



World IPv6 Day: What Should You Do?

DSE Phillip Remaker



Cisco Support Community – Expert Series Webinar

- Today's featured expert is Phillip Remaker
- Ask him questions now about IPv6 and World IPv6 Day



Phillip Remaker

Distinguished Support Engineer (DSE), Cisco

Thank You for Joining Us Today

Today's presentation will include audience polling questions

We encourage you to participate!



Thank You for Joining Us Today

If you would like a copy of the presentation slides, click the PDF link in the chat box on the right or go to

<https://supportforums.cisco.com/community/netpro/network-infrastructure/ipv6-transition?view=documents>



Polling Question 1

What is your level of experience with IPv6?

- a) IP v what?**
- b) I'm thinking about using it.**
- c) I'm playing with it in the lab.**
- d) I'm running it in production.**
- e) I invented it. Any questions?**



Submit Your Questions Now

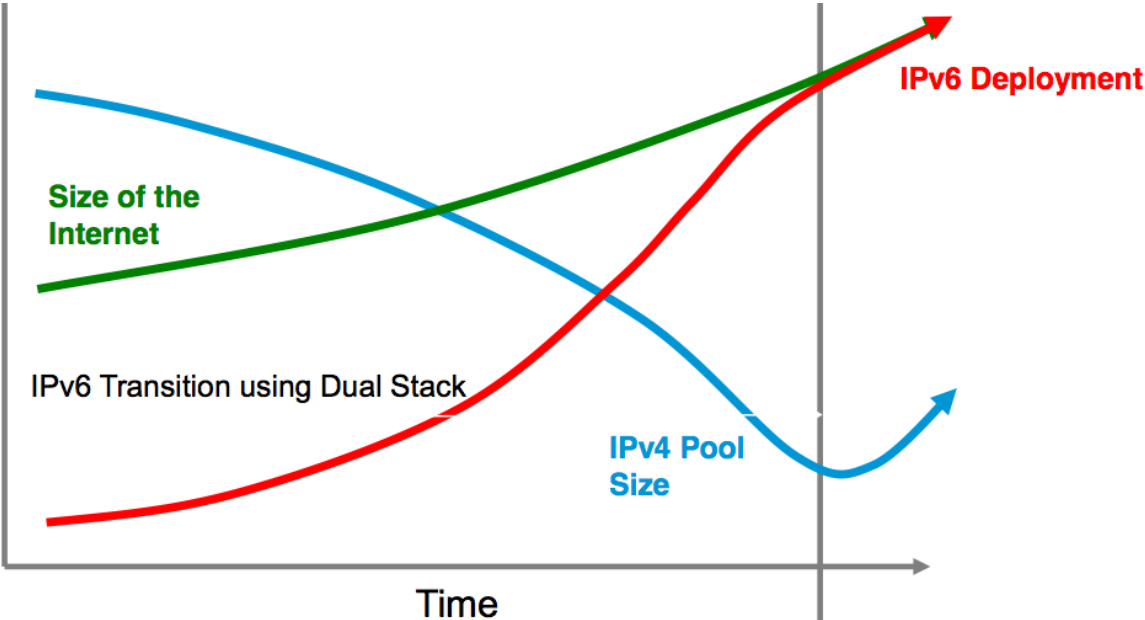
Use the Q&A text box to submit your questions.

