IPv6: Hiding to Nothing?

Mike Biber
IPv6 Forum Downunder
www.ipv6forum.org.au
mbiber@ipv6forum.org.au

Mike Biber

- IPv6 Forum Downunder President
  – 2001 ongoing

- Working with ISOC-AU IPv6 SIG

- AARnet IPv6 Working Group
  – Chair 2005-06

- Gibson Quai – AAS Pty Ltd
  – Senior Consultant 2007 ongoing

What is happening with IPv6 in Australia?

- IPv6 Info – IPv6 for e-Business

  - www.ipv6.org.au

- IPv6 Summits

  - Now 17-19 Nov 2008

  - Canberra

- ISOC-AU IPv6 Special Interest Group

  - IPv6 Oz Tech list

  - Various talkfests; CommsDay, AusNOG, IMS

IPv6 Australian Timeline
http://www.ipv6forum.com.au/timeline.php

IPv6Forum Downunder

IPv6 Historic Timeline

(Return to Home Page)

This table of milestones in IPv6 history, international and Australian, was collated by Michael Biber. If you know of relevant additions or amendments, please email the dates, events and references to mbiber(at)ipv6forum.org.au or phone +61 412 058 808. Australian milestones are marked in blue.

Date	Event	Reference
1992 Mar	IETF calls for proposal for next generation IP. Rejects calls from IAB to adopt ISO CLNP	http://oversteer.bl.echidna.id.au/IPv6/misc/jaubert-ipv6.html
1993 Dec	RFC 1550 issued calling for IPng proposals and establishing selection criteria.	http://oversteer.bl.echidna.id.au/IPv6/misc/jaubert-ipv6.html
1995 Dec	First IPv6 RFC 1883 (and others), promulgated by the IETF, IPv6 born from IPng and SIPP. Now RFC 2460 et al	http://oversteer.bl.echidna.id.au/IPv6/misc/jaubert-ipv6.html
1996	Linux gains alpha quality support for IPv6 (Kernel 2.1.8)	http://www.linux-ipv6.org/stable-6-ann.html
1996 Mar	6BONE created	http://go6.net/ipv6-6bone/ngtrans/minutes/IETF35-LA96.html
1996	Peter Tatum Trumpet Software joins 6BONE	http://www.cuba.ipv6tf.org/pdf/biber_michael.pdf
1997	IBM's AIX 4.3 was the first commercial platform to support IPv6	http://dict.regex.info/ipv6/6bone/6bone.mail-1998-01/0024.html

ISOC
au
internetsoc of australia

IPv6 Australian Milestones
Nine turns to NTT's IPv6 for HDTV cricket

Nine Network is to use NTT Australia's HV9100 series HDTV/SDTV encoders/decoders for its coverage of the 2008-9 summer cricket season. NTT claims the technology will allow for full 1080i 4:2:2 high-definition broadcasting while driving down bandwidth requirements and keeping latencies low, thanks to its IPv6 network.

Why should Australia be especially interested in IPv6?

