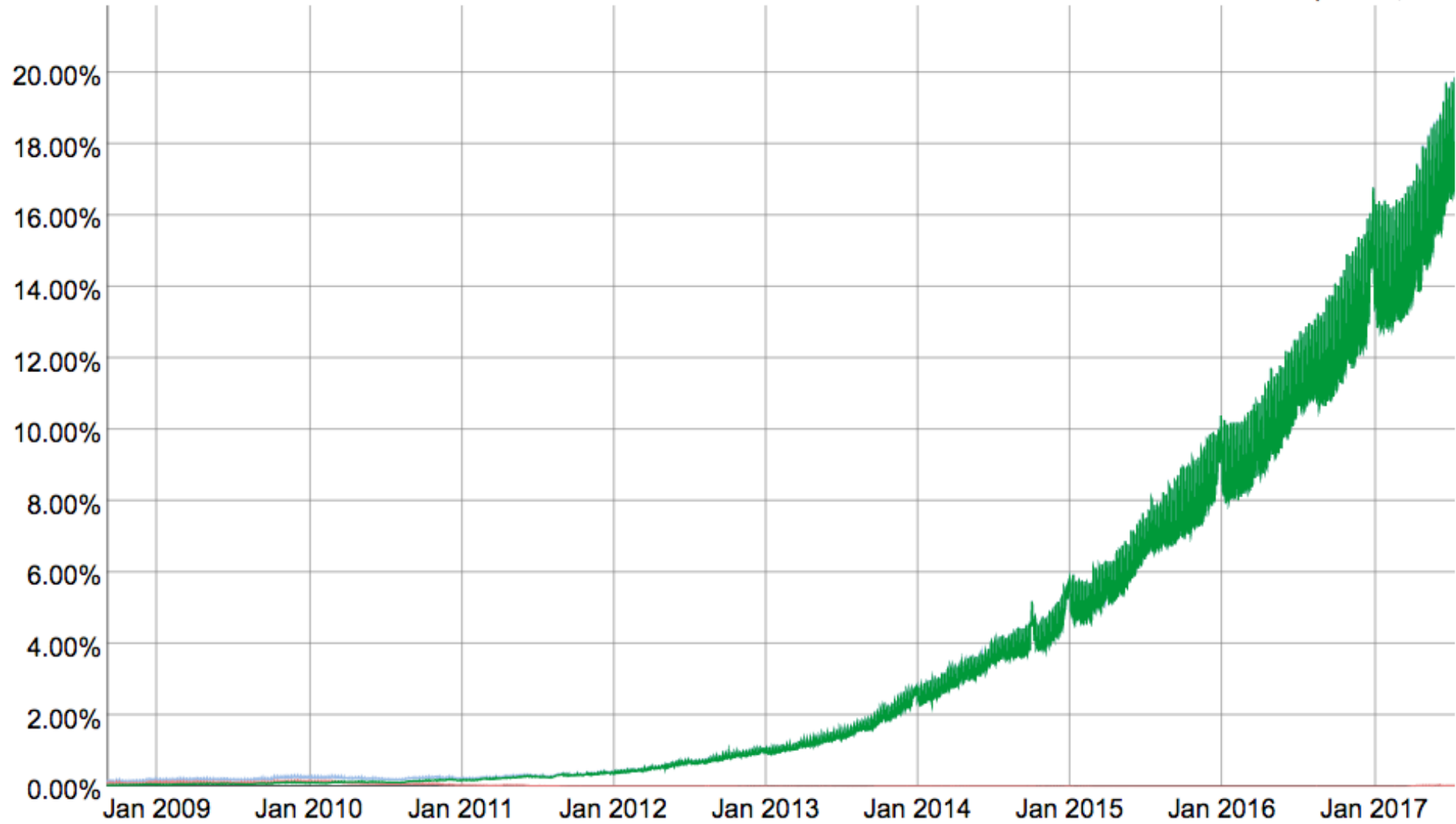


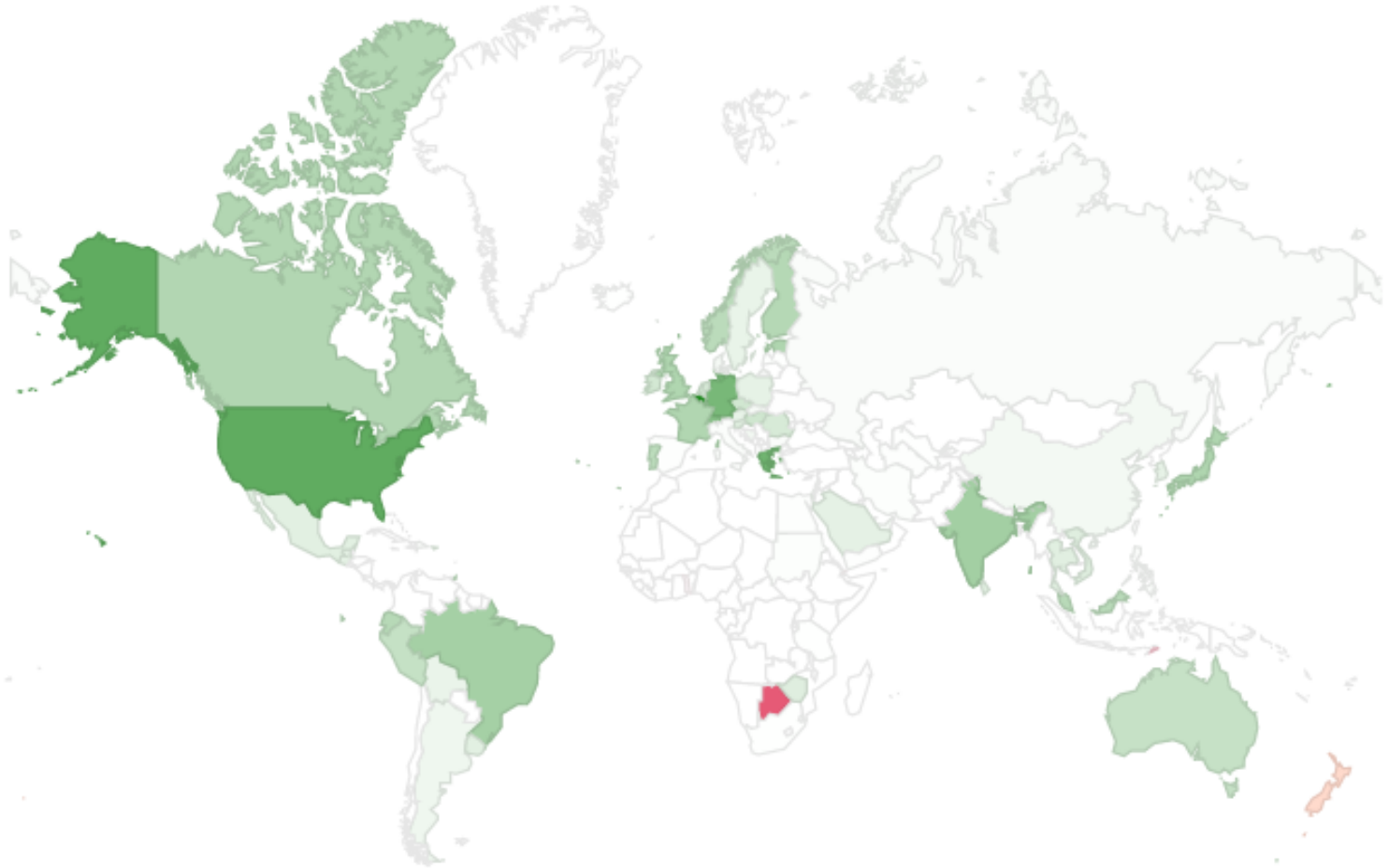
# State of IPv6-only

July 2017

Native: 19.87% 6to4/Teredo: 0.04% Total IPv6: 19.91% | Jul 15, 2017











## Per-Country IPv6 adoption



## Network operator measurements, 12th July 2017

To understand our IPv6 Deployment metric, please [read the notes below](#). Results are ranked by overall traffic volume. Click on Participating Network name to view a longitudinal deployment graph for that network.

Show 10 entries		Search: <input type="text"/>	
Rank ^	Participating Network ^	ASN(s) ^	IPv6 deployment ^
1	<a href="#">Comcast</a>	7015, 7016, 7725, 7922, 11025, 13367, 13385, 20214, 21508, 22258, 22909, 33287, 33489, 33490, 33491, 33650, 33651, 33652, 33653, 33654, 33655, 33656, 33657, 33659, 33660, 33661, 33662, 33664, 33665, 33666, 33667, 33668, 36732, 36733	56.24%
2	<a href="#">ATT</a>	6389, 7018, 7132	65.56%
3	<a href="#">KDDI</a>	2516	28.75%
4	<a href="#">RELIANCE JIO INFOCOMM LTD</a>	55836, 64049	83.12%
5	<a href="#">Charter Communications</a>	7843, 10796, 11351, 11426, 11427, 12271, 20001, 20115, 33363	26.00%
6	<a href="#">Verizon Wireless</a>	6167, 22394	84.36%
7	<a href="#">T-Mobile USA</a>	21928	84.33%
8	<a href="#">SoftBank</a>	17676	18.77%
9	<a href="#">Deutsche Telekom AG</a>	3320	46.56%
10	<a href="#">British Sky Broadcasting</a>	5607	82.22%

