



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Crowdsource your Infrastructure Location with OpenIPmap

Massimo Candela | 24 October 2017 | RIPE 75

Reasons



1. A topological network view is not enough - sometimes you need to see it on a **map**
 - To see spatial relations between nodes
 - To make sense of RTTs
 - To understand network relationships among countries
 - To verify your geographical optimisation policies
2. Crowdsourcing data by using a map
 - Easier than using the API for occasional use
 - Exposes wrong geolocations
 - Improves accuracy of the crowdsourced data

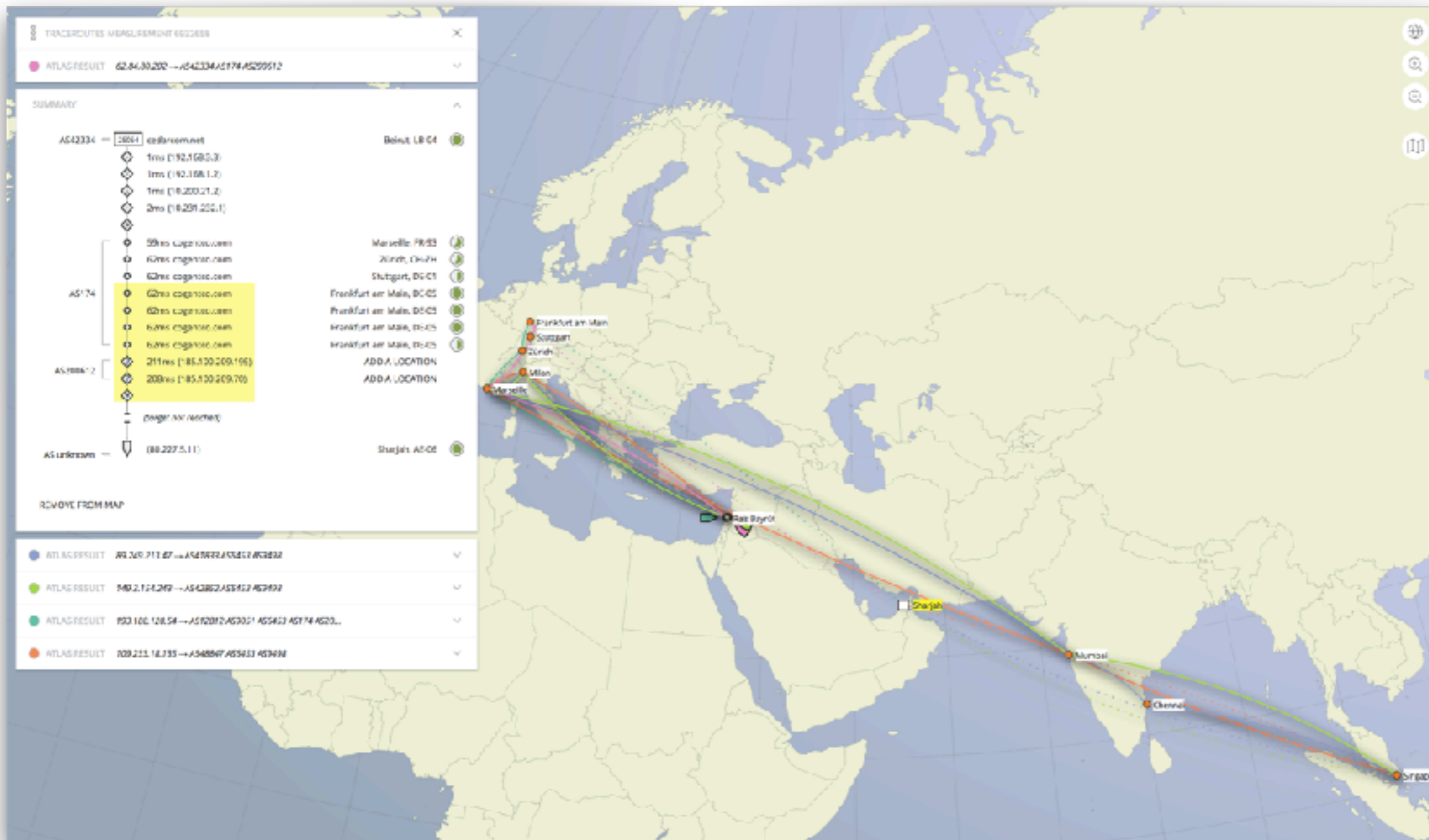
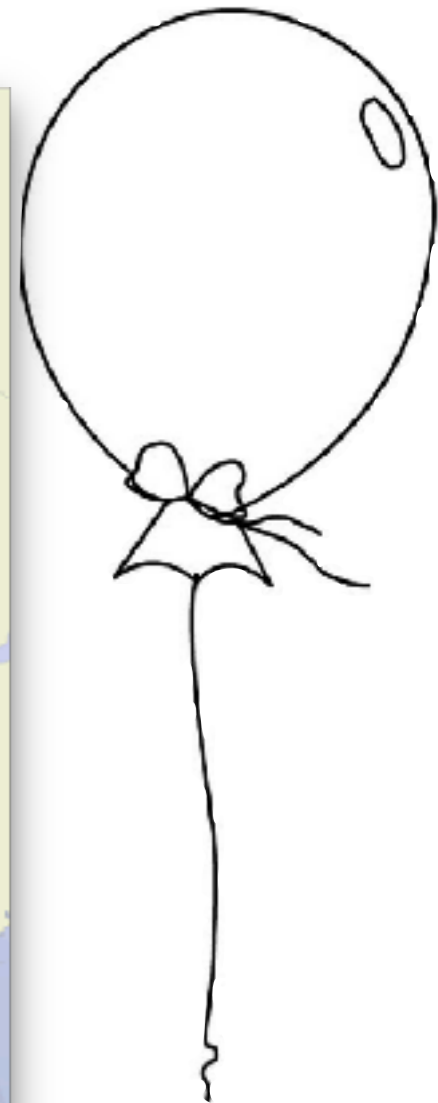
OpenIPmap Prototype



