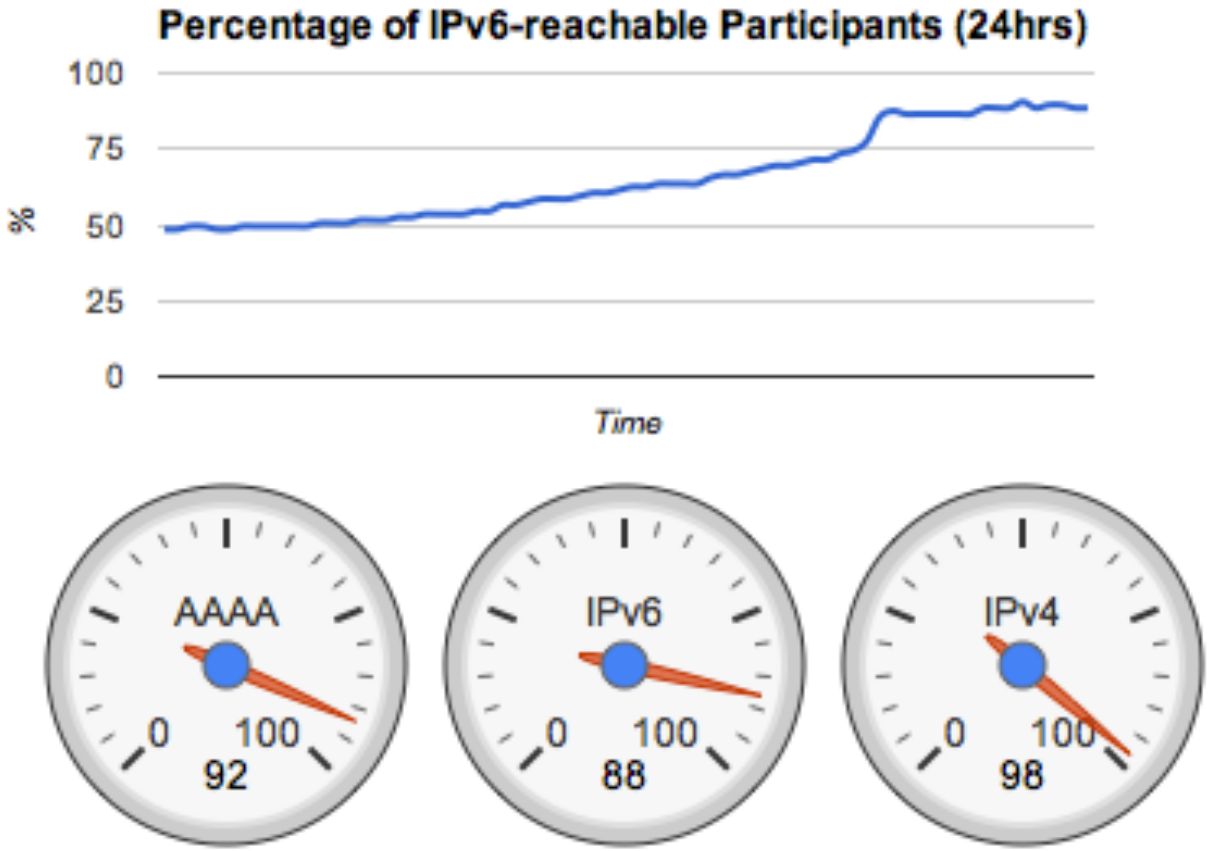
World IPv6 Day Measured

Daniel Karrenberg
Chief Scientist

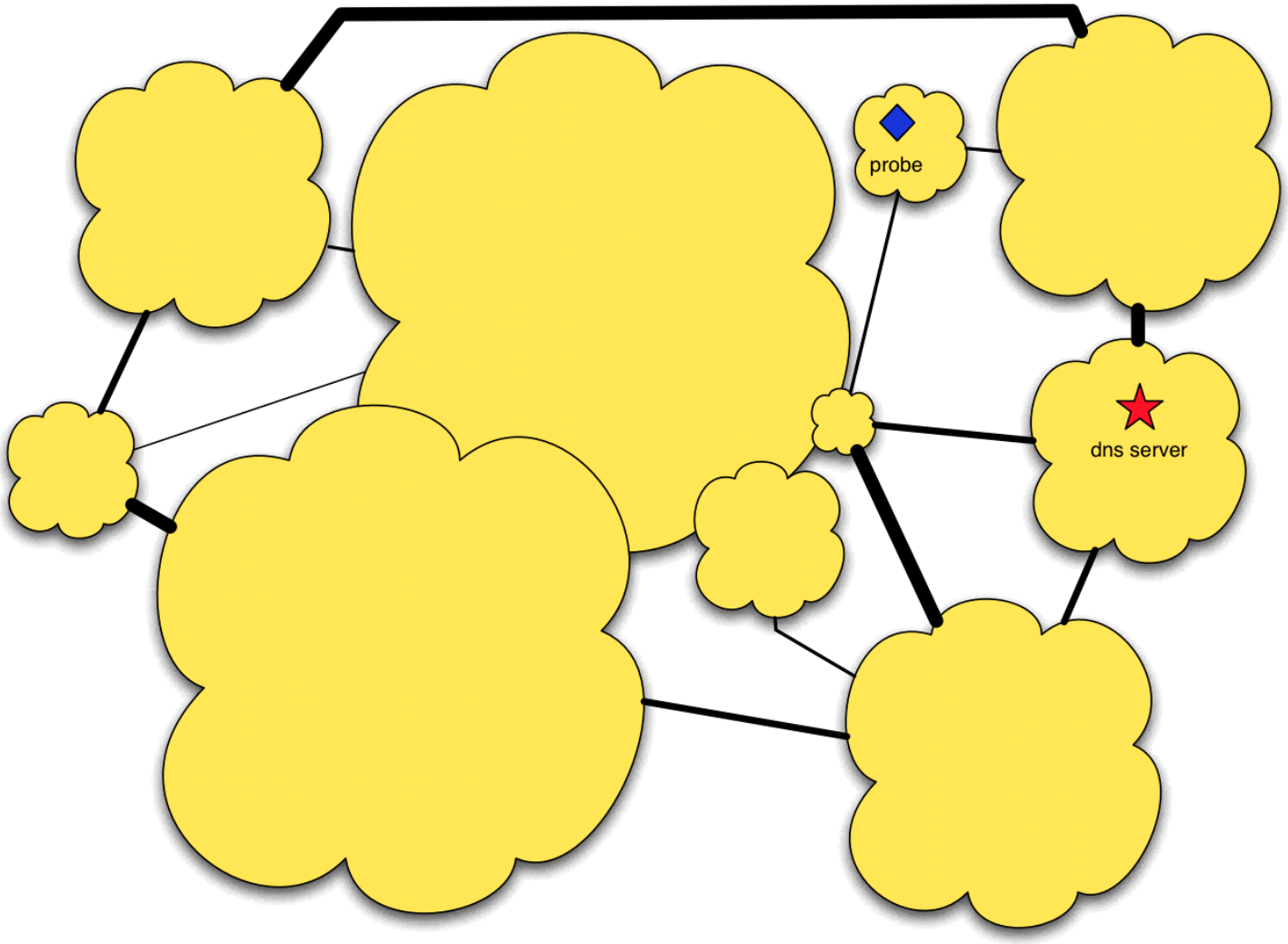
RIPE NCC

ISOC Dashboard This Morning

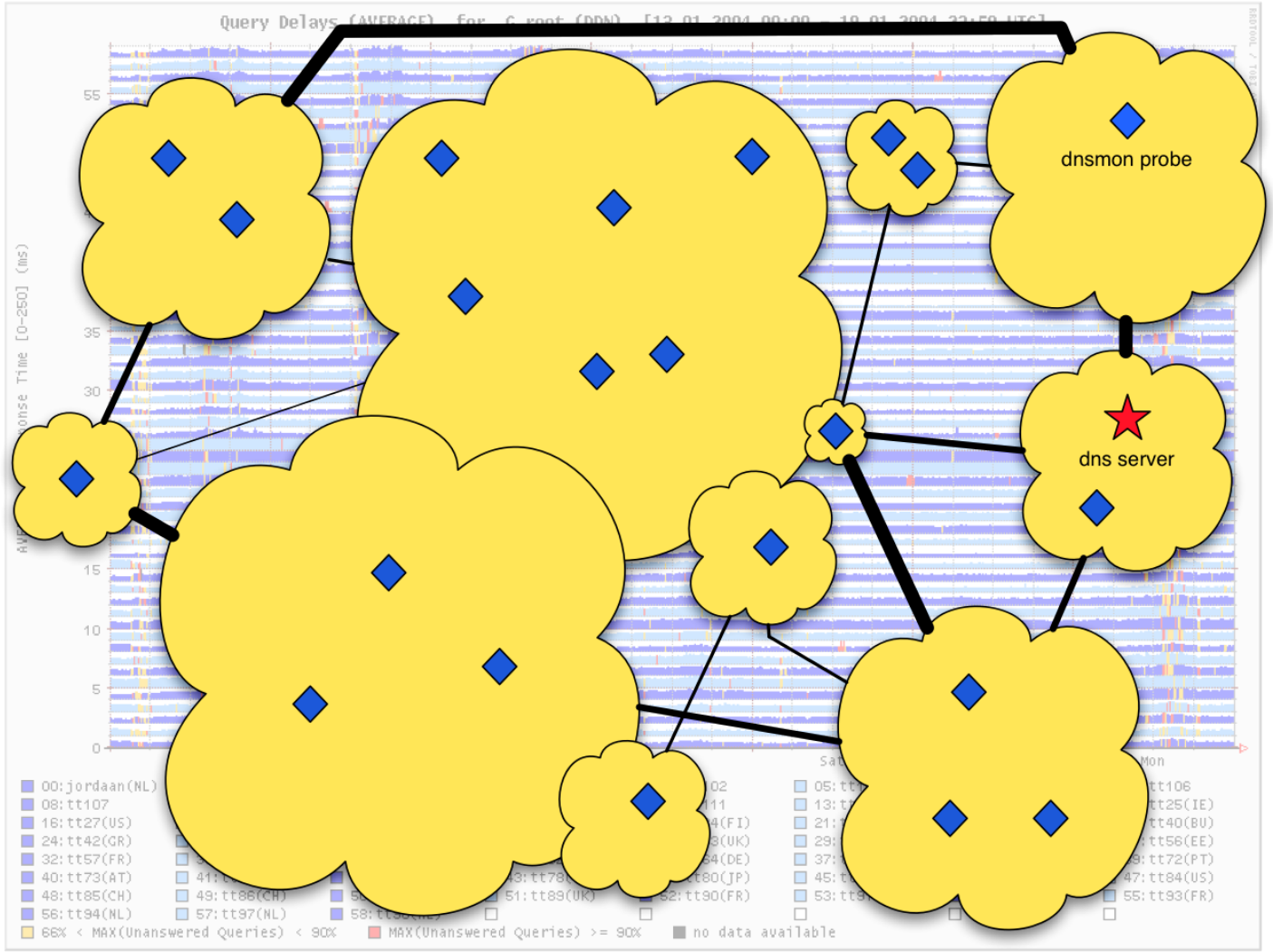


Last updated: Wed Jun 8 11:11:25 UTC 2011.

