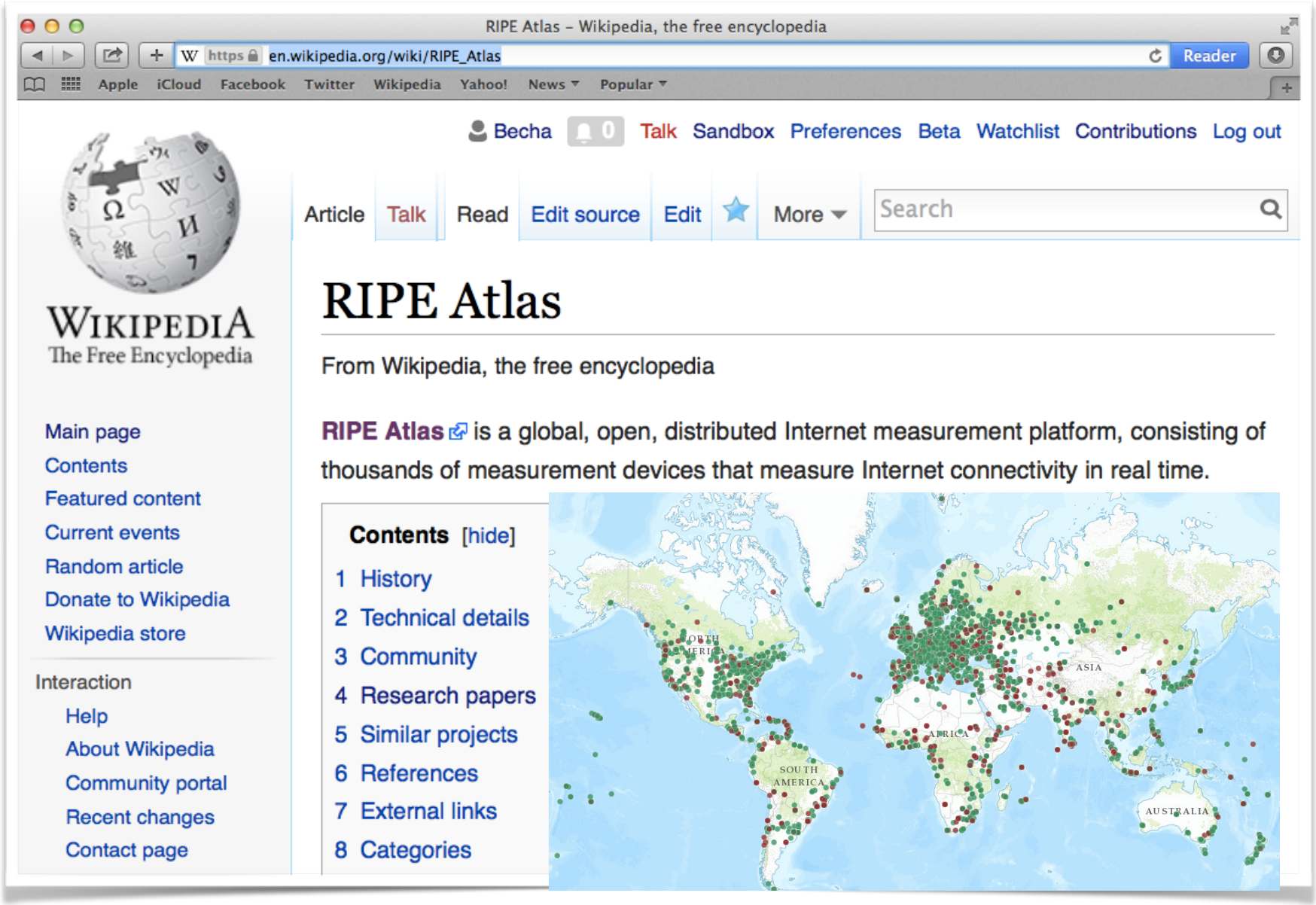
RIPE NCC
RIPE NETWORK COORDINATION CENTRE

RIPE Atlas

Global Internet Measurement Network

atlas@ripe.net | 23-24 March 2016 | MENOG 16, Istanbul

RIPE Atlas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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.
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ASIA
AFRICA
SOUTH AMERICA
AUSTRALIA

RIPE Atlas Overview - March 2016

- 9,400+ probes connected
- 230+ active probes in Middle east
- Countries: 181
- Originating ASNs:

  3,398 (IPv4) = 6,4% coverage
  1,246 (IPv6) = 11,21% coverage

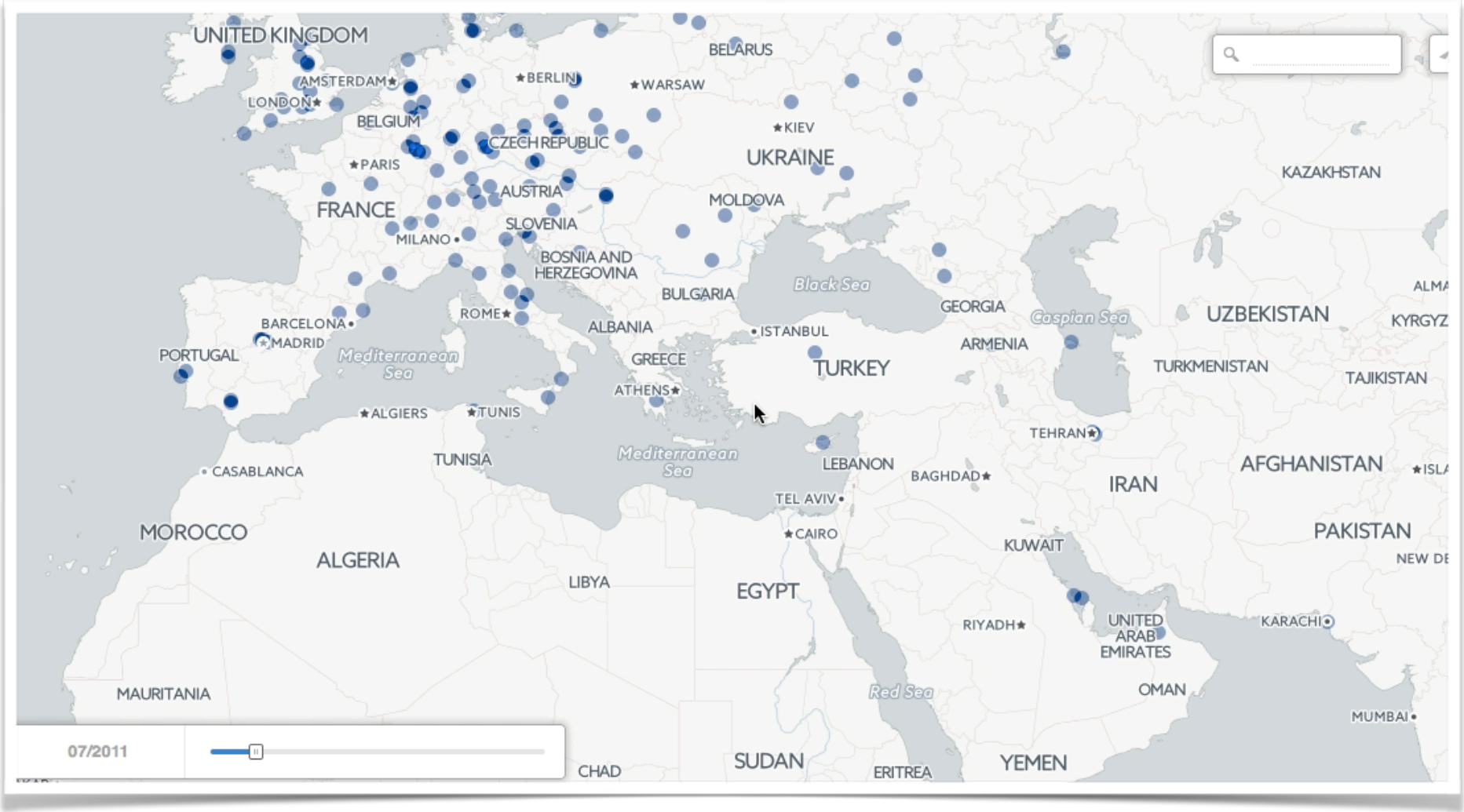
Country	Up	Discn	Aband
Iran	68	64	14
Israel	57	17	2
Turkey	38	17	5
Cyprus	16	3	1
UAE	14	4	4
Iraq	8	3	3
Lebanon	8	6	0
Palestinian territories	5	2	1
Oman	4	1	0
Kuwait	3	7	6
Qatar	3	3	2
Saudi Arabia	**3**	**8**	**13**
Jordan	2	2	0
Bahrain	1	5	2
Egypt	1	0	4
Syria	0	0	0
Yemen	0	2	3