- Conceived by Emile Aben
 - labs.ripe.net/Members/emileaben/infrastructure-geolocation-plan-of-action
- The prototype attracted much interest
 - A production software is needed
- We have a new API better supporting geolocation



What's new: OpenIPmap!



Where is OpenIPmap?



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

RIPE Database (Whois) Website

Search IP Address or ASN

Manage IPs and ASNs > Analyse > Participate > Get Support > Publications > About Us >

You are here: Home > Analyse > Internet Measurements > RIPE Atlas > Measurements

RIPE Atlas <<

- About RIPE Atlas >
- Get Involved >
- Probes and Anchors >
- Measurements, Maps and Tools** v
- Measurements 1
- Internet Maps
- Tools
- Resources >
- RIPE NCC Members

Measurements

Search by target Search... Any Status IPv4/v6 All types

Of all time T X

Ping **Traceroute** DNS HTTP SSL NTP WiFi Built-in Anchoring

ID	Type	Target	Description	Probes	Interval	Time (UTC)
9855715	Traceroute	185.3.54.1	traceroute_From_NL_POP-Chandon-Monohome	1	one-off	2017-10-23 15:05 Never
9854358	Traceroute	se-sto-as199150.anchors.atlas.ripe.net	Calibration for anchoring measurement: IPv5 Traceroute for se-sto-as199150.anchors.atlas.ripe.net	4097	one-off	2017-10-23 14:25 2017-10-23 14:35
9854357	Traceroute	se-sto-as199150.anchors.atlas.ripe.net	Calibration for anchoring measurement: IPv4 Traceroute for se-sto-as199150.anchors.atlas.ripe.net	10120	one-off	2017-10-23 14:25 2017-10-23 14:35

Where is OpenIPmap?



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

RIPE Database (Whois) Website

Search IP Address or ASN

Manage IPs and ASNs > Analyse > Participate > Get Support > Publications > About Us >

You are here: Home > Analyse > Internet Measurements > RIPE Atlas > Measurements > Measurement #9321881

Traceroute measurement to wikipedia.org *here!*

General Information Probes Map TraceMON (beta) **Openipmap (beta)** Results

General Information

ID	#9321881
Group ID	#9321881
Type	⚡ Traceroute
Public measurement?	Yes
Target	wikipedia.org
Resolve on Probe	No
This is a one-off measurement	
Timing	2017-09-20 15:06 - 2017-09-20 15:15
Costs	60 per result, 1620 per day
Response timeout	4000
Protocol	ICMP
Paris	16

