexible technology-agnostic approach to access networks such that the most appropriate technology, cost effective technologies and innovative business models can be utilised to deliver equitable access network regardless of the location of the subscriber. We propose to expand on this issue in a subsequent Submission on broadband solutions for remote areas.

2.4 BROADBAND AS A UTILITY

Many other industries around the world that were traditionally "natural monopolies", because of the high cost of infrastructure have been regulated to provide central wholesale services and highly competitive retail services. These industries include: electricity, gas, water, train, bus and even air travel.

We suggest that broadband should be considered in a similar regulatory framework and, as with these industries, both price and performance guarantees be agreed as part of the contract.

2.5 WHOLESALE VS. RETAIL

We have touched on the issues of wholesale vs. retail across many of the issues already raised. We would like to emphasise that for the economic health of the States and the regions we recommend that it is of import that xSP's who have invested significantly in infrastructure based on current regulatory settings be able to compete on a retail basis on a level playing field under any new regulatory settings.

2.6 SERVICE PROVIDER VS. OPERATOR

Operators have traditionally built and operated networks based on time and distance telephone whether fixed or mobile. Ever increasingly data networks, fixed and mobile, allow services to be offered that are independent of time and distance, services such as Skype, Google, eBay etc. As is evident in the equities markets, the valuations of these companies are far higher than that of traditional operators for obvious reasons, many of them touched on in this submission.

We recommend that an effective NBN regulatory model will allow new indigenous "digital economy" businesses to develop and prosper on the global stage, whether it is broad-based digital services such as content portals or industry specific digital services such as education or healthcare. These next-generation service providers focus on content delivery and are effectively facilities independent. It is these innovative young companies that will drive economic growth in to the future if a cost effective NBN can be provided.

2.6.1 COMMUNITY SERVICE PROVIDERS

Likewise, State and regional governments are investigating methods by which they can enhance their economic and community advantage through developing effective access networks and services in conjunction with local xSP's and local government and communities. There are numerous innovative models around the world where effectively community broadband has proven to be a significant advantage to communities particularly those in more remote locations.

2.7 SUSTAINABILITY & INNOVATION

As ever increasing pressure is applied to the nation's finite resources, long term sustainability is crucial to the national interest. Most pundits agree that an effective broadband infrastructure can and will allow better utilisation of these finite resources. There are many reports on methods by which effective broadband could reduce greenhouse gases and enhance power generation and utilisation.

We suggest that, when the national business case for NBN is considered, the value of the sustainability elements should be accounted for.

2.8 WORLD BEST PRACTICE

Many economies that can be likened to Australia are adopting a mixture of regulatory approaches to their national broadband imperatives. It is interesting to note that every one of these is effectively drawing a line between wholesale core network provision and retail access and service provision.

We strongly recommend that a similar approach be adopted as a key component of the NBN regulatory framework.

3 REGIONAL ISSUES

This section addresses some of the more specific regional issues that should be considered as the shape and scope of the nation's crucial broadband infrastructure is considered.

3.1 THE NEED FOR COMPETITIVE REGIONAL AND RURAL TELECOMMUNICATIONS SERVICES

Delivering services, education and training in rural areas requires affordable high quality, high speed communications. High speed broadband removes the tyranny of distance and brings equity into service provision. The ability to deliver specialist and professional services on line and in real time has emerged as a viable complement to traditional services delivery, and in some cases an alternative, particularly when access to traditional services is difficult or not feasible.

Rural and regional communities continue to be impacted on a number of fronts, which challenge their long term viability, but poor connectivity also acts in consort to reduce opportunity, stifle entrepreneurial initiatives and innovation, and severely degrade the quality of life for individuals and families.

Many city-based professionals are looking for a "tree and/or sea-change" for professional, personal and family life style reasons. In making relocation choices these professionals take into account the quality and availability of telecommunications and broadband infrastructure and services that will not only support their lifestyle choices, but also offer opportunities to generate real incomes within these communities.

Today's digital telecommunications environment requires infrastructure to be of a standard that is capable of supporting digital voice and video applications. Tele-Health, Tele-Medicine and Tele-Psychiatry services have demonstrated the potential to deliver enormous service improvements as well as addressing the acute skills shortages that exist in the sector.

The standards for telecommunications and broadband services should be consistent with industry best practice, and capable of supporting a scalable data speed, with capacity to support committed bit rate services (QoS requirement) such as Voice over Internet Protocol (VoIP), videoconferencing and video streaming on ratios on a symmetrical service that allows seamless connectivity between parties.

The critical need for improved telecommunications and broadband is now oft cited as a priority for communities, and is now recognised by them as a critical pillar of economic development, as well as a vital social infrastructure.

Galbraith & Company has been working with the Murray Regional Development Board for a number of years. Through this long term commitment to "community broadband" we have come to the conclusion that such community focused models can provide a highly viable alternative to that of traditional operators. This and similar models, where the access network and related digital economy service is owned and operated by the community, for and on behalf of the community, allows effective regional planning incorporating local industry and economic development and can leverage both Commonwealth, State and Local government infrastructure and investment for public benefit. Through discussions with State governments and many local governments across the nation we have concluded that community broadband access and digital economy networks would provide a significant economic advantage to under-serviced communities in both metro and regional areas.

