



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

RIPE Atlas

RIPE Atlas



From Wikipedia, the free encyclopedia

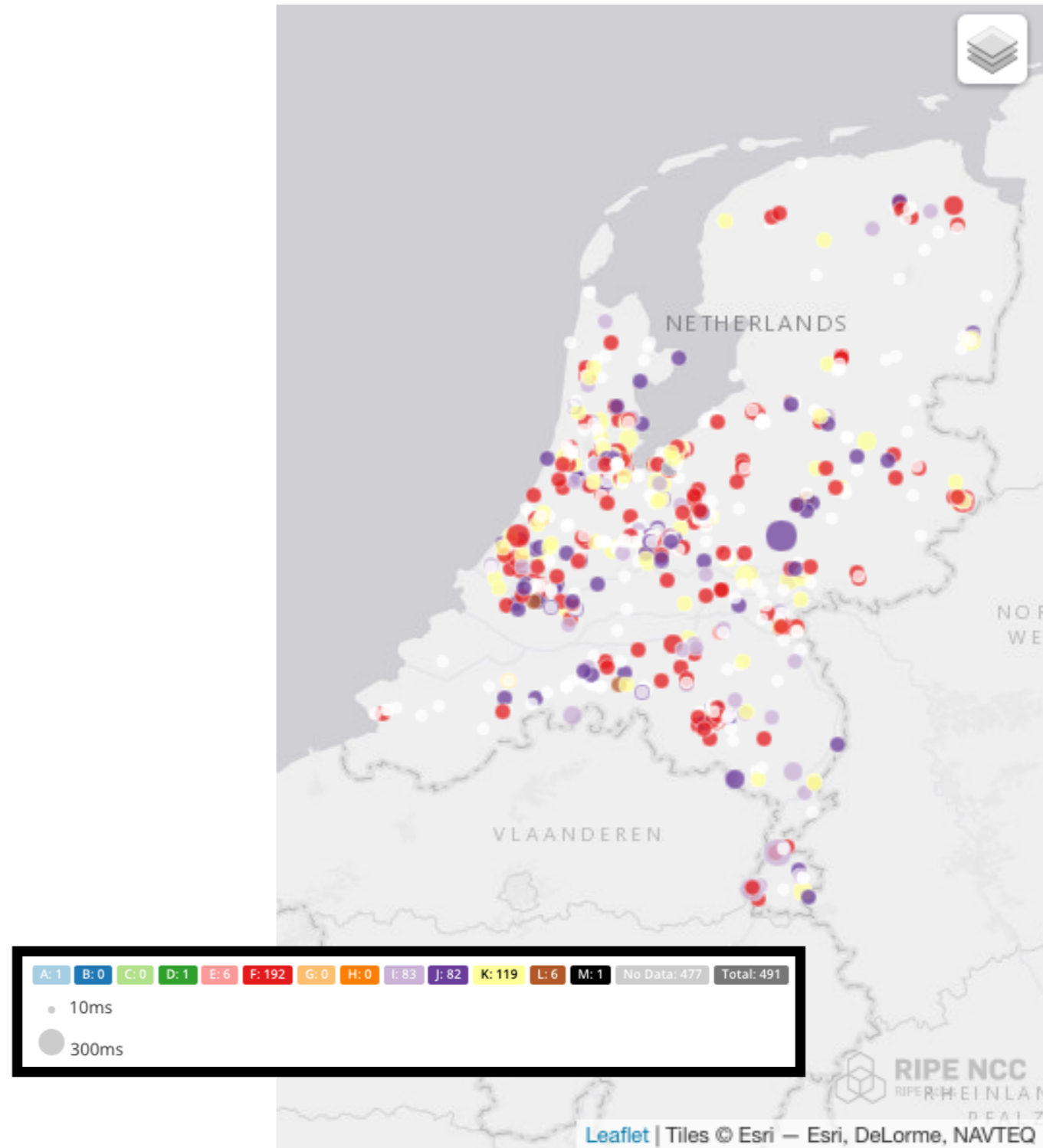
RIPE Atlas [↗](#) is a global, open, distributed Internet measurement platform, consisting of thousands of measurement devices that measure Internet connectivity in real time.



RIPE Atlas Coverage in NL



Country	Probes
Germany	1187
United States of America	1041
France	745
United Kingdom	598
Netherlands	506
Russia	502
Switzerland	278
Czech Republic	253
Italy	234
Ukraine	198

