

**RIPE  
NCC**

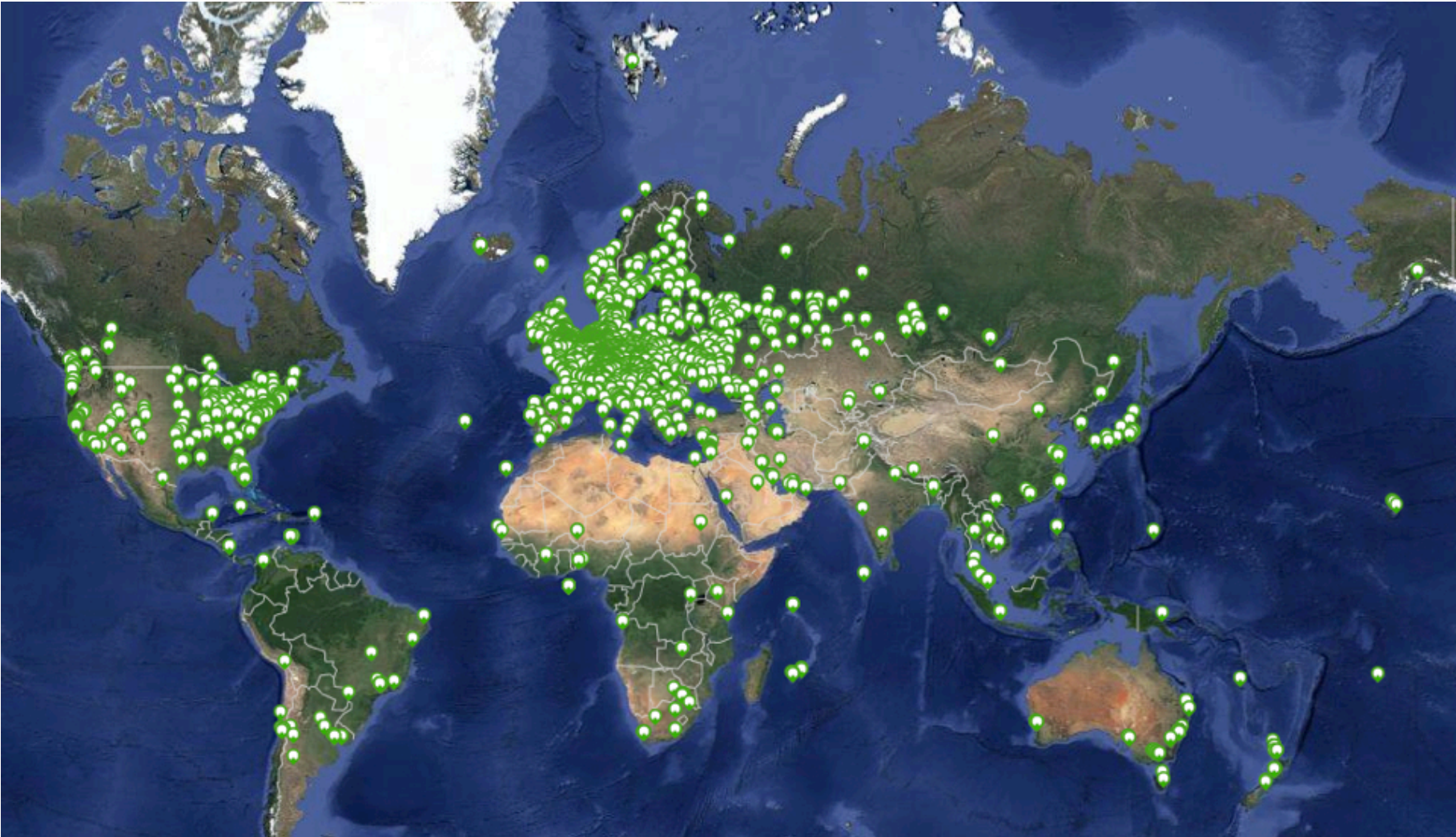
## **More Measurements: Expanding RIPE Atlas Anchors**

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Vesna Manojlovic  
Measurements Community Building

MORE-IP, May 2014, Amsterdam

# RIPE Atlas Deployment



Vesna Manojlovic - MORE-IP - May 2014, Amsterdam



- RIPE Atlas is a global network for active measurements
- Hardware probes measure Internet connectivity and reachability
- RIPE Atlas provides an unprecedented understanding of the state of the Internet in real time

<https://atlas.ripe.net>

- Anyone can become a RIPE Atlas probe host
  - <https://atlas.ripe.net/apply>
- Built-in measurements performed by RIPE NCC
  - Data available to everyone
  - Maps, data from public probes, API to download raw data
- Major personal and operational benefit:  
See your network from the outside!

# Probes Photos



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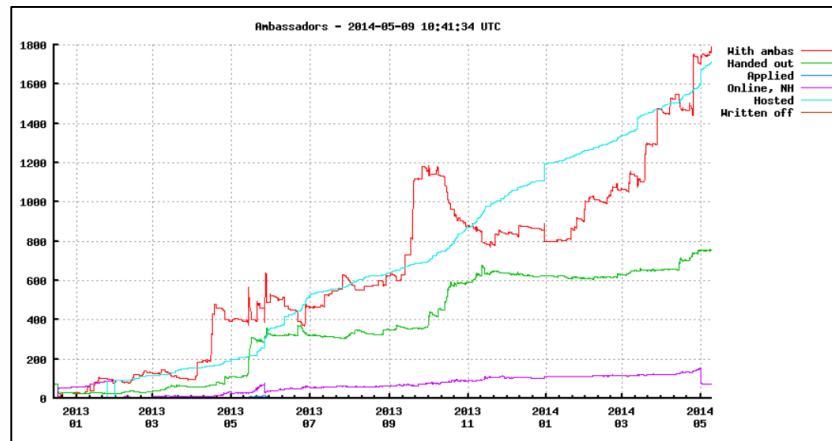
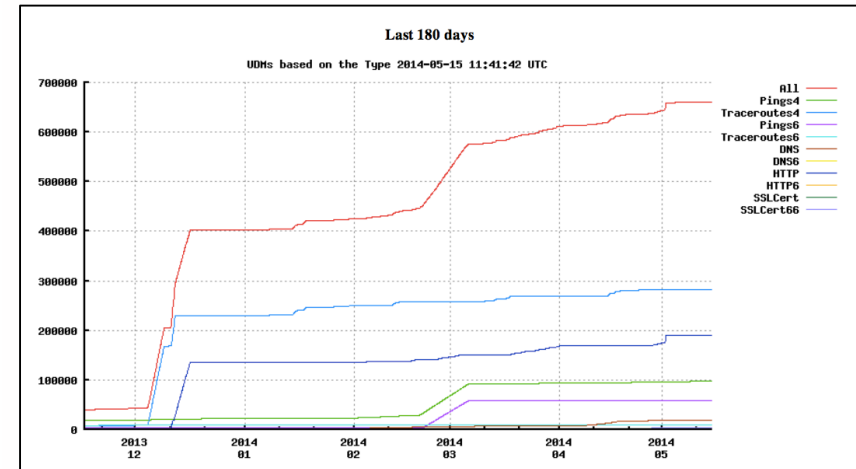
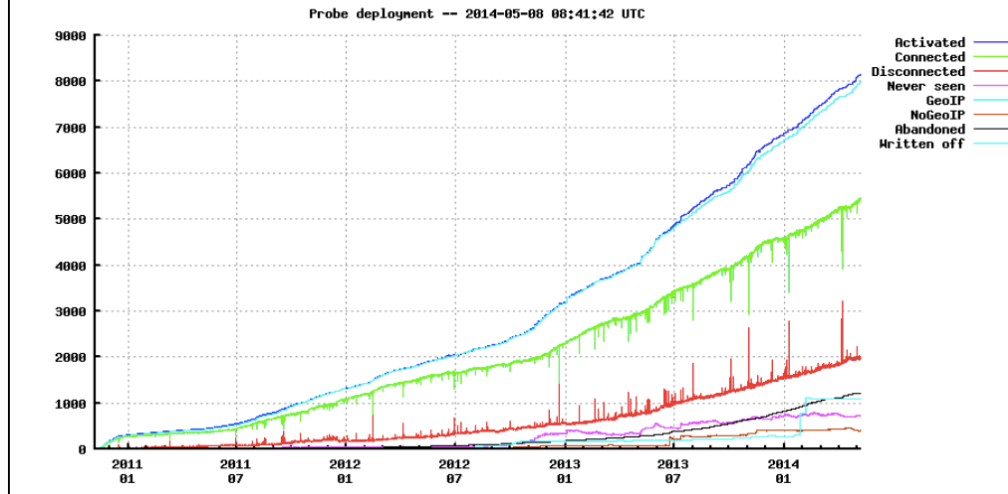