Single Vantage Point Limitations



Multiple Vantage Points

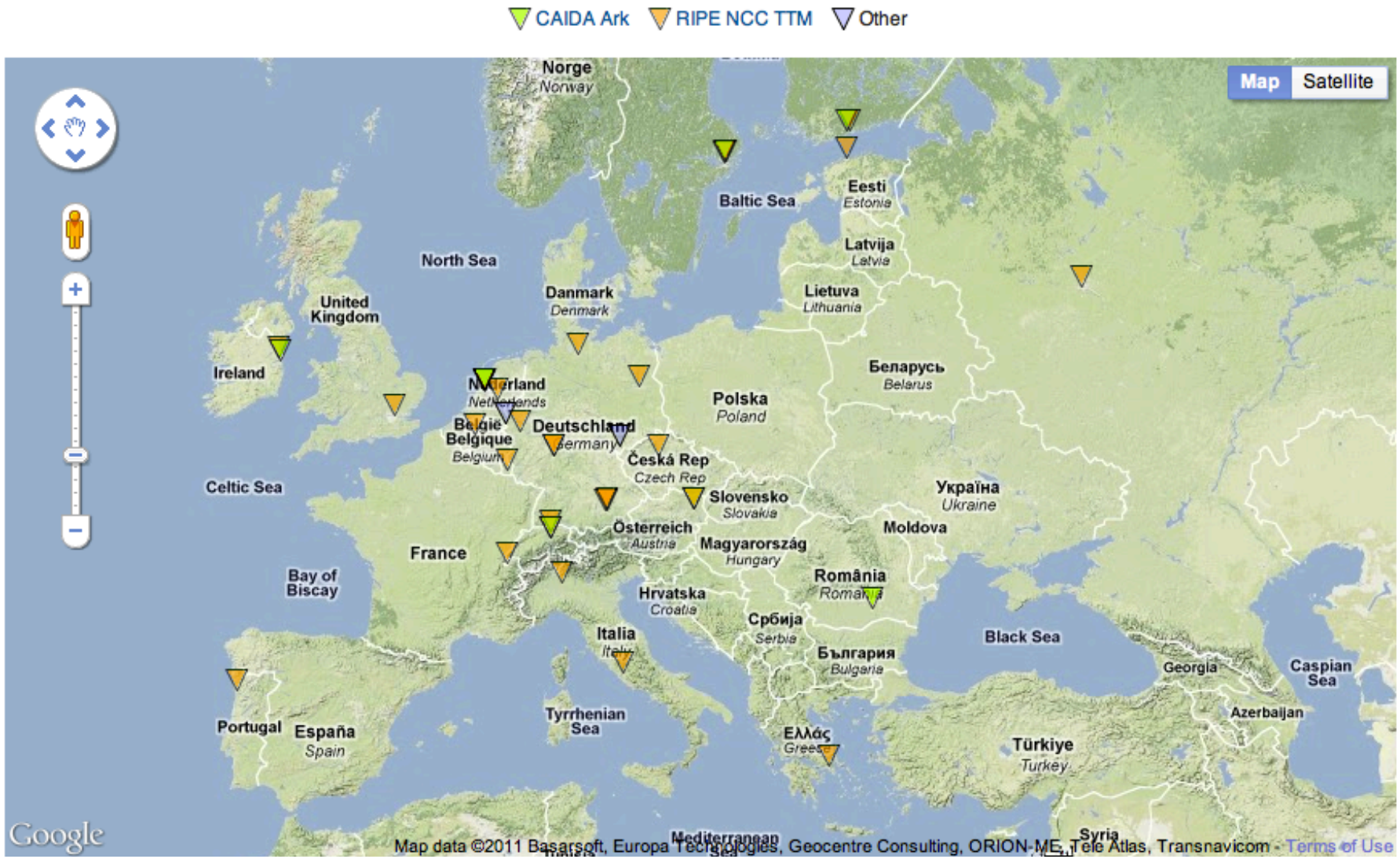


RIPE NCC Dashboard

- 40 vantage Points
  - CAIDA: Ark
  - RIPE NCC: TTM
  - Friends
- Not all Participants
  - No capacity
  - Next time