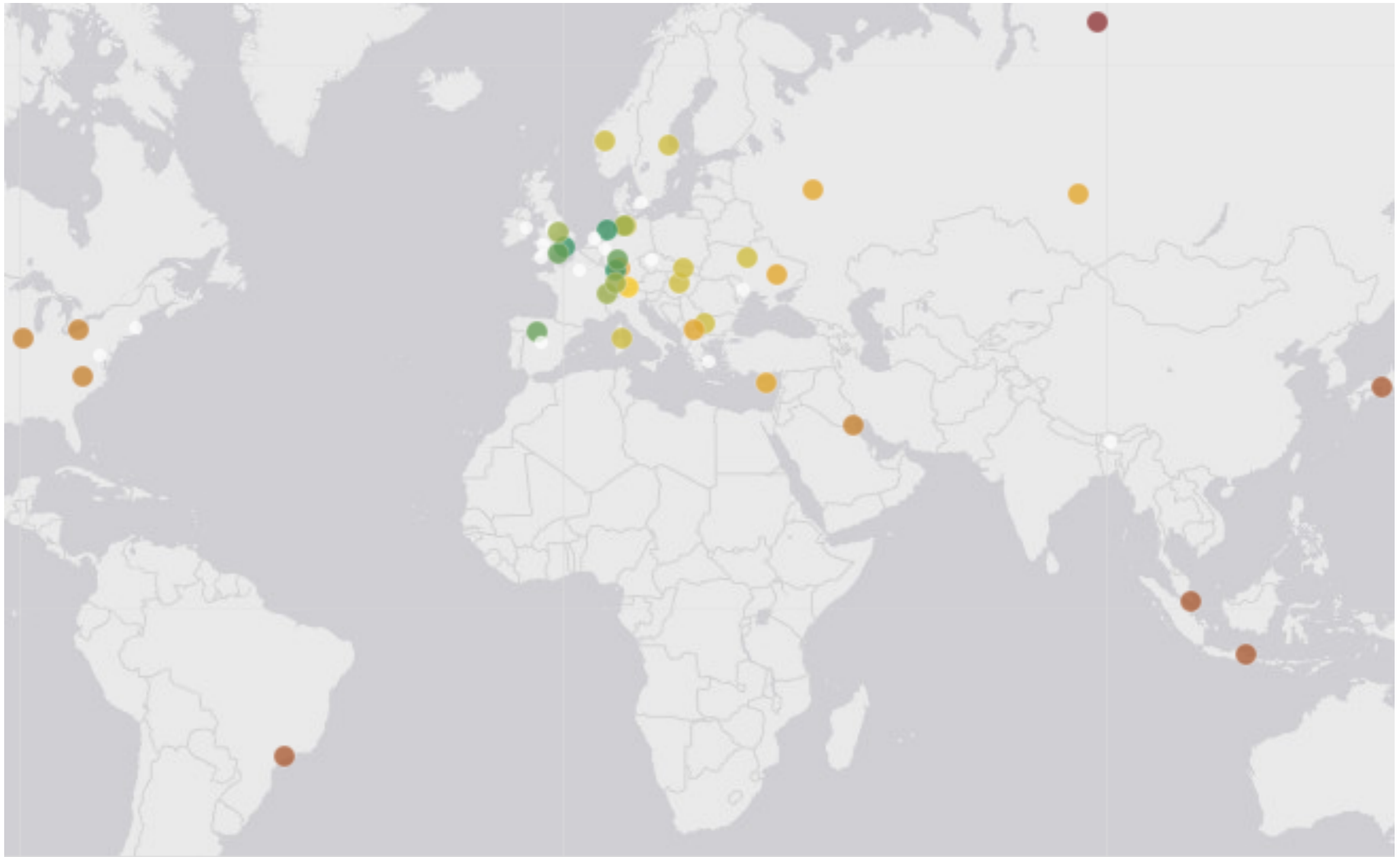


Most Popular Features



- Six types of measurements: ping, traceroute, DNS, SSL/TLS, NTP and HTTP (to anchors)
- APIs to start measurements and get results
- Powerful and informative visualisations
- CLI tools
- Streaming data for real-time results
- New: “Time Travel”, LatencyMON, DomainMON
- Roadmap shows what’s completed and coming

Global Reachability Check: Traceroute



< 10 ms: 3 < 20 ms: 3 < 30 ms: 4 < 40 ms: 8 < 50 ms: 1 < 100 ms: 6 < 200 ms: 5 < 300 ms: 4 > 300 ms: 1

