SELECT COMMITTEE ON THE NATIONAL BROADBAND NETWORK

Supplementary Submission by Communications Experts Group Pty Ltd

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During the Presentation by Communications Experts Group represented by Dr Walter Green a number of issues were raised which require clarification and additional information.

SECURITY AND RELIABILITY

Duplication, or alternative paths are needed for the provision of a reliable service and also providing secure connections in the event of natural, man-made or industrial dispute related network and system failures, particularly if the links are carrying medical information (especially information relating to life threatening cases) and national security. There are some mines that for safety reasons have to stop operating if they are without communications to the nearest capital city.

Duplication or Alternative Paths are needed in the Backhaul part of the Network (from the node to international gateways) because a link failure will affect many users. The type of duplication or alternate path configuration is dependent on many factors.

The "last mile" or the cable from the node to the premises should not be duplicated because of the prohibitive cost and a link failure will only affect a few users. Furthermore, mobile communications typically exist to augment services in the event of last-mile service failure (it is important to note however that such mobile services still rely upon the "Back-haul" element hence the need for duplication of this component.

ACCESS TO THE LAST MILE NETWORK

The 1997 Telecom act made it clear that the Carriers should have access to the Telstra last mile connection, and the High Court has confirmed this interpretation of the relevant clauses.

This policy should be continued in the NBN, and if necessary the clauses should be strengthened to ensure that the winner of the NBN contract has full access to the last mile connection.

In the event that Telstra no longer wishes to maintain or use copper cables to the premises, i.e. writing off the asset, then the winner of the NBN or other Carriers should have the right to purchase the cables based on the original installation less depreciation costs. This approach is needed to reduce the incidence of "stranded assets" by either Telstra or the winner of the NBN contract.
Note. The method of calculation should be subject to Ministerial approval.

METROPOLITAN BLACK SPOTS

Black spots still exist in many metropolitan areas, in the event the NBN was not to install the replacement of existing Pairgain and RIM nodes with FTTN facilities it would mean that Telstra could still monopolise these clusters of users (assuming Telstra chooses to build out FTTN infrastructure).

It is therefore essential that Pairgain and RIM facilities are liberated for inter-connection to last-mile infrastructure in the same way as local exchanges. Access seekers will then have the option to deploy their own external enclosures adjacent to the "nodes" to interconnect to their own backhaul infrastructure.

Given the relative length of the "RIM to subscriber" copper infrastructure (averaged at 30% of normal local loop) it is assumed that a ULL costing model would see price points in the range of approximately 60% discount on the standard ULL rate.

STRUCTURAL SEPARATION

The following is in addition to the issues made in Communication Experts Group's original submission and to clarify the answer as to why structural separation is beneficial.

The focus, funding and business strategies and culture of a Telecom Retail Marketing Company and an Infrastructure Provider are quite different.

The focus of a Marketing Company centres around pricing and service differentiation, and maximising revenue from customers (ARPU or average revenue per user). Marketing Strategies include withholding service to drive prices up or charging high fees for upgrades as well as bundling service offerings to optimise returns and increase ARPU levels.

Due to the higher risks associated with Marketing operations Investment rates of returns of 15% to 20% (cf Telstra demand for 18% RoI) are acceptable.

An Infrastructure Utility has a different funding (long term) model and the industry norm for the RoI on a utility company is 10% to 12%.

With appropriate price regulation, the only way a Telecom Infrastructure Company can improve revenue is by increasing the number of users and increasing the amount of traffic. To maximise profits the focus will be on minimising the costs of building, operating and maintaining the infrastructure.
Note There are trade offs in costs between the construction, operation and maintenance.

The Dominant skill sets for the Board of a Telecom Retail Marketing company are quite different to a Telecom Infrastructure company where engineering and utility management skills are more important.

Part of the reason for the decline in Australia's Telecom infrastructure is the recent focus of Telstra CEOs and Boards on Consumer Marketing issues at the expense of the Infrastructure. Recent improvements in infrastructure have been driven by the need to reduce competition (3G Network) or respond to the threat of competition (introduction of ADSL2).

Telstra's demand for an 18% RoI and threats of not bidding for the NBN are consistent with a marketing or consumer cultural approach, and not an infrastructure or utility management skill set.

By introducing structural separation two Boards with the appropriate skill sets will be introduced for the benefit of all Australians.

PRICE COMPARISON BETWEEN RURAL AND METRO AREAS

There are significant increases in the cost of the infrastructure, operation and maintenance of Telecom assets in rural and remote areas. The original access pricing (and the model preferred by the ACCC) is to have a price dependent on location (CBD, metro, rural, remote).

While it is desirable to have price equality, regardless of location, the winner of the NBN should be allowed to have a tiered price structure, with the additional requirement that communities with populations of 4,000 or more have the same pricing structure as Capital City Metro areas. Depending on distance from major centres and population size, the ratio for rural areas should be allowed to range from equality to 2:1. A price ratio of 2:1 has been considered by some users as acceptable, however the price ratio of 8:1 given in evidence is unacceptable.
This pricing policy excludes remote users (or the 2% not covered by the NBN).