Agenda

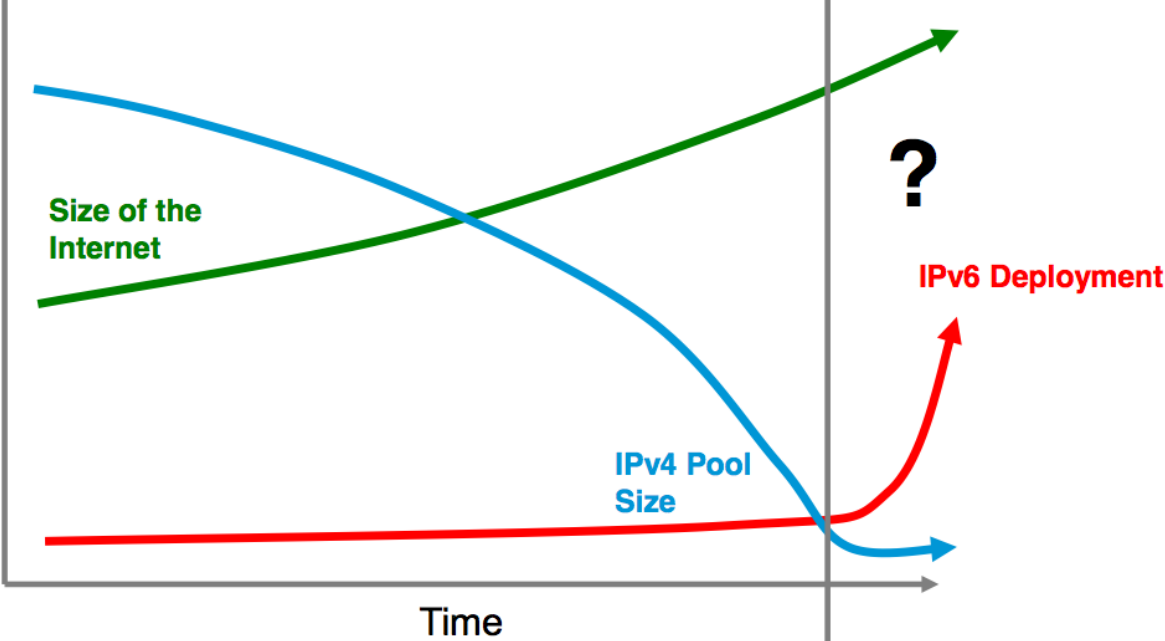
- **Why do we need a World IPv6 Day?**
- **Who is participating in World IPv6 Day?**
- **How will it affect me?**
- **Do I need to take any steps to prepare?**
- **Where do I go to get help?**

Change Is Good. You Go First.

This was the plan.



