ATUG 2009 Future Forums
Digital Economy Stakeholders

**Background**

The 2009 Future Forums on the Digital Economy will look at

- Infrastructure and Access Services – NBN and 3G mobile developments; Digital TV; coverage, competition and consumer framework; quality of service options, informed choice
- Innovation and Applications – new businesses, new business and government service models, new ways of working, new skills,
- Integrity and Assurance – e-capability; e-security, privacy; digital confidence; empowered consumers

with the aim of identifying the priority areas for government policy and programs beyond the build phase of the NBN.

The first 2009 Future Forum was held in Sydney on 5 May 2009 and focused on infrastructure and access services and the opportunities and policy challenges arising for organisations operating in a Digital Economy.

Forum discussion assumed that Australia's NBN is Available to all, Affordable and an Open Access network.

Forum discussion focused on the new ways of working and living that an NBN based digital economy will deliver and on the policies and programs that will be needed to accelerate the development of Australia's Digital Economy.

**5th May Forum**

The Forum was chaired by Katherine Sainty of Sainty Law and attended by over 30 people including NSW Government, NICTA, ISOC, IPv6 Forum, DBCDE, ACMA, industry and consultants.

Think Piece presentations were by:

- Ric Clark, Alcatel-Lucent
- Eric Hamilton , Unwired
- David Havyatt, Havyatt Associates

The digital Economy as the forum understands it is an "information rich, videocomms friendly, interactive, transaction-intensive economy"

Other definitions were offered:

David Havyatt:

> The "digital economy" refers to the transformation of economic and social transactions, organisation and relations enabled by the

combined use of information processing and telecommunications technologies, such as the Internet and mobile communications. It includes commercial transactions, personal dialogue, and machine-to-machine communications for the delivery of information, entertainment and services. The term includes concepts referred to as 'internet economy' and 'information society'.

**Opening Remarks by Forum Chair**

Katherine Sainty described the core characteristics of a fully functioning, effective Digital Economy as one which:

- Supports strong competition
- Encourages business investment
- Enables consumer participation
- Allows government to deliver services more effectively
- Supports low carbon knowledge based services

ICT Infrastructure needs to be considered in two aspects – the pipes (hardware) and the people (software). Policies and programs have to take account of both aspects of ICT Infrastructure for Digital Economy goals to be realized.

A Digital Economy would create a positive climate for investment in applications and services and support growth in this sector to the point where Australia is a net exporter of content services – whether entertainment, information or business content services. The Digital Economy must develop business models which reflect the value of content services to avoid the entertainment piracy problem of today becoming the business content piracy problem of tomorrow. a question arises as to whether today's approach to Copyright and Patent protection is the right approach for a Digital Economy? Will business models change to the extent that "free" use will be bundled with access revenues shared along the value chain?

The Digital Economy is likely to be a Global rather than Local Economy. Australia has a strong tradition of innovation in both technology and content. Should the models of government support for such innovation be continued or strengthened in a Digital Economy? Should new models of business be developed and accelerated for a Digital Economy?

Confidence in the Digital Economy will be key to full participation by businesses and consumers. Digital literacy, privacy controls, security controls, affordable entry are all elements of an overall policy supporting Digital Inclusion.

The switch over to Digital Television may provide a wider opportunity for public education and awareness of the broader move to a Digital Economy.

**Think Piece – NBN or NBI? Next Gen Access and the Next Gen Australian Network by Ric Clark**

One of the strongest drivers of demand in a Digital Economy is a Simple Graphical User Interface delivering a Consistent User Experience across applications and devices. TiVo is an example of a simple, single device replacing the Flat Screen/DVD/Set Top Box mix and driving significantly higher levels of service use. A similar example is seen with the move from 2G pre iPhone mobile devices where data usage was average 64MB per user per month to the experience of 3G iPhones which have driven data use to average 2500MB per user per month.

If Video is "It", how do we determine "how Much" is enough? The Minister commented in his Address to the National Press Club at http://www.minister.dbcde.gov.au/media/speeches/2009/013

> … one of the largest providers of network connectivity in Asia, has predicted that video-based applications for business, social services and consumers, will comprise more than 95% of all broadband data in the years to come.
>
> These new services and applications will drive business productivity and efficiency across the economy.

