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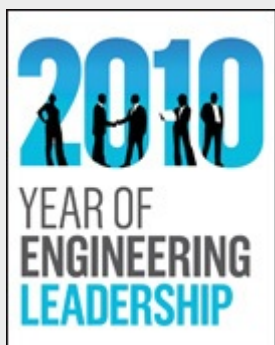
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from the chair

Virtual Australia

by Peter Hitchiner



How do decision makers assemble complex sets of information (for instance in the area of urban planning) to allow them to make the best decision using the best information available?

Perhaps they don't.

Many decisions rely on past experience rather than being based on an understanding of how the current and projected situation will influence the outcomes of decisions taken now. In particular,

demographic predictions (such as population growth – the subject of current discussion within EA) need to take into account a range of scenarios.

The potential complexity of the urban planning decisions is enormous and layering sensitivity analysis and what-if scenarios are extremely challenging (and costly) using conventional modelling tools. The challenges require use of complex computer modelling with access to robust data of

known authenticity and integrity. With impacts of decisions made today felt over many decades, we must endeavour to optimise investments for the future to deliver sustainable outcomes. How can we do this?

I was fortunate to attend the recent Virtual Australia Summit sponsored by the Victorian Spatial Council and the Co-operative Research Centre for Spatial Information. The initiative plans to lead to the development of a model of Australia, which will assist in decision making including in relation to infrastructure investment.

It is expected that Virtual Australia will comprise models that draw on common data sets and are interoperable. Realisation of Virtual Australia will need to progress on a staged basis and be highly dependent on availability of suitable information systems.

This project has the potential to support a wide range of engineering infrastructure investment decisions and activities: it will depend on ICT engineers. Members of the ITEE College have an important role here and we need to work closely with members of other Colleges to deliver optimum sustainable futures for Australia.

This column also appears in the ITEE College Board Chair blog http://engineersaustralia.typepad.com/itee_college_chair/: please post your feedback.

Peter Hitchiner is the ITEE College Chair 2010

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news

The future of .au

The .auDA Names Policy Panel has released a [discussion paper](#), seeking public comment on some of the main policies underlying the allocation and use of domain names in the .au domain space.

In August, the .auDA Board appointed the 2010 Names Policy Panel to review the policy framework for .au names and provide recommendations about what changes, if any, should be made. The panel is made up of volunteers from across Australia, who bring together a broad range of legal, business, technical and public policy experience.

This consultation process is the first of at least two rounds to be held to ensure the public, stakeholders and general community are able to express their views and recommendations. The paper sets out issues raised by the panel with regards to domain name eligibility, guidelines for accredited registrars, reserved or restricted domain names, prohibitions on misspelled domain names (typosquatting), and domain monetisation.

Some of the key questions raised in the paper include whether .au domain registrations should continue to be restricted to Australians; whether .au domains can be leased or sublicensed to other entities; whether single character domain names should be permitted; and whether second level domains should be allowed (eg domainname.au rather than

domainname.com.au).

Submissions can be [made online](#), or via email to policy officer [Lujia Chen](#).

The closing date for submissions is Friday 21 January 2011.

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Dividing the digital dividend

Engineers Australia (EA) has submitted a response to the Australian Communications and Media Authority's discussion paper on the reallocation of spectrum in the 700MHz digital dividend band, supporting a spectrum auction to carefully balance the economic as well as social impacts of its allocation.

The discussion paper provided stakeholders with background information on the digital dividend reallocation, including its close relationship with broadcasting planning, and the proposed steps for the reallocation, both legislative and technical.

In particular, it sought comment on the frequencies and geographic boundaries of the spectrum to be allocated and the timing of the allocation.

EA sought the contributions of its ITEE and Biomedical Colleges to form the response to the discussion paper.

In its response, EA stated that allocation should be made to optimise overall use of the spectrum to ensure that no parts are underused by allowing remote areas (where fibre and copper are not available) to have access to a subset of the digital dividend spectrum for services such as cellular phone roaming.

With regard to the timing of the allocation, EA stated that a common commencement date for all spectrum licences was not necessary and could cause delays in the use of the spectrum. Instead, EA advocated for commencement dates to be as soon as the clearing of the relevant spectrum had occurred in order to maximise the benefits for Australia.

In addition to the questions posed by the discussion paper, EA reinforced its previous request (during its response to the stacking process) to leave specific channels in the 608-614MHz band unallocated to allow for current and future use of this spectrum in healthcare facilities.

A further concern regarding interference between mobile telephony and medical devices was raised, stating that the existing 2m exclusion zone between mobile phones and medical equipment would continue to be required.

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P2P: Dropping dead

Peer-to-peer file-sharing has taken a different route from the online world with individuals taking inexpensive USB flash drives and cementing them into walls, crevices and even trees to create places for anyone to share and exchange files anonymously.

Called dead drops, their name comes from the title normally

given to locations that are used to secretly exchange items between two individuals without them ever meeting, and thought to be used by spies.

