

# World IPv6 Launch and RIPE Atlas traceroute6 visualisation

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# RIPE NCC Measurements - IPv6 Launch

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- IPv6 Eyechart and 6to4 (not in this talk)
- Active measurements
  - Sources: 53 vantage points, Destinations: 60 participants
  - From 2012-05-19 to 2012-06-18 we measured:
    - DNS: A and/or AAAA records
    - ping(6)/traceroute(6)
    - HTTP over IPv4 and IPv6
  - In total there were 18,049,214 measurements
- Measuring IPv6 Connectivity with RIPE Atlas

# Measurement Vantage Points

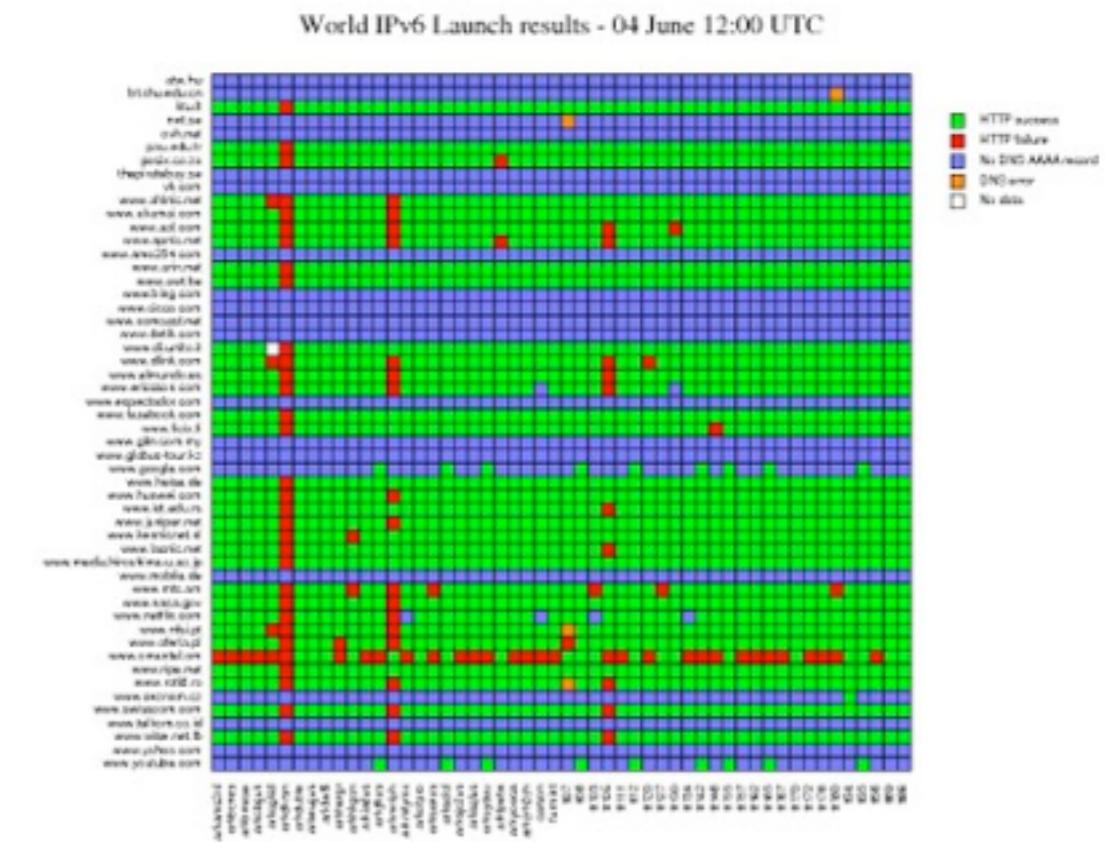
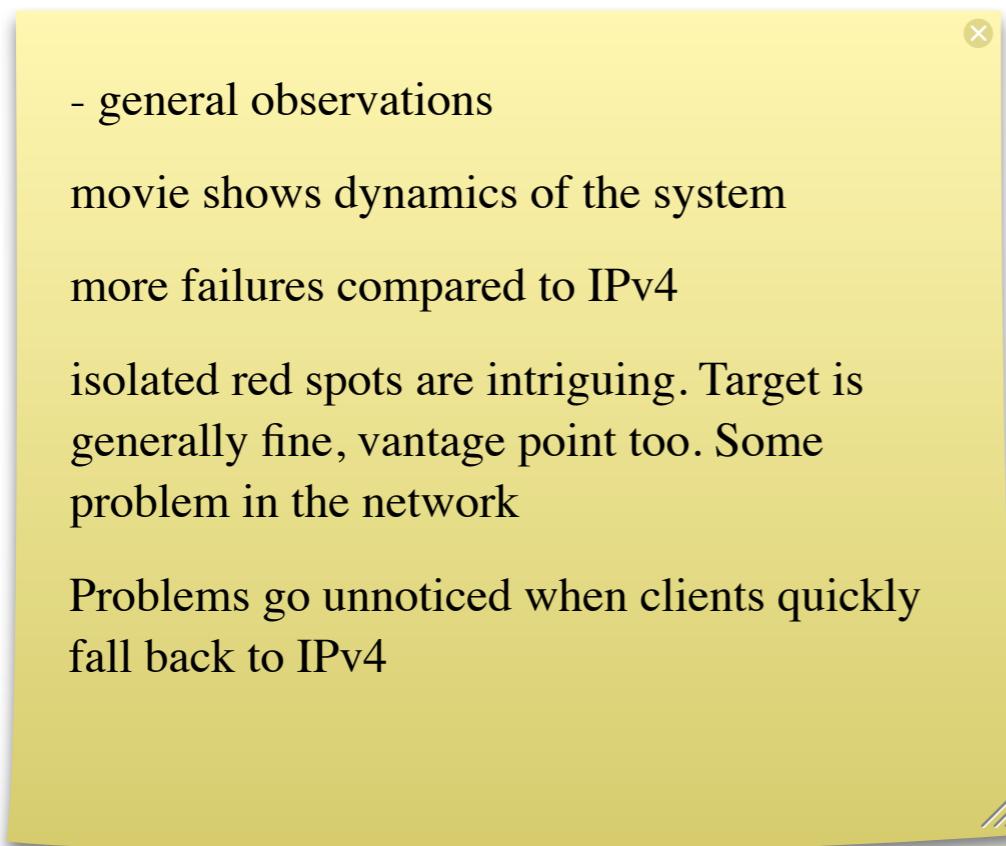
▼ CAIDA Ark ▼ RIPE NCC TTM ▼ Other





