



Hackerspaces

Communication

Active hackerspaces

ALL hackerspaces

> add a hackerspace

List of events

> add an event

RIPE Atlas

27 Hackerspaces with a [RIPE Atlas Probe](#) 📍

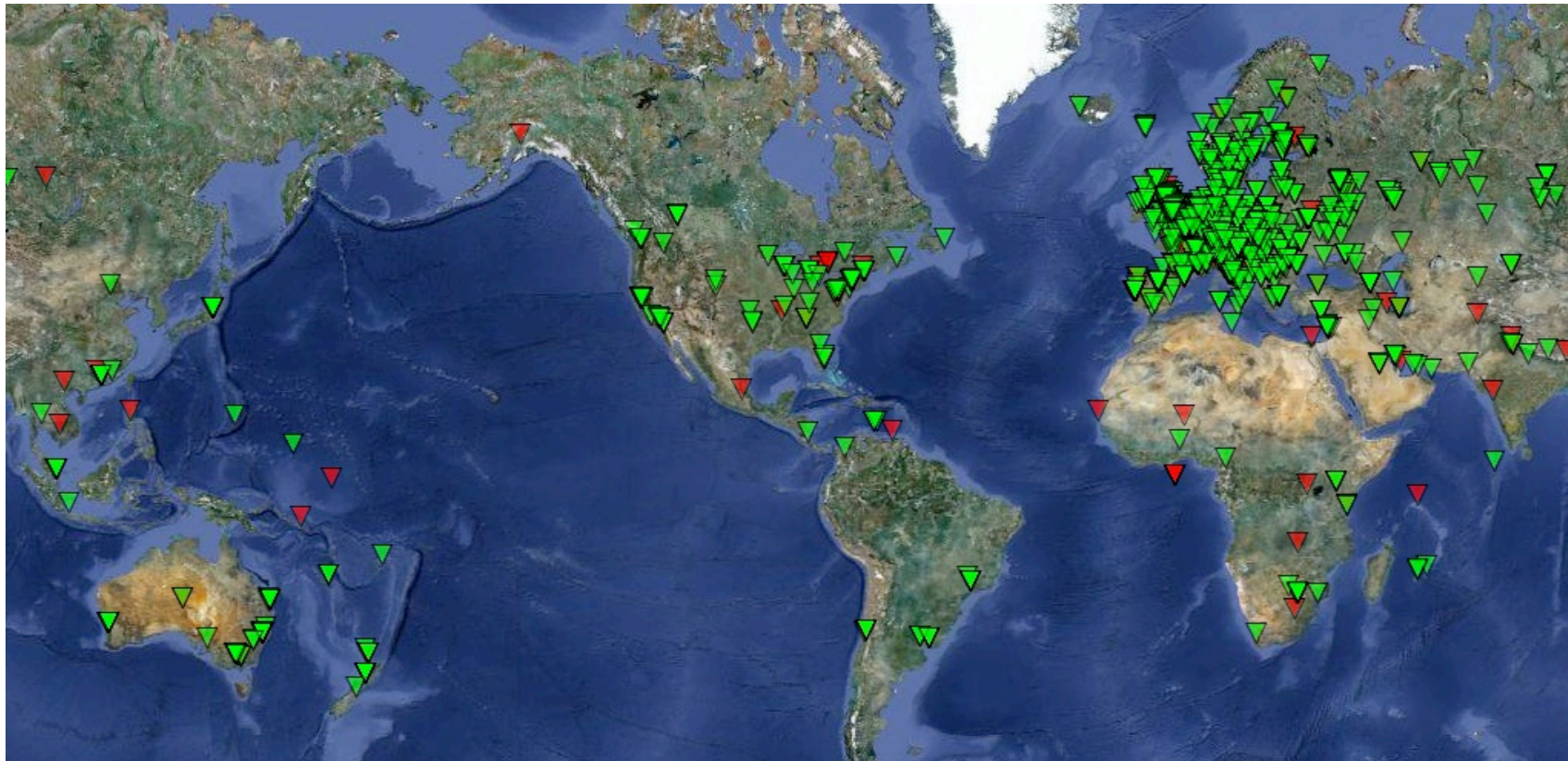
To ask for a probe: atlas.ripe.net/apply 📍

To add a probe to your hackerspace: edit the page of your hackerspace on this wiki; at the bottom add "equipment" -> choose "RIPE Probe". The map will be automatically generated to place your hackerspace on this map!

