

# Data and measurement tools from the RIPE NCC

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Robert Kisteleki  
RIPE NCC R&D



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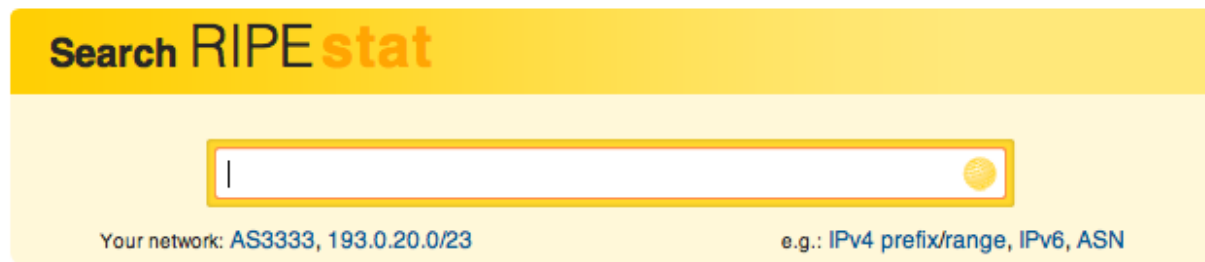
Today's topics:

- **RIPEstat** – to know more about resources
- **RIPE Atlas** – to run Internet measurements yourself, and help others measuring
- **GeoRIPE** – to know where your packets have gone before

# RIPEstat

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- <https://stat.ripe.net/> is a “one-stop shop” for all (well, much) info about Internet number resources
- RIPE NCC: registration data and whois, routing (RIS), reverse DNS, RIPE Atlas measurements
- External sources: IRR, RIR stats, geolocation, blacklists, M-Labs network activity, ...



Search RIPEstat

Your network: AS3333, 193.0.20.0/23 e.g.: IPv4 prefix/range, IPv6, ASN

# RIPEstat

Search box

Widgets

Widgets grouped into thematic tabs

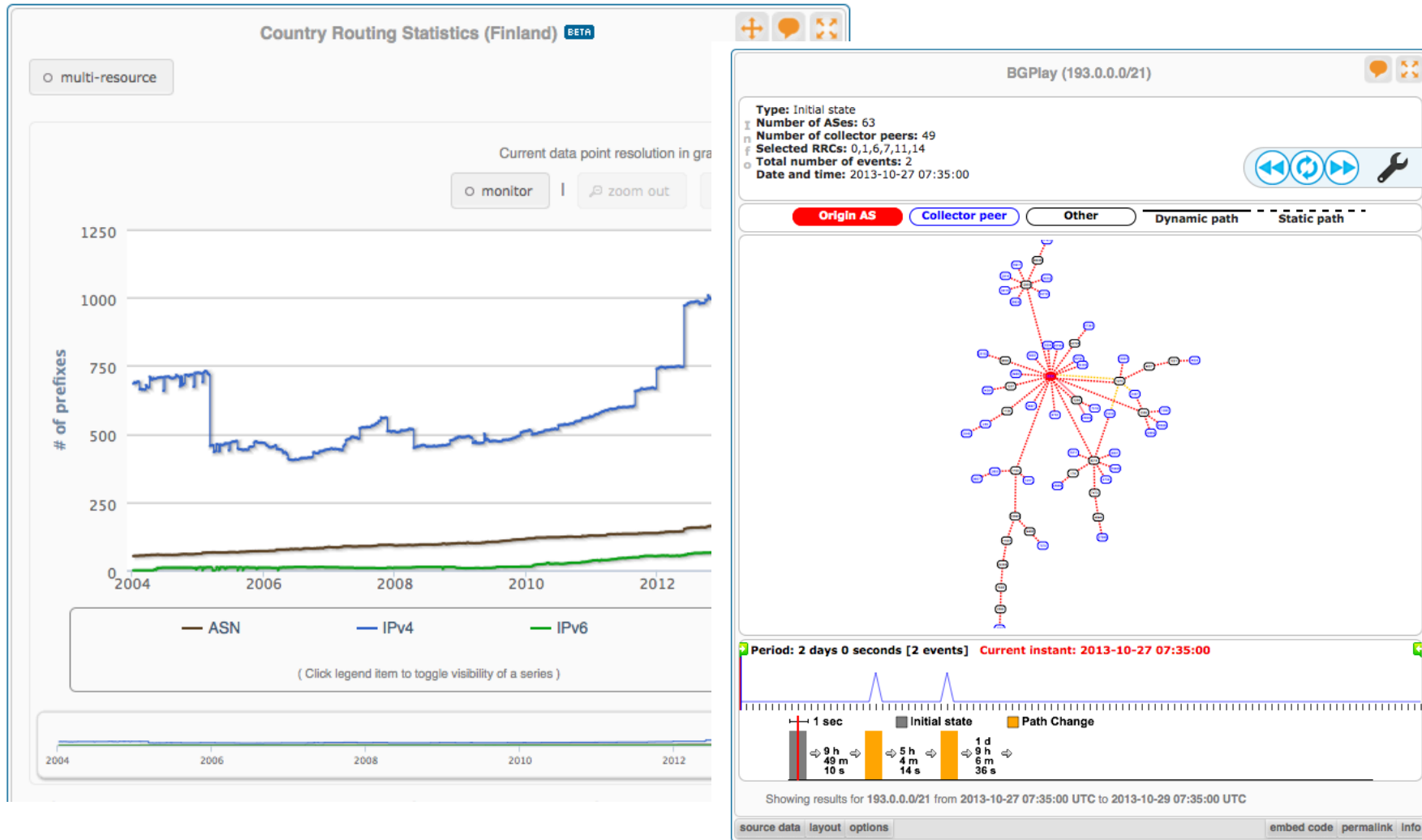
The screenshot displays the RIPEstat interface for AS3333. At the top, there is a search bar and a breadcrumb trail: "You are here: Home > Data & Tools > RIPEstat > AS3333". Below the search bar is a navigation menu with categories like "At a Glance", "Routing", "DNS", "Anti Abuse", "Database", "Geographic", and "Privacy". The main content area is divided into several widgets: "AS Overview (AS3333)" showing the organization name and a "Showing results from 2013-08-08 00:00:00 UTC to 2013-08-08 00:00:00 UTC" timestamp; "Registry Browser (AS3333)" displaying "asf-num: AS3333" and a list of roles and their associated names; "Geolox (AS3333)" featuring a map of Europe with Germany highlighted; and "Routing Status (AS3333)" showing a green checkmark and the text "AS3333 is visible by 97% of 137 IPv4 and 90% of 102 IPv6 RIR full peers." Below this, it lists statistics: "First ever seen before Jan 2001", "Originated IPv4 prefixes: 0", "Originated IPv6 prefixes: 1", "Observed BGP neighbours: 100", "Address space announced (IPv4): 4800 IPs", and "Address space announced (IPv6): equiv. to 1 RIRs".

