RIPE NCC
RIPE NETWORK COORDINATION CENTRE

KNOW YOUR NETWORK

Why Every Network Operator Should Host RIPE Atlas

Lia Hestina, RIPE NCC

11 Things Network Operators Do - ChatGPT

Network Infrastructure Management	**Network Monitoring**	Security Management
Configuration and Optimisation	Troubleshooting	Capacity Planning
Software Updates and Patch Management		8 ..... to 11

No News is Good News

What's Known

- Your infrastructure
- System & Software
- Your People
- Monitoring Tools
- Security Measures

The Unknown

- Threats/ Unpredictability
- What our Competitor Do
- Everchanging Technology
- Hijacks/ Natural Disaster
- Opportunity

RIPE Atlas

- RIPE Atlas is a global active measurements platform, funded by RIPE NCC members and sponsors
- Goal: view Internet reachability
- Probes hosted by volunteers, using a credits system
- Data is publicly available

atlas.ripe.net

RIPE Atlas

Accessible via

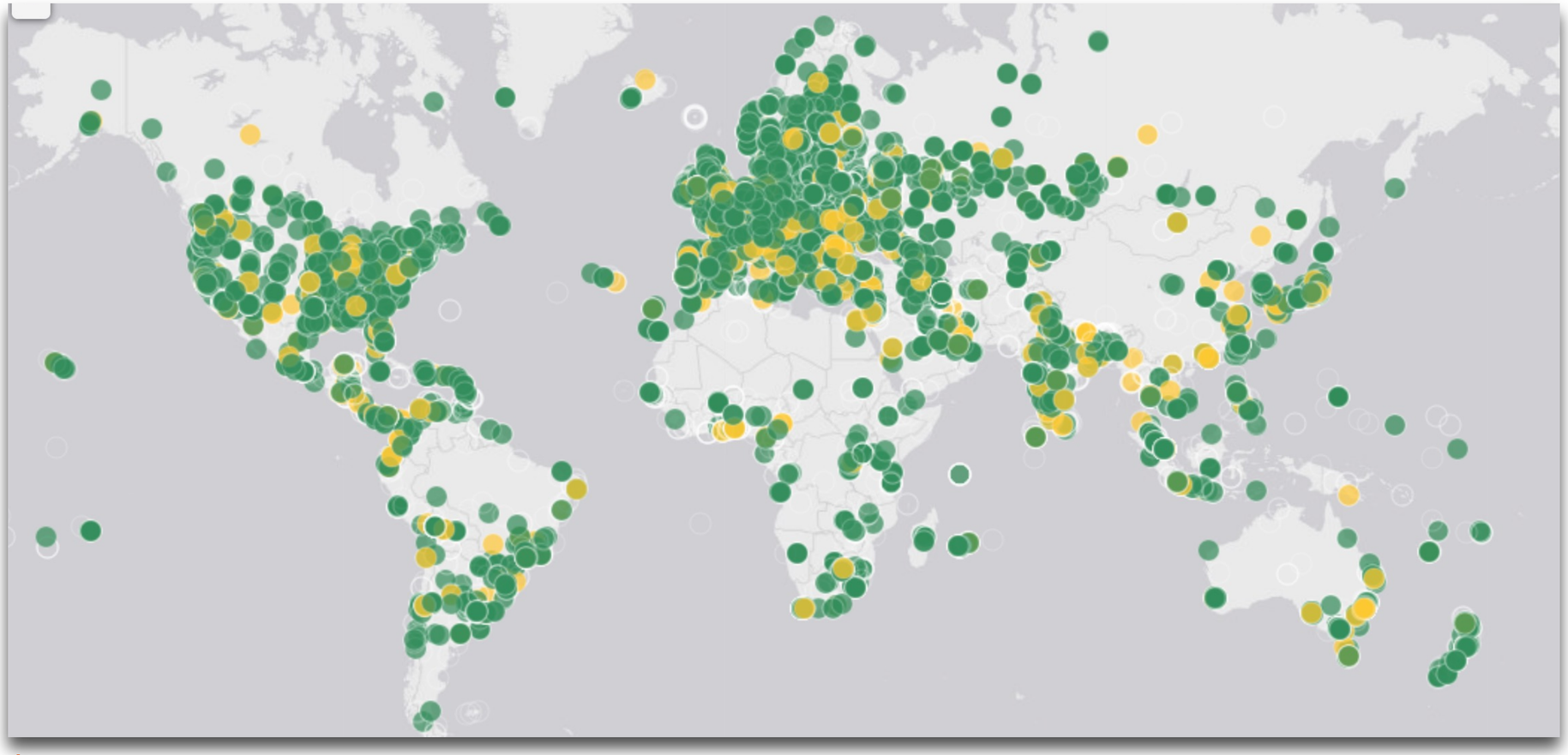
- GUI
- API
- CLI TOOL

Type of Measurements

- PING
- TRACEROUTE
- DNS
- NTP
- SSL/TLS
- HTTP (anchors)