OpenIPmap Demo

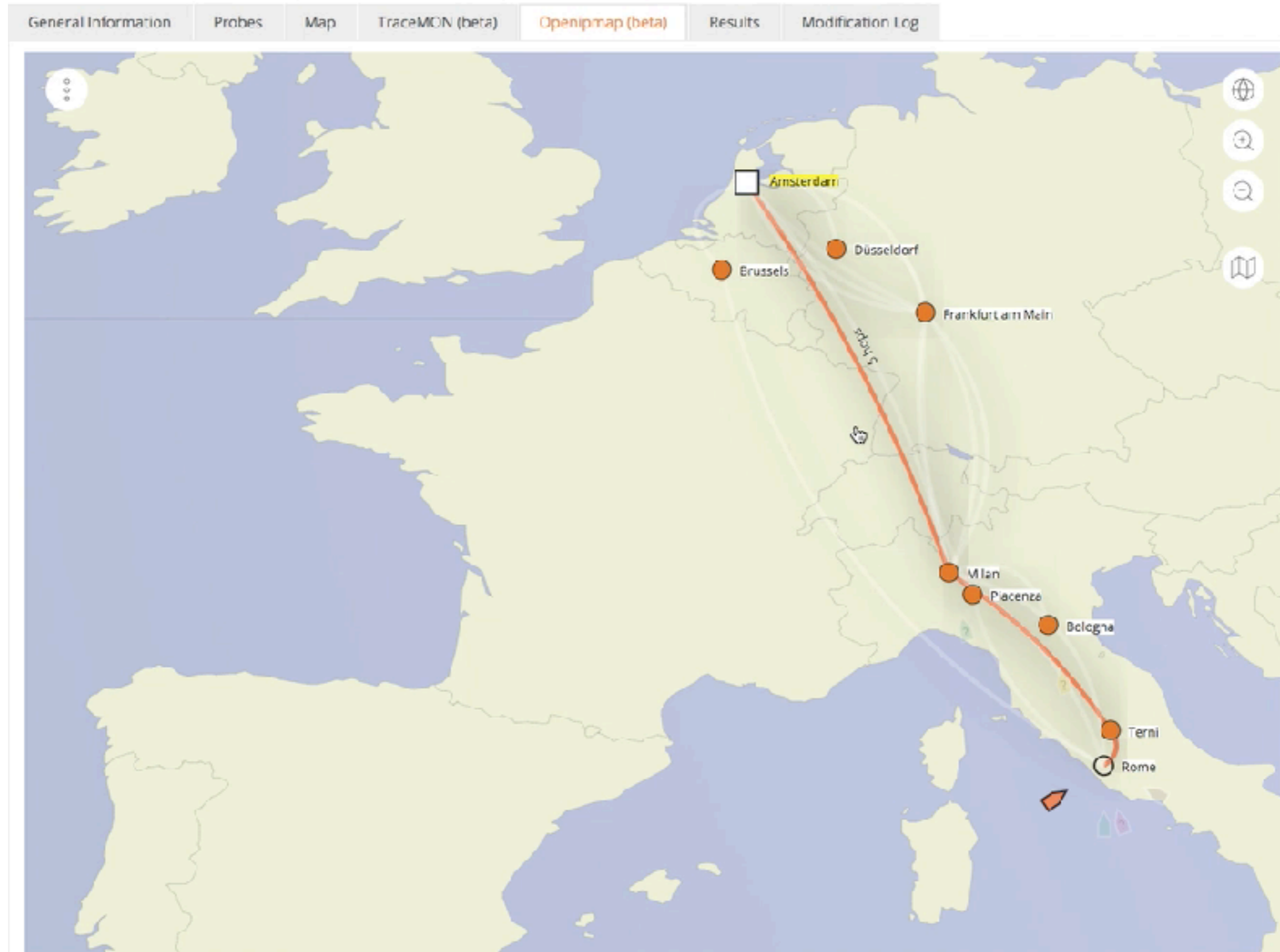


A screenshot of the RIPE NCC website. The top left features the RIPE NCC logo and the text "RIPE NCC RIPE NETWORK COORDINATION CENTRE". To the right, there are two tabs: "RIPE Database (Whois)" and "Website". Below the tabs is a search bar with the placeholder text "Search IP Address or ASN" and a magnifying glass icon. A dark blue banner below the search bar contains the text "By searching you explicitly express your agreement with the RIPE Database terms and conditions". Below the search bar is a horizontal navigation menu with the following items: "Manage IPs and ASNs", "Analyse", "Participate", "Get Support", "Publications", and "About Us".