Vantage Points (CAIDA, RIPE NCC, others)

Vantage Points (CAIDA, RIPE NCC, others)



Measurement Limitations

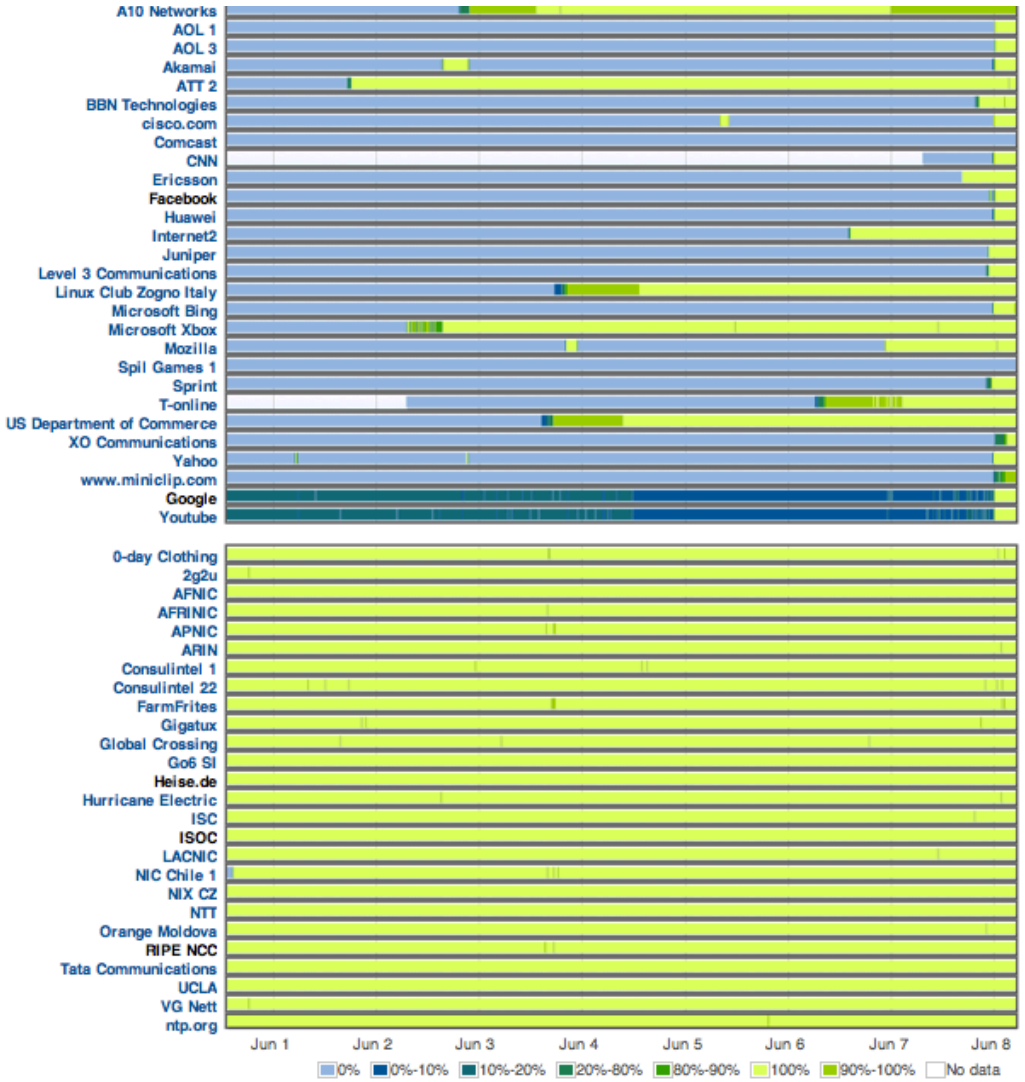
- Almost all vantage points are in the network rather than at the edges
- Most are doing other things as well

- Web site designed ad-hoc and on single server, so it can be slow

v6day.ripe.net

DNS During the Week

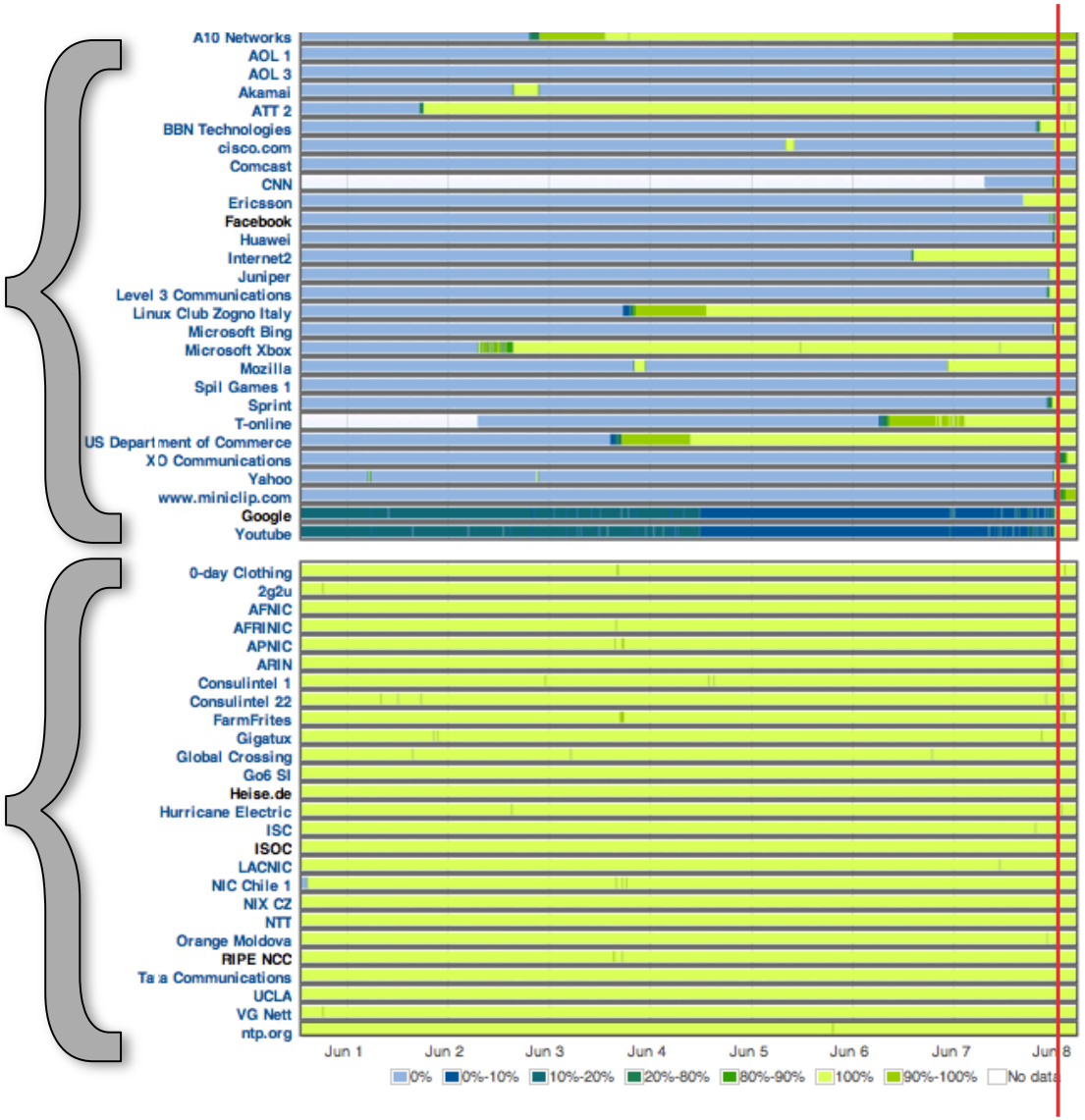
- Blue: no IPv6 Address Published
- Green: IPv6 Address Published (AAAA RR)