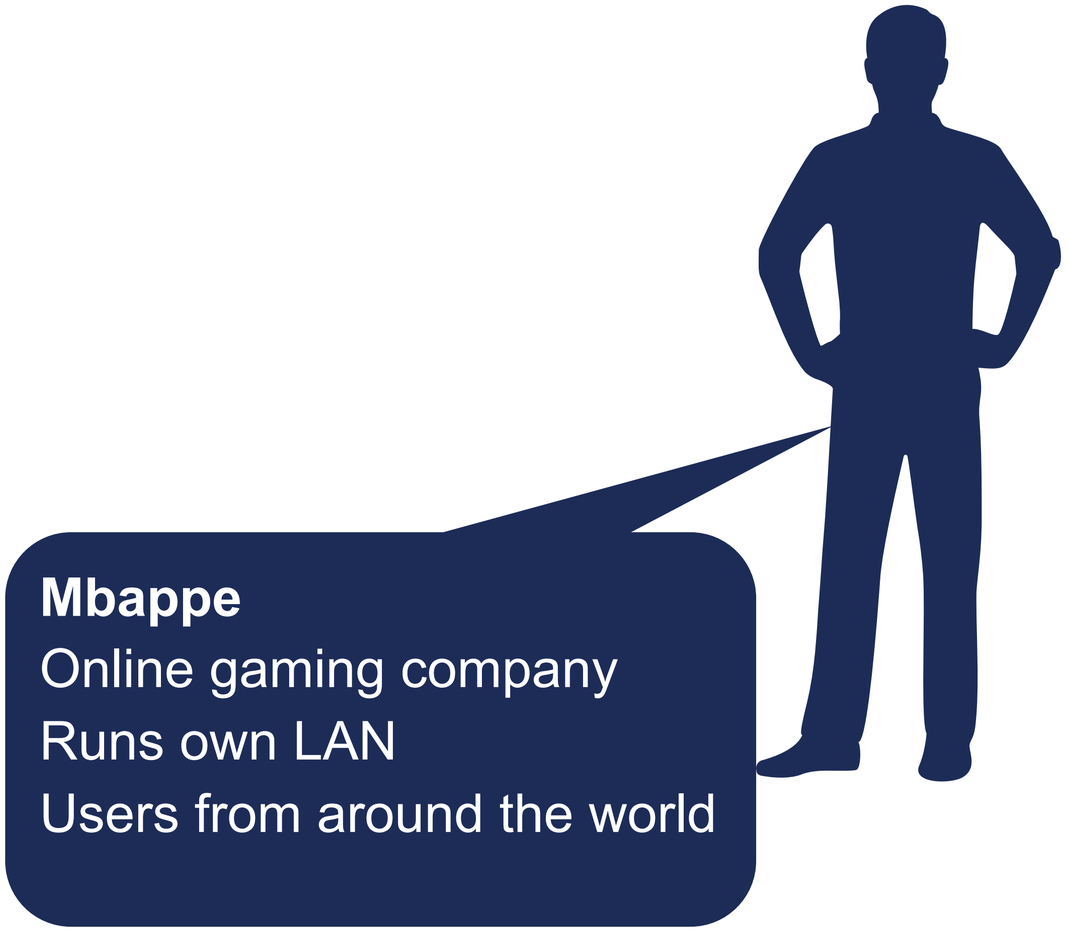
Run RIPE Atlas tests

- More than 12000 probes connected
- More than 3000 ASNs globally
- 250 in Africa



Some Problems

- High latency - Impatient gamers
- Gamers from different networks
- Realtime application, unpredictable



Issues spotted!

Probe	ASN (IPv4)	ASN (IPv6)	Time (UTC)	RTT	Hops	Success
4429	55430		2020-05-13 19:02	270.039		
14042	55430		2020-05-13 19:02	267.779	17	✗
22798	55430	55430	2020-05-13 19:02	268.372	17	✗
24422	55430		2020-05-13 19:02	268.974	17	✗
25828	4788		2020-05-13 19:02	364.127	15	✗
28850	4844		2020-05-13 19:02	265.993	17	✗
54623	4773	4773	2020-05-13 19:02	268.964	16	✗
55415	55430	55430	2020-05-13 19:02	367.158	13	✗

High latency Identified

DEBUG - Talk to your peers, ISP or any that can help improve RTT

Latest Traceroute Result for Measurement #59170999

2023-09-01 16:17 UTC

Traceroute to tiktok.com (3.160.5.56), 48 byte packets

1 192.168.0.1 0.457ms 0.368ms 0.346ms
2 100.91.127.254 5.424ms 4.347ms 4.594ms
3 10.233.97.55 4.777ms 4.537ms 4.473ms
4 10.55.192.63 193.346ms 194.974ms 194.312ms
5 213.248.79.106 lax-b3-link.ip.twelve99.net AS1299 182.594ms 182.382ms 182.325ms
6 62.115.126.250 lax-b23-link.ip.twelve99.net AS1299 202.572ms 203.672ms 203.016ms
7 * 62.115.123.136 dls-bb2-link.ip.twelve99.net AS1299 232.324ms *
8 62.115.116.213 atl-b24-link.ip.twelve99.net AS1299 255.674ms 250.639ms 250.838ms
9 62.115.119.201 ipls-b2-link.ip.twelve99.net AS1299 255.624ms 255.207ms 255.525ms
10 62.115.139.235 clb-b1-link.ip.twelve99.net AS1299 260.81ms 260.133ms 259.797ms
11 * * *
12 * * *
13 * * *
14 * * *
15 * * *
255 3.160.5.56 server-3-160-5-56.cmh68.r.cloudfront.net AS16509 243.323ms 242.473ms 243.412ms

Settings & Status | Latest Results | Map | Tracemon | IPMap | Downloads

Probe	ASN (IPv4)	ASN (IPv6)	Time (UTC)	RTT	Hops	Success
4429	55430		2020-05-13 20:17	4.394	14	✓
14042	55430		2020-05-13 20:17	3.042	14	✓
22798	55430	55430	2020-05-13 20:17	3.336		✓
24422	55430		2020-05-13 20:17	3.993	15	✓
25828	4788		2020-05-13 20:17	3.158	14	✓
28850	4844		2020-05-13 20:17	3.127	14	✓
31918	55430		2020-05-13 20:17	5.194	15	✓
54623	4773	4773	2020-05-13 20:17	4.505	14	✓
55415	55430	55430	2020-05-13 20:17	3.508	14	✓

Lower latency after debugging

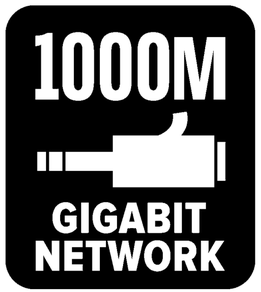
Hooray Moments!

Improve Performance
Shorter path is selected, better latency, reliability & security

Control & Flexibility
Repeat tests as much as you need!