- 5,600+ probes connected
- 8,000+ active users this year
- 5,000+ built-in measurements daily
- 5,000+ user-defined measurements daily
  - Four types of user-defined measurements available to probe hosts and RIPE NCC members: ping, traceroute, DNS, SSL
- Goal by end 2014:
  - 10,000 connected probes

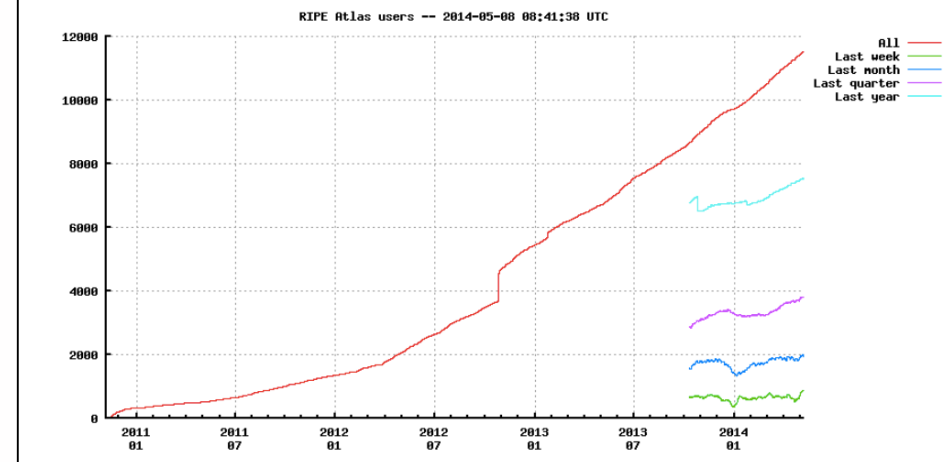
Country	Probes
United States	876
Germany	846
Russian Federation	726
United Kingdom	600
Netherlands	475
France	418
Ukraine	369
Belgium	194
Italy	179
Czech Republic	169

# Growth Graphs

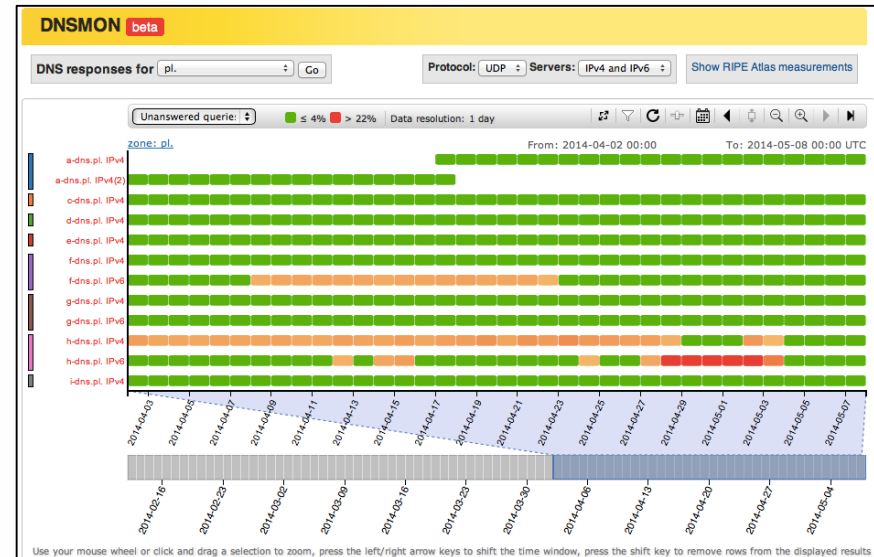
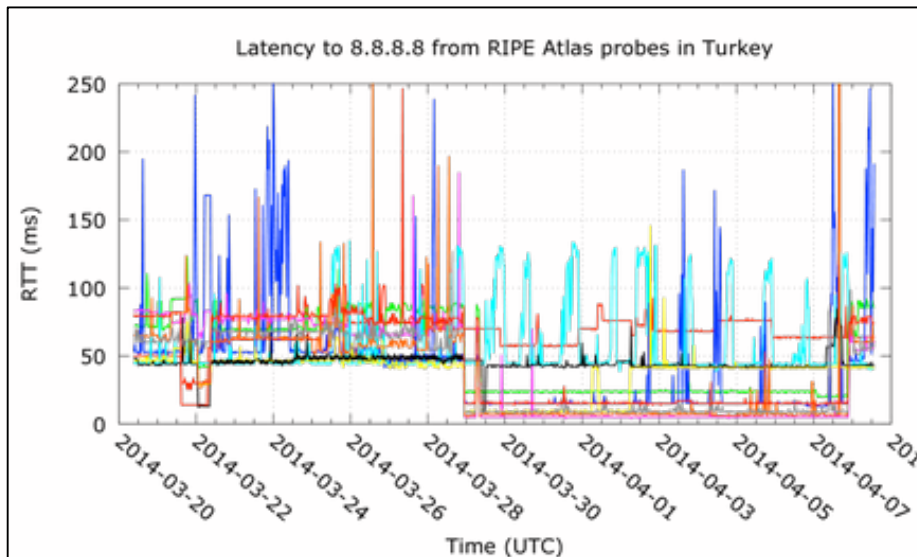
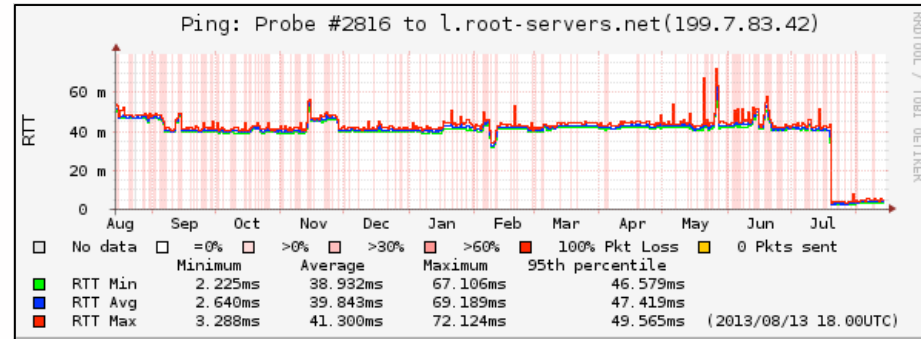
## Probe deployment



## RIPE Atlas users



# Success Stories



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- Investigating problems of slow servers:
  - <http://engineering.freeagent.com/2014/01/24/atlas-probes/>
- Measuring packet loss to determine congested networks
- Selective blackholing (examples based on RIPE Atlas)
  - [https://ripe68.ripe.net/presentations/176-RIPE68 JSnijders DDoS Damage Control.pdf](https://ripe68.ripe.net/presentations/176-RIPE68_JSnijders_DDoS_Damage_Control.pdf)
- Anycast analysis:
  - [https://labs.ripe.net/Members/stephane\\_bortzmeyer/the-many-instances-of-the-l-root-name-server](https://labs.ripe.net/Members/stephane_bortzmeyer/the-many-instances-of-the-l-root-name-server)



