RIPE Atlas Success Stories

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ENOG 6

RIPE Atlas

A measurement network of 3800+ devices
For the community, **by** the community

Connected   Disconnected   Abandonned

RIPE Atlas Participation and Benefits

- Anyone can host a RIPE Atlas probe:
  - apply online: https://atlas.ripe.net/apply
  - or just come and talk to me

- Benefit: look at your network from the outside!
  - 3800+ external vantage points at your fingertips, to perform pings & traceroutes towards your preferred destination

Measurement Device: RIPE Atlas Probe

- Install-and-forget, USB-powered

- Hosted by organisations and end users

  – ISPs, Internet Exchange Points, individuals...

  – Free of charge if you host individual probes

- New generation probes

  - TP-LINK TL-MR 3020

    (no WiFi capabilities for privacy reasons)

What is measured?

- "Built-in" measurements

  - From all the probes towards root name servers, pings, traceroutes, SSLcert and DNS queries

  - Results available to everyone

- Customised, user-defined measurements

- Anchoring measurements coming up soon

  - RIPE Atlas anchors in production in October

  - Each probe will measure 4-5 "anchors" as a regional baseline

RIPE
NCC

RIPE Atlas Success Stories: DNS

- **Comparing TCP and UDP Response Times of DNS Root Servers**
  - led to fixing a bug in TCP settings of K-root

- **Using RIPE Atlas: A DENIC Case Study**
  - helped troubleshoot operational issues

- **Found most popular instances of .FR anycast servers**

Name server instance	Nr. of probes connecting to instance	Percentage
dns.th2.nic.fr	173	36%
dns.fra.nic.fr	173	36%
dns.lon.nic.fr	47	10%
dns.lyn2.nic.fr	29	6%
dns.lyn1.nic.fr	25	5%
dns.bru.nic.fr	19	4%
dns.ix1.nic.fr	18	4%

