

Hurricane Sandy, as seen by RIPE Atlas

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AIMS 5



2500+ Hardware Probes Deployed



104 countries
1202 v4 ASes (2.8%)
402 v6 ASes (6.1%)

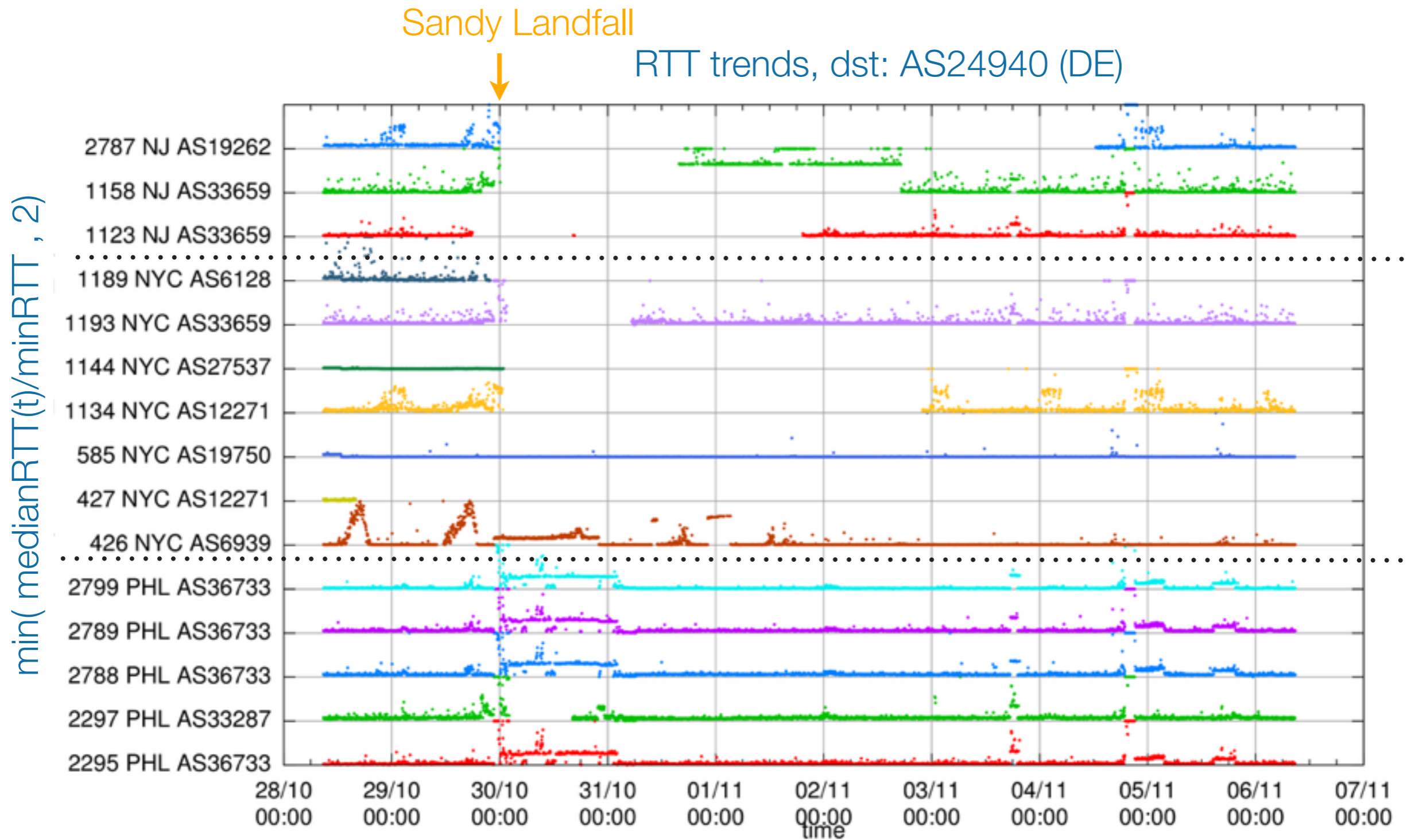
Measurements

- Ping(4/6)
- Traceroute(4/6)
- Towards “fixed” destinations:
 - DNS root servers + RIPE Atlas infrastructure
- User Defined Measurements

