

# World IPv6 Launch and RIPE Atlas traceroute6 visualisation

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Bert Wijnen [bwijnen@ripe.net](mailto:bwijnen@ripe.net) (presenter)

Emile Aben [emile.aben@ripe.net](mailto:emile.aben@ripe.net)

Rene Wilhelm [wilhelm@ripe.net](mailto:wilhelm@ripe.net)

Robert Kisteleki [robert@ripe.net](mailto:robert@ripe.net)

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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 that were 18,049,214 measurements
- Measuring IPv6 Connectivity with RIPE Atlas

# Measurement Vantage Points

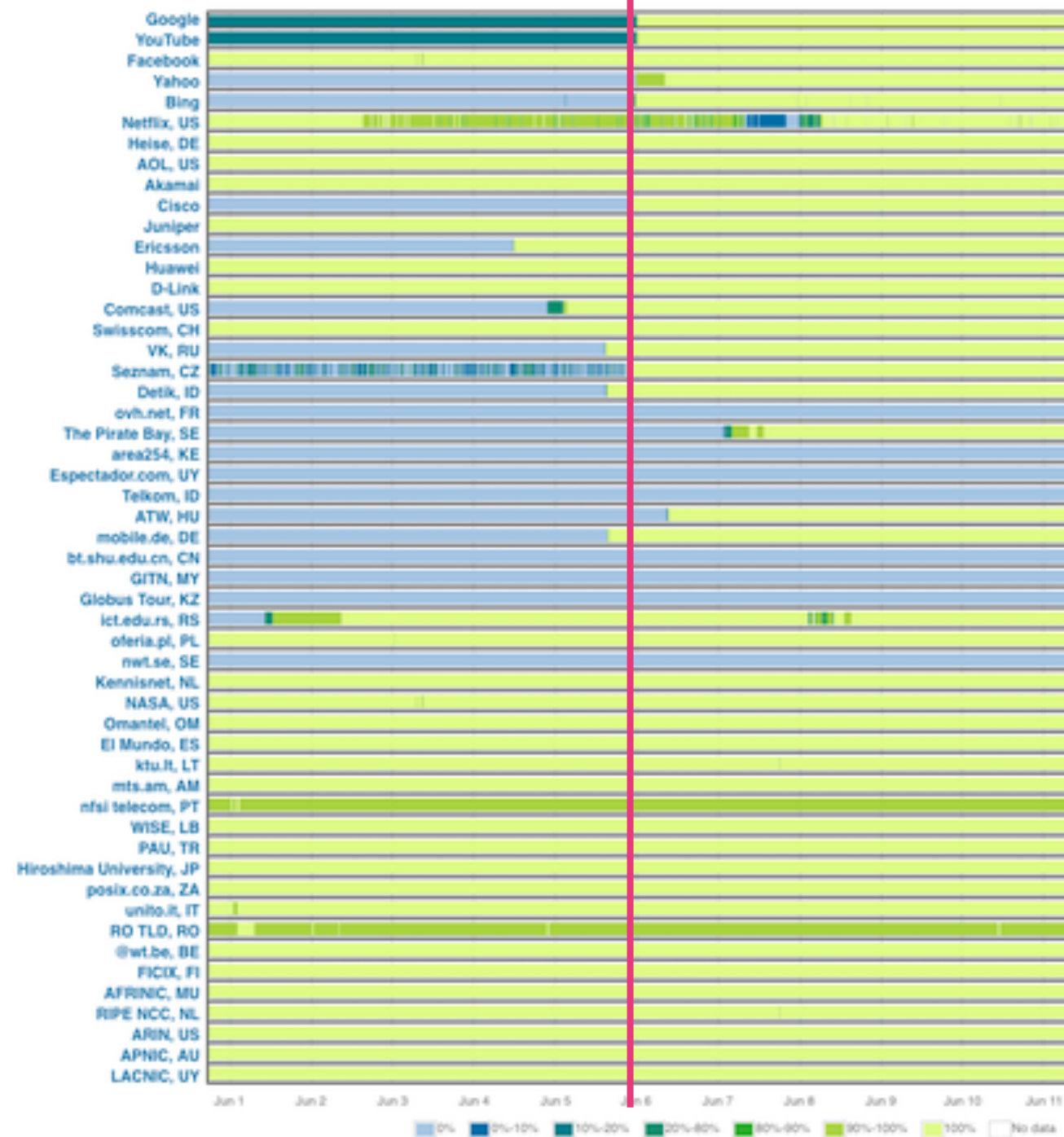


# Percentage of Vantage Points Seeing AAAA

<http://v6launch.ripe.net/cgi-bin/index.cgi>

6 June 2012; 00:00

1-11 June 2012



0% 0%-10% 10%-20% 20%-80% 80%-90% 90%-100% 100% No data



# 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)

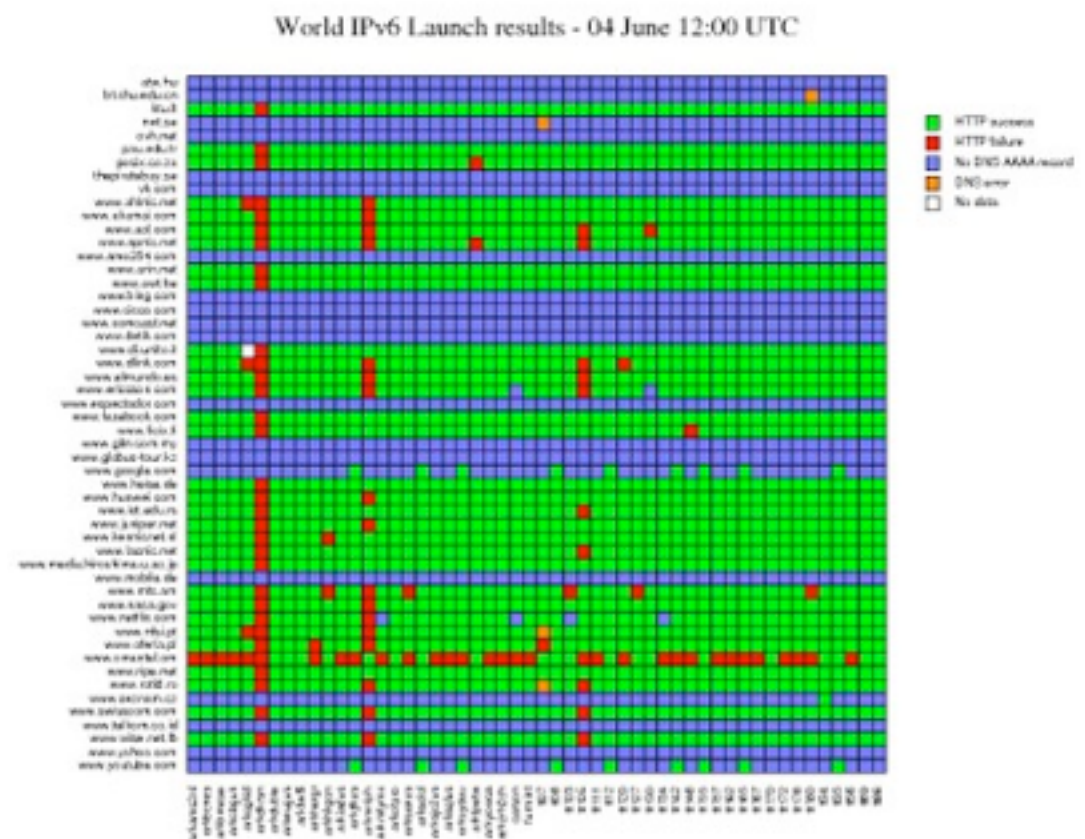
- general observations

movie shows dynamics of the system

more failures compared to IPv4

isolated red spots are intriguing. Target is generally fine, vantage point too. Some problem in the network

