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Continued Deployment of IPv6 at the CSIRO


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CSIRO IT Security Operations
IPv6 Summit, 20th October 2010

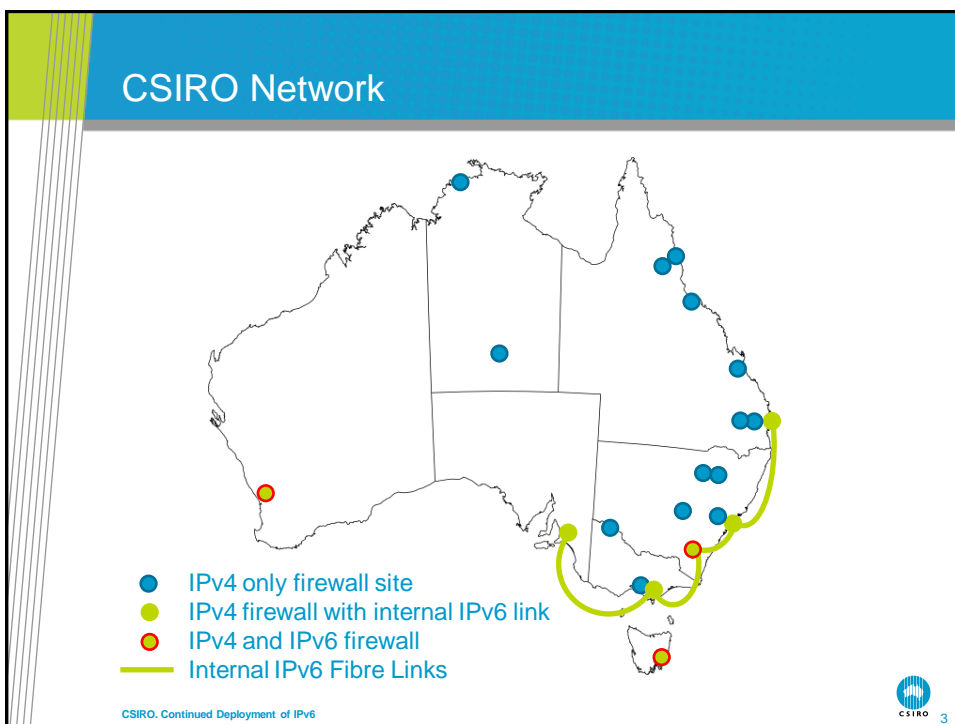


IPv6 in CSIRO - update

- Background
- Deployment Methodology
- New work
- Missing features and “undocumented features”
- Summary

CSIRO, Continued Deployment of IPv6





Why are we deploying IPv6 now?

- Why deploy?
 - Communicate with others
 - New services
 - Politics/Reputation
- Why didn't we wait?
 - Takes time
 - Cost - Money and Reputation
 - Risk
 - Address depletion accelerating

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CSIRO 4

Deployment Methodology

- Start early - Deploy slowly but steadily
- Test labs important, but limited
- Pilot on real network
- Working from the outside in – avoid islands
- Dual-stack environment
- Ignore MIPv6

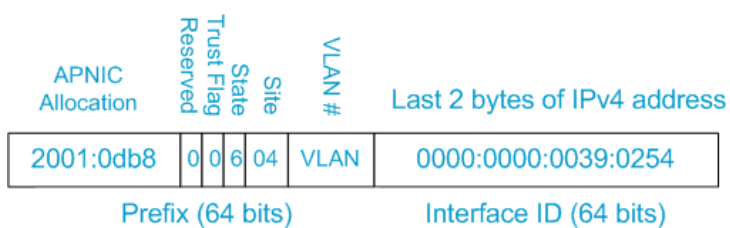
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Address allocation policy