RIPE NCC

RIPE Atlas success stories: IPv6

- AAAA Filtering

- IPv6 /48 Filtering

- IPv6 reachability testing before and during World IPv6 Launch

- More at **labs.ripe.net/atlas** and **https://atlas.ripe.net/analyses**

RIPE Atlas Success Stories: IXPs

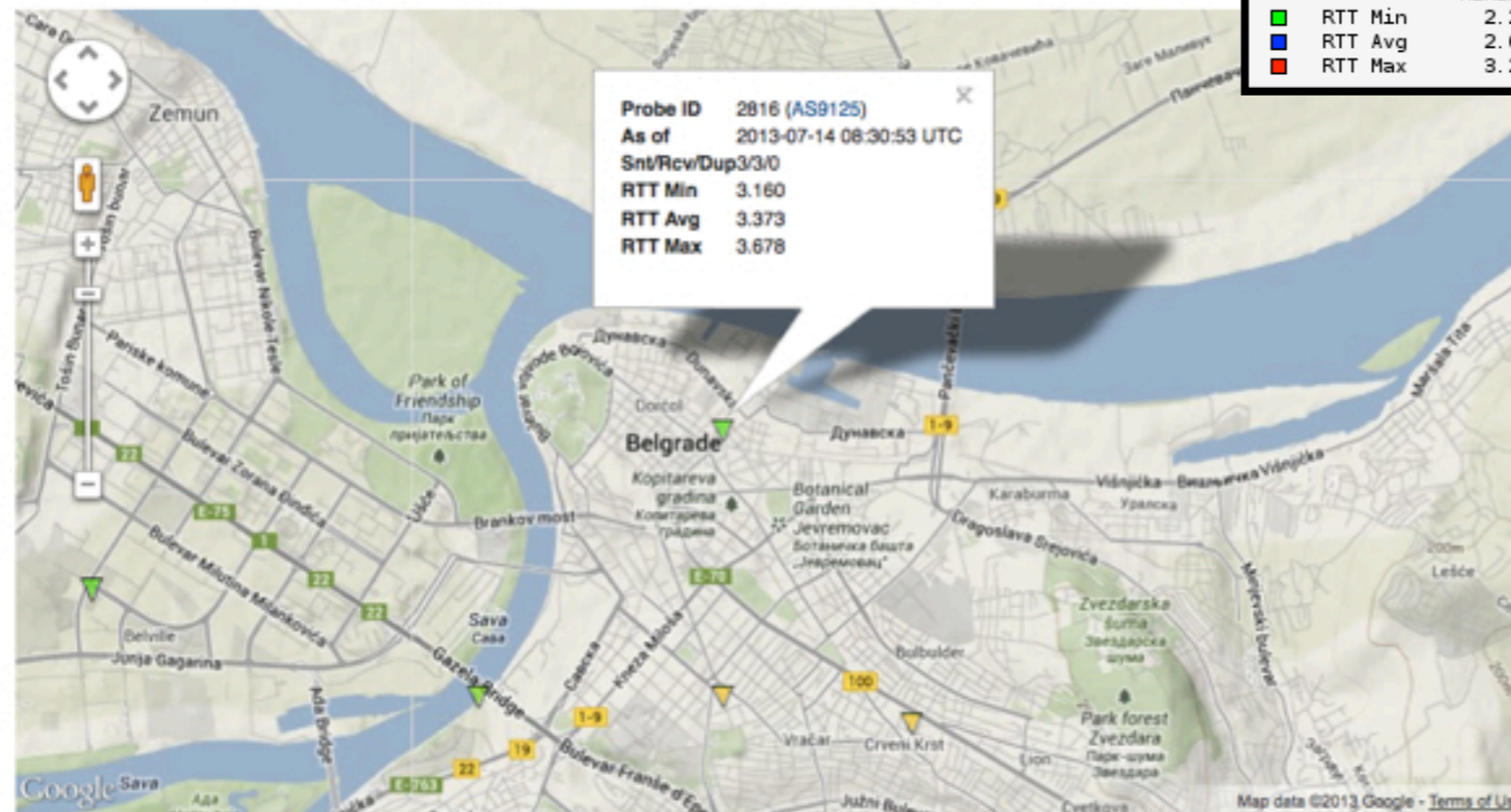- Measuring the effect of installing L-root in Belgrade / SOX
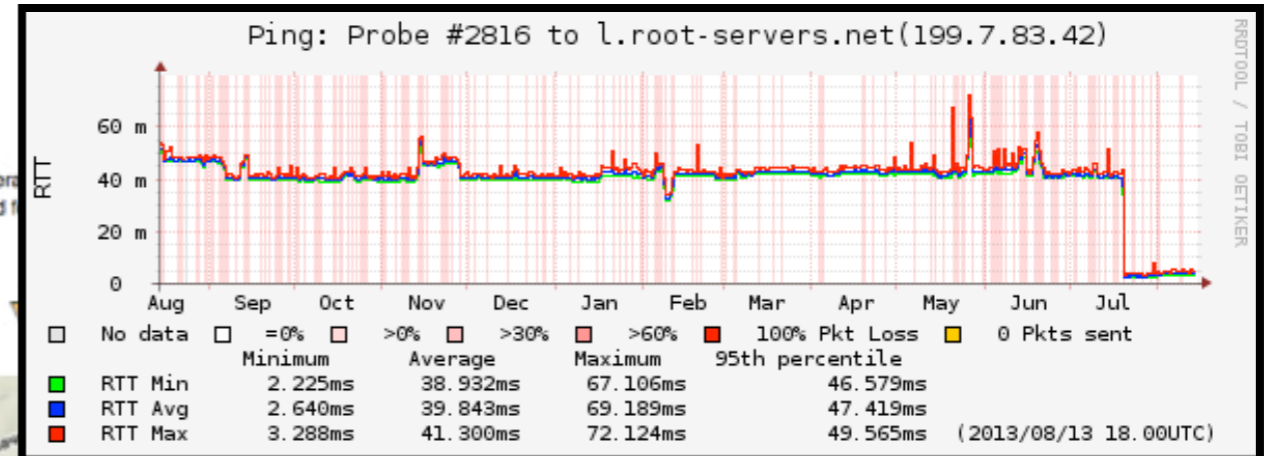
RIPE Atlas Success Stories: Events

- Effects storm Sandy had on parts of Internet: Traffic partially shifted away from NYC as a transit hub