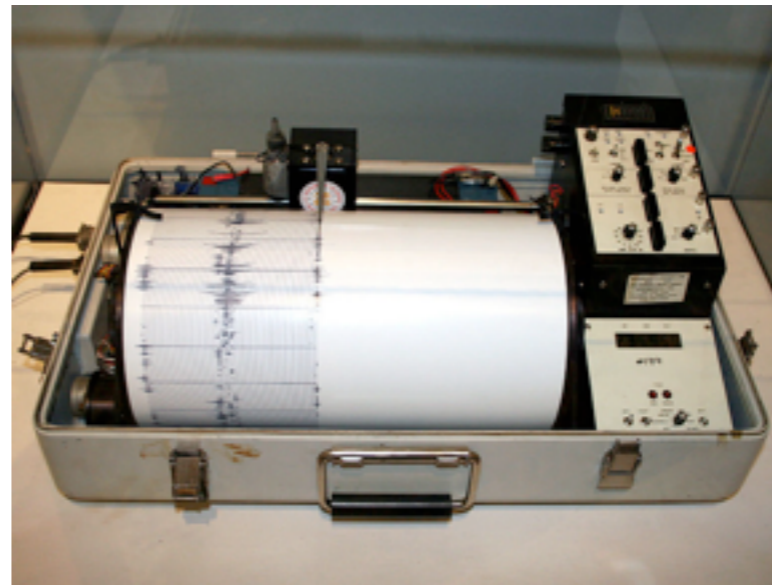
RIPE Atlas Probes in Affected Area



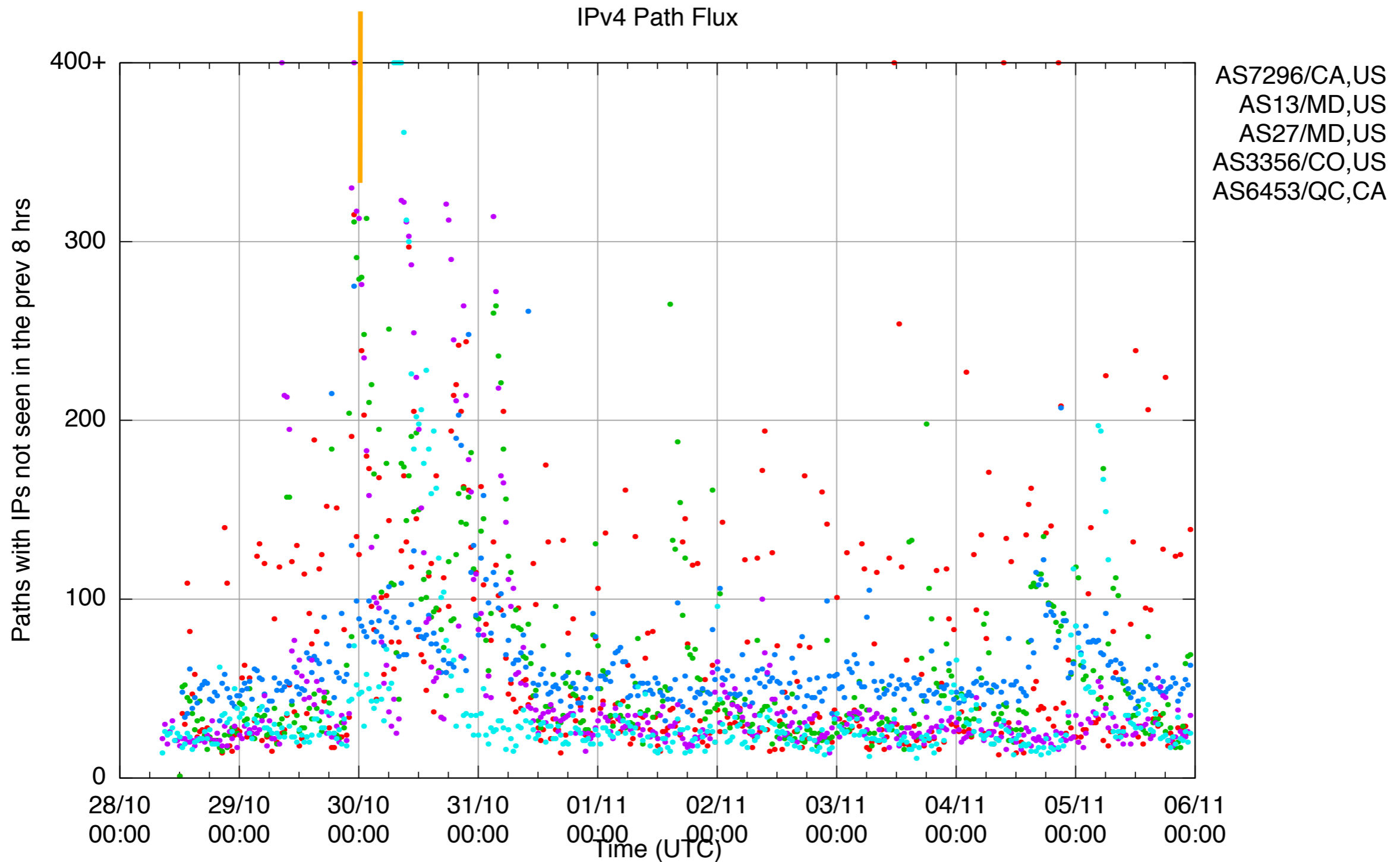
