IPv6 day observations
A Brief History of NTT and IPv6

- 1996 – NTT Labs built one of the world’s largest IPv6 research networks
- 1997 – Northwestnet and CICNet, two of the original NSFnet regional networks joined the 6bone, and consolidated under Verio the following year
- 1999 – NTT Communications begins IPv6 tunneling trial for Japanese customers
- 2001 – NTT Communications offers commercial IPv6 service
- 2003 – NTT/VERIO becomes the first Tier 1 ISP to go dual stack
- 2004 – The NTT/VERIO Global IP Network begins offering commercial native and tunneled IPv6 services
Some caveats

- Not all network elements are exporting IPFIX data for IPv6
- Sampling rate is 1:10,000
- Mostly looking at customer and peering interfaces
- Using nfsen to collect and display data
And now, some data …

- 2011-06-01 to 2011-06-07
- Traffic levels 124.3Mb/s (tcp: 60.1Mb/s, udp: 31.1Mb/s, icmp: 32.4Mb/s other: 642.9kb/s)
Flows per second
Comparable pps graph
It’s all just ping, right?
Preparations for IPv6 day

- Worked with peers to dual-stack interfaces
- Contacted customers to ask them to dual-stack as well
- Noticed considerable growth in visible ASNs in IPv6 table
  - 2011-MAY-11  3767
  - 2011-JUN-06  4024
  - 2011-JUN-07  4037
  - 2011-JUN-08 00:00 4069
  - 2011-JUN-12  4136
- 370 discrete networks added IPv6 in a one month time frame
IPv6 day traffic levels

- Increased to 182.7Mb/s (tcp: 116Mb/s, udp 33.3Mb/s, icmp 32.5Mb/s, other 871.6kb/s) – Peaks at 253Mb/s
### Top Applications (by bytes)

#### TCP
- 80 64.6% - www
- 7000 21.3% - torrent
- 873 5.5% - rsync
- 22 2.8% - ssh
- ...

#### UDP
- 53 97.1% - dns
- 13206 0.8% - ???
- ...

But wait, did you catch that back there..?

Jump in traffic on June 9th to 294.7Mb/s, mostly in AMS
It’s just all ICMP, right?
Last minute addition…

![Graph showing data over a week with the label "Wed Jun 8 19:05:00 2011 Bits/s any protocol". The x-axis represents days of the week from Monday to Sunday, and the y-axis represents the number of bits per second with a scale up to 200 M. The graph shows fluctuations in data traffic.]
Thank you to…

- ISOC
- Yahoo Inc
- Facebook
- Google
- Akamai
- Limelight
- NTT
- Everyone who tested IPv6 on June 8th
- nfsen developers – http://nfsen.sf.net/