

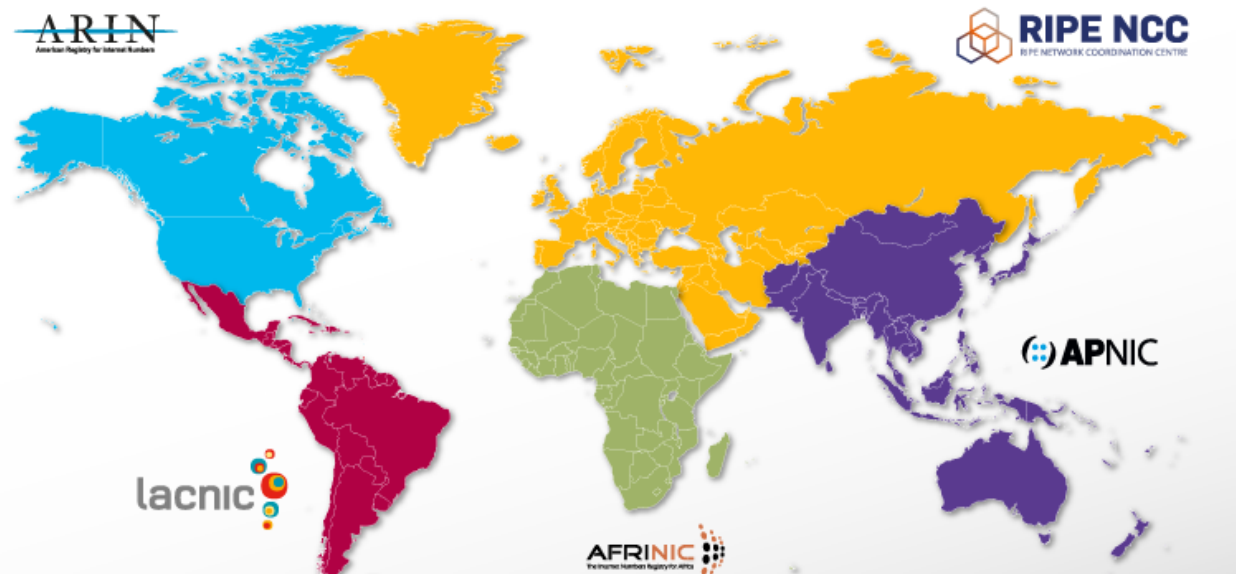


RIPE Atlas

Large Scale Internet
Measurement Infrastructure

Five Regional Internet Registries worldwide:

- Distribute Internet number resources (IP addresses, ASN)
- Not-for-profit organisations, funded by membership fees
- Policies decided by regional communities
- Neutral, impartial, open, transparent



Measuring Internet infrastructure

- For the community
- By the community
- Since 2010

Instead of small, private infrastructures,
build a HUGE common infrastructure
that serves private and public community goals

<https://atlas.ripe.net/>

Need many vantage points for accurate mapping

- Small devices called probes
- Easily deployable (USB power)
- 24 x 365 capable

Hosted or sponsored by:

- ISPs, IXPs, individuals, ...
- Free of charge for volunteers who host individual probes
- Anyone can apply: <https://atlas.ripe.net/apply>



- More powerful than regular probes
- Deployed in data centres for stability
- Both measurement devices and targets
- IPv4 and IPv6 mandatory



Various measurement types available:

- Ping: latency
- Traceroute: IP path and latency of components
- DNS, SSL, NTP, HTTP: protocol-specific measurements

Layer 3: IP (v4 and v6) and up

Built-in measurements

- Ping, traceroute, DNS to root servers from all devices
- Mesh ping and traceroute between anchors
- Ping and traceroute from regular probes to anchors
- DNSMON