Vantage Points in Affected Area



Path Flux



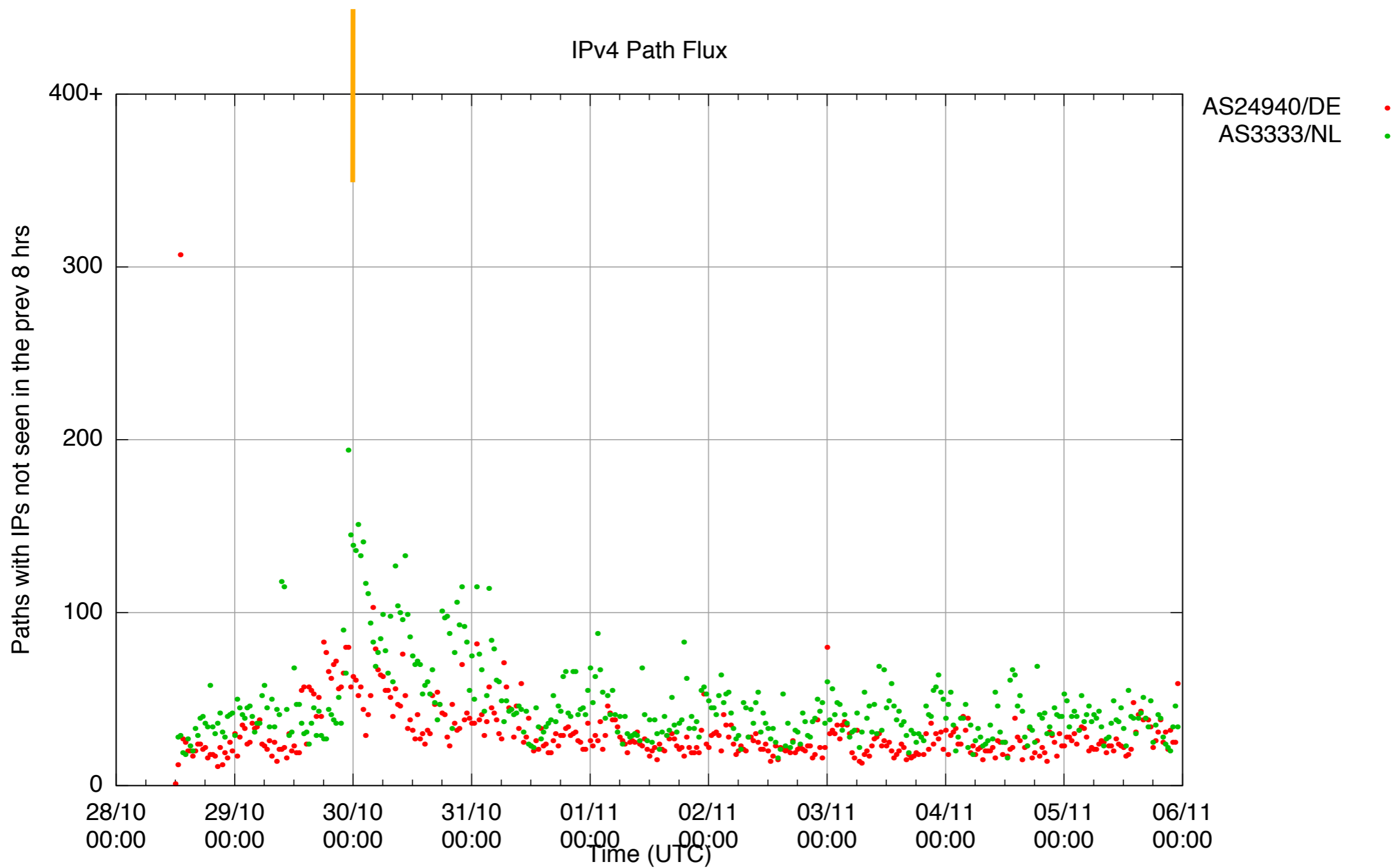
Path Flux towards North American Targets