# World IPv6 Launch - results from HTTP measurements

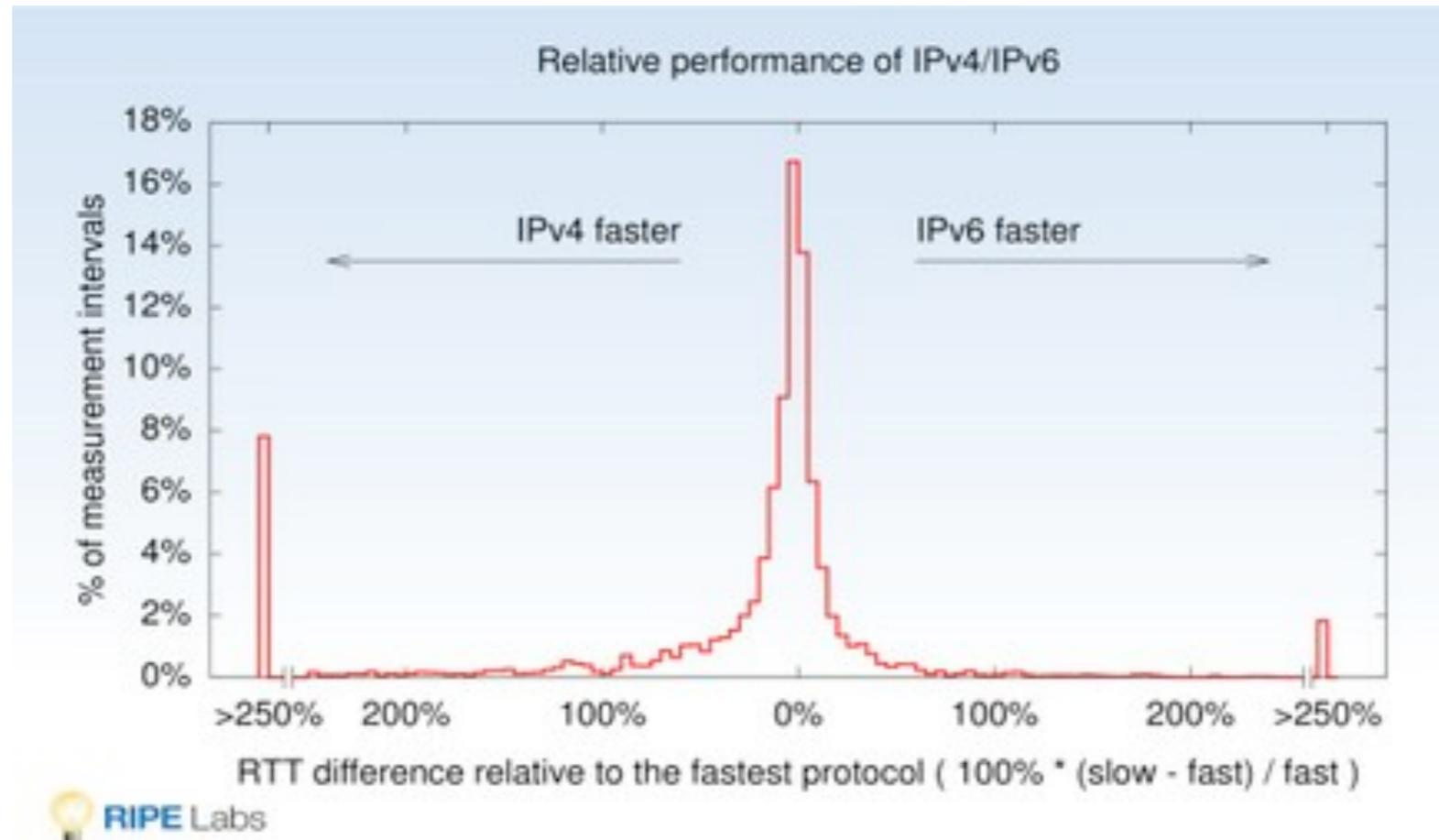
- Movie (2,5 minutes) on HTTP measurements (by Rene Wilhelm):
  - [http://www.youtube.com/watch?feature=player\\_embedded&v=GOBWZ746gMI](http://www.youtube.com/watch?feature=player_embedded&v=GOBWZ746gMI)