RIPE Atlas probes in the region

RIPE Atlas anchor locations

qa-doh-as8781	6090	Ooredoo *Sponsored by: RIPE NCC*	Doha	Qatar

Growth of RIPE Atlas probes



Date as of March 7 2016

Measurement devices

- Probe v1 & v2: Lantronix XPort Pro
- Probe v3: TP-Link TL-MR3020 powered from USB port
  - Does not work as a wireless router
  - Same functionality as the old probe
- RIPE Atlas anchor: Soekris net6501-70

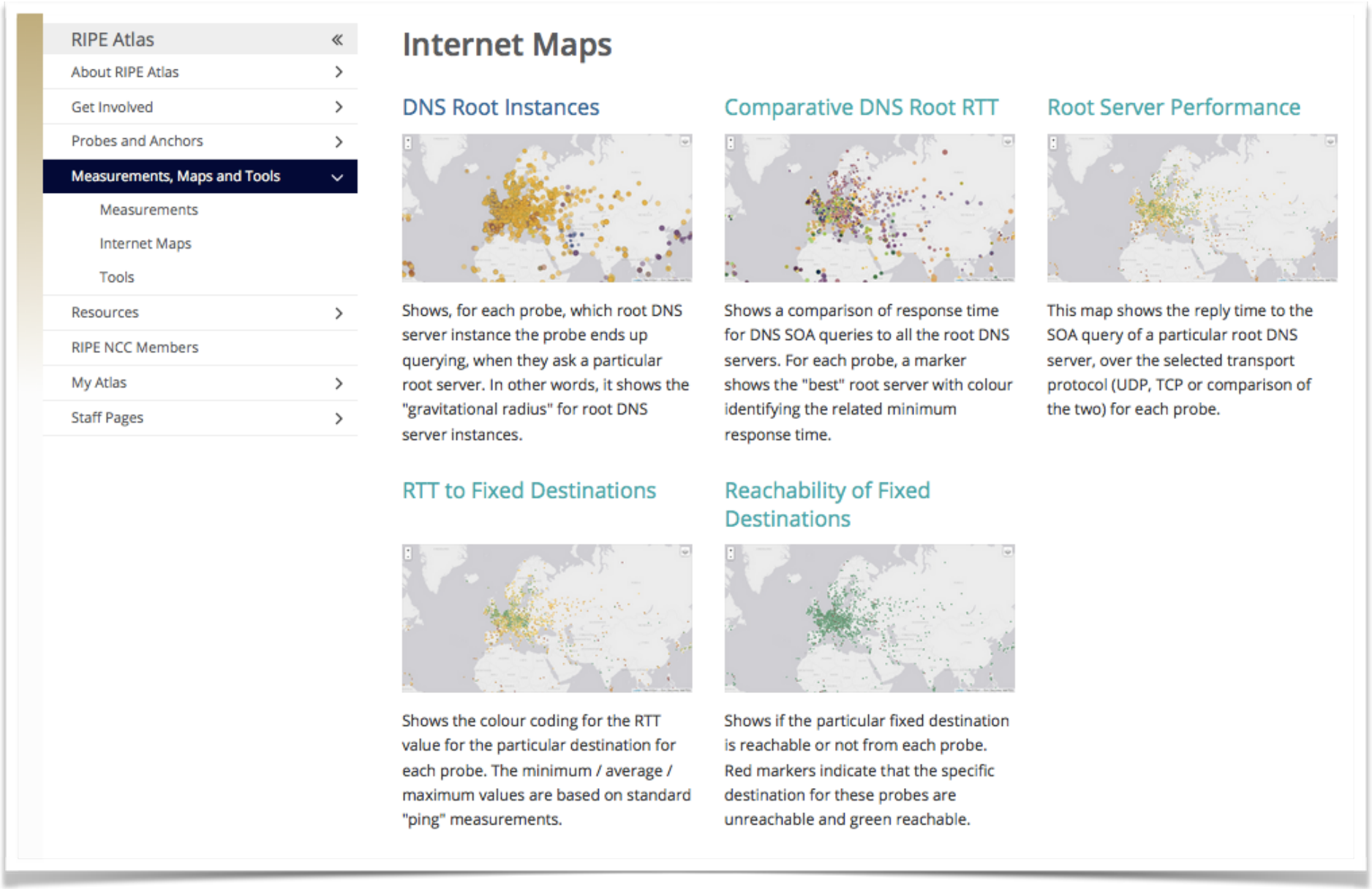
RIPE Atlas results

- Ongoing global measurements towards root nameservers
  - Visualised as Internet traffic maps
- Ongoing regional measurements towards “anchors”
- Users can run customised measurements
  - ping, traceroute, DNS, SSL/TLS, NTP and HTTP*