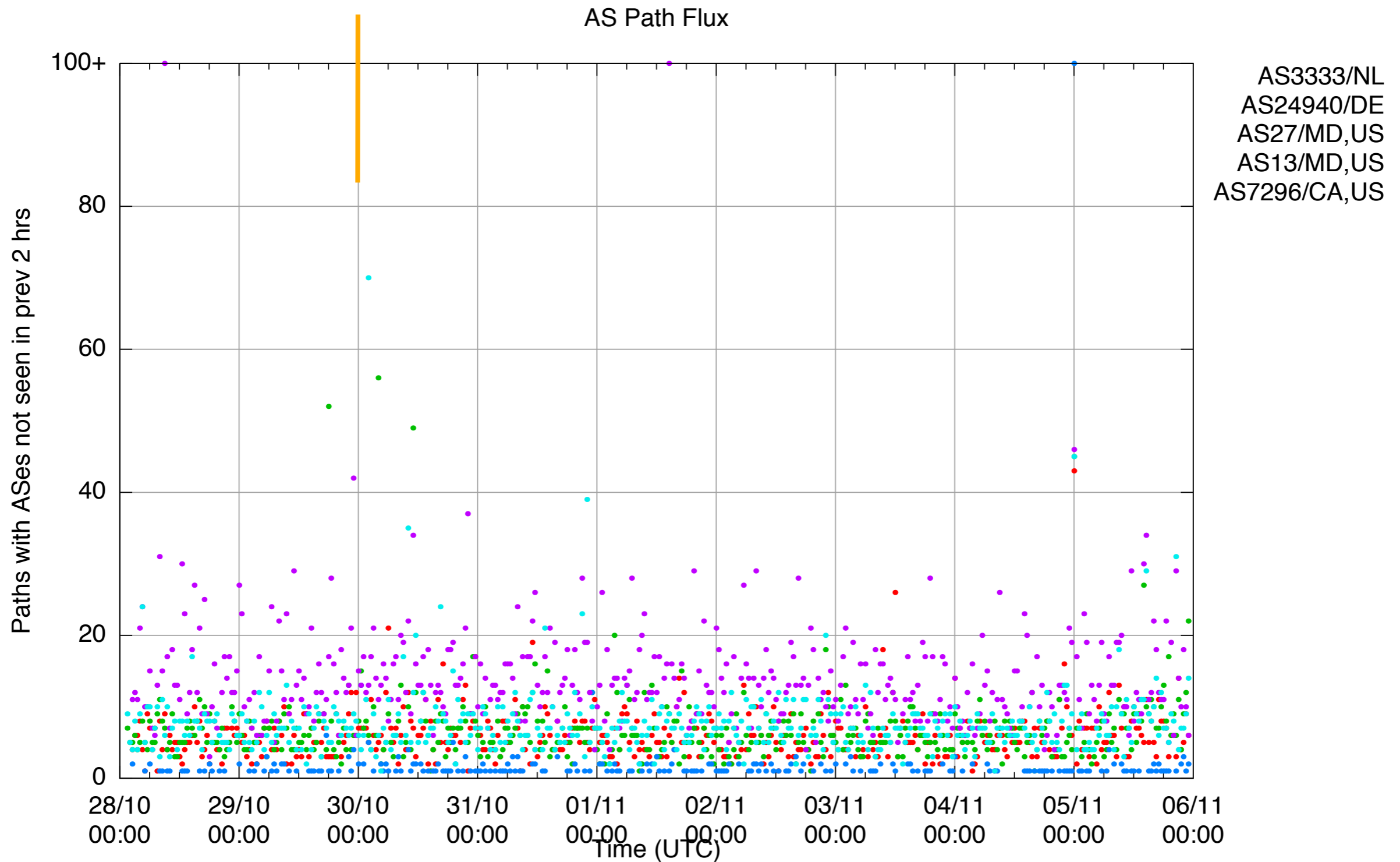
Emile Aben, AIMS5



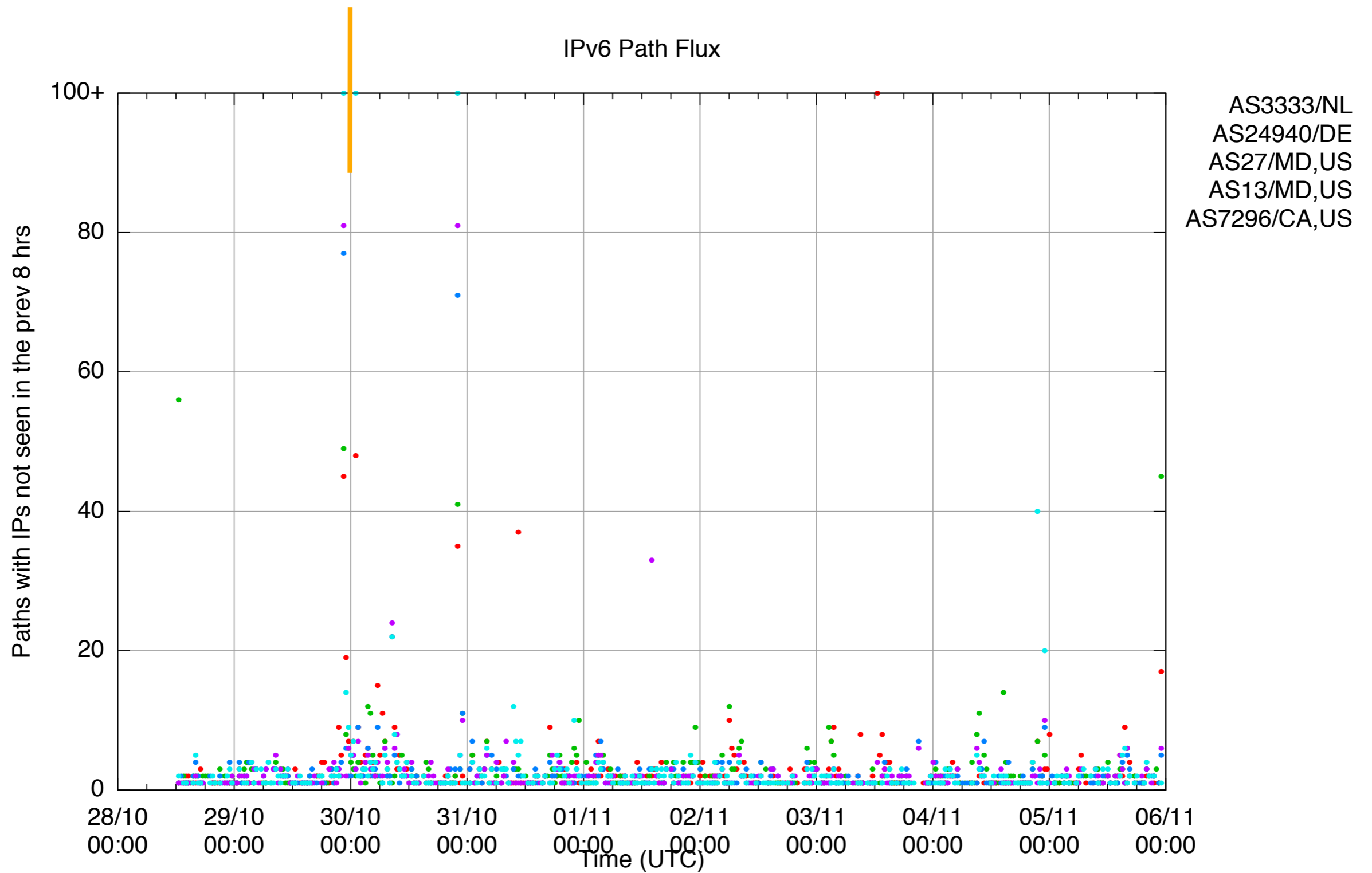
Path Flux towards EU Targets



AS Path Flux (IPv4 paths)



Path Flux (IPv6)



10ff 198.
b0f98:3080.
98.51.100.14.
:cb00:13be20
:19f2:80::1 198
:2209:bc:80r
:db8::109b
:51.

