Daily Struggles: A reaches B

- How?

  - Optimised?

  - IXP?

  - Which Autonomous Systems?

  - Latency?

- Where?

  - Which local entity/node of the CDN?

  - From which source?

  - Is it going in another country?

Daily Struggles: A doesn't reach B

- Where does it stop?

    - Which AS?

    - Which geographical location?

- Who is involved?

    - Which portion of the network?

    - Who is behind a private address or a ✳ in my traceroute?

    - Who can I contact?

- What happens at the BGP level?

Let's use Traceroutes

- RIPE Atlas **multi-**source traceroutes

- What about a viz?

  - Complex model
    - *What is a node? (a single one!)*
    - *Filtering/simplification needed (difficult!)*

  - Complex view
    - *Precomputing from Traceroute to Graph (no operators are willing to do it… daily)*

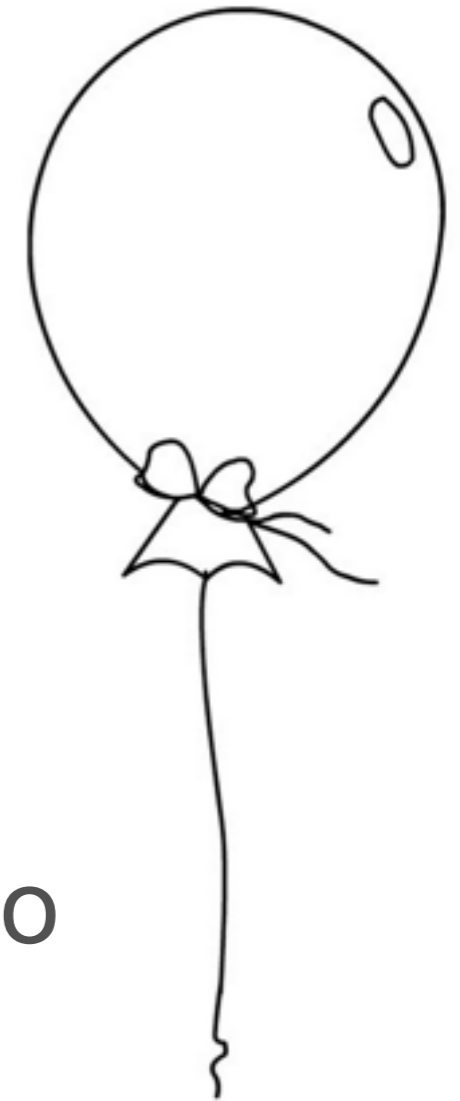   - *Static snapshot..still a lot of work and not so useful*