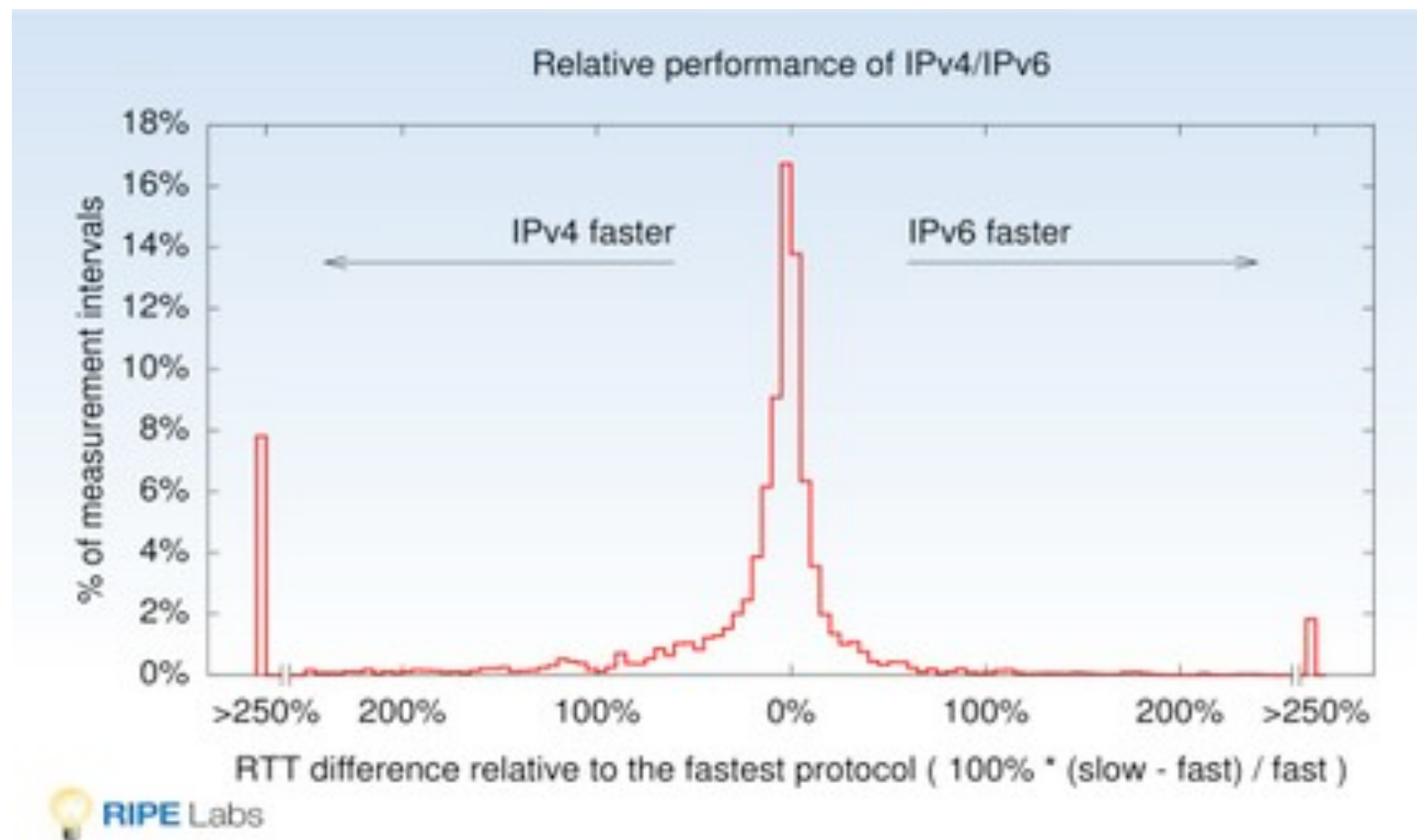
Problems go unnoticed when clients quickly fall back to IPv4



