The Regional Internet Registries: Managing Internet Resources

Global Coordination

Whether typing an e-mail address into a mail client, a domain name into a browser, or dialing a phone number on a voice over Internet protocol (VoIP) system, the Internet relies on a series of numbers (called IP addresses) in order to function. The fundamental operation of the Internet and the services it provides all rely on the combined efforts of key organizations that work collaboratively with thousands of stakeholders who rely on the Internet's secure, robust, and scalable infrastructure. Several of these organizations form a framework for global Internet governance.

The five Regional Internet Registries (RIRs) work with stakeholders to facilitate policy development and conduct training. RIRs are not-for-profit, membership-based organizations charged with ensuring the fair distribution of Internet number resources in their respective regions. Each RIR facilitates the development of regional policies to manage IP addresses and Autonomous System Numbers (ASNs), and works with other RIR communities on policies that require global coordination. The RIRs use a model of self-regulation that has proven highly successful in ensuring the stable and reliable operation of the Internet and is an integral part of its future. There are five RIRs:

AfriNIC, serving Africa

APNIC, serving the Asia Pacific region

ARIN, serving Canada, many Caribbean and North Atlantic islands, and the United States

LACNIC, serving Latin America and the Caribbean

RIPE NCC, serving Europe, the Middle East and parts of Central Asia

The RIRs also work together as the Number Resource Organization (NRO), a coordinating mechanism for the RIRs to act collectively on matters of interests to the RIRs. The NRO exists to protect the unallocated Internet number resource pool, to promote and protect the bottom-up policy development process, and to act as a coordinating body that provides global industry partners with a single point of contact with the RIRs.

Ensuring the availability and responsible management of Internet number resources is critical to the philosophy of the Internet community. To achieve this, the RIRs use a policy development process that is:

Open: All policies are developed in an open forum in which anyone may participate.

Transparent: All aspects of the process are documented and publicly available online.

Bottom-Up: All policies are developed by the RIRs respective communities from the bottom up.

**Note: The RIRs do not manage domain names.*

For more information, visit us at **http://www.nro.net**

IPv4 Exhaustion and IPv6 Adoption

Every device directly connected to the Internet needs an IP address. IPv4, the currently prevalent version, holds 4,294,967,296 addresses, and about 95 percent of them have already been distributed. IPv6 holds 340,282,366,920,938,463,463,374,607,431,768,211,456 addresses, making it the clear solution to address depletion. However, the transition to IPv6 requires that companies using and distributing IP addresses adapt their networks and systems to use IPv6.

The five RIR communities see IPv6 as a long-term solution for the continued growth and stability of the Internet. The RIRs closely monitor Internet number resource consumption and deployment trends, providing data, analysis, and leadership to governments, businesses, and society as a whole. Each RIR conducts outreach programs to promote IPv6 deployment, as well as participating in forums such as ITU, OECD, the Internet Governance Forum (IGF), and ICANN.

IPv6 Preparedness

Start planning for your IPv6 deployment today. Assess the needs of your organization and customers and set a timetable for deployment. Actively engage your vendors and suppliers and ensure that they are aware of your needs. You will need to get IPv6 address space for your network. Contact your RIR to learn more about how to get Internet number resources and gain access to tools to effectively manage them.

While the IPv4 Internet will continue to function as it does today for many years to come, those running on IPv4 may be unable to reach parts of the IPv6 Internet as it continues to grow. Preparation for IPv6 involves only the knowledge and capability to run IPv6 in addition to your IPv4 network. There are many ways to make your organization's services available using IPv6, depending on your network setup and the services you have deployed.

If You are a(n):

Internet Service Provider: Plan how to connect businesses and customers via IPv6-only and IPv4/IPv6 in addition to IPv4-only. Communicate with your peers and vendors about IPv6, and confirm their timelines for production IPv6 services. Weigh the additional human and technical cost of IPv4-stretching mechanisms like Network Address Translation (NAT) against the opportunity for easier and more efficient network management that comes with IPv6 adoption.

Content Provider: Make sure your content will be available via IPv6 by implementing dual-stacked networks. Dual-stacking your network requires both an IPv4 and IPv6 address, and allows simultaneous communication with IPv4 and IPv6 devices.

Application Developer: Develop your applications so they are IPv6-enabled. Ensure that with servers and clients running both IPv4 and IPv6 addresses, software can function with either protocol. Do you have the knowledge you need to code dual-stack programs?

Equipment Vendor: Enable your IPv6 networks by ensuring your routers, switches, home gateways, servers, firewalls, and network monitoring tools are IPv6 ready. There are significant technical differences between the two protocols that you need to know of; therefore, you must introduce IPv6 support into your product cycles as soon as possible.

Government Organization: Learn about IPv6 adoption issues to successfully deploy IPv6 in your economy. The Internet is an important piece of social and economic infrastructure, and government organizations need to prepare for IPv6. Governments can lead by example by implementing IPv6 into their procurement policies and their network infrastructure.

Other Business: Ensure your business can maintain scalability and growth by enabling your networks with IPv6. If your business relies on hosting or data-center services, ensure your hosting data-center provider is planning to deploy IPv6. An IPv6-based Internet offers organizations a more efficient, secure, manageable, and cost-effective network architecture.

For More Information, Contact Your Local RIR.

AfriNIC: http://www.afrinic.net

APNIC: http://www.apnic.net

ARIN: http://www.arin.net

LACNIC: http://www.lacnic.net

RIPE NCC: http://www.ripe.net

Visit Your RIR's IPv6 Informational Sites:

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

APNIC's IPv6 Program: **http://www.APNIC.net/community/ipv6**

ARIN's IPv6 Wiki: **http://www.getipv6.info**

LACNIC's IPv6 Information Center: **http://portalipv6.lacnic.net/en**

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

Contact the NRO:

Website: **http://www.nro.net**

Global statistics: **http://www.nro.net/statistics**

Global policy development: **http://www.nro.net/policy**