DNS During the Week

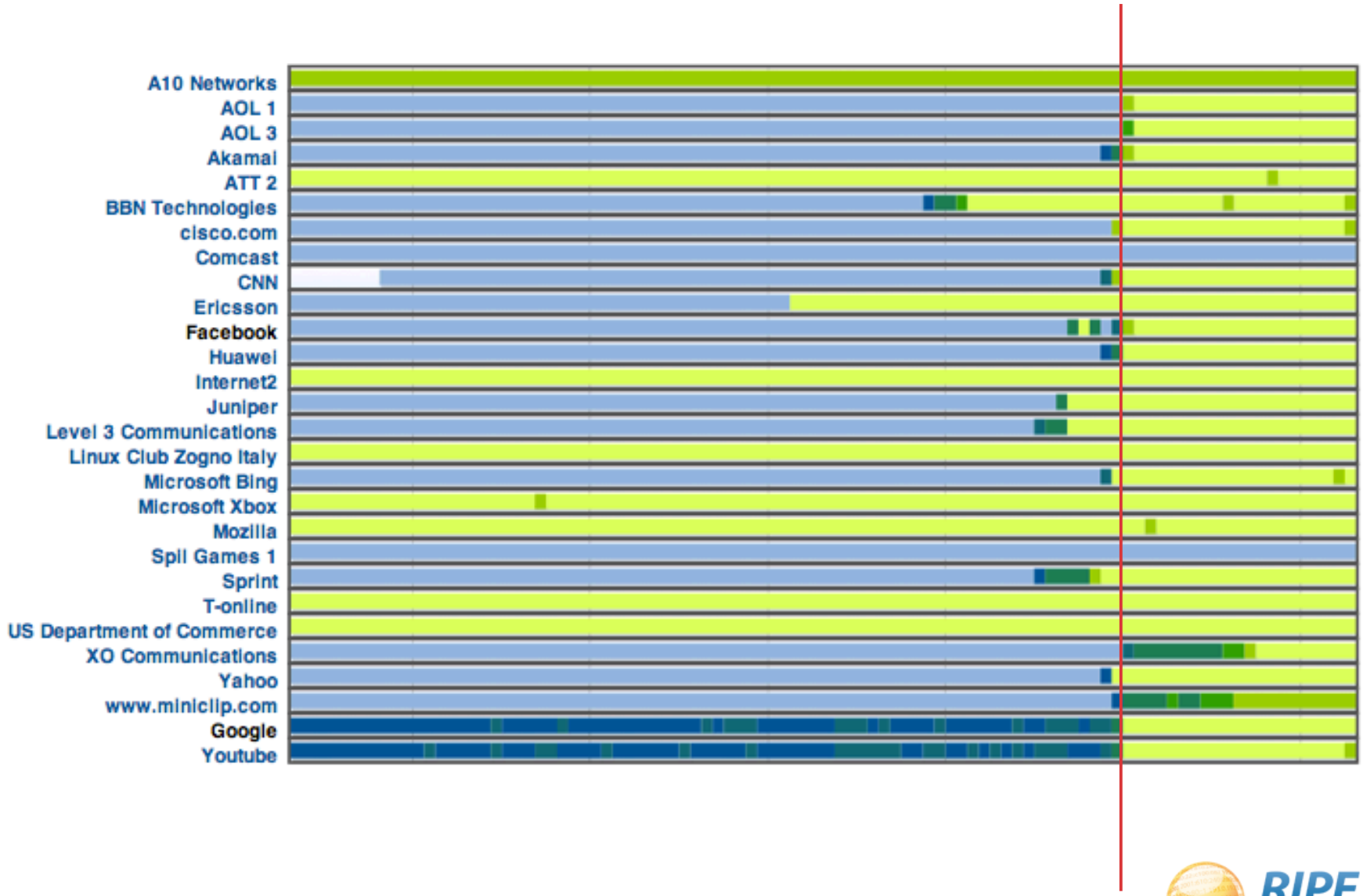
IPv6 Day Participants

Already Dual Stacked IPv4 & IPv6

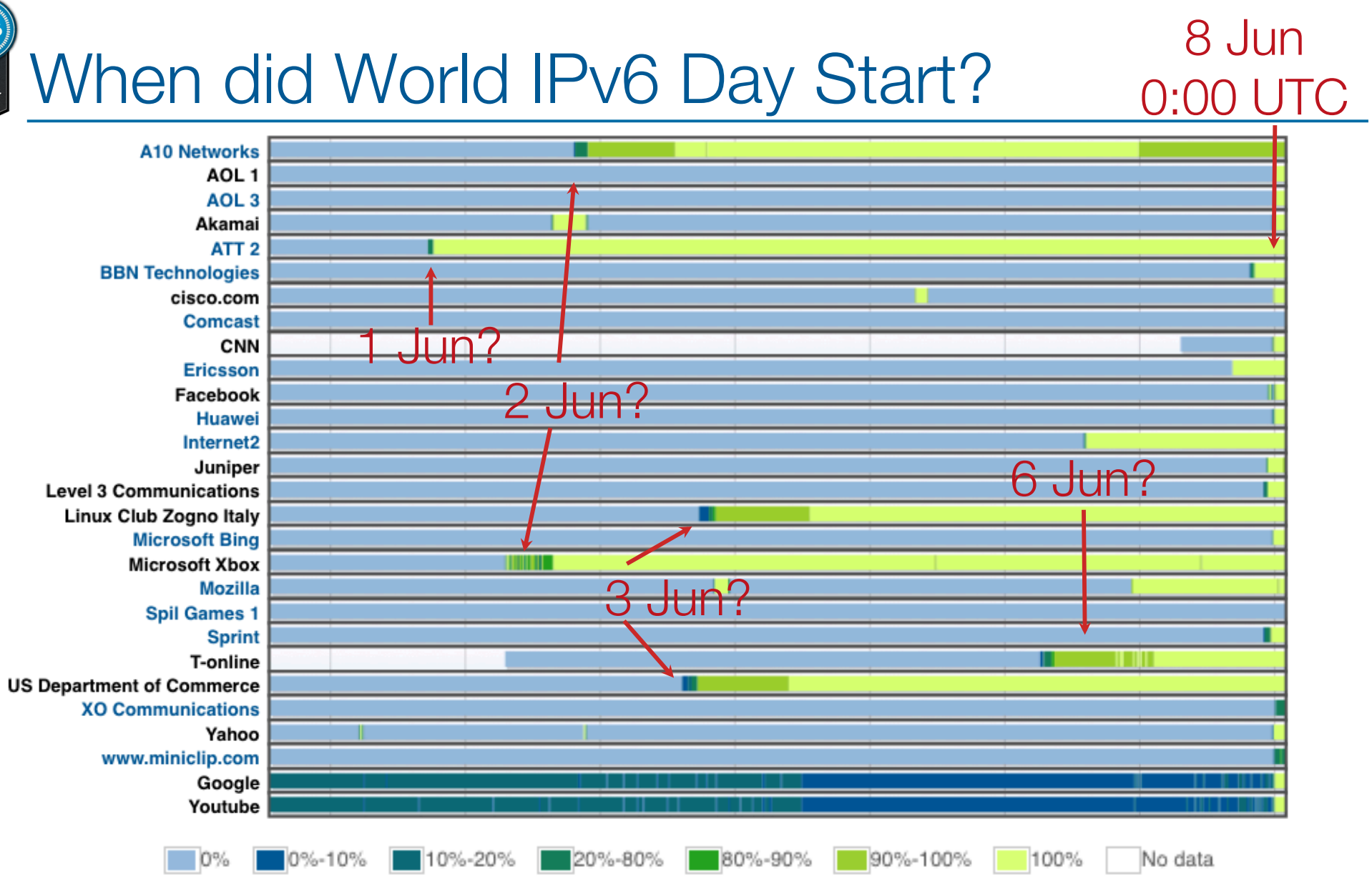


DNS of Participants During the Week

DNS of Participants Today



When did World IPv6 Day Start?