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

# Relative Performance IPv4 vs IPv6

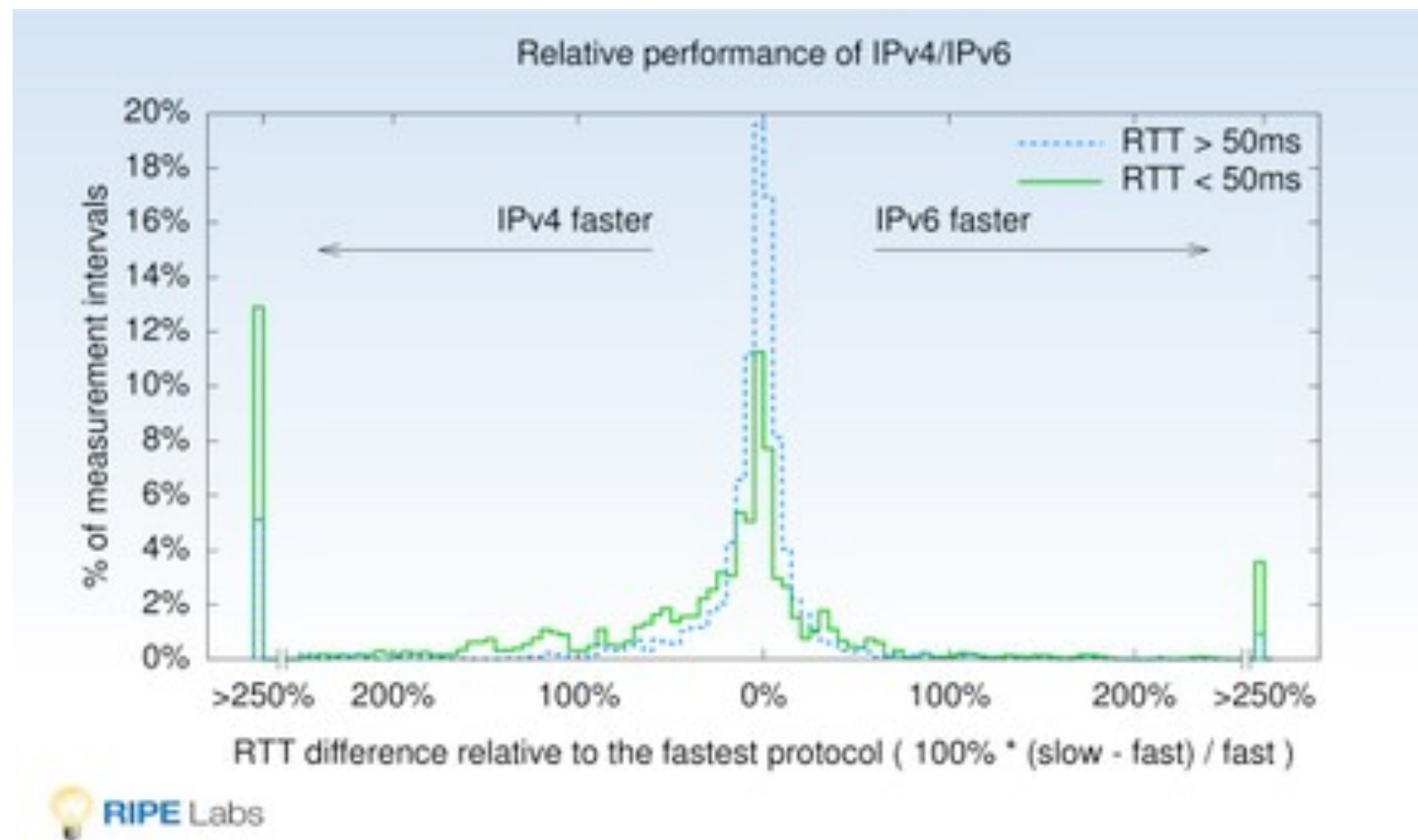
- Histogram of relative performance of IPv4/IPv6 for 15 minute intervals per source-destination pair