New York-New York

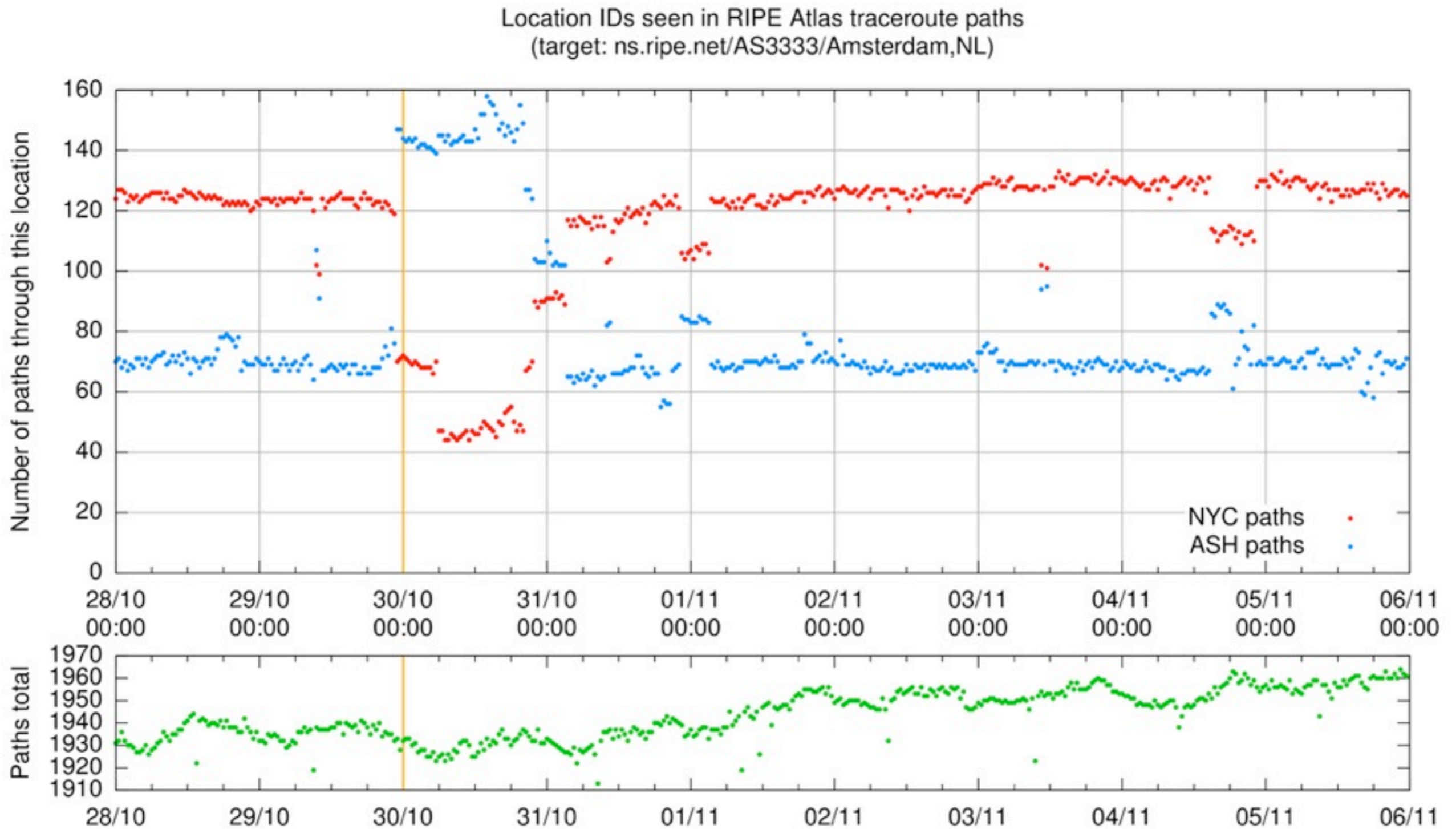


New York - Global Internet Hub

- New York City (NYC) is a major Internet connectivity hub
- Ashburn/Washington DC (ASH) is the other for US-Europe traffic