## RIPE Atlas Anchors

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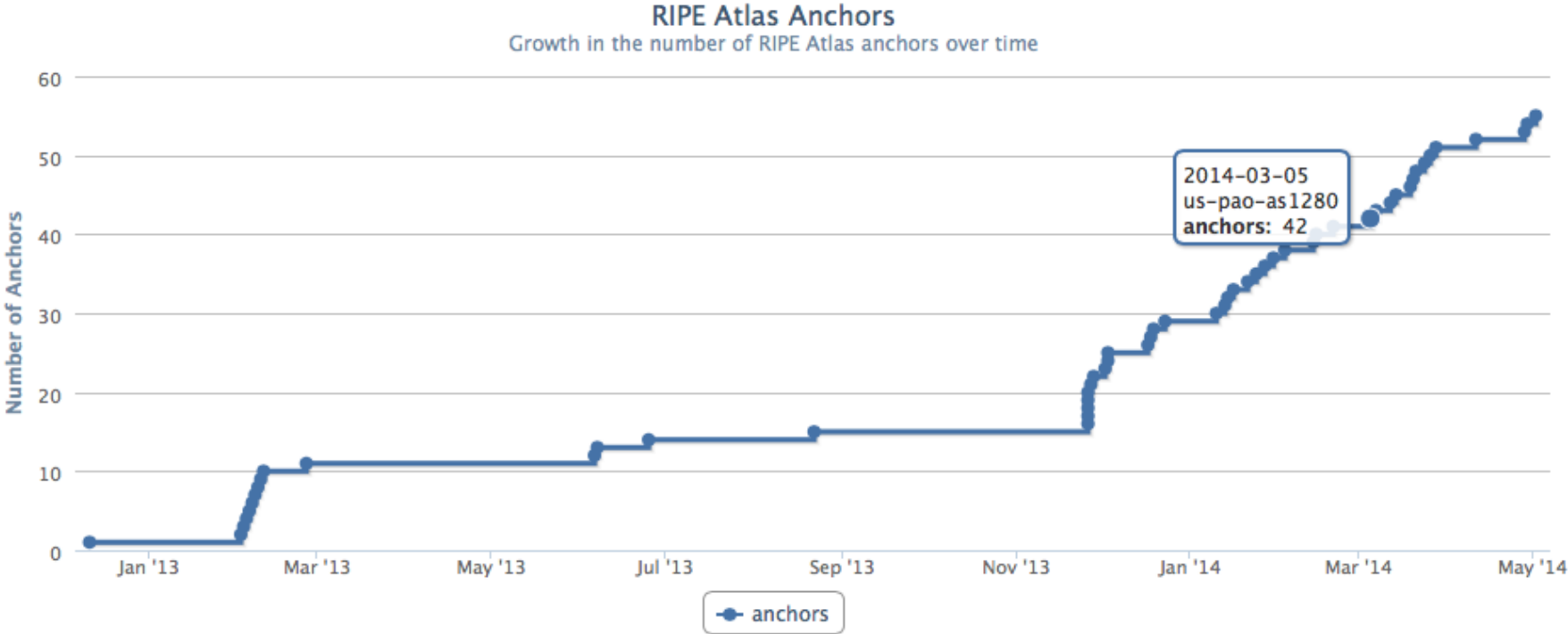
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- Anchors: well-known targets and powerful probes
  - Regional baseline & “future history”
- Anchoring measurements
  - Measurements between anchors
  - 200 probes targeting each anchor with measurements
  - Each probe measures 4-5 anchors
- Vantage points for new DNSMON service
- 58 RIPE Atlas anchors
  - Goal for 2014: 100 active anchors worldwide



## RIPE Atlas anchors





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# RIPE Atlas Anchor Hosts (part 1)

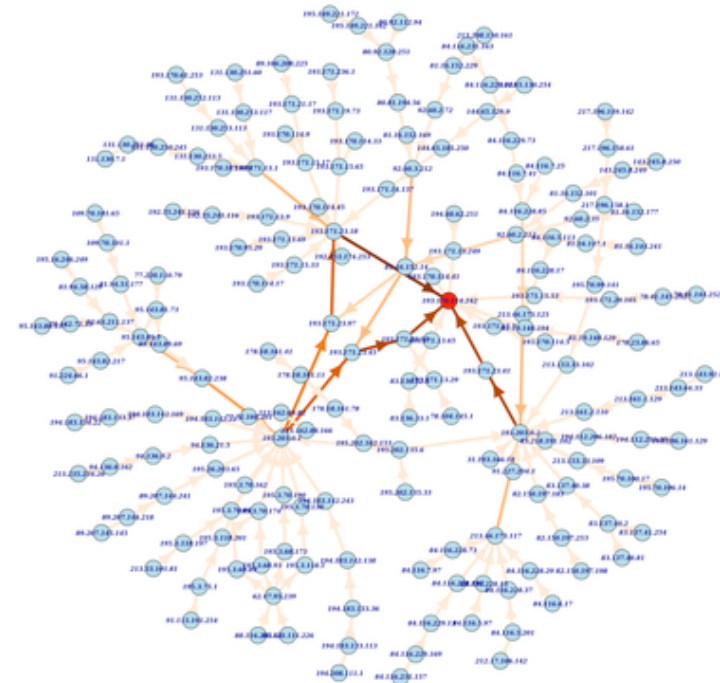


# RIPE Atlas Anchor Hosts (part 2)





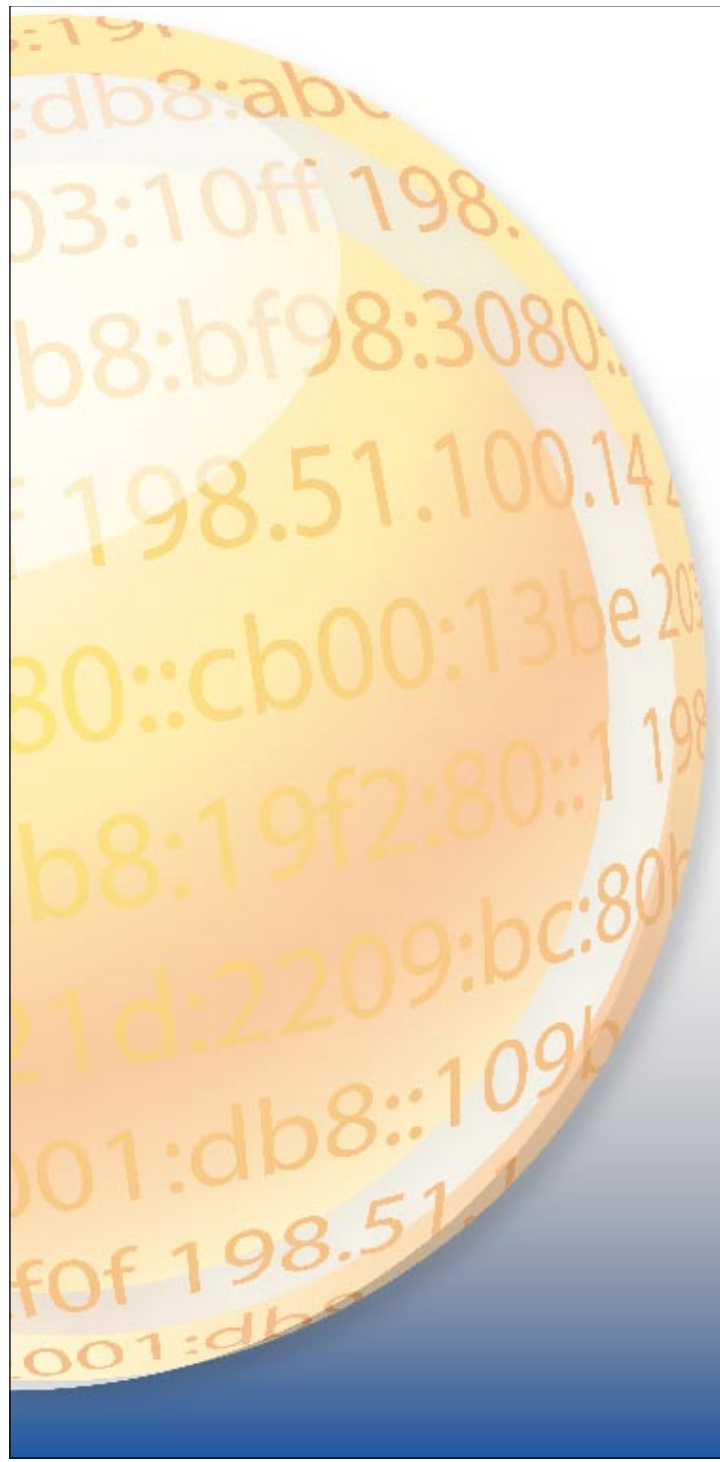
- Exploring the potential of RIPE Atlas for mapping the packet layer topology
- Using the example of RIPE Atlas Anchor at VIX (Vienna)
- Pretty graphs, useful info



<https://labs.ripe.net/Members/dfk/map-a-ripe-atlas-anchor>

- Benefits:
  - Measuring impact of anycast services deployment
  - Troubleshooting connectivity quirks
  - Mostly deployed at IXPs, ccTLDs, larger data centres
- Requirements
  - Host are responsible for the hardware: Soekris box
  - IPv4, and native IPv6 connectivity
  - 10 MB bandwidth (currently use 200 kB, on average)
  - Needs unfiltered access (placed in front of the firewall)

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



## Get Involved

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## Community Information

Find out more about the RIPE Atlas community, their contributions, and the hosts who stand out in the RIPE Atlas network.