For more info, see [Project description "RIPE Atlas probes at hackerspaces"](#) 📄



RIPE Atlas: a network of active probes measuring the Internet infrastructure in real-time, since 2010



RIPE Atlas: July 2013

- 3,600+ probes up and active
5000+ distributed
- 7,700+ registered users
- Data of built-in measurements is public and available to everyone
 - Maps, tables, public probes data and API to download raw data
- Four types of customised measurements available to **probe hosts** and **RIPE NCC members**:
ping, traceroute, DNS, SSL



New RIPE Atlas Probe: Third Generation

- TP-Link TL-MR3020 powered from USB port (500mA)
- 32 MB RAM, 4 MB flash built-in, 4GB flash on USB stick, firmware is updated remotely
- Runs OpenWRT (deep down)
- 400 MHz MIPS CPU with MMU



- **Does not work as a wireless router!**
- **Same functionality as the old probe!**
 - Please keep your old probe connected
 - If you want a new one, must use it in another network

Many More New Features

- **Published source code for probe software**

- <https://github.com/RIPE-Atlas-Community>

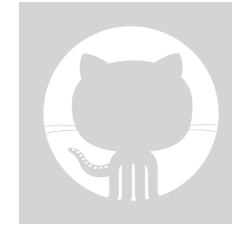
- One-off measurements
- REST API available for creating measurements
- Probe sharing with LIR colleagues
- New visualisations (UDMs, countries...)
- New front page, content and navigation
- Personal dashboard view for logged-in users

RIPE Atlas - Security aspects

- Probes have hardwired trust material (registration server addresses / keys)
- The probes don't have any open ports, they only initiate connections
 - This works fine with NATs too
- Measurements are scheduled by centralized “command servers”
 - via reverse ssh tunnels
- Probes don't listen to local traffic, there are no passive measurements running
 - There's no snooping around

Community News

- Roadmap has a permanent home
- GitHub Community Repository
- New community pages (top ten users, photos, ...)
- Seven new sponsors in 2013
- RIPE Atlas Ambassadors program
- Established cooperation with interested parties:
 - regulators, researchers, operators



New Arrivals to the Community



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

RIPE Atlas Contact

- **<https://atlas.ripe.net>**
- Get a probe: **<https://atlas.ripe.net/apply>**
- Mailing list for active users: **ripe-atlas@ripe.net**
- Articles & updated on RIPE Labs
 - **<https://labs.ripe.net/atlas>**
- Questions: **atlas@ripe.net**
- Twitter: **#RIPEAtlas** and **@RIPE_Atlas**
- Community Builder, Vesna Manojlovic:
@Ms_Measurements

Call to actions!

- Get more probes to hackerspaces!
 - [http://wiki.techinc.nl/index.php/RIPE Atlas probes at hackerspaces](http://wiki.techinc.nl/index.php/RIPE_Atlas_probes_at_hackerspaces)
 - [http://hackerspaces.org/wiki/RIPE Atlas](http://hackerspaces.org/wiki/RIPE_Atlas)
- Take part in RIPE Atlas community
 - be an ambassador: help us distribute more probes
 - be a sponsor: get more probes, customise probes, get extra benefits
 - contribute code to analyse data
- Work on use cases: net neutrality, SSL observatory, traffic anomalies... or come up with new uses!

BecHa, OHM2



12

Extra: News from RIPE66

- Open-source WG created!!
- CeroWrt - low-latency openWrt version that does IPv6 properly
 - <http://www.bufferbloat.net/projects/cerowrt>
- Multipath TCP
 - <https://ripe66.ripe.net/presentations/93-MultipathTCP-RIPE.pdf>
 - & <http://www.tracebox.org/> - middelboxes-detection tool
 - & <http://www.change-project.eu/events/bootcamp.html> 17-28.7. in **.be**
- SDN - can it be used for wireless mesh networks?
 - <https://ripe66.ripe.net/archives/video/8/>
- **RIPE Atlas source code published \o/**

Extra: How RIPE Atlas Works



Hardware Devices: Probes



- For accurate maps we need many vantage points
 - Small probes, easily deployable, no maintenance
 - USB powered, 24 x 365 capable
- Hosted and sponsored by organisations and end users
 - ISPs, Internet Exchange Points, individuals...
 - Free of charge for volunteers who host individual probes