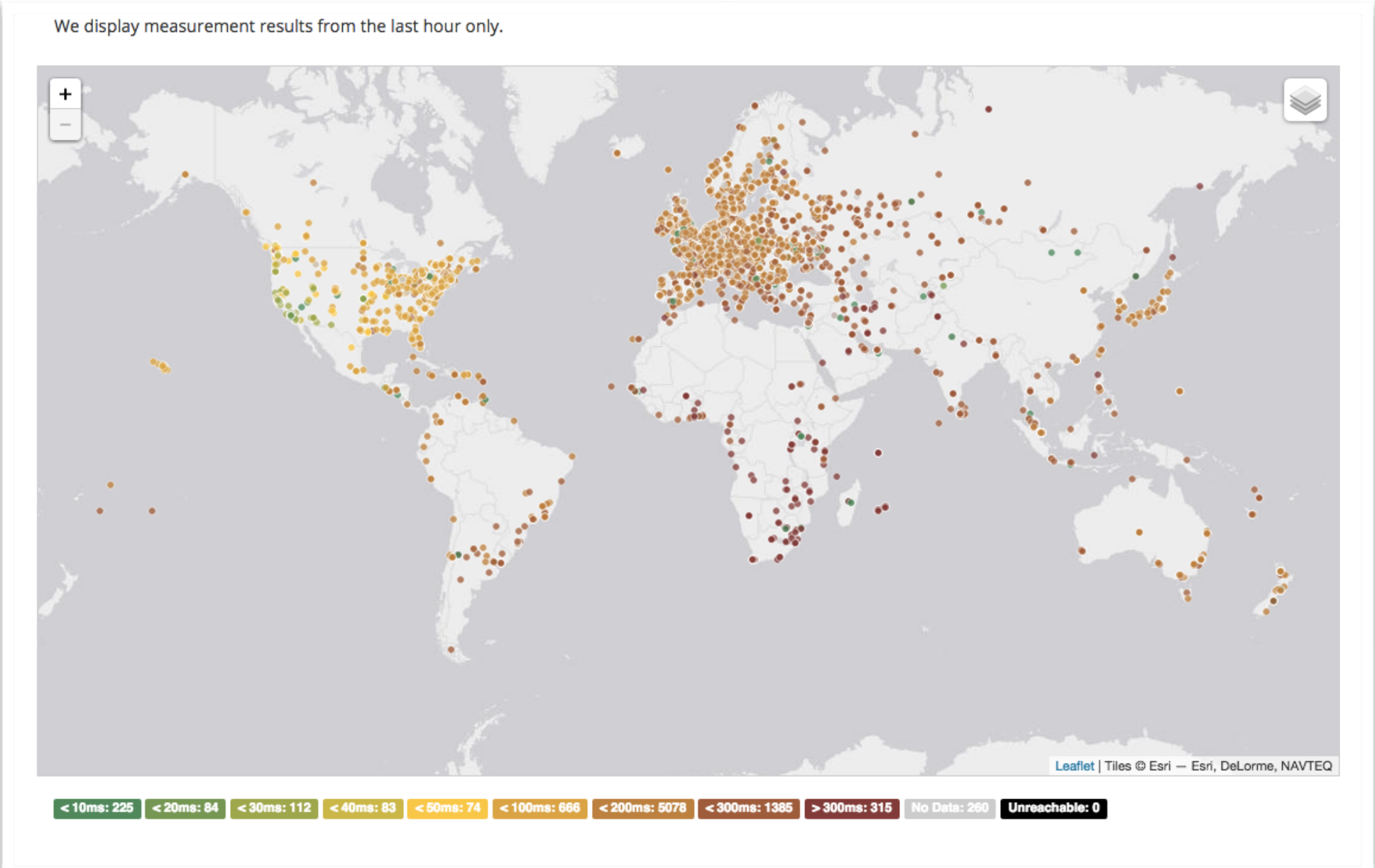
Most Popular Features

- Six types of measurements: ping, traceroute, DNS, SSL/TLS, NTP and HTTP (to anchors)
- APIs and CLI tools to start measurements and get results
- Streaming data for real-time results
- New: “Time Travel”, LatencyMON, DomainMON
- Status checks (Icinga & Nagios)

Internet Traffic Maps

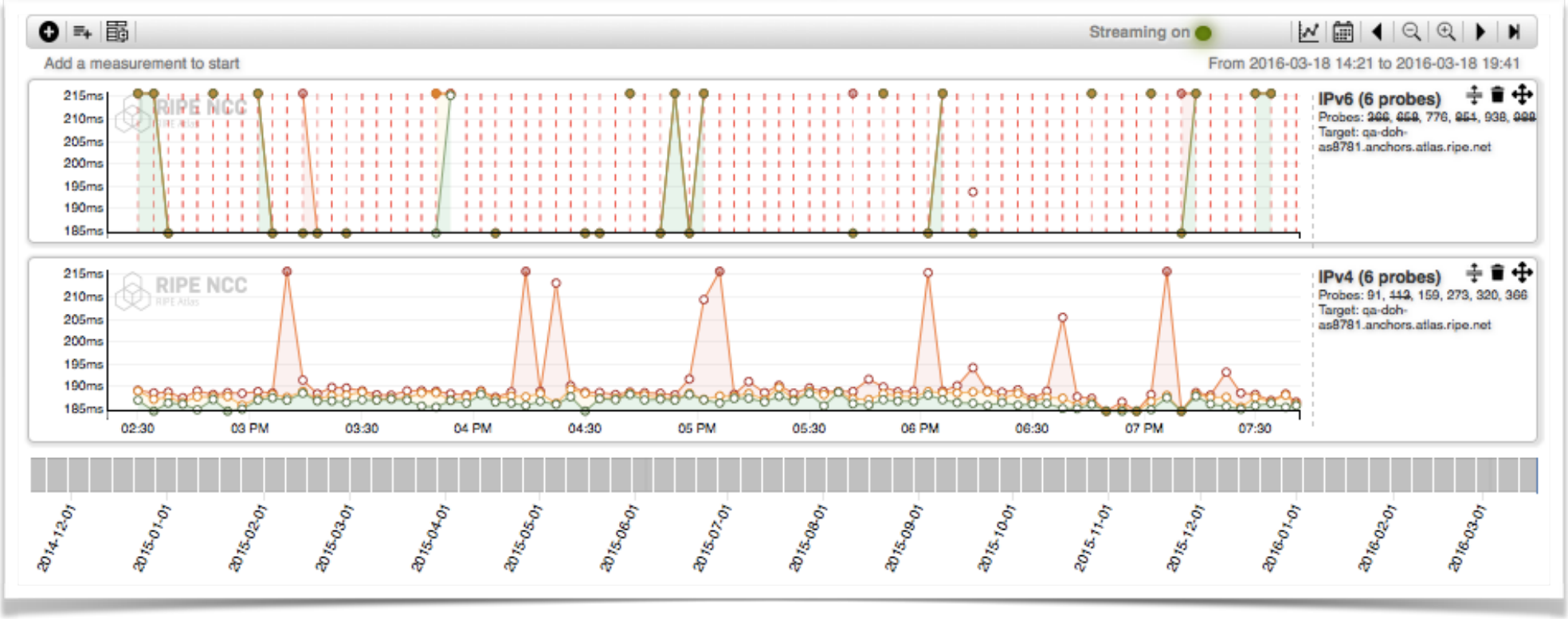


Where is B-root?