- <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

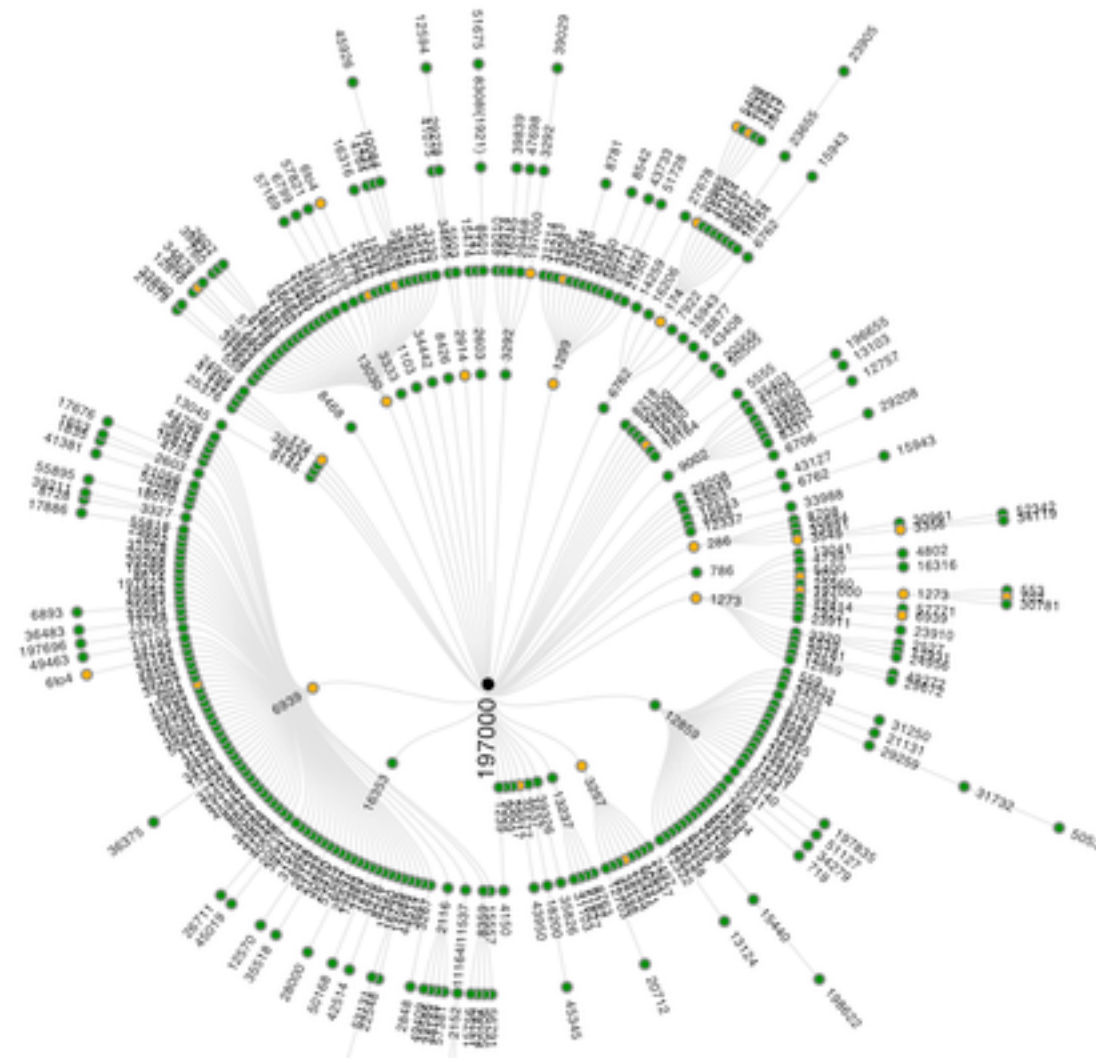
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- Before World IPv6 Launch day, we provided an ATLAS UDM (User Defined Measurement) tool to test IPv6 reachability of a network.
- Uses RIPE Atlas probes around the world to send traceroute6 to your network.
- Offered only to RIPE NCC members.
- Possibly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