All data available to everyone

- Raw data via APIs
- Visualisations: <https://atlas.ripe.net/results/maps/>

Tools: <https://atlas.ripe.net/measurements-and-tools/tools/>

read on friends

- # read on friends

read on friends

Deployed base size matters

9,356 devices connected

188 anchors

3.8k measurement results/second collected

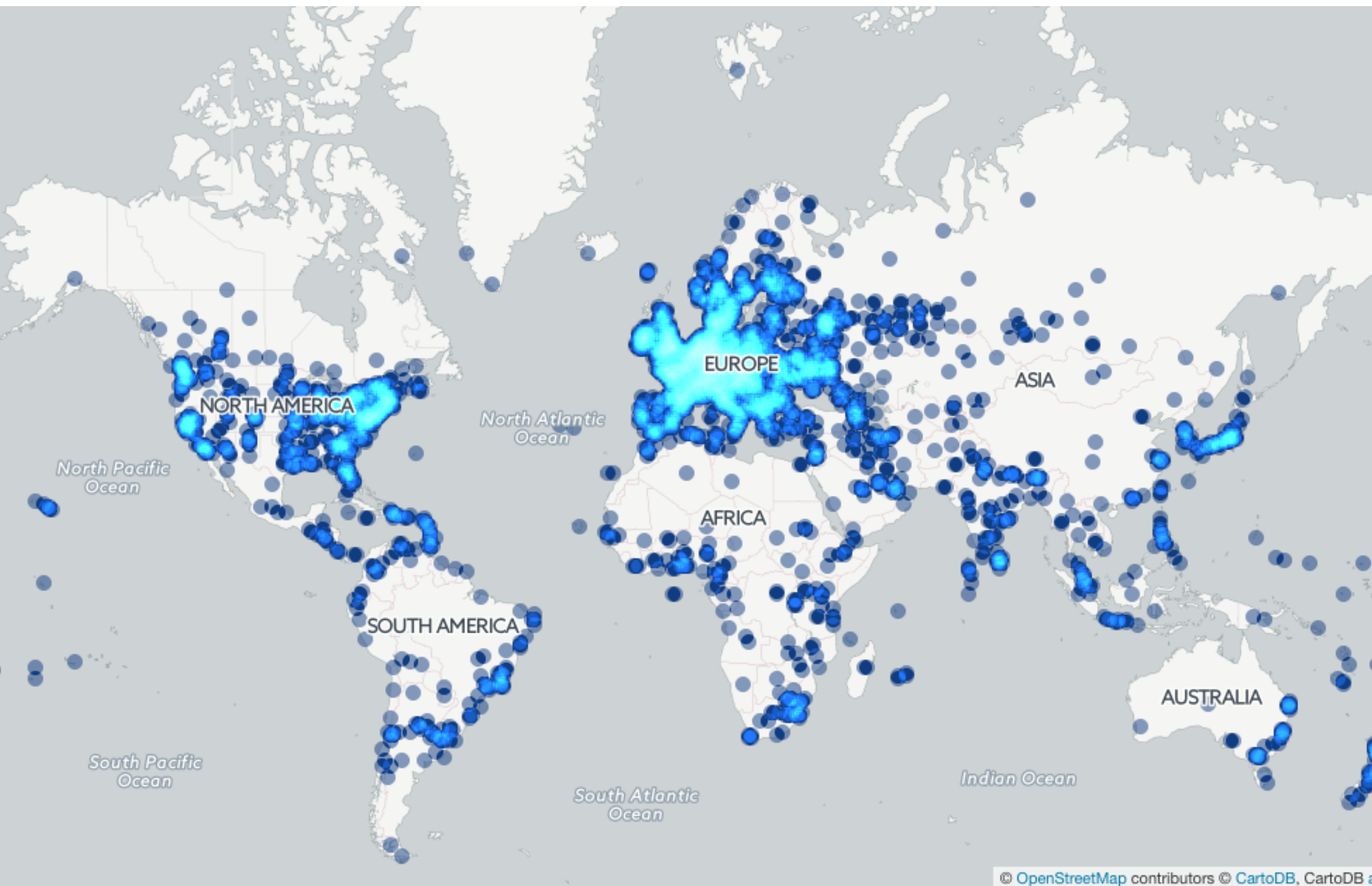
IPv4 networks covered: 3,380 (6%)

IPv6 networks covered: 1,228 (11%)