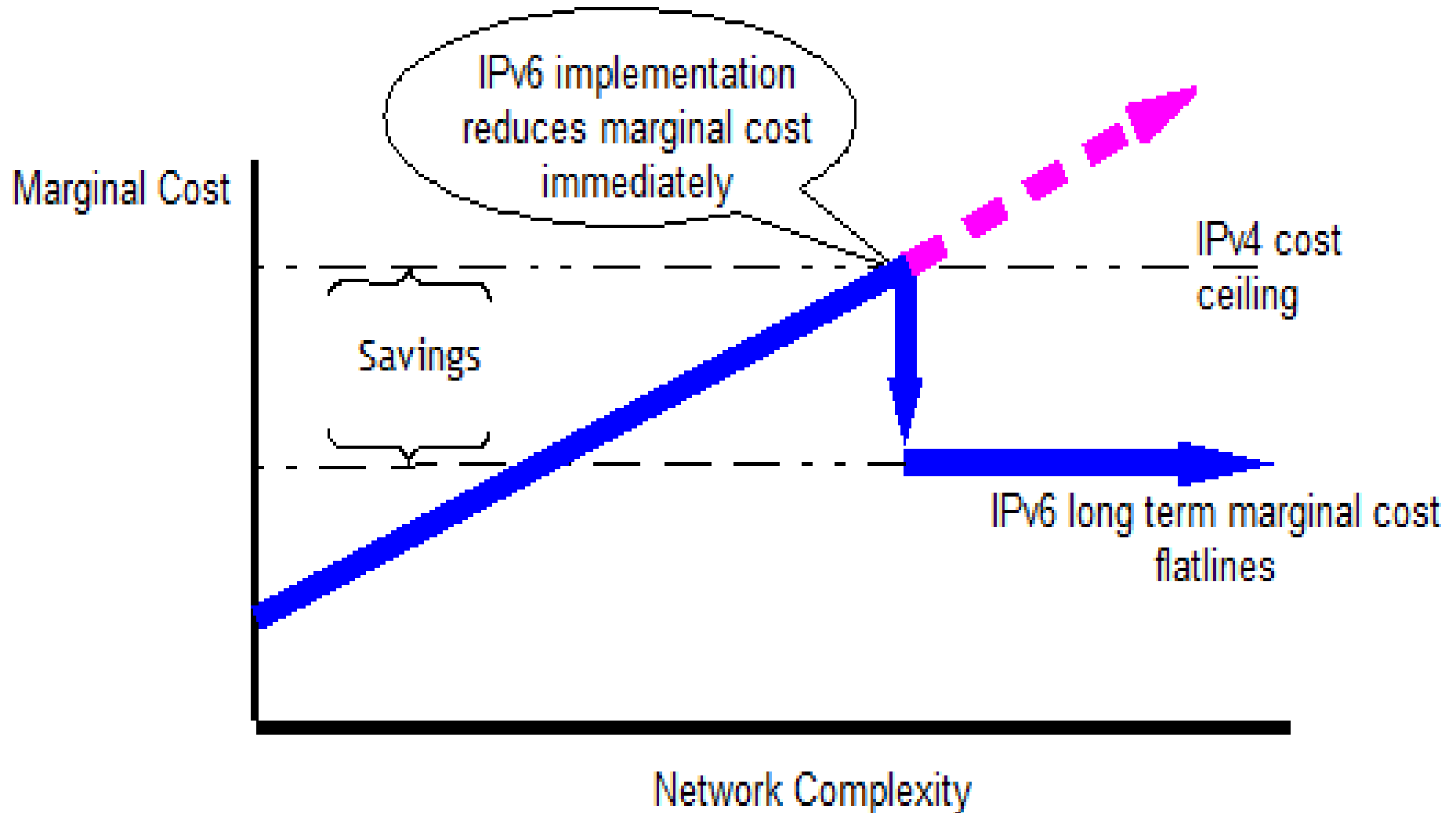