% of our vantage points seeing AAAA records

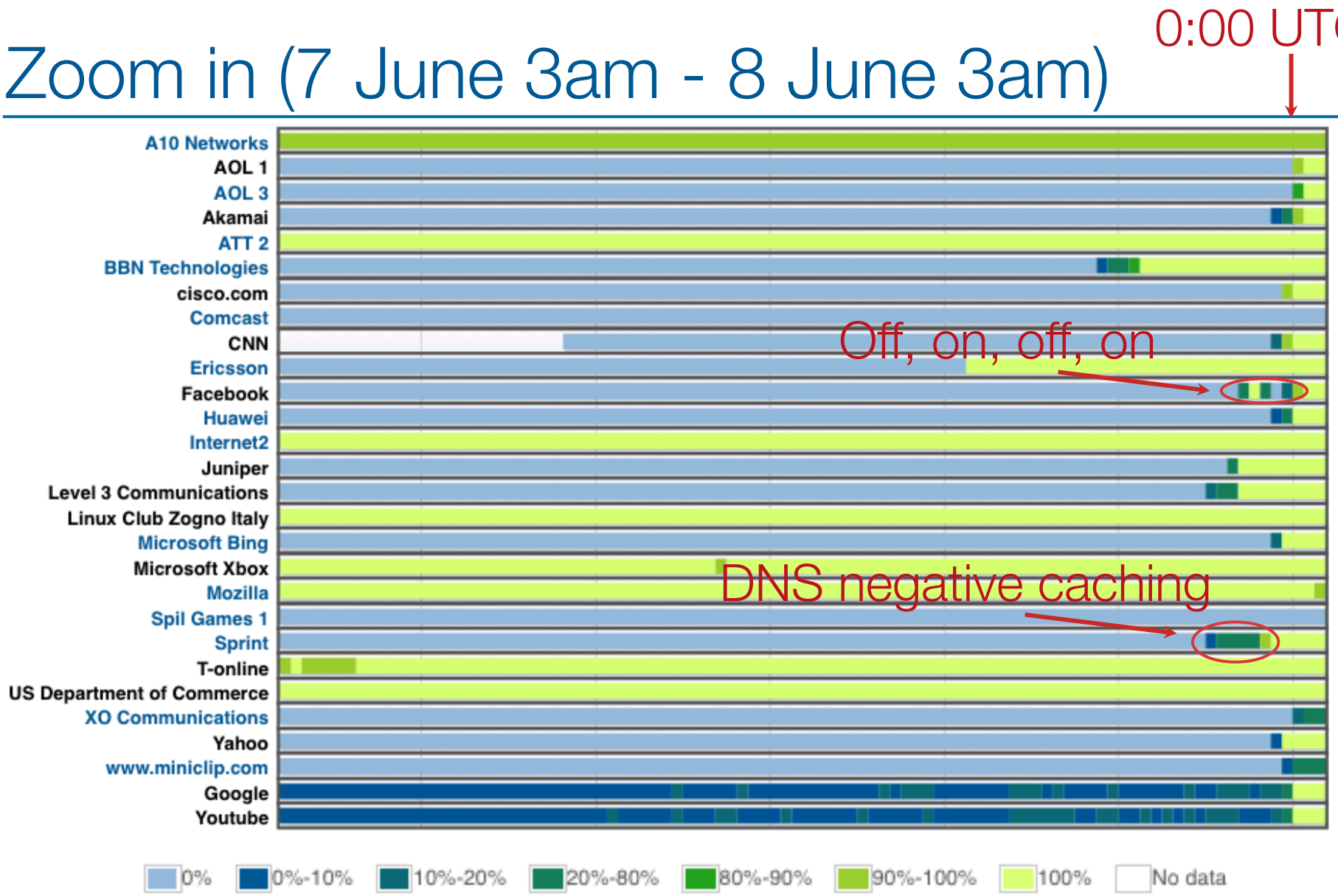
Who did test runs?

% of our vantage points seeing AAAA records

IPv6 whitelists

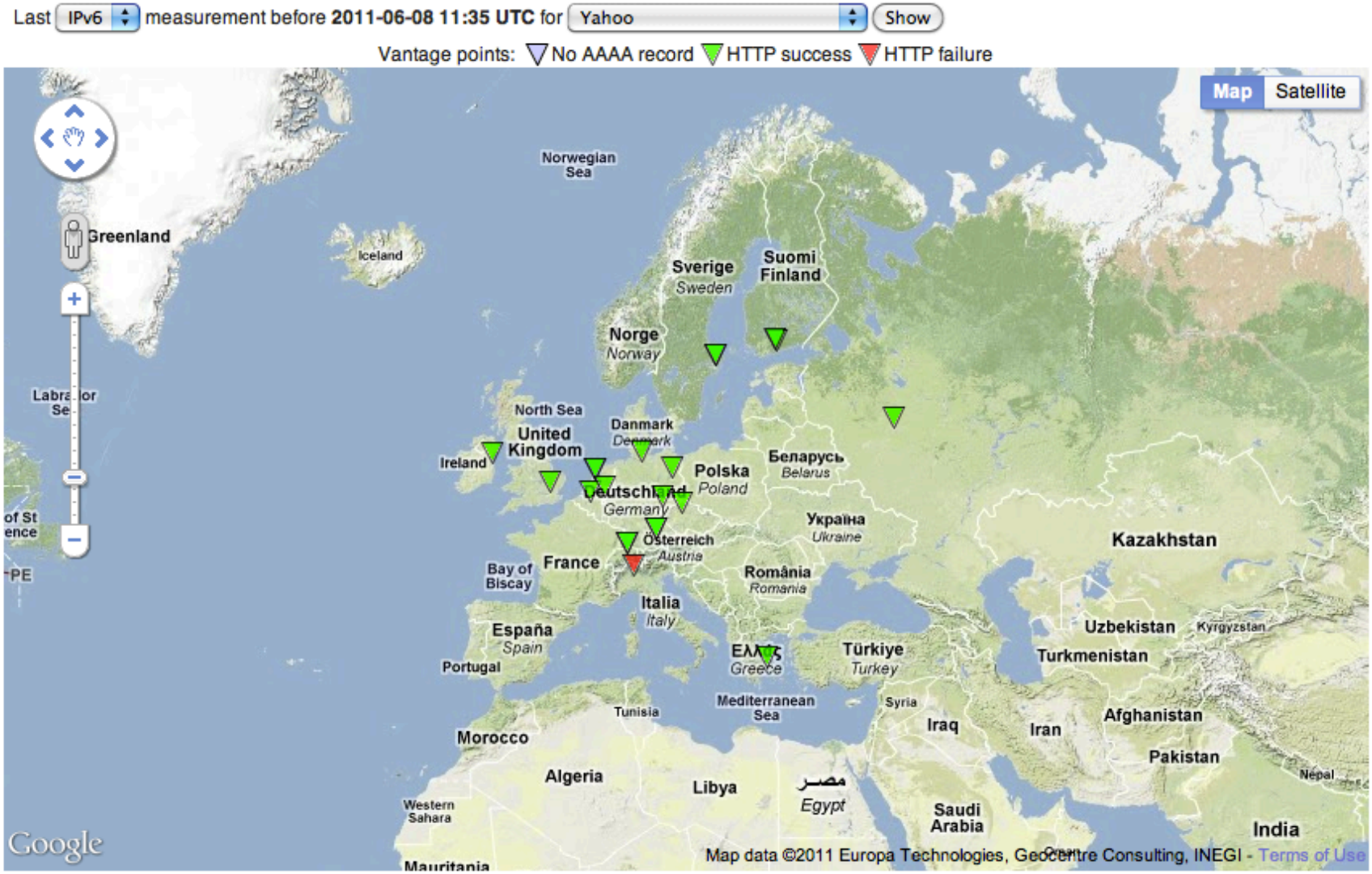
% of our vantage points seeing AAAA records