Rank	Country	Sample size	Weighted	Green	Orange Test or broken
1	 <a href="#">Armenia</a>	50	64.75%	52.0% (26)	0.0% (0)
2	 <a href="#">Iceland</a>	50	19.93%	48.0% (24)	0.0% (0)
3	 <a href="#">Sweden</a>	50	60.10%	46.0% (23)	0.0% (0)
4	 <a href="#">Tonga</a>	50	37.14%	44.0% (22)	0.0% (0)
5	 <a href="#">Czech Republic</a>	50	62.94%	44.0% (22)	0.0% (0)
6	 <a href="#">Samoa</a>	50	54.29%	44.0% (22)	0.0% (0)
7	 <a href="#">Morocco</a>	50	60.40%	42.0% (21)	0.0% (0)
8	 <a href="#">Colombia</a>	50	56.94%	40.0% (20)	2.0% (1)
9	 <a href="#">Slovenia</a>	50	53.34%	40.0% (20)	0.0% (0)
10	 <a href="#">Norway</a>	50	54.40%	38.0% (19)	2.0% (1)
11	 <a href="#">Albania</a>	50	56.70%	38.0% (19)	0.0% (0)
12	 <a href="#">Montenegro</a>	50	18.20%	38.0% (19)	0.0% (0)
13	 <a href="#">Brazil</a>	50	53.89%	34.0% (17)	4.0% (2)
14	 <a href="#">Netherlands</a>	50	38.23%	34.0% (17)	2.0% (1)
15	 <a href="#">United States of America</a>	50	60.45%	34.0% (17)	0.0% (0)
16	 <a href="#">Switzerland</a>	50	24.68%	34.0% (17)	0.0% (0)
17	 <a href="#">European Union</a>	50	58.59%	32.0% (16)	0.0% (0)

Rank	Country	%-age
1	 <a href="#">Belgium</a>	49.83%
2	 <a href="#">United States of America</a>	35.85%
3	 <a href="#">Greece</a>	32.02%
4	 <a href="#">Germany</a>	30.43%
5	 <a href="#">Switzerland</a>	27.38%
6	 <a href="#">Luxembourg</a>	23.09%
7	 <a href="#">India</a>	20.72%
8	 <a href="#">Brazil</a>	20.35%
9	 <a href="#">Estonia</a>	17.97%
10	 <a href="#">Japan</a>	17.95%
11	 <a href="#">United-Kingdom</a>	17.73%
12	 <a href="#">France</a>	17.57%
13	 <a href="#">Canada</a>	17.43%
14	 <a href="#">Finland</a>	16.61%
15	 <a href="#">Ecuador</a>	16.21%
16	 <a href="#">Malaysia</a>	15.86%



IPv6 browsers measured from Google, World wide, projected 3000 days ahead on a Logistic (s-curve) extrapolation

<https://www.vyncke.org/ipv6status/project.php?metric=p&country=us>

<b>Code</b>	<b>Region</b>	<b>IPv6 Capable</b>	<b>IPv6 Preferred</b>	<b>Samples</b>
XA	World	13.86%	13.21%	318,568,829
XC	Americas	23.41%	22.11%	63,196,548
XE	Europe	14.74%	14.16%	53,081,975
XF	Oceania	13.87%	12.44%	2,554,052
XD	Asia	12.19%	11.66%	172,605,380
XB	Africa	0.50%	0.48%	27,130,698
XG	Unclassified	0.00%	0.00%	531,713