# RIPEstat

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- Search by: IPv4, IPv6 and AS number; hostname, country
- Web, widgets, data API, text service, mobile app
- Other features:
  - BGPlay2
  - Abuse Finder
  - History view for RIPE NCC members / LIRs
  - Embed widgets on your site

# RIPEstat - Examples



# RIPEstat - Examples

BGP Looking Glass NG (192.88.99.0/24)

Reload this widget by entering a resource here

▼ 12 RRCs see 104 peers announcing 192.88.99.0/24 originated by 16 ASNs. [EXPAND EVERYTHING]

- ▶ RRC00 in **Amsterdam, Netherlands** sees 6 ASNs originating 192.88.99.0/24.
- ▶ RRC01 in **London, United Kingdom** sees 4 ASNs originating 192.88.99.0/24.
- ▼ RRC03 in **Amsterdam, Netherlands** sees 5 ASNs originating 192.88.99.0/24.
  - ▼ AS6939 is seen as the origin by 2 peers.
    - ▶ 195.69.145.150 is announcing route 6939.
    - ▼ 195.69.144.111 is announcing route 30132 6939.
 

195.69.144.111 from 195.69.144.111 (199.6.1.16)  
 Origin IGP, localpref 100, valid, external  
 Last update: Thu Aug 1 02:30:34 2013
  - ▶ AS8903 is seen as the origin by 1 peer. (195.69.144.94)
  - ▶ AS12573 is seen as the origin by 1 peer. (195.69.144.200)
  - ▶ AS16150 is seen as the origin by 5 peers.
  - ▶ AS1103 is seen as the origin by 3 peers.
- ▶ RRC04 in **Geneva, Switzerland** sees 3 ASNs originating 192.88.99.0/24.
- ▶ RRC05 in **Vienna, Austria** sees 1 ASN originating 192.88.99.0/24. (AS6939)
- ▶ RRC06 in **Tokyo, Japan** sees 1 ASN originating 192.88.99.0/24. (AS6939)
- ▶ RRC07 in **Stockholm, Sweden** sees 5 ASNs originating 192.88.99.0/24.
- ▶ RRC10 in **Milan, Italy** sees 3 ASNs originating 192.88.99.0/24.
- ▶ RRC11 in **New York City, New York, US** sees 2 ASNs originating 192.88.99.0/24.
- ▶ RRC13 in **Moscow, Russian Federation** sees 5 ASNs originating 192.88.99.0/24.
- ▶ RRC14 in **Palo Alto, California, US** sees 3 ASNs originating 192.88.99.0/24.
- ▶ RRC15 in **Sao Paulo, Brazil** sees 1 ASN originating 192.88.99.0/24. (AS6939)

Showing results for 192.88.99.0/24 as of 2013-10-29 08:20:00 UTC

source data embed code permalink

DNS Chain (www.trex.fi)