- <https://labs.ripe.net/Members/wilhelm/world-ipv6-launch-http-measurements>

# Relative Performance IPv4 vs IPv6

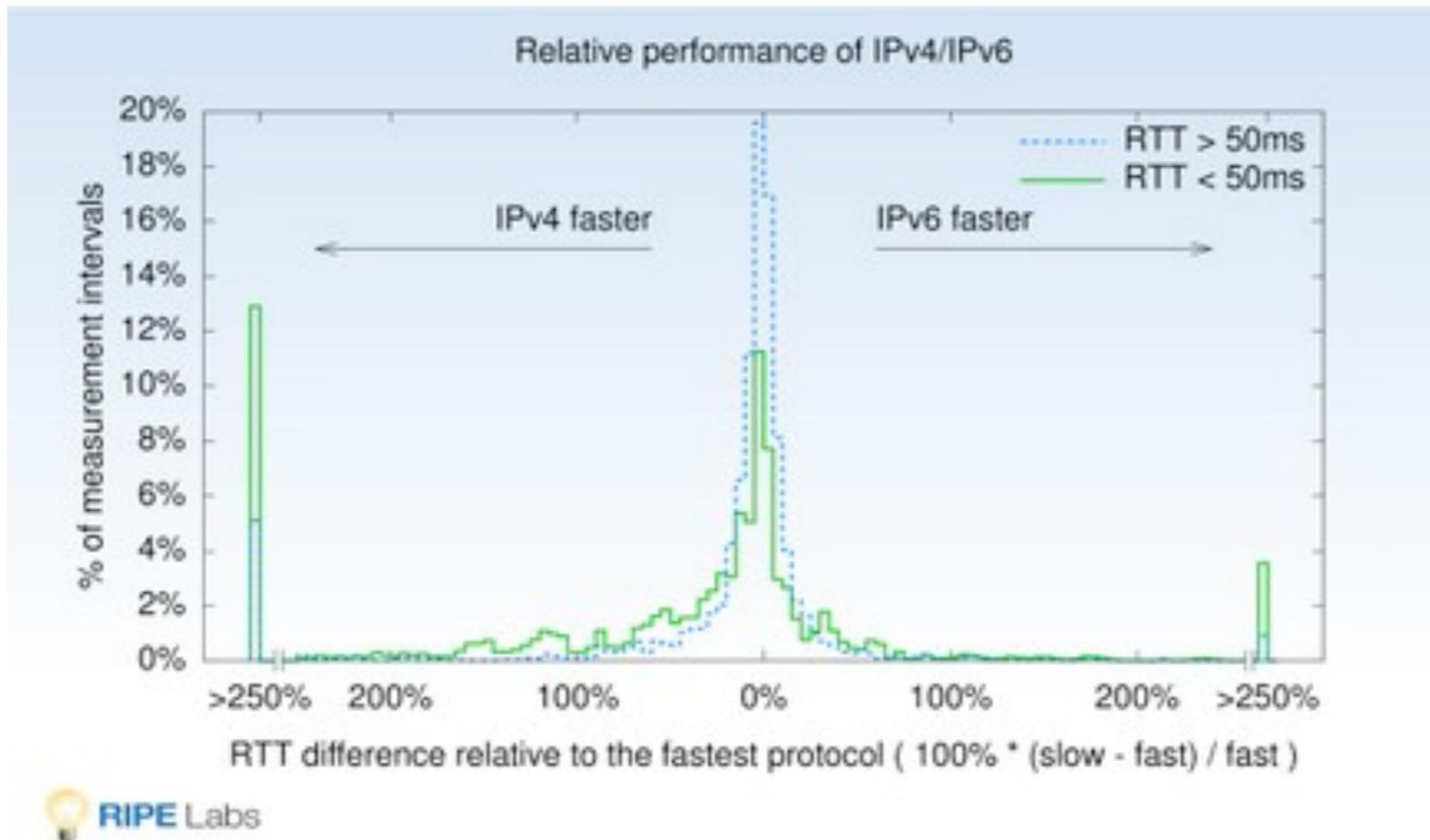
- Histogram of relative performance of IPv4/IPv6 for 15 minute intervals per source-destination pair



- <https://labs.ripe.net/Members/emileaben/measuring-world-ipv6-launch-comparing-ipv4-and-ipv6-performance>

# Relative Performance IPv4 vs IPv6

- Histogram of relative performance of IPv4/IPv6 for 15 minute intervals per source-destination pair, split in LONG and SHORT RTTs.



- <https://labs.ripe.net/Members/emileaben/measuring-world-ipv6-launch-comparing-ipv4-and-ipv6-performance>