Home-page: Before you Log-in

The screenshot shows the RIPE NCC website's homepage. At the top, there's a header with the RIPE NCC logo and a search bar. Below this is a navigation bar with links to various sections: RIPE Database, Statistics, RIPE Labs, DNS, RIPE Atlas (highlighted), RIPEstat, and Developer Documentation. A secondary navigation bar shows a breadcrumb trail: RIPE Atlas Home > About RIPE Atlas > Get Involved > Results > Login. The main content area is titled 'RIPE Atlas' and contains a paragraph about the network measurement project, a map of Europe with probe locations, and a link to view more maps. To the right, a 'System Statistics' box displays 'Probes connected to RIPE Atlas' as 3033 and 'Measurements currently running' as 1234. Below this is a 'Current Sponsors' section featuring the Comcast logo and a link to become a sponsor. At the bottom, there are three columns of links: 'About RIPE Atlas' (FAQ, Documentation, Announcements, Future Plans), 'Get Involved' (Host a Probe, Become a Sponsor, RIPE NCC Members, Community), and 'Results' (Internet Maps, Coverage & Statistics, Analyses & Use Cases, Graphs). The footer includes the RIPE NCC logo and the page number 16.

RIPE NCC RIPE NETWORK COORDINATION CENTRE

Search

RIPE Database Statistics RIPE Labs DNS **RIPE Atlas** RIPEstat Developer Documentation

RIPE Atlas Home • About RIPE Atlas • Get Involved • Results • Login

You are here: Home > Data & Tools > RIPE Atlas

RIPE Atlas

With your help, the RIPE NCC is building the largest Internet measurement network ever made. RIPE Atlas employs a global network of probes that measure Internet connectivity and reachability, providing an unprecedented understanding of the state of the Internet in real time.

View more RIPE Atlas maps →

System Statistics

Probes connected to RIPE Atlas **3033**

Measurements currently running **1234**

Current Sponsors

BECOME A RIPE ATLAS SPONSOR →

On RIPE Labs

- About RIPE Atlas
 - FAQ
 - Documentation
 - Announcements
 - Future Plans
- Get Involved
 - Host a Probe
 - Become a Sponsor
 - RIPE NCC Members
 - Community
- Results
 - Internet Maps
 - Coverage & Statistics
 - Analyses & Use Cases
 - Graphs

How to Apply for a Probe

- Apply, and we will ship the probe to you
 1. Create RIPE NCC Access account
 2. Fill in application form: atlas.ripe.net/apply
 3. Wait for the shipment to arrive
 4. Plug-in the probe - enjoy measurements!
- Receive a probe from an “ambassador”/sponsor
 1. Create RIPE NCC Access account
 2. Register your probe (MAC address + email/account)
 3. Plug-in the probe - enjoy measurements!

Dashboard: for the Logged-in Users

[RIPE Atlas Home](#) • [About RIPE Atlas](#) • [Get Involved](#) • [Results](#) • [My Atlas: Vesna Manojlovic](#) • [Staff Pages](#) • [Logout](#)

You are here: [Home](#) > [Data & Tools](#) > [RIPE Atlas](#)

Measurements

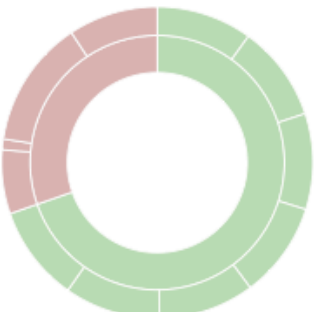
IPV4	belastingdienst.nl	20160.0 credits/day	28 March 2013 14:40	✓
IPV4	test ts	28800.0 credits/day	17 December 2012 13:39	✓
IPV4	test	2400.0 credits/day	28 June 2012 13:55	✓
IPV4	piratebay.se	14400.0 credits/day	16 May 2012 16:13	✓

Probes

Andreas' Home	2 days, 12 hours	✓
xs4all adsl 16/2 IPv6	1 day, 8 hours	✓
Bert's home; xs4all vDSL 40/4 IPv6	1 day, 8 hours	✓
BECHA's home	1 day, 8 hours	✓
4027	5 months, 3 weeks	⚙
4041	5 months, 3 weeks	⚙
SudREN (POP1)	1 day, 8 hours	✓
4073	5 months, 3 weeks	⚙
4080	5 months, 3 weeks	⚙
4087	5 months, 3 weeks	⚙
4093	2 months, 1 week	⚙

Credits

35,813,474.17 8,131.04



API Keys

3

Download results of a user defined measurement
9788b7e0-9d4b-4787-8a42-fce8f2f2e929 ✓


Download results collected by a specific probe

System Statistics

Probes connected to RIPE Atlas **3033**

Measurements currently running **1234**

Current Sponsors



[BECOME A RIPE ATLAS SPONSOR →](#)

On RIPE Labs

RIPE Atlas Code for Analysis and Statistics Reporting
May 13, 2013 >

Introducing RIPE Atlas "Quick Look"
May 07, 2013 >

Who Can Perform Which Measurements?