Traceroute View: List



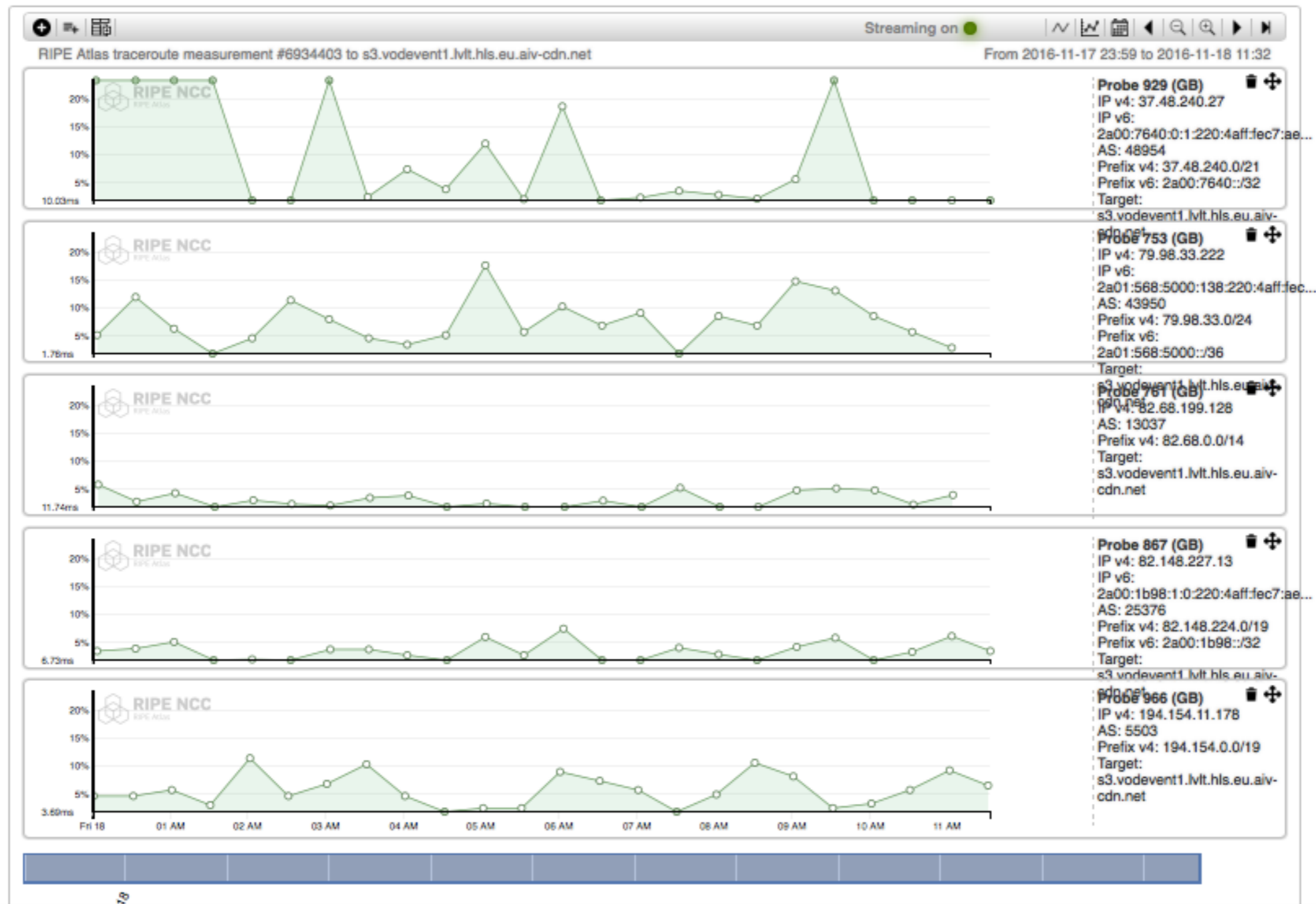
General Information		Probes	Map	LatencyMON	OpenIPMap Prototype	Results	Modification
Probe	ASN (IPv4)	ASN (IPv6)		Time (UTC)	RTT		Hops
2713	60706	60706		2016-11-18 10:52	33.192		14
2941	25394			2016-11-18 10:51	50.783		20
3055	6412			2016-11-18 10:53	150.683		15
3222	6829			2016-11-18 10:49	36.686		24
4166	50581			2016-11-18 10:52	39.533		16
4554	6703			2016-11-18 10:51	82.704		19
4952	3244			2016-11-18 10:51	35.700		19
6078	202040	202040		2016-11-18 10:47	9.279		14
6091	5459	5459		2016-11-18 10:50	9.719		14
6112	197216	197216		2016-11-18 10:52	33.767		11
6139	18106	18106		2016-11-18 10:47	216.946		19
10166	5379			2016-11-18 10:49	60.850		19
10282	49009	49009		2016-11-18 10:47	32.699		11
10312	11426			2016-11-18 10:49	116.443		29

Traceroute View: LatencyMon



⚡ Traceroute measurement to s3.vodevent1.lvt.hls.eu.aiv-cdn.net

General Information Probes Map LatencyMON OpenIPMap Prototype Results Modification Log



Traceroute for Checking Reachability

- To start traceroute: GUI, API & CLI
- Results available as
 - visualised on the map, as a list of details, LatencyMon
 - download via API
 - Real-time data streaming
- Many visualisations available
 - List of probes: sortable by RTT
 - Map: colour-coded by RTT
 - LatencyMON: compare multiple latency trends

ripe-atlas measure traceroute --probes 2 --target google.ca



Looking good! Your measurement was created and details about it can be found here:

<https://atlas.ripe.net/measurements/3499936/>

Connecting to stream...