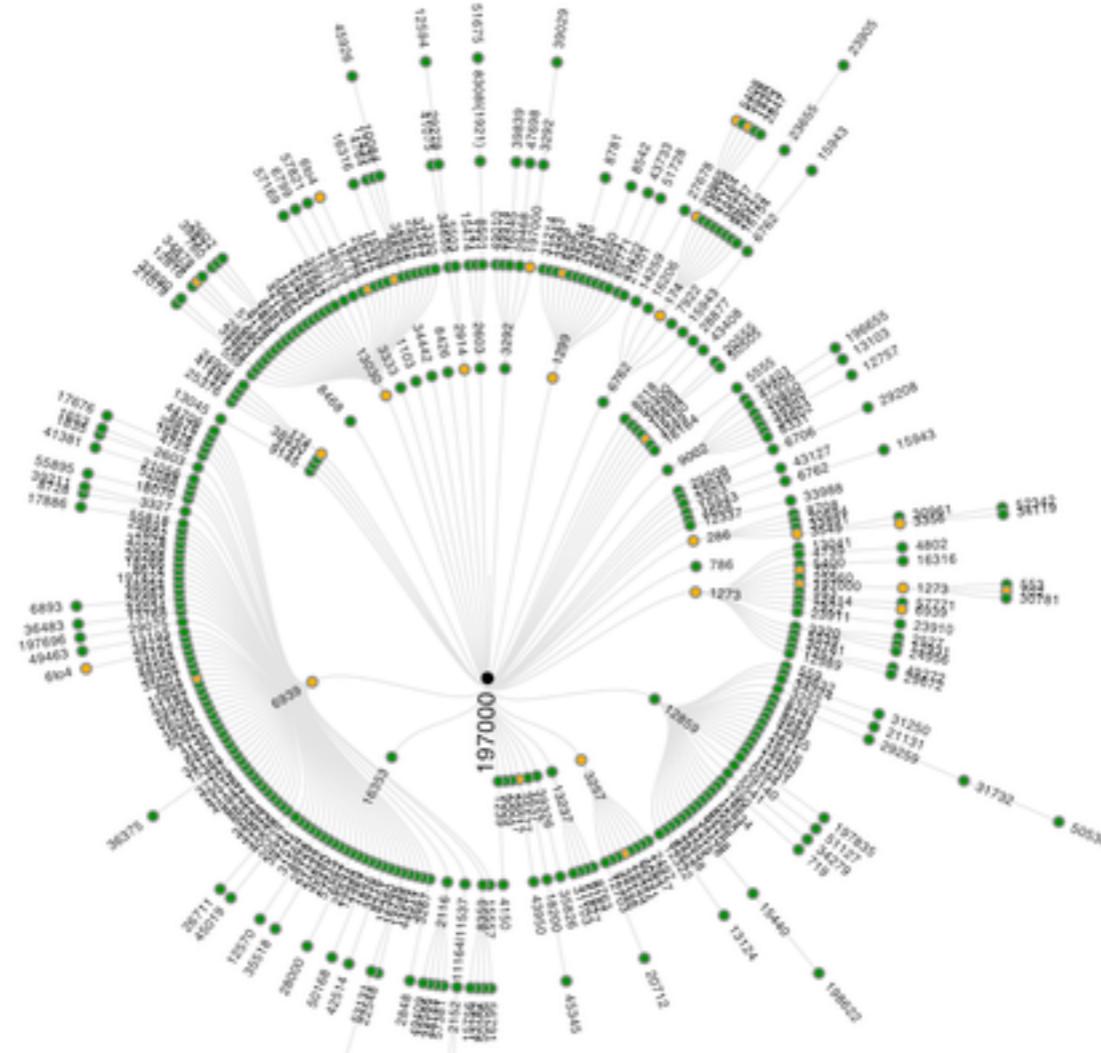
# Atlas traceroute6 visualization

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- Before World IPv6 Launch day, we provided an ATLAS UDM (User Defined Measurement) tool to test IPv6 reachability of a network.
- Uses RIPE Atlas probes around the world to send traceroute6 to your network.
- Offered only to RIPE NCC members.
- Possibly available for sponsors and others.
- Will continue to offer this tool
- Prototype visualisation tool by Emile Aben