- RIPE NCC is performing “built-in” measurements
 - From all the probes, towards root name servers and our infrastructure
 - Periodically: few times a day (55 million / day)
 - Pings, traceroutes and DNS queries
 - Data stored on Hbase/Hadoop clusters
 - Results available to everyone!
 - <https://atlas.ripe.net/results/>

[...continued]

- Probe hosts and RIPE NCC members perform customised (user defined) measurements (UDM) using the targets of their choice and desired frequency
 - 5 million / day
- Anchoring measurements coming soon
 - Each probe will measure 4-5 “anchors” as a regional baseline
 - RIPE Atlas anchors placed at IXPs and big operators

How to Schedule a Measurement

- Log in to atlas.ripe.net
- Go to “My Atlas” -> “My Measurements”
- Choose “New Measurement” or “One-off”
 - most measurements are periodic & last long time
 - choose: type, target, frequency, # of probes, region...
 - you will spend credits (next slides)
- To see results: “My Measurements”
- More details: <https://atlas.ripe.net/doc/udm>

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
 - Hosts earn 21,000+ credits per day, as long as the probe is connected
- In order to schedule customised measurements, users spend credits
 - Ping costs 10 credits, traceroute 20, etc.
 - Daily limit applies

[...continued]

- Credits system introduced to ensure fairness and protect system from overload
- Extra credits can be earned by:
 - Being a RIPE NCC member
 - Hosting a RIPE Atlas anchor
 - Sponsoring multiple probes
- More details: <https://atlas.ripe.net/doc/credits>

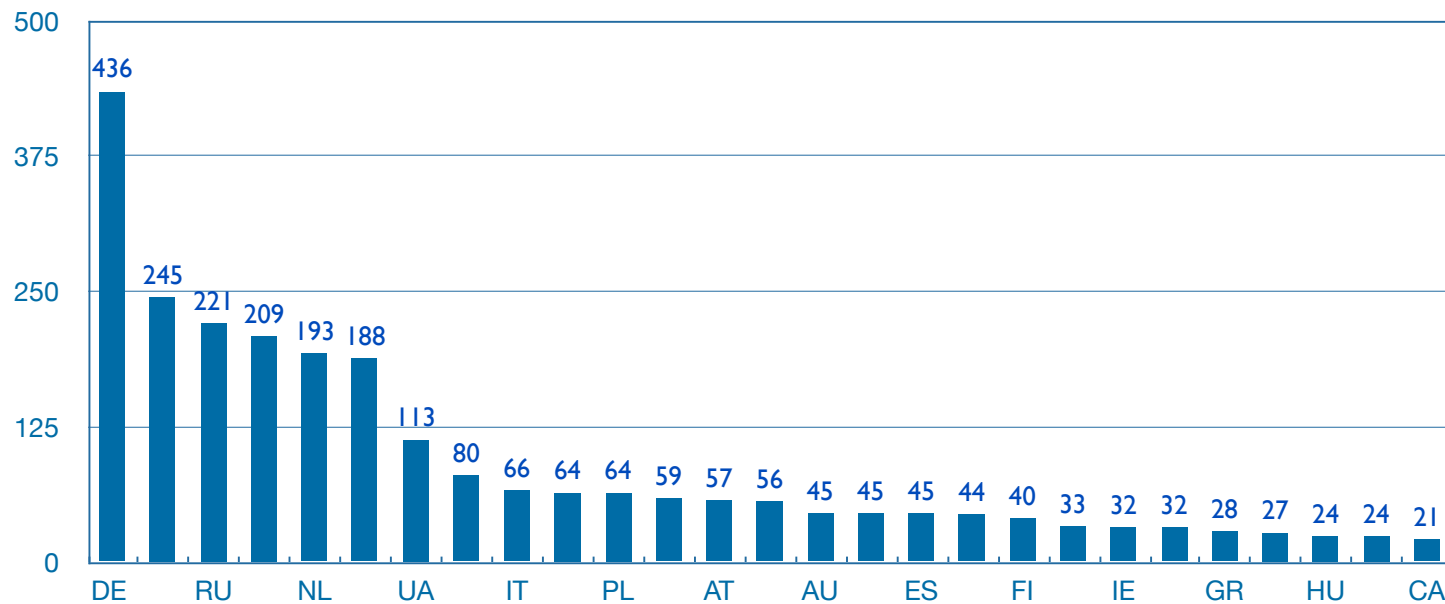
RIPE Atlas Anchors

- Anchors are well-known targets and powerful probes
 - Pilot started in September 2012
 - Currently 13 anchors deployed
 - Goal: ~50 deployed in 2013
 - Benefit: regional baseline & “future history”