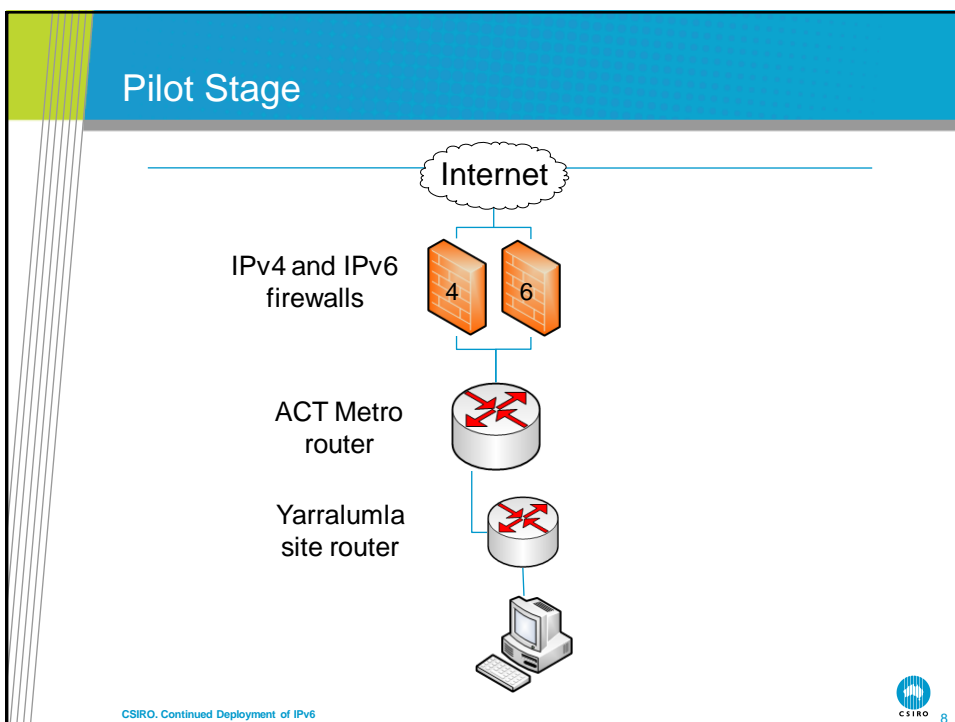
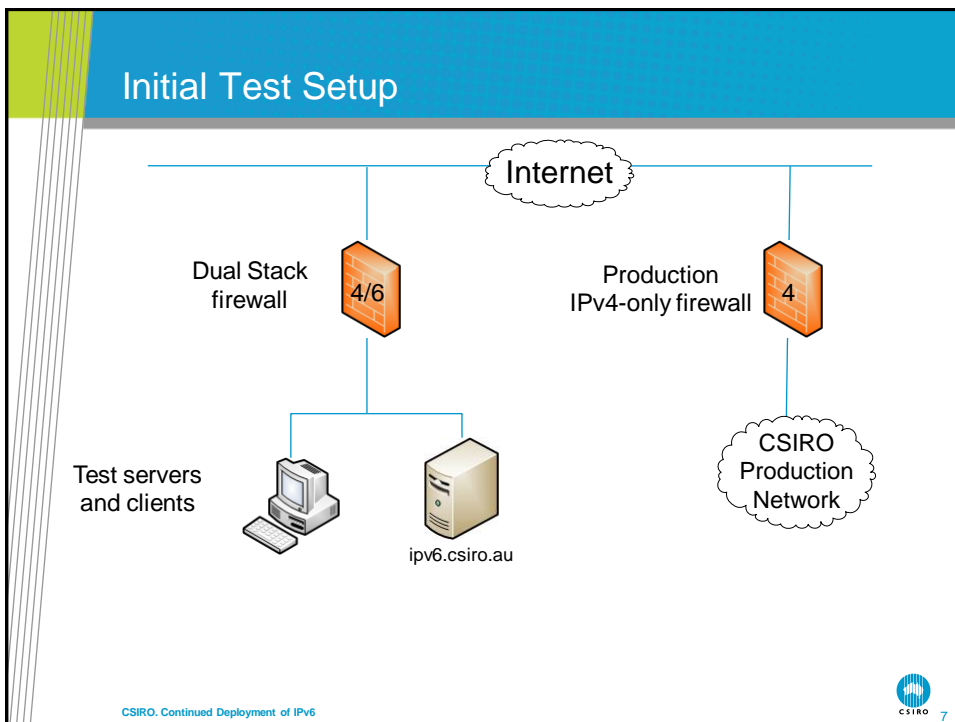
- Obtain an IPv6 address block – cheap/free
- Create address allocation policy
- Make addresses simple/readable/meaningful
 - At least for the people who work with them daily

