APNIC

Afghanistan, American Samoa, Australia, Bangladesh, Bhutan, British Indian Ocean Territory, Brunei Darussalam, Cambodia, China, Christmas Island, Cocos Keeling Islands, Cook Islands, East Timor, Fiji, French Polynesia, French Southern Territories, Guam, Hong Kong, India, Indonesia, Japan, Kiribati, North Korea, South Korea, Laos, Macau, Malaysia, Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nauru, Nepal, New Caledonia, New Zealand, Niue, Norfolk Island, Northern Mariana Islands, Pakistan, Palau, Papua New Guinea, Philippines, Pitcairn, Samoa, Singapore, Solomon Islands, Sri Lanka, Taiwan, Thailand, Tokelau, Tonga, Tuvalu, Vanuatu, Vietnam, Wallis and Futuna Islands.

IPv4 and IPv6 in the Asia Pacific region

Addressing the challenge of
responsible Internet resource distribution
in the Asia Pacific region

Asia Pacific Network Information Centre

About APNIC

As one of five Regional Internet Registries (RIRs) in the world, the Asia Pacific Network Information Centre (APNIC) is a not-for-profit, membership-based organisation charged with ensuring the fair distribution of IP addresses and the related numeric resources in the Asia Pacific region. Responsible management of these resources is vital for the stable and reliable operation of the Internet.

In 1993, APNIC made its first IPv4 address allocation. Six years later, APNIC began distributing IPv6 addresses to Asia Pacific networks and actively supporting IPv6 deployment efforts in the region.

The IPv4 Internet will be at full capacity within a few years

The APNIC community is a true multi-stakeholder environment, experienced in the use of bottom-up self-regulatory processes to achieve best practice outcomes for Internet addressing. Through its open policy development processes, the community is responding to IPv4 depletion and the slow deployment of IPv6, and is working to address these issues over the coming years.

As the source of IP address allocations to the Asia Pacific, APNIC itself is closely monitoring address consumption and deployment trends, providing the data, analysis and leadership needed to support these community efforts. While the immediate future of IPv4 is of concern, we see IPv6 as the longer-term solution to the challenge of sustained Internet growth and stability, and we are therefore working strenuously towards its deployment.

APNIC can help you support IPv6 deployment

The APNIC Secretariat has built substantial technical and policy experience, along with a solid track record in working with government, business and civil society. In line with our mission to support the development of the Internet in the Asia Pacific region, and particularly in developing economies, we undertake many activities in support of a smooth transition to IPv6 in coming years:

- IPv6 address allocation, management and measurement
- IPv6 research, education and information
- Community outreach and liaison throughout the Asia Pacific
- Representation within peak forums such as ITU, OECD, IGF and ICANN
- Transparent, open, bottom-up policy development

APNIC invites all stakeholders to participate in these efforts through involvement in the community's policy and development processes, and by utilising APNIC's experience when planning IPv6 deployment initiatives.

For more information contact the APNIC Director General, Paul Wilson:

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APNIC is your source of IPv4 and IPv6 information

The APNIC Secretariat keeps the Asia Pacific Internet community updated with the latest information about Internet resource management and IPv4 and IPv6 technology developments via:

- The APNIC website and online services
- APNIC publications such as *Apster*
- APNIC meetings and conferences
- Widespread training and education activities
- Presentations and participation at Asia Pacific and international meetings and conferences

APNIC produces regular reports and statistics on IPv4 and IPv6 delegations within the Asia Pacific region. These reports are publicly available for use in research and analysis. You can use them to analyse IP addresses delegated to networks in your economy:

http://www.apnic.net/stats

APNIC's IPv4 and IPv6 research and development activities include data gathering and analysis, producing results that are referenced globally by bodies such as ICANN, ITU and OECD.

http://www.apnic.net/research

Internationally renowned for his research on IPv4 depletion and IPv6 transition mechanisms, APNIC's Chief Scientist, Geoff Huston, recently contributed his expertise towards the 2008 OECD report, *Internet Address Space: Economic Considerations in the Management of IPv4 and in the Deployment of IPv6.*

As the source of IP address distribution
in the Asia Pacific region, APNIC can analyse
IP addressing trends at their origin

Key trends:

Currently, more address space is being allocated in the Asia Pacific region than is being allocated in any other region, reflecting the rapid rate of Internet development in this part of the world.