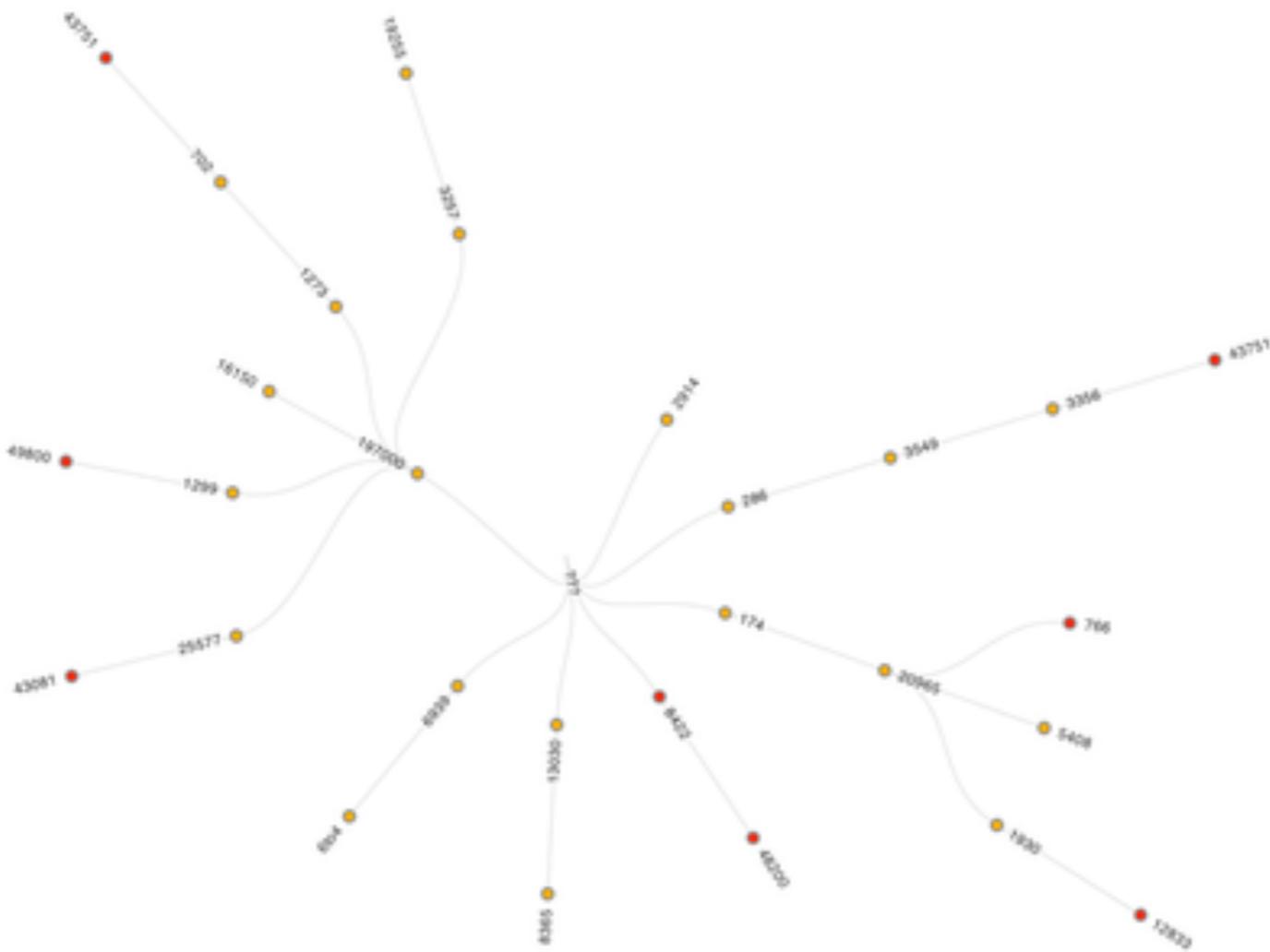
# How Do Others See Your Site Over IPv6 1/6

