Federal IPv6 Summit - Tuesday, August 16, 2011

- [KEYNOTE: The IPv6 World View](#)

- [IPv6 Industry Developments](#)

- [Federal IPv6 Panel](#):
  [Deployment Activities](#)
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  [Implementation on RDT & E Network](#)
  [DoD IPv6 Implementation](#)
  [World IPv6 Day Experiences](#)

- [Security Risks (Myths and Truths)](#)

- [Transition and Address Planning](#)

- From the Vendors:
  [IPv6 Product Support](#) and [How-to's](#)
  [Feature Parity](#)
  [Internal IPv6 Deployments](#)
  [World IPv6 Day Success Stories](#)

Checking global IPv6 routing – graphically!

NATIVE IPv6 EVERYWHERE

Showing IPv4/IPv6 route propagation in a graphical form

http://bgp.he.net/

Caveat:

- This tool is only as good as its source data.
- IP information is uploaded from RIPE RIS & Oregon routeviews.
- Some views are missing; not all routes and paths are visible.

- <u>NOT</u> based on the Hurricane Electric routing tables.

16'th Aug 2011   Hurricane Electric - DREN IPv6 Day 2011 - Denver Colorado -
                        Martin J. Levy - Director IPv6 Strategy   Page 18

HE

http://bgp.he.net/ – Available information

- **BGP Prefix Report**
  - Prefixes, Networks, Distribution
    - IPv4/IPv6 Prefixes Originated (90 Days)
    - ASN's with IPv4/IPv6 Announcements (90 Days)
    - IPv4/IPv6 Announced Prefix Count by CIDR
- **BGP Peer Report**
  - Adjacencies, Adjacency History
    - IPv4/IPv6 Adjacencies
    - IPv4/IPv6 Adjacency Count (90 Days)
  - Prefixes, Prefix History
    - IPv4/IPv6 Prefixes Announced
    - IPv4/IPv6 Prefixes Announced (90 Days)
  - IPv4 Addresses Originated
    - IPv4 Addresses Originated
- **Top Host Report**
  - Top Hosts
- **Internet Statistics**
  - Internet Statistics
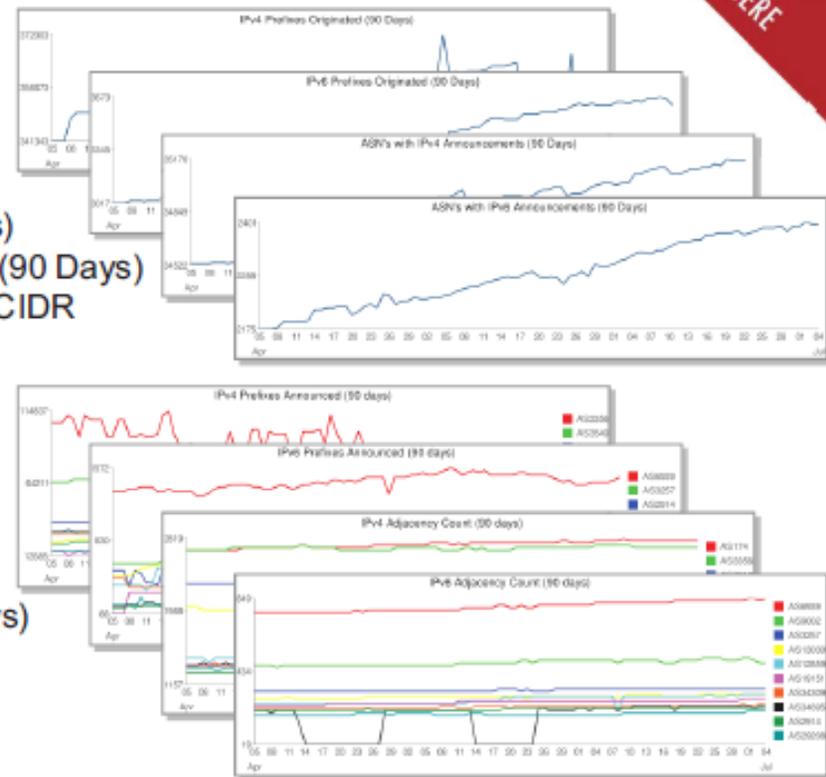
Google over IPv6

- We can't enable IPv6 for www.google.com
  - But we can enable IPv6 access for selected networks
- Most Google services are available
  - www, mail, news, docs, youtube, ...
- Requirements:
  - Good IPv6 connectivity to Google
  - Production-quality IPv6 network
  - Low brokenness

Privacy Addresses (RFC 4941)

- Incompatible with many Enterprise environments
  - Need address stability for many reasons
    - Logging, Forensics, DNS stability, ACLs, etc.
- Enabled by default in Windows
  - Breaks plug-n-play because we have to visit every Windows machine to disable this feature.
- Just added in Mac OS X "Lion".
- Ubuntu thinking about making it default.
- Need a way for the network to inform systems about proper default on managed enterprise networks
  - new flag in RA prefix information option?

[Privacy addresses] are horrible and I hope nobody really uses them, but they're better than NAT.
... Owen DeLong, Hurricane Electric

Management over IPv6 in some mainstream products

	SSH HTTPS	DNS	Syslog	SNMP	NTP	RADIUS	Unified MIB RFC4293	Flow export	TFTP FTP	CDP LLDP
Cisco[6]								(red)		
Brocade				1				2	3	4
Juniper							(red)	(red)		(red)
ALU	5									

1. Lack IPv6 ACL support
2. can't specify router-ID as IPv6 in MLX
3. firmware bug in FastIron products
4. not in MLX
5. ssh over IPv6 not supported until 2012(Q1)
6. 12.2(58)SE1

Percentage of Internet traffic over IPv6

- 1% (2009, before Google whitelisting)
- 2.5% (Google whitelisted)
- 10% (late Jan 2010, Youtube added)
- World IPv6 day... (peak at 68%)