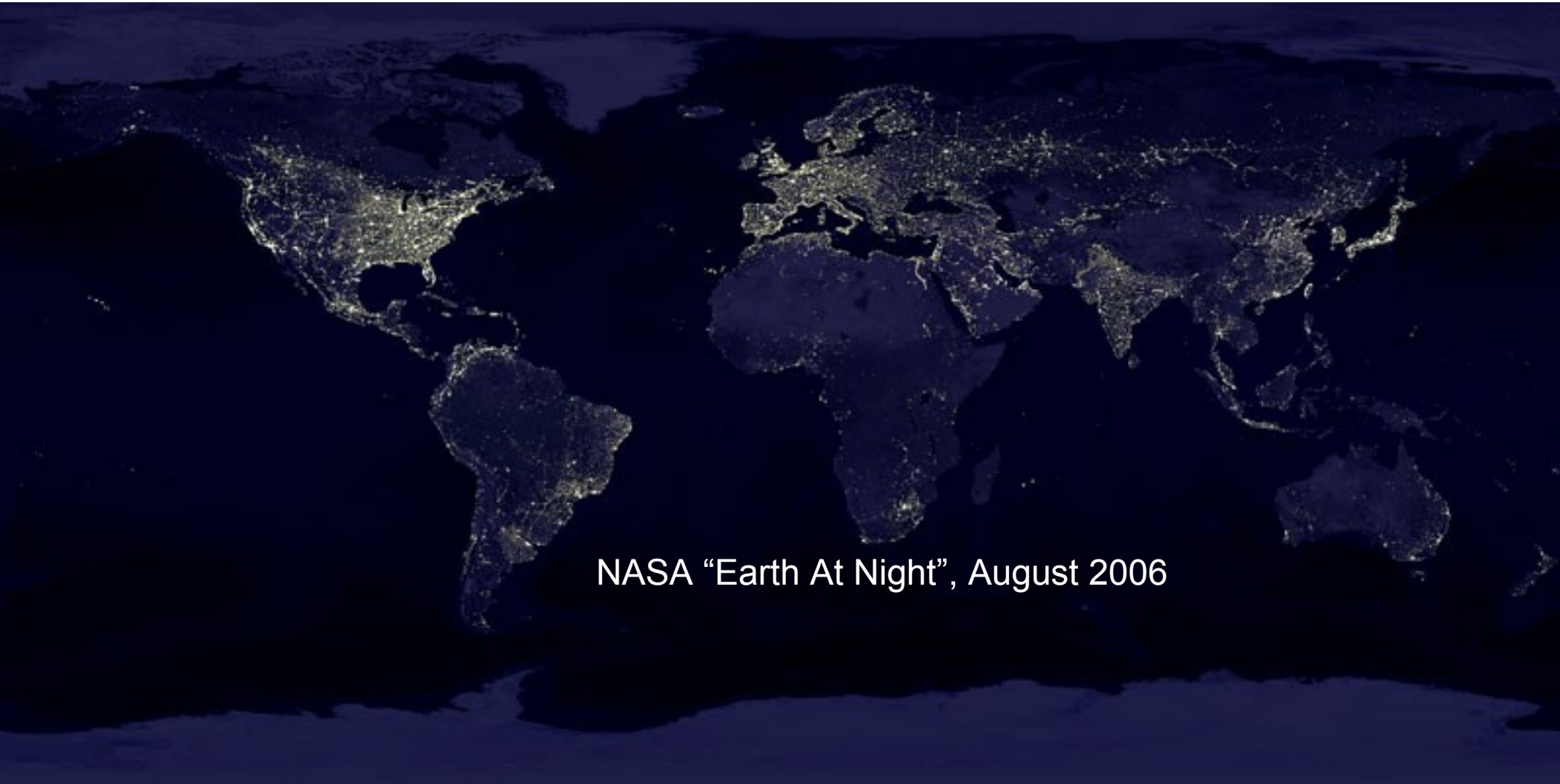- Trading and strategic reasons