- Always Up
- Big Spenders
- New Arrivals**
- Sponsors
- Anchor Hosts
- Photos

New Arrivals are new hosts who connected a RIPE Atlas probe in the last ten days. (Note that the flags are representative of their probe locations and not necessarily their nationality.)


 Andrea Speranza

 herdir anon

 Ferdinand  
BOISSIER


 Arky R


Andre Els

 Angus Hay


 Pop Marcel Marcel

 Marc Lagrange


 mwizu sikanyika

 fernando aversa

 Mark Campbell

 Jean Welman


 Jeff Fletcher

 Diederik  
Vandevenne


 Marty Strong


 Geert Jan de Groot


Rhys Smith

 Sysadmin VRVis

Trevor Warwick

 Pierre-Yves Gillier

 Marc Chabrol

 Lorenzo Cafaro


 CERT SWITCH


 Marko Eling


 Ulrik Johansen


 Roar Idsøe

 Rafael Oliwa


 Lukas Vescicik


 Václav Hořejší


 Tomas Pristach


 Andrew Orange


 Piotr Burzyński


 Giulia Di Rienzo

 Lucas Braga

 Anibal Cañada

 Martin Prager

 Tomas Simonaitis

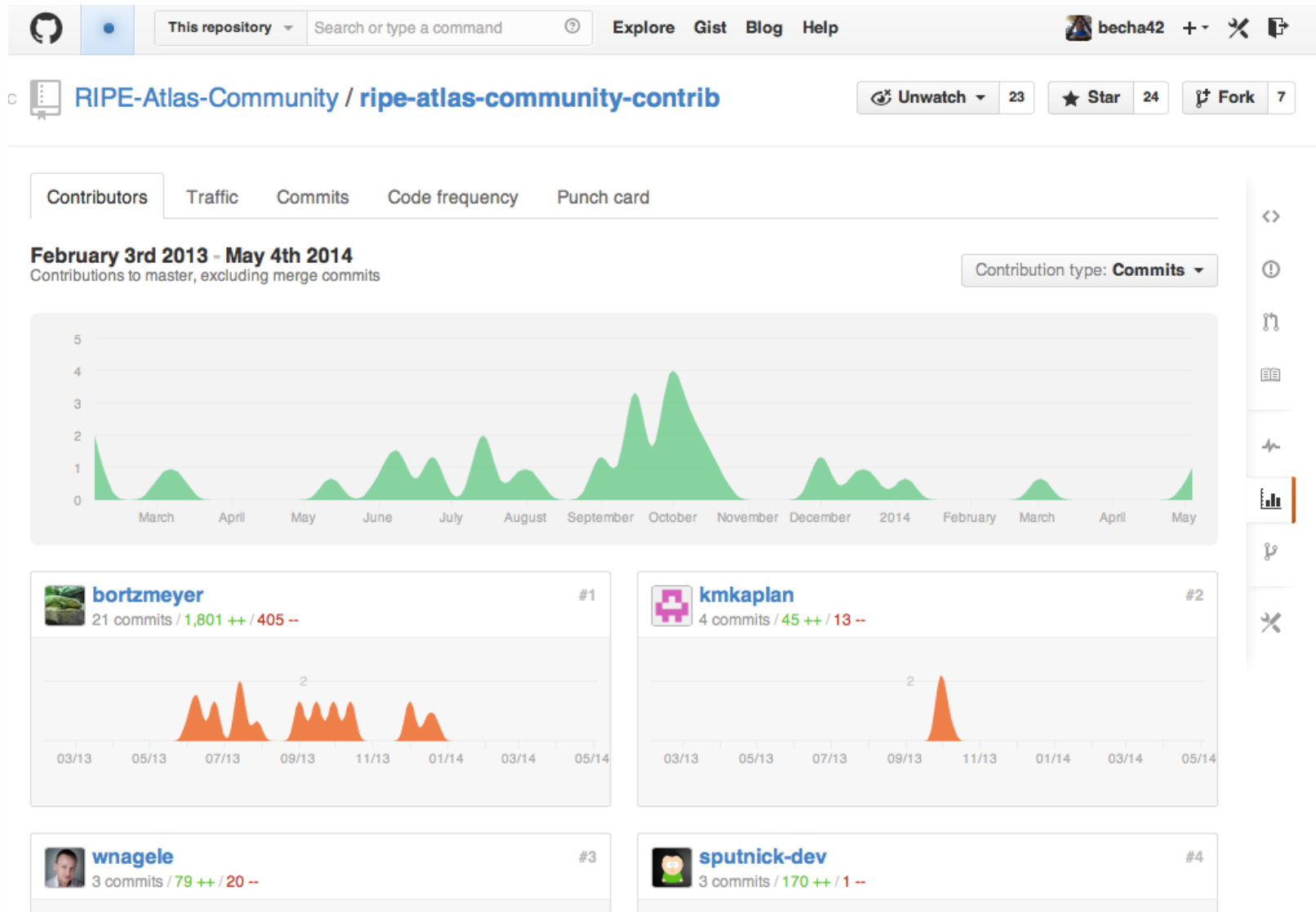
 Steffie Jacob  
Eravuchira

Chris Russell

# Become an Ambassador



# Contribute to the GitHub Repository



# We Are Grateful to Our Sponsors!



CENTER FOR  
**GLOBAL  
COMMUNICATION  
STUDIES**



**Cable&Wireless**  
Worldwide



Planned	In Progress
▶ Additional features for RIPE Atlas anchors	▶ Improve procedure for probe distribution by RIPE Atlas ambassadors
▶ WiFi Measurements	▶ Regularly publish metadata
▶ Share my probe with a custom-made group	▶ Regularly publish Names
▶ Sharing credits with colleagues	▶ Improved Measurements Pages
▶ Restarting previous measurements	▶ Improve number of connected probes
▶ Vantage points dropping out of existing user-defined measurements	▶ Increase number of active RIPE Atlas anchors
	▶ Improve IPv6 probe selection