Service desks RIPE Atlas ❤️ GUI
To validate findings

What it’s not



Trafffic Volume

Bandwidth

Making your Coffee

Dare to take a Risk

Try it Wisely, not Blindly

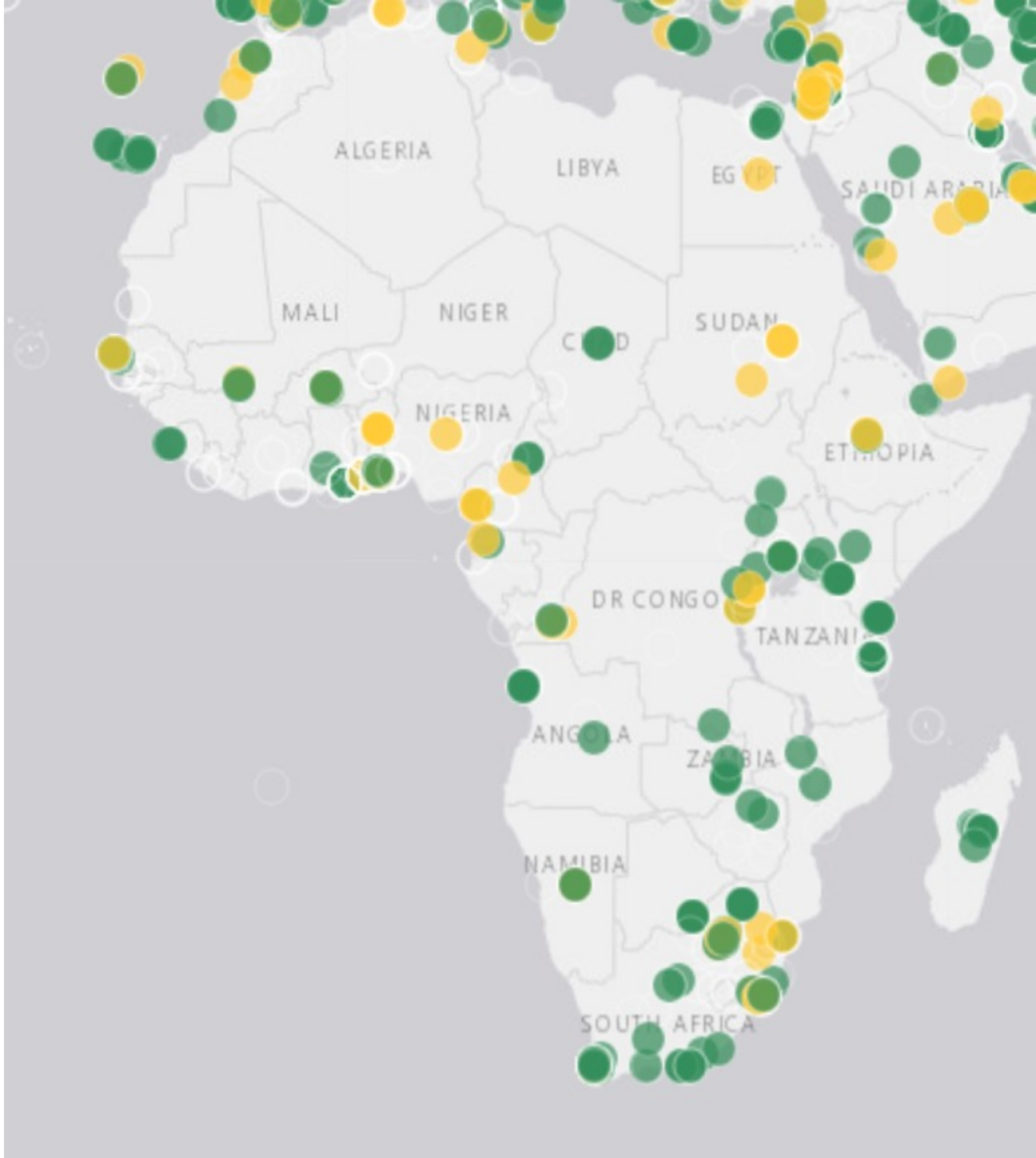
- [x] Who uses the platform?
- [x] What do people say?
- [x] Search for BAD review/BAD experience in Google
- [x] What's the source? Trusted?
- [x] Is it NEW?

Convinced?

