



The Internet Puts Information at Our Fingertips. IPv6 Will Change the Way We Share It.

What Is IPv6?

IPv6 is an advancement of IPv4, the network-layer protocol widely adopted in 1981 that gave rise to the public Internet as we know it today. But the world has changed in the last 25 years. Our population has skyrocketed, our lives have become more dependent on instantaneous access to resources, and the gadgets we use have proliferated and intertwined themselves into our daily—even hourly—routines. As people become increasingly connected to information, electronic devices, and one another, we must ensure that the underlying backbone can support this expansion.

IPv6 extends us that flexibility, exponentially increasing the quantity of unique IP addresses available to networked devices to an almost infinite number—and providing us the foundation to radically change the way we communicate.

Why Should You Migrate to IPv6?

In 2003, the U.S. Department of Defense defined an IPv6 migration process to be completed by 2008. Two years later, the U.S. Office of Management and Budget acknowledged the inevitability of this transition and mandated that all federal agencies migrate their networks to IPv6 by June 2008. These initiatives follow developments worldwide.

In Asia, the evolution has already manifested. Japan, for example, has successfully deployed IPv6, using tax incentives to initiate adoption of this technology. Meanwhile, Europe is also integrating IPv6 into its IT strategy. The European Commission has sponsored several IPv6-focused programs, including 6NET, a project designed to show the new protocol's importance in the Internet's future. Also, several European countries have national task forces dedicated to generating IPv6 recommendations for their governments.

The collective impact of these efforts is tremendous. Firstly, IPv6 removes the need for network address translation (NAT), a time-consuming, problematic technology that offers a work-around solution to IPv4's addressing shortcomings. Secondly, it promises advances in communications technologies, making them easier to use and bringing more robust collaborative capabilities to the marketplace. Essentially, IPv6 can overcome the limitations of IPv4 and reclaim the original intent of the global, end-to-end Internet model.

Survey the Benefits

An IPv6-ready architecture enables the following:

- Innovative capabilities to the desktop—Microsoft's Windows Vista and Apple's Mac OS X v10.3 (and later versions) support IPv6 and enable it by default. Increasingly, vendor applications prefer IPv6 over IPv4, even if they have to tunnel it.



- Powerful IP applications—IPv6 transcends inefficient, server-based applications and enables sophisticated peer-to-peer communication tools that improve interagency collaboration.
- Next-generation multicast—Cisco's® IPv6 multicast technologies optimize media-streaming applications, allowing timely video feeds and quality-rich information to be easily distributed to millions of citizens worldwide, simultaneously. This is in contrast to IPv4, which cannot support multicast due to its addressing constraints.
- Mobility support and wireless access—IPv6's nearly infinite capacity for addresses lends connectivity to myriad electronic devices—not merely mobile phones and laptops, but also in-vehicle computers, televisions, and cameras.
- Security—IPv6 is inherently less vulnerable to scanning attacks than IPv4 and possesses native capabilities for packet integrity. Additionally, it mandates that security is provided through information encryption and source authentication.
- Plug-and-play—IPv6 auto-configures new equipment to communicate with the network once it is detected, which means devices are ready to use right when needed.

What Are the Next Steps?

Cisco offers a wide range of IPv6 implementation capabilities to address short-term requirements while also supporting a more gradual, long-term approach incorporating best practices and knowledge derived from previous customer deployments. To design a migration roadmap best suited to your specific needs while mitigating transition, cost, security, and training concerns, Cisco provides assessment services that use a collection-and-reporting tool. The following items help us determine the most beneficial IPv6 deployment route for you:

- Report—A customized, color-coded survey that identifies your network's IPv6 capability status.
- Scorecard—A confidential, high-level evaluation of the IPv6 capability of devices on the network; also color-coded.
- IPv6 capability assessment—A thorough analysis that compares your agency's network devices against the IPv6 business rules.

Once the report is compiled, Cisco creates a customized scorecard, assessment, and audit based on your IPv6 readiness, and then works with you to establish a migratory path aligned with your strategic business objectives.

Make Your Move

For detailed technical guides about how to plan or deploy IPv6 in your agency's network, refer to Cisco's "Deploying IPv6 in Campus Networks" and "Deploying IPv6 in Branch Networks" white papers.

To find out more about IPv6 or Cisco's network readiness assessment, call your Cisco representative today or visit www.cisco.com/go/ipv6 or www.cisco.com/go/federal



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