CHINA

INDIA

And Japan as our major trading partner

...oh and btw, the rest of the world as well.

Business case:
IPv6 reduces marginal cost as complexity rises

Courtesy: IPv6Now

Power, and by extension money, throughout the world

NASA "Earth At Night", August 2006

Source: Fred Baker Cisco

IP Addresses throughout the world today

Source: Fred Baker Cisco

Green Protocol Working Group

THE NEW INTERNET: A GREEN TECHNOLOGY.

- The Green Protocol Working Group is for people who are interested in using the New Internet, based on IPv6 to conserve power

- The Green Protocol Working Group was formed to promote global collaboration and exchange of information pertaining to the New Internet based on IPv6 technologies in the interest of reducing the cost of resources needed to efficiently manage the building environment...

Green Protocol Working Group

There are presently twelve committees serving the group:

- Organizational structure – administration

- Green Protocol Initiative - EU

- Monthly Discovery meeting

- Monthly Virtual meeting

- Demo building projects

- Remote sensors

- Video surveillance & security

- External strategic partners and collaboration

- Asset tracking and supply chain optimization

- Data Center Optimization

- Energy Efficient Ethernet

- GUCI - Global Unified Communication ID
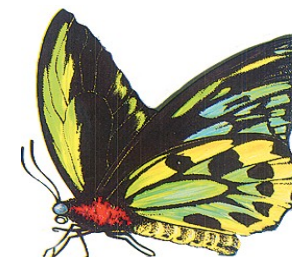
Federal Government IPv6

- AGIMO Sponsored

- 3 step plan
  - Preparation   2008 – 12/2009
  - Transition   2010 - 12/2012
  - Implementation   01/2013 through 12/2015

- Major Activities

  - Stock-take
  - Threat and Risk Assessment
  - Building IPv6 Awareness
  - IPv6 Backbone
  - v6 Applications

  - Training Needs Analysis
  - Procurement Policy Review
  - I-RAP assessment
  - Dual Stack

Innovation and IPv6?

- Develop IPv6 for all new larger networks

  - Our new networks should have IPv6
    eg: NBN, FTTx, laptops in schools, SmartGrid, all emerging GREEN stuff!

  - IPv6 should be considered for **all** new infrastructure

- Use IPv6 as "Platform for Innovation"

  - Creating new business opportunities:
    ICT, Health Care, Automotive, Public Safety and all other sectors

WHAT SHOULD WE BE DOING?

- OK, existing carriers are still asking for IPv4 addresses?

  - GH stated that the last 20x/8's were allocated to only 128 ISPs

- Perhaps the RIRs should STOP handing out v4 addresses until these ISPs commit to a v6 transition timetable!

Current Australian Status

Mark Prior (now with Juniper) has extended the work of Ron Broersma of the US Defense Research and Engineering Network (DREN) to identify the current status of IPv6 Deployment that is relevant to Australia.

Weekly script that runs every Sunday evening and tests the status of the sites. It makes sobering reading...but it is evolving.

IPv6 degrees of readiness:
Web / Email / DNS access

IPv6 Readiness – Select Sites

Australian IPv6 Readiness Report – Select Sites

[After Mark Prior]	11/2007			11/2008		
Organisation (domain)	**Web**	**Mail**	**DNS**	**Web**	**Mail**	**DNS**
AAPT (aapt.com.au)	🟥	🟥	🟧	🟥	🟥	🟧
AARNet (aarnet.edu.au)	🟩	🟥	🟧	🟩	🟥	🟥
ACU National (acu.edu.au)	🟥	🟥	🟥	🟥	🟥	🟥
AEEMA (aeema.asn.au)	🟥	🟥	🟥	🟥	🟥	🟥
ANU (anu.edu.au)	🟥	🟥	🟥	🟥	🟥	🟥
APNIC (apnic.net)	🟩	🟥	🟧	🟩	🟥	🟧
Apple (apple.com)	🟥	🟥	🟥	🟥	🟥	🟥
AUDA (auda.org.au)	🟥	🟥	🟥	🟥	🟥	🟥
AusRegistry (ausregistry.com.au)	🟥	🟥	🟥	🟥	🟥	🟥
Australian Government (australia.gov.au)	🟥	🟥	🟩	🟥	🟥	🟥
Blue Coat (bluecoat.com)	🟥	🟥	🟥	🟥	🟥	🟧
Bond University (bond.edu.au)	🟥	🟥	🟥	🟥	🟥	🟥

≈

	11/2007			11/2008		
Vocus (vocus.com.au)	🟥	🟥	🟥	🟩	🟥	🟧
Westnet (westnet.com.au)	🟥	🟥	🟥	🟥	🟥	🟥
Whirlpool (whirlpool.net.au)	🟥	🟥	🟥	🟥	🟥	🟥
Yahoo (yahoo.com)	🟥	🟥	🟥	🟥	🟥	🟥

