RIPE Atlas Highlights (and more)

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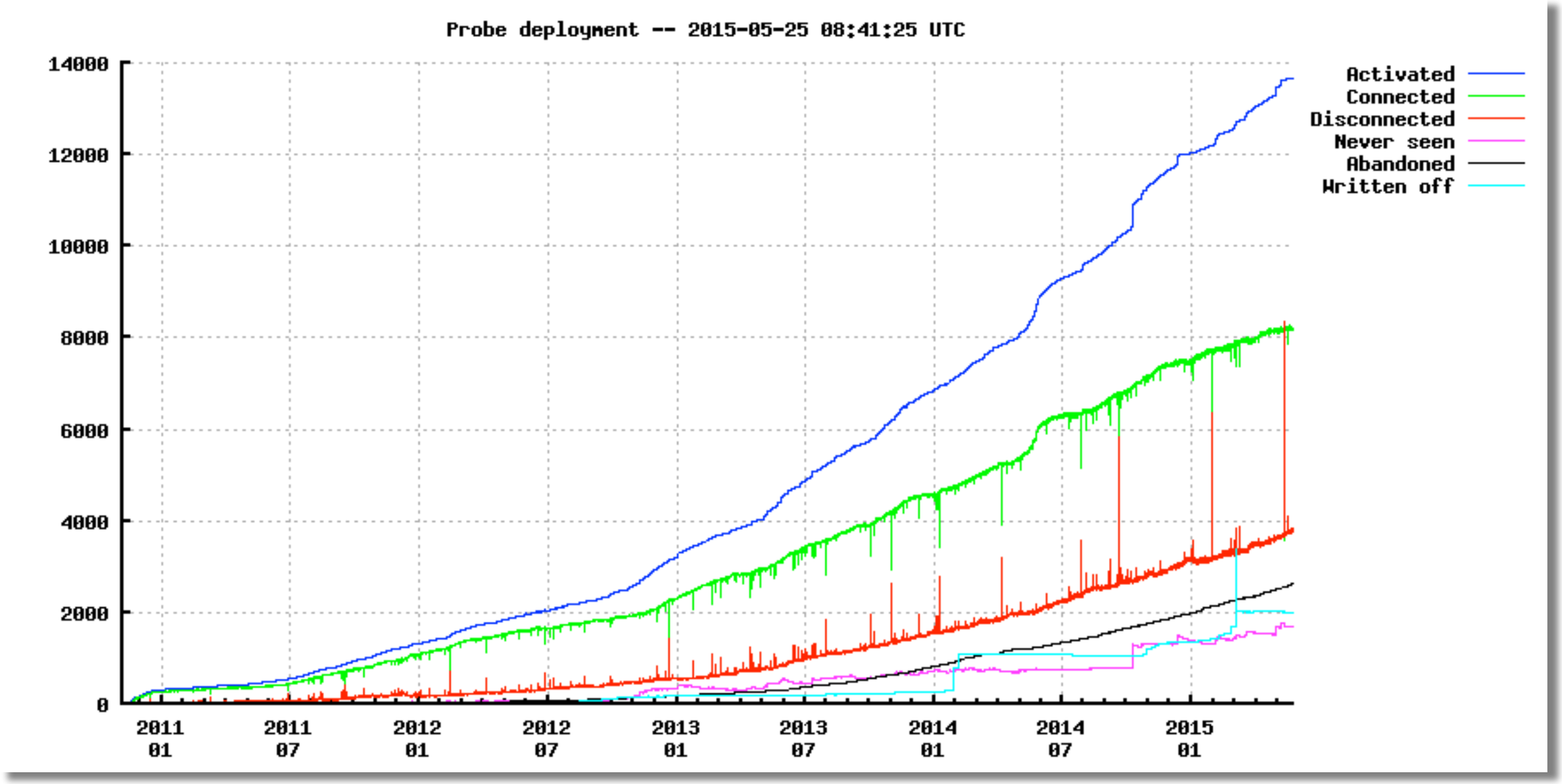
At a Glance

- Better UIs and APIs
- Probe tagging
- New measurement types
- Data streaming
- Anchors
- Other Bits: locality checks, multi-msms, …
- Hackaton 2015-1
- Outlook: OpenIPMap, RIS changes, BGP streaming