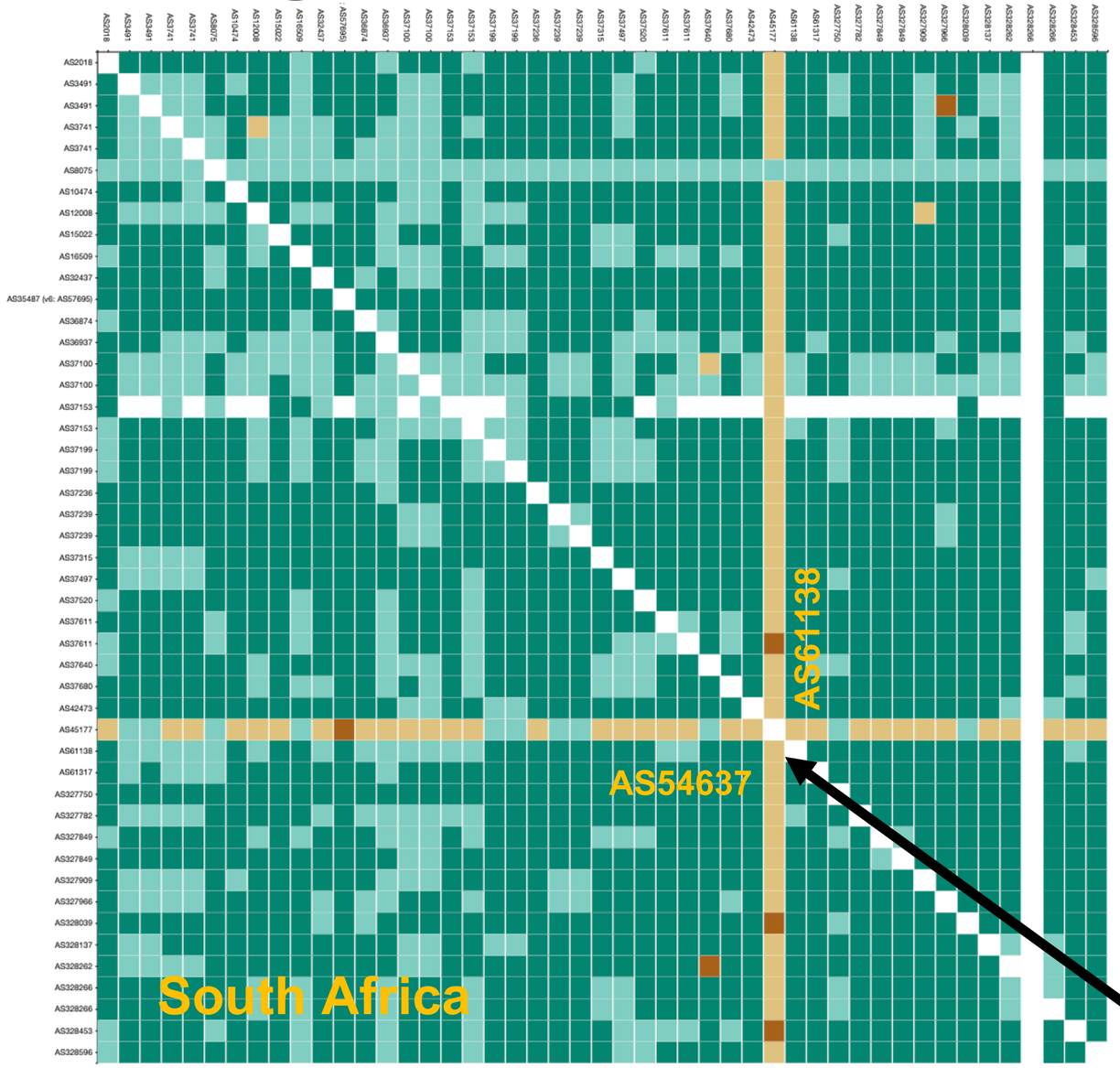
A view into Southern African Economies

Probes in AFRICA

Africa	250 Connected
ZA	90 Connected
BW	3 Connected
LS	0 Connected
NA	3 Connected
SZ	0 Connected
ZM	4 Connected



Finding anomalies in Country IXP JEDI



IPv4 Traceroute:

AS(v4) Path:
1) AS61138
2) AS37153
3) AS37179
4) AS37100
5) AS6762
6) AS4637

IPv6 Traceroute:

AS(v6) Path:
1) AS61138
2) AS37153
3) _JINX-JINX Peering
4) AS6939
5) AS4637
6) AS45177

v4

```
## msm_id:59419026 prb_id:1003709 dst:203.211.111.143 ts:2023-09-02 06:16:29 +00:00

0: ()  172.18.0.1  (0.094 0.111 0.229) ||
1: (AS*) Uknown (*) (* * *) |*|
2: (AS61138)  rns.za.zappiehost.com  (0.095 0.14) ||
3: (AS37153)  185.162.232.129.reverse.xneelo.net  (6.623 6.795 7.048) ||
4: (AS37153)  core-access-switch1-v4001.jnb1.host-h.net  (9.763 19.683 56.604) |Johannesburg,ZA|
5: (AS37153)  core-router2.jnb1.host-h.net  (0.375 0.383 0.693) |Johannesburg,ZA|
6: (AS37179)  41-66-132-245-f5.customer.xe-0-0-2-gp-sm-dce-2.africainx.net  (0.36 0.415 0.47) |Johannesbu
7: (AS37179)  core.ge-0-1-1-gp-id-pbr-1.za.africainx.net  (1.589 1.675 1.762) ||
8: (AS37100)  105.25.146.5  (1.479 1.551 1.626) ||
9: (AS37100)  ae-1.cr-02-jnb.za.seacomnet.com  (160.119 160.3 160.456) |Johannesburg,ZA|
10: (AS*) Uknown (*) (* * *) |*|
11: (AS37100)  ce-0-0-13.cr-02-mrs.fr.seacomnet.com  (152.377 152.603 152.784) ||
12: (AS37100)  ce-0-0-1.br-02-mrs.fr.seacomnet.com  (150.043 150.219 150.266) |Marseille,FR|
13: (AS6762)  213.144.184.130  (151.805 151.896 151.923) ||
14: (AS6762)  195.22.209.220  (171.451 171.588 171.605) |London,GB|
15: (AS4637)  134.159.95.229  (172.028 172.116 172.156) |London,GB|
16: (AS4637)  i-1008.ulcn-core01.telstraglobal.net  (173.601 175.022 177.766) ||
17: (AS4637)  202.84.249.9  (321.317 321.768 322.35) ||
18: (AS4637)  i-20208.sydp-core04.telstraglobal.net  (447.37 447.562 448.028) |Sydney,AU|
19: (AS4637)  i-20208.sydp-core04.telstraglobal.net  (446.956 447.916 448.34) |Sydney,AU|
20: (AS4637)  i-91.sydp10.telstraglobal.net  (446.893 446.898 446.966) ||
21: (AS4637)  unknown.telstraglobal.net  (450.127 450.146 450.276) ||
22: (AS*) Uknown (*) (* * *) |*|
23: (AS*) Uknown (*) (* * *) |*|
24: (AS*) Uknown (*) (* * *) |*|
25: (AS*) Uknown (*) (* * *) |*|
26: (AS*) Uknown (*) (* * *) |*|
```