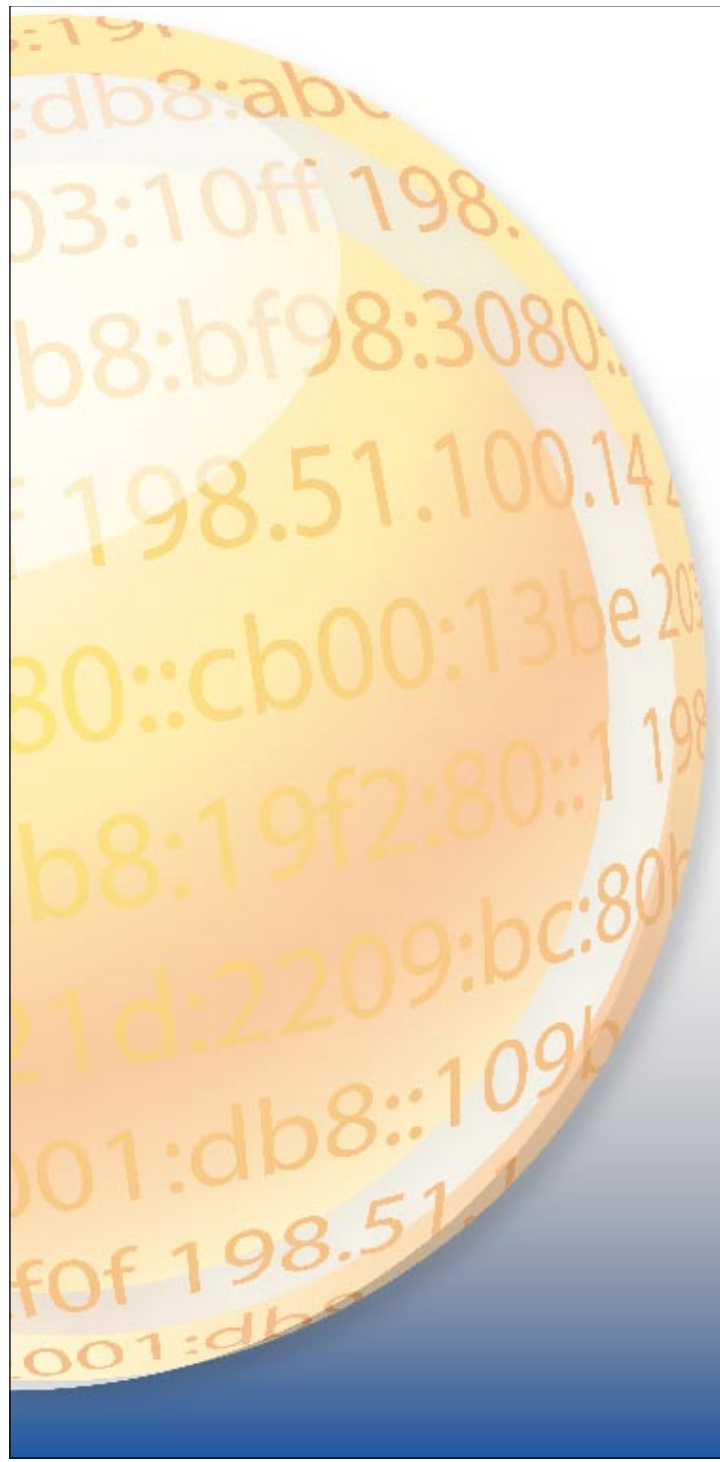


- RIPE Atlas website: <https://atlas.ripe.net>
- Mailing list for active users: [ripe-atlas@ripe.net](mailto:ripe-atlas@ripe.net)
- Articles on RIPE Labs: <https://labs.ripe.net/atlas>
- Questions: [atlas@ripe.net](mailto:atlas@ripe.net)
- Twitter: @RIPE\_Atlas and #RIPEAtlas

# Questions?

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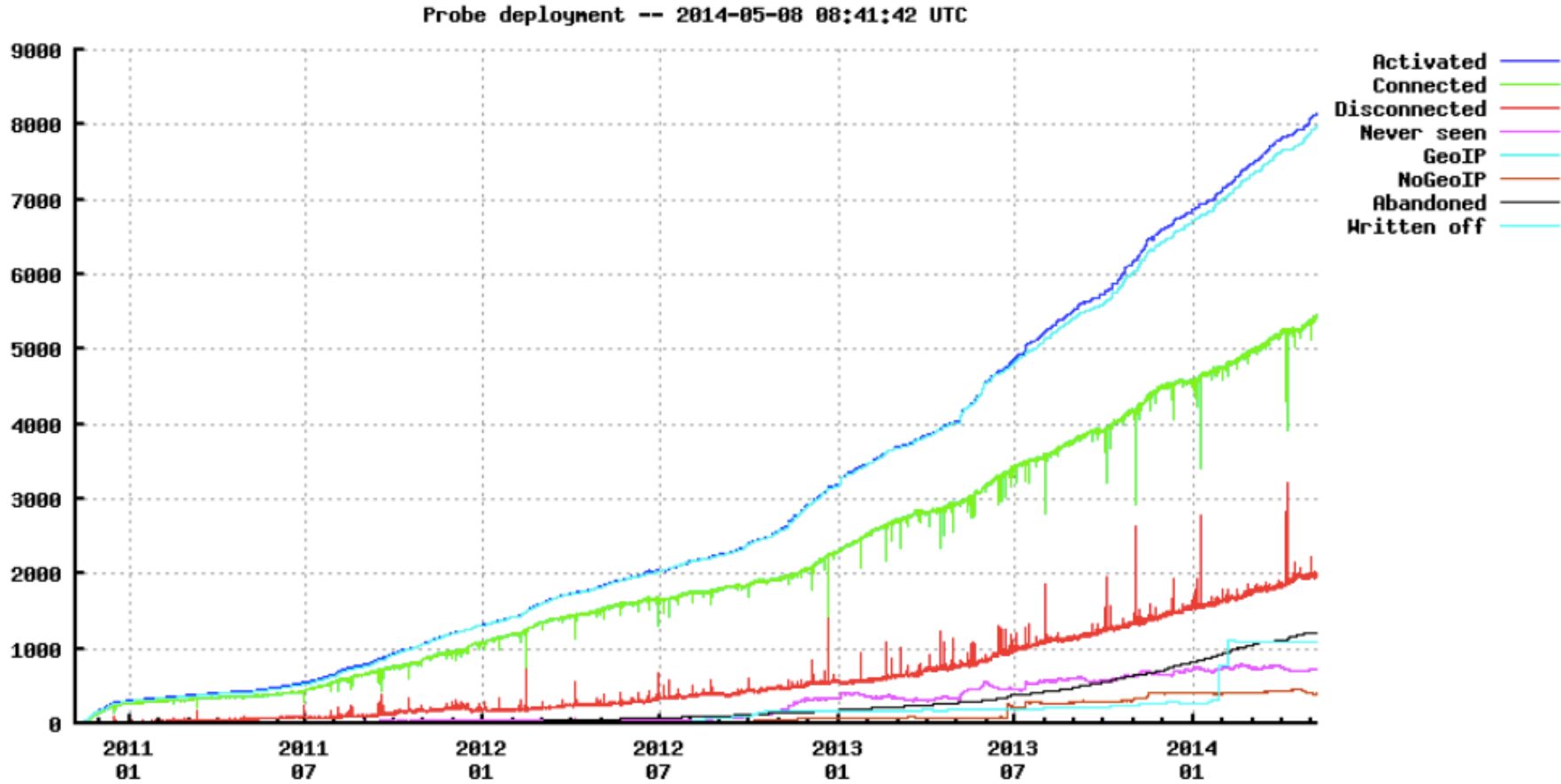


