

Introduction to IPv6

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Overview

- + What is Internet Protocol?
- + IPv4 deployment
- + Designing and deploying IPv6
- + Current IPv6 deployment
- + Issues with not deploying IPv6
- + Issues ALAC might want to consider

What is Internet Protocol?



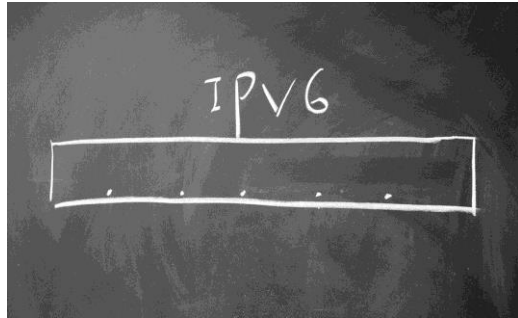
- + When you need to send or receive a large file it is broken up into packets
- + Each packet is sent separately
- + Packets can travel different routes and arrive out of sequence
- + The whole is reassembled at the end when all the pieces have arrived

IPv4 deployment



- + Started in 1983
- + Revised in 1985
 - + Introduction of Class A, B, C
- + CIDR introduced in 1993
- + Just 3.7 billion addresses available for normal use, in contrast to the 7 billion people on the planet

Designing and deploying IPv6



- + IPng protocol design competition in 1993 - [comparison](#)
- + IPv6 selected and standard [published](#) in 1995
- + 6bone tested network was established in 1996 and reached its height in 2003
- + Production allocation began in [1999](#)
- + 6bone experiment ended on 6 June 2006

Current IPv6 deployment

- [Cisco deployment map](#)
- [Google deployment map](#)
- [APNIC Labs deployment map](#)

Network operator measurements, 11th October 2013 ([notes](#))

Show 10 entries Search:

Participating Network	ASN(s)	IPv6 deployment
Sauk Valley Community College	13953	83.92%
interschol Internet Services GmbH & Co. KG	33843	79.90%
Rensselaer Polytechnic Institute	91	69.27%
Gustavus Adolphus College	17234	63.69%
Google Fiber	16591	59.11%
SPAWAR	22	57.26%
ThaiSarn	3836	54.53%
Virginia Tech	1312	54.42%
Universidad de Carabobo	27893	53.49%
DreamHost	26347	51.87%

Showing 1 to 10 of 197 entries

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Source: <http://www.worldipv6launch.org/measurements/>

Don't turn off IPv6

“We do not test Windows with IPv6 disabled, and definitely do not recommend disabling it. From a security point of view, you are much better off actually disabling IPv4.”

--Christian Huitema,
Microsoft

[Technet FAQ](#)



Issues ALAC might want to consider



- + National and regional ALSs might want to engage with ISPs, regulators and OTT service providers
- + Given a choice between CGNAT and IPv6, IPv6 is preferable
 - + Will gaming work?
 - + Will video/voice work?
 - + Will maps work?
 - + Will current audit trail tools continue to work?

Thank You &
Questions?