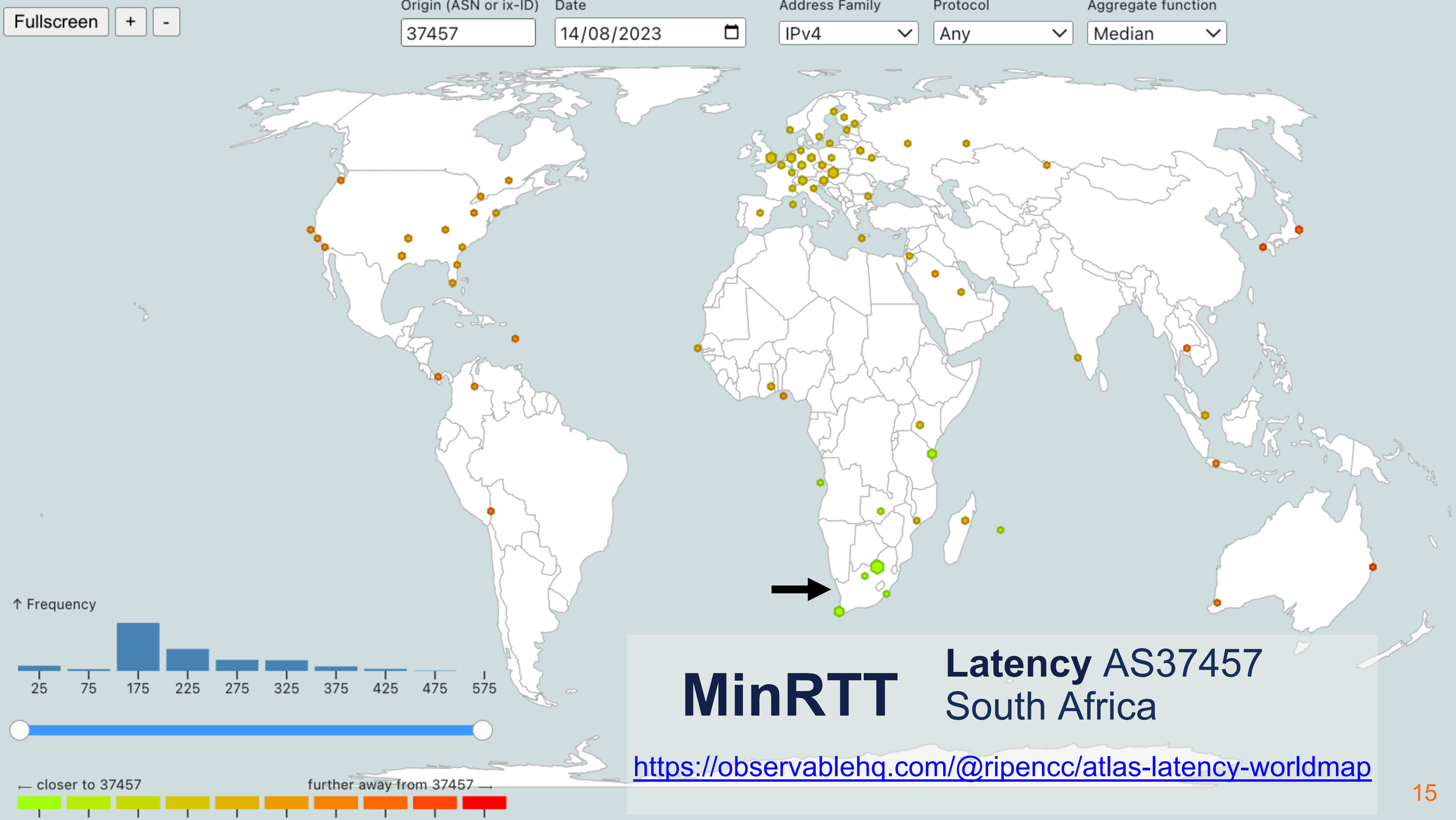
Local IXP found: YES, out-of-country IPs: NO

Local IXP found: YES, out-of-country IPs: YES

Local IXP found: NO, out-of-country IPs: NO

Local IXP found: NO, out-of-country IPs: YES

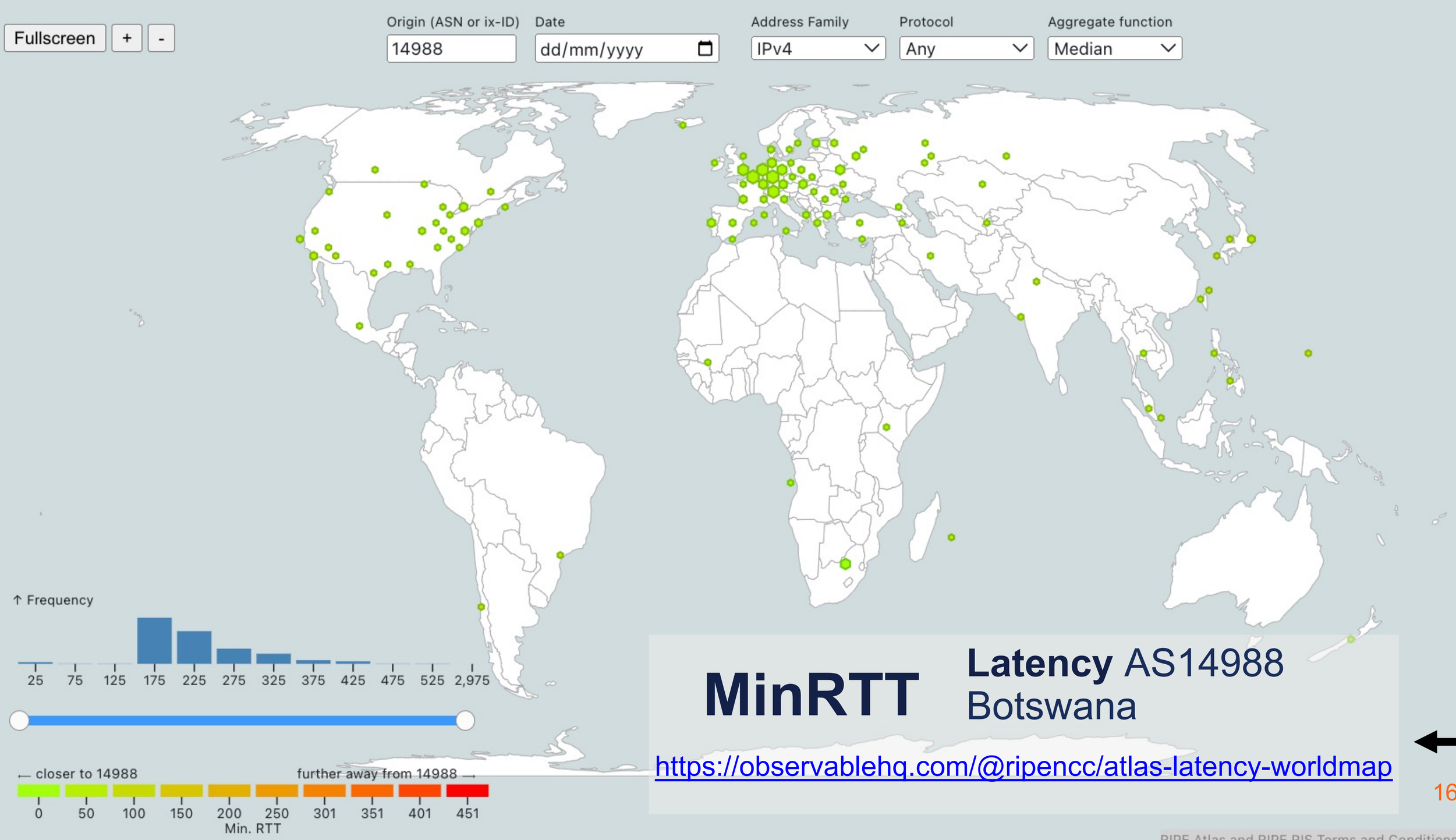
https://jedi.ripe.net/latest/ZA/ixpcountry/index.html?ASNS=all&ipv=v4