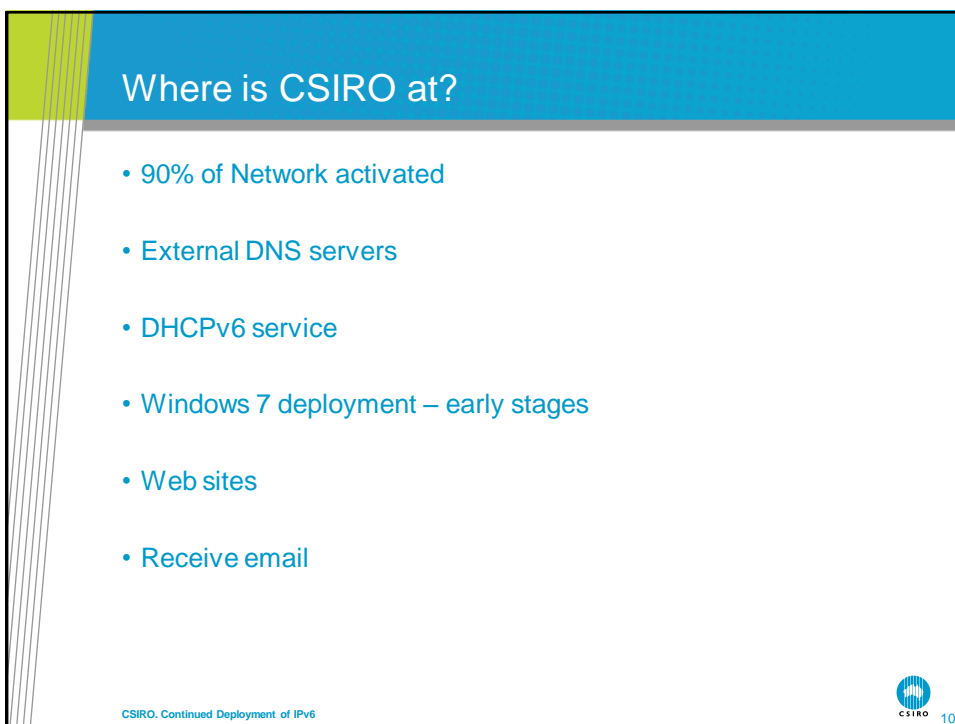
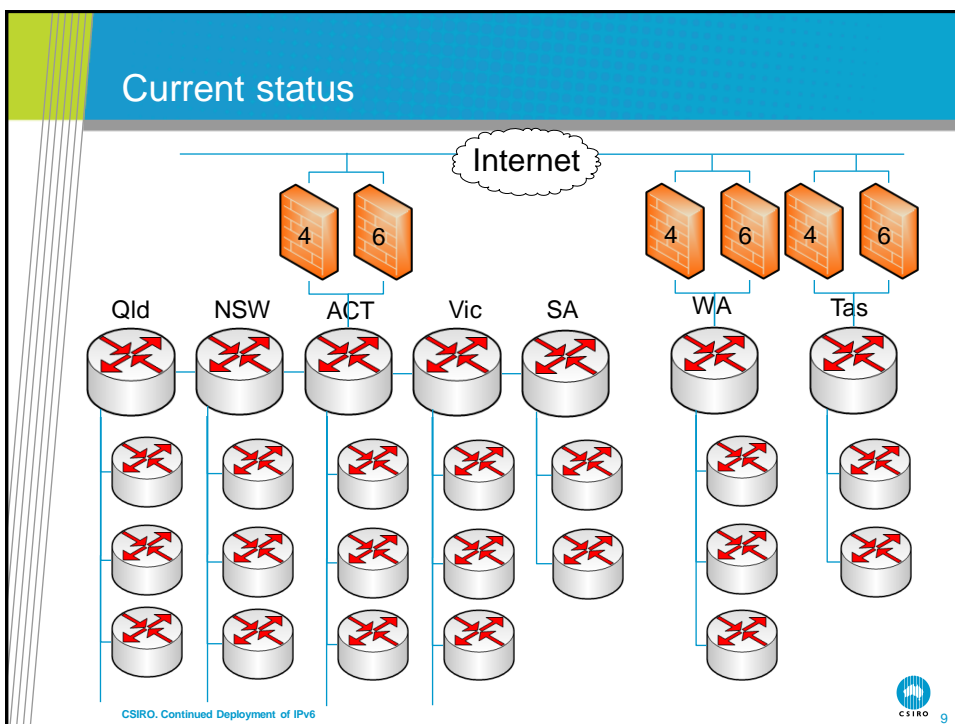