OpenIPmap Demo



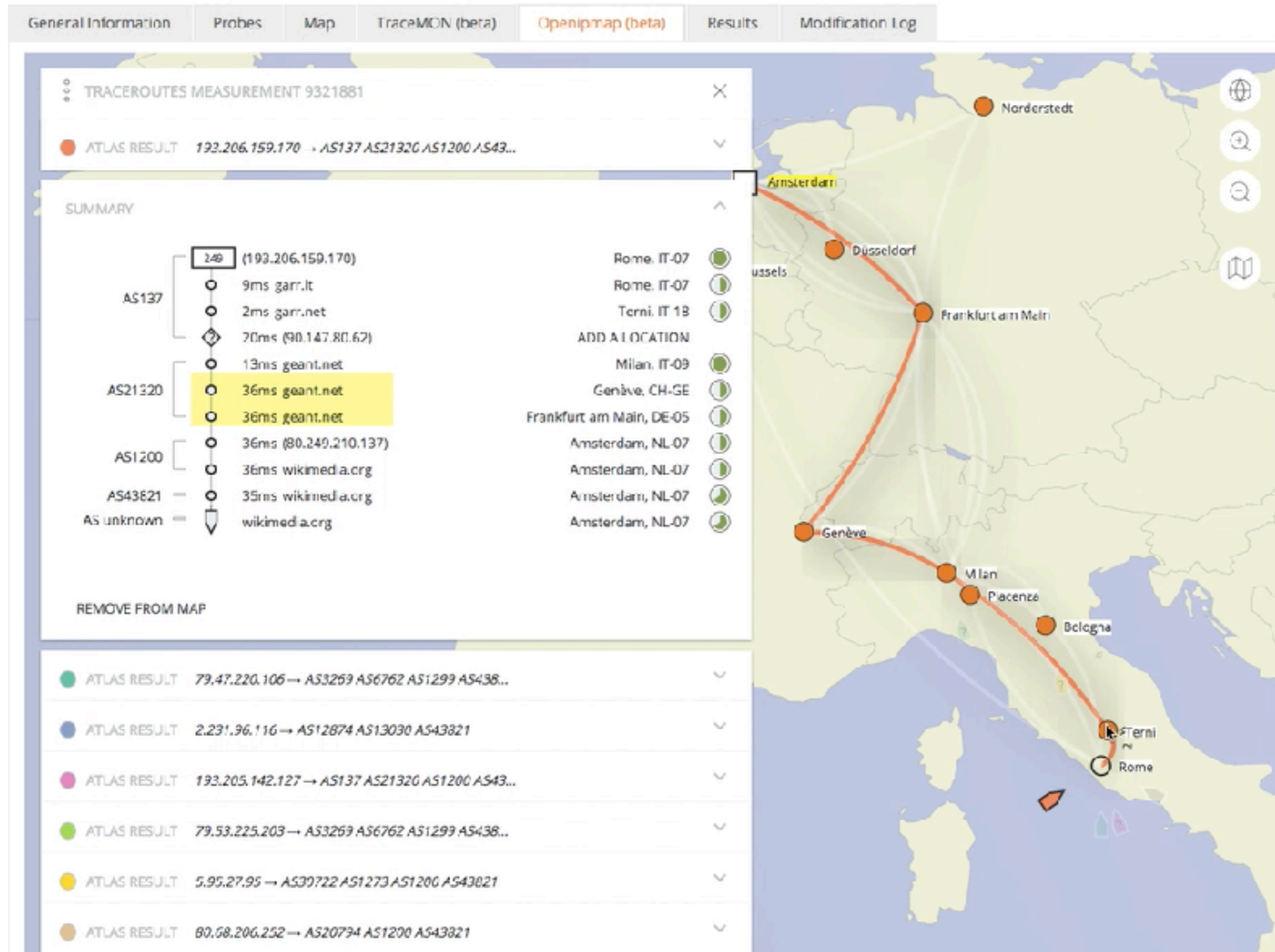
⚡ Traceroute measurement to wikipedia.org