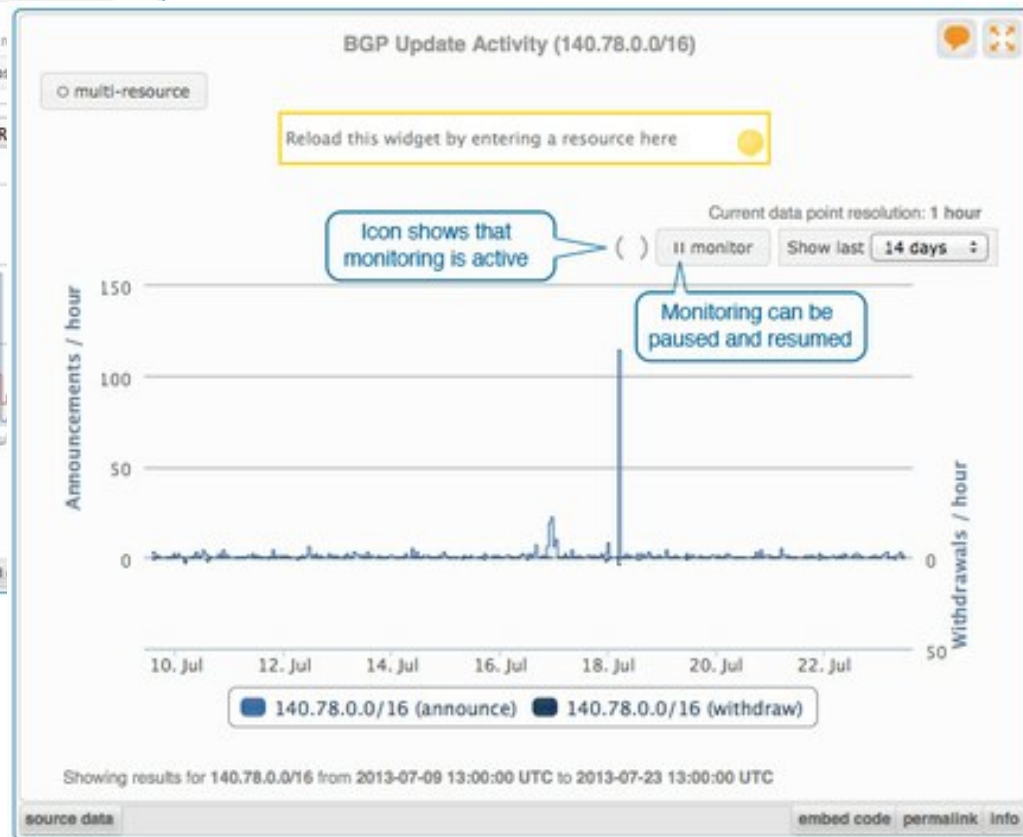
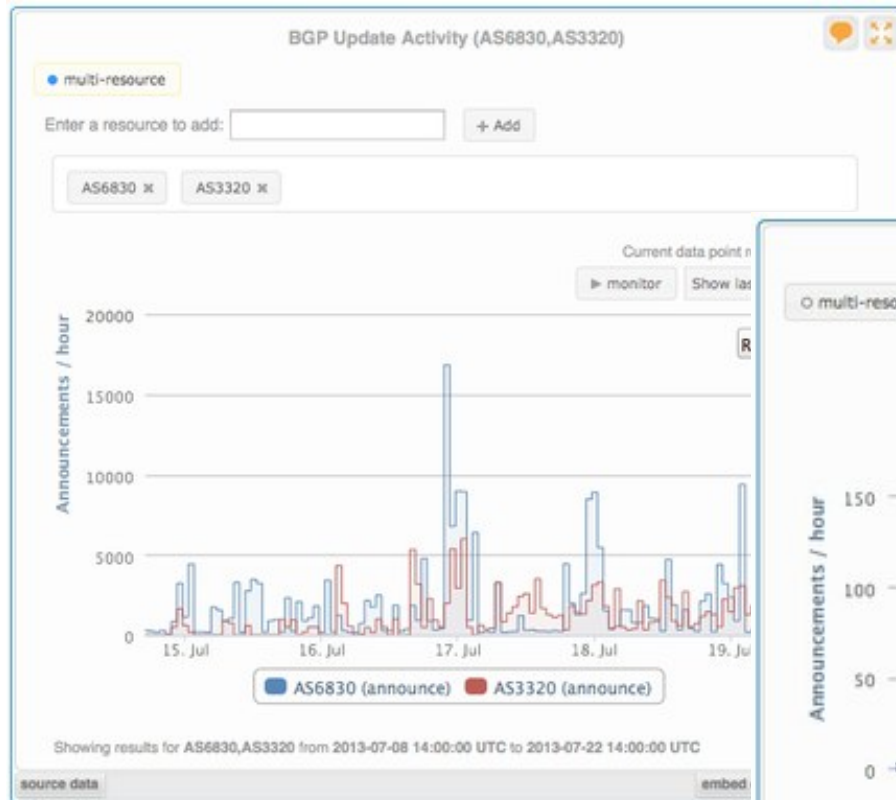
(click-drag to rearrange nodes)

Source Hostname IP Address Unresolved Forward (A/AAAA) Reverse (PTR)

Showing results for www.trex.fi as of 2013-10-29 09:31:00 UTC  
 Resolved via: 193.0.19.101, 193.0.19.102, 193.0.19.6  
 Authoritative Nameservers: ns.trex.fi, ns.uta.fi, ns2.uta.fi, ns.axu.tm, ns10.fi.basen.net, ns20.fi.basen.net, ns11.fi.basen.net, ns21.fi.basen.net.

