

# IPV6 TOPICS BRIEFING

IPv6 Tech SIG @ APRICOT2008/APNIC25

# IPV6 GLUE ON THE ROOT

Matsuzaki 'maz' Yoshinobu  
maz@ij.ad.jp

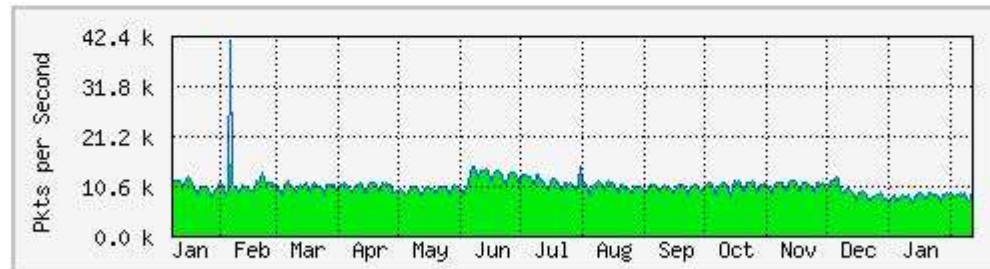
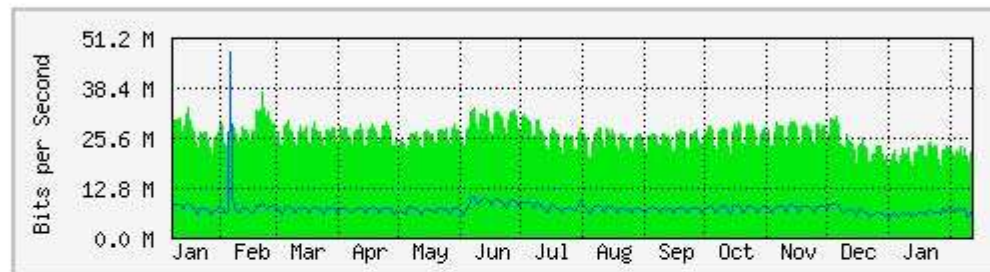
# Root DNS Server



- The top level of the hierarchical DNS tree
  - ▣ offering appropriate referrals (NS records) for sub-domains such as .tw, .arpa, and any other TLDs.
- Now 13 names are operational
  - ▣ [A-M].ROOT-SERVERS.NET
  - ▣ 144 clusters are working with anycasting technique