MinRTT

Latency AS37457
South Africa

https://observablehq.com/@ripencc/atlas-latency-worldmap

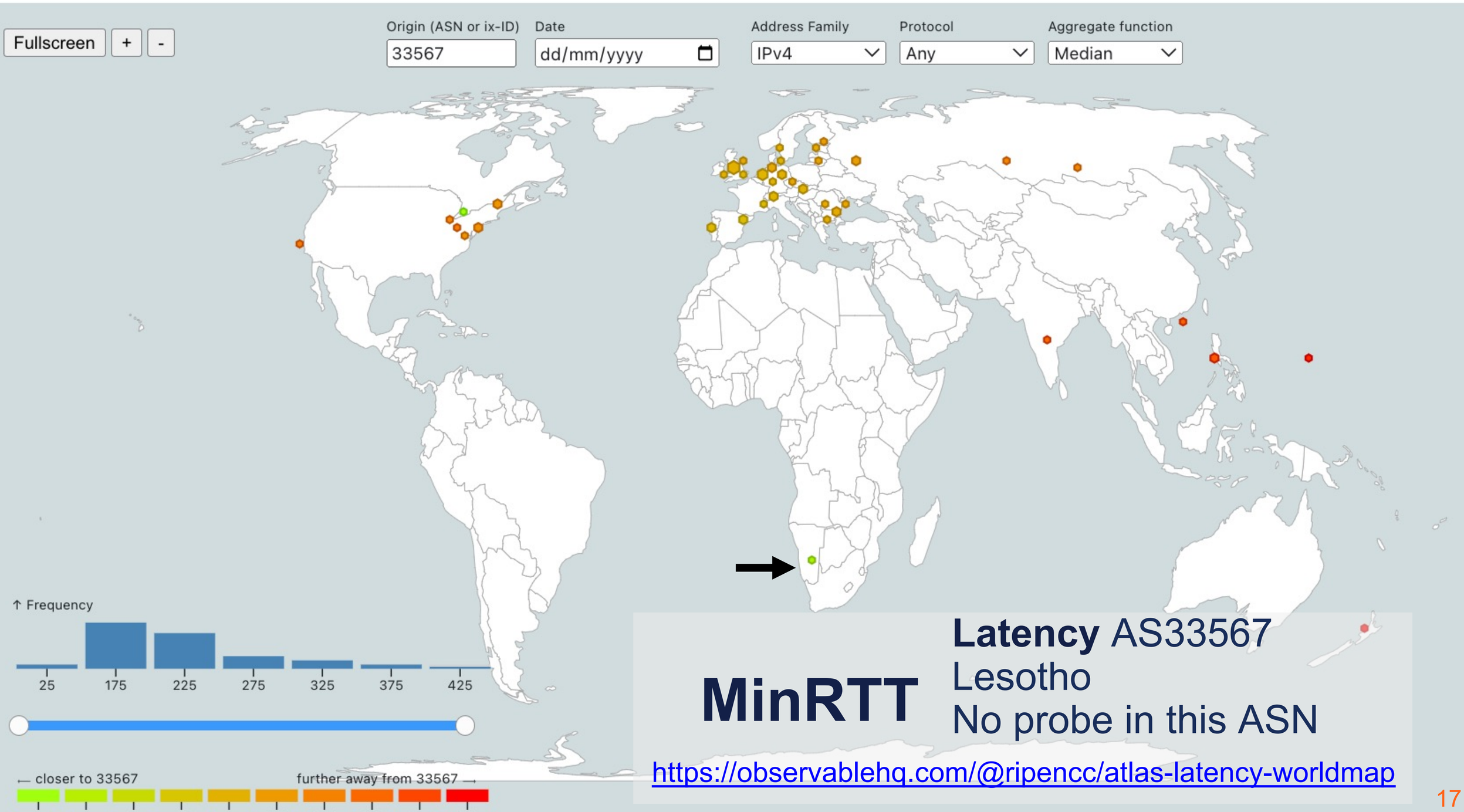


MinRTT

Latency AS14988 Botswana

https://observablehq.com/@ripencc/atlas-latency-worldmap

RIPE Atlas and RIPE RIS Terms and Conditions apply