OpenIPmap Demo



Traceroute measurement to wikipedia.org



Live changes



Traceroute Measurement 2254519

ATLAS RESULT 189.62.152.221 → AS28573 AS4230 AS54112

SUMMARY

AS28573	14436 (189.62.152.221)	1ms (192.168.1.1)	11ms (10.25.128.1)
AS28573	9ms com.br	13ms com.br	11ms com.br
AS4230	23ms (200.167.43.9)	32ms (200.244.214.12)	35ms net.br
AS4230			34ms net.br
AS4230			35ms net.br
AS54112	32ms (151.101.56.193)		
AS unknown	(151.101.56.193)		

REMOVE FROM MAP

ATLAS RESULT 201.52.240.184 → AS28573 AS4230 AS54112

SUMMARY

AS28573	14736 (201.52.240.184)	1ms (192.168.130.1)	1ms (192.168.131.1)	2ms (192.168.0.1)	9ms (10.17.0.1)	13ms (201.6.26.1)
AS28573		13ms com.br	14ms com.br	15ms net.br	15ms net.br	17ms net.br
AS4230			14ms net.br	12ms net.br		
AS54112	14ms (151.101.56.193)					
AS unknown	(151.101.56.193)					

REMOVE FROM MAP

ADD A LOCATION

- São Paulo BR-27
- Belo Horizonte BR-15
- São Paulo BR-27
- São Paulo BR-27
- São Paulo BR-27
- São Paulo BR-27
- São Paulo BR-27
- Houston US-TX
- Houston US-TX