RIPE Atlas Coverage

- Probes deployed in 108 countries
- Network coverage criteria for distribution: varied ASNs and IP prefixes
- <https://atlas.ripe.net/contrib/coverage.html>



BecHa, OHM2013



25

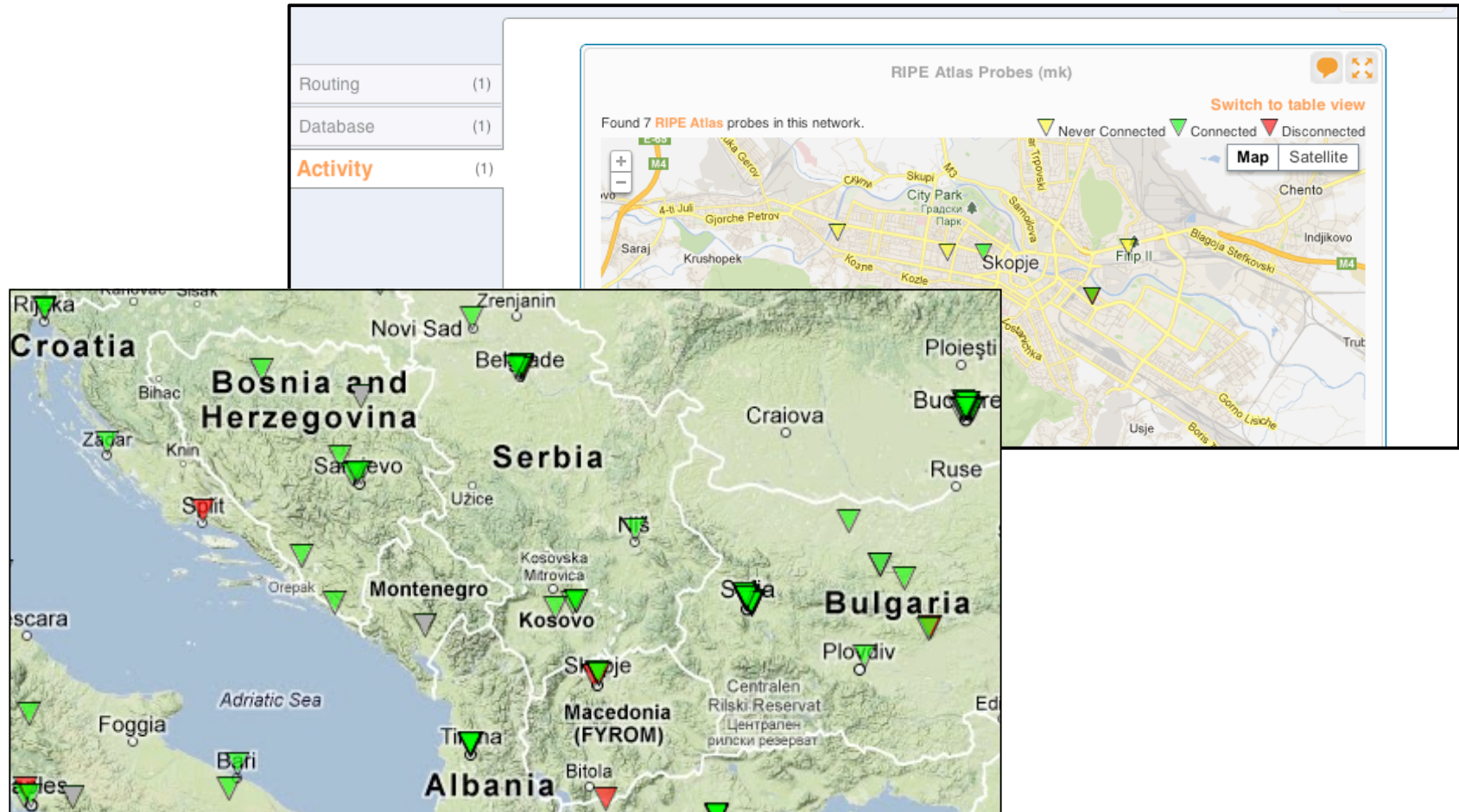
Success Story: Measuring Hurricane Sandy