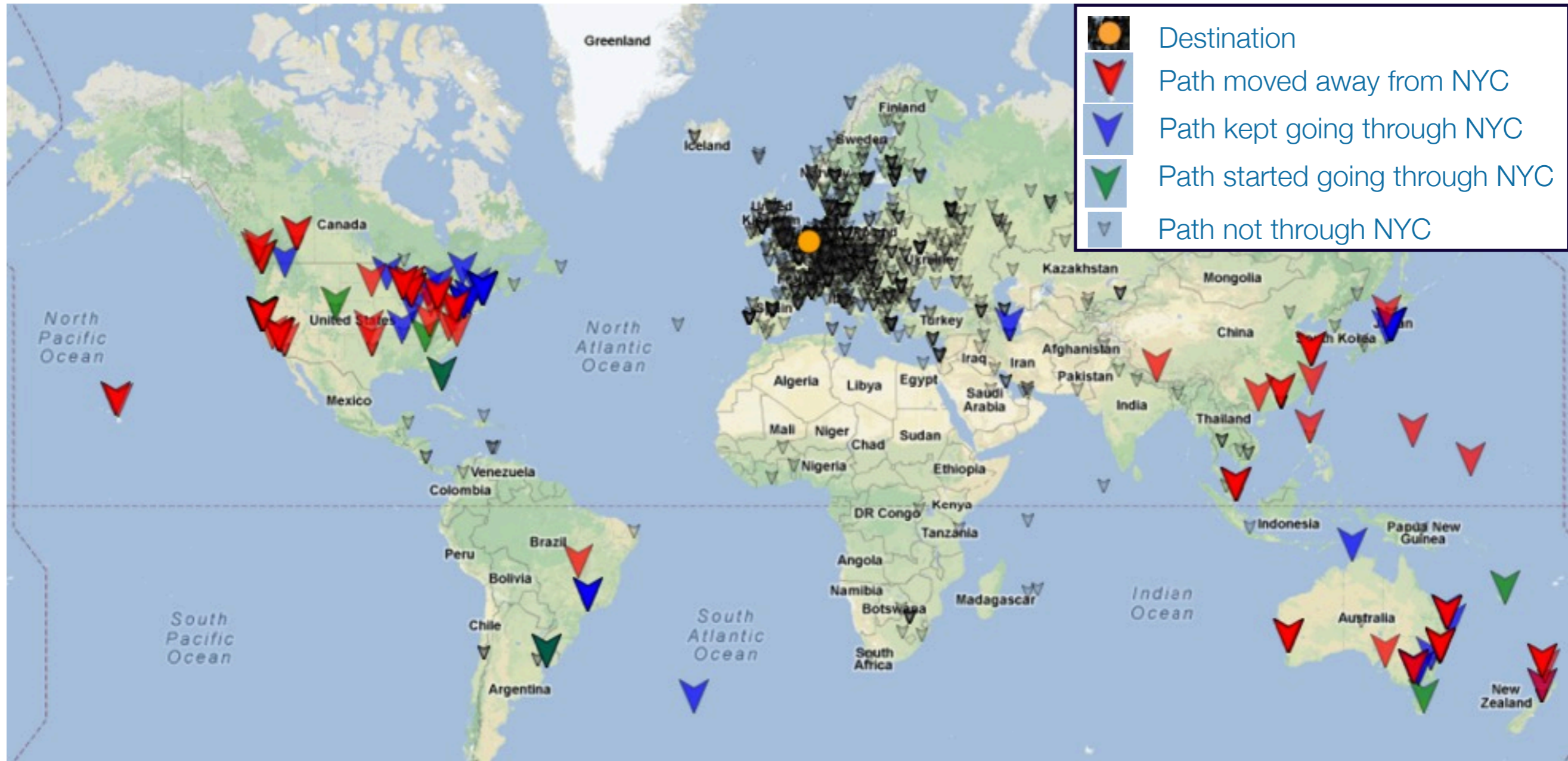
Paths through NYC/ASH to ns.ripe.net



Compare pre/post Sandy Paths

dst: ns.ripe.net / AS3333 / NL

pre: 22:00 UTC vs. post: 09:00 UTC