ASN	AS Name	IPv6 Capable	IPv6 Preferred	Samples
<a href="#">AS32934</a>	FACEBOOK - Facebook, Inc.	99.81%	99.41%	1,519,880
<a href="#">AS26729</a>	MW-NET-AS - Midwest Internet, Inc.	99.31%	0.40%	10,412
<a href="#">AS62023</a>	NYNEX	98.44%	97.90%	1,861
<a href="#">AS41264</a>	GOOGLE-IT-RO-ISP	96.43%	95.98%	2,017
<a href="#">AS21321</a>	ARETI-AS	96.15%	95.75%	56,628
<a href="#">AS54115</a>	FACEBOOK-CORP - Facebook Inc	95.49%	91.64%	909
<a href="#">AS7233</a>	YAHOO-US - Yahoo	94.08%	92.68%	287
<a href="#">AS1312</a>	VA-TECH-AS - Virginia Polytechnic Institute...	93.35%	81.98%	7,232
<a href="#">AS132892</a>	CLOUDFLARE Cloudflare, Inc.	93.26%	86.14%	267
<a href="#">AS3598</a>	MICROSOFT-CORP-AS - Microsoft Corporation	92.78%	91.61%	10,962
<a href="#">AS792</a>	ORACLE-ASNBLOCK-ASN - Oracle Corporation	92.71%	0.09%	1,056
<a href="#">AS22394</a>	CELLCO - Cellco Partnership DBA Verizon Wireless	87.88%	82.07%	1,338,729
<a href="#">AS91</a>	RPI-AS - Rensselaer Polytechnic Institute	87.87%	80.94%	3,668
<a href="#">AS36384</a>	GOOGLE-IT - Google Incorporated	87.59%	87.45%	1,442
<a href="#">AS16591</a>	GOOGLE-FIBER - Google Fiber Inc.	85.87%	82.05%	144,694
<a href="#">AS3676</a>	UIOWA-AS - University of Iowa	84.63%	83.18%	4,054
<a href="#">AS55</a>	UPENN - University of Pennsylvania	84.17%	80.36%	3,090
<a href="#">AS2055</a>	LSU-1 - Louisiana State University	81.82%	71.93%	1,254
<a href="#">AS21928</a>	T-MOBILE-AS21928 - T-Mobile USA, Inc.	77.79%	74.90%	949,773
<a href="#">AS7018</a>	ATT-INTERNET4 - ATT Services, Inc.	75.79%	70.14%	7,575,347
<a href="#">AS20130</a>	DEPAUL - Depaul University	74.60%	73.24%	1,319
<a href="#">AS109</a>	CISCOSYSTEMS - Cisco Systems, Inc.	71.32%	67.52%	4,624
<a href="#">AS7132</a>	SBIS-AS - ATT Internet Services	63.01%	58.91%	29,178
<a href="#">AS7922</a>	COMCAST-7922 - Comcast Cable Communications..	62.83%	59.60%	14,026,279
<a href="#">AS1351</a>	UVM-EDU-AS - University of Vermont	60.20%	56.03%	2,520
<a href="#">AS15169</a>	GOOGLE - Google Inc.	58.58%	1.00%	229,142

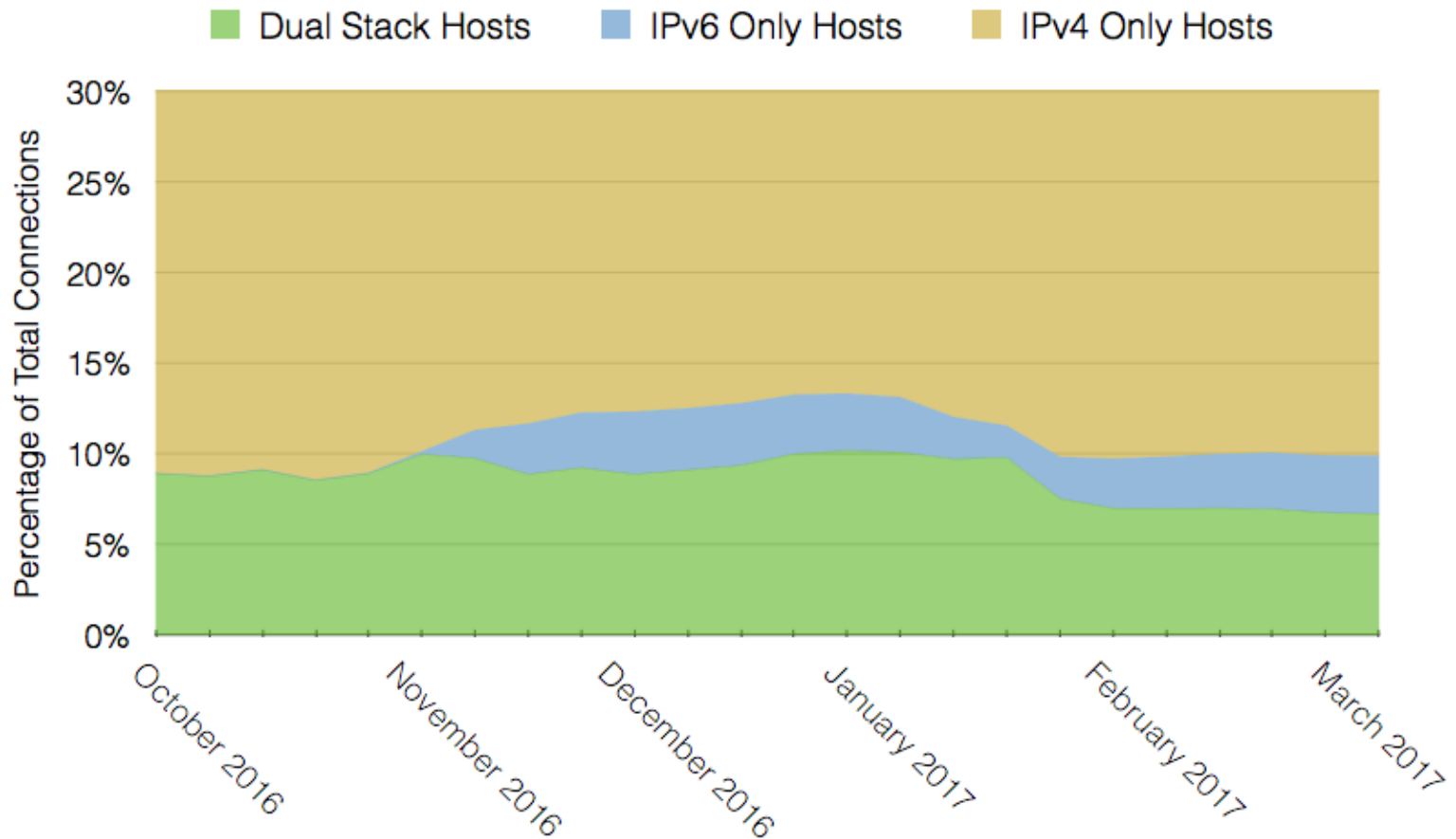
<http://stats.labs.apnic.net/ipv6/US> (excerpt, sorted by IPv6 capability)