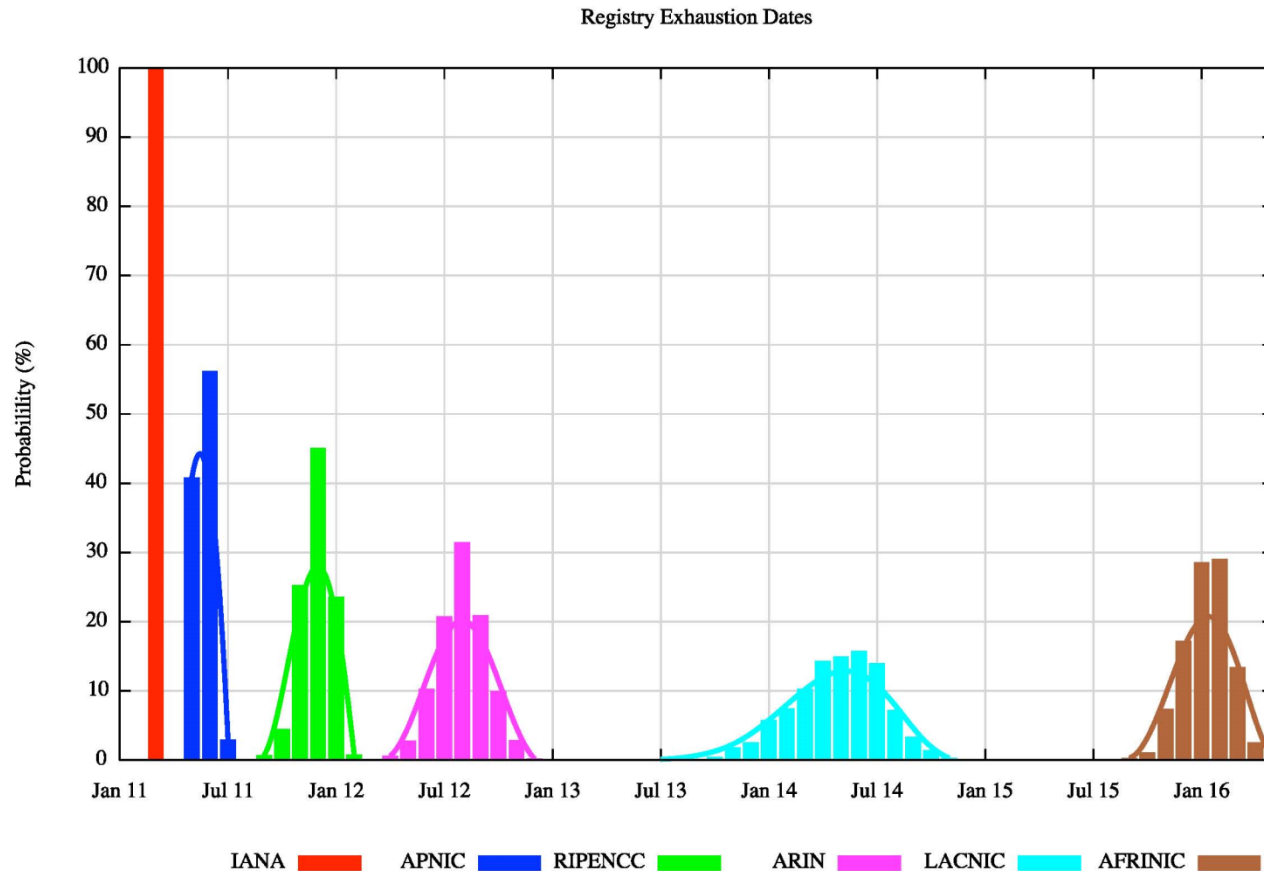
This was what happened



What Went Wrong?

- IPv4 benefitted from life-extending technologies
NAT, CIDR, Private Network Addressing, Name-based Virtual hosting, Conservation
- IPv6 originally suffered uneven quality of service
Buggy gateways, balky stacks, DNS bugs, Configuration errors, low expertise
- Website Operators feared loss of customers due to IPv6 bugs
- Network Operators saw few sites running IPv6
- OS vendors took a long time to provide IPv6 stacks
- Application have been slow to incorporate IPv6

But a funny thing happened



- IANA exhausted
3 February 2011
- APNIC exhausted
15 April 2011
- COMING SOON:
RIPENCC
ARIN
LACNIC
AFRNIC

Source: <http://www.potaroo.net/ispcol/2011-02/transtools-part1.html>

World IPv6 Day: We all go first

- June 8, 2011 from 0:00 UTC to June 9, 2011 0:00 UTC
- Coordinated, cooperative IPv6 activation by websites and CDNs



- Worldwide testbed for data gathering
- <http://isoc.org/wp/worldipv6day/>

What Could Possibly Go Wrong?










- Most sites or hosts **will not notice this change**
- Typical impacts
 - Slow connection startup as IPv6 fails and falls back to IPv4
 - Slow performance due to congested IPv6 paths
 - Failed connectivity due to misconfigured devices
 - Failed connectivity due to standards non-compliant devices
 - Failed connectivity due to incorrect DNS entries
 - Many more specific and detailed ideas
http://www.getipv6.info/index.php/Customer_problems_that_could_occur
- Cisco.com
 - Only www.cisco.com **itself** will be reachable via IPv6
 - Experience should be the same as www.ipv6.cisco.com is today