Researching the many and varied innovative models of broadband deployment, both nationally and internationally, reveals a clear focus on a Communities' triple bottom lines, of economic, social and environmental values. This type of ROI creates different business models for broadband deployment than the traditional carrier model which has a profit motive only approach.

Good telecommunications will never replace face-to-face service delivery but it is certainly a highly cost effective complementary alternative.

We recommend that Commonwealth, State and Local Government, in conjunction with the NBN initiative, should take the lead developing strategies that identify and leverage the significant investment already made and open access for competition in rural and regional areas to provide affordable, high speed, high capacity connectivity.

3.1.1 THE IMPORTANCE OF PLANNING

Rural and regional communities, business and industry identify high speed telecommunications as being as fundamental to a modern regional economy as electricity, clean water and transportation infrastructure. Invigorating rural and regional communities through technology that allows access to clever applications will help build long-term sustainability and re-dress the capacity and skills drain.

Advanced local telecommunications infrastructure planning will encourage the development and deployment of new and competitive telecommunications infrastructure.

Through our work with State Governments around Australia we have identified a number of regional broadband issues that should be addressed from a common national perspective. These include:

- Ubiquitous and competitive mobile broadband will be critical for business and rural regional development;
- Infrastructure to many exchanges needs upgrading before DSL services can be delivered. Where ADSL2+ has been deployed by the incumbent, it is not accessible by competitors so prices remain high.
- Significant underserved areas (black spots) throughout regional Australia.
- Affordability and global equivalent performance is critical to enable productivity competitiveness in the regions.

3.2 PRINCIPLES FOR A COMPETITIVE BROADBAND ENVIRONMENT

An overarching principal is that any network should be "technology-agnostic" and "network-neutral" to allow any standards-based network technology to connect and inter-operate.

3.2.1 KEY TECHNICAL & MANAGEMENT PRINCIPALS

We propose a set of overarching principles that could be applied to any NBN agreements. These principles could apply to both national and regional NBN issues.

- An open access, nation-wide high-speed core backbone infrastructure model that delivers wholesale sustainable, consistent and affordable services.
- Standard operating procedures and structures that support a national wholesale broadband infrastructure with fixed interchange tariffs agreed by the ACCC whether retail access network be urban, rural or remote.
- A national protocol that would allow access to service providers who could meet the technical, and operating requirements for quality, efficiency, cost and security.
- A network that can be utilized by the most appropriate technologies suited to local conditions. These may include: FTTx, BPL, Wi-Fi, WiMAX, 3G, 4G, etc.
- Spectrum bands preserved to ensure current and emerging technologies have guaranteed access especially for rural and remote areas.
- Consider a "no over-build" principle that recognizes previous contributions and investment, to address anti-competitive behaviour.

3.2.2 COMMONWEALTH-STATE ENGAGEMENT

We recommend that Commonwealth and State Governments work together on a broadband model most appropriate to each unique State's requirements and the national imperative - possibly through the proven COAG model.

Accordingly, review and align Commonwealth and State Governments regulatory policy settings to facilitate an open access, agreed standards based national broadband infrastructure, leveraging existing assets, and with globally competitive (affordable) pricing.

And finally, define Federal, State and Local responsibilities for the deployment, financing and management of the broadband infrastructure and the ultimate delivery of communications services to communities.

3.2.3 SPECTRUM ALLOCATION TO THE REGIONS

We recommend that we recognise the economic and productivity value and public benefit of wireless broadband spectrum and agree on appropriate allocation of globally compliant spectrum for mobile and wireless broadband data on a regional basis for the benefit of regional communities.

Traditional carriers and WISPs are seeking more spectrum, with the result that government spectrum license holders are experiencing policy pressure to use their spectrum allocations more efficiently. Other pressures on governments include the need to expand and upgrade their radio networks and to ensure that these networks are IP based and interoperable between agencies and with adjoining state networks for emergency and homeland security use.

Currently outside the spectrum policy debates, but emerging as a key concern of regional communities, is the need to ensure the competitive capacity of local economies by ensuring that broadband network infrastructure and especially competitive, affordable and ubiquitous wireless broadband is available for local businesses and residential use.

An increasingly common solution internationally has seen many communities collaborating to build (or have built) community owned and/or managed converged broadband networks. Considerable past investment in proprietary radio equipment sees government instrumentalities increasingly search for pathways to IP networks which offer the benefit of inter-operability and convergence. There is huge potential in planning and identifying opportunities to maximize the utilization of these networks for a variety of services for the public benefit. In Australia, a reliance on outdated proprietary equipment prevails but this will have to change, driven by the global transition to industry standards. A dose of lateral thinking and strategic planning for this upgrade investment offers potential to broaden the reach and utility of wireless connectivity for regional communities.

However, national spectrum allocation policies create barriers to the most efficient development of local communications networking and present a potential barrier for the adoption of innovative wireless broadband business models and deployment.