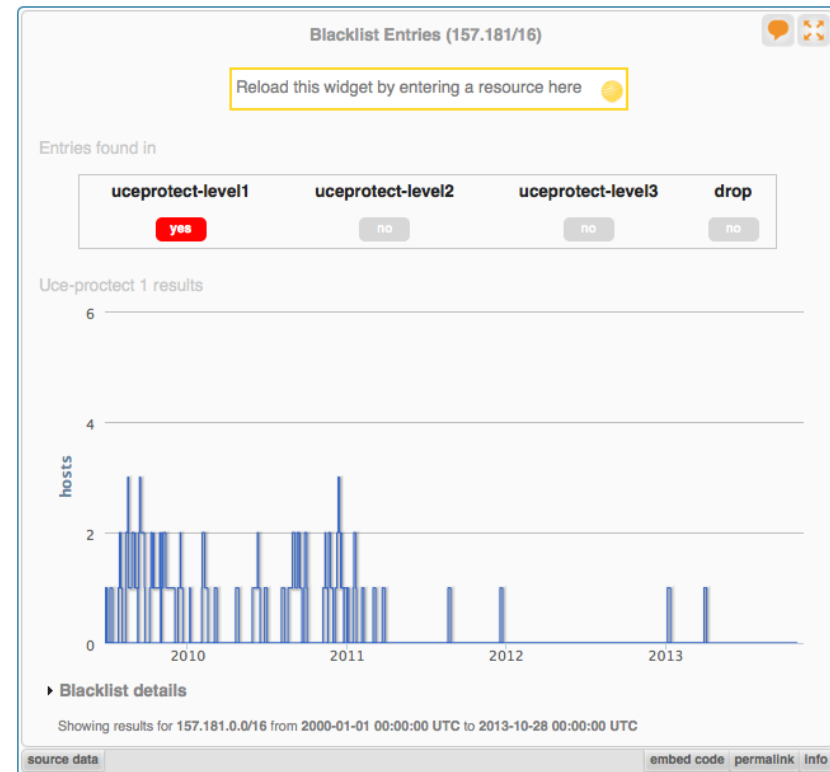
source data embed code permalink info

# RIPEstat - Examples





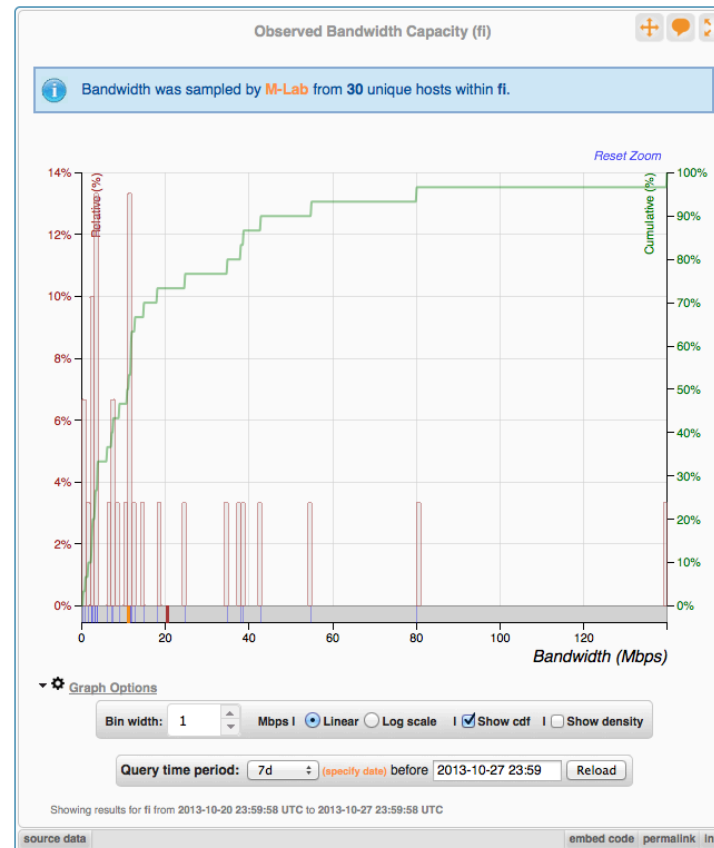
# RIPEstat - Examples



# RIPEstat

## M-Lab data for Finland

### Geographical Location



# RIPEstat Future Plans

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- Migrating RIS dashboard features to RIPEstat
- Integrating DNSMON to RIPEstat and RIPE Atlas
- Adding notable events to BGPlay2
- Improving backend stability to enable resilience of current services and scaling for future growth
- Increasing data quality and consistency
- More info: <http://roadmap.ripe.net/ripe-stat/>

# RIPE Atlas

A measurement network of 4000+ devices  
For the community, by the community



# RIPE Atlas

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- Anyone can host a RIPE Atlas probe:
  - apply online: <https://atlas.ripe.net/apply>
  - ... or just come talk with me
- Major benefit: look at your network from the outside!
  - Have at your fingertips 4000+ external vantage points to do pings, traceroutes and DNS queries towards you (or any other target)

# RIPE Atlas

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The vantage point:

- Install-and-forget, USB powered
- Hosted and sponsored by organisations and end users ISPs, IXPs, individuals ...
- Free of charge if you host individual probes



