

World IPv6 Day @ Microsoft

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IETF 81

Outline

Our Goals

A light blue downward-pointing arrow indicating the flow from the first step to the second.

What happened?

A light blue downward-pointing arrow indicating the flow from the second step to the third.

IETF Impact

Our Goals

- **Improving Client Visibility**
 - Verify that websites could support IPv6 without causing connectivity issues for users.
 - Directly measure the size and composition of the IPv6 user base.
- **Driving Scale and Traffic Volume**
 - Drive load through the IPv6 hardware, software, and datacenters.
 - Obtain a full account of the operations issues involved in supporting IPv6 at scale.

What Happened?

Participating MSFT Properties

www.bing.com

includes Microsoft Advertising Service

www.microsoft.com

www.xbox.com

includes marketplace.xbox.com

All together – about 100+ million users

Goal: Verify that websites could support IPv6 without causing connectivity issues for users.

The End Result: Almost no connectivity issues.

- A lot of effort made to prepare our support infrastructure to deal with issues.
- Zero issues or support incidents on IPv6 Day.
- Brokenness measurements are within the margin of error.

Examples of work to reduce risk of IPv6 brokenness

- Screenshot of translated Bing @ Japan.
- Japanese MS sites showed warning for 1-2 days before World IPv6 Day about brokenness that pointed to fix.
- Considerable set of users in Japan have non-routable IPv6 addresses, there was a lot of concern about their experience on World IPv6 Day.

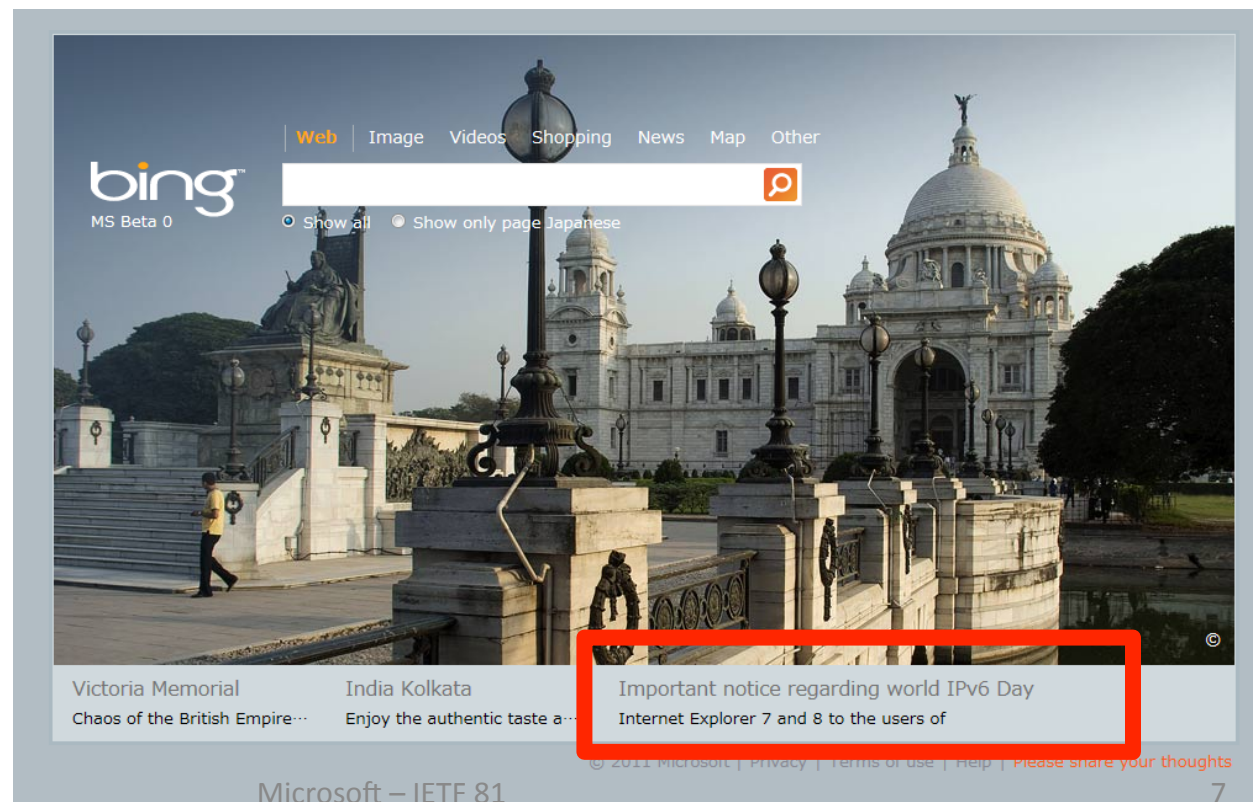
We had a temporary for IPv6 brokenness.

2400 Downloads

30000 Views

90000 people tried our IPv6 test tool

50% of downloads were from Japan.



Quick Caveat

We work continuously to improve our analysis – as some of our sites are still active.