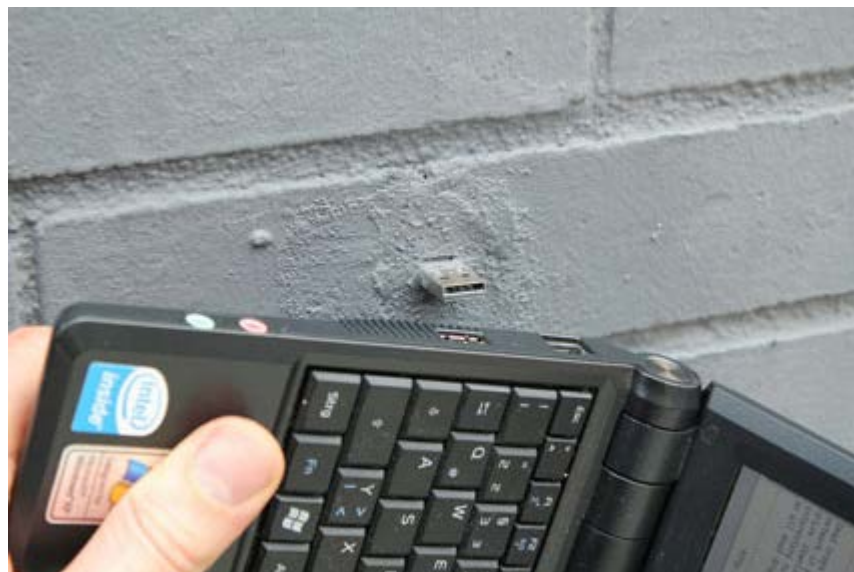
USB drives are taken apart and wrapped in plumbers tape or otherwise waterproofed before being cemented into walls. Anyone can upload files to the devices and they are completely unmoderated.

Given the open nature of dead drops, the dead drops website warns users to take all necessary security precautions as malicious users can easily upload viruses to the devices. There is also nothing stopping anyone from wiping the dead drop of all data.

Nonetheless, dead drops have caught on with over 73TB of capacity around the world and while the majority are located in the US and Europe, Australia has two of its own dead drops located in [Melbourne](#) and [Launceston](#).

Dead drops are already finding use with the site's owners calling for support to help the distribution of controversial cables from [Wikileaks](#).

Anyone can create their own dead drop for public use. Full instructions and the ability to submit its location to the dead drops database are available from their [website](#).



Simply walk up to a wall and plug in.

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Double data centres

The NSW government has shortlisted five private sector tenderers for the establishment of two data centres – one in Sydney and the other in Illawarra.

The government put out an expression of interest to the market in August last year to satisfy its agencies' long-term data centre capacity requirements. The contract would also consolidate the state's data centre capacity.

The shortlisted candidates are Global Switch, Gresham Rabo Management, Leighton Contractors, Macquarie Capital Group, and Plenary Group.

Shortly after the five candidates were invited to tender, Plenary Group pulled out of the tender process, declining to

provide comment on its decision.

The candidates have the option of using their established data centres or building new facilities, as long as they meet the government's requirements which include strict greenhouse emissions standards, high physical security, and advanced surveillance and detection systems.

The data centre reform project is expected to meet the state's projected demands for the next decade.

Tenders for the data centres close at the end of January.

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Creating more clouds

Data centre provider Global Switch has received approval from the NSW Department of Planning to build a \$200 million data centre in Sydney, called Sydney 2.

The 34,000m² facility will be located adjacent to its existing 42,000m² data centre in Ultimo, which is nearing full capacity. The site will be powered by a natural-gas-fired plant, providing an average of 1500W/m². High grade heat from the generator's exhausts will be used for hot water supply and cooling purposes through the use of absorption chillers.

The cooling systems will also make use of the building's proposed facilities to harvest and recycle rainwater, potentially saving of 220,000ML of water each year.

Global Switch plans to commence construction of Sydney 2 by June 2011 with completion occurring 18 months after. The company expects construction to result in 400 construction jobs and a further 50 full time permanent jobs.

Digital Realty also has plans to set up its own data centre presence in Australia in the next few years. According to *The Australian*, the global company hopes to have a \$250 million to \$350 million data centre established in Sydney by mid next year.

It has partnered with Macquarie Capital in entering its bid in the NSW data centre reform project and will be in competition with Global Switch.



Artist's impression of the Sydney 2 data centre.

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R&D for ISP

Australian internet service provider iiNet has launched its own specialised in-house research and development arm called iiNet Labs.

Launched at its annual general meeting in November, iiNet decided to open iiNet Labs to give itself greater control over its development and the ability to respond better to customer demands and trends.

iiNet has been known to survey industry forum [Whirlpool](#) to determine its customer needs and iiNet representatives have hinted that its use of this medium as a beta testing ground would continue with iiNet Labs.

The new research and development arm is colocated in iiNet's Sydney and Perth offices, with manufacturing occurring offsite. It expects to have new products in the following few months.

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Fibre in new developments

The federal government has announced details of the arrangements for fibre infrastructure in new developments from 1 January 2011. The arrangement sets out how fibre will be provided to new premises according to how many premises are being constructed.

The government expects 1.9 million new premises to be built while the National Broadband Network (NBN) is being constructed. To ready these premises for the network as they are built, it will provide occupants with fibre to avoid the cost of retrofitting them later.