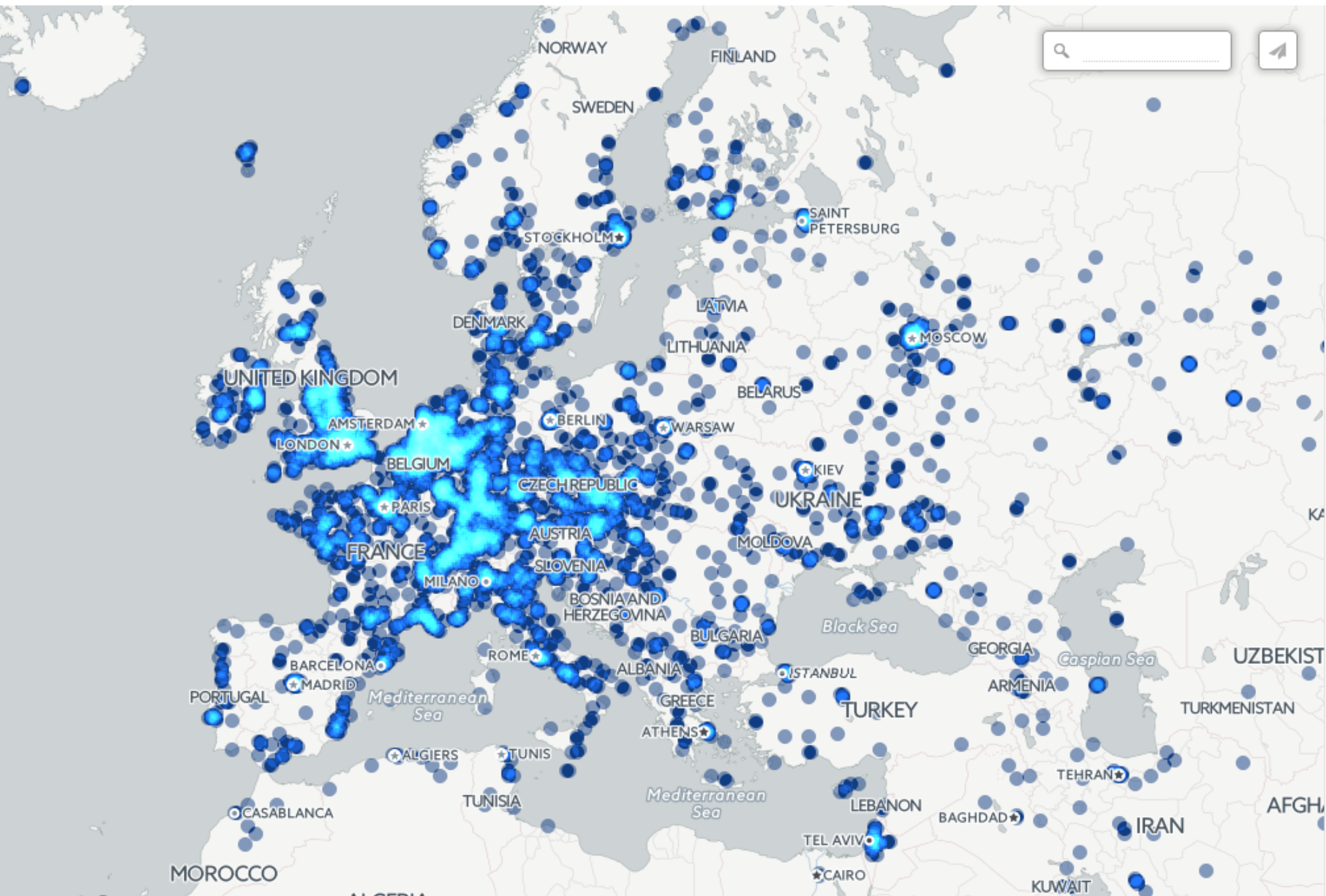
Countries covered: 181 (92%)