- AS-level graph of successful traceroutes to ns.ripe.net



# How Do Others See Your Site Over IPv6 2/6

- AS-level graph of unsuccessful traceroutes to ns.ripe.net



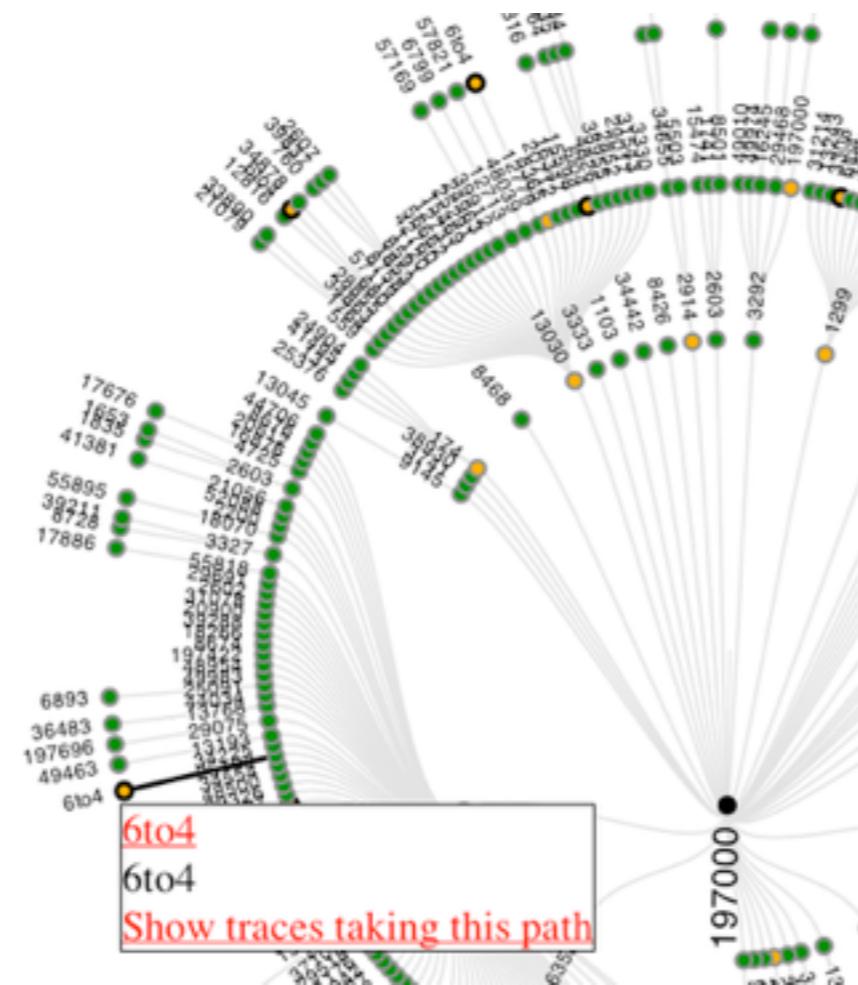
# How Do Others See Your Site Over IPv6 3/6

- Hovering over a specific node produces a popup with additional information



# How Do Others See Your Site Over IPv6 4/6

- Hovering over a node that appears multiple times will make other instances of that AS in the graph more visible by putting a thicker black circle around them.



# How Do Others See Your Site Over IPv6 5/6

- Raw traceroute6 results for a specific node allow for verification of the visualisation and can help in debugging specific network issues.



# How Do Others See Your Site Over IPv6 6/6

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- Live/interactive example:
  - [http://albatross.ripe.net/cgi-bin/demo-area/v6reach.cgi?msm\\_id=1002799;nonce=2bb398946c5513d966e84182027fc20eaa941e6a204812c3349b769fb55ec503;no\\_embed=1](http://albatross.ripe.net/cgi-bin/demo-area/v6reach.cgi?msm_id=1002799;nonce=2bb398946c5513d966e84182027fc20eaa941e6a204812c3349b769fb55ec503;no_embed=1)
- To measure your network (currently for RIPE NCC members only):
  - [https://atlas.ripe.net/atlas/ipv6\\_traces.html](https://atlas.ripe.net/atlas/ipv6_traces.html)
- **Talk to us if you want a test run**

# More Information

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- Web interface to the measurements
  - <http://v6launch.ripe.net/>
- Analysis on RIPE Labs
  - <http://labs.ripe.net/ipv6launch>
- Raw data availability
  - <https://labs.ripe.net/datarpository/data-sets/ripe-ncc-active-measurements-of-world-ipv6-launch-dataset>

# Conclusions - What We Learned

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- IPv6 works just fine.
  - Dual-stack = two chances for best performance
  - Most sites kept IPv6 enabled (as was the intent)
  - Some sites did not enable IPv6 during the event
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- For traceroute6 visualisations - please send us feedback if at all possible.

# Questions?