On the one hand, Federal policies compel local governments to increase both investment and efficiency in everything they do. On the other hand, Commonwealth policy simultaneously limits city and regional authorities and/or WISP's to own and operate global standards-based wireless communications services that serve non-public safety purposes, but which could enhance regional development and create financial and operating efficiencies if appropriate spectrum was accessible under affordable terms. By 'selling off' nation-wide tranches of global standard-based spectrum to the highest price commercial bidder, restricts the capacity of smaller regional entities to initiate different models of service delivery in regional areas, where the traditional carrier model and the market has failed to deliver and where perversely, finite spectrum resources are unused as it does not suit the large traditional carriers business models to invest in infrastructure in low density populations.

In considering the digital dividend, Galbraith & Company proposes that the Commonwealth direct the Australian Communications and Media Authority (ACMA) to develop recommendations for affordable and sustainable access to spectrum for last-mile and backhaul specifically designed to improve Regional Development by increased competition in the provision of telecommunication services, as a matter of priority.

Specific recommends may include but not be limited to the following:

- Release part of the 2500- 2690 MHz and or 3575-3710 MHz spectrum under Private Park Spectrum Licensing as described in ACMA document SPP 1/06 and SPP 10/06 Strategies for Wireless Access Services (WAS) Spectrum Planning Discussion Paper, ensuring there is adequate and appropriate protection for ENG and FSS users in these spectrums.
- Allow assignments for Wireless Links with Time Division Duplexing (TDD) radio configurations in the un-paired channels in the 3800 MHz Band Channels 1', 2' and 3' (Centre Frequencies: 3930, 3970 and 4010 MHz) and in part of the guard band between 3890 and 3910 MHz for all geographic locations defined by ACMA as Low and Remote Density.

3.2.4 STATE AND REGIONAL GOVERNANCE MODELS

We recommend a review of telecommunications needs of the state economies and communities with specific regard to those of the remote and rural communities, to provide the baseline for allocations.

State service delivery agencies could develop plans that would integrate existing and planned services at a local level, and cooperatively manage delivery.

These two principles emerge from RCCC research of local, state and national models for broadband delivery which focus on meeting community economic and social development needs.

Around the world, communities are increasingly intervening in the deployment of broadband to redress market failure where traditional carriers fail to invest in next generation technology. A recent (June 8, 2008) UK analysis of models of public sector interventions throughout Europe and the USA recommended the experimentation of models for public sector interventions in collaboration with commercial stakeholders, government and regulators. This is a concept pioneered in NSW by the Murray Regional Development Board's community engagement initiative via a Regional ICT Committee, the lessons from which are now informing international innovation in the sector.

Case studies of economic development broadband models exist in communities as diverse as Tallinn in Estonia, Burlington in Vermont, Oklahoma City, Gainesville Florida and Burlington Ontario. With variety in chosen technology and business models to suit local environments and needs, a common feature is an all IP network of standards based technology which is open access. This enables innovation and competition to flourish at the retail level, resulting in applications to meet local need and affordability of access.

3.2.5 LEVERAGED BASED INDUSTRY & SOCIAL POLICY AGREEMENTS

The allocation of public finance for broadband infrastructure could be based on the ability to meet standards but also to leverage the new investment for economic and social outcomes. Federal, State and Local Governments could have a role in driving the framework for this philosophical tenet to:

- Assist with community access to education, employment and training;
- Integrate the needs of local industry for productivity and connectivity;
- Address the digital divide through a mix of cheaper and easier access and greater connectivity;

- Contribute to the richness of local cultural life in the community;
- Improve participation in the media;
- Enhance Community Capacity by improving access and networking tools;
- Enables community monitoring and management of environmental resources;
- Encourages the more efficient use of transport and energy in the community; and
- Facilitates enhanced service delivery and the development of the digital economy, and reduces reliance on carbon emitting travel.

4 Conclusion

In this submission, we have endeavoured to provide a list of issues that we believe are highly pertinent to the national interests.

We applaud the opportunity for interested stakeholders to raise regulatory issues and would welcome the opportunity to discuss any of the points raided in this submission should it be appropriate.

5 Appendices

5.1 Galbraith & Company

Galbraith & Company (www.galbraithco.com) is a professional advisory firm that specializes in the broadband, broadcast, media and digital economy with a particular focus on the key aspects of broadband access networks, digital communities and mobility.

We operate a number of specialist practices designed to meet our clients' particular requirements. These practices comprise:

- Policy and Regulation;
- Strategy and Planning;
- Government and Industry Relations; and
- Market Development.

We provide customized services to senior management, policy makers and strategists in both the public and private sectors.

Galbraith & Company monitors and analyses the rapid and continuous evolution of technology, government policy and commercial trends that are rapidly transforming the way in which we conduct business and live our lives.

We provide a unique perspective on trends, opportunities and potential threats that may impact your business or community.

Galbraith is staffed by a team of highly qualified, respected and seasoned industry specialists with expertise in ICT government policy and regulation, strategy and planning, spectrum planning, government and industry relations and market development.

With broad-based insight in to global ICT trend and a clear understanding of our clients' medium-long term business objectives, Galbraith is exceedingly well placed to provide timely and precise advice, strategies and programs on emerging trends that may impact and/or advantage our clients.