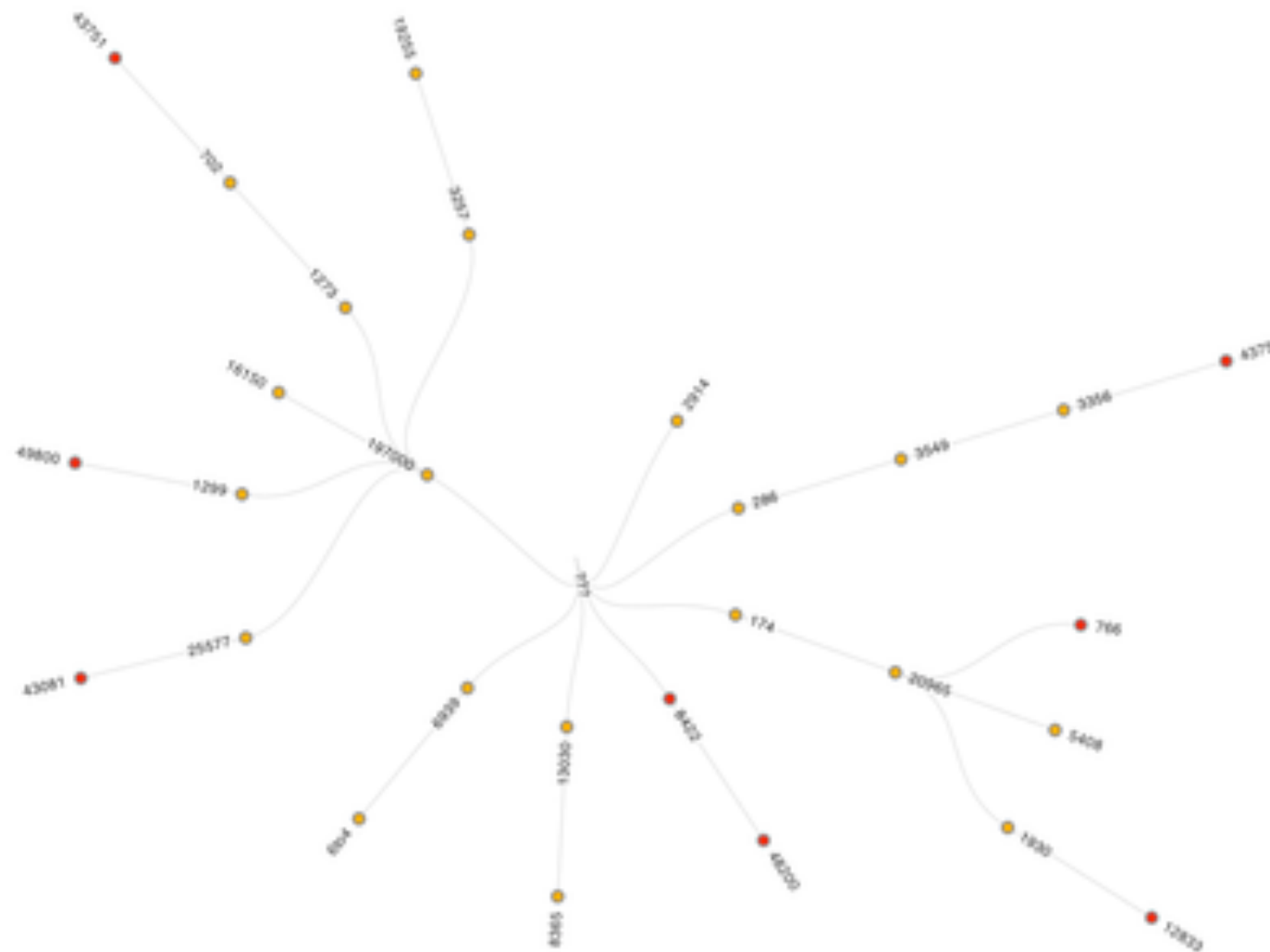
# How Do Others See Your Site Over IPv6 1/6

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



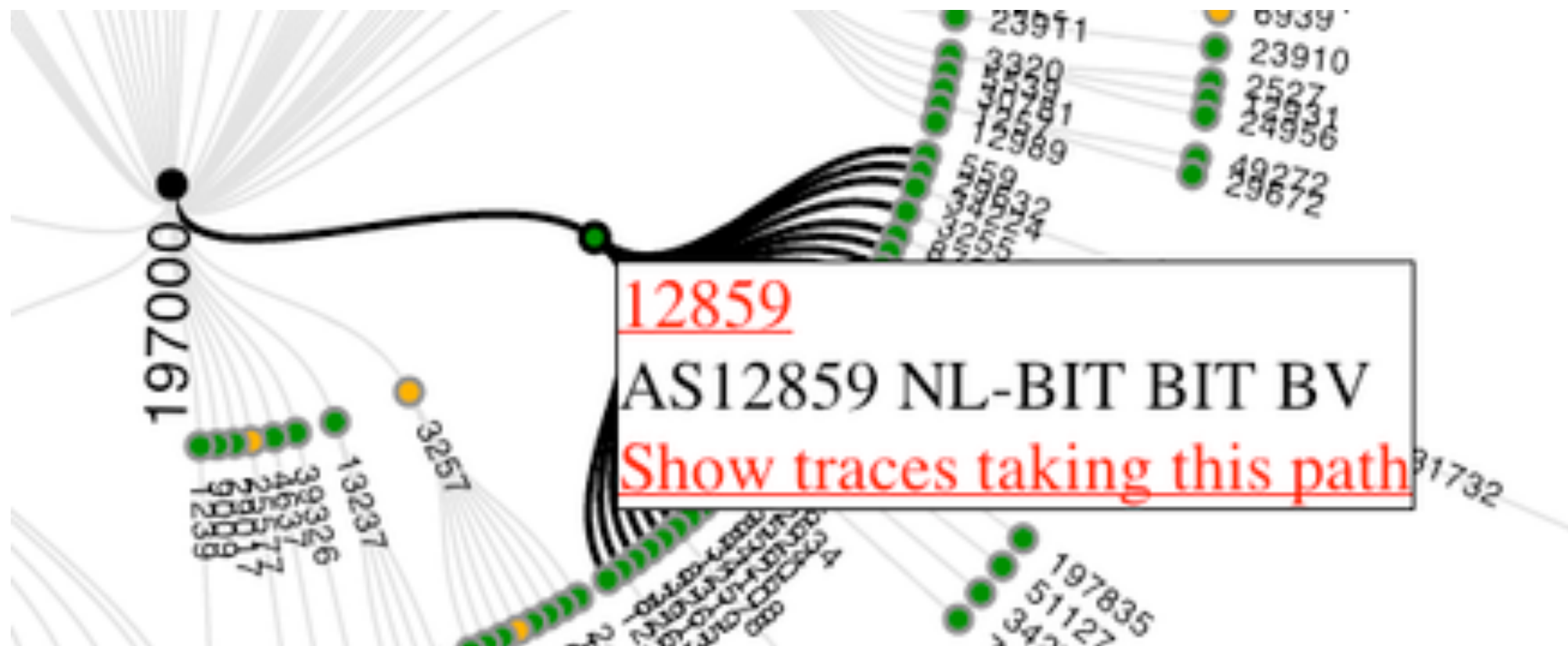
# How Do Others See Your Site Over IPv6 2/6