- Most RIPE Atlas probes in affected area unavailable during Hurricane Sandy
- Traffic partially shifted away from NYC as a transit hub



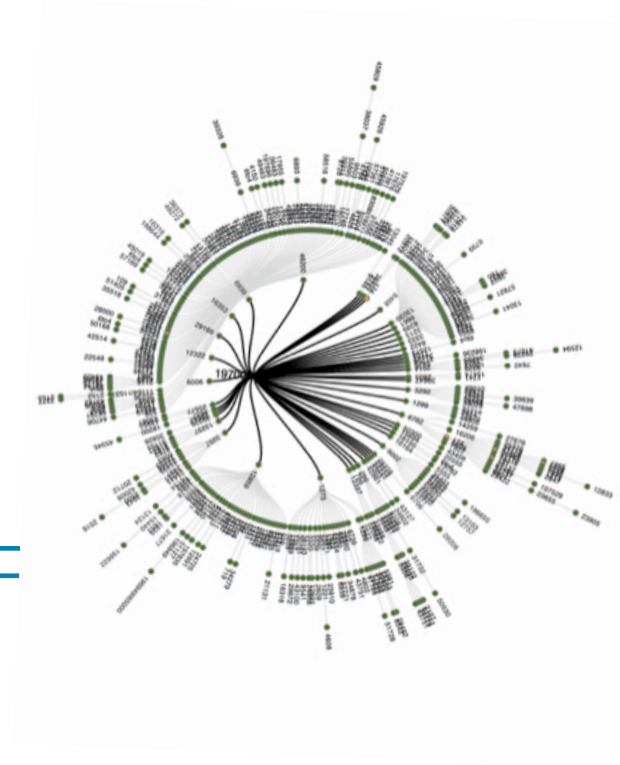
<https://labs.ripe.net/sandy-2012>

RIPEstat: Probes Per ASN, IP Prefix or Country



RIPE Atlas: for LIRs/ RIPE NCC members

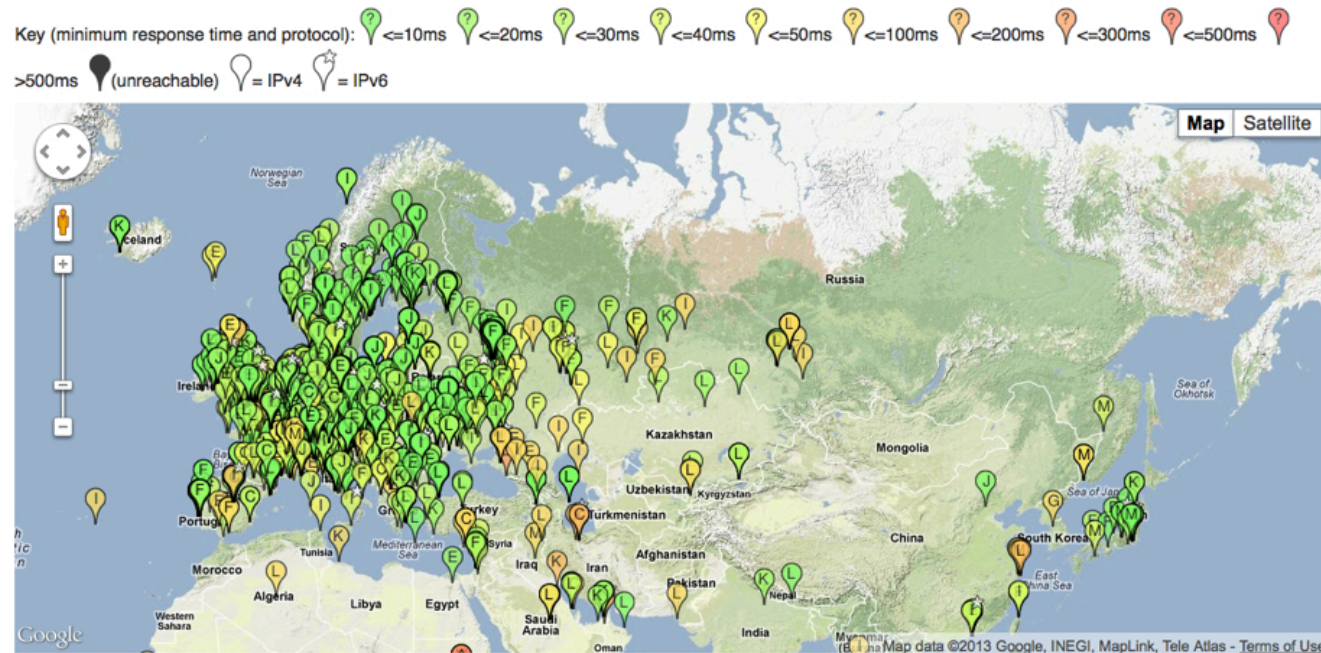
- Quick Look measurements
- One-click measurement "Test your IPv6"
- Get 1,000,000 credits
- Apply for the probe via LIF Portal



