The Standard

Internet Protocol version 6 Newsletter

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The Standard is the journal of IPv6 Now Pty Ltd, specialists in IPv6 training, transition and business innovation:
www.ipv6now.com.au

IPv6Now, in collaboration with Ai Group, is constructing VIC6, the Victorian Industry Collaborative IPv6 Testbed Network - a facility to help Victorian industry make the transition to the new Internet Protocol, IPv6.

Funding for the project was provided by MULTIMEDIA VICTORIA

VIC6 sponsors are

Welcome from IPv6Now

IPv6Now's latest project is to build the Victorian Industry Collaborative IPv6 Testbed Network and provide user administration and interfaces, in collaboration with Ai Group, which is engaged in industry outreach and coordination of the project. VIC6 is supported by the Victorian Government through Multimedia Victoria, which has provided seed funding.

VIC6 presents a substantial opportunity for Victorian industry to take advantage of the next generation of Internet technology: IPv6. IPv6 removes many of the constraints of the current Internet, by providing a vastly larger address range to connect many more devices to the Internet. In a climate of financial constraint, it also presents an opportunity for cheaper network operations, and simpler approaches to networks in a climate of mergers and acquisitions.

Victorian industry is able to use VIC6 in a number of ways that will help generate business value, such as preparing for the exhaustion of IPv4 addresses in 2011, trialling strategies for transition from IPv4 to IPv6 , and developing product or process innovations based on IPv6.

Other regions already in the process of uptake of IPv6 include the USA, Japan, China, Korea and Europe. It is essential that Australian business is linked effectively to the growth engines of the world economy, particularly Asia.

Ai Group and IPv6Now look forward to working with all Victorian industry on the VIC6 project, particularly the target sectors of health, financial services and automotive manufacturing.

Tony Hill, MD IPv6Now and Project Manager VIC6

Industry briefing workshops are planned for 17 and 18 February 2009 in Melbourne and Ballarat, to discuss progress, industry needs, and strategic directions of VIC6: see back page for details!

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Victoria Leads the Way on IPv6

Victoria is again at the forefront in the effective and innovative use of information and communication technology in Australia by promoting the next generation Internet addressing system, IPv6.

On 19 November 2008, Premier John Brumby announced a $245 million strategy to boost the Victorian ICT Industry, which included funding to establish an IPv6 testbed network to assist Victorian industry to make the transition to IPv6. The Acting Minister for Information and Communication Technology, Gavin Jennings, stated:

"We have also committed $350,000 towards a program to encourage industry to shift to Internet Protocol Version 6 (IPv6), the next generation Internet, which will provide industry with an unlimited number of IP addresses to cater for business expansion."

He continued, "Currently, IPv4 is the standard with over 4.2 billion addresses. However, these are running out and are expected to be exhausted by 2011. IPv6 will provide an effectively unlimited number of IP addresses that can be used across a range of applications and allow for faster, more secure communication between networks."

The Victorian Government is the first state government in Australia to recognise and actively promote the benefits of shifting to IPv6, providing $350,000 towards a $1.2 million Industry Outreach program, including the development of an IPv6 test facility called the VIC6 TestNet - the Victorian Industry Collaborative IPv6 Testbed Network.

Australian Industry Group IPv6 Outreach Project

“Our members have indicated that IPv6 based capabilities are becoming essential for Australian industry’s growth and engagement with the global markets” said Heather Ridout, CEO of Australian Industry Group (Ai Group). “Recently the European Commission announced its target of 25% access adoption of IPv6 by 2010 and the US government has already declared the successful achievement of its adoption target to have backbone IPv6 networks enabled by end of June 2008.”

Ai Group’s commitment to the development of Australia’s digital economy and infrastructure is demonstrated by the agreement signed in November 2008 between the Victorian State Government and Ai Group to establish a Victorian testbed network and industry outreach program for the next generation of Internet technology, IPv6.

The testbed, being developed by IPV6Now, will make a worthwhile contribution at sufficient scale to support Victorian industry transition to IPv6, and develop the capacity for innovation based on IPv6. As such, it will launch Victorian industry into a new phase of visionary participation in the digital economy and generate the potential for future growth and costs savings based on new products and enhanced productivity.

Ai Group’s substantial membership across automotive and food manufacturing, and related service industries is complemented by its enviable networks and affiliations in all other areas of industry including the financial services, superannuation and other professional sectors. Ai Group is therefore singularly well-placed as the interface to industry users to enhance the momentum of adoption of IPv6. Direct industry benefit will be assured by specific industry outreach activities linked to the technology of the new network, and facilitated by Ai Group.