<https://atlas.ripe.net/results/maps/network-coverage/>

Atlas Network Extension

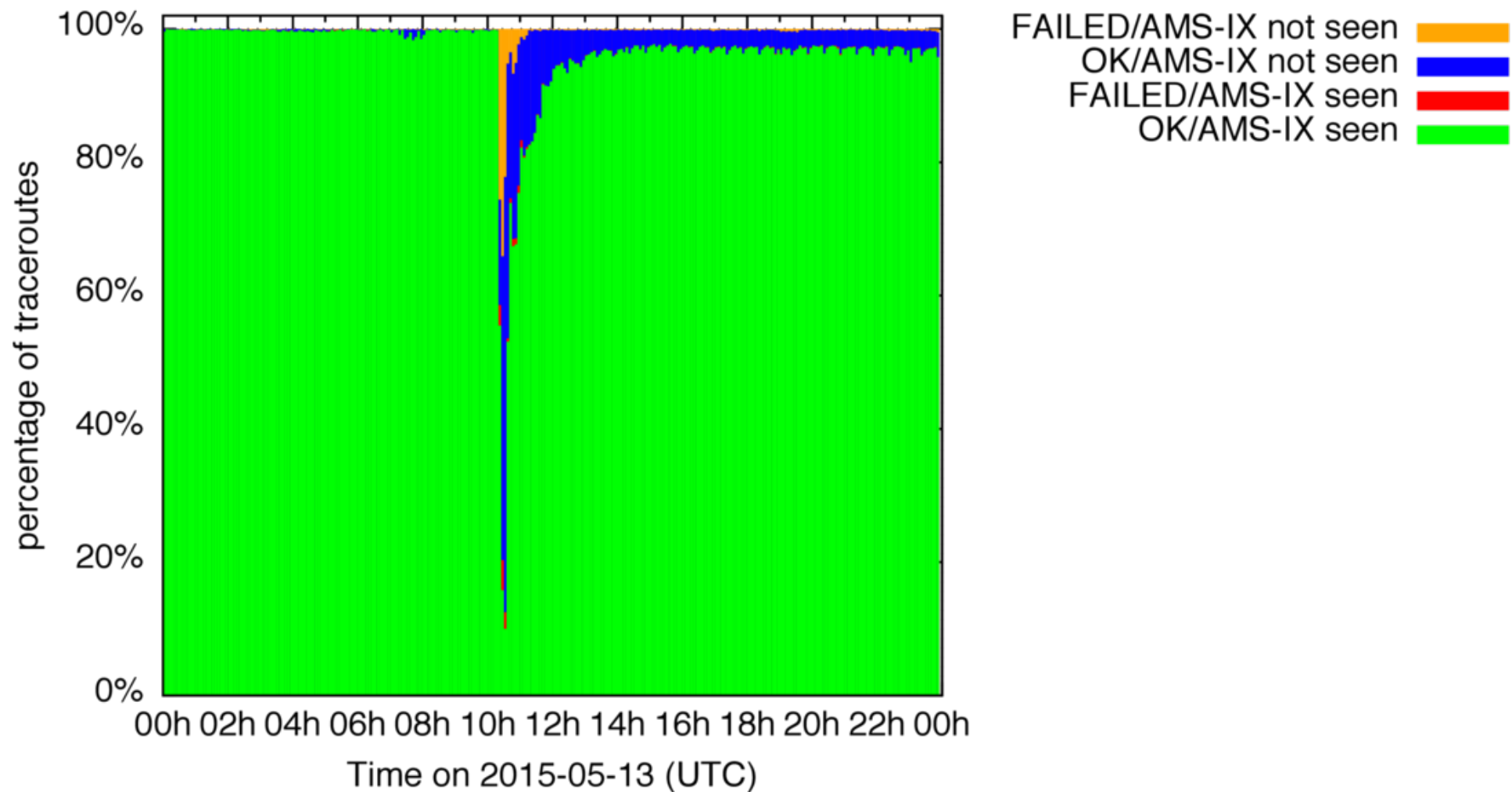


Attack Extent (Zoom)



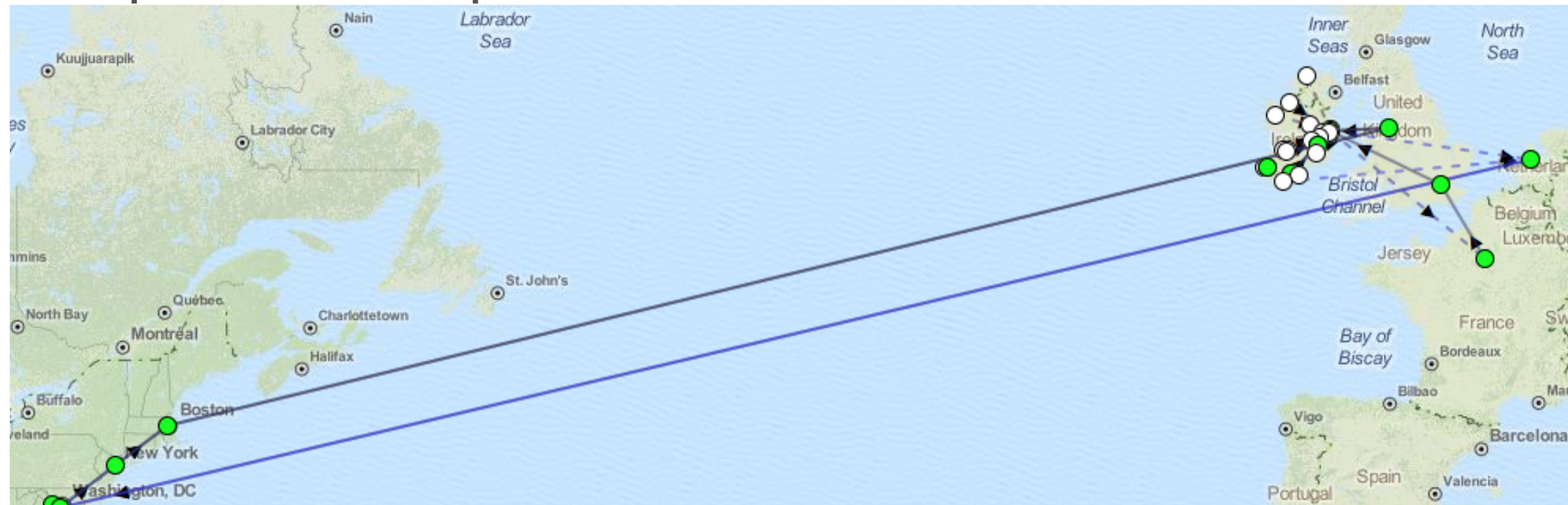
Internet outages

Connectivity between reliable source-destination pairs
as seen in RIPE Atlas traceroutes