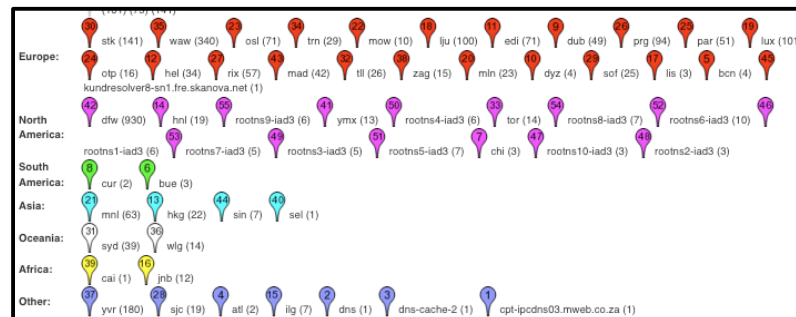
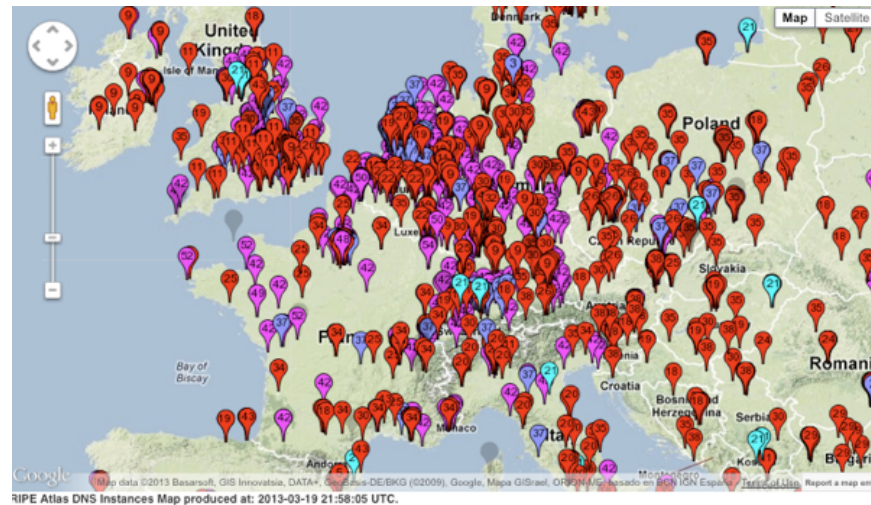
RIPE Atlas 2013 Sponsors