Probe #3837

1	192.168.8.254	2.748 ms	1.931 ms	1.982 ms
2	77.51.191.254	3.286 ms	3.051 ms	3.076 ms
3	172.27.8.174	4.421 ms	4.775 ms	4.694 ms
4	77.37.254.129	5.48 ms	5.363 ms	6.52 ms
5	72.14.209.81	4.37 ms	4.232 ms	4.183 ms
6	209.85.240.209	47.099 ms	46.705 ms	41.563 ms
7	209.85.240.102	23.207 ms	23.001 ms	22.993 ms
8	209.85.249.59	40.565 ms	40.454 ms	40.004 ms
9	209.85.254.198	62.337 ms	45.201 ms	44.595 ms
10	216.239.49.28	44.999 ms	44.887 ms	44.907 ms
11	*	*	*	*
12	173.194.65.94	77.313 ms	82.476 ms	83.303 ms

Probe #16731

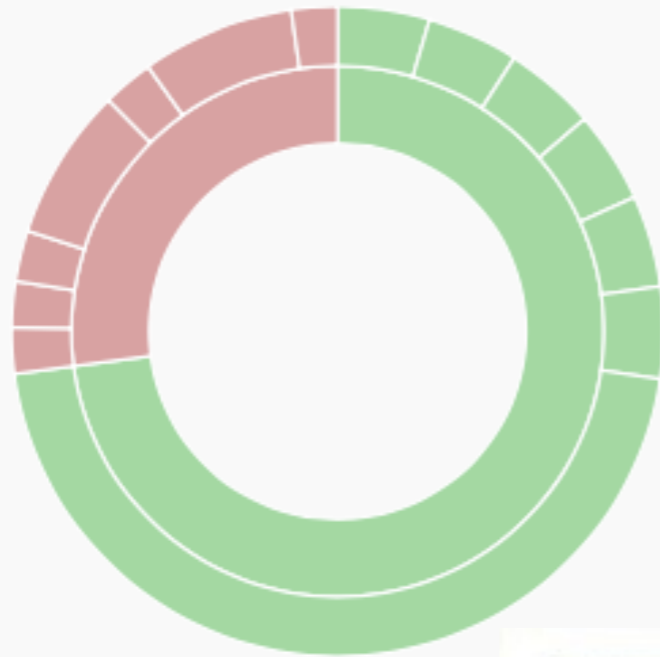
1	192.168.80.254	0.582 ms	0.483 ms	0.413 ms
2	188.134.205.225	0.79 ms	0.683 ms	0.684 ms
3	84.16.101.226	1.13 ms	1.169 ms	1.114 ms
4	86.61.255.241	5.503 ms	5.711 ms	5.629 ms
5	91.210.16.211	5.753 ms	5.307 ms	5.579 ms
6	216.239.56.169	13.419 ms	13.358 ms	13.243 ms
7	216.239.57.100	15.266 ms	15.266 ms	15.266 ms

Who Wants to be a Millionaire?



Credits

76507 317.2 million



“Paying” for your measurements



- Running your own measurements cost credits
 - Ping = 10 credits, traceroute = 20, etc.
- Why? Fairness and to avoid overload
- Limited by daily spending limit and measurement results limits
- Hosting a RIPE Atlas probe earns credits
- Earn extra credits by being RIPE NCC members, hosting an anchor or sponsoring

Data, Data, Data



- Don't spend credits - Use Existing Data!
 - For instance: DNS,ping,traceroute to DNS root-servers

The screenshot shows the RIPE Atlas website interface for viewing measurements. The browser address bar shows <https://atlas.ripe.net/measurements/>. The breadcrumb trail is: Home > Analyse > Internet Measurements > RIPE Atlas > Measurements. The page title is "Measurements". There is a search bar with the placeholder "Filter by target and/or description" and several filter dropdowns: "Any Status", "IPv4/v6", "All types", and "Of all time". Below the filters are two tabs: "Public" and "Built-ins". The main content is a table of measurements.

Id	Type	Target	Description	Probes	Time (UTC)	Status
6152	C ⚡ ⁶	topology6.dyndns.atlas.ripe...		(all)	2016-05-09 00:00 2020-01-01 00:00	▶
5151	C ⚡ ⁴	topology4.dyndns.atlas.ripe...		(all)	2016-05-09 00:00 2020-01-01 00:00	▶
6052	C ⚡ ⁶	topology6.dyndns.atlas.ripe...		(all)	2016-05-09 00:00 2020-01-01 00:00	▶
5051	C ⚡ ⁴	topology4.dyndns.atlas.ripe...		(all)	2016-05-09 00:00 2020-01-01 00:00	▶
5027	C ⚡ ⁴	ctr-sin02.atlas.ripe.net		(all)	2016-04-13 00:00 2020-01-01 00:00	▶
5028	C ⚡ ⁴	ctr-fnc01.atlas.ripe.net		(all)	2016-04-13 00:00 2020-01-01 00:00	▶
5029	C ⚡ ⁴	ctr-ewr01.atlas.ripe.net		(all)	2016-04-13 00:00 2020-01-01 00:00	▶



Example Analyses

Using RIPE Atlas



- Publish your research or use case
- Reach out to RIPE Community
- Read about latest analysis or conferences
- labs.ripe.net
 - <https://labs.ripe.net/atlas/user-experiences/scientific-papers>

Research Collaborations







- Goal: Make research more useful to Internet operations
- How?
 - Actively collaborate with external researchers
 - Internships
 - Draw researchers attention to operational needs we hear from RIPE community
 - Make operations aware of useful research
 - Focus on code and tools
 - Your idea here!