Zoom in (7 June 3am - 8 June 3am)

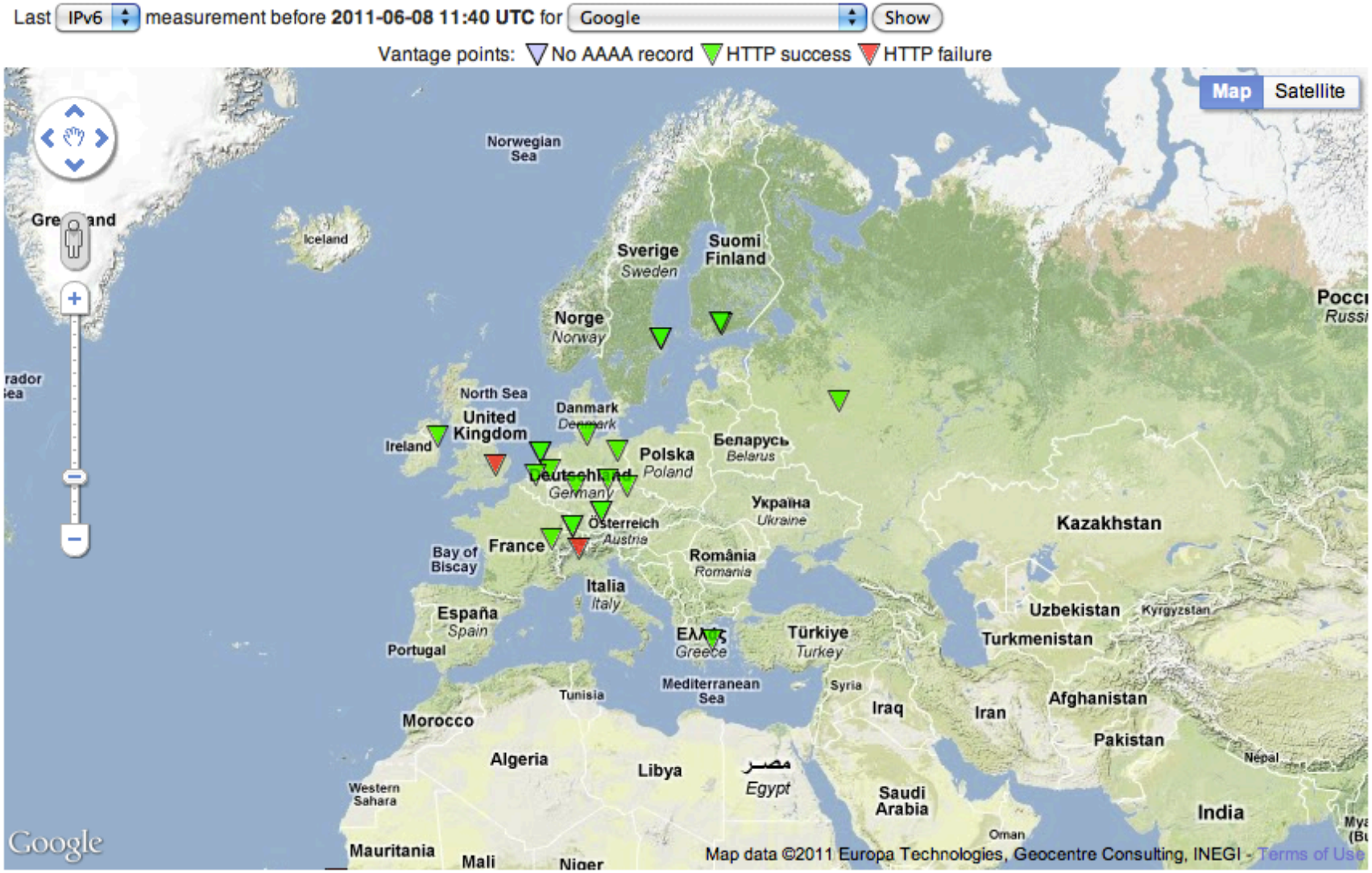


% of our vantage points seeing AAAA records

HTTP Fetch Today: Yahoo



HTTP Fetch Today: Google



Detailed Data Available for Analysis

World IPv6 day - Measurement Details

To: RIPE NCC
From: tt120: Nominet UK, London, GB
Time: 2011-06-07 11:21:59 UTC

Production server: ***www.ripe.net***

IPv4

DNS resolver	DNS rcode	DNS address	timestamp
127.0.0.1	NOERROR	193.0.6.139	2011-06-07 11:21:59 UTC

ping	min	avg	max	send	rcvd	lost	timestamp
193.0.6.139	21.97	22.024	22.097	3	3	0%	2011-06-07 11:21:59 UTC

Show tracreoute

HTTP fetch URL	HTTP code	repsonse size	timestamp
http://www.ripe.net/	200	20238	2011-06-07 11:27:55 UTC

IPv6

DNS resolver	DNS rcode	DNS address	timestamp
127.0.0.1	NOERROR	2001:67c:2e8:22:0:0:c100:68b	2011-06-07 11:22:02 UTC