## Additional Information

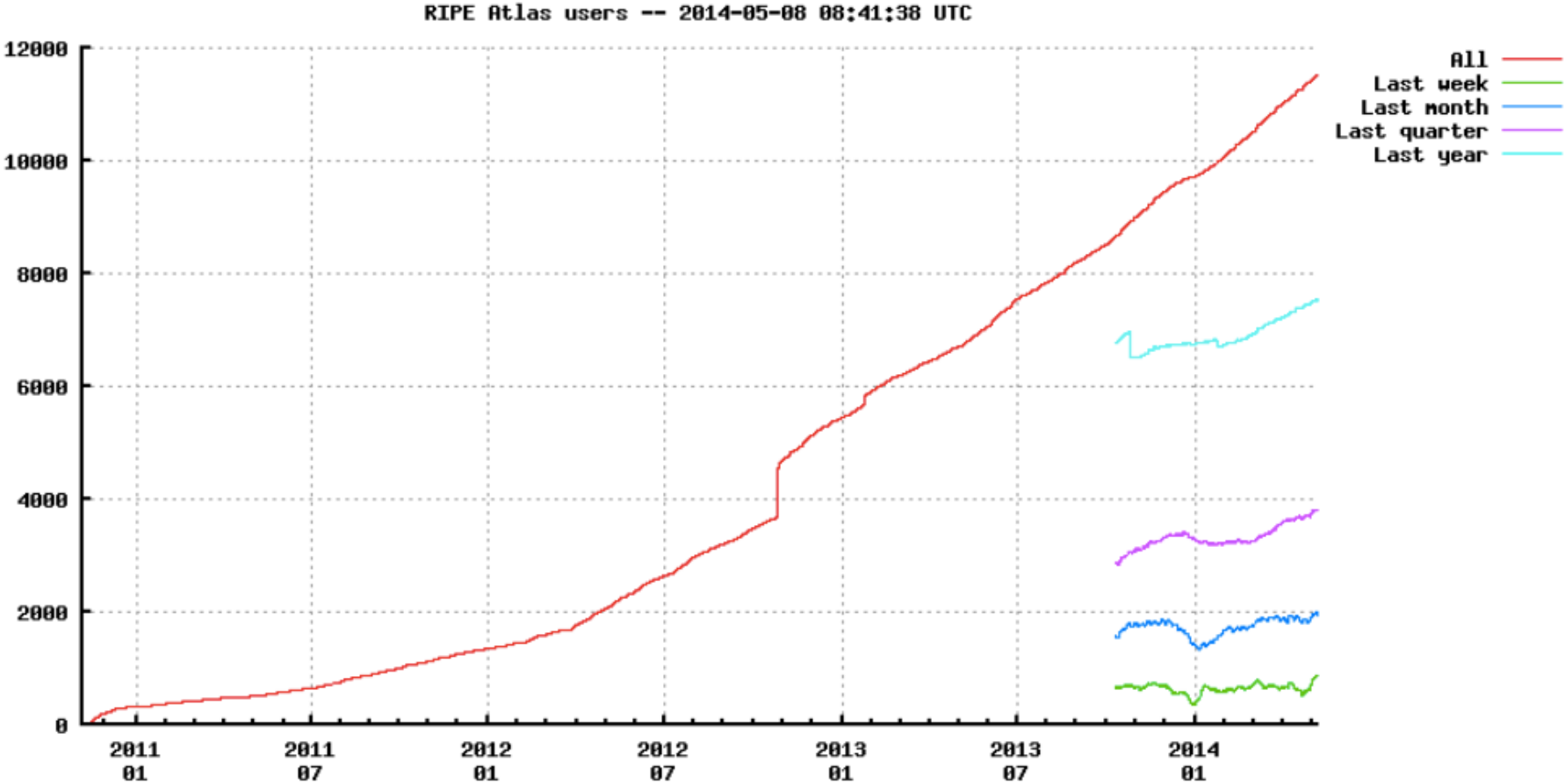
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## Probe deployment