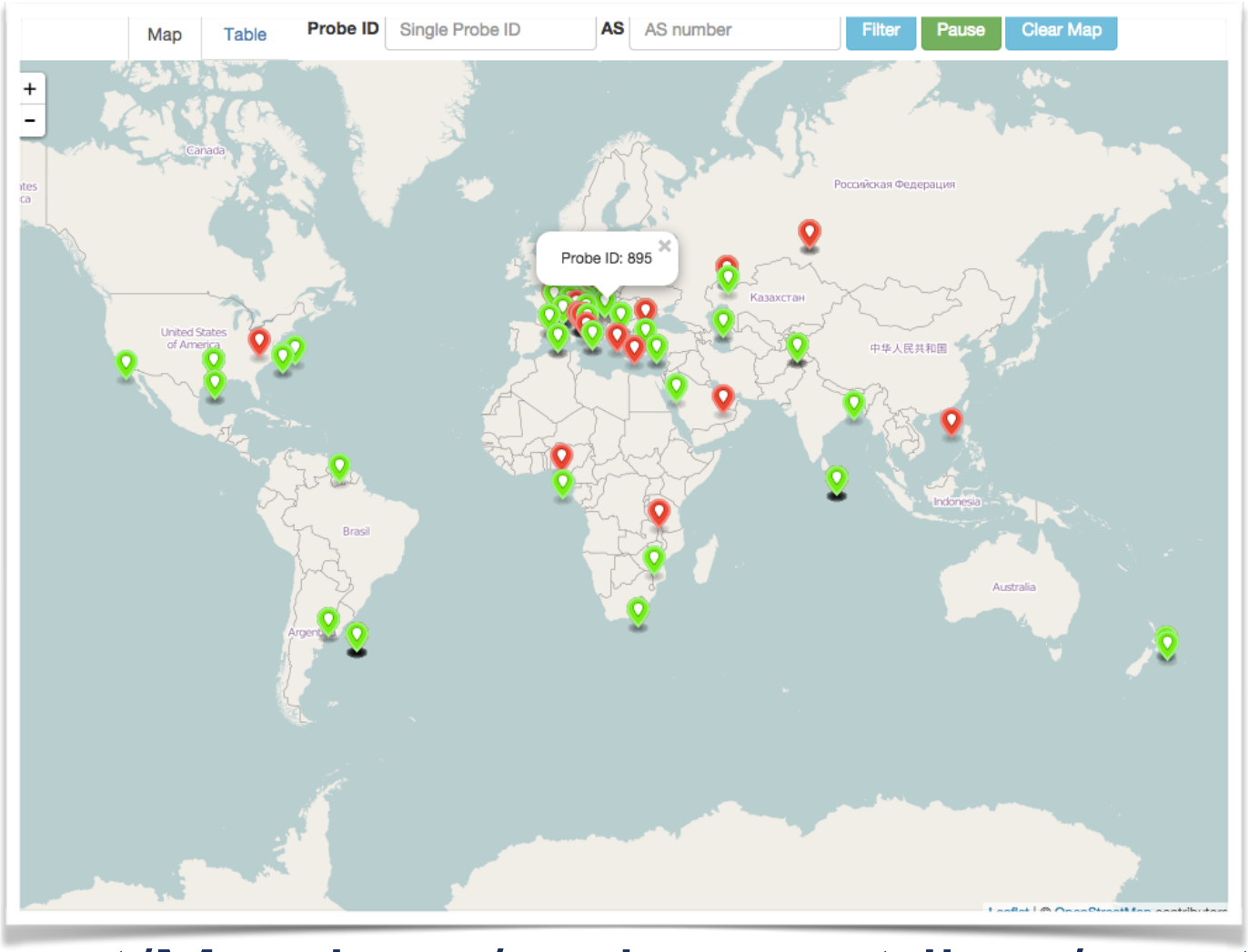


RIPE Atlas anchor qa-doh-as8781

- LatencyMON ping compare-v4-v6



Probe (dis)connection events



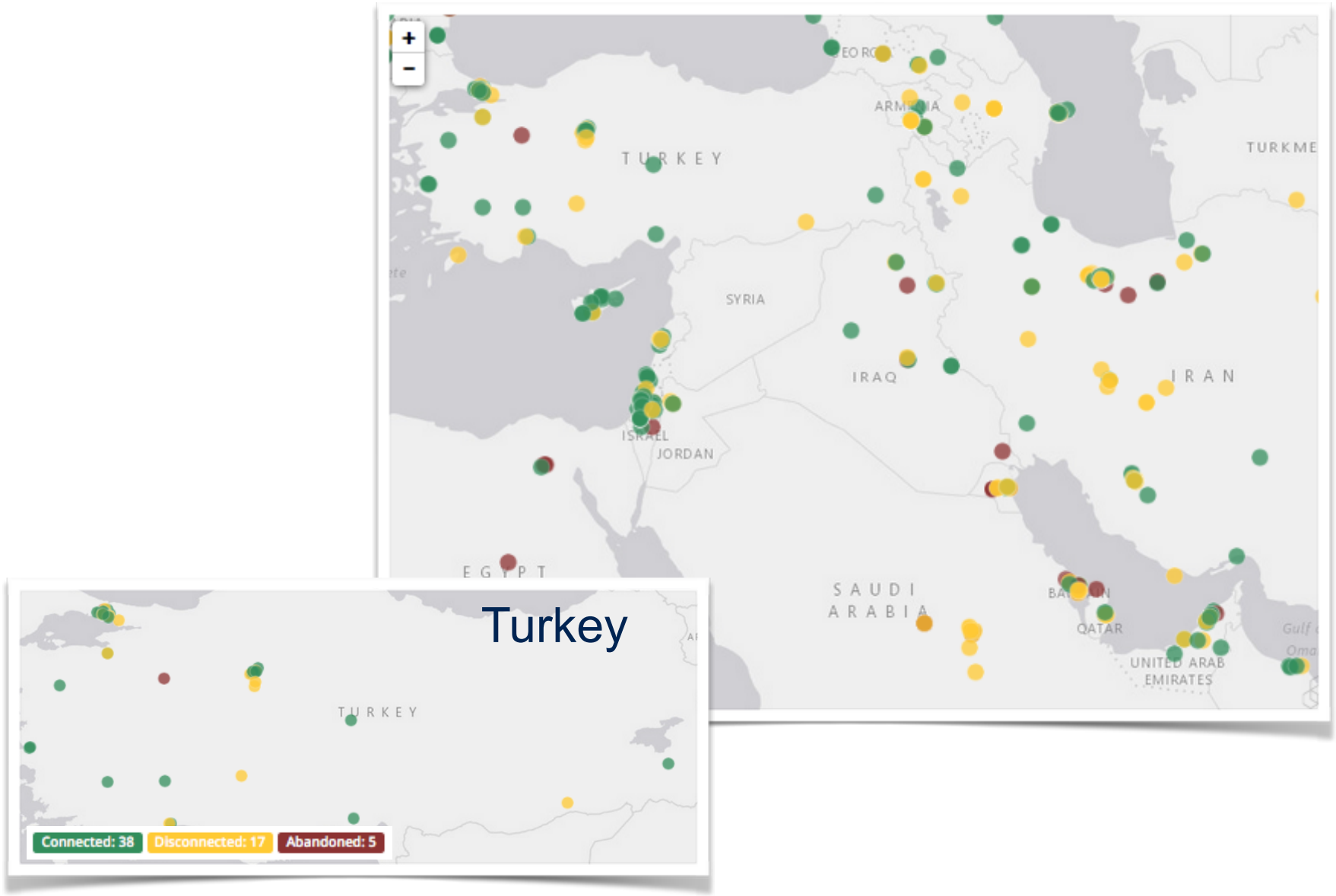
labs.ripe.net/Members/andreas_strikos/amsterdam-power-outage-as-seen-by-ripe-atlas