IXP-Country-Jedi (NL)



- Row: Probe in NL
- Column: Probe in NL
- Cell: Traceroute path

 IXP IPs: YES, out-of-country IPs: NO
 IXP IPs: NO, out-of-country IPs: NO
 IXP IPs: YES, out-of-country IPs: YES
 IXP IPs: NO, out-of-country IPs: YES



IXP-Country-Jedi (NL)



- Geographically (using OpenIPMap)



- Fixed (after contacting network operators)

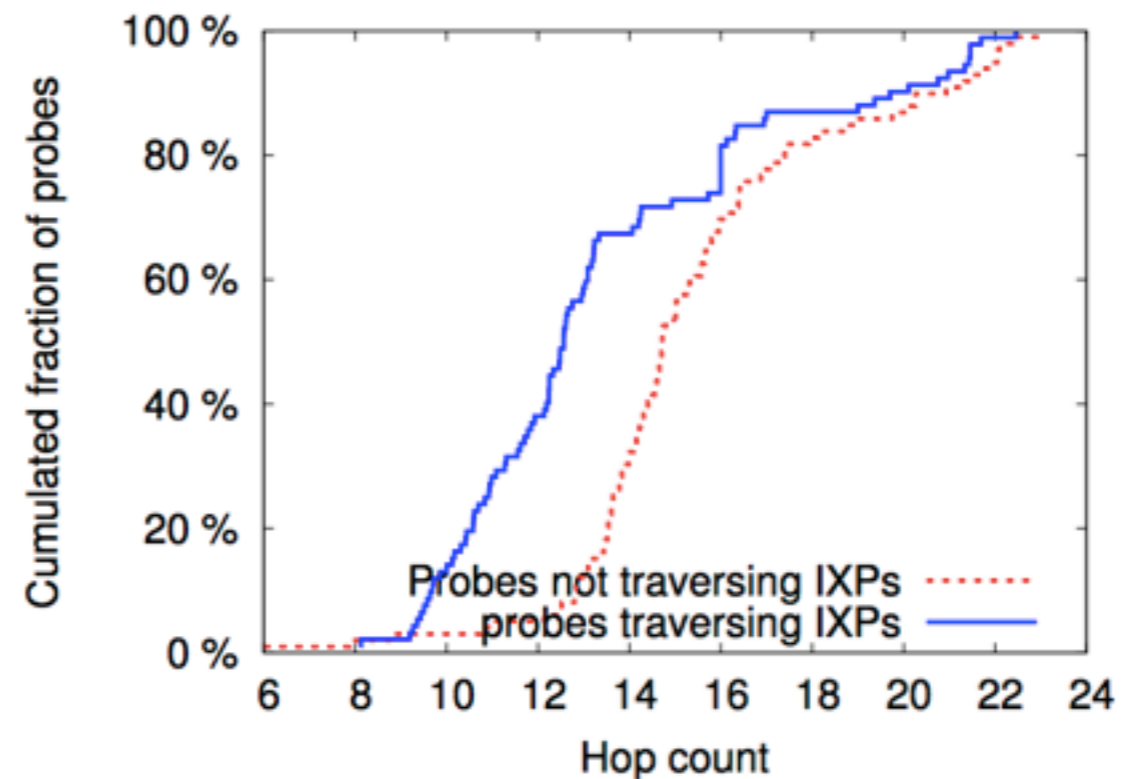
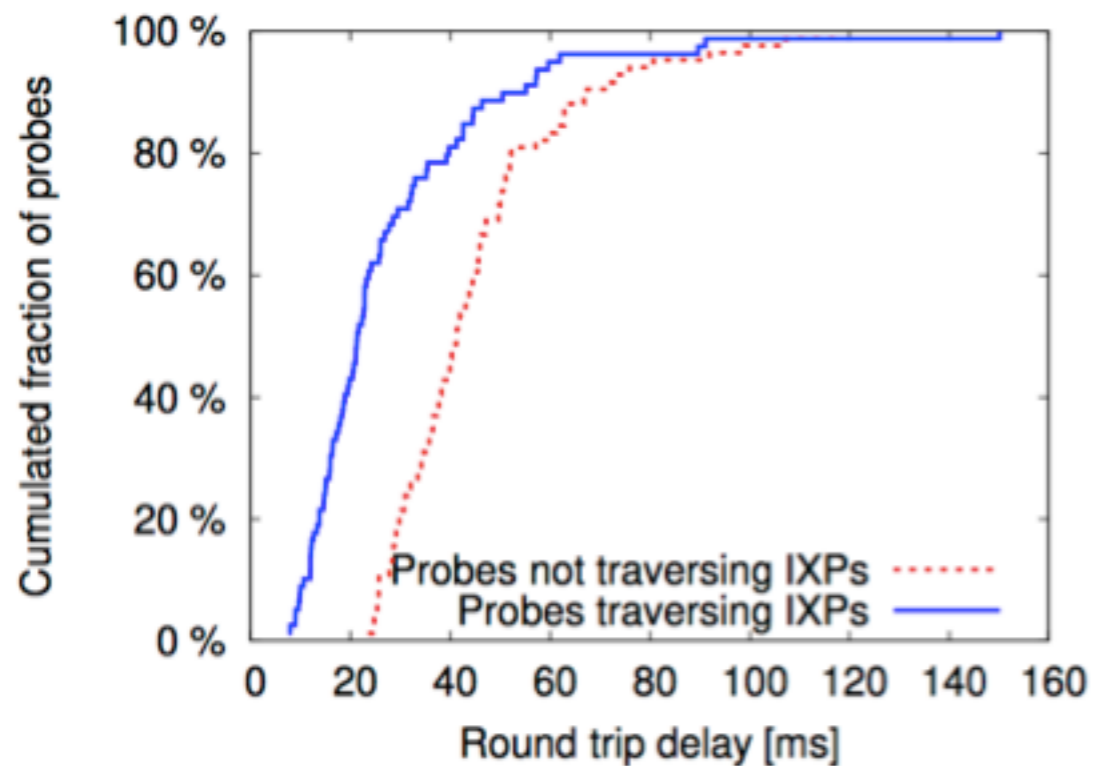