Network Growth



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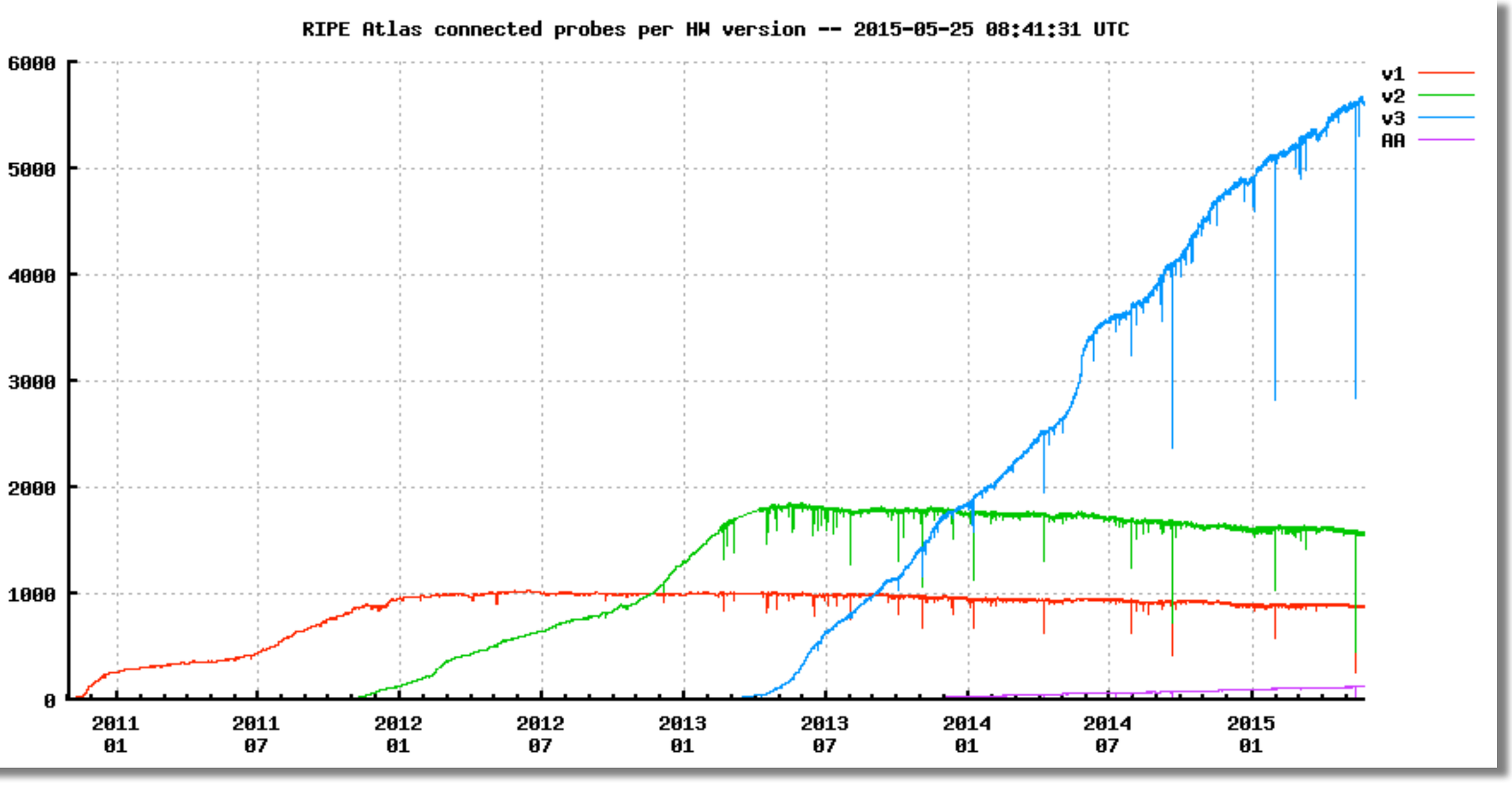
Network Growth