From 1 January, NBN Co will be responsible for the installation of fibre in all broadacre developments, all infill developments where it has fibre that is ready for service and capable of connection, and newly approved infill developments of 100 or more premises.

For infill developments of less than 100 premises, Telstra will be the "last resort" provider for delivering infrastructure and services, though the company is expected to continue to use copper to provide interim solutions in these developments.

Developers have the option to use other providers to deliver the infrastructure under their own commercial agreements is available. However, other providers are not required to do so by law whereas NBN Co and Telstra must provide the necessary infrastructure if requested.

NBN Co will also be conducting a tender process to establish a panel of appropriately qualified and experienced providers to bid to install fibre on its behalf.

More information about the new developments policy is available on the [NBN Co website](#).

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new products

Cellular router

Console server and remote management solutions provider Opengear has developed a new line of smart cellular routers.

Its ACM5004-G series of routers runs a Linux operating system to combine routing, firewall, power management, environmental monitoring and advanced console server functions. Access to the source code is available, as is a custom development kit.

The router monitors all devices with serial, USB, Ethernet and digital I/O interfaces and also allows for UPS monitoring and management for PDUs and RPS. Environmental monitoring features include internal temperature sensors and optional support for attaching sensors for smoke, fire, vibration, water detection and door contacts.

It is powered by a 250MHz ARM9 CPU, has 32MB DDR RAM and 16MB embedded flash ROM.

Cellular communications can operate on either the 3G CDMA/EV-DO or 3G GSM/UMTS network, depending on the model selected, and provide throughput of 7.2Mb/s down and 5.76Mb/s up.

Security is provided through RSA certification and FIPS140-2 compliance and has support for IPsec and OpenVPN connectivity.

The router can be upgraded by flashing its firmware and free upgrades are available from Opengear's online FTP site.

www.opengear.com.au.



The ACM5004-G also allows for UPS monitoring.

Embedded router

Cisco has released a new Embedded Services Router (ESR), a ruggedized router for mobile and embedded networks that

require IP routing and services.

The Cisco 5940 ESR enables mobile networks to be created in applications such as first-responder vehicles, armored vehicles, and passenger and freight rail trains.

It has been designed for use in harsh environments including in extreme temperatures and under shock and vibration conditions.

The router can establish an ad hoc network to deliver IP-based voice, video and data to users operating beyond the reach of traditional fixed-network infrastructure, or to enable personnel to stay in touch with distant command centers, have access to sensor readings on the ground, or communicate between vehicles.

Its Mobile IP software allows users to transparently roam over multiple wireless networks and also features a self-forming temporary ability to immediately connect to the network without having to pre-configure peers or connect to a centralised network.

Wired connectivity is provided via four 10/100/1000 Ethernet ports, which support auto-negotiation, and an RS-232 console port.

The router is 3U (100mm x 160mm) in size and sold as a CompactPCI router card available in both air- and conduction-cooled models.

www.cisco.com.



The 5940 ESR is available in air- or conduction-cooled models.

Long-distance KVM

Matrox Graphics has developed a KVM (Keyboard/Video/Mouse) solution, the Extio F2408, which separates up to four high-resolution displays plus USB keyboard, mouse, and other HID's from the host system by up to 1km over fibre-optic cable.

Additional outputs can be added with the optional Matrox Extio F2408 Expander to connect up to eight displays, at resolutions up to 2560x1600 per monitor. Applications for use include process control rooms, dispatch centres, and other mission-critical uses that require operation from a single workstation.

It has independent and stretched mode support for monitors in 4x1 and 2x2 configurations and features five USB 2.0 ports for additional connectivity to HIDs such as keyboards, mice and touch screens.

www.matrox.com.



The Extio F2408 allows the operator to be up to 1km away.

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calendar

Other events

CeBIT Global Conferences will host a two-day conference on **Future-Proofing your data centre** on 14-15 Feb 2011 in Sydney. The conference's focus will be on public and private sector case studies – from Australia and overseas, highly-interactive panel discussions and roundtables, as well as practical hands-on workshops. For more information go to <http://www.cebit.com.au/2011/conferences/future-proofing-your-data-centre>.

The **Twelfth Australian symposium on antennas** will be held in Sydney on 16-17 Feb 2011. It aims to bring together academics and industry representatives working with antennas and in other related fields for the opportunity to discuss current and projected developments. For more information go to <http://research.ict.csiro.au/conferences/asa/12th-asa> or contact AntennaSymposium@csiro.au.

The Communications Alliance will host **Broadband and beyond 2011: Driving Australia's digital productivity** on 22-23 Feb 2011 in Surry Hills, Sydney. The conference aims to explore how broadband will optimise Australia's digital productivity. For more information go to www.broadbandandbeyond.com or contact commsalliance@slatteryit.com.au.

The **2011 Cloud computing forum** will be held on 23-24 Feb 2011 in Canberra. It aims to inform organisations on the new era of cloud computing and how it will effect governments, businesses and enterprises. For more information go to <http://www.halledit.com.au/CCF2011/> or contact denise.mcqueen@halledit.com.au.

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