APNIC

APNIC *Fact Sheet*

IPv6 Distribution in the Asia Pacific

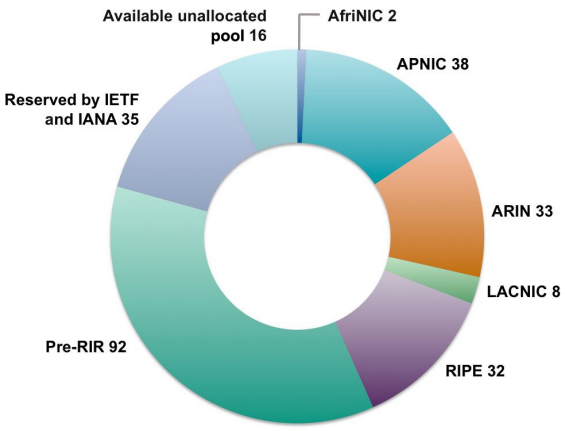
Soon, all new Internet growth will take place with IPv6. The transition to IPv6 is a major turning point in the development of the Internet. It is a change that affects all stakeholders. To ensure the proper management of Internet expansion via IPv6, it is important to ensure the system of resource allocations remains open, transparent, and equitable. As is evident in the following pages, most economies in the Asia Pacific region have received IPv6 address delegations. This trend is observed in other regions as well, indicating that global IPv6 distribution is already well underway.

At the current allocation rates, the Number Resource Organization (NRO) expects the Internet Assigned Numbers Authority (IANA) free pool of IPv4 address space to be depleted by late 2011. There is currently about 7% of IPv4 space that remains unallocated. Enterprises and network operators should now consider deploying "dual-stack" networks, in order to communicate via both IPv4 and IPv6 during the next few years of transition.

Around the world, more and more Governments are working with the private sector and civil society in a multistakeholder environment to prepare for IPv6. To assist with these preparations, the Asia Pacific Network Information Centre (APNIC) has been busy collecting and communicating information from organizations that have deployed IPv6, sharing this across the region.

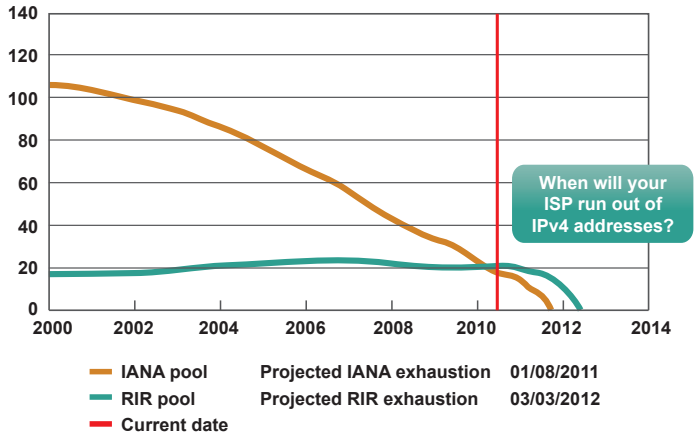
IPv4 Address Global Distribution

As of 7 June 2010 (/8s)



IPv4 Consumption: Projection

As of 7 June 2010 (/8s)



APNIC and IPv6 Distribution

The exhaustion of IPv4 is no cause for concern because it is easy to receive IPv6 addresses with Kickstart IPv6. If you already have IPv4 addresses from APNIC, you are only one click away from an IPv6 delegation. There are no forms to fill out and no increase in membership fees at the time of delegation. APNIC Members asked for a simple way to get IPv6, and this service is now available. Members with IPv4 allocations will receive a /32 ("slash thirty-two") of IPv6, and Members with an IPv4 allocation will receive a /48 ("slash forty-eight") of IPv6.

http://www.apnic.net/kickstart

Addressing the APNIC region: IPv4 and IPv6 statistics

The table opposite shows the breakdown of IP delegations by economy within the APNIC region and is based on data available at http://resources.potaroo.net/iso3166. The data is correct as of 31 May 2010. To make best use of the table, APNIC recommends that you read the notes below first.

Economy

ISO 3166-1 currently recognizes 246 different economies. The RIRs (Regional Internet Registries) use this list for registering allocations and assignments in their whois databases. In addition to the officially recognized codes, the RIRs also use 2 regional designations: Asia Pacific (AP) and European Union (EU).

The following table shows the economy to which IP addresses were originally delegated.

Implications of the preservation of original delegation information include:

- Networks in some economies may appear to have no IP addresses when they in fact do. For example, in some instances, for business reasons, rather than request resources directly from a RIR, networks may choose to obtain their IP addresses from an upstream ISP that happens to have its addresses registered under a different economy.
- Due to the routing architecture of the Internet and international reach of many businesses and networks, there are also addresses delegated to organizations that operate in more than one economy. Some of the apparently economy-based allocations listed in the table opposite may also contain elements of use across economies.

Only individual organizations using the addresses can specify definitively whether all their addresses are used within the same economy.

IPv4 (/32s)

In IPv4, an end user is usually automatically assigned a single IP address (a /32).

IPv6 (/48s)

The table indicates, the number of /48s of IPv6 addresses allocated to networks in an economy.

A /48 is the original minimum unit of allocation for IPv6 addresses to an end site. There are 2^{80} or 1,208,925,819,614,629,174,706,176 IPv6 addresses in one /48. End sites are users that do not re-assign any of their IP addresses to other organizations.