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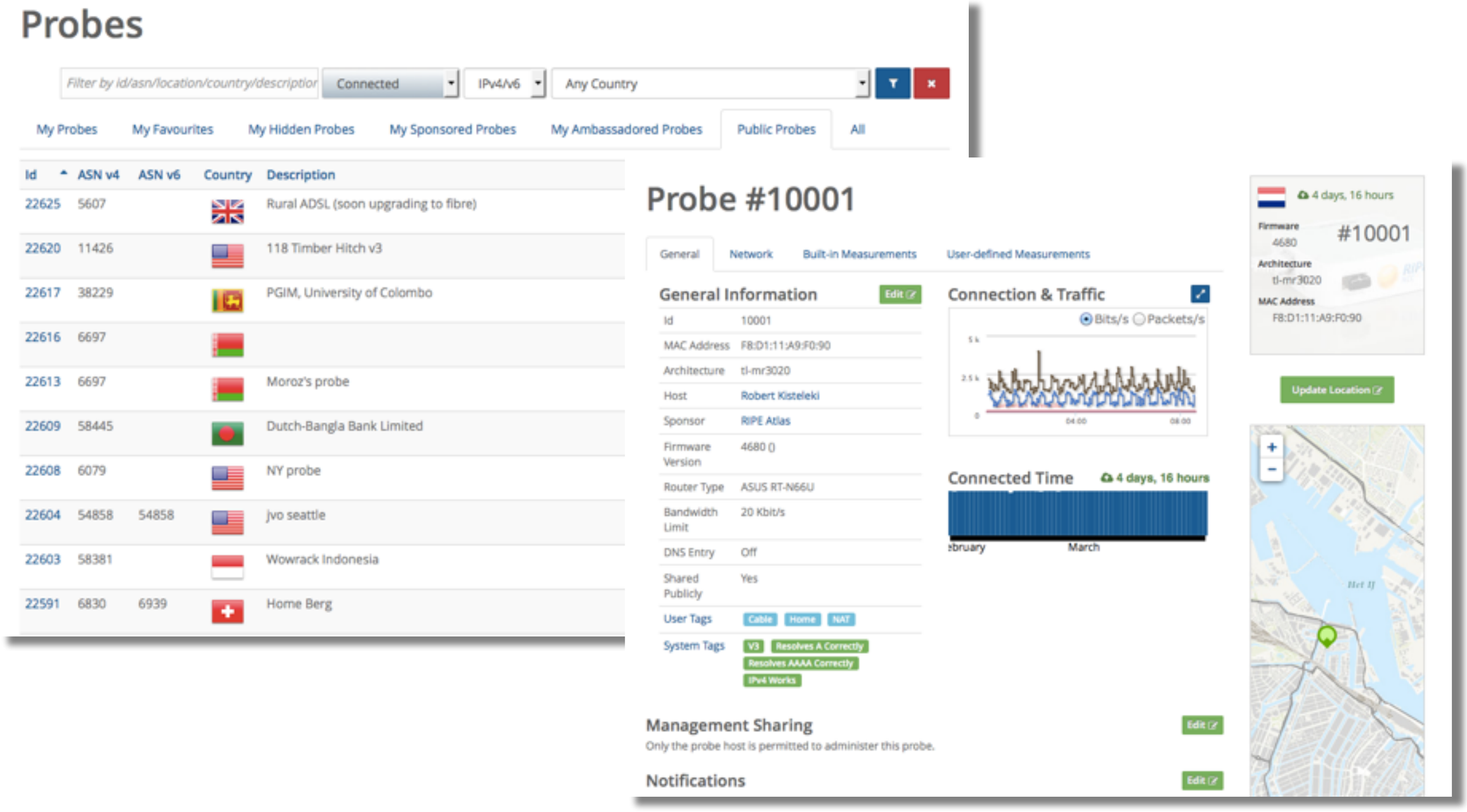
Better Probe UI