A Digital Economy will see many other sectors seeking direct access to the NBN and will not want to be part of a single operator's "walled garden". Telcos will see utilities, health and other service providers (eg internet) wanting direct access for their services to their customers via the architecture and access arrangements of the National Next Generation Network. Demands by end users to provide seamless integration between mobile and fixed services will increase. Such flexibility is likely to increase complexity for operators and inter-operator processes.

Fewer network node points in The National Network (aka NBN) will raise risks for Critical Infrastructure and challenges for continuity of service.

The replacement of copper by fibre will impact on issues such as Emergency Call operations, Lifeline services, Security, Universal Service arrangements, special service support (alarms, sensors etc), inter-operability, resilience.

Applications and services that take advantage of the whole National Broadband Infrastructure will determine the National Return on Investment for the NBN.

Alcatel-Lucent has prepared two information papers explaining the difference between the previously mooted FTTN architecture and FTTP and canvassing architectural choices involved in NBN.

The government and Industry have work to do:

- The devil is in the detail when accommodating the needs of multiple network service providers from multiple industry sectors eg telco vs Utility vs Health services. Ofcom's Active Line Access interface may be relevant.

- Achieving the balance of reusing existing network assets (to encourage telco participation) vs an optimal FTTp topology

- The need to address USO, Lifeline and Special services on the assumption that copper will be eventually retired

- The additional complexity of engineering flexibility for competition vs simplicity for optimised cost, speed and robustness.

**Discussion after this Think Piece included:**

The role for service providers in delivering a "clean-feed" service to end users

Digital signatures, Codes of Practice, Inter-operability and end user education all needed for Digital Confidence

Beyond Security, there remains the issue of Trust.

Can technology provide the strongest answers?

What is the role of ICANN in supporting a Digital Economy? Can the current structure for technical administration of the Internet support an effective Digital Economy?

There is a wider question of numbering/naming and addressing arrangements in a Digital Economy. Should we change the allocation of IP addresses from management by ISPs to a more independent body to facilitate multi-home usage of IP addresses by end users?

How can the transition from IPv4 to IPv6 be managed to support the development of the Digital Economy?

**Think Piece – The Road to 100M Connections, Eric Hamilton, Unwired**

The presentation started with the question – what does the consumer want today? What applications are being used? What devices are preferred?

Consumers want to stop worrying about the what and how of being connected to the which of applications being provided and used.

A new approach is needed which moves beyond the device and direct to the consumer. The current model of one device, one user, one ARPU slows down

the adoption of wireless devices. End users have and want multiple devices but seamlessly used and seamlessly provided.

The Internet of Things will move beyond connecting places (premises) to connecting people and then to connecting devices.

The features of an open service model include:

| One user, one device, one ARPU | Open service model |
|---|---|
| One user per contract | Vertical applications include many connections |
| One device per subscriber | Multiple (and increasing) number of devices per subscribers |
| Devices are mostly phones or laptops | Increasingly CE devices complement phones and laptops.<br>In-vehicle, M2M application-specific devices |
| One ARPU per subscriber | Some devices may have no ARPU, some have high ARPU, some low |
| Limited plan selection | Wider range of plans and service providers over the same network |
| Best-effort service | Traffic can be prioritized to improve market segmentation |
| Device subsidy | Subsidies not required on secondary devices |
| Service provided directly by operator or MVNO | Device vendors or content providers may sell the service |

The Digital Economy will be an Internet of Things enabling

- Passive sensors and active sensors
- Smart meters connecting home to grid
- Car to car networks
- Car to traffic infrastructure networks
- Smart medical monitoring
- Mobile ticketing/payment and transactions
- Peer to peer communication

**Discussion after this Think Piece included:**

Consumers want one account – for multiple devices and many locations. This means industry will have to develop a new approach to its business model. The current model assumes one device links to one network. The new model will allow one device to link to multiple networks.

The model will encompass ubiquity of connection with openness of access, devices and applications.

The business model may turn on its head – consumers may buy content which includes “free” access eg charges for an e-book content include access to the content. We need to value bytes not bits.