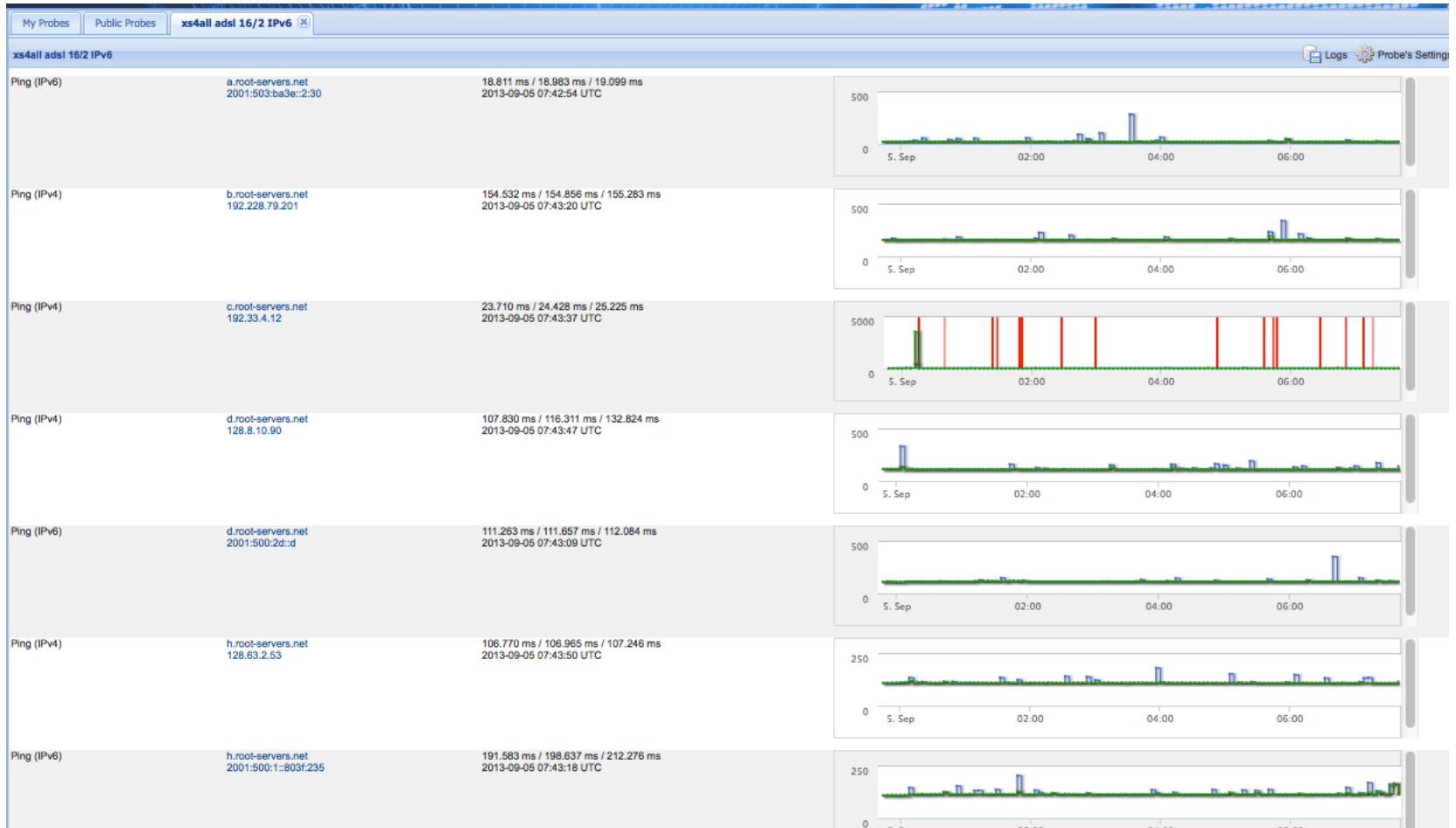
# RIPE Atlas

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What is measured:

- “Built-in” measurements from all the probes:
  - root name servers
  - RIPE Atlas infrastructure
  - RIPE Atlas Anchors\*
- Pings, traceroutes, SSLcert and DNS queries
- Results available to everyone

# RIPE Atlas





# RIPE Atlas

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## User Defined Measurements (UDM):

- Towards the targets of your choice and desired frequency
- You need “credits” to do this
- Anchoring measurements are coming:
  - Each probe will measure 4-5 “anchors” as a regional baseline
  - RIPE Atlas anchors placed at well-connected locations

# RIPE Atlas

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## Credit system:

- By hosting a probe, each host earns credits
- As a reward for making probe available to other users, for performing measurements from that probe towards any target
- Credits can be spend on running measurements

