

Internet address system upgrade likely to be smooth

June 3 2012, by Rob Lever



People use their laptop computers in Washington, DC. The Internet is set for a major upgrade in the coming week, but if all goes well, users won't even know it's happening.

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The switch occurs at 0001 GMT Wednesday, when the Internet system shifts to a new standard that allows for trillions of "IP" numbers or addresses, up from the current four billion.

Known as the World IPv6 launch to geeks, the move will see Web operators and others switch permanently to the new system from the existing standard, IPv4. A test of the system was held last year.

The new standard was needed because the number of IP addresses under the old system has been exhausted.

The full transition will take several years, and old IPv4 devices and networks should continue to function as before.

"Most users shouldn't notice anything," said Leo Vegoda, a "numbers resources" manager for the [Internet Corporation for Assigned Names and Numbers](#), which manages the Internet address system.

"If ordinary [Internet users](#) need to know stuff, then the technology isn't right."

But Vegoda said there may be some "irritations" for users, as those using equipment on the old standard connect to computers and networks on the new standard.

Each piece of hardware -- including home computers, tablets and [mobile devices](#) -- has a unique IP address to connect to the Web.

With about seven billion people on the planet, the IPv4 protocol doesn't allow for everyone to have a gadget with its own online address.



A man uses his smartphone in a metro station in Washington, DC. The Internet is

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The situation has been equated to not having enough [telephone numbers](#) for every user.

[Cisco](#) is projecting that by 2016, there will be nearly 18.9 billion [network connections](#), or nearly 2.5 connections for each person on earth, compared with 10.3 billion in 2011.

If there are not enough addresses, neighbors will have to start sharing IP addresses, which can slow things down.

But with the IPv4 and IPv6 systems coexisting, the connections need to find a compatible "path," which sometimes may be longer than usual, said Vegoda.

If there are not enough paths available, someone connecting to a Web page from the United States might have to be routed across the Atlantic and then back again, a phenomenon known as "tromboning."

This can slow down connections in some cases, but Vegoda said he expected "relatively light" problems.

Johannes Ullrich of the SANS Technology Institute said that in some cases, "you may see some degradation in speed and reliability" by remaining on IPv4. But he said that over time, the move will mean a smoother-running Internet.

"Don't consider IPv6 a threat. Use it as an opportunity," he said in a blog post. "There are a lot of neat things you can do in IPv6 to secure your

network better. But get on it and learn about it now."

Over time, home users may have to get new modems or routers to be compatible with the new standards, but major Internet providers are prepared for the switchover.

"We maintain our commitment to the goal of a seamless transition to IPv6," said Jason Livingood, a vice president for Internet systems at Comcast, one of the largest US providers.

"That means customer Internet access will continue to be direct and fast. And because middlebox solutions are not used, customers avoid the risk that certain applications slow down, fail to work or experience other annoying errors."

Big Web firms like Google and Facebook and hardware makers like Cisco are encouraging businesses and individuals to make the transition, saying it will be easier for different devices and networks to speak to each other.

"Your current network running IPv4-based devices won't be obsolete for some time," said Cisco's Sampa Choudhuri.

"However, if you haven't already started making plans for the transition to IPv6, you should. The first step you should take is determining how and when to transition to the new Internet protocol based on your business needs."

He suggested that people doing business with partners on an IPv6 network should migrate "sooner rather than later."

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