VIC6: Why and How

Objectives

VIC6 was established by the Victorian Government in November 2008 to give Victorian industry the opportunity to get to know IPv6, to understand its benefits and develop strategies for its uptake. This initiative was undertaken in the context of transition plans that are already in place in other major international economies, including Japan, Korea, China, America and Europe – fundamental world markets for Victorian exports.

Funding

Multimedia Victoria has provided seed funding to the Australian Industry Group (Ai Group) for the establishment of VIC6. IPv6 Now Pty Ltd was commissioned by Ai Group to build and operate VIC6. Ai Group and IPv6Now are jointly coordinating a range of other contributions, including hardware software and services. VIC6 provides an excellent opportunity for a wide range of vendors to showcase the IPv6 capabilities of their products and to allow Victorian industry to become familiar with their use.

Concept

VIC6 will be established with a core network of several nodes, with the capacity to link to multiple IPv6 nodes at industry locations. PPS Internet is providing the networks operations centre and ICT specialist Lateral Plains is constructing the initial infrastructure at Ballarat, to be operational by March 2009. Other nodes are planned for Hawthorn, Bundoora and Monash. Industry organisations with the capacity to establish an IPv6-native (i.e. IPv6-only) connection to any of these core nodes will have the opportunity of linking directly to VIC6. **For industry without that capacity, VIC6 will also be accessible from anywhere via the IPv4 Internet, using IPv6 tunnels provided as sponsorship from IPv6Now.**

Priority Sectors

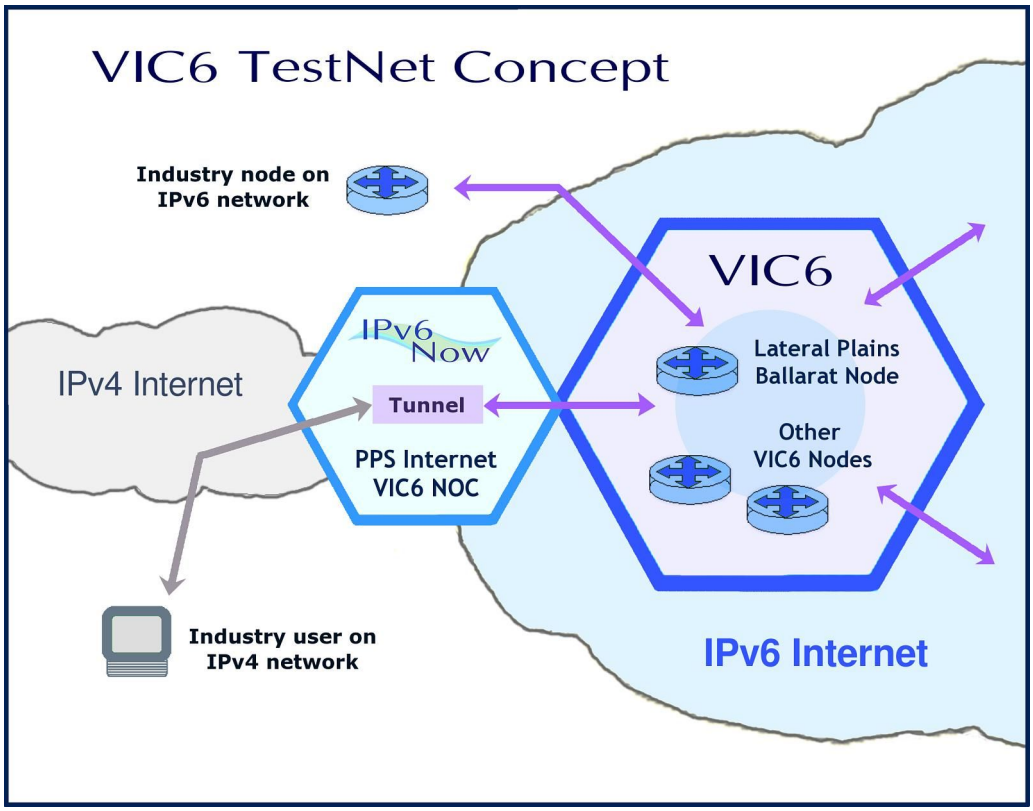
The Victorian Government has identified that the priority industry sectors for VIC6 will be: health, financial services and automotive manufacturing. Businesses from other sectors are also welcome to become users of VIC6, particularly any businesses that are suppliers to these target sectors. As part of the VIC6 project, there will be special components to analyse the benefits of IPv6 to the sector, and development of demonstrations using VIC6 in the latter stages of the project.