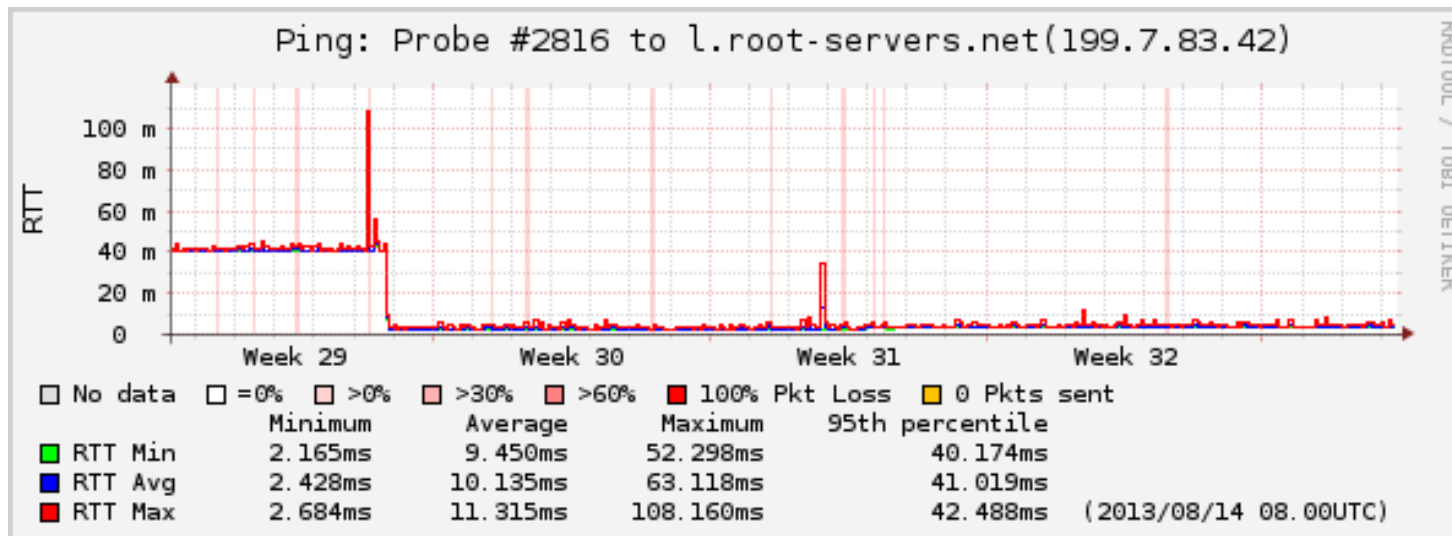
# RIPE Atlas - Example

Latency towards b-root:



# RIPE Atlas - Example

Deployment of an I-root instance at Serbian Open eXchange:



# RIPE Atlas Anchors

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Anchors: well-known targets and powerful probes

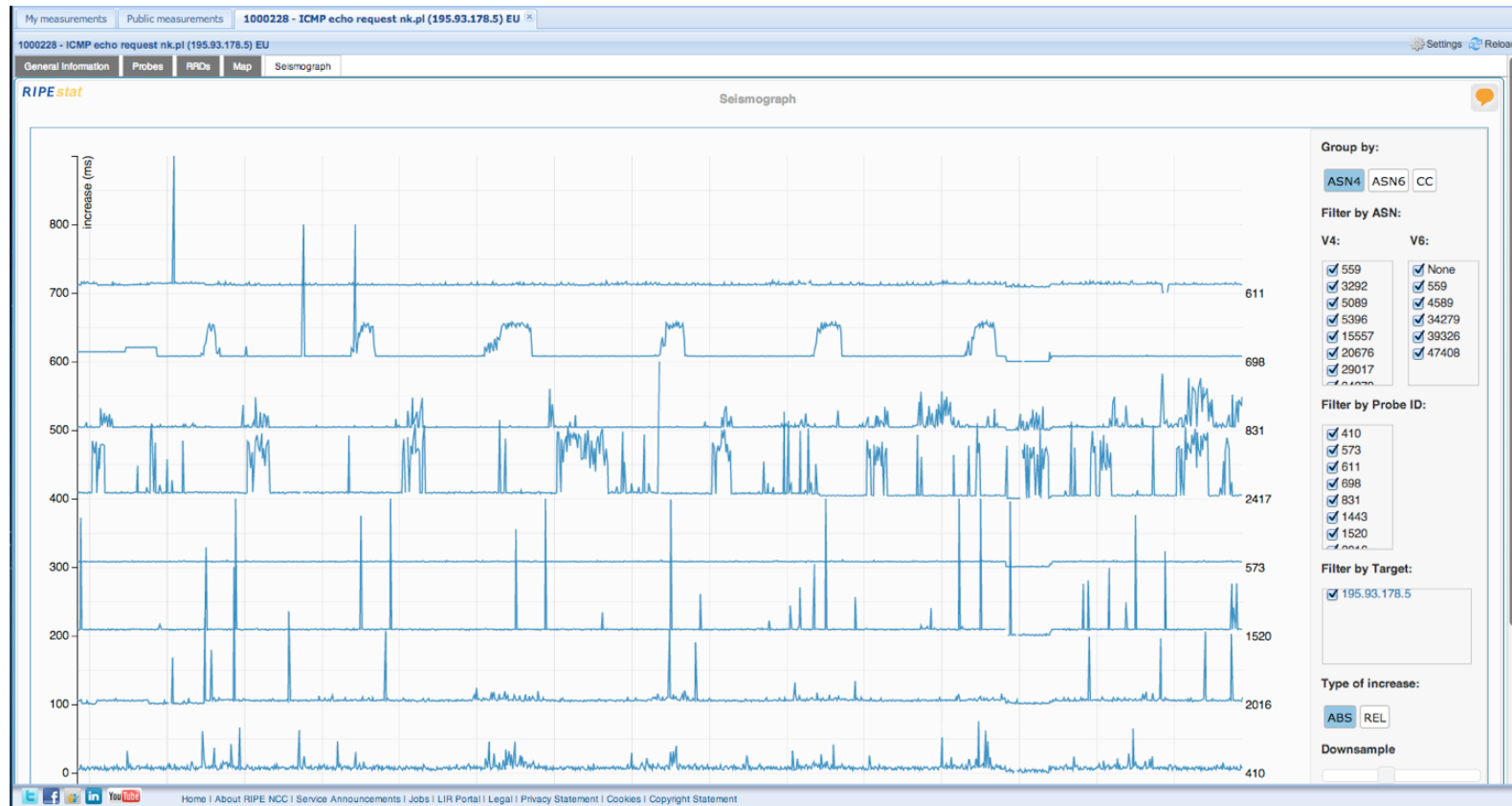
- Regional baseline & “future history”
- 15 anchors installed
- Anchoring measurements
  - Full-mesh between anchors deployed
  - Coming up: each probe will measure 4-5 anchors
  - Production service launched at RIPE67 today!
- TTM to be decommissioned