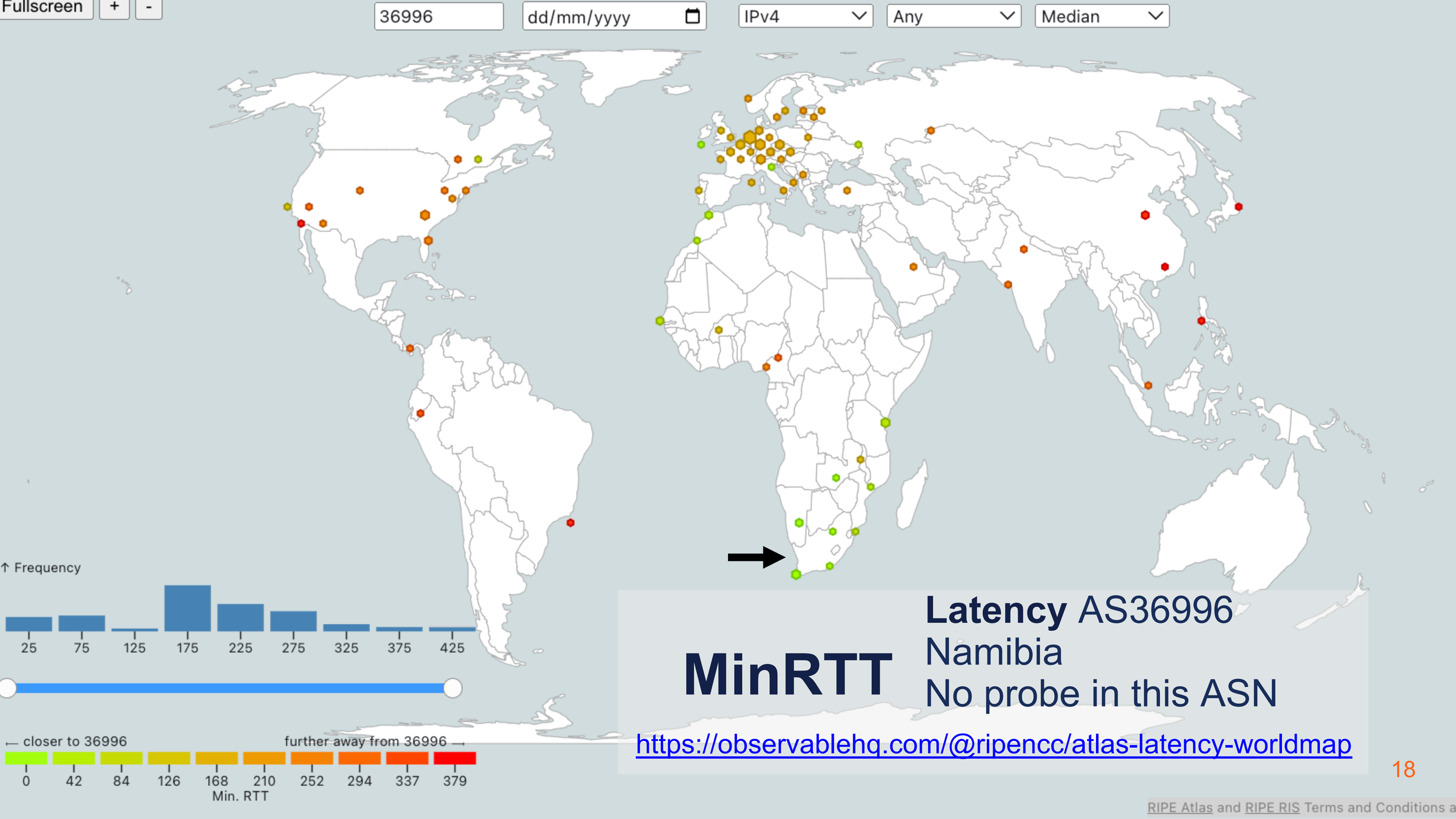


MinRTT

Latency AS33567
Lesotho
No probe in this ASN

https://observablehq.com/@ripencc/atlas-latency-worldmap

RIPE Atlas and RIPE RIS Terms and Conditions apply.



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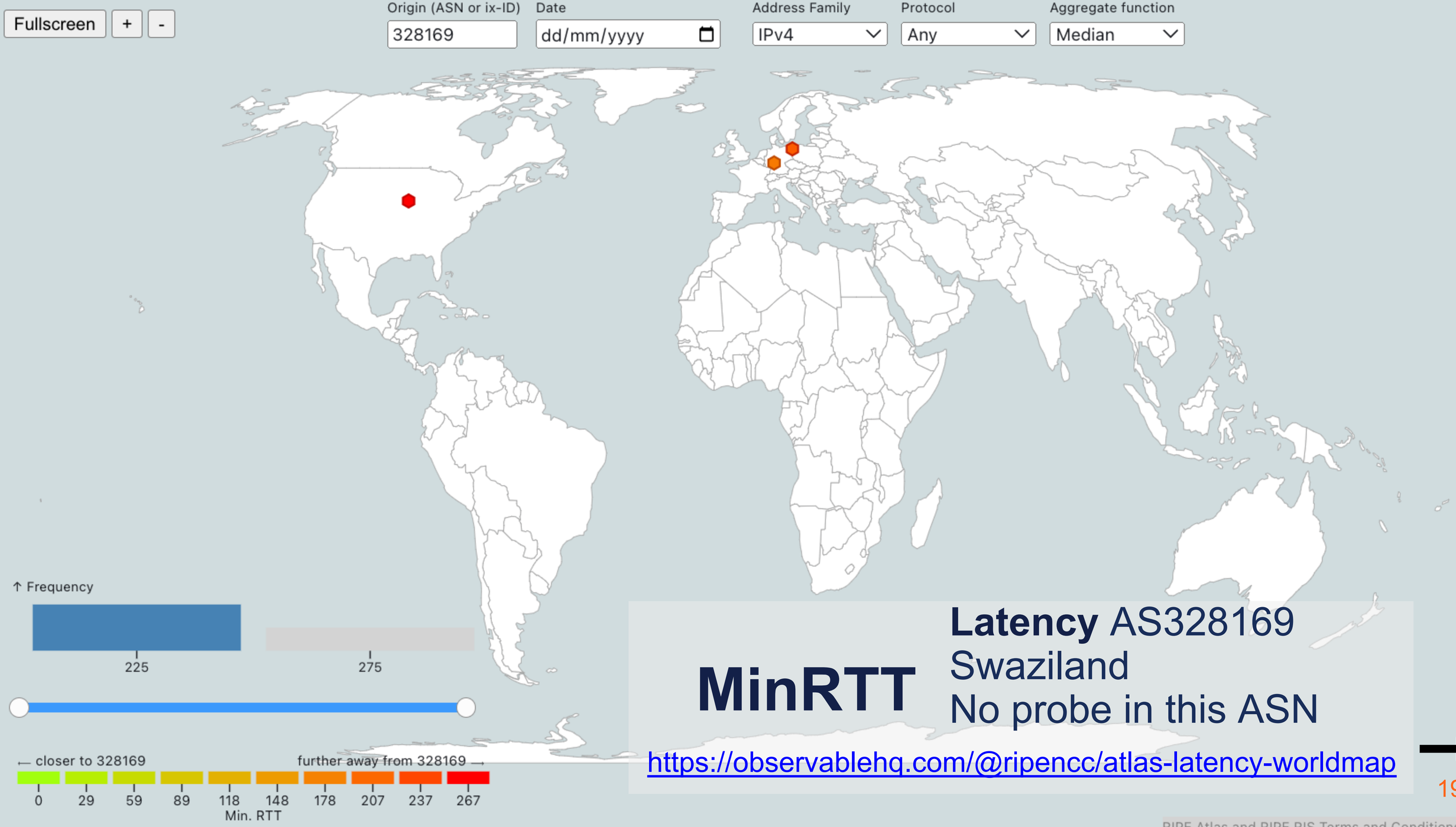