Source: http://www.mrp.net/IPv6_Survey.html

Current Status – 07/08 Delta

Australian IPv6 Readiness Report – Delta 2007 to 2008

[After Mark Prior]	11/2007			11/2008		
Organisation (domain)	**Web**	**Mail**	**DNS**	**Web**	**Mail**	**DNS**
Australian Government (australia.gov.au)	🟥	🟥	🟩	🟥	🟥	?
Blue Coat (bluecoat.com)	🟥	🟥	🟥	🟥	🟥	🟧
Cisco Systems (cisco.com)	🟧	🟥	🟥	?	🟥	🟥
Curtin University of Technology (curtin.edu.au)	🟥	🟥	🟧	🟥	🟥	🟥
HP (hp.com)	🟥	🟥	🟥	🟩	🟩	🟩
IBM (ibm.com)	🟥	🟥	🟧	🟩	🟩	🟥
IETF (ietf.org)	🟩	🟩	🟧	🟩	🟩	🟩
Internode (internode.on.net)	🟥	🟥	🟥	🟧	🟥	🟥
ISOC AU (isoc-au.org.au)	🟥	🟥	🟧	🟩	🟥	🟧
Monash University (monash.edu.au)	🟥	🟥	🟧	🟧	🟥	🟧
NANOG (nanog.org)	🟧	🟥	🟥	🟩	🟩	🟥
PPS Internet (pps.com.au)	🟥	🟥	🟧	🟩	🟥	🟧
RMIT (rmit.edu.au)	🟥	🟥	🟥	🟩	🟩	🟩
Southern Cross University (scu.edu.au)	🟥	🟥	🟥	🟥	🟥	🟧
Tata Communications (tatacommunications.com)	🟥	🟥	🟥	🟩	🟥	🟥
University of Newcastle (newcastle.edu.au)	🟥	🟥	🟥	🟥	🟥	🟧
University of South Pacific (usp.ac.fj)	🟥	🟧	🟧	🟥	🟥	🟧
University of Sydney (usyd.edu.au)	🟥	🟥	🟧	🟥	🟥	🟥
University of Wollongong (uow.edu.au)	🟥	🟥	🟧	🟥	🟥	🟥
Vocus (vocus.com.au)	🟥	🟥	🟥	🟩	🟥	🟧

Source: http://www.mrp.net/IPv6_Survey.html

Australian IPv6 Readiness Report – IPv6 Web Enabled

[After Mark Prior]

Organisation (domain)	11/2008		
	Web	Mail	DNS
AARNet (aarnet.edu.au)	🟩	🟥	🟥
APNIC (apnic.net)	🟩	🟥	🟧
Defense Research and Engineering Network (dren.net)	🟩	🟩	🟩
Hexago (hexago.com)	🟩	🟩	🟩
HP (hp.com)	🟩	🟩	🟩
IBM (ibm.com)	🟩	🟩	🟥
ICANN (icann.org)	🟩	🟥	🟧
IETF (ietf.org)	🟩	🟩	🟩
Internode (internode.on.net)	🟧	🟥	🟥
IPv6 Forum (ipv6forum.com)	🟩	🟩	🟩
IPv6 Forum Downunder (ipv6forum.org.au)	🟩	🟧	🟩
IPv6 Now Pty Ltd	🟩	🟧	🟩
IPv6 TF (ipv6tf.org)	🟩	🟩	🟩
ISOC AU (isoc-au.org.au)	🟩	🟥	🟧
LACNIC (lacnic.net)	🟧	🟩	🟩
Monash University (monash.edu.au)	🟧	🟥	🟧
mrp.net (mrp.net)	🟩	🟩	🟧
NANOG (nanog.org)	🟩	🟩	🟥
PPS Internet (pps.com.au)	🟩	🟥	🟧
RIPE (ripe.net)	🟩	🟩	🟩
RMIT (rmit.edu.au)	🟩	🟩	🟩
Tata Communications (tatacommunications.com)	🟩	🟥	🟥
Vocus (vocus.com.au)	🟩	🟥	🟧

Source: http://www.mrp.net/IPv6_Survey.html

What do we need to do?

- Plug the holes!

- Acquire the skills

- Audits and transition planning

- IPv6 enabled infrastructure projects

- Supportive government policies

- Promote Content/Applications

...and start to use IPv6 in your own networks

Questions?

- Internet Society of Australia
  - IPv6 SIG
  - www.isoc-au.org.au

- IPv6 Forum
  - www.ipv6forum.org.au
  - mbiber@ipv6forum.org.au