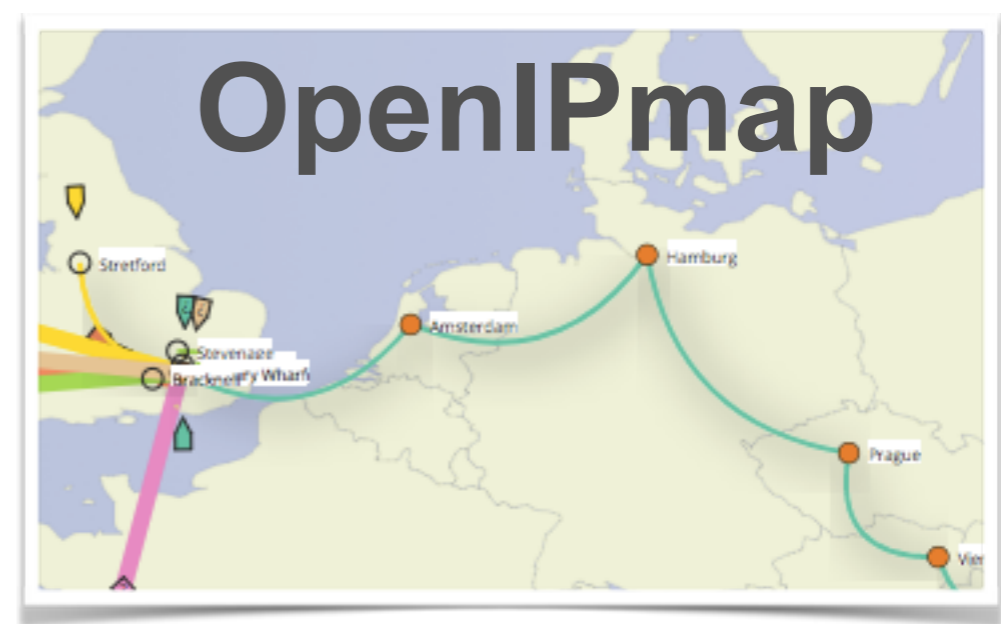
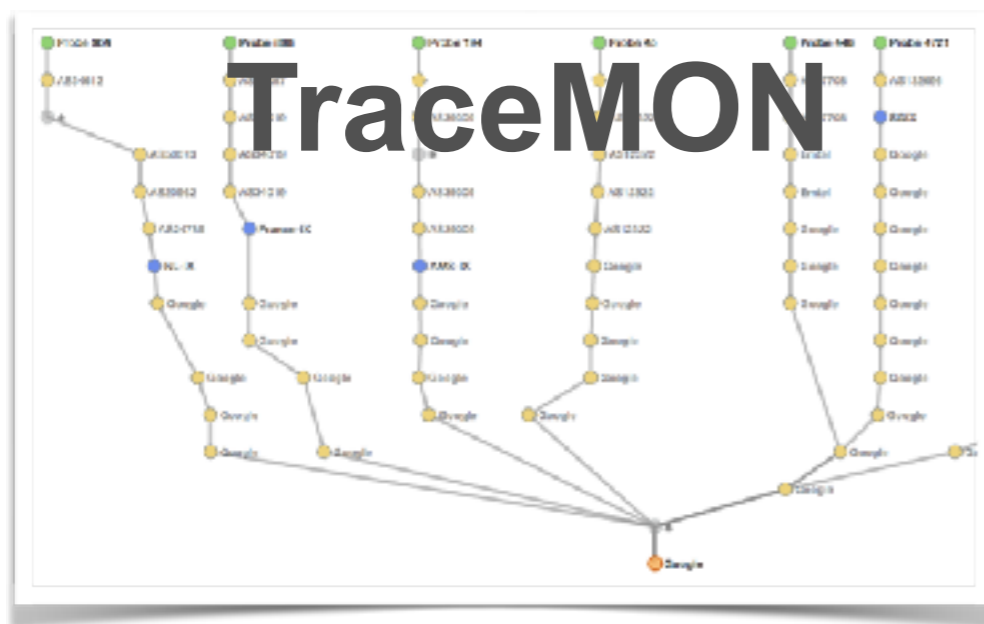
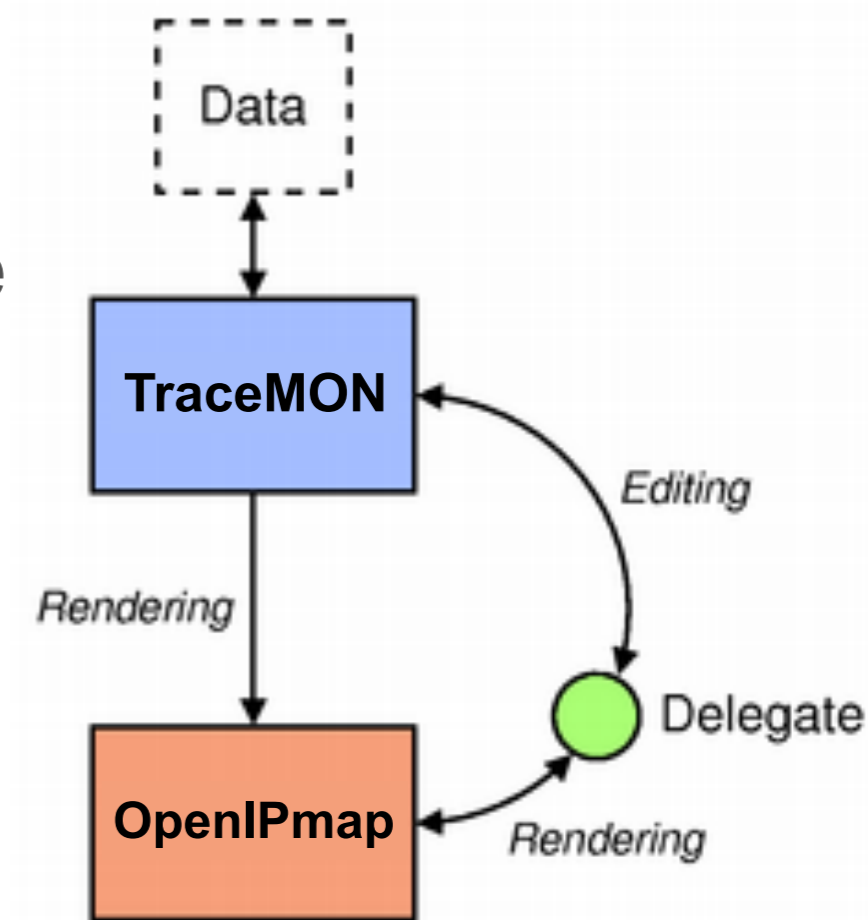
instant changes in map and...

all other hops that have this IP

OpenIPmap and TraceMON



- OpenIPmap is based on TraceMON
 - We want to unify our efforts on a single **enriched** and **open** traceroute model
 - Inherits all the network annotations
 - Reuses the research done (or that will be done)





Future Work

1. OpenIPmap Search app
 - IP-centric view
2. Anycast support
 - We have the API!
3. Generic traceroute input
4. Improve crowdsourcing score mechanism
 - Contributions are welcome!
5. Define and publish some KPI for service evaluation
 - We already collect metadata
6. Reverse DNS geolocation



Questions

mcandela@ripe.net