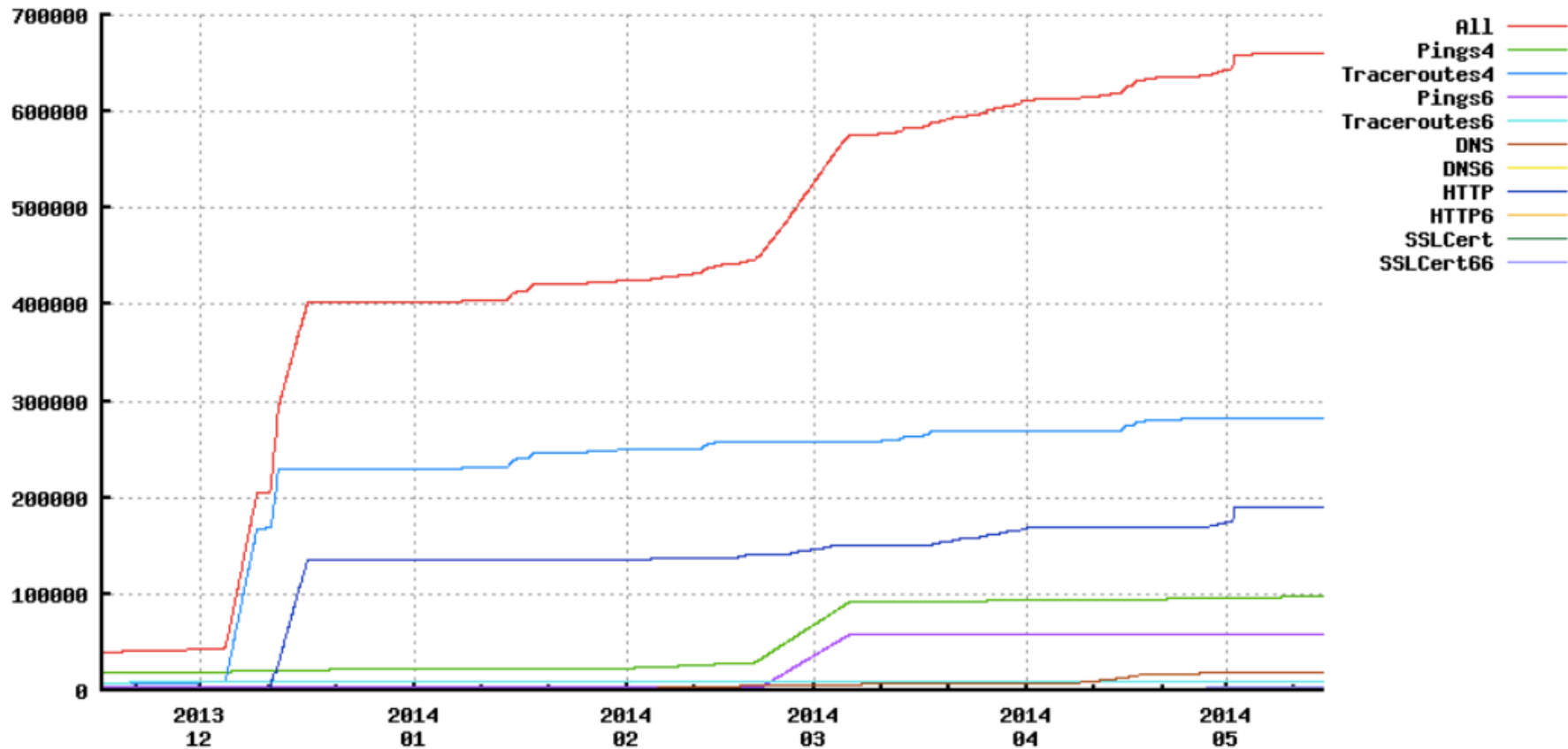
## RIPE Atlas users



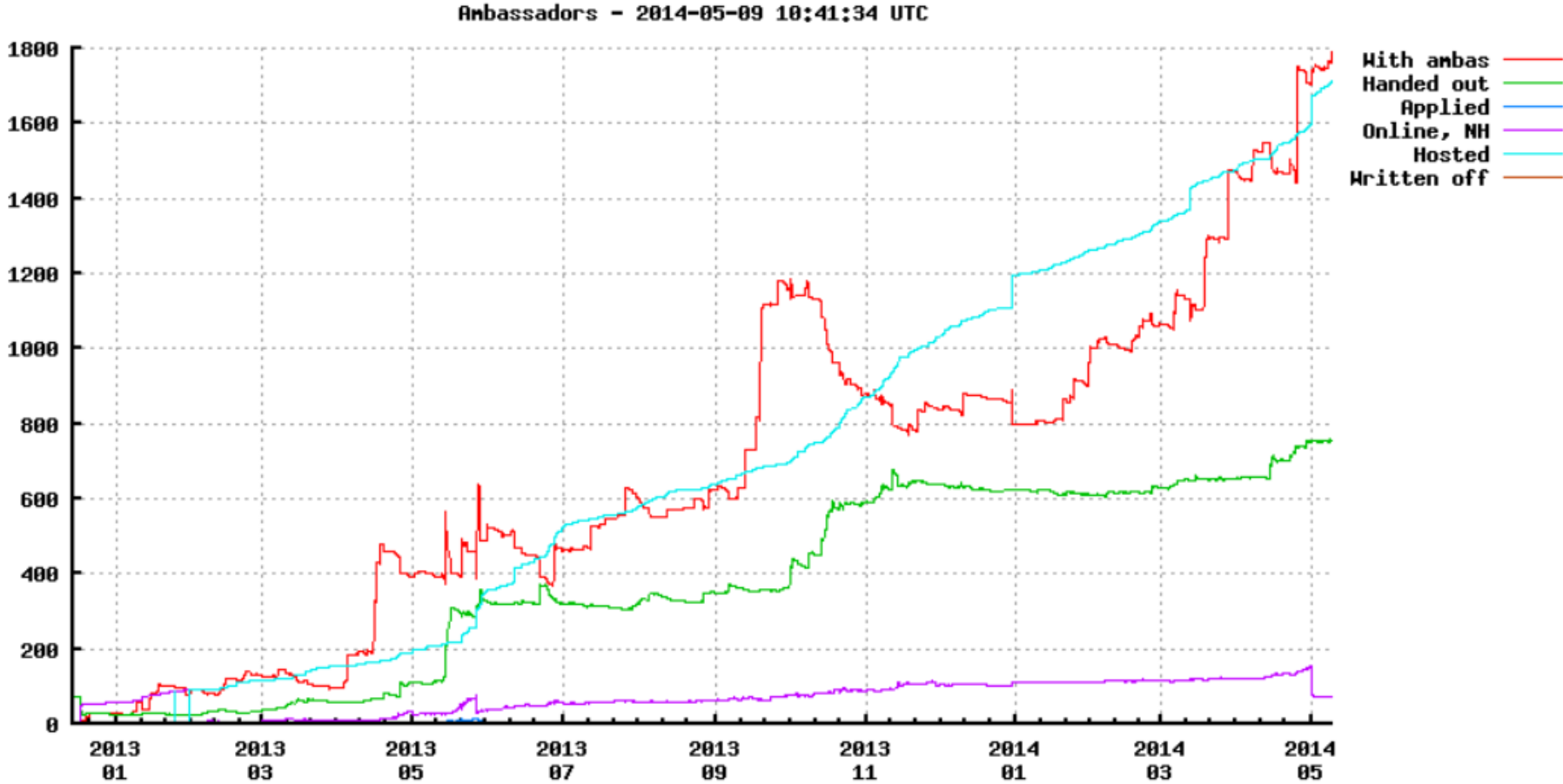
# Number of User-Defined Measurements

Last 180 days

UDMs based on the Type 2014-05-15 11:41:42 UTC



# Probes Distributed by Ambassadors





## RIPE Atlas Use Cases

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- Benefits of using RIPE Atlas for monitoring:
  - Doing pings from 1,000 out of 5,000+ probes around the world
  - Looking at your network from the outside
  - Plug into your existing practices
- Three easy steps for automatic alarms:
  1. Create a RIPE Atlas ping measurement
  2. Go to “Status Checks” URL
  3. Add your alerts in Icinga or Nagios



# 1. How to Schedule a Measurement

- General case - applicable for ping, too!
- Log in to atlas.ripe.net
- Go to “My Atlas” and “Measurements”
- Choose “New Measurement” or “One-off”
  - Most measurements are periodic & last a long time
  - Choose type, target, frequency, # of probes, region...
  - You will spend credits (next slides)
- More details: <https://atlas.ripe.net/doc/udm>
- Or use the API:  
<https://atlas.ripe.net/docs/measurement-creation-api/>

# 1.5 Credit System

- By hosting a probe, you earn credits
- To perform measurements, you spend credits
  - pings cost 10 credits, traceroutes cost 20, etc.
- Credit 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>

## 2. Creating Status Checks

- Status Checks work via RIPE Atlas' RESTful API
  - [https://atlas.ripe.net/api/v1/status-checks/MEASUREMENT\\_ID/](https://atlas.ripe.net/api/v1/status-checks/MEASUREMENT_ID/)
- You define the alert parameters, for example:
  - Threshold for the % of probes that successfully received a reply
  - How many most recent measurements to base the status on
  - Maximum packet loss acceptable
- Documentation:
  - <https://atlas.ripe.net/docs/status-checks/>

# 3. Icinga Examples

- Community of operators contributed configuration code!
  - Making use of the built-in “check\_http” plugin
- GitHub repo examples:
  - [https://github.com/RIPE-Atlas-Community/ripe-atlas-community-contrib/blob/master/scripts\\_for\\_nagios\\_icinga\\_alerts](https://github.com/RIPE-Atlas-Community/ripe-atlas-community-contrib/blob/master/scripts_for_nagios_icinga_alerts)
- Post on Icinga blog:
  - <https://www.icinga.org/2014/03/05/monitoring-ripe-atlas-status-with-icinga-2/>

# Monitoring for DNS TLD operators

**DNSMON** beta

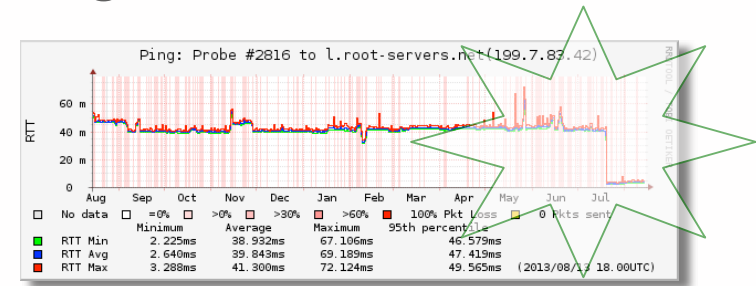
DNS responses for

Protocol:  Servers:

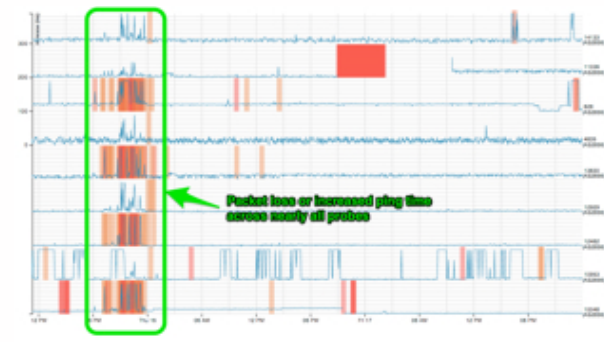


- “Old” DNSMON service migrated to RIPE Atlas
- RIPE Atlas anchors used as vantage points
  - Replacing TTM boxes
- Currently monitoring small selection of zones
  - Root name servers
  - 30 ccTLDs and few gTLDs
- New zones will be added next year
- Give us feedback about DNS alerts!
- [https://labs.ripe.net/Members/fatemah\\_mafi/an-updated-dns-monitoring-service](https://labs.ripe.net/Members/fatemah_mafi/an-updated-dns-monitoring-service)

- IXP: Measuring the effect of installing L-root in Belgrade / SOX



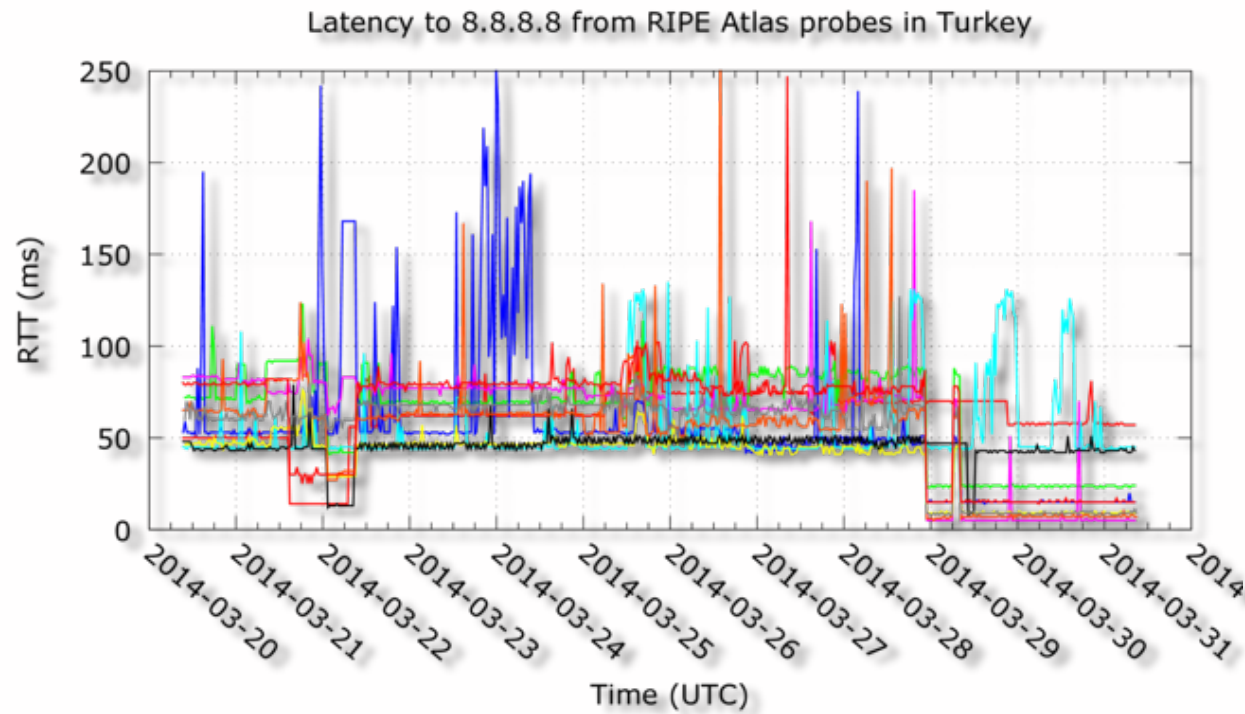
- DNS: Looking for most popular instances of .FR anycast servers