Benefits of your own measurements

- A customer reports a problem: they cannot reach one of your servers
- Measuring packet loss on a suspected “bad” link
- Testing anycast deployment

An overview of Turkey

RIPE Atlas coverage in Middle East



Date as of March 7 2016

Coverage in top-20 eyeball networks

- labs.ripe.net/Members/emileaben/improving-ripe-atlas-coverage-what-networks-are-missing

ASN	CC	Users	Con	Disc	Oth	%	Organisation
47524	TR	1499835	2	0	1	4.09	TURKSAT-AS Turksat Uydu Haberlesme ve Kablo TV Isletme A.S.
12978	TR	1065358	0	0	1	2.9	DOGAN-ONLINE DOGAN TV DIGITAL PLATFORM ISLETMECILIGI A.S.
8386	TR	930905	0	0	0	2.54	KOCNET VODAFONE NET ILETISIM HIZMETLERI A.S
20978	TR	605587	0	0	0	1.65	AVEA-TELEKOMUNIKASYON AVEA Iletisim Hizmetleri A.S.
15897	TR	505458	0	1	0	1.38	VODAFONETURKEY Vodafone Telekomunikasyon A.S
12735	TR	489238	0	0	0	1.33	ASTURKNET TurkNet Iletisim Hizmetleri A.S
3223	TR	365106	0	0	1	0.99	VOXILITY Voxility S.R.L.
34296	TR	314680	0	0	0	0.86	MILLENICOM-AS MILLENI.COM
8517	TR	271033	0	0	0	0.74	ULAKNET National Academic Network and Information Center
44558	TR	177712	0	0	0	0.48	NETHOUSE Nethouse Bilgi Islem Merkezi Ltd
47883	TR	108836	0	0	0	0.3	KKTCELL-AS KIBRIS MOBILE TELEKOMUNIKASYON LTD.
43242	TR	92088	1	0	0	0.25	EXTEND Aydogan Communication LTD.
48953	TR	85647	2	0	0	0.23	BROADMAX Broadmax Iletisim Kollektif Sti
197328	TR	83580	0	0	0	0.23	INETLTD INTER NET BILGISAYAR TURIZM TIC LTD STI
15924	TR	81242	0	0	0	0.22	BORUSANTELEKOM-AS VODAFONE NET ILETISIM HIZMETLERI ANONIM SIRKETI
197792	TR	78239	0	0	0	0.21	MULTIMAX Multimax Iletisim Limited
61345	TR	75526	0	0	0	0.21	FLYNET-AS FLYTOM NETWORKS LTD
6663	TR	65163	1	0	0	0.18	TTI-NET Euroweb Romania SA
62211	TR	47134	0	0	0	0.13	KKTCTELSIM VODAFONE MOBILE OPERATIONS LTD.
43260	TR	42008	1	0	0	0.11	DGN DGN TEKNOLOJI BILISIM YAYINCILIK SANAYI VE LIMITED SIRKETI

Join the
RIPE Atlas community

RIPE Atlas community

- Use RIPE Atlas for monitoring, troubleshooting, measuring
- Do scientific research
- Participate in a webinar
- Become an ambassador or sponsor
- Host a RIPE Atlas anchor
- Place a probe in a new exotic location
- Add content on GitHub in your language

Become a sponsor

- Benefits:
  - Promotion on RIPE Atlas website
  - Community recognition
  - Double credits for every probe distributed
- Become a sponsor:
  - atlas.ripe.net/get-involved/become-a-sponsor/
- Current sponsors:

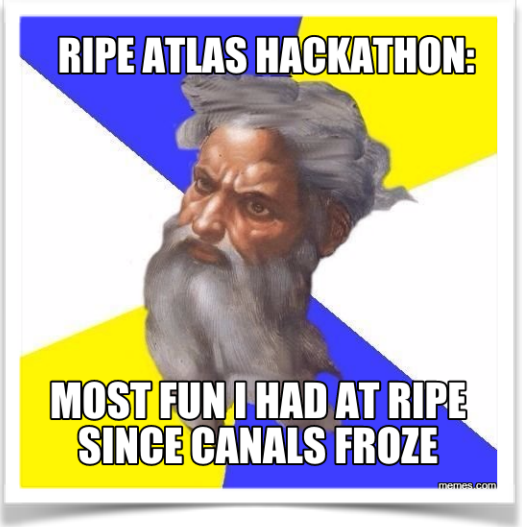
Previous sponsors

Contact us

- https://atlas.ripe.net
- Mailing list for active users: ripe-atlas@ripe.net
- Articles and updates: labs.ripe.net/atlas
- Questions: atlas@ripe.net
- Twitter: @RIPE_Atlas and #RIPEAtlas

RIPE Atlas hackathons

- 2015: DataViz and Operators Tools
- Join the hackathons in 2016
- Hacking Interfaces: 21 - 22 May, Copenhagen
  - Weekend before RIPE 72
  - Apply
  - Learn more on RIPE Labs
- IXP tools: 22-23 October, Madrid