Services

The range of services that will be available to Victorian industry through VIC6 will include: information on IPv6 network development, capability to log in to VIC6, usage of VIC6 for IPv6 training, and facilities for testing of IPv6 connectivity in both hardware and software. Initially, access to the TestNet will be on a first-come-first-served basis, and as demand for its services grows, then users will be allocated specific time and function slots.

Progress

The project is on track to have basic VIC6 functionality available by early March 2009, allowing the network to operate and allowing users to log in to it. This milestone will form a basis for further enhancement of features and operations of VIC6, depending on expressed industry needs. Ai Group is currently establishing an industry advisory group for the project that will meet on a regular basis. **Industry briefing workshops are planned for 17 and 18 February in Melbourne and Ballarat, to provide project updates, discuss specific industry needs, and explore the future strategic directions of VIC6.**



Thoughts on IPv6 and Security

Karl Auer, IPv6Now Pty Ltd

Built-In Security?

When IPv4 was developed, it was with little thought to security at the packet layer – the IPv4 approach was: "do security somewhere else". Security was not inherent in the design of the IPv4 protocol. IPv6 rearranges that thinking – it builds in the potential for security at the packet layer, with IPSec as a mandatory element of the IPv6 standard. (IPsec is a suite of protocols for securing communications by authenticating and encrypting IP packets in a data stream.)

However, this does not mean IPv6 is automatically more secure. IPSec must also be implemented in networks, and its widespread adoption depends upon the development of suitable Public Key Infrastructures. IPv6 also has capabilities to secure the conversations between routers and hosts in a subnet, which represent some additional security. So, while IPv6 has the potential to be vastly more secure than IPv4, that will yet depend upon wide-spread implementation and usage of its features.

Simplicity and Security

In security terms, simplicity is good. IPv6 simplifies the network fabric, not least because subnets can be sized appropriately. The constant slicing and dicing of scarce IPv4 address spaces into ever smaller subnets will be a thing of the past. There will be fewer subnets, fewer router interfaces, fewer firewalls, fewer and simpler firewall rules and so on. This will be a real advance.

The Human Factor

In today's Internet, many common threats have little to do with the Internet Protocol, whether IPv4 or IPv6. Most security risks to desktop computers, home or business, arrive on open channels: email payloads carrying viruses, trojans and phishing attacks, unwary usage of portable storage media, and careless file downloads. This will hold as much for IPv6 in the future as for IPv4 today.

Transition to any new system by staff who are not yet up to speed will almost certainly result in a lower level of security. However, this risk can be largely ameliorated by taking transition seriously and making certain that relevant staff are properly trained. IPv6 education sessions for all staff may also be opportunities to reinforce their understanding about the human factor in computer security.

During transition, newly IPv6-capable hardware and applications may be the source of some security issues, because designers and programmers will not yet have the same depth of experience with IPv6 as they do with IPv4. This risk can be dealt with by testing new software and hardware in an IPv6 environment first so that any weaknesses can be discovered and addressed. Again, training of technical staff will be fundamental to security.

The end of NAT?

The vast numbers of IPv6 addresses means that all devices can be assigned addresses, which will revive 'end-to-end transparency', the ability for communication on the Internet to be truly two-way, a fundamental aspect of the development of the Internet.

However, some network managers fear the return of end-to-end transparency - they have become used to using Network Address Translation as a security blanket. (NAT hides a range of private addresses behind a single public address, and came into widespread usage as a successful stopgap to stave off IPv4 address exhaustion.)

But NAT comes with a swag of major disadvantages – it makes connectivity more complicated, slows down packet transmission, and has had a strong braking effect on innovation. Even its so-called 'security benefit' can actually be provided by simple packet filters. NAT makes end-to-end tracing of malicious or illegal activity much more difficult and hinders legitimate troubleshooting. Hence, a move away from NAT as IPv6 becomes more widespread is likely to have broad security benefits for the entire Internet.

Summary

IPv6 can and will affect your security environment in various ways, and you should prepare and know what you are doing, or get expert advice and training. In the end, some aspects of the security story never change – vigilance, sound information and genuine experience will be what counts – but carefully implemented IPv6 has promising capabilities that will greatly improve security for everyone.

IPv6 Packets

Telecommunications: What's happening with IPv6 in Australia?