- Operators: investigating network disruptions

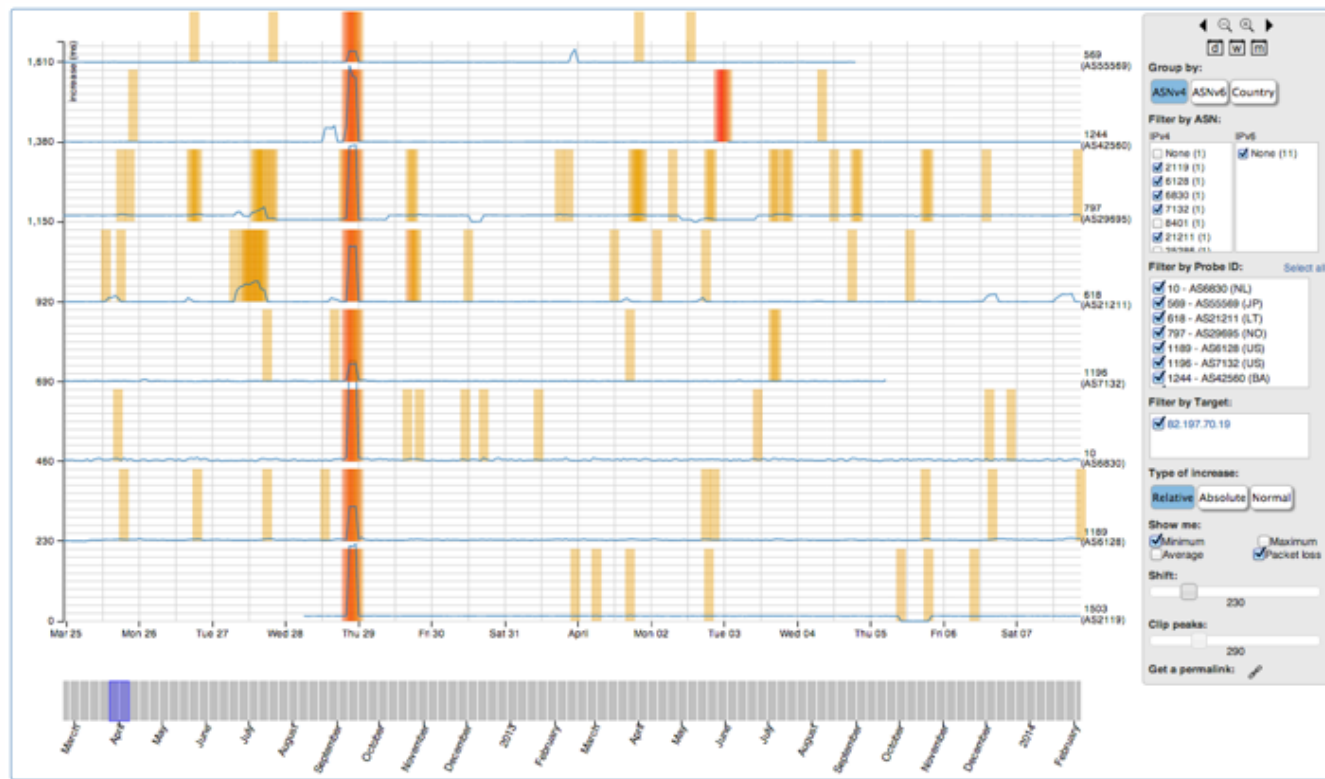
<http://engineering.freeagent.com/2014/01/24/atlas-probes/>





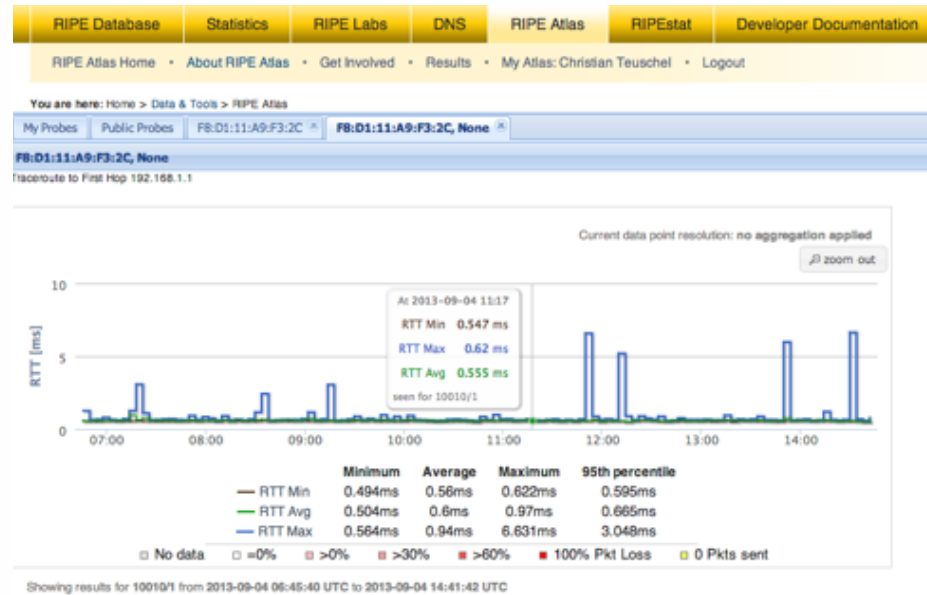
## A RIPE Atlas View of Internet Meddling in Turkey

- Seismograph
  - Multiple ping measurements in one view
  - Stacked chart and interactive control panel



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- Zoomable ping graph
  - Replacing multiple RRDs graphs: zoom in/out in time, in the same graph
  - Easier visualisation of an event's details
  - Selection of RTT class (max, min, average)



- If you are a programmer: contribute your code:
  - <https://github.com/RIPE-Atlas-Community/>
- If you are researcher, look & contribute here:
  - <https://github.com/RIPE-Atlas-Community/RIPE-Atlas-data-analysis>
- Measurements source code available:
  - [https://labs.ripe.net/Members/philip\\_homburg/ripe-atlas-measurements-source-code](https://labs.ripe.net/Members/philip_homburg/ripe-atlas-measurements-source-code)
- New! Parsing library:
  - <https://github.com/RIPE-NCC/ripe.atlas.sagan>

- Find a collection of use cases, analyses, scientific papers and presentations/tutorials on RIPE Labs:

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

- We're looking for volunteers to help us:
  - Distribute probes
  - Give workshops, tutorials and promote RIPE Atlas
- To become an ambassador:
  - <https://atlas.ripe.net/get-involved/become-a-ripe-atlas-ambassador/>
  - email [mcb@ripe.net](mailto:mcb@ripe.net) to find out how to obtain some probes
- Or become a sponsor:
  - <https://atlas.ripe.net/get-involved/become-a-sponsor/>

- <https://atlas.ripe.net>
- Apply for a probe: <https://atlas.ripe.net/apply>
- Apply for an anchor: <https://atlas.ripe.net/anchors/apply/>
- Mailing list for active users: [ripe-atlas@ripe.net](mailto:ripe-atlas@ripe.net)
- <https://atlas.ripe.net/get-involved/community/>
- Articles & updates on RIPE Labs:  
<https://labs.ripe.net/atlas>
- Roadmap: <http://roadmap.ripe.net/ripe-atlas/>
- Questions: [atlas@ripe.net](mailto:atlas@ripe.net)
- Twitter: @RIPE\_Atlas and #RIPEAtlas