Since the RIRs have been managing IP address resources, China has overtaken the USA in terms of the rate of RIR allocations.

Recently, the growth in mobile Internet services has been reflected in an increased rate of allocations to mobile service providers

IP address trends in the Asia Pacific

As of June 2008, APNIC managed registrations equivalent to 27.5 "slash eight" (/8) blocks of IPv4 address space in total, equal to over 460 million addresses. Based on the current trend of IPv4 distribution in the Asia Pacific region, by the end of 2008, APNIC will be managing almost 30 /8 blocks of IPv4 addresses (approximately 500 million addresses).

Total IPv4 allocated (cumulative)

Number of /8s

Year

- IPv4 resources allocated to date
- IPv4 resources predicted to be allocated by 31 December 2008
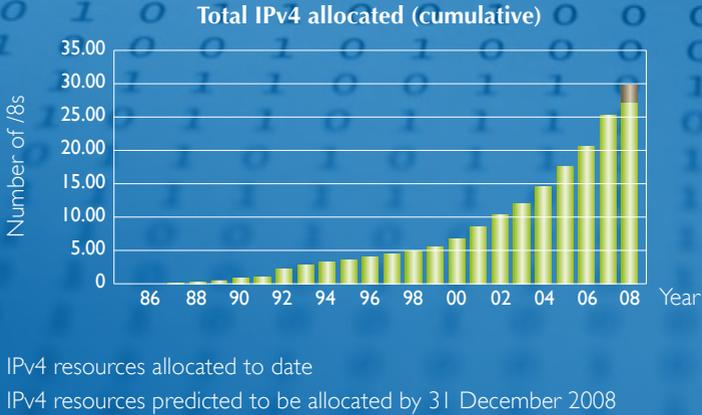
The geographic distribution of IPv4 in the Asia Pacific mirrors the historical distribution of economies that began investing early in Internet infrastructure. In more recent years, other economies in the region, most notably India, have experienced rapid Internet growth. As a result, rates of IPv4 allocations to those economies have been increasing.

Total distribution of IPv4 (by economy)

JP 30%
KR 14%
TH 1%
VN 1%
TW 5%
SG 1%
Other 1%
Other 6%
NZ 1%
MY 1%
IN 3%
HK 2%
AU 8%
CN 32%
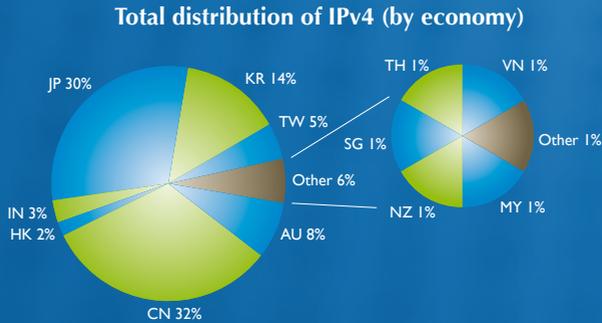
Since 1999, APNIC has made 428 IPv6 allocations and assignments to networks, totalling more than 24,000 /32s of IPv6 address space (each /32 in IPv6 provides addresses for as many network hosts as there are addresses available in the entire IPv4 address space).

IPv6 delegations per year (cumulative)

Number of delegations

120
100
80
60
40
20
0

99 00 01 02 03 04 05 06 07 08   Year
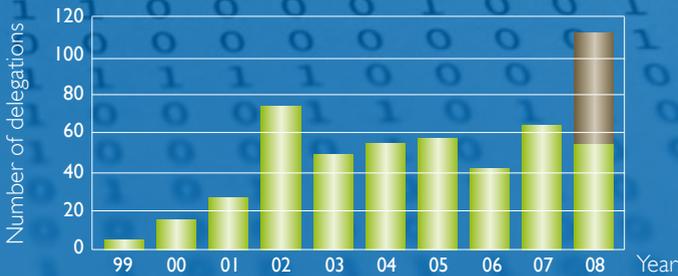
IPv6 delegations made to date
IPv6 delegations predicted to be made by 31 December 2008

While past demand for IPv6 has been somewhat erratic, requests for IPv6 address space in 2008 are being received at almost twice the rate seen in 2007. APNIC expects further growth of IPv6 delegation rates following recent policies adopted by the APNIC community that expand the types of organisations eligible to receive IPv6.