* Source: <http://www.isc.org/solutions/survey>

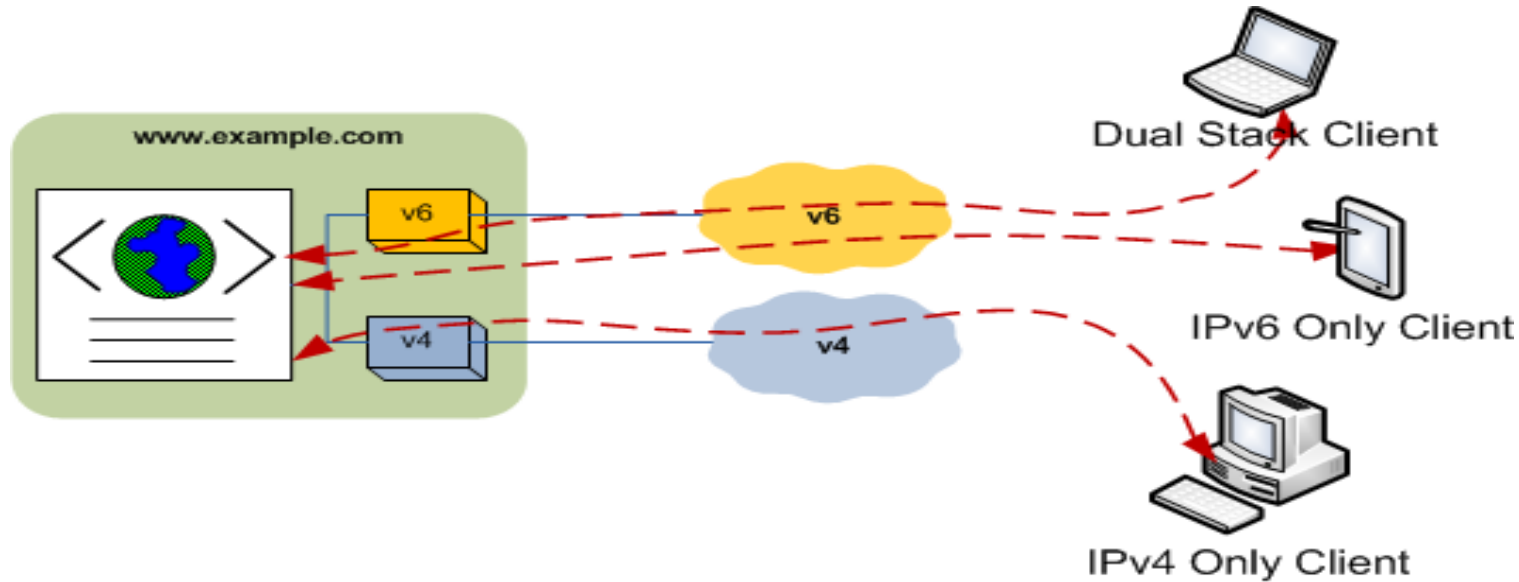
Impacted Users

Website Owners

Network Operators
(end users)

	IPv4 Only	Dual Stack (IPv4/IPv6)	Dual Stack with IPv6 problem
IPv4 Only			
Dual Stack (IPv4/IPv6)			
Dual Stack with IPv6 problem			

Step Back: How are Clients Served?



- Dual stacked (IPv4 and IPv6 enabled hosts) as well as IPv6 only hosts use IPv6 network
- IPv4 only clients will use IPv4 network

- IPv6 data paths are independent of IPv4 paths
- IPv6 capable devices will prefer IPv6 connectivity
- IPv6 paths will see unprecedented stress on June 8
- IPv4 only sites will see no changes

Polling Question 2

What primary impact do you expect to experience on World IPv6 Day?

- a) No impact since I am 100% IPv4.**
- b) People may have trouble reaching my IPv6 enabled servers.**
- c) My IPv6 users may have trouble reaching Google and Facebook.**
- d) I expect total pandemonium and mayhem all day long.**
- e) I plan to be on vacation somewhere with no phone or Internet.**

What Should I Do?

Make the most of this rare learning opportunity!