The Internet of Things will require multiple Grades of Quality of Service.

Spectrum Policy will have to take account of Grade of Service, increased bandwidth needs

More spectrum should be released for WiFi services

International and regional backhaul capacity will be needed to support a “local” Internet of Things.

Quality of service needs may mean Class Licensed Spectrum is not suitable in a Digital Economy. Pilots based on class licensed bands saw significant increases in noise levels affecting service levels.

ACMA is seen as a fair gatekeeper of spectrum. Openness to industry engagement is important in the transition to the Digital Economy and the increased demands for spectrum.

Open use of spectrum may limit innovation.

Business needs to get involved in debates about spectrum – so that highest value uses can be properly identified and valued.

**Think Piece 3# - A funny thing happened on the way to the forum…David Havyatt, Havyatt Associates.**

The Digital Economy was originally featured in the 2020 Summit but was supplanted by the NBN,

BUT the NBN is NOT the Digital Economy

AND the Digital Economy is a lot more that a lot of online services.

The “digital economy” refers to the transformation of economic and social transactions, organisation and relations enabled by the combined use of information processing and telecommunications technologies, such as the Internet and mobile communications. It includes commercial transactions, personal dialogue, and machine-to-machine communications for the delivery of information, entertainment and services. The term includes concepts referred to as ‘internet economy’ and ‘information society’.

The Digital Economy opportunity in regional Australia is about livability and services and about productivity goals in industries such as primary production and transport.

Big Policy issues include:

1) Bandwagon (Network) Effects – that network is more valuable to the Digital Economy than to any of the individual digital economy actors

Black Swans – opportunistic and transformative products and services

2) Public Goods/Club goods/Private goods – Defence/Golf Courses/Cars

A Digital Economy can facilitate social structures which support co-operation –

3) Sub-additive cost functions – 1 FTTN network will do; 2 is inefficient. Does the same logic apply to Wireless networks? Should we be thinking about a single Wireless NBN?

4) Sorting the hype (NBN) from the opportunity/hope (the Digital Economy)

The Digital Economy is Global in nature and opportunity – and needs Global Rules of Engagement eg numbering, naming and addressing and global standards for security.

**Discussion on Think Piece #3**

Regional opportunities do include professional service delivery eg architects. Public policy should encourage the relocation of professionals because of the multiplier effects on local economies. Hubs and clusters in regional areas create critical mass and momentum

Teleworking more broadly should be a feature of employment in a Digital Economy. How would video based communications add value to interactions eg managers/staff; customers/call centres?

Regulation based on private costs/private benefits will not reflect the real opportunity of the digital Economy. Individuals making rational economic decision will not capture in their decisions the real value of the Network Effects in a Digital Economy. Individuals will not take account of wide social benefit outcomes in their own decision making. User pays may not be a concept that supports the development of the Digital Economy.

Dynamic efficiency and creative innovation will be a key feature of an effective Digital Economy. Open Source working and a Creative Commons approach will be innovation drivers in a Digital Economy. What is role for Copyright? What do Digital Economy Business Models look like? Charges for applications might include charges for network access – like the e-book example earlier.

How do we shift customers attitude in regard to paying for content? Rather than access? Will cost savings shift attitudes? Will payment be through other mechanisms eg Health Insurance, taxation, application service providers?

Australia's Retail Sector is behind other countries because we have no tradition of catalogue shopping and so have not developed the logistics systems needed to support retail distribution in a Digital Economy.

Public Information should be used to drive innovation in a Digital Economy.

In the Health Sector is key issue is Who owns the Health Record? How best to secure and store the record? How to protect personal information?

What is needed to kick start the Virtuous Cycle of innovation in the Digital Economy now that we have the network?

Issues could be canvassed such as:

- Migration from IPv4 to IPv6 and the implications for Australian businesses
- Embedding "smart" in infrastructure projects beyond the NBN
- Dealing with transaction/identity fraud/privacy/security in an all digital economy
- The Internet of Things
- Teleworking uptake
- Greening the Digital Economy
- Re-skilling the workforce/population for a Digital Economy
- New business models for content businesses
- Digital Economy Admin – domain names; email addresses;
- International dimension to regulation

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