Compare pre/post Sandy paths

dst: d-root / AS27 / MD,US

pre: 22:00 UTC vs. post: 09:00 UTC

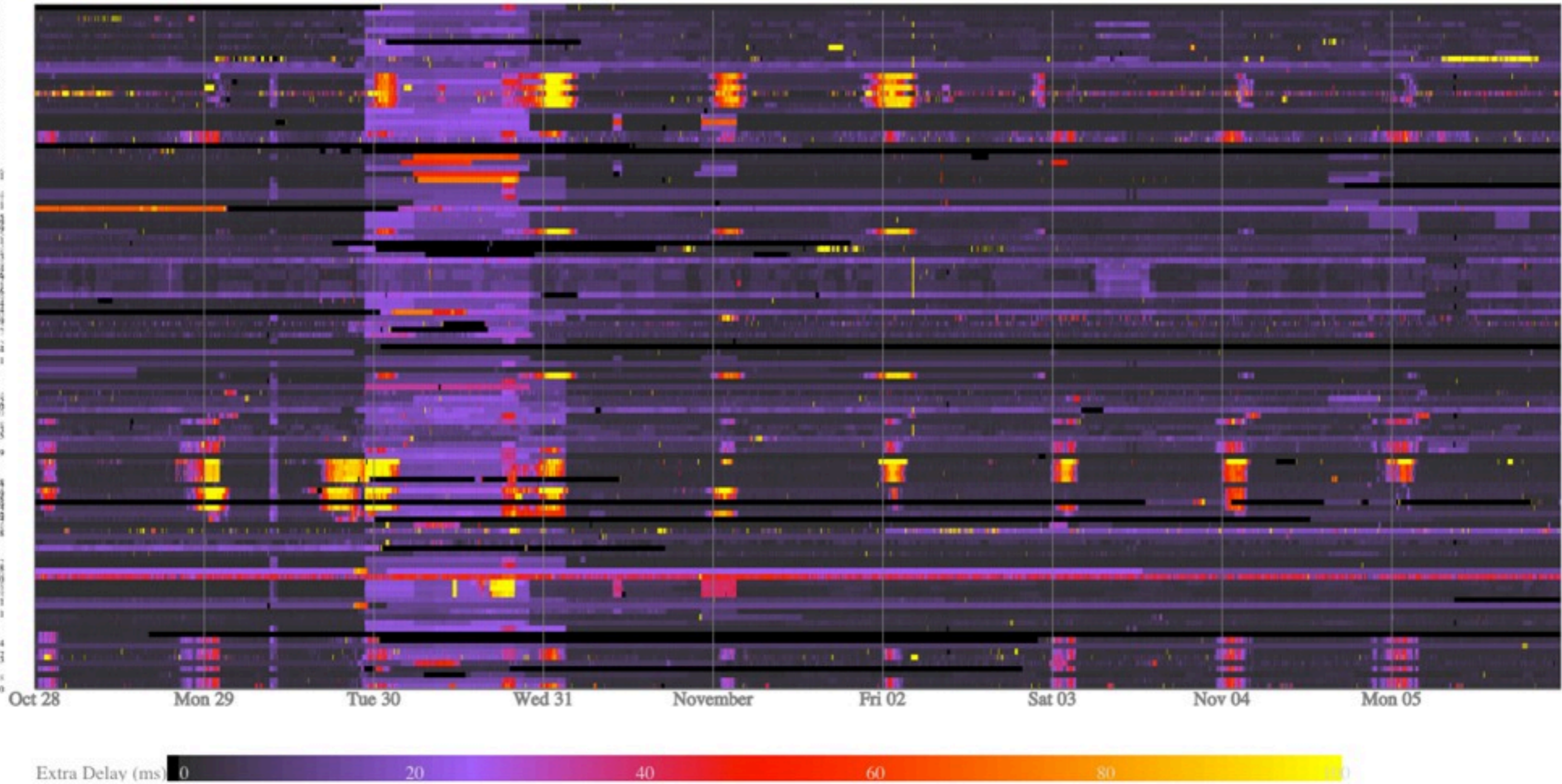


Effect On Latencies



RTT US -> AS3333 (NL)