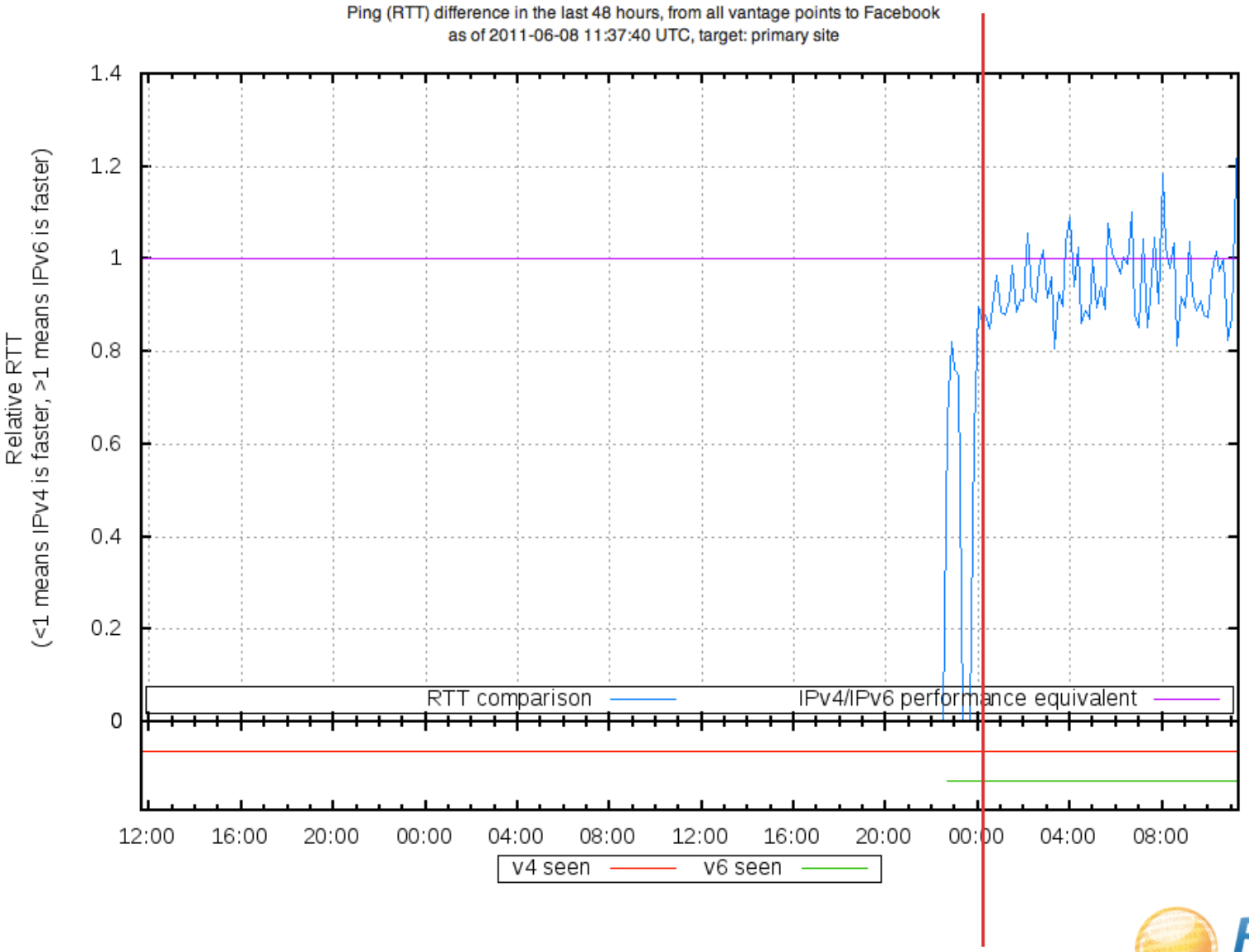
ping	min	avg	max	send	rcvd	lost	timestamp
2001:67c:2e8:22:0:0:c100:68b	0	0	0	3	0	100%	2011-06-07 11:22:02 UTC

Hide traceroute

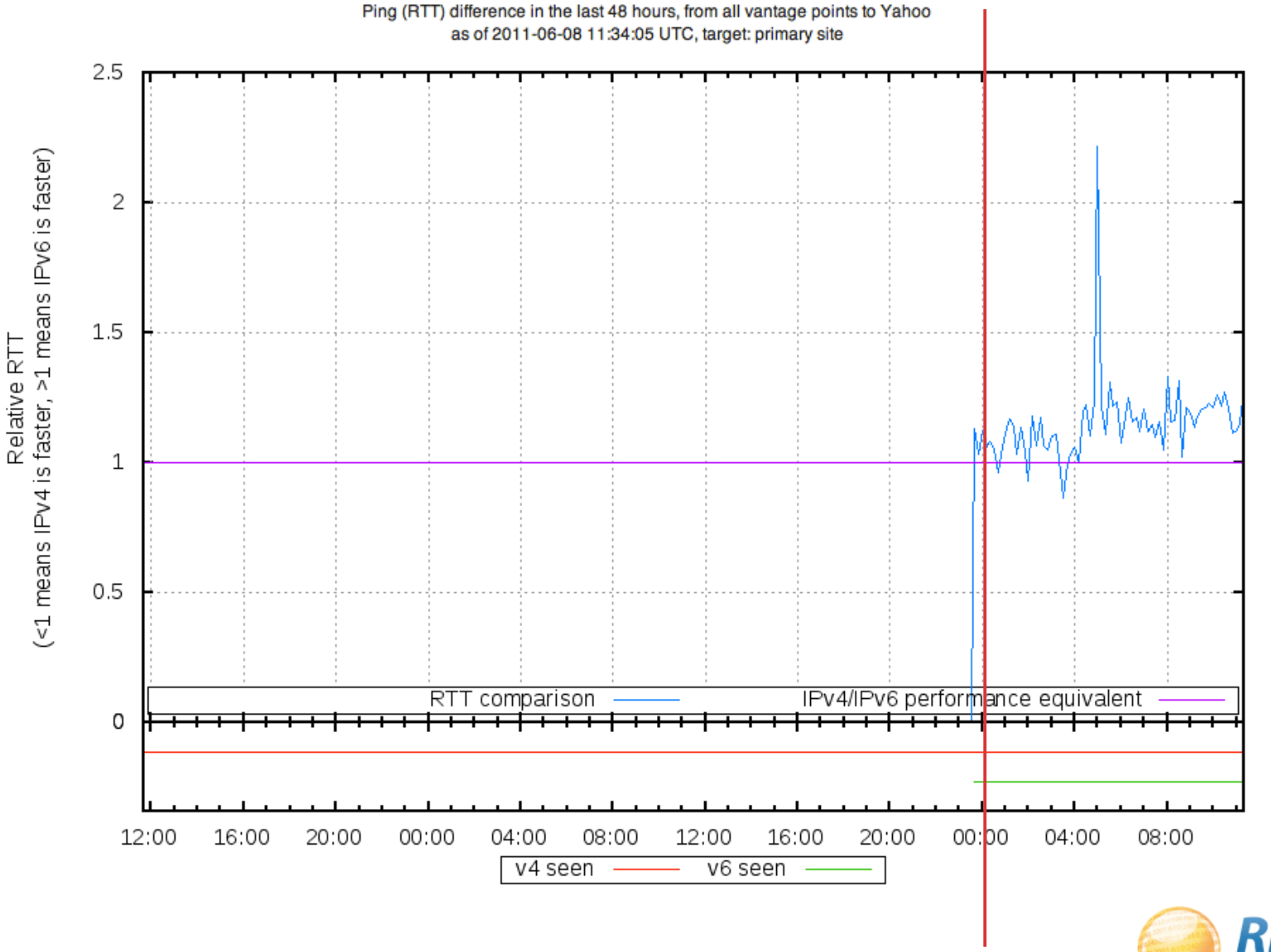
trace	timestamp
traceroute6 to 2001:67c:2e8:22:0:0:c100:68b (2001:67c:2e8:22::c100:68b) from 2a01:618:300::2, 30 hops max, 12 byte packets 1 2a01:618:300::1 0.677 ms 0.436 ms 0.445 ms 2 g0-2-614-t6-ar10.ipv6.router.uk.clara.net 0.481 ms 0.419 ms 0.430 ms 3 g1-1-1-t6-cr2.ipv6.router.uk.clara.net 0.760 ms 0.439 ms 0.449 ms 4 g4-0-t6-br1.ipv6.router.uk.clara.net 0.618 ms 0.564 ms 0.579 ms 5 linx-2602.ge-0-0-0.jun1.thn.network.bit.nl 16.262 ms 16.095 ms 16.174 ms 6 806.xe-0-0-0.jun1.bit-2a.network.bit.nl 15.985 ms 15.966 ms 16.345 ms 7 * * * 8 * * * 9 * * * 10 * * * 11 * * * 12 * * * 13 * * * 14 * * * 15 * * * 16 * * *	2011-06-07 11:22:02 UTC

HTTP fetch URL	HTTP code	repsonse size	timestamp
http://www.ripe.net/	0	0	2011-06-07 11:27:55 UTC