- See https://atlas.ripe.net/probes/

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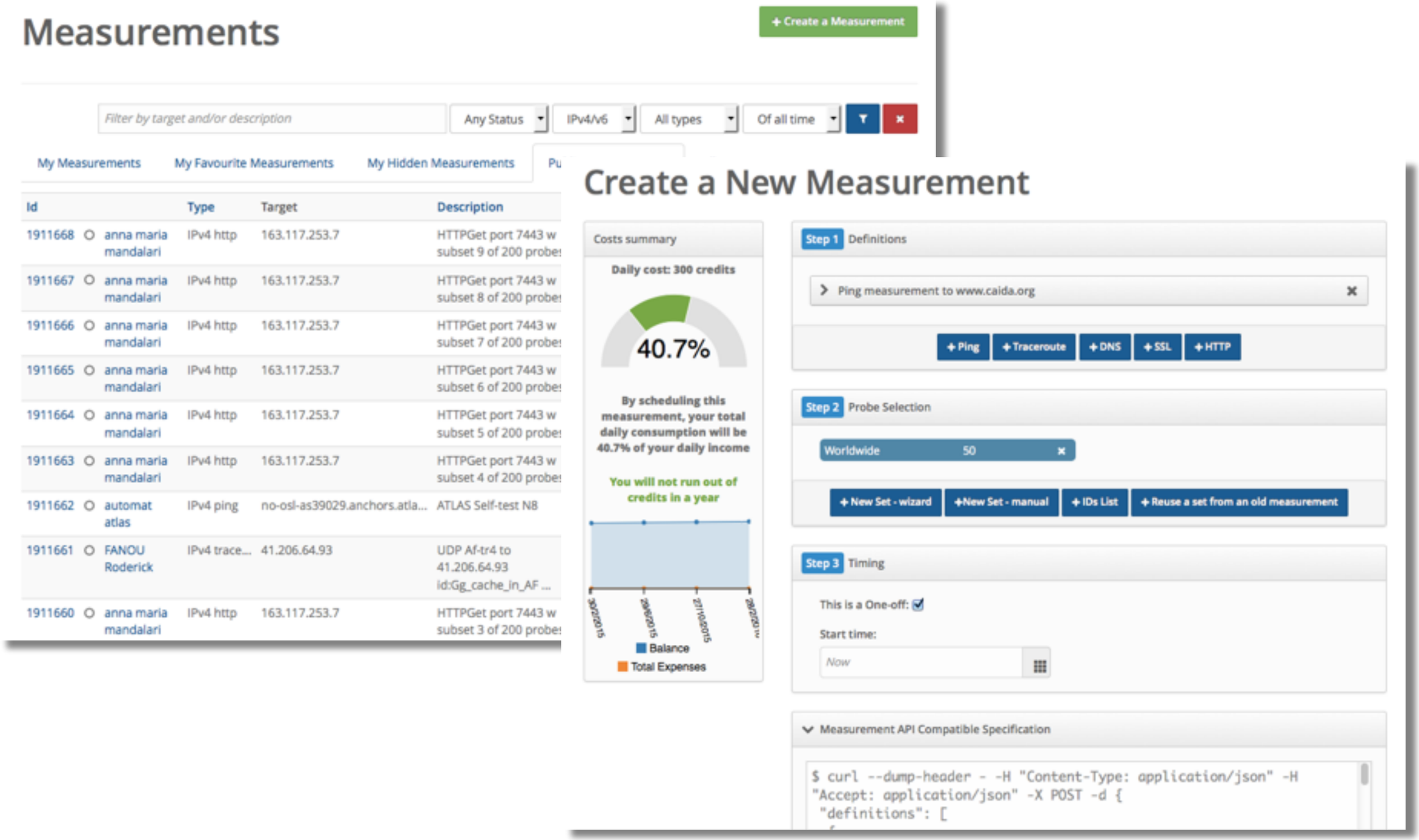
Better Measurement UI



- See https://atlas.ripe.net/measurements/

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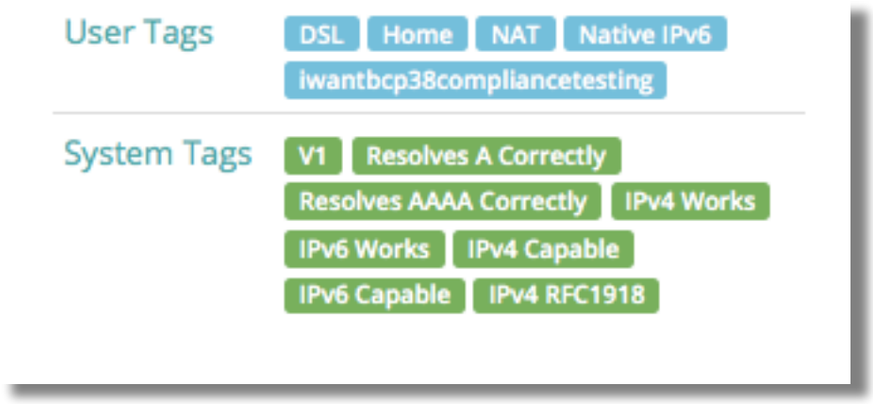
APIs, APIs, APIs