MinRTT

Latency AS328169
Swaziland
No probe in this ASN

https://observablehq.com/@ripencc/atlas-latency-worldmap

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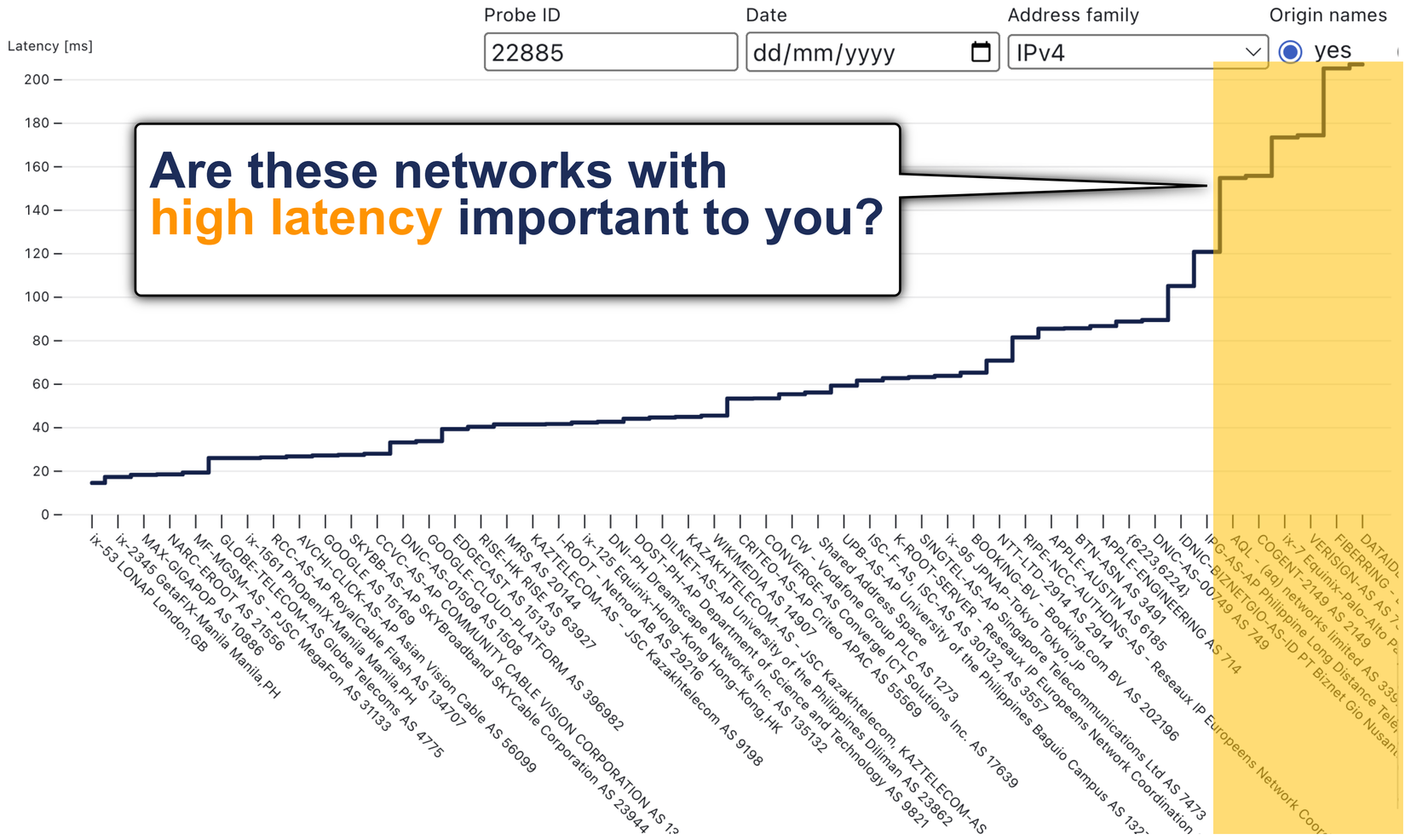
MinRTT

Your network **neighbourhood** as seen through RIPE Atlas

Try your probe here

https://observablehq.com/@ripencc/atlas-probe-neighbourhood?