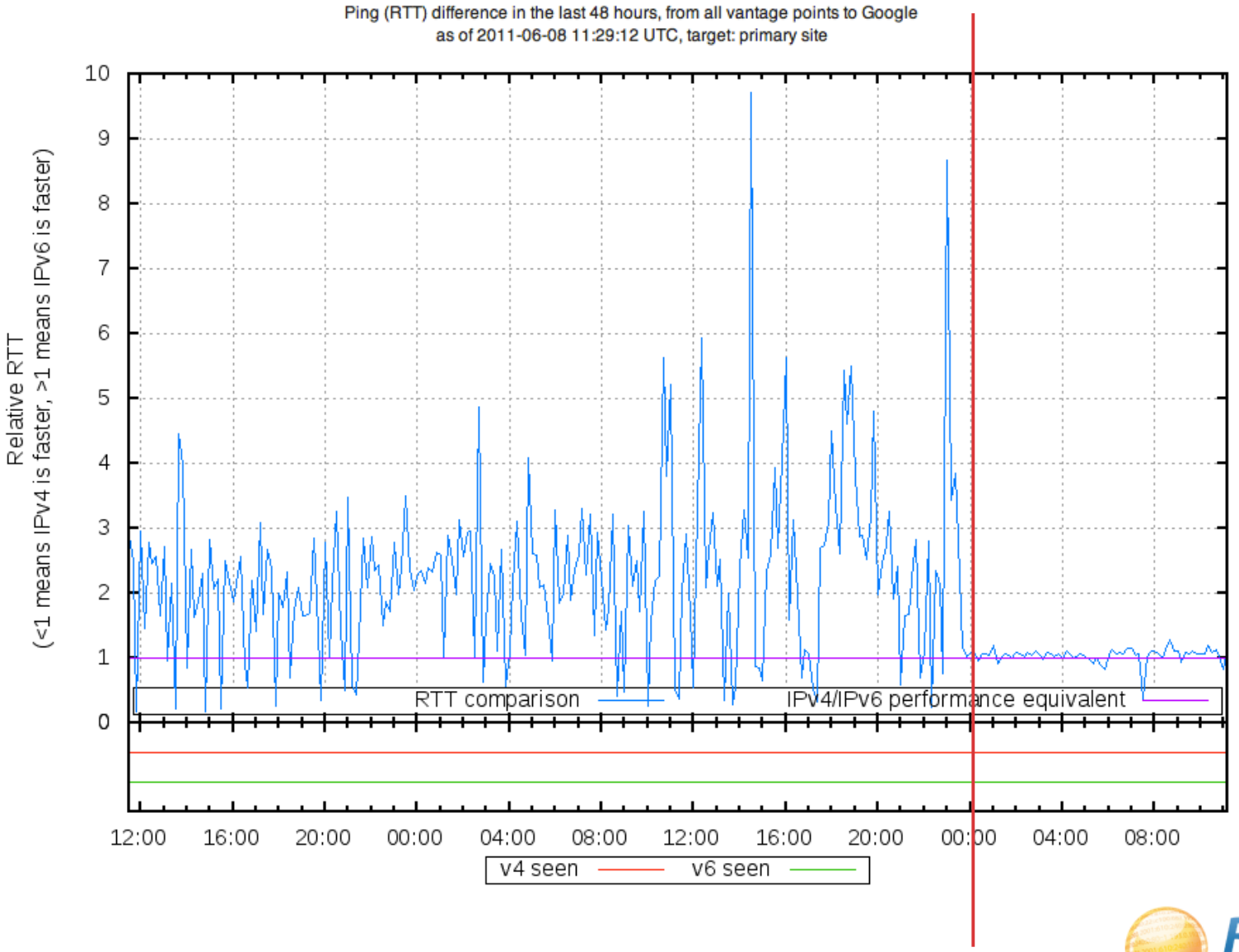
RTT IPv4/IPv6: Facebook



RTT IPv4/IPv6: Yahoo



RTT IPv4/IPv6: Google

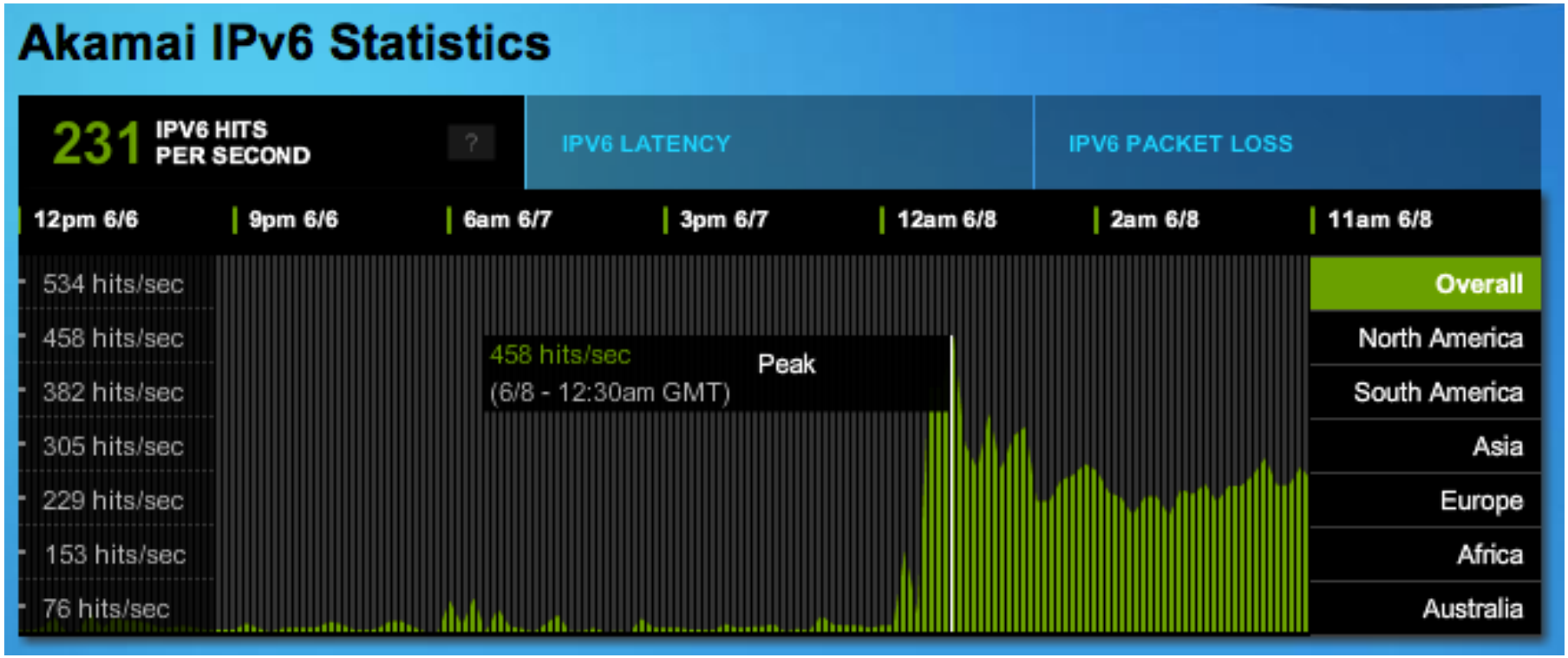


After the Day

- We will keep measuring
- All data remains available
  - Via v6day.ripe.net page
  - Raw data (if requested)
- We will do more analysis in the coming weeks

Akamai Measurements Today

http://www.akamai.com/ipv6



Wrap Up

- Hoped for a very boring World IPv6 Day:

  Seems to be true.

- We expect experience and data will show that
  - Internet IPv6 at large is (and has been) production ready
  - If not: know what to improve

- Keep an eye out on http://labs.ripe.net for the latest on measuring World IPv6 day

Questions?

RIPE NCC