

IPv6 Questions and Answers

After presenting *Be Ready for IPv6 Migration and Beyond*, Cricket Liu spent time answering additional questions that he was unable to address during the broadcast due to time constraints. Read the questions and answers below:

Q: If IANA created a secondary market for IP addresses and they had a monetary value, maybe \$100s per address, early adopter companies (like HP) would have tens of millions of good reasons to think seriously about selling back their unneeded addresses. Markets exist for most other limited resources to help discover kind of optimum distribution.

Cricket Liu: Actually, a few "IPv4 exchanges" have popped up and the RIRs haven't stood in the way. However, I think you underestimate the cost to most of those early adopters of giving up that address space. I'm sure 15/8 and 16/8 are in widespread use around HP, and the expense of vacating that address space would greatly exceed the current going rate for IPv4 addresses.

Q: Does it even make sense, since that's where we do NAT, for user firewalls to translate/NAT IPv6 to IPv4?

Cricket Liu: Sure, I think firewalls will often handle IPv6 to IPv4 translation.

Q: Thinking about tools like ping, how will that be used with ipv6?

Cricket Liu: IPv6 support ICMPv6, which includes functionality analogous to IPv4's echo request and echo reply, which are used in the ping command. On many operating systems with IPv6 support, the command to send an IPv6 ping is called ping6.

Q: Will we really see IPV6 for home users , or just in the core since there can be ipv6 to ipv4 translation and the use of NAT as well?

Cricket Liu: That will depend on the ISP, but I think many ISPs, in order to avoid forcing customers to configure IPv6 on their home computers and other devices, will use some translation technique to allow customers to run IPv4.

Q: Are there no longer any provisions for static addresses?

Cricket Liu: Sure, you can have static IPv6 addresses: Most operating systems support manual configuration of such addresses. But there are more options for automatic address assignment with IPv6 than there were with IPv4.

Q: We currently use RFC 1918 addresses throughout our enterprise. Should we use the IPV6 equivalent of RFC1918, or should all hosts be re-addressed to have globally routable IPV6 addresses?

Cricket Liu: That's really up to you, but if the decision were up to me, I'd probably use global unicast addresses internally, too. That gives you the flexibility to allow access between any internal host and any IPv6-speaking Internet host—though certainly there's no obligation to allow such access, and you can still prevent it using your firewall.

Q: Will there still be private ipv6 addresses that companies can choose to use for their networks?

Cricket Liu: Yes. Those are the Unique Local Addresses I described in the presentation.

Q: In the meantime till everyone goes IPv6 can a ver 4 client connect to a ver 6 only server?

Cricket Liu: No, not without some transition technology.

Q: What are the drawbacks of running a dual 4/6 stack Vs NAT64?

Cricket Liu: Running dual stack obviously still requires IPv4 address space. An ISP looking to expand its subscriber base without using IPv4 address space can't use dual stack. But most enterprises that already use IPv4 internally can simply add IPv6 addresses to internal networked devices, running them with dual stacks. This provides maximum flexibility.

Q: Why was IPv6 not made backward compatible with IPv4? It is an unthinkably HUGE roadblock to adoption!

Cricket Liu: IPv6's address space had to be larger than IPv4's, which meant at the very least longer address fields in the IP header, which would break backwards compatibility anyway.

Q: Did he just claim that you could put every computer on Earth into a single subnet? How many computers can you realistically put in a /64 and actually have a functional network?

Cricket Liu: No, I said that a /64 contains enough addresses to accommodate every computer on Earth. I didn't suggest that it would be a good idea to do.

Q: Wasn't the unique local addresses deprecated?

Cricket Liu: No. Maybe you're thinking of site-local addresses, which were deprecated.