APIs Mellifera

- Measurement API:
  - query/search, create, change, stop, …
  - download results, latest results, state checks, …
  - Parse results: https://atlas.ripe.net/docs/sagan/
- Probe API: query/search, probe archive (bulk access)
- Result streaming: results and probe connections
- Coming up:
  - APIs for Anchors, anchoring measurements
- See https://atlas.ripe.net/docs/

Using Probe Tags

- Users can tag their probes **any way the like**
  - The commonly used tags are available to everyone
- The **system** also tags them **automatically**
  - (non)working IPv6, IPv4, DNS (A/AAAA), …
- Reason: **use these tags** when scheduling measurements
  - measure from home or not
  - measure from broken or working IPv6 probes
  - Combine this with other filters (eg. country)
- See https://atlas.ripe.net/docs/probe-tags/



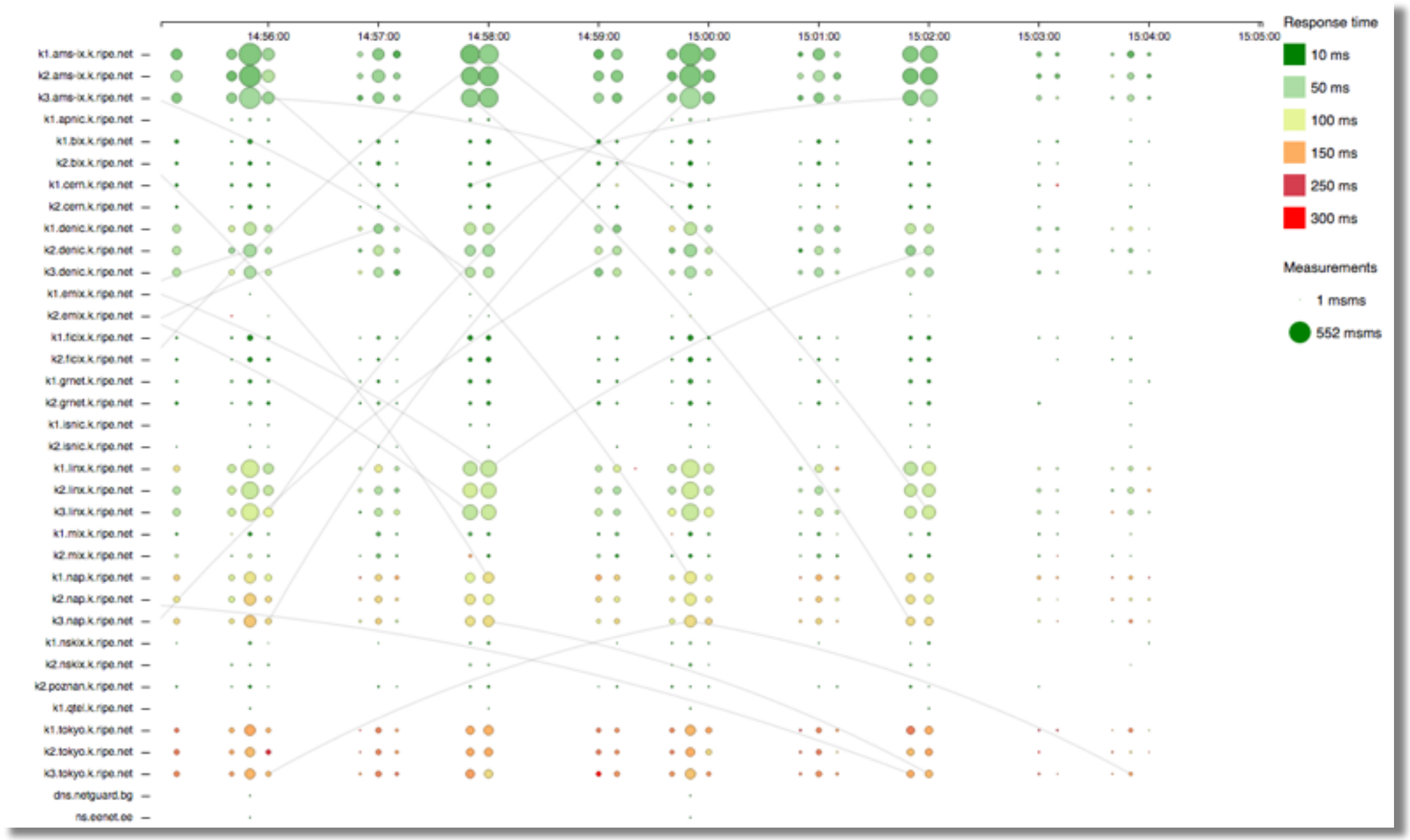
New Measurement Types (coming)