Total IP Addresses delegated to networks in economies in the APNIC region

Economy	IPv4 (/32s)	IPv6 (/48s)
Afghanistan*	85,248	0
American Samoa	4,096	0
Asia Pacific+	1,910,016	1,703,996
Australia	42,103,808	546,177,072
Bangladesh*	859,648	917,505
Bhutan*	22,528	131,072
British Indian Ocean Territory	3,072	0
Brunei Darussalam	191,232	131,072
Cambodia*	176,128	131,072
China	250,320,384	25,755,651
Christmas Island	0	0
Cocos and Keeling Islands	0	0
Cook Islands	8,192	65,536
Democratic People's Rep. of Korea	1,024	0
Fiji	114,432	262,148
French Polynesia	39,424	65,536
French Southern Territories	0	0
Guam	172,544	196,608
Hong Kong	8,699,904	2,621,443
India	22,525,184	3,276,804
Indonesia	10,170,880	2,818,059
Japan	181,651,968	556,875,852
Kiribati*	3,072	0
Korea, Rep.	87,109,120	341,049,345
Lao People's Democratic Rep.*	50,944	65,536
Macao Special Administrative Region of China	228,608	131,072
Malaysia	5,481,216	2,555,909
Maldives*	37,376	65,536
Marshall Islands	2,048	65,536
Micronesia (Federated States of)	6,144	65,536
Mongolia	157,440	131,073
Myanmar*	12,288	65,536
Nauru	8,192	0
Nepal*	191,488	458,755
New Caledonia	88,064	131,072
New Zealand	6,467,072	3,670,033
Niue	1,024	1
Norfolk Island	1,536	0
Northern Mariana Islands	12,288	0
Pakistan	2,883,328	1,310,721
Palau	4,096	65,536
Papua New Guinea	39,680	196,608
Philippines	4,586,496	1,966,081
Pitcairn	0	0
Samoa*	15,616	131,073
Singapore	4,935,680	2,359,303
Solomon Islands*	8,704	65,536
Sri Lanka	520,704	458,753
Taiwan	29,563,904	151,584,769
Thailand	6,196,992	1,376,261
Timor-Leste*	4,096	0
Tokelau	2,048	65,536
Tonga	6,400	65,536
Tuvalu	8,192	0
Vanuatu*	7,424	65,536
Vietnam	8,365,312	655,378
Wallis and Futuna Islands	2,048	0

* Least Developed Country as defined by the UN-OHRLLS

+ Regional designation used by APNIC to denote organizations with resources across economic borders

APNIC invites you to participate

The Asia Pacific Network Information Centre (APNIC) is one of the five RIRs. All are membership-based, not-for-profit organizations. They perform an important role in Internet governance, by ensuring that IP addresses and other Internet number resources are distributed fairly and managed responsibly. Resources are managed according to policies and principles developed by the Internet community in a transparent and bottom-up process. This process is open and accessible to any person or organization that wishes to participate.

As IPv4 exhaustion approaches, APNIC is working to provide the Internet community with a range of information relating to IPv4 depletion and IPv6 deployment, communicating this to our Members and the wider community through the press, websites, at speaking events, and involvement with taskforces and other forums.

http://www.apnic.net

NRO leads the effort toward IPv6 transition

The Number Resource Organization (NRO) is a coordinating body for collaboration between the five RIRs. The NRO provides a single contact point for global industry partners and other stakeholders. Promoting the open, bottom-up, and transparent policy development process followed by all RIRs, the NRO also assists in technical coordination between the regions.

Together with APNIC and the other RIRs, the organization has taken a proactive role in the push for global IPv6 deployment. It also argues for and advocates the multistakeholder system of Internet governance supported by the 2005 World Summit on the Information Society (WSIS). This system has proven itself highly effective and inclusive for more than two decades and is credited with the expansion of the Internet.

If managed effectively, the transition to IPv6 will permit the Internet to grow to millions of times its current size, increasing developmental and social benefits while enhancing the lives of people all over the world.

http://www.nro.net

Asia Pacific IPv6 Task Force (APIPv6TF)

The APIPv6TF was established in Japan in 2003 to encourage IPv6 deployment in the Asia Pacific region. APNIC was elected to manage the Secretariat at the Asia Pacific Regional Internet Conference on Operational Technology (APRICOT) in March 2010.

Cooperation among members in different economies is the key to managing transition. To achieve this goal, the APIPv6TF Secretariat employs various remote participation tools.

Anyone interested in joining the mailing list may subscribe at:

http://www.ap-ipv6tf.org/mailinglists.html

ICONS

The ICONS (Internet Community of Online Networking Specialists) Wiki is a resource that provides the Internet community an opportunity to share information on relevant topics. Anyone can join free of charge. ICONS Members can participate in online forums as well as contribute documents, presentations, and links to interesting material. Everyone is encouraged to participate and upload content that is of interest to networking specialists, ISPs, and other Internet operators.

http://icons.apnic.net

IPv6 websites across the RIRs

AfriNIC IPv6 Virtual Lab:
http://www.afrinic.net/projects/cvl.htm

APNIC IPv6 Program:
http://www.apnic.net/ipv6

ARIN IPv6 Wiki:
http://www.getipv6.info

LACNIC IPv6 Portal:
http://portalipv6.lacnic.net

RIPE NCC IPv6 Act Now:
http://www.ipv6actnow.org

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