Total IPv6 delegations per economy

CN 7%   NZ 6%
TW 7%
AU 10%
KR 12%
JP 27%

TH 3.41%   SG 2.93%   PH 2.20%
IN 3.41%
Other 32%
HK 4%
MY 4%   ID 4%   Other 8.29%

IPv6 in the Asia Pacific
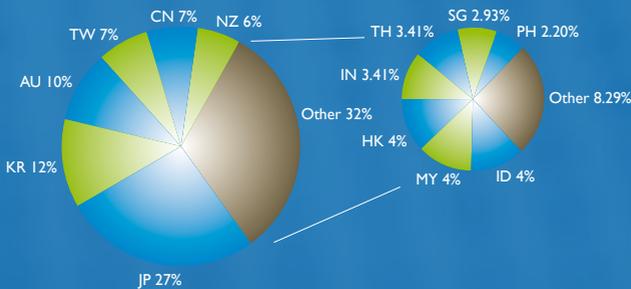
Use APNIC's community network to reach the IPv6 experts you need

APNIC actively conducts outreach programs to promote IPv6 deployment throughout the Asia Pacific region and represents the Asia Pacific Internet community's concerns about the slow transition to IPv6 at many forums, including:

- Internet Corporation for Assigned Names and Numbers (ICANN)
- Internet Governance Forum (IGF)
- Internet Engineering Task Force (IETF)
- Internet Society (ISOC)
- Asia Pacific IPv6 Task Force (APv6TF)
- Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT)

APNIC is a Sector member of the ITU-D, and continues to work closely with ITU in training and information exchange. APNIC has close working relationships with government, business and civil society across the Asia Pacific region, including:

- Pacific Islands Telecommunications Association
- Asian Institute of Technology
- ISP associations in India, Pakistan, Nepal, and Bangladesh
- Several national and sub-regional Network Operators Groups
- National Internet address Registries (NIRs) which operate in several economies of the region
- Business leaders in the Asia Pacific region

You can benefit from APNIC's outreach program and activities

APNIC's community actively supports capacity-building in developing economies within the Asia Pacific region. A large component of APNIC's outreach program focuses on providing increased awareness of IPv6 deployment issues specific to the Internet in developing economies.

Training is a vital component of APNIC's IPv6 outreach program. APNIC currently offers a one-day IPv6 tutorial and two and three-day practical IPv6 workshops using a hands-on training lab.

http://www.apnic.net/training/courses/ipv6.html

Total number of APNIC training events (2003-June 2008):   198

Number of economies where APNIC training has been held: 33

Community outreach and education

Add your voice to APNIC's community

The APNIC community meets twice per year for policy development, decision-making, education, information sharing, and networking – both professional and social. We invite you to join the community at the next APNIC meeting:

http://www.apnic.net/meetings

Support APNIC's activities
by becoming an APNIC member

Joining APNIC gives you access to all APNIC services, including requests for allocation and registration of Internet address resources, and attendance at training courses. APNIC membership also gives you a voice in regional Internet operations through participation in APNIC's policy development processes and voting rights at APNIC member meetings. APNIC membership costs as little as AU$792 per year.

1993	APNIC established as a project of the Asia Pacific Networking Group (APNG)
1994	IANA authorises APNIC to commence allocating resources in the Asia Pacific region
1999	APNIC community adopts its first IPv6 allocation and assigment policy APNIC makes its first IPv6 allocation
2002	APNIC adds IPv6 to the apnic.net nameserver APNIC begins project to establish root server mirrors in the Asia Pacific (One root server in the Asia Pacific in 2002; 35 in 2008) APNIC begins IPv6 training
2003	APNIC website available via IPv6 APNIC joins the Number Resource Organization (NRO) to protect the unallocated Internet number resource pool
2007	APNIC community resolves to actively promote adoption of IPv6 and focus efforts on comprehensive deployment of IPv6 in the Asia Pacific region
2008	APNIC holds IPv6 connectivity showcases at its Open Policy Meetings APNIC joins the 6DEPLOY project, part of the European Union's 7th Framework Programme, as a sponsoring partner APNIC launches IPv6 modules on APNIC's eLearning platform
2010-2012	IANA and RIR IPv4 free pools predicted to be fully consumed

APNIC has 15 years of experience

APNIC

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