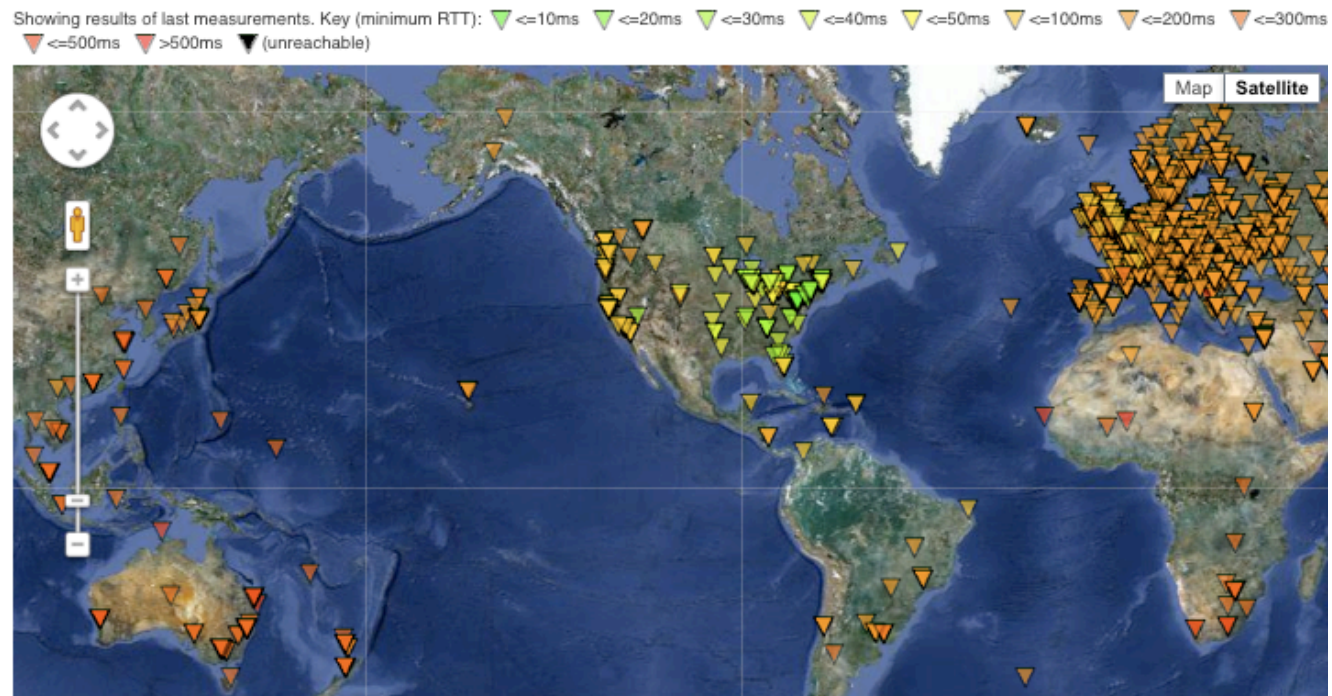
RIPE Atlas Maps: Comparing DNS Root Servers RTT



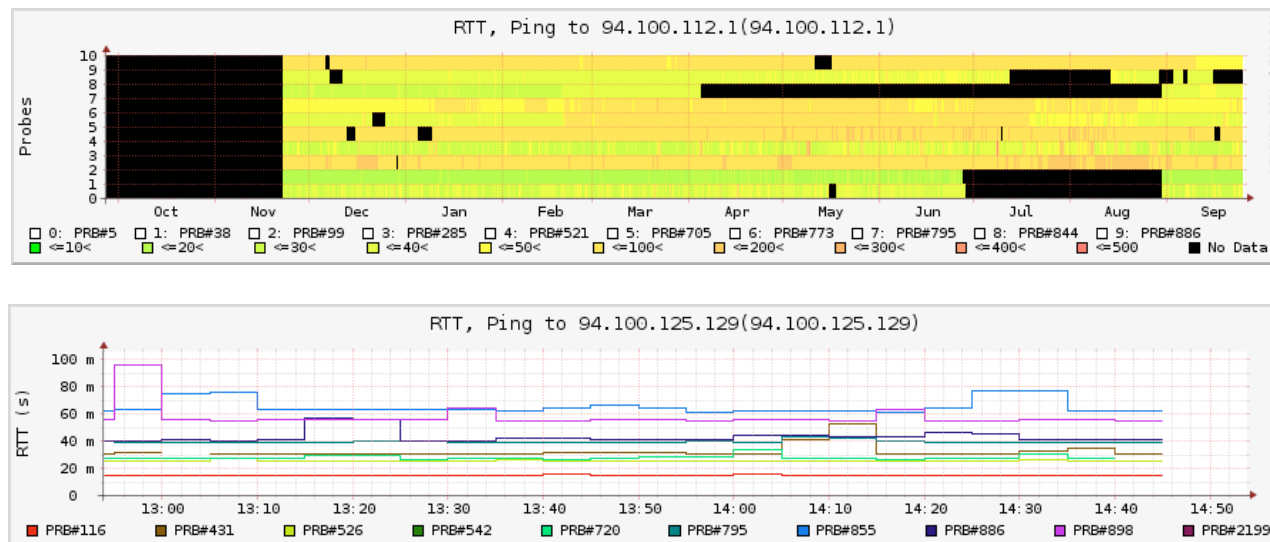
Which AnyCast Instance is Each Probe Querying?



Where is D-Root?



Details of Customised Measurements



Case Studies of RIPE Atlas Usage

- Testing an occasional operational issue to verify DNS responses from a number of widely distributed measurement points
- /48 Filtering
- IPv6 reachability testing before and during World IPv6 Launch
- Correlating Routing Configuration Changes with Forwarding Changes
- ...and more at **labs.ripe.net/atlas** and **<https://atlas.ripe.net/analyses>**



Friday, August 2, 2013