- NTP: query NTP servers
- Wifi
  - Mind you: this is **not** running the probe using wifi, but associating to wifi, authenticating, measuring things, then disconnecting, **while** being connected on a wire
  - Most likely with a new hardware probe
- HTTP
  - Against predefined targets (anchors) to start with
- TLS Check
  - check for protocols, ciphers, certificates, …

Data Streaming APIs

- Data result streams
  - real-time access to data (drinking from the firehose)
  - can listen to the incoming data of public msms(s)
  - websocket clients + legacy support using polling
  - allows for really cool visualisations
  - has short term memory and can also **replay historical data**, optionally at different-than-regular speed (bullet-time for Atlas data, yeey!)
- Probe connection streams
  - similar to results but about probe connections/disconnections
  - annotated by ASN/prefix/country/…
- See https://atlas.ripe.net/docs/result-streaming/

Result Streaming Demos



RIPE Atlas Anchors

- Powerful probes as well as willing targets
- Hosts of anchors get a number of perks
  - more credits
  - automatically measured by hundreds of probes, high freq
- Rack mounted PC (Soekris)
- May be VMs too in the future
- About 120 as of now
- Mostly in data centres

Other Bits and Pieces

- Revamped DNSMON

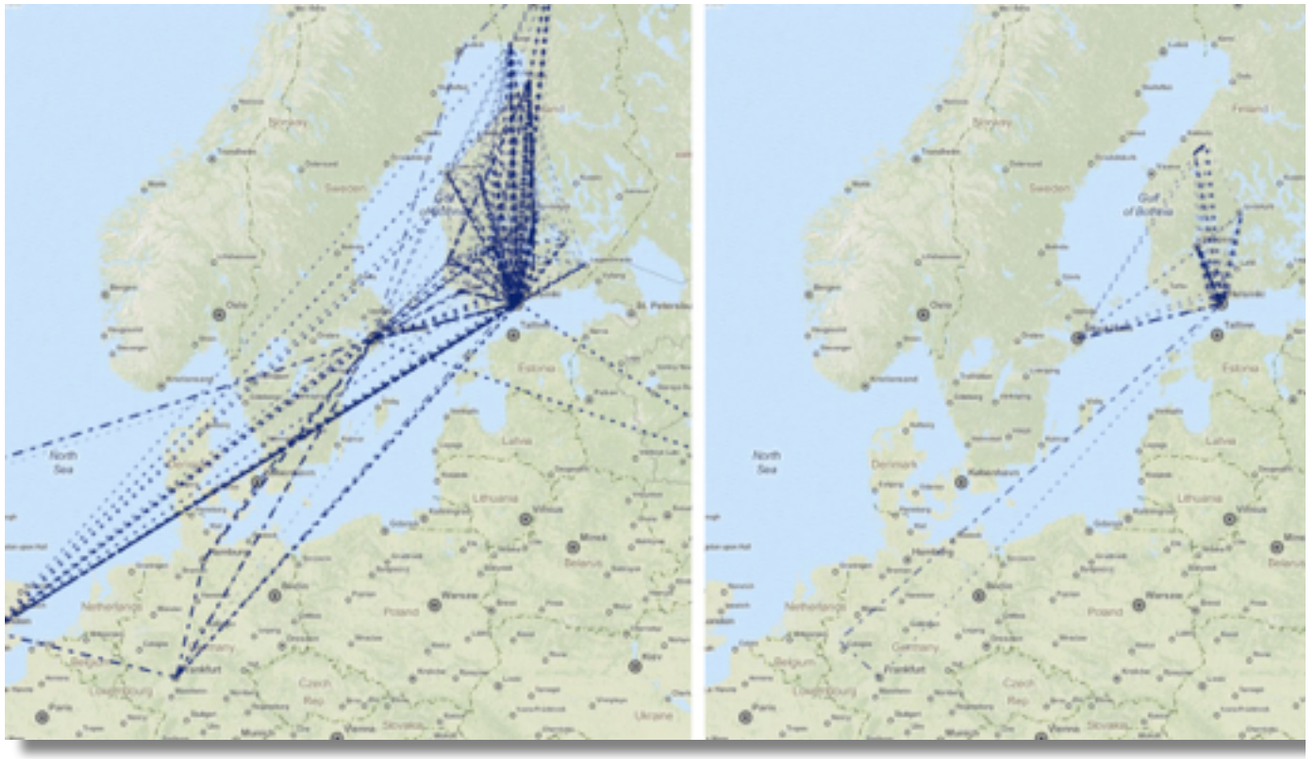
Other Bits and Pieces

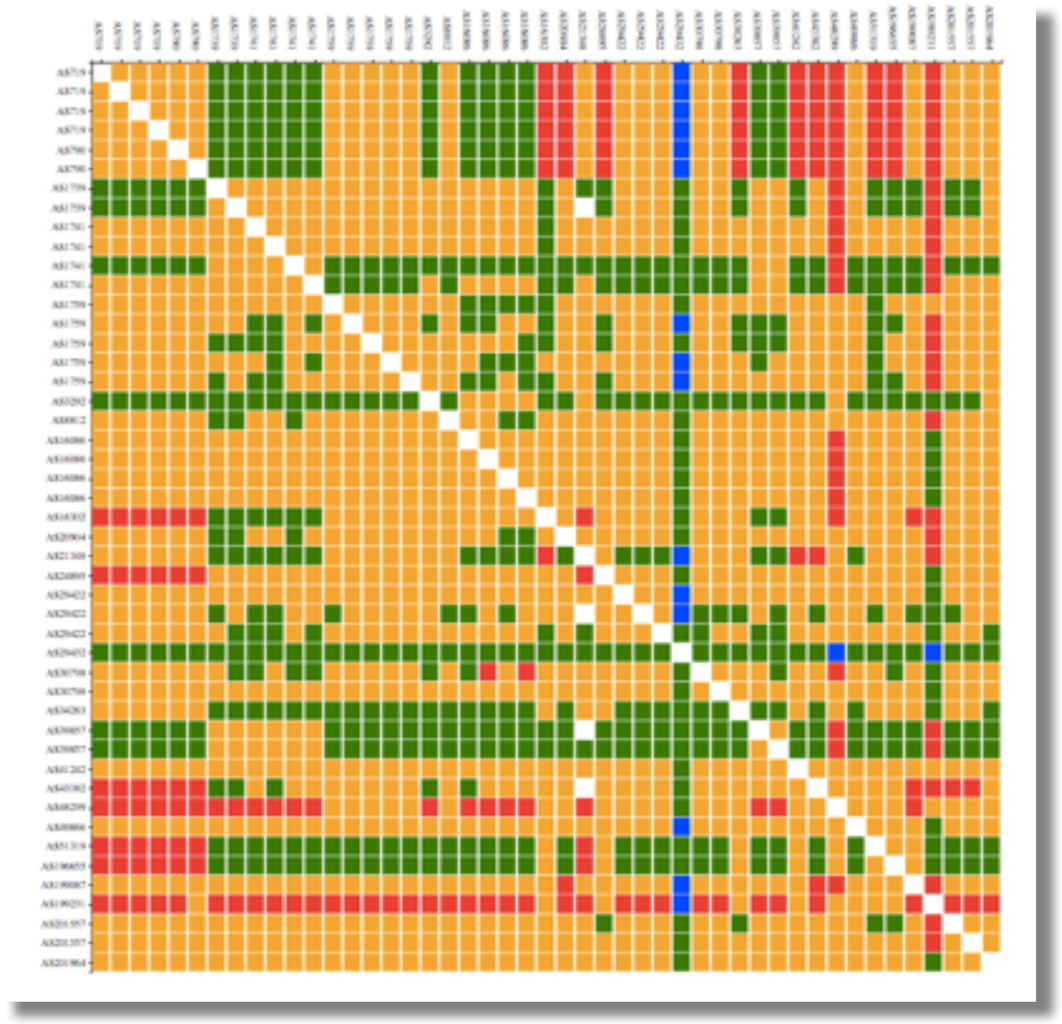
- Probe public IP discovery
  - Probes can use IPv4 or IPv6 or both
  - Our methodology to discover this is evolving
  - Currently using:
    - probe connection (ssh)
    - HTTP queries (“whatsmyip”)
    - local network configuration
  - We may add:
    - Specialised DNS queries
    - ICMP (specialised ping)