<https://labs.ripe.net/Members/emileaben/measuring-ixps-with-ripe-atlas>

Is It Worth Peering At An IXP?



- Work by Roma Tre University
 - Looking at Peering in Italy



https://labs.ripe.net/Members/roberto_di_lallo/is-it-really-worth-peering-at-ixps

Internet Disruptions

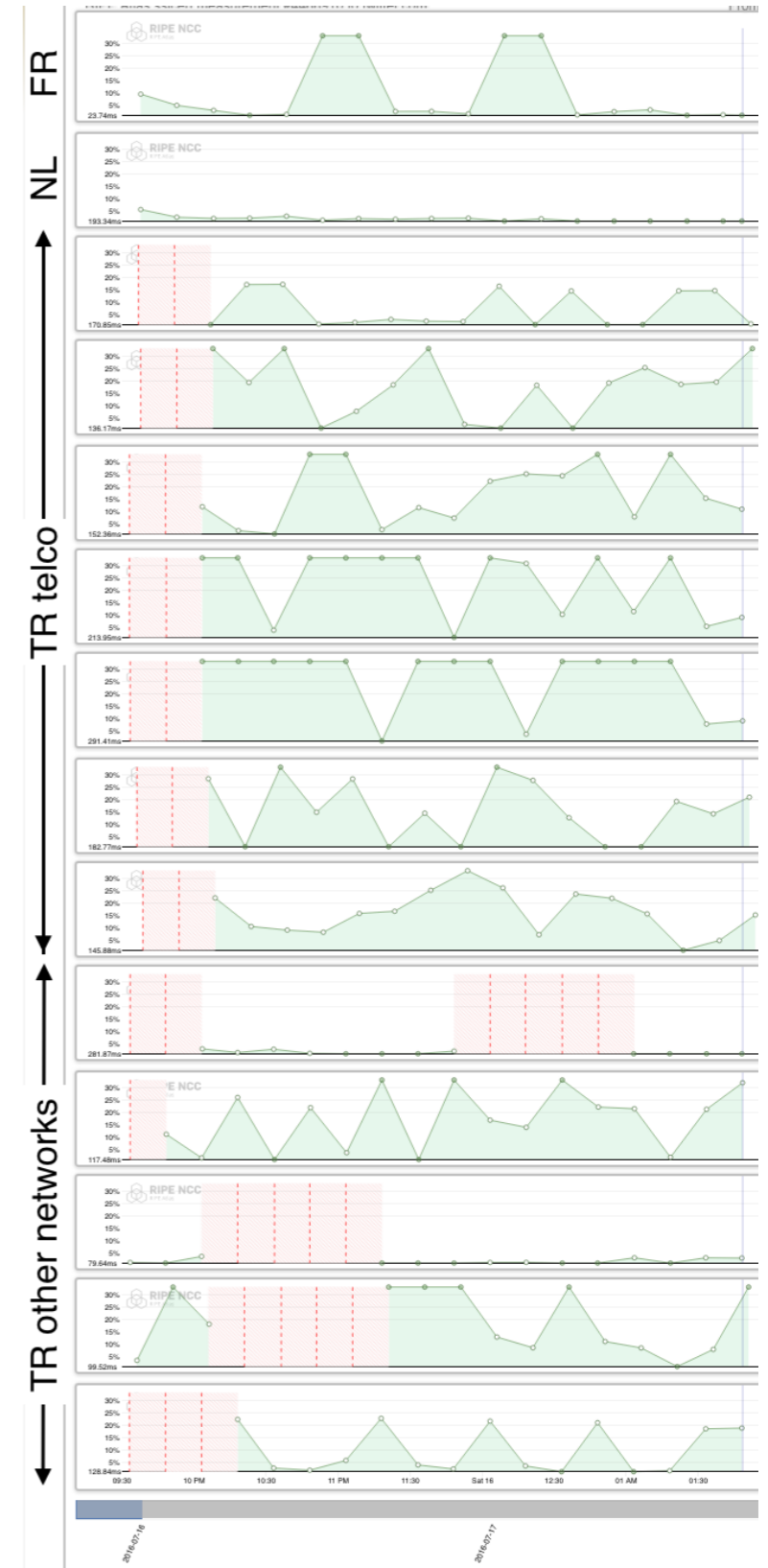


- Turkey

- <https://labs.ripe.net/Members/emileaben/internet-access-disruption-in-turkey>

- Dyn DDoS

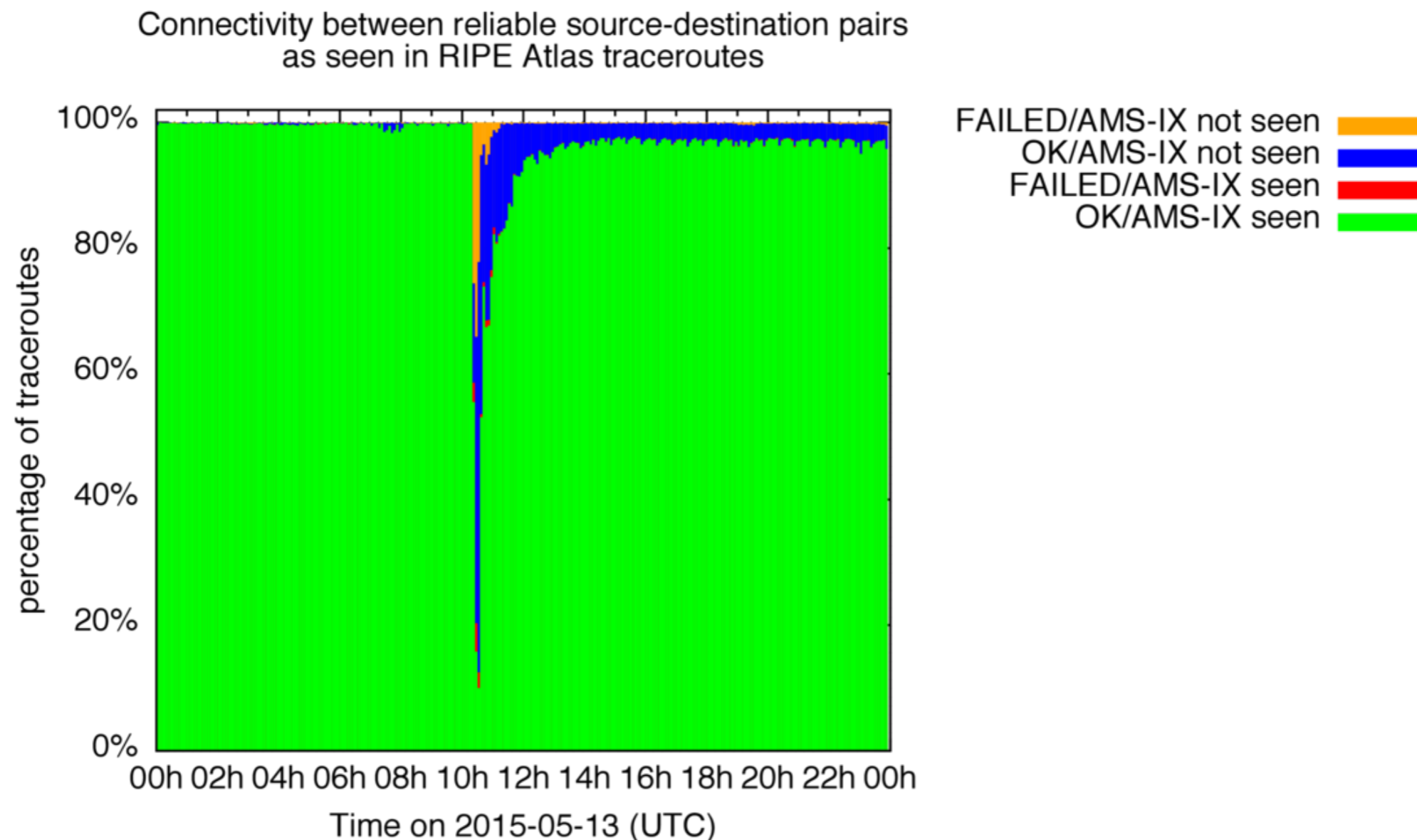
- https://labs.ripe.net/Members/massimo_candela/a-quick-look-at-the-attack-on-dyn



Does The Internet Route Around Damage?