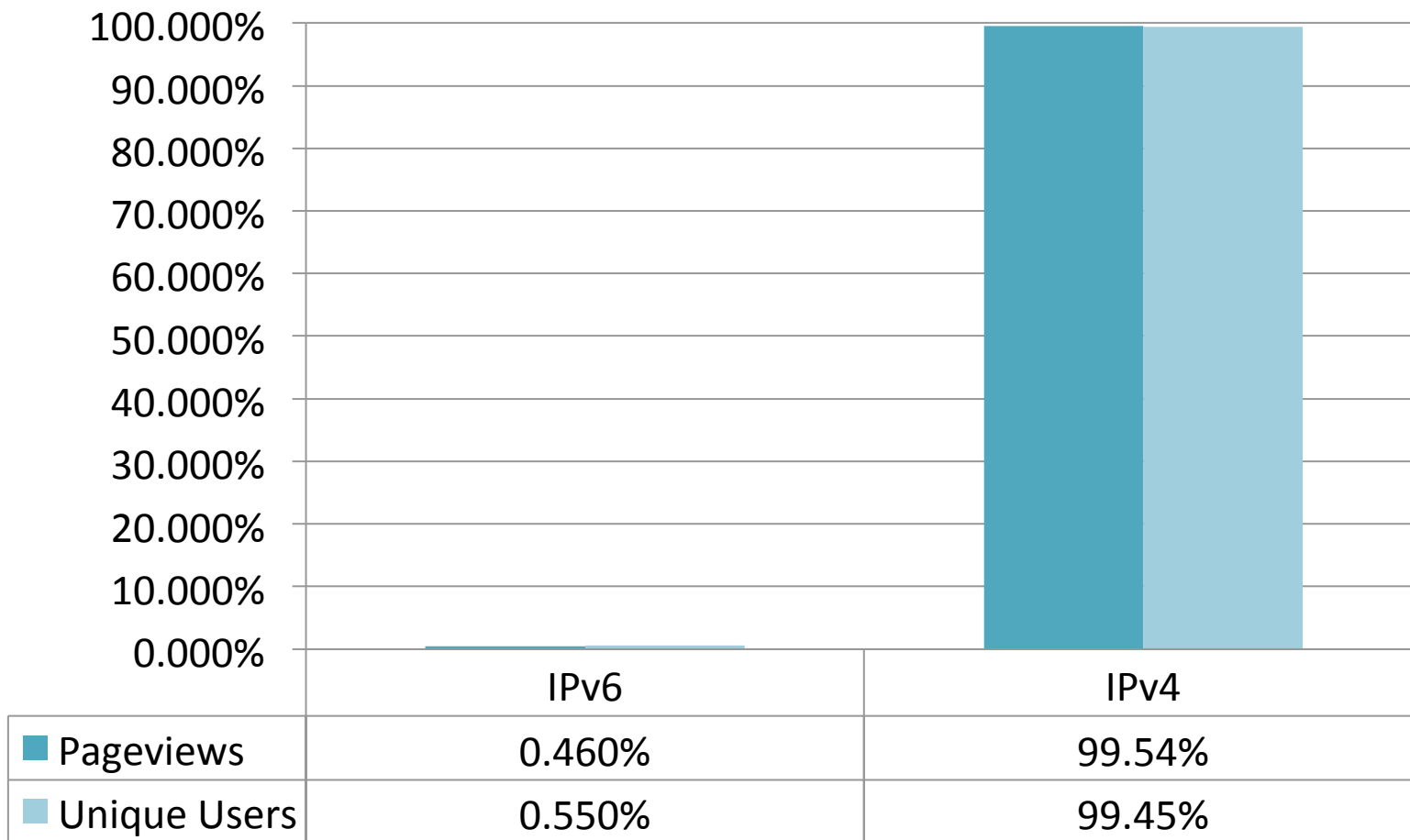
xbox.com

marketplace.xbox.com

zune.net ([new](#))

The larger the sample size, the more conclusive the results.

Goal: Directly measure the size and composition of the IPv6 user base.



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	<u>IPv6</u>	<u>Global</u>
Windows 7	43	27
Windows Vista	%	%
Windows XP (requires manual config)	28	10
	%	%
Mac	7%	51
	3%	%
Internet Explorer		6%
Firefox	54	
Chrome	%	54
		%
	24	
	%	22

IPv6 connectivity of users

91%

Native

8%

6to4

<1%

Teredo

0.014% of global population is IPv6 broken (small sample size)

Goal: Understanding scale and traffic volume

- Easier than expected.
- Content delivery networks really delivered.
- Operationally easy.
- Its hard to say we've validated at scale with access numbers hovering at 0.5%.

IETF Impact and Next Steps

6to4

- 8% of users successfully connected via 6to4.
- Proper implementation of RFC 3484(bis) avoids application problems.
- 6to4 may be slower than IPv4 in many cases (the data suggests that), so depreferencing 6to4 makes sense.
 - Depreferencing means it will work as a last resort, and provides a better experience for advanced users.
 - This seems sufficient to deal with all 6to4 issues.
- Deprecating it seems unnecessary, at least for hosts.

IPv6 Brokenness

- IPv6 brokenness is a declining concern.
 - This seems to be improving steadily as host and browser implementations deploy fixes.
 - Our properties:
 - Detailed geolocation data is unavailable.
 - Better IPv6 household access numbers are critical to making progress – more important than fixing brokenness.
- More than just a browser issue.

Questions/Answers/Contact

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