wow

so multi

much text

Static snapshot (only a portion at a time, no evolution, complex to follow)
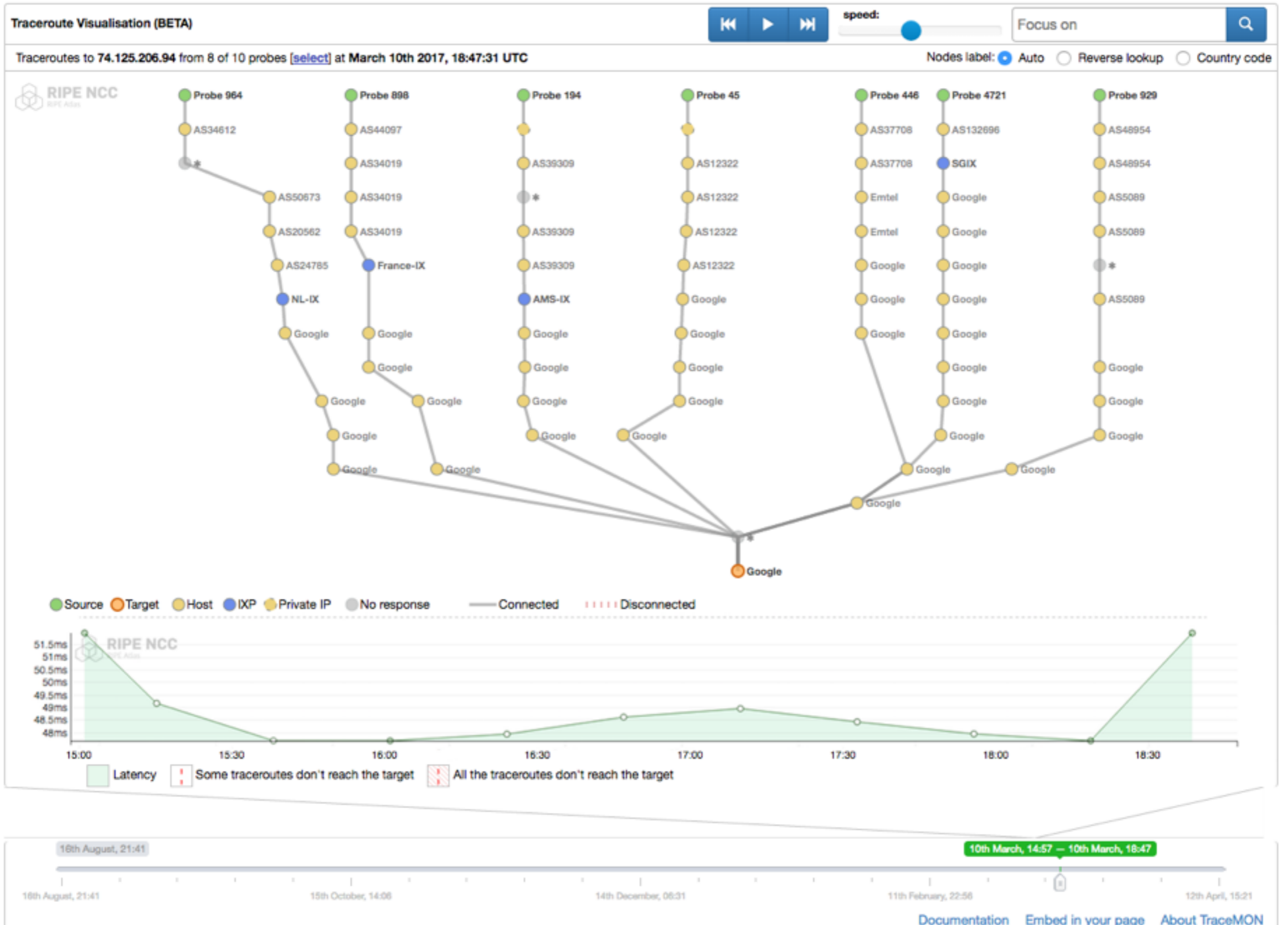
4

What's new: TraceMON

- **TraceMON** is a web application for visualising (multi-source) traceroutes

- Infers network topology and characteristics of the various network component involved