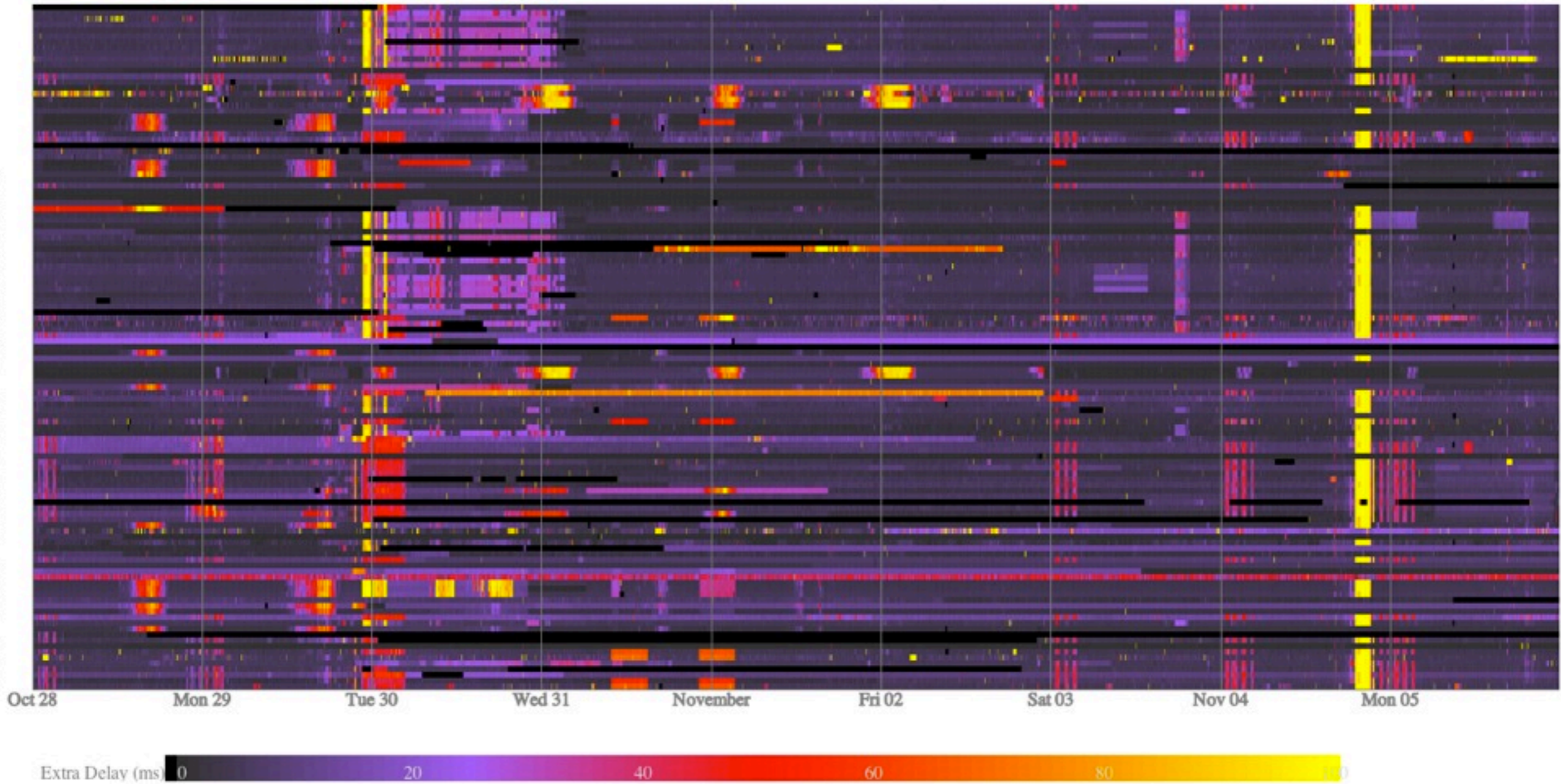
RTT increase (relative to the minimum RTT seen) Source: US Dst: 1003



Extra Delay (ms) 0 20 40 60 80 100

RTT US -> AS24970 (DE)

RTT increase (relative to the minimum RTT seen) Source: US Dst: 1017



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- Viz: Interactive maps / plots
 - What I want to get out of this:
 - ideas on what the best targets would be for individual RIPE Atlas probes (given limited probing budget)
 - compare notes to others who have Sandy data
 - Data: Same as other RIPE Atlas Data

Questions?



<https://labs.ripe.net/sandy-2012>

