

Foundations of Open: Technology and Digital Knowledge

Local 2020 Summit Submission

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IPv6 Now IPv6 for Australia's Future

Better infrastructure in the clever country with IPv6

Australia's infrastructure will face even more difficult challenges unless we take advantage of IPv6, particularly for water and energy. For instance, critical energy and resource conservation measures will require large increases in the scope of control systems. There is an urgent need for greater national IP capability to use in reducing our global footprint in this way, but the capacity of our current IP system is nearly exhausted.

Why IPv6 is vital for Australia

IPv6 – Internet Protocol version 6 – was developed by the Internet Engineering Task Force (IETF – www.ietf.org) to deal with a looming shortage of IPv4 addresses. IPv6 has greatly expanded address capability. In Australia we now use the older IPv4. The address space pools for IPv4 are currently expected to run out around 2010 or 2011. This lack is already blocking the building of new large networks. Australia's major trading and strategic partners, including Japan, South Korea, China, USA and Europe, are in transition to IPv6.

Australia has a clear choice on IPv6

We can adopt a cautious policy of “wait and see” so that we only start transition to IPv6 when forced to by global IPv4 addresses run out. This could delay the inevitable for a few years, but when the transition becomes necessary, it will be sudden, and very expensive. In the interim, as networks grow, network address translation will need to be implemented at ever more levels; difficult, costly and performance-destroying.

Or we can proceed to implement two policy strands in planning an advanced Australia using IPv6:

- We could develop IPv6 in new networks and infrastructure projects. The Australian Government proposes a fibre to the node/premises (FTTx) network to supply more than 98% of people with bandwidth of 12 mb/s or more. Another policy proposes that every high school student have a laptop. These very welcome initiatives will establish and enhance our place in the international digital economy. But for Australia to take best advantage of the policies of our major trading and strategic partners, these initiatives should include full IPv6 capability.

- Australia could also develop IPv6 use as a key *Platform for Innovation*. This would create significant business opportunities for Australia's ICT (and many other) sectors because well developed ICT applications enable significant downstream benefits. There are many beneficial innovations available with IPv6 that are directly relevant to Australia, such as these that only scratch the surface:
 - Building management – for energy minimisation
 - Sensor networks – for environmental monitoring and water management
 - Supply chains – traditional and e-business
 - Emergency services – interoperability
 - Business and consumer electronics – embedded systems
 - Transport industry – vehicle and container telemetry

Key priorities for Australia

Skills – development of IPv6 skills at all levels from technical to strategic planning

Transition planning – national coordination of transition planning efforts

Infrastructure projects – incorporate IPv6 capability into all relevant infrastructure

Supportive government policies – involve government in leading national IPv6 innovation through:

- Gear government to be part of the innovation, working with industry and research to develop strategic IPv6 opportunities
- Speed up government transition to IPv6
- Incorporate IPv6 into infrastructure projects, such as the FTTx network, laptops for schools, etc
- Support the NICTIA 10 Year Strategic Vision with 'whole of government' coordination, to maximise the ICT sector's capacity to innovate
- Funding for national coordination of IPv6 transition, including international interoperability trials in e-business and e-government
- Fund strategic awareness and skills development programs to boost industry into IPv6 capability