- <https://labs.ripe.net/Members/emileaben/does-the-internet-route-around-damage>

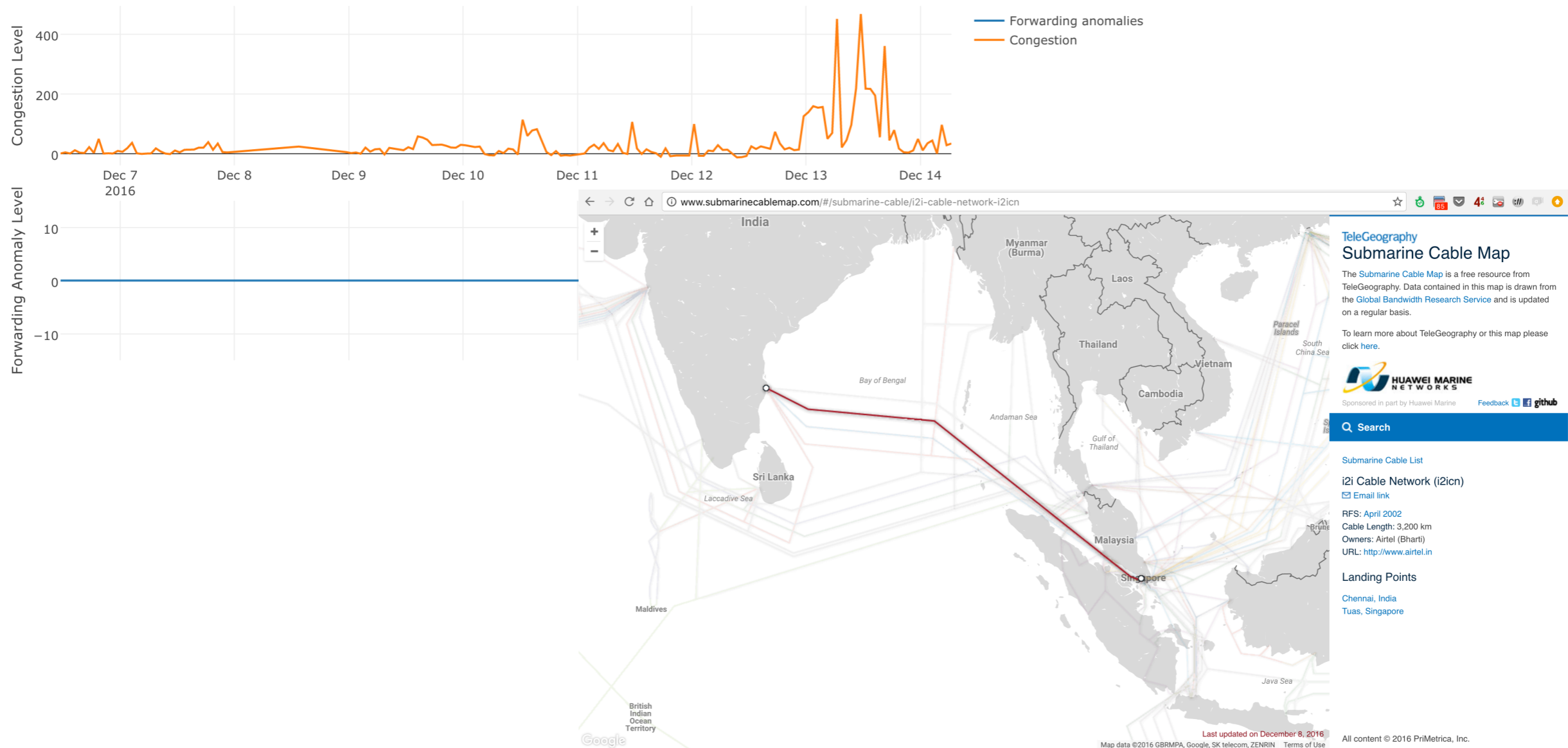


Traceroute Anomaly Detection



- https://labs.ripe.net/Members/romain_fontugne/pinpointing-delay-and-forwarding-anomalies-in-ripe-atlas-built-in-measurements
- <http://arxiv.org/abs/1605.04784>

AS9498 BHARTI Airtel Ltd.





Extra Material



RACI

RIPE Academic Cooperation Initiative

- Students and researchers:
 - Present your Internet-related research at RIPE Meetings
 - Complimentary tickets, travel and accommodation
 - Topics: network measurement and analysis, security, IPv6 deployment, BGP routing, Internet governance, peering and interconnectivity
- ripe.net/raci

Take Part in Hackathons



AUTOMATE ALL THE THINGS