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



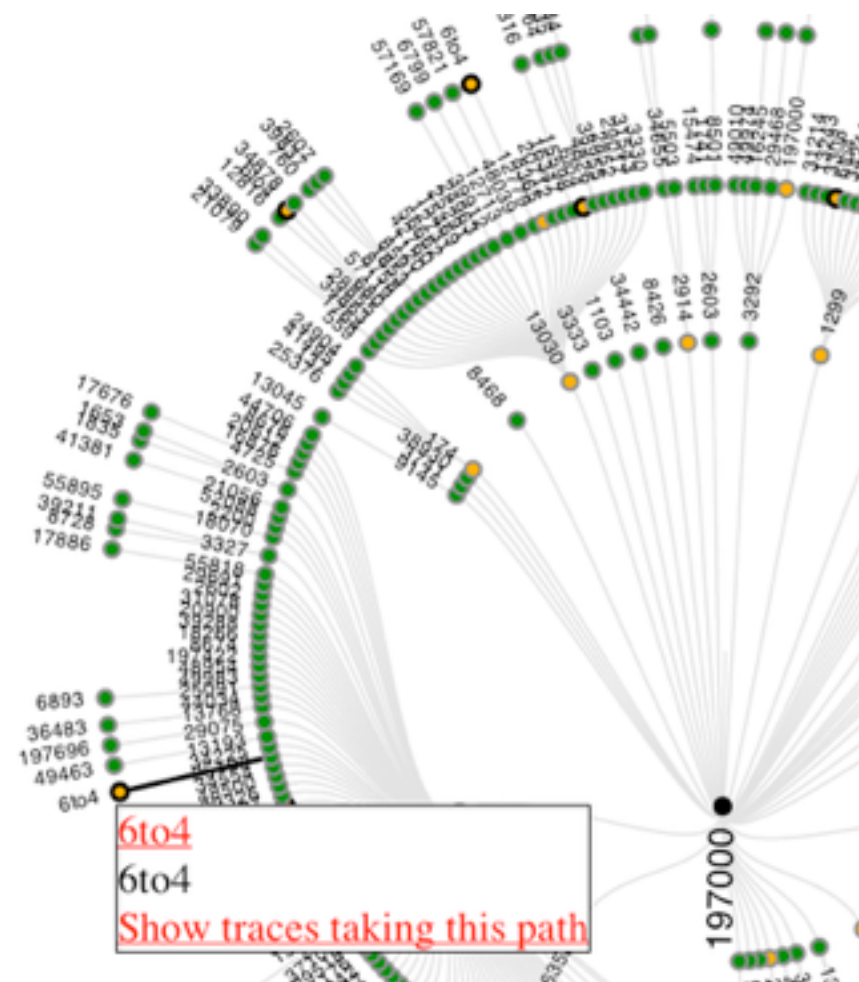
# How Do Others See Your Site Over IPv6 3/6