  - https://labs.ripe.net/Members/mirjam/sandy-2012
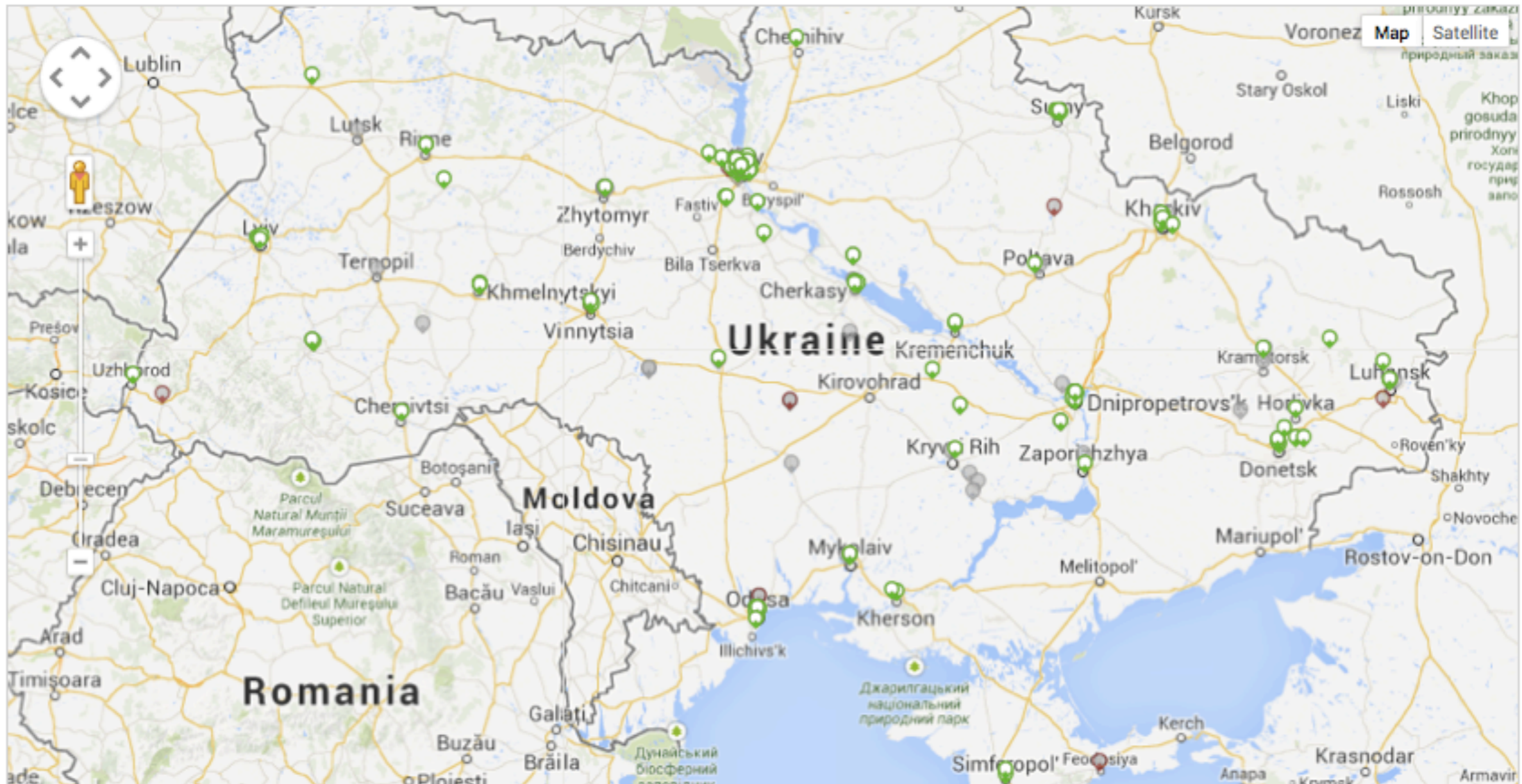

Location IDs seen in RIPE Atlas traceroute paths
(target: ns.ripe.net/AS3333/Amsterdam,NL)

Probes per country: Ukraine

Top Ten Countries: Russia Wins silver!

Country	Probes
Germany	648
Russian Federation	635
United States	557
United Kingdom	432
Netherlands	335
France	301
Ukraine	261
Czech Republic	132
Belgium	124
Poland	112