- Aggregates data from many data sources, providing a one-click access to

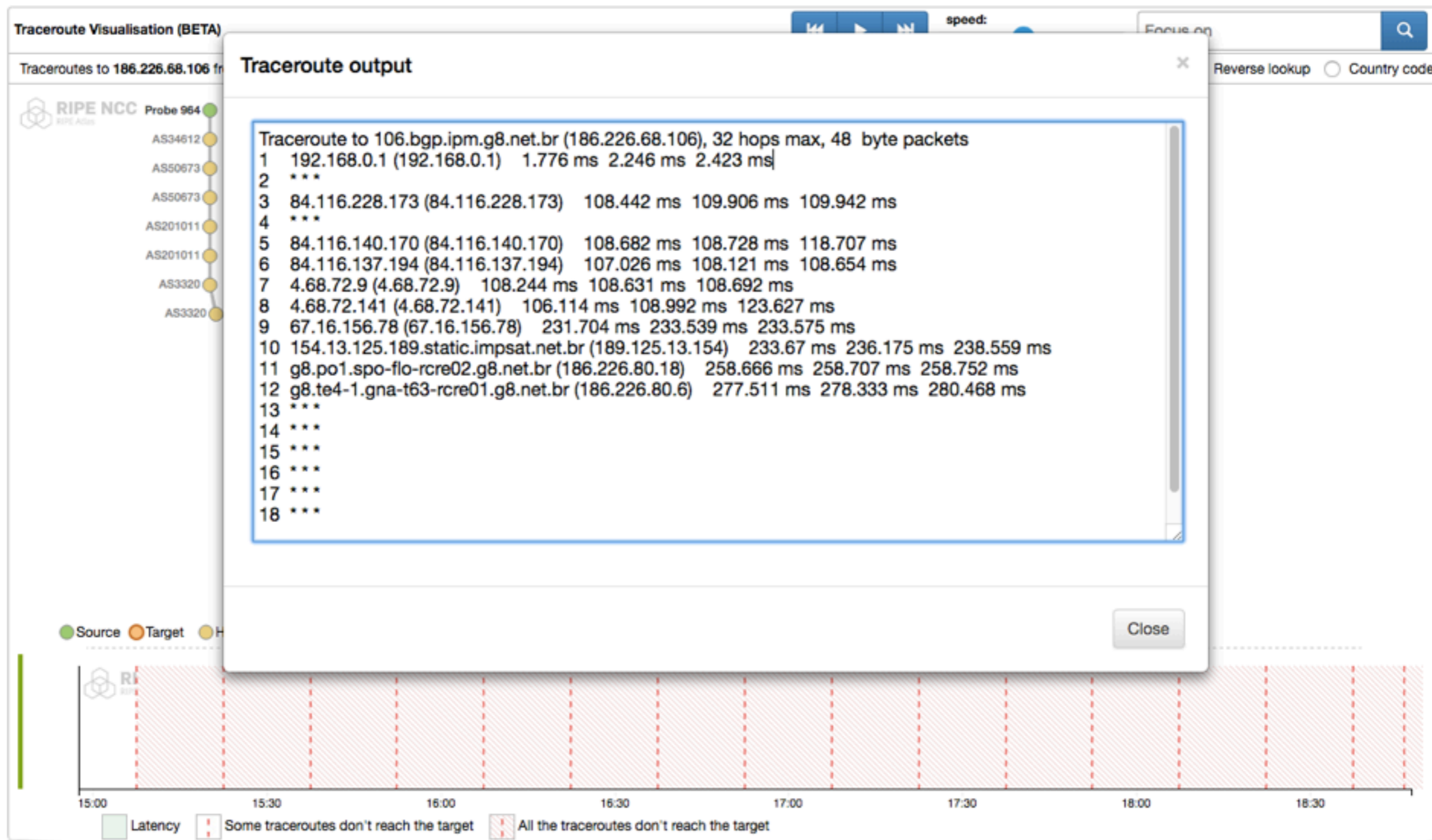 - Resource holder contacts, latency, whois, BGP visibility, IP geolocation, IXP detection, reverse DNS lookup …

TraceMON

Traceroute Visualisation (BETA)   speed: Focus on   🔍

Traceroutes to **74.125.206.94** from 8 of 10 probes [select] at **March 10th 2017, 18:47:31 UTC**   Nodes label: ● Auto ○ Reverse lookup ○ Country code

RIPE NCC

Probe 964	Probe 898	Probe 194	Probe 45	Probe 446	Probe 4721	Probe 929
AS34612	AS44097			AS37708	AS132696	AS48954
*	AS34019	AS39309	AS12322	AS37708	SGIX	AS48954
AS50673	AS34019	*	AS12322	Emtel	Google	AS5089
AS20562	AS34019	AS39309	AS12322	Emtel	Google	AS5089
AS24785	France-IX	AS39309	AS12322	Google	Google	*
NL-IX		AMS-IX	Google	Google	Google	AS5089
Google	Google	Google	Google	Google	Google	
	Google	Google	Google		Google	Google
Google	Google	Google	Google		Google	Google
Google		Google	Google		Google	Google
Google	Google	Google	Google	Google		Google
				Google	Google	

Google

Google

● Source ◯ Target ● Host ● IXP ● Private IP ● No response   —— Connected   ⋮⋮⋮ Disconnected

RIPE NCC

| 51.5ms |
| 51ms |
| 50.5ms |
| 50ms |
| 49.5ms |
| 49ms |
| 48.5ms |
| 48ms |

15:00   15:30   16:00   16:30   17:00   17:30   18:00   18:30

▢ Latency   ┊ Some traceroutes don't reach the target   ▨ All the traceroutes don't reach the target

Documentation   Embed in your page   About TraceMON

Latency Chart and Time Navigation

Traceroute Output

Resource Info

France-IX (AS57734)

IP: 37.49.236.2
Located in: Paris, FR [Update]

PeeringDB:
IXP: France-IX, Paris, FR
Lan: 37.49.236.0/23
[Update PeeringDB]