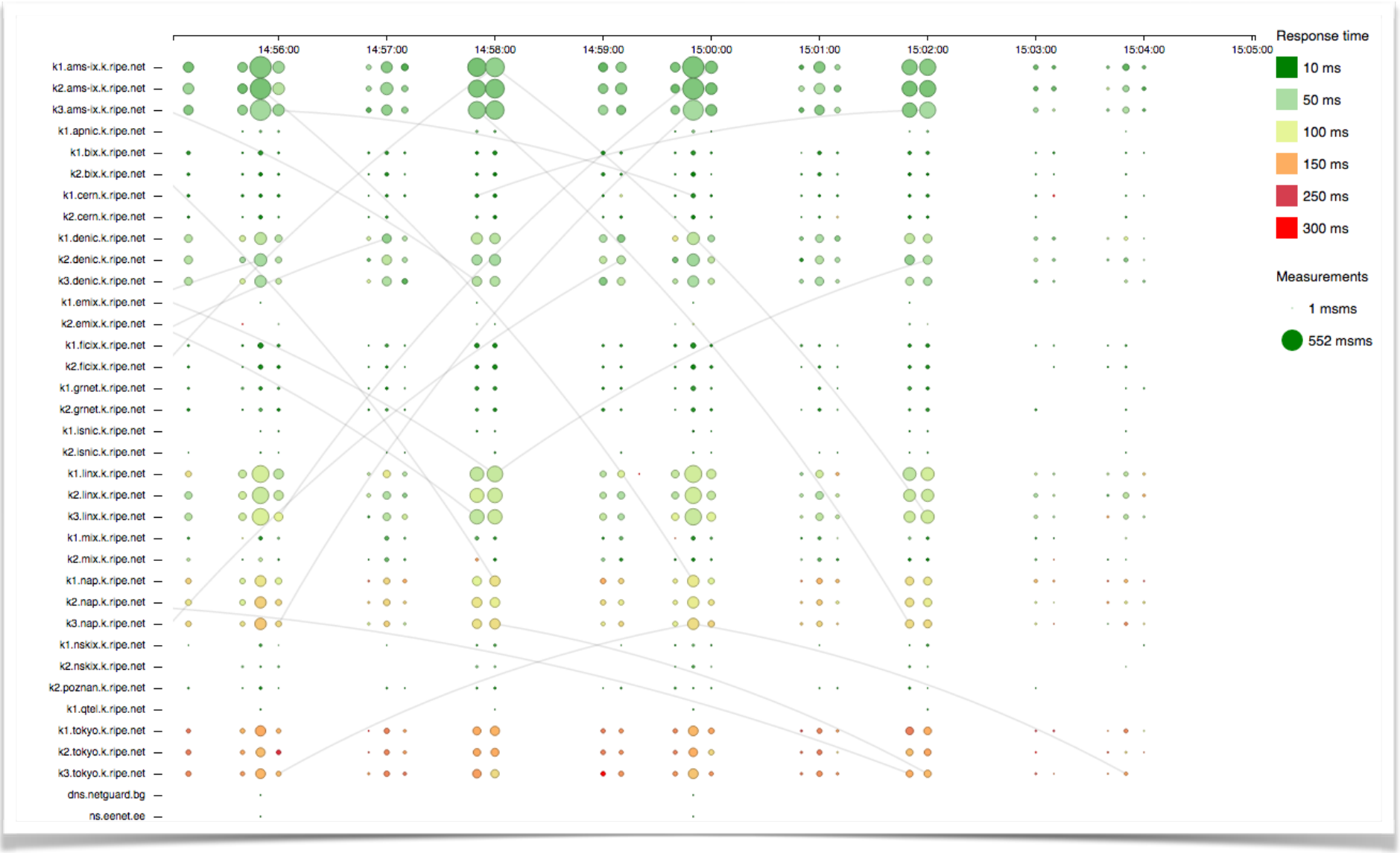
Additional slides

RIPE Atlas Use Cases

Route Name Server Measurements

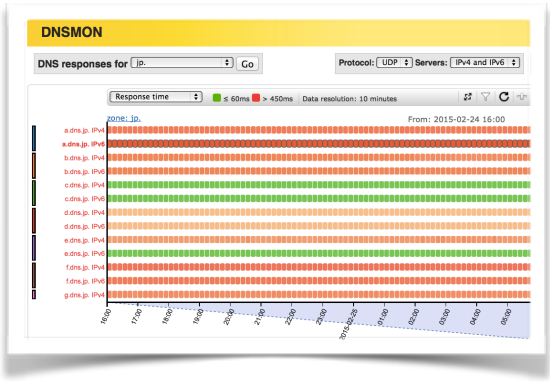
- Which instance is queried?
  - Per country
  - Per ASN
- What's the fastest response?
- TCP/UDP performance

Monitoring K-root performance



Monitoring DNS: dnsmon.ripe.net

- Currently monitoring small selection of TLD zones
  - Root name servers, 30 ccTLDs and few gTLDs
  - New zones added later this year
- On the roadmap: “domain checks”
  - atlas.ripe.net/dnsmon
  - labs.ripe.net/Members/fatemah_mafi/an-updated-dns-monitoring-service

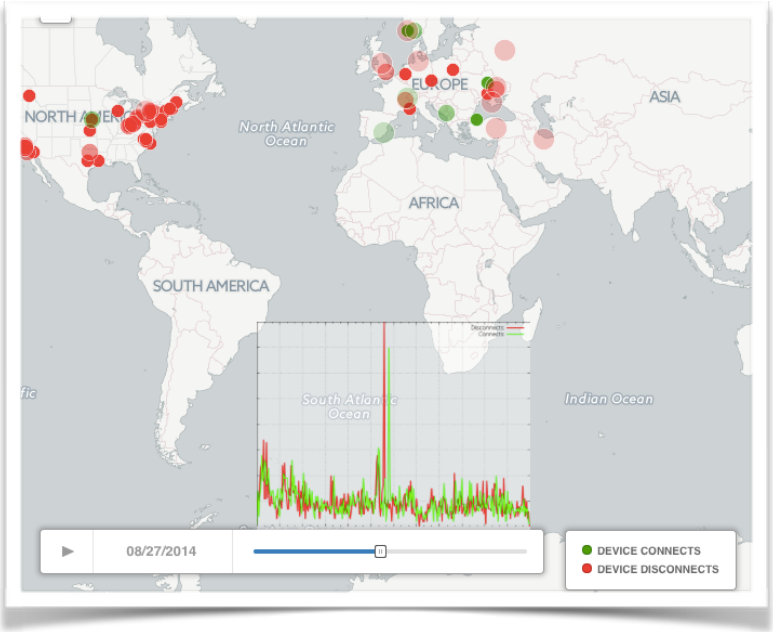


Integrated network monitoring

- Generating alerts via “status checks”
  - Based on ping measurements
  - User defines alert parameters
  - Integrate into existing tools like Icinga and Nagios
  - atlas.ripe.net/docs/status-checks/
- GitHub examples, contributed by operators:
  - http://bit.ly/1BSi1Fu
- Post on Icinga blog:
  - http://bit.ly/1EPERLC