RIPE Atlas Contact

- **https://atlas.ripe.net**
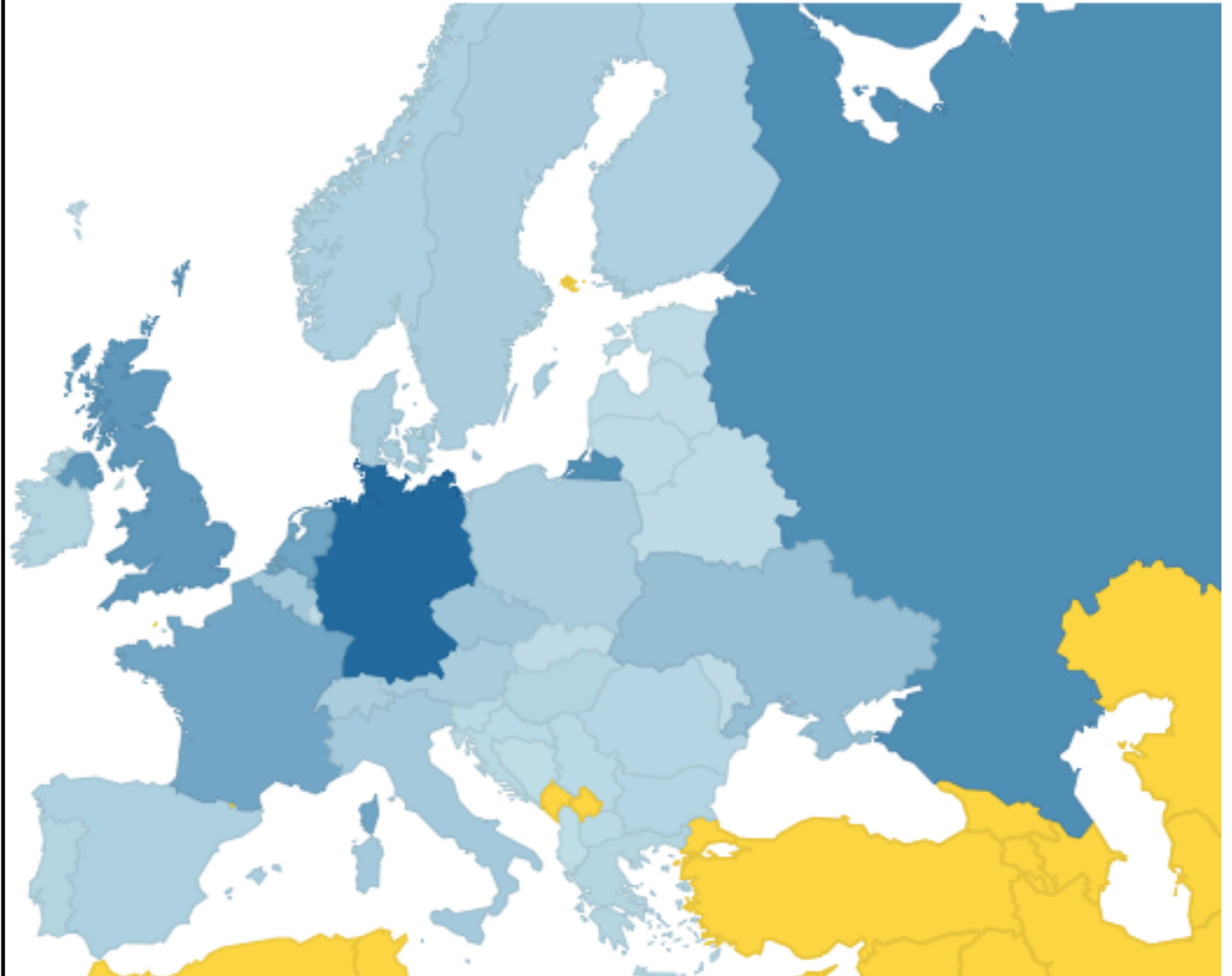
- Get a probe: **https://atlas.ripe.net/apply**

- 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

RIPE Atlas News

Recent Developments

- New Dashboard View
  - Visualisation of the status of your probes, your latest measurements, your credit balance
  - An overview of your API keys
- Zoomable ping graph
  - Replacing multiple RRDs graphs: zoom-in, zoom-out in the same graph without loss of detail
  - Easier visualisation of details of an event
  - Selection of RTT class (max, min, average)
- RIPE Atlas source code published

New Dashboard view

Zoomable ping graph

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 LIR Portal

RIPE Atlas
Background Info

Credits System

- By hosting a probe, each host earns credits

  - Rewards for making probe available to other users, for performing measurements from that probe towards any target

  - Hosts earn 21,000+ credits per full day

- In order to schedule customised measurements, users spend credits

  - Ping costs 3 credits/result, traceroute 30, etc.

Credits System [continued]

- Credits system introduced to ensure fairness and protect system from overload

- Extra credits can be earned by:

  - Hosting a RIPE Atlas anchor

  - Sponsoring multiple probes

- More details: https://atlas.ripe.net/doc/credits

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

- Measurements are scheduled by centralised "command servers" via reverse ssh tunnels over TCP/443

- Probes don't listen to local traffic, there are no passive measurements running
  - There's no snooping around

- Source code for probe software published

RIPE Atlas 2013 Sponsors

RIPE Atlas Anchors

Anchors: Rocks in the Sea of Atlas Probes

RIPE Atlas Anchors

- Well-known targets and more powerful measurement devices
  - 15 deployed
  - Goal: ~50 deployed by the end of 2014
  - Benefit: regional baseline & "future history"

Questions?