	IPv4 prio	IPv6 prio
connection	1	1
HTTP whatsmyip	2	3
local network	3	2

Other Bits and Pieces

- IXP / locality checks





- See https://labs.ripe.net/Members/emileaben/measuring-ixps-with-ripe-atlas

Other Bits and Pieces

Multi-target measurements:

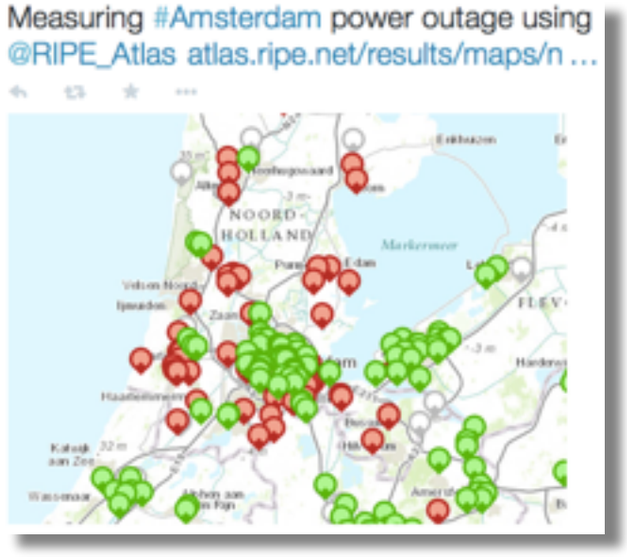
- Atlas was built with ISPs in mind: use **lots** of vantage points to check on **few** targets
- Researchers many times need the opposite
- Workaround: building a DNS server to supply names of targets on demand, ask probe to use DNS every time
  - Can do campaigns or round-robins or …
  - Ideally has support on the probe side

Coming Up

- Exposing more information about probe IPs
- More real-time visualisations
- More status checks and active notifications
- Tell us your wishes…

RIPE Atlas Hackaton - March 2015

- First instance: 27-29 May, 2015
- About 25 hackers, 6 jury + some support staff
- Goal: visualise RIPE Atlas (and related) data
- After forming groups, 10 projects were worked on
- Highlight: power outage in Amsterdam
  - Massive outage just before the hackaton
  - It was not caused by us :-)
  - https://labs.ripe.net/Members/andreas_strikos/amsterdam-power-outage-as-seen-by-ripe-atlas



Outlook: RIS Changes

- RIPE RIS has been collecting BGP Data since 1999
  - 12-15 route collectors, 6-700 peering sessions
  - Scalability is a challenge
- Not much focus on it in the last few years
- Revamp is in the making
  - Modernise the collection architecture
  - Scale up to more RRCs and more peers
  - Support more use cases
    - looking glass, “country based” dumps and more
  - Make it more realtime
- https://labs.ripe.net/Members/wouter_miltenburg/researching-next-generation-ris-route-collectors

Outlook: RIS Streaming

- Apply our streaming architecture experiences in streaming Atlas data to RIS — if done right, 90% is the same
- Allows listening to BGP updates in real-time
  - Ideally with filtering on: RRC/peer/ASN/prefix/…
- Allows a whole new set of tools to be developed
  - Notice the synergy with Atlas streams
  - We'll be working on some of these tools
- Exploring collaboration with other interested parties
- Demo…?

Questions?