# RIPE Atlas News

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- Seismograph
  - Multiple ping measurements in one view
  - Stacked chart and an interaction control panel
  - Based on RIPEstat widget framework
- Zoomable ping graphs
  - Replacing multiple RRDs graphs: zoom-in, zoom-out in time, in the same graph, without loss of detail
  - Easier visualisation of details of an event
  - Selection of RTT class (max, min, average)

# RIPE Atlas News



# RIPE Atlas Future Plans

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- Integrating DNSMON in RIPE Atlas and RIPEstat
- Implementing alerts / health checks
- Introducing “My Favorite” probe and measurements selection and viewing
- Improving traceroute visualization: T-play
- Increasing distribution via RIR cooperation
- More info: <http://roadmap.ripe.net/ripe-atlas/>



# GeoRIPE

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- It's a prototype idea for a new service
- Let's geolocate the Internet **infrastructure**
- Make a framework that can combine different sources of information
  - RIR databases, DNS info, known locations (eg. IXPs), triangulation,
  - Add a crowdsourcing element: users can contribute
- Make the resulting data publicly available

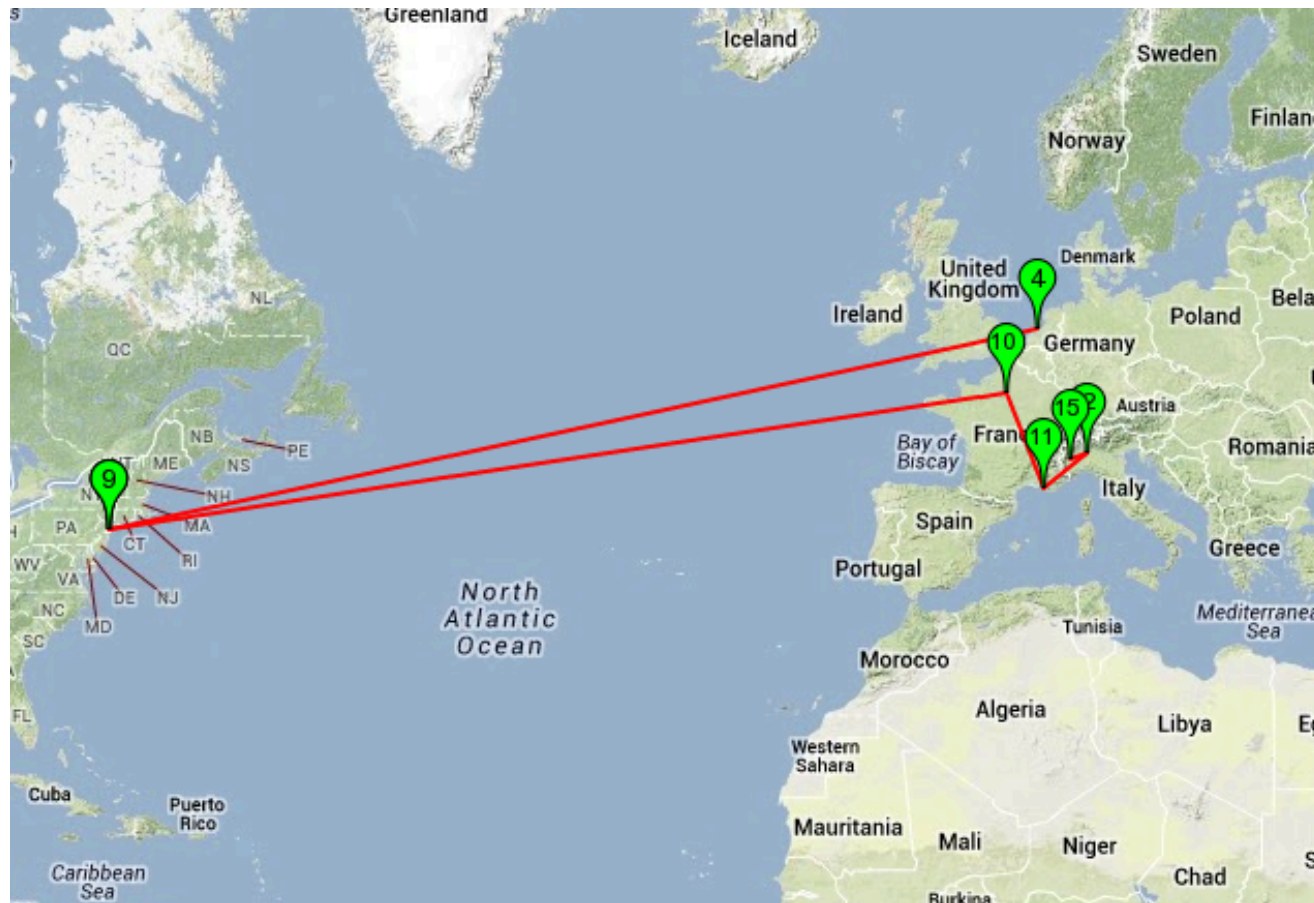
# GeoRIPE

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- Why?
  - To know where the traffic “actually flows”
    - Does it leave the region, country?
  - To understand where the traffic should **not** have gone
  - To know who is/was affected in a geographically constrained network event (think of hurricane Sandy)
  - To detect “hairpinning”

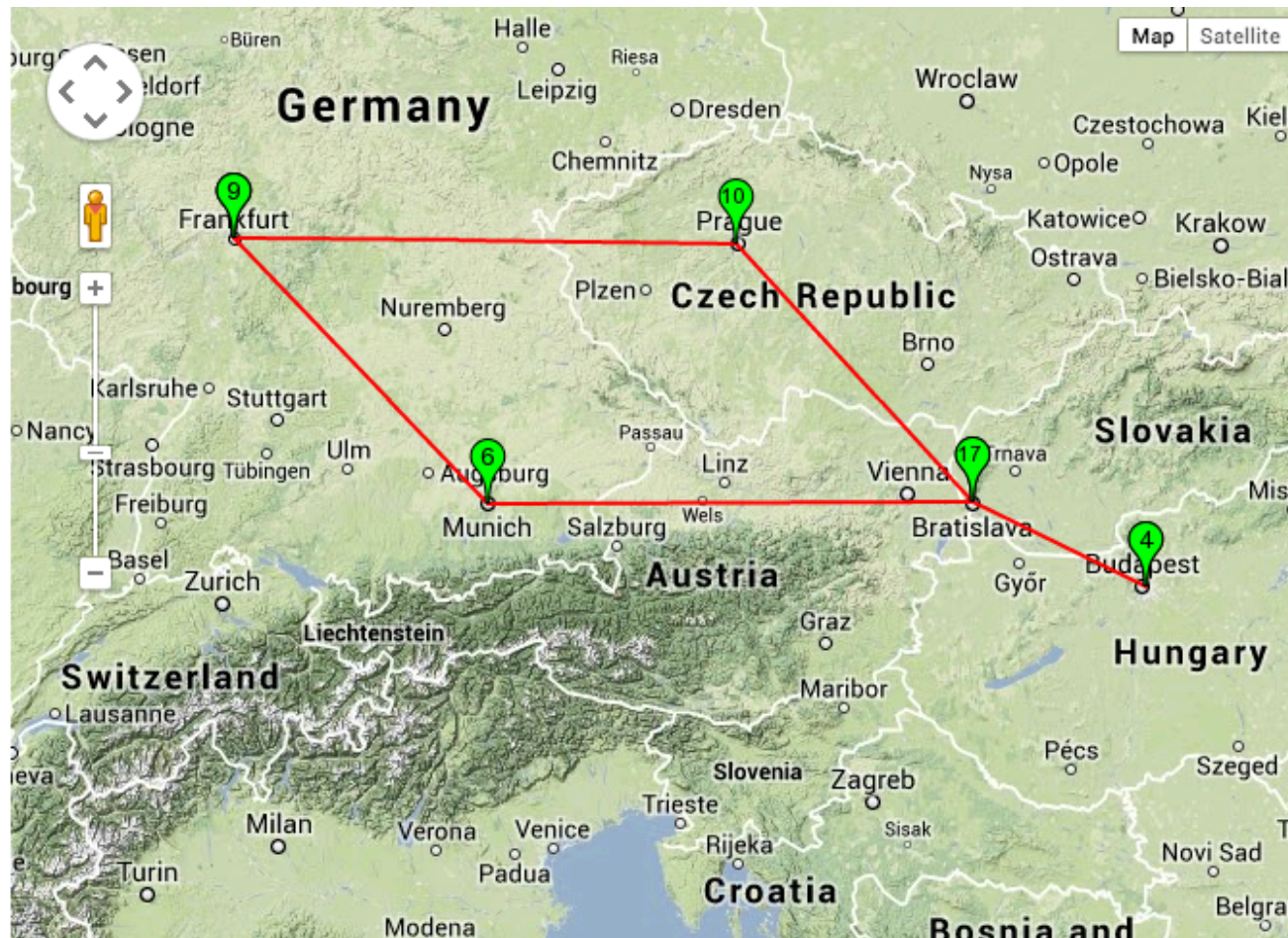
# GeoRIPE

- To identify this:



# GeoRIPE

- And this:



# GeoRIPE

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- If you have thoughts about this idea: let's talk!
- Otherwise: stay tuned 😊

Questions?