Presented by Michael Biber, founder and current President of the IPv6 Forum in Australia.
Abstract: The estimated exhaustion date of IANA's unallocated IPv4 address pool is March 2011, a bit over 2 years away. IPv6 adoption in Australia is happening, however we are sliding behind our international trading partners. What are we doing about it? Fear provides one motivation for changing but can we really derive tangible benefit from the IPv6 protocols? Michael will look at the innovative ways IPv6 is being adopted in financial, automotive, health and built infrastructure sectors, and will also identify the opportunities and issues with mass IPv6 adoption in Australia.

For further details contact Michael on **0412 058 808** or **michael@ipv6now.com.au**

Adelaide, 13 February 2009, 12:20pm - 2:00pm: ACS/Telecommunications Society of Australia, Room H6-03 (level 6), Hawke Building, North Terrace, University of South Australia, City West Campus.

Sydney, 26 February 2009, 5:30pm for 6:00pm: IEEE/IEAust/Engineers Australia, Harricks Auditorium, Ground Floor, 8 Thomas Street Chatswood NSW.

Sydney, 27 February 2009, 12:30pm - 1:30pm: ACS/Telecommunications Society of Australia,, Mechanics School of Arts, Level 3 - 280 Pitt St, Sydney, NSW (between Park and Bathurst Sts).

Sydney, 31 Mar-1 Apr 2009: CommsDay Telecommunications Summit, Swissotel, 68 Market St, Sydney

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The German IPv6 Council invites applications for the
INTERNATIONAL IPv6 APPLICATION CONTEST 2009
See http://www.ipv6council.de/contest

The objectives are the generation of ideas and applications which help determine how to introduce IPv6 on a large scale and use it effectively. The contest provides an opportunity for the next generation of application developers to gain experience with IPv6. There are two categories:

1. Applications and Implementations - criteria:
a. Executable new or expanded IPv6 Software Applications
b. Compatibility with the following operating systems:
Major Linux distributions: Kernel 2.4 or later
Windows XP SP1 or later (Home Edition, Professional Edition)

2. Ideas - two page document with criteria:
Be based on the merits and strengths of IPv6
Have a clear reference to networks
Guarantee secure and direct communication, independent of location and status
Guarantee two-way communication, including the communication between devices, including but not limited to computers

Prizes:
Applications and Implementations: **First Prize:10,000 Euro**
Ideas: **several prizes of 1,000 Euro each**

Submissions: Eligibility: open to companies, groups and individuals of any nationality
Deadline: April 10, 2009

The IPv6 Ark

"The point is that the storm clouds have well and truly gathered, thunder is rolling in the hills, great big rain drops are splotting into the dust all around us, and what are we doing? Wandering around the outside of the Ark tut-tutting about the quality of the woodwork and loudly suggesting the construction of various sorts of rowboats." Karl Auer, August 2008

IPv6 Site of the Month

www.sixxs.net/main/

SixXS (Six Access) is a free, non-profit, non-cost service for Local Internet Registries (LIR's) and endusers. It provides tools to monitor and keep the IPv6 routing system stable and clean. If you have IPv6 enabled, then you can try out he **Cool IPv6 Stuff** and the **IPv6 Toy Gallery**.

Free IPv6 Access

And if you want to get IPv6 quickly so you can use some of the SIXXS tools, then IPv6Now's Try6 plan is fast and free, with a single static address for you to experiment with IPv6 - see:
www.ipv6now.com.au/transition.php

IPv6 Compatible Wiki

Would you like a free wiki engine that *works out of the box with IPv6*?
Try MoinMoin (version 1.8.1 or later) with Apache2. See: **www.moinmo.in**

Australian IPv6 Website Hosting

www.sixy.ch lists known IPv6 web sites. A search reveals 15 Australian v6 sites, of which 7 are hosted by IPv6Now, ***making IPv6Now the largest single IPv6 Australian hosting site***.

Australian IPv6 Summit 2009

The 5th Australian IPv6 Summit will be held in Melbourne on 14-16 October 2009
See www.ipv6.org.au/summit/ for previous years' presentations and breaking news

And don't forget ... free VIC6 Progress Workshops!

Melbourne CBD: Tuesday 17 February, 2.30-4.30pm
At Innovation@257, Level 1/257 Collins Street, Melbourne 3000

Ballarat: Wednesday 18 February, 8am-10am
At Neighbourhood Cable Conference Centre, Greenhill Enterprise Centre, University Drive, Mount Helen, Victoria 3350

RSVP is ESSENTIAL
To attend, please email your full contact details to louisem@aigroup.asn.au, with Subject line either "Melbourne confirmation" or "Ballarat confirmation". If you can't attend but wish to know more, use Subject line "Can't attend, but register interest". For more information, please contact Louise McGrath on 03 9867 0158.

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