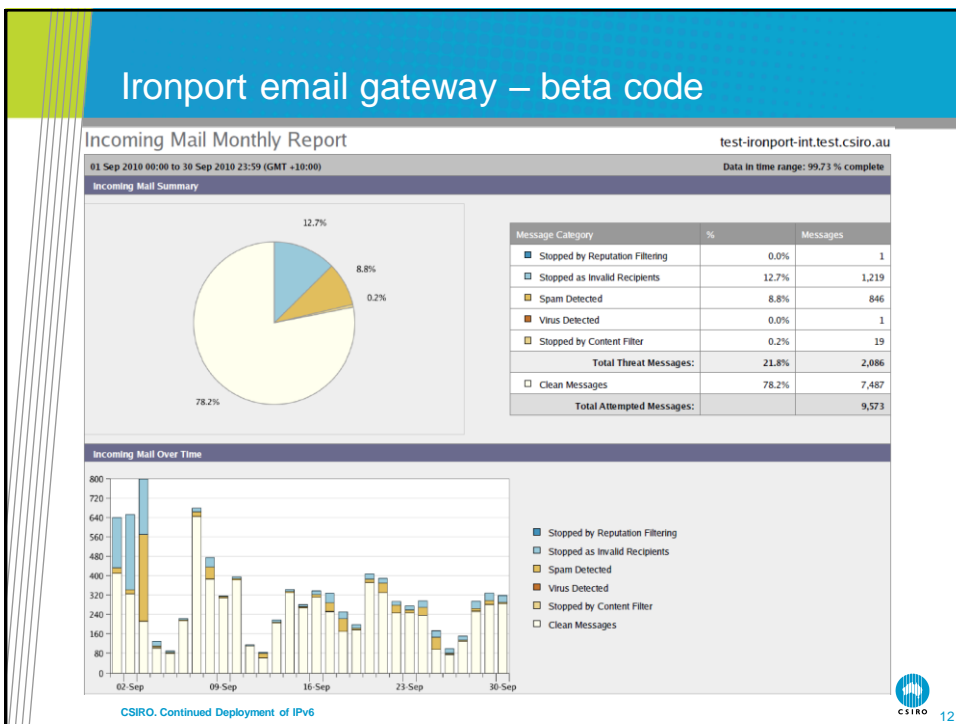
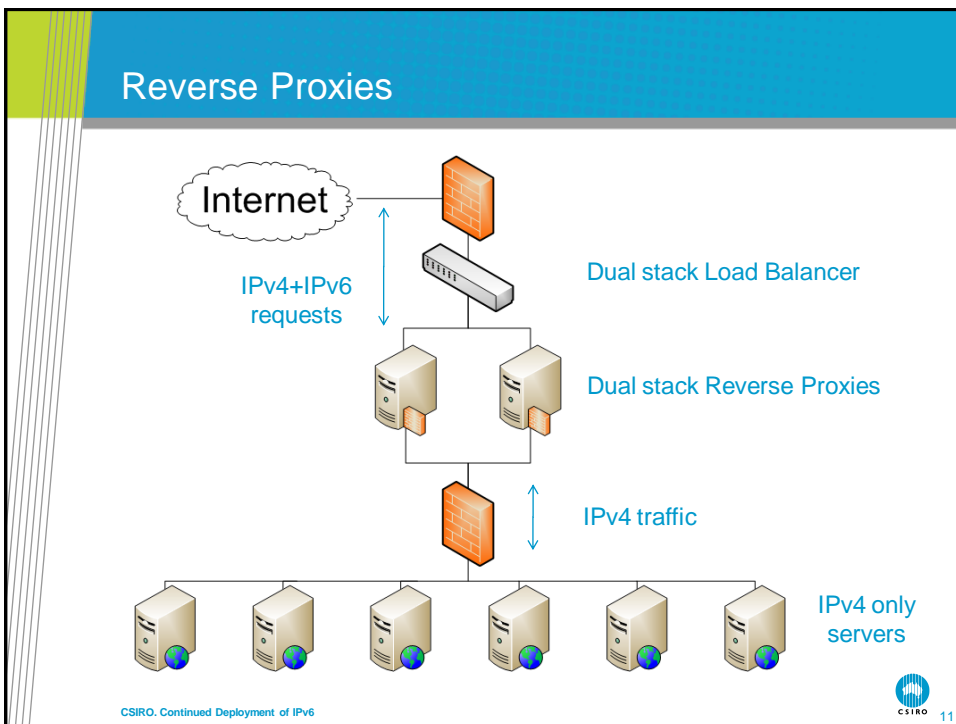
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IPv6 and Client Operating Systems