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



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

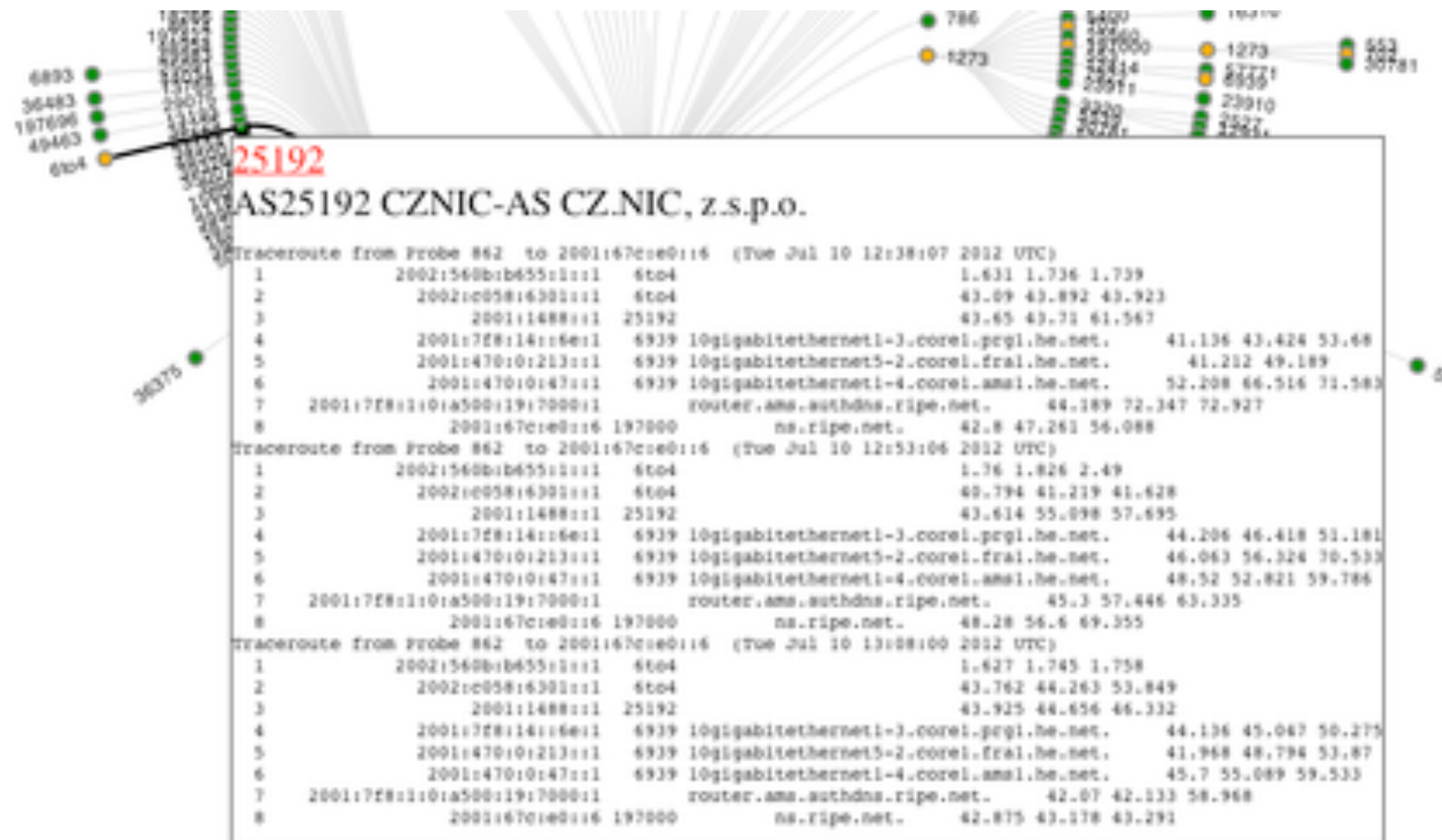
- Hovering over a node that appears multiple times will make other instances of that AS in the graph more visible by putting a thicker black circle around them.





# 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/datarepository/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
- For traceroute6 visualisations - please send us feedback if at all possible.



Questions?