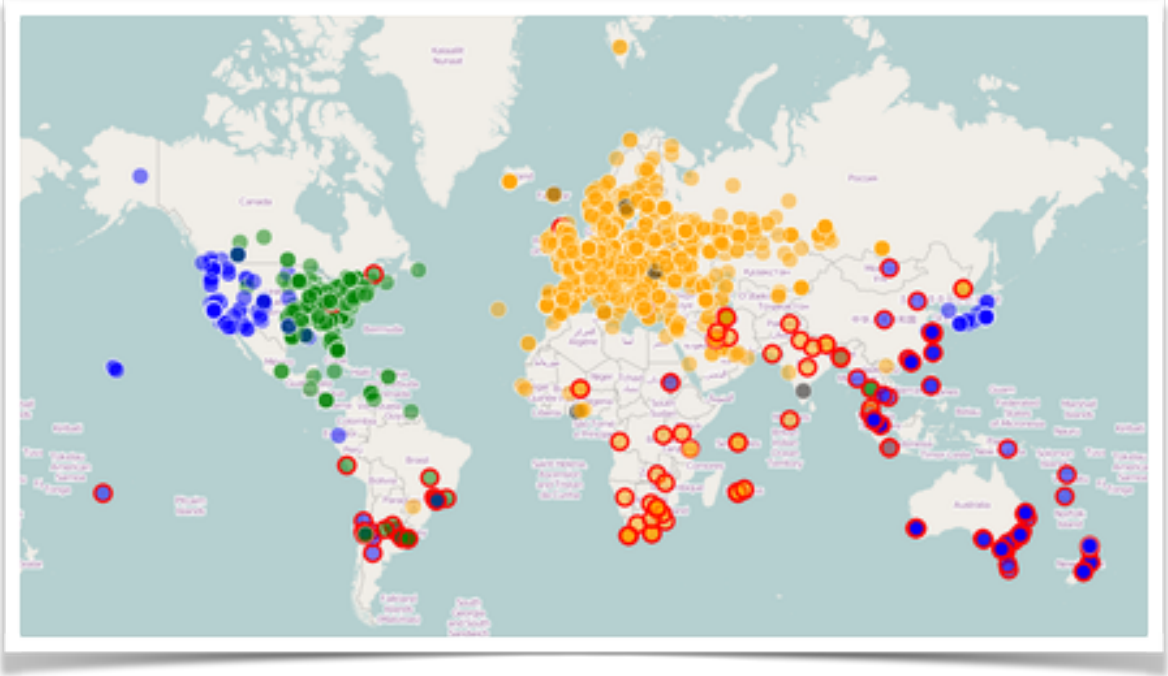
Visualising network outages

- labs.ripe.net/Members/emileaben/visualising-network-outages-with-ripe-atlas
- labs.ripe.net/Members/emileaben/facebookdown-and-what-internet-data
- labs.ripe.net/Members/emileaben/time-warner-cable-outage



Latency to multiple locations

- Together with Wikimedia we identified ways to decrease latency and improve performance
  - labs.ripe.net/Members/emileaben/how-ripe-atlas-helped-wikipedia-users

