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SIX MONTHLY REVIEW OF THE ROLLOUT OF THE NATIONAL BROADBAND NETWORK

Submission on behalf of Capgemini Australia, Shelley Oldham – Vice President, Head of Public Sector

Background

After years of slow effective uptake of broadband in Australia, the National Broadband Network (NBN) is about to stimulate a revolution in broadband services in Australia. Today Australia still ranks far below comparable economies in terms of actual speeds, download caps, or affordability of high speed / download limits. Each of these attributes will foster innovation by retail broadband service providers and application service providers.

The NBN will introduce deep change in the way broadband services are delivered to consumers and businesses in Australia. Much more than just a faster internet access, the NBN will revolutionise the services that are offered above the access layer.

The ubiquity of the NBN presence is a factor often overlooked in the list of benefits it can bring. Only a deployment of this magnitude can bring a sufficient critical mass of users to justify investment in applications, and generate a sufficient network effect to generate utility for the users. Already today service providers of video or television services are moving to take advantage of the NBN in the future (Foxtel and Austar merger, rumoured entry in the Australian market of Hulu/Netflix, development of FetchTV). In a different industry, the ubiquity of NBN access is essential for the rollout of Health, Education and Smart Energy services, where only scale will generate sufficient benefits.

Another characteristic will be symmetrical or near-symmetrical services. They will allow a richer array of two-way communication services. Applications will emerge that extend high-quality video communication to small businesses, or open new possibilities like e-consultation in Health.

Video communication is now proven to be an enabler of business through increased collaboration and cost reduction, despite being largely reserved today for larger businesses served by fibre today. It is likely that the NBN will also increase the take up of personal video communication services, which are today largely in use through free providers such as Skype, but at a level of quality and usability that strongly limits their adoption.

In many cases, though, the applications themselves are not ready for that capability – in Health for example, the counterpart of ubiquitous access – the universal identifier – is a distant reality. One can argue that in many such areas the NBN will be the catalyst to provoke the change, although it may still require Government incentives to foster innovation.

The NBN will introduce deep change in the fabric of the industry as a whole, from multi-service carriers, ISPs, to application and content suppliers. As described below, such industry change will undoubtedly benefit the end-user, but it also raises concerns that will need to be monitored carefully and might eventually require government intervention, for example in the areas of security and privacy, or overall profitability of the industry.

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One of the key barriers of entry to communication-based services providers is of course the large network investment required to reach infrastructure economics and be able to compete effectively.

With a floor set by NBN access and price, the competition for fixed services will naturally shift to other sources of differentiation such as value-added-services (such as free or exclusive content, security, home network extensions, voice services), or service quality (technical levels of services, user assistance, billing convenience etc). This can only benefit the end customer.

Naturally, with that shift to other sources of differentiation the entry of many new Retail Service Providers (RSPs) can be expected. They will have either an ISP focus based on service differentiation, or a content focus based on specific content or applications they intend to deliver. It is conceivable that large content players, such as media broadcasters or large retailers for example, will establish themselves as RSPs to establish a direct relationship with their customer base, which has so far been intermediated by access providers. Or Government and Private Healthcare and Education providers may become the Government equivalent of RSP's – Government Service Providers or GSP's.

The role of the ICT Industry

The combination of the NBN and current rapid developments in Cloud technology and SaaS models will also be the perfect combination for the development of a **strong application service provider industry**. Cloud-based eHealth platforms, education or SmartHome applications such as energy management or home security can have a national footprint and access to a market that changes the parameters of viability.

Information Technology is critical to the support of these changes and the acceleration of utilisation of NBN. In effect, information technology will be one of the only remaining infrastructure investment required of SPs. In the consumer mass-market, this investment can be significant to attain the high levels of service automation and online presence required to remain competitive. As such IT becomes the key enabler of effective competition and service delivery.

As the NBN develops skills shortage and ICT value leakage highlighted below will be a key issue for existing SPs, potential new application developers in the market and the Government.

Our specific concern is the potential value leakage to overseas applications providers, especially if the shortage of ICT skills in Australia is not addressed through the stimulation of new application innovation and attraction of more local students into ICT University places.

While the Government should be applauded for the visionary stance it has taken on the creation of the NBN there is still much to do to stimulate an Australian ICT industry that is able to utilise local ICT innovation, production and deployment to support forward thinking applications that will benefit the citizen and create new export markets that grow our industry from the "inside out" not the current predominance from the "outside in".

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The NBN could greatly facilitate the geographical diffusion of ICT skills in Australia by removing much of the distance barriers for knowledge workers in general and ICT in particular. The development of strong teleworking technology and practices will be essential to facilitate growth in ICT skills in regional areas, especially in younger parts of the population.

There are many service delivery areas that the government could focus on however the purpose of this submission is two primary areas being Health and Education.

Health

The Australian Bureau of statistics data shows that in the decade between 1997 and 2007 annual health expenditure grew by 45% to \$4507 per person. The key contributors to these costs were chronic conditions such as heart disease, obesity, diabetes and cancer. Add the factor of our ageing population and health economists predict that these costs will continue to grow at a rapid pace.

The reduction of costs is not a single solution response; lower costs can be achieved through:

- appropriate patient monitoring in the home to reduce service delivery costs and overcrowding,
- the Personally Controlled Electronic Health Record (PCEHR),
- implementation of joint ventures for driving back office efficiencies, and
- changes to the performance model of funding for hospitals and clinicians.

This submission is concerned with patient home monitoring in areas such as diabetes, heart disease and asthma. Patients through the use of high speed symmetrical broadband connections can be assisted to monitor their own health condition in consultation with their practitioner from home.

This requires the development of specific applications to enable:

- patient and practitioner to connect,
- secure transportation of results and supporting images,
- provide referrals, and
- connect to local practitioners for support.