TECHNOLOGY NEUTRAL NETWORK

The NBN will consist of links or pipes (between nodes, exchanges and centres) and switching units. The links transfer data between two points and the switches add value to the data.

The interface between the switches and the links must be technology neutral, and this can readily be achieved because the relevant standards and type approval procedures are well defined and proven in practice across the globe.

The functionality inside the switches, or the value adding processes are relatively undefined and lacking in standards. Most solutions are either proprietary or are variations of interpretations on current standards.

A typical problem today is how to handle the streaming data services such as voice, video, video conferencing, IPTV, DVD-TV, multimedia and "Immersive TV". The poor performance of many IPTV and VoIP trials is due to missing standards e.g. combining network traffic to/from the user.

There is also the issue in the adoption of the new Internet Protocol Version 6 (IPv6). In this case the interface to the links is well proven, however the interface to the user or device is subject to development, especially communications between the current internet and the new internet IPv6 Networks.

The need for a technology neutral interface between links and switches is also critical if the expected benefits of the NBN are to be realised, because of the way in which

different Businesses and Government Agencies will use the NBN, and the evolution of the NBN and new methods of adding value to data.

EVOLUTION OF THE NBN

For over fifty years the airlines, foreign affairs departments and defence have built telecommunications networks to suit their needs. Each of these special purpose networks were based on a common set of needs.

- Speed
  Data Rate, latency, and variation in latency (jitter).
- Reliability
  Single or multiple links, and tolerance to equipment or link failures.
- Security
  Un-encrypted, and low level to high level encryption and forward error correction.

Today there is a need for many new types of networks that cater for increased privacy protection, governance issues and to improve business efficiency.

Typical specialised Networks that have been built to date include:

- University High Speed, medium Reliability, and low Security.
- Banking. Low Speed, High Security and Reliability.
- Accountancy. Medium Speed, Security and Reliability.
- User Internet Connections. Medium speed, low Reliability and Security.
- Power Network Control. High Speed, medium Security, high Reliability.

Different types of International Standards and Switches are in the process of being developed to meet the needs of the new Networks, however they all have a common and well defined interface to the links that the NBN will deliver to its customers.

It is likely that the winner of the NBN will evolve into a provider of links between centres, nodes and users, with retailers providing the switches to satisfy the needs of different types of customers based on their requirements for speed, reliability and security.

EXISTING CUSTOMERS ON ADSL1 EQUIPMENT

It is important to note that there are still a large [estimated at 80% residential and SME] broadband users are still using ADSL1 modems and equipment. If the NBN roll out occurs and ADSL2+ and higher speed technologies become the norm manner customers will be forced to purchase replacement customer premise equipment (CPE) possibly at their own cost.

ACCESS TO EXISTING INFRASTRUCTURE

To speed up the development of the NBN it is important that the winner of the NBN be mandated to use (on acceptable commercial terms) existing telecom infrastructure,

and to participate in the construction of special purpose links with capital contributions from businesses (e.g. the construction of links to mines, or provision of mobile towers on mine sites).

It is critical that the NBN be required to cooperate with existing infrastructure providers to improve the value of the NBN and existing Telecom assets.

FEDERAL, STATE AND LOCAL GOVERNMENT PLANNING

Experience in building Fibre to the Premises Networks in Perth and the UK (refer Broadband Study Group) clearly show that 80% of the cost of building Last Mile Networks relates to the civil engineering construction costs. The electronics and cable component only account for 20% of the total cost. One of the major difficulties in estimating the total cost of the NBN is the uncertainty in the cost of the civil infrastructure.

The cost of the construction of the NBN can be substantially reduced by developing a National Telecom Plan and with State and Local Governments putting in conduits and enforcing land Developers to provide land and conduits for Telecom services. Experience in Perth has already shown that for new Estates the cost of installing Fibre to the premises is cheaper than Copper. A common disincentive for installing fibre to the premises is the lack of backhaul services from the Estate to the National Network. This can be solved by State Planning Departments developing a State Telecom Plan that can be used by Shires and Local Government to install conduit and make provision for land for nodes. Typically the cost of installing conduits when a road or pavement is being upgraded is a small fraction of the cost of installing the conduits at a later date.

The development of National and State Telecom Plans will have a large impact on the cost and rate of roll-out of the NBN. The costs of developing the Telecom Plans will be fully justified by the reduction in cost of building the NBN, including the improved cash flow through the earlier generation of revenue.

The National and State Telecom Plans should take into account existing Telecom assets and the winner of the NBN should be directed to rent or purchase capacity on existing infrastructure to speed up the roll-out of the NBN.

The winner of the NBN should also be directed to work co-operatively with existing infrastructure providers and be enabled by Legislation to build Telecom infrastructure as Joint Venture partners or by capital contribution.

A key factor in assessing the bids for the NBN should be the demonstrated ability to work co-operatively with existing infrastructure owners for the benefit of both parties.

The co-operative approach to building the NBN is critical to reducing the cost of the NBN and enabling the Federal Government to achieve its policy goals in other areas of Government particularly in the areas of Health and Education.