- XP/2003/MacOSX don't do DHCPv6
- Some Macs try to use IPv6 when they shouldn't
- XP/2003 doesn't support RDP over IPv6

Recommendations:

- Don't bother with IPv6 on Windows < Vista/2008.
- MacOS may be OK if using auto-config



Tunneling and Firewalls

- Block tunnel protocols
- Disable tunnel interfaces via GPO
 - HKLM\SYSTEM\CurrentControlSet\Services\Tcpip6\Parameters\DisabledComponents DWORD 1
- Ensure ICMPv6 packets are allowed
 - Destination Unreachable: type 1
 - Packet Too Big: type 2
 - Time Exceeded: type 3
 - Parameter Problem: type 4
 - Echo Request/Reply: type 128/129



Response from users



Response from IT staff

- Mostly don't care – too busy
- Happy for someone else to look after it
- Something is wrong so let's turn off IPv6
- Moving from denial to acceptance



Where are the problems?

- Last year: Missing features the problem, not bugs
- This year: Bugs are the problem
- Missing Features - Update
 - *Fixed:* ASA Firewall failover pairs
 - *Fixed:* Some CPE routers

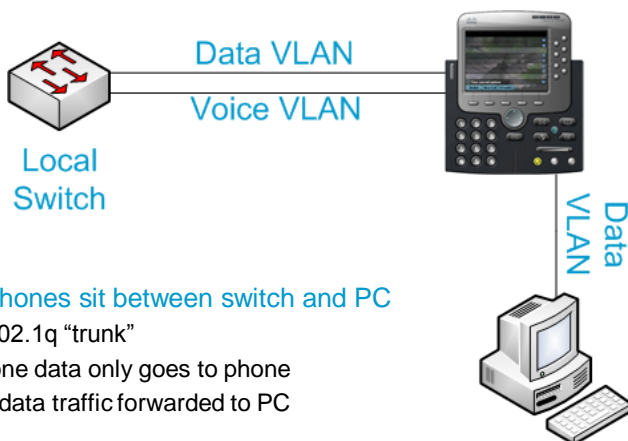


Bugs

- VPN works then stops on per address basis
- OSPFv3 database tables stop transferring (rarely)
- OSPFv3 not working on one model of Load Balancer
- DHCPv6 packets corrupted during router reconfig

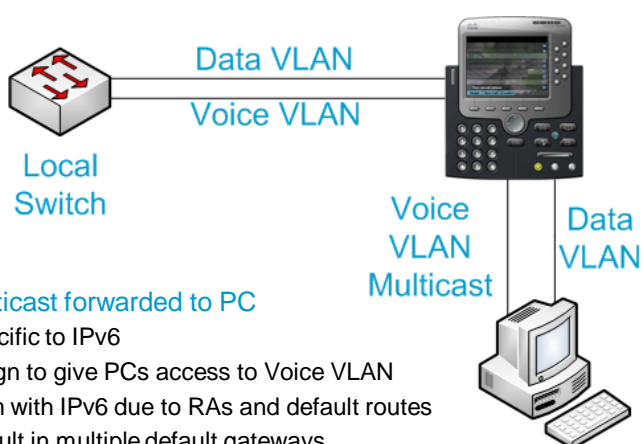


IP Phones – In Theory



- Cisco IP phones sit between switch and PC
 - Use a 802.1q “trunk”
 - Telephone data only goes to phone
 - Normal data traffic forwarded to PC

IP Phones – In Practice



- Voice Multicast forwarded to PC
 - Not specific to IPv6
 - By design to give PCs access to Voice VLAN
 - Problem with IPv6 due to RAs and default routes
 - Can result in multiple default gateways

Guest wireless system

- Web interface allows staff to create guest accounts
- Backend DB stored IP address of creator/modifier
- DB insert failed when browser using IPv6
- Fixed by changing fields to VARCHAR(39)
- Classic Y2K style problem



Summary: What you need to know

- You can run IPv6 now – most things work
- Problems may be obscure – need time to find them
- Identify what doesn't work and pressure vendors **now**
- IPv6 similar Y2K
- “It's OK to stumble in 2010, but not in 2012” – Bob van Zant



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Thank you. Questions?

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