Further to this the system must provide skilled ICT professionals to undertake the development and implementation of applications within Australia who live and work within the context of the requisite governance frameworks for privacy and security.

Much effort and investment is being driven to the PCEHR, another vital piece of infrastructure for Australia. This will assist with lowering the cost of healthcare through reduced duplication of diagnostics, faster analysis of health problems, improved management of medicines etc. It will not however deliver smart services and or applications that will reduce patient to practitioner contact times or increased patient to practitioner service ratios.

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With the knowledge that the NBN provides access to sufficient scale for an ICT applications provider to be successful, the government could play a role in directly stimulating the ICT industry in Australia to develop applications that can service the requirements above.

Education

Technology has changed the pedagogical model by creating environments where children can lead their own learning, undertake research and collaboration and interact on a daily basis with other students across the globe to share knowledge and cultural context. Earlier models relied on each student being presented with a well structured standards based curriculum that they paced through according to the timetable and the teachers tempo.

Research on the impact of technology on the pedagogical model highlights that learning progression, motivation and individual cognitive styles can easily be satisfied through guided social constructivism with very positive student performance results.

Simple applications built in ubiquitous technologies can deliver Australia's children with learning that is interactive, teaches problem solving, critical thinking and self direction and keeps time with their capacity and interest.

The NBN provides the low cost access mechanism for high value content for schools and homes, a method for richer collaboration and knowledge sharing and faster access to best practice tools and learning methods.

The development of specific rich applications, online collaboration tools, standards based curriculum delivery tools and teacher training skills will be required to make full use of such capability.

Overseas examples of this have demonstrated the value of this approach, especially for disadvantaged communities

We note that the Government has released the NBN Enabled Education and Skills Services Program which dedicates \$27.2m to innovative proposals to support project development and deployment trials targeted to communities to first benefit from the NBN. This program of funding is expected to be picked up by TAFE organisations, Higher Education Institutions, schools and industry representative bodies.

Again the Government has the opportunity to increase the capacity of the ICT industry and to drive value from locally designed and developed applications by guiding the intended recipients of this funding to work with the AU ICT sector to design, develop and commercialise suitable applications.

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ICT skills to support developments

The March quarter saw demand for ICT skills increase by 3.9 per cent¹. University placements for ICT degrees have been declining over the past decade. Increased offshoring of low value ICT tasks has continued over the past 10 years further reducing the ICT skills base in Australia. These skills are now ranked 7th in order of professions with the highest skills shortage across Australia.

Impact factors on the ICT skills market

- The disaster recovery effort in Queensland, as well as end of financial year budget spending in the government departments, has led to a greater uptake in skilled IT professionals.
 - As the commodities boom continues, IT professionals continue to be in high demand for resource projects, particularly in Western Australia.
- And the increase in project activity in Queensland has caused a shortage of business analyst within the sector. Victoria has seen a rise in demand for IT workers in the financial services industry
 - There is strong demand for professionals in the Telecommunications sector as the National Broadband Network continues to staff up key operational areas, particularly in New South Wales and Victoria, ultimately this project will require skilled workers from overseas (e.g. network engineers) to combat the dwindling supply in Australia as this and other major telecommunications projects compete for the available resources.
 - Further demand for IT professionals will come from three of the big four banks spending more than \$4 billion overhauling their information systems in an effort to provide improved service delivery to customers.
 - It is likely that retail will also create a large demand for ICT skills as Australian retailers evolve to increase their leverage of online presence and capabilities.

The skills shortage has meant that employers are hiring less qualified staff, as well as training existing and junior staff.

There has been a growing trend of declining numbers of university placements in IT courses, with female numbers declining across the country.

Salary pressures are also being experienced across the board, with increases being seen in the order of 10 to 20 per cent and in some jurisdictions, such as the ACT, as high as 30 per cent.

As demand increases and supply tightens, continued wage increases are likely.

¹ Clarius skills index

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How then can the Government assist with development of applications and services?

In the earlier 1990's the ICT industry was facing similar pressures constraints and pressures for reasons largely to do with the economy. During this period the Government introduced skills based education for work programs that successfully delivered specific skills to the ICT industry. The difference between this period and today is the strong and visionary proposition that is poised to have a significant impact on the life and work of all Australians.

It is our view that one of the potential weaknesses in the NBN strategy is a comprehensive and integrated way to drive the delivery of applications that could benefit other areas of government policy and service delivery.

For example the Government could define a policy position that mandates the use of one of the NBN ports for health services in the home.. They could then seek to invest via a Grants process in the development of tele- health applications for use across Australia. The criteria for the establishment of the grants could be development of regional hubs of ICT activity – there are two regional locations within Australia that have data centre services² sufficient to support this type of initiative, namely Ipswich in Queensland and Ballarat in Victoria. The Government could also associate developers of such software with export grants and assistance from which to grow this important part of our sector.

The NBN is a strong and visionary proposition that is poised to have a significant impact on the life and work of all Australians. It will also change the very fabric of the Telecoms Media and Entertainment industry in Australia. The NBN is also likely to be the catalyst that will trigger an evolution in other areas such as Health or Education by providing a key enabler. However, the shortage of ICT skills in Australia might either delay the full beneficial impact of the NBN on the telecommunication industry, or see the benefits of the NBN on the Australian applications industry escape overseas.

Such a radically different industry landscape can raise security and privacy concerns and if not managed proactively at a policy and community consultation level may impact the overall implementation timeframes. Recent examples of the Health identifiers bill demonstrate this.

Safeguards should be established to ensure compliance by the RSPs with a number of practices well understood and applied today by the access provider industry in Australia.

² This is not a comprehensive analysis and further work would need to be done to understand what other locations are suitable and the access to a base of ICT graduates.