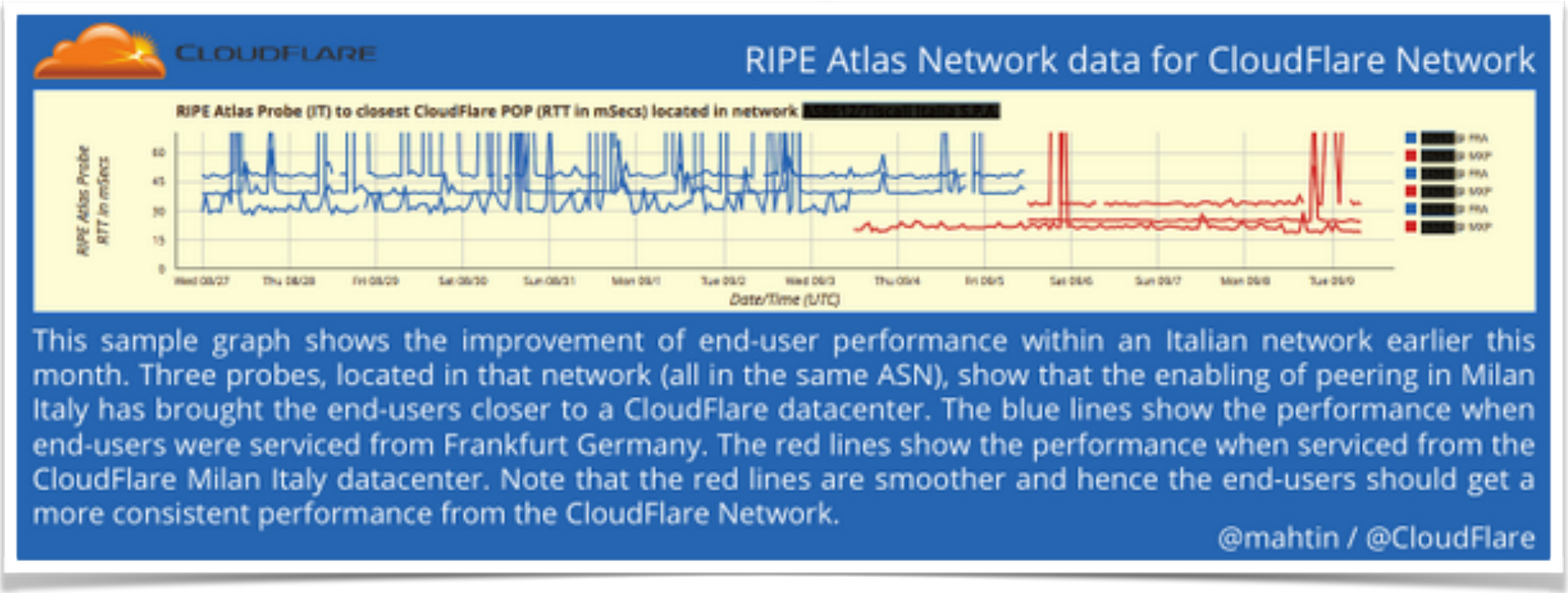


RIPE Atlas

Operator success stories

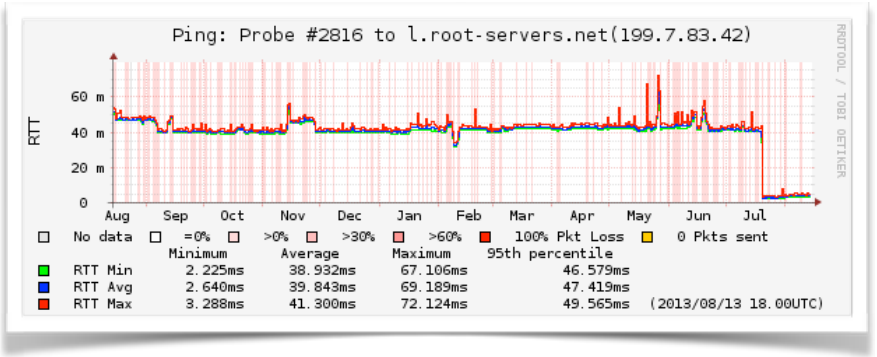
Success stories

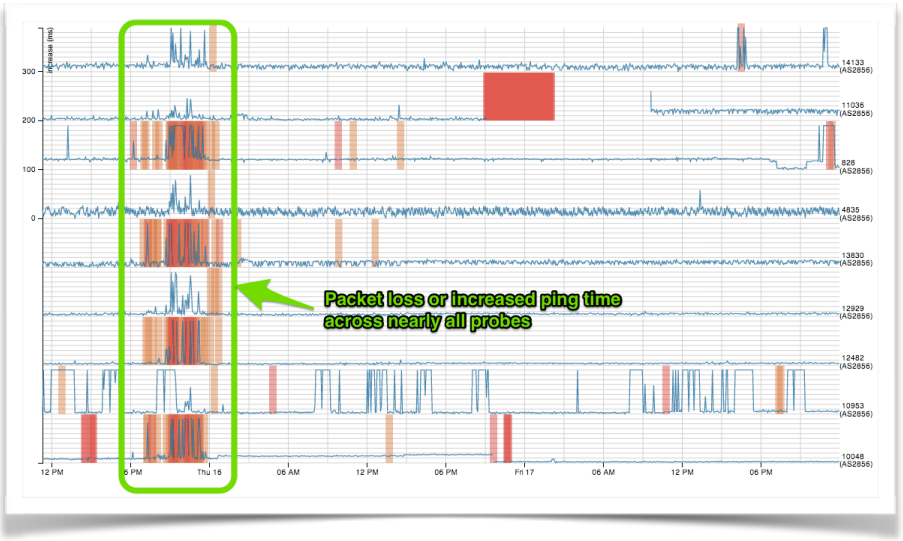
- http://t.co/9lX7Jvk5nl



Success stories

- IXP: Measuring the effect of installing L-root in Belgrade / SOX
- Investigating problems of slow servers:
  - engineering.freeagent.com/2014/01/24/atlas-probes/





Success stories

- Investigating problems of slow servers:
  - engineering.freeagent.com/2014/01/24/atlas-probes/
- Measuring packet loss to determine congested networks, Jared Mauch, NTT
- Selective blackholing:
  - ripe68.ripe.net/presentations/176-RIPE68_JSnijders_DDoS_Damage_Control.pdf
- Anycast analysis:
  - labs.ripe.net/Members/stephane_bortzmeyer/the-many-instances-of-the-l-root-name-server

More on RIPE Labs

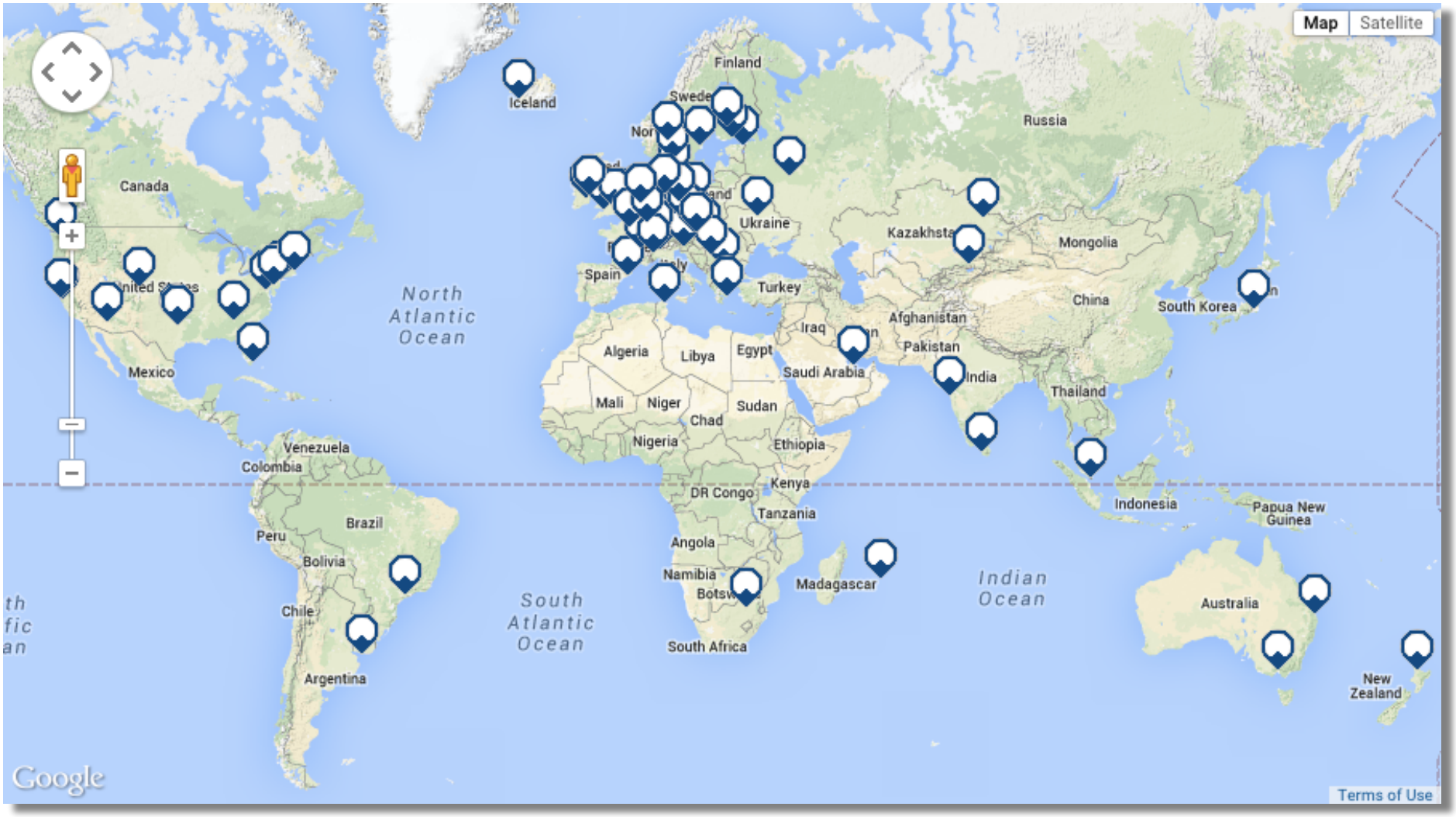
- Measuring K-root performance
  - labs.ripe.net/Members/suzanne_taylor_muzzin/experiment-proposal-to-improve-k-root
- Time-Warner Cable Outage
  - labs.ripe.net/Members/emileaben/time-warner-cable-outage
- How Fast the RIPE Atlas Anchor has Paid Off
  - labs.ripe.net/Members/tim_kleefass/how-fast-the-ripe-atlas-anchor-has-paid-off

RIPE Atlas anchors

RIPE Atlas anchors

- Anchors: stable targets and powerful probes
- Benefits of hosting an anchor:
  - External view of your own network - all other anchors measure you
  - 400 probes also target each anchor with ongoing measurements
- 188 RIPE Atlas anchors

Anchor locations



RIPE Atlas anchor hosts (20/150)