- Administrative

Alert your IT staff and management that June 8 is an “at risk day”

Familiarize yourself with the [participant list](http://www.isoc.org) at ISOC (<http://www.isoc.org>).

Alert your customers, if appropriate

Prepare to measure raw IPv4 and IPv6 traffic levels to understand the impact

Traffic Measures: Use Netflow to tell about IPv4 and IPv6 mix

Website Measures: Use Invisible IFRAME elements to understand user mix

Do your current measurement tools understand or report on IPv6?

Some existing interesting IPv6 measurement research:

<http://labs.apnic.net/> which teaches some techniques including using Google Analytics

<http://test4.vyncke.org/testv6/> which lets your site participate in IPv6 research

Prepare a post-event user feedback form for subjective measurement

How can I prepare?

As a provider of an IPv6 Network Service

- If you already provide IPv6

 - Use native IPv6 service from your ISP if possible

 - If you use a tunnel, make sure you use a nearby tunnel server

 - Investigate whether your tunnel server hardware is ready for the traffic spike

 - Investigate whether your IPv6 path can handle the traffic spike

 - Check that firewall rules handle IPv6 ICMP correctly (RFC 4890)

 - Implement RA-guard and First Hop Security to defend against rogue routers

- You may already be an IPv6 provider, whether or not you know.

 - See http://www.cisco.com/en/US/prod/collateral/iosswrel/ps6537/ps6553/white_paper_c11-629391.html

- If you want to start providing IPv6

 - <https://supportforums.cisco.com/docs/DOC-14969>

How can I prepare?

As a website provider of an IPv6 Service

- Alert users of the website change in advance
- Ensure that AAAA DNS Resource Records are published and correct
- If you use a CDN, ensure that they are ready to handle IPv6
- Measure (or alert) IPv6 capable users in advance
http://getipv6.info/index.php/Warning_broken_users_with_JavaScript
- Offer IPv6 at the site using an alternate name for IPv6
e.g., www.v6.facebook.com, www.ipv6.cisco.com, ipv6.google.com
- Perform tests in advance of World IPv6 Day

How Can I Test for Readiness?

- Clients: <http://ip6.me>, <http://test-ipv6.com> and <http://ipv6-test.com>
- Websites: <http://ipv6-test.com>, <http://ready.chair6.net/>
- Open Port Test: <http://www.employees.org/~dwing/scanme.cgi>
- MTU test: <http://www.staz.net.nz/pmtud.php>
- IPv6 Challenge! <http://apps.facebook.com/ipvsixchallenge/>
- Peruse the collection of Test Tools at http://www.getipv6.info/index.php/IPv6_Management_Tools
- Peruse the collection of Test Sites (including Speed Test sites) at http://www.getipv6.info/index.php/Troubleshoot_IPv6_Issues

Where Can I go for Help?

- Start at <http://www.cisco.com/go/ipv6>
- Engage Cisco Professional Services
http://www.cisco.com/en/US/products/ps6553/products_ios_technology_home.html#~svcs
- Help yourself at the self-service support community
<https://supportforums.cisco.com/community/netpro/network-infrastructure/ipv6-transition>

Polling Question 3

As a result of this presentation, I will...

- a) ... start work on an IPv6 implementation plan.**
- b) ... accelerate my IPv6 implementation plans.**
- c) ... do nothing additional, because my plans are on track.**
- d) ... do nothing, since I don't think IPv6 affects me.**
- e) ... move my network to someplace that still has IPv4 addresses.**



Submit Your Questions Now

Use the Q&A text box to submit your questions.



Q&A

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Ask The Experts Event (with Phil Remaker)

<https://supportforums.cisco.com/community/netpro/ask-the-expert>

Post Questions on Our Forum Here:

<https://supportforums.cisco.com/community/netpro/network-infrastructure/ipv6-transition>



Thank You for Your Time

Please Take a Moment to Complete the Evaluation





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