Routing Info:
57734 - FRANCEIX , FR
Announced: Yes

Registry info:
Resource: 57344-58367
Name: IANA 16-bit Autonomous System (AS)
Numbers Registry
Desc: Assigned by RIPE NCC

[Contact holder] [Whois] [See BGP events]

✳ (Guess AS7922)

Located in: Not available

Best Guess :
7922 - COMCAST-7922 - Comcast Cable
Communications, Inc., US
Announced: Yes

Registry info:
Resource: 7911-7926
Name: IANA 16-bit Autonomous System (AS)
Numbers Registry
Desc: Assigned by ARIN

[Contact holder] [Whois]

TraceMON tries to guess
private addresses and wildcards

Resource Info

- IXP details (PeeringDB)

- Get/Update Location (OpenIPmap)

- Routing Information and BGPlay

- Whois / RIPE Database

- Technical contact emails

Update location ✕

Resource: 80.249.208.71
Reverse DNS: gw.amsix.telrtr.ripe.net

Select location: Amsterdam, NL
The changes cannot per persisted yet. This feature will be enabled soon.

Close | Save changes

BGPlay

Contacts for: AS3333 ✕

tech-c: ops@ripe.net
abuse_c: abuse@ripe.net
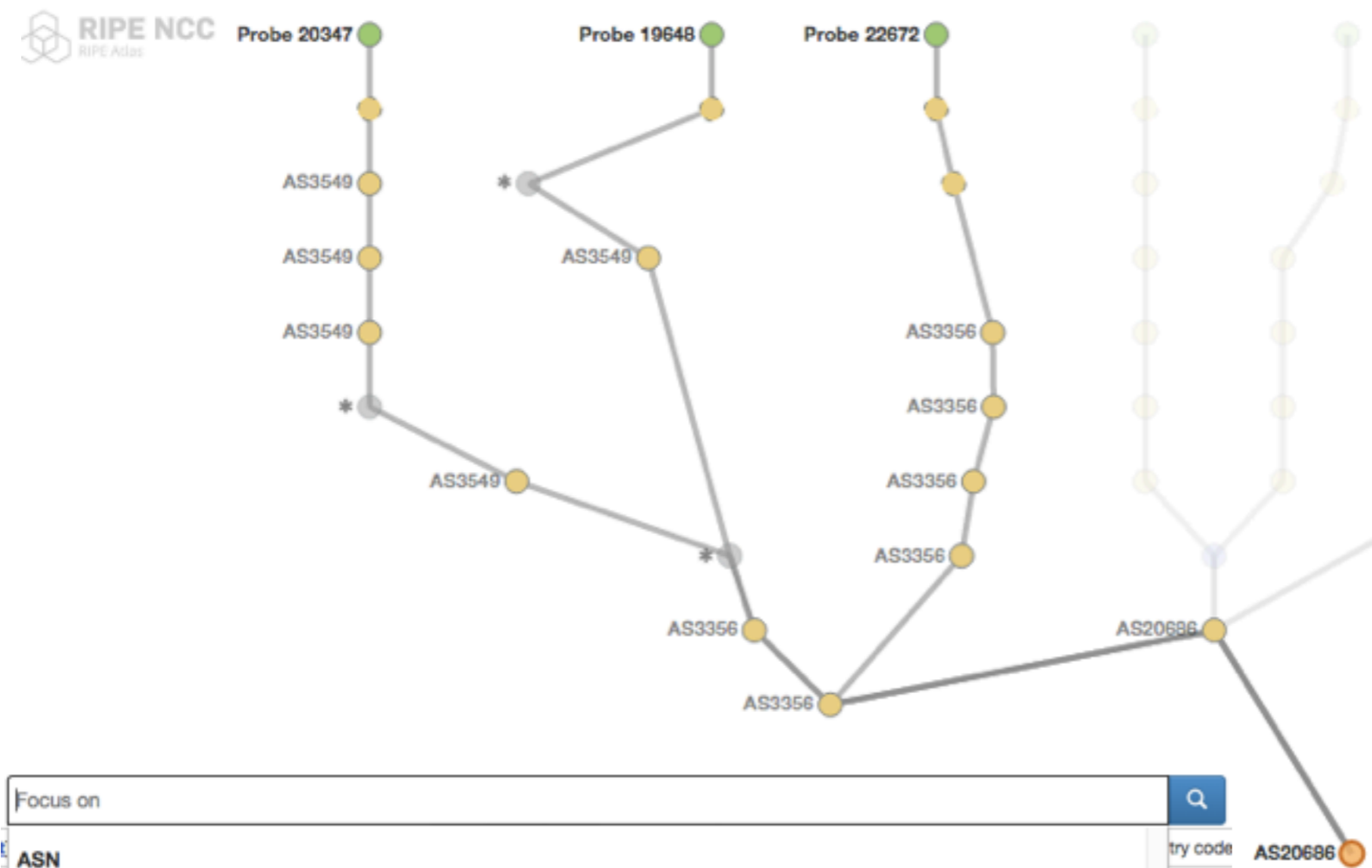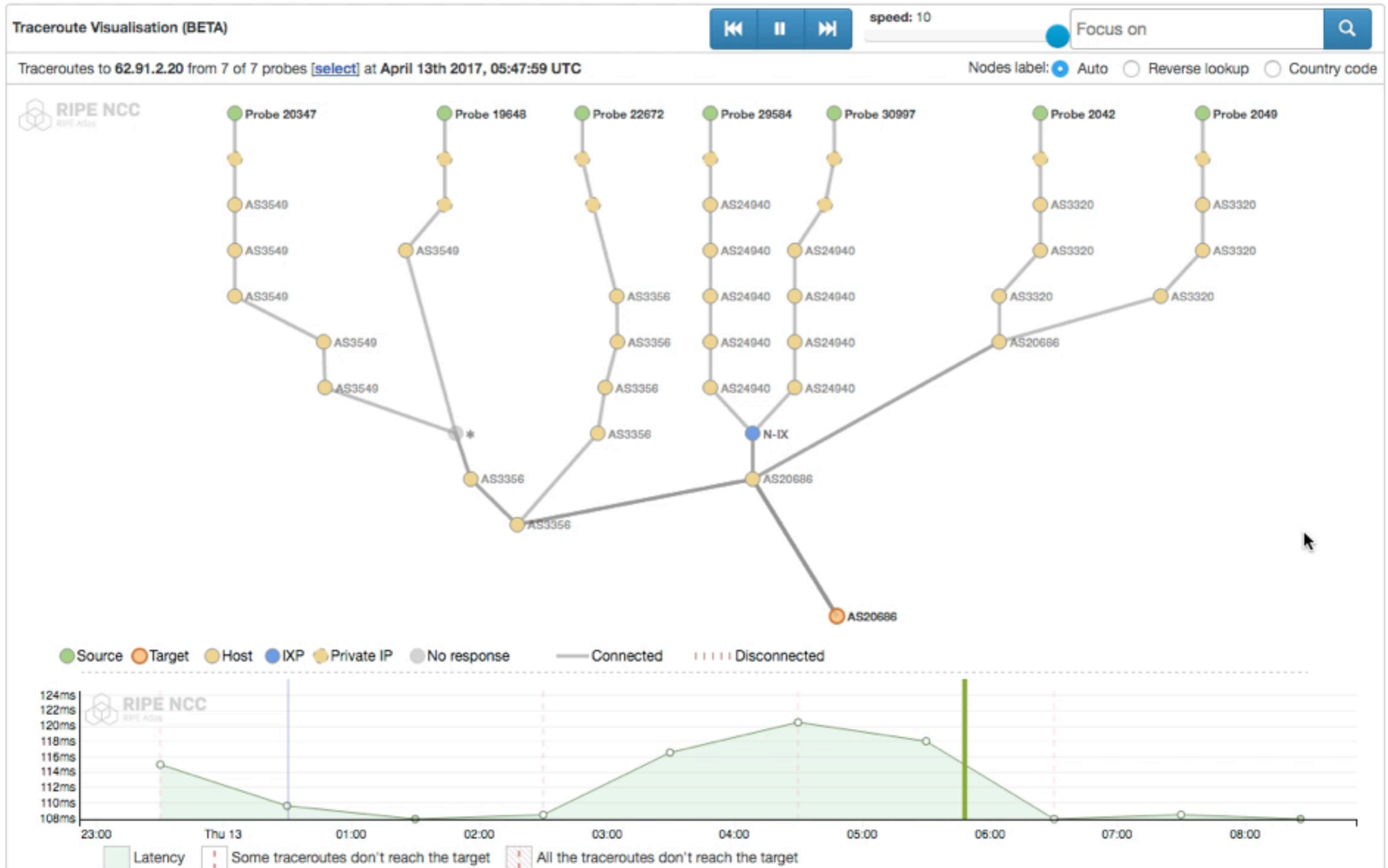
Close