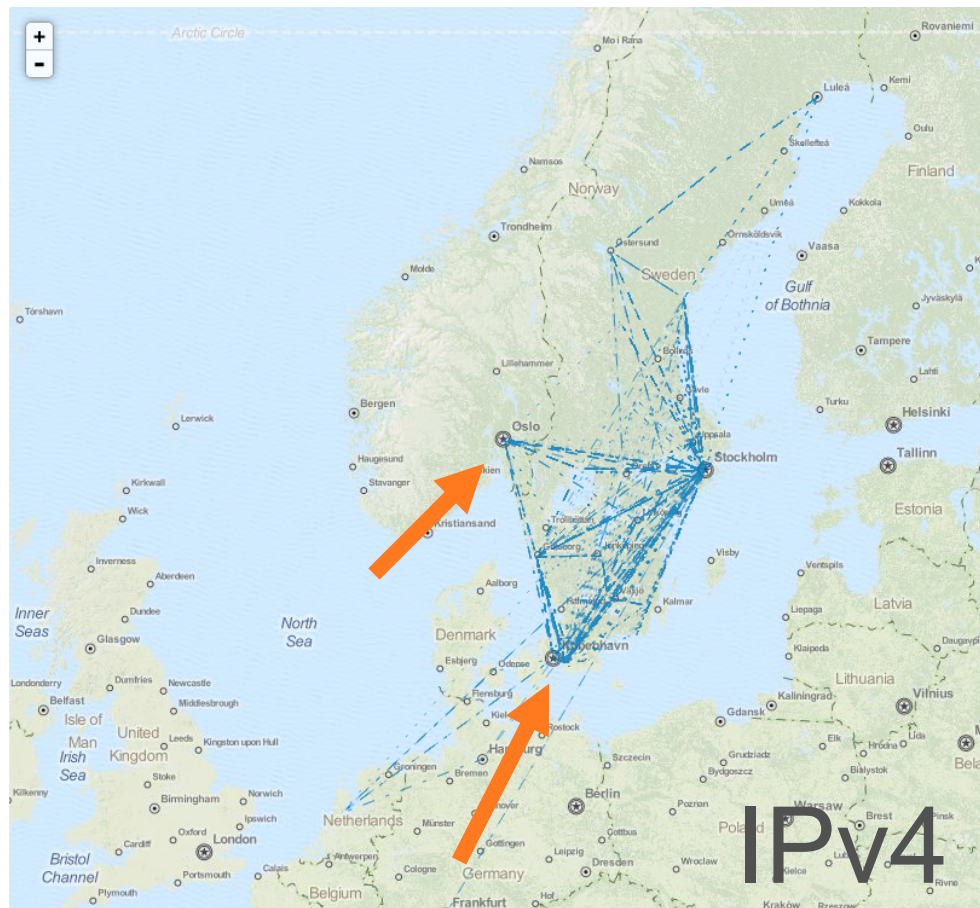
OpenIPMap (Prototype)

- A crowd-sourced database with location information for infrastructure IP addresses
- Other available information has data quality issues
- “OpenStreetMap for infrastructure IP addresses”



Example: Connectivity between RIPE Atlas probes in Sweden

Many SE paths via NO and DK



Community:

- <https://atlas.ripe.net/atlas/community> (users, sponsors ...)
- Twitter: #RIPEAtlas & @RIPE_Atlas
- Active users mailing list: ripe-atlas@ripe.net
- Helpdesk / questions: atlas@ripe.net

<https://labs.ripe.net/atlas/user-experiences>

<https://atlas.ripe.net/resources/training-and-materials/>

What kind of cooperation can you envision with RIPE Atlas?

Compare where measurement infrastructure co-deployed?

Follow-up: meetings, workshops, mailing list discussions

Constraints:

- RIPE Atlas doesn't do bandwidth measurements
- RIPE NCC prioritises benefits to its members/community

Questions



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