# 321 ASNs announcing IPv6 only

		May 2017	July 2017
IPv4 ASNs	58234	99.4%	99.4%
IPv6 ASNs	13866	23.1%	23.7%
IPv4-only ASNs	44727	76.9%	76.3%
IPv6-only ASNs	359	.55%	.61%
Dual stack ASNs	13507	22.6%	23.1%

# Rise of IPv6-Only Hosts



IPv6 Trends - MAPRG - T. Pauly, Apple - IETF 98

4

Apple presentation at <https://www.ietf.org/proceedings/98/slides/slides-98-maprg-measuring-trends-in-ipv6-support-tommy-pauly-00.pdf>

# IPv6-Only Initiatives

- Microsoft IPv6-only internal dev network
  - <https://blog.apnic.net/2017/01/19/ipv6-only-at-microsoft/>
- Cisco IPv6-only Building 23
  - <https://blogs.cisco.com/enterprise/an-ipv6-campus-of-the-future>
  - <http://www.rmv6tf.org/wp-content/uploads/2017/04/06-IPV6-Summit-Cisco-min.pdf>
- Deutsche Telekom's Terastream
  - <https://www.slideshare.net/OPNFV/summit-16-ipv6-in-dts-terastream>
- T-Mobile Going IPv6-only
  - <http://www.rmv6tf.org/wp-content/uploads/2017/04/04-IPv6-NAv6TF-Langerholm-1.pdf>

# IPv6-only initiatives

- LinkedIn
  - <http://www.rmv6tf.org/wp-content/uploads/2017/04/01-IPv6-Summit-Martin-1.pdf>
- Facebook
  - [http://www.internetsociety.org/deploy360/wp-content/uploads/2014/04/WorldIPv6Congress-IPv6\\_LH-v2.pdf](http://www.internetsociety.org/deploy360/wp-content/uploads/2014/04/WorldIPv6Congress-IPv6_LH-v2.pdf)
- Retevia, IPv4-as-a-Service
  - [www.retevia.net](http://www.retevia.net)

# Reasons for IPv6-only

- Lower latency
  - [https://www.theregister.co.uk/2016/07/28/ipv6\\_now\\_faster\\_a\\_fifth\\_of\\_the\\_time/](https://www.theregister.co.uk/2016/07/28/ipv6_now_faster_a_fifth_of_the_time/)
  - <https://community.infoblox.com/t5/IPv6-CoE-Blog/Can-IPv6-Really-Be-Faster-than-IPv4-Part-1/ba-p/6419>
  - Facebook, Akamai, LinkedIn, TWC
- Simplicity
  - Subnetting
  - Segment routing
- Clever use of addresses
  - Process IDs
  - Terastream service bits

# Summary

- Enterprises lag
- Dual-stack is only the halfway point
- IPv6-only in 2017 is where dual-stack was in 2011
- Does “IPv6-only” include translation?