# M-Root Traffic

☆ Fairly stable

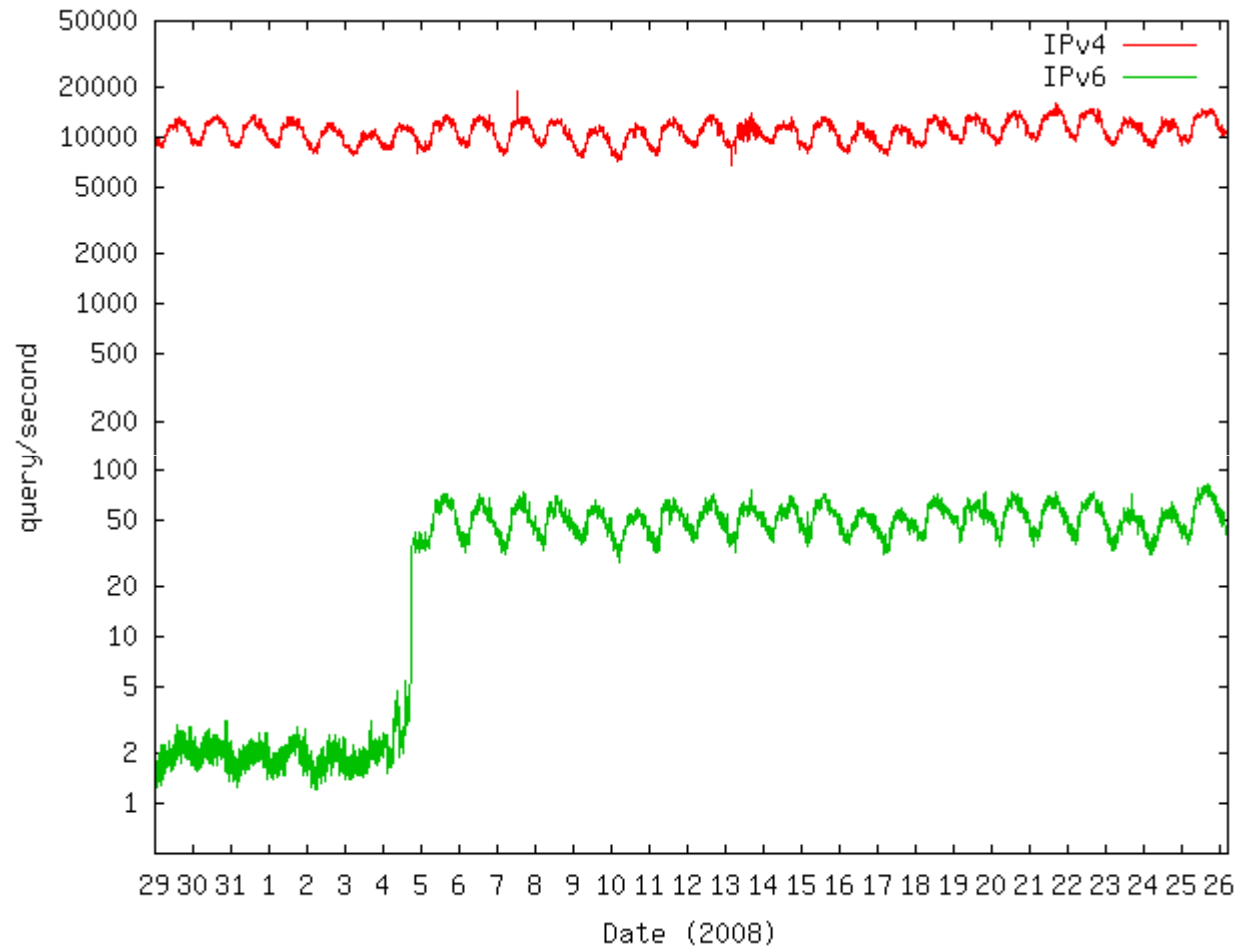


by Akira Kato

# IPv6 Glue on the Root

- AAAA records was added for A/F/H/J/K/M
- On February 4<sup>th</sup> 2008
  - A.ROOT-SERVERS.NET. 2001:503:ba3e::2:30
  - F.ROOT-SERVERS.NET. 2001:500:2f::f
  - H.ROOT-SERVERS.NET. 2001:500:1::803f:235
  - J.ROOT-SERVERS.NET. 2001:503:c27::2:30
  - K.ROOT-SERVERS.NET. 2001:7fd::1
  - M.ROOT-SERVERS.NET. 2001:dc3::35

# The observation at M-Root



by Akira Kato

# IPV6 /48 SPACE REACHABILITY

Tomohiro Fujisaki  
fujisaki@nttv6.net

# IPv6 Address assigned to root servers



- 7 root servers have IPv6 address
  - A, B, F, H, J, K and M
  - A, F, H and J are in the ARIN PI (critical infrastructure) space which size is /48.
  - Others are in /32 space.

<http://www.root-servers.org/>



# PI address space usage



- IPv6 PI space assignment has begun at:
  - 6 Sep. 2006 at ARIN
  - 19 Mar. 2007 at APNIC
- Current number of assignments is:
  - about 130 at ARIN
  - about 15 at APNIC
- Famous organizations got this address space:
  - YouTube, Mozilla, ICANN, Coca-Cola, etc.

# /48 space reachability analysis



- Some site filter out /48 prefix
  - ▣ Minimum IPv6 PA address space size was /32
- We've just started to examine the reachability from the /48 network.
  - ▣ From sites:
    - AS 4697, which has 2001:fa8::/32
    - AS 2.3, which has 2001:df0:2::/48

# /48 space reachability

## Reachability testing from PA and PI networks

- ▣ Send 'ICMPv6 echo' to 276 active IPv6 nodes
  - 231 replies to both networks
  - 45 replies only to PA networks
- ▣ 'traceroute' to 340 networks
  - 282 networks are reachable from PA and PI address
  - 58 networks are reachable only from PA address

We're analyzing the result in more detail...

# Conclusion



- /48 prefixes are used in the IPv6 network.
  - ▣ Some critical infrastructures use /48 address block
- Please check your edge routers or transit providers if they do not to filter the /48 prefixes out.