Filter & Search

- Boolean filters

  - ASN

  - Outcome

  - Probe

  - …

Network Annotations
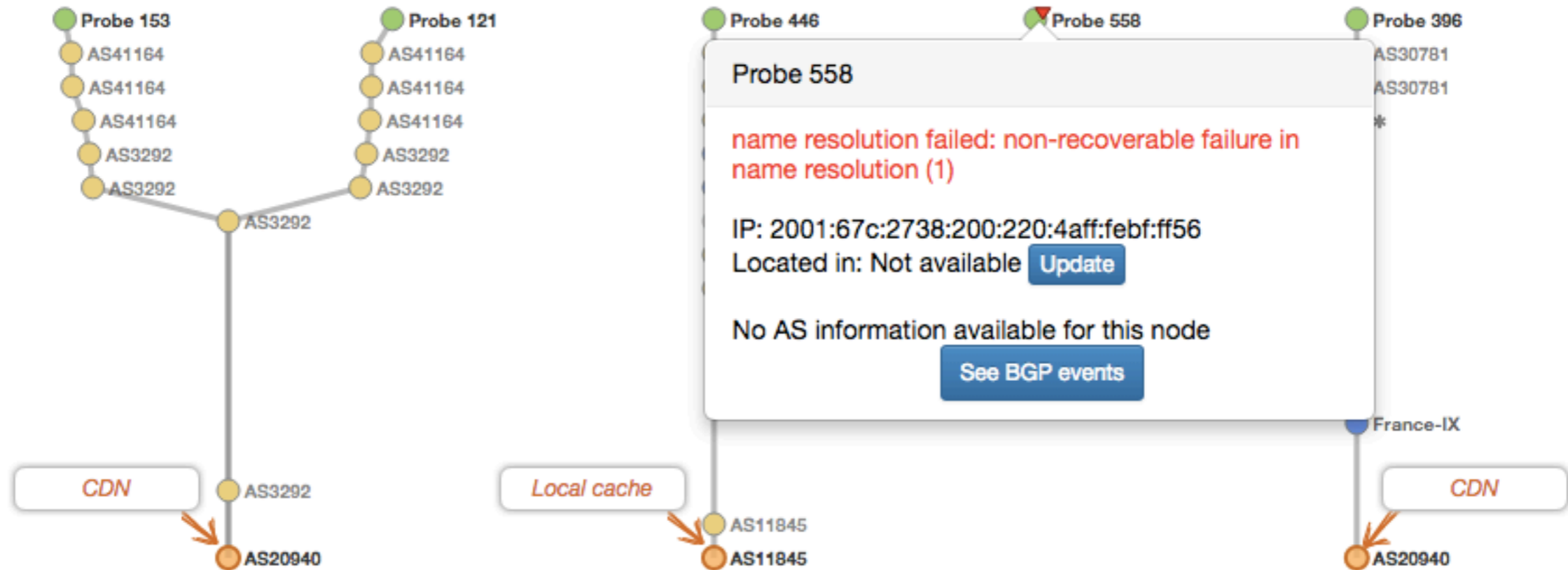
Measuring Akamai

And of course…. Replay History

TraceMON is Open

- Open Source
  - https://github.com/RIPE-NCC/tracemon

- Open research topics
  - Network simplification
  - Network characterisation
  - Visualisation

- Open to other datasets
  - Traceroute datasets (including private ones)
  - Enrichment datasets (also experimental)

Upcoming Features

- Autonomous System grouping

  - And a more flexible grouping in general

- Real-time monitoring

- Alias resolution

  - To detect multiple interfaces of the same node

- Path coloring

  - More flexible path coloring e.g. which part of the graph is local network and which is the network of the target? user-defined coloring?

- Anomalies detection

- Auto filtering

  - To automatically highlight the traceroute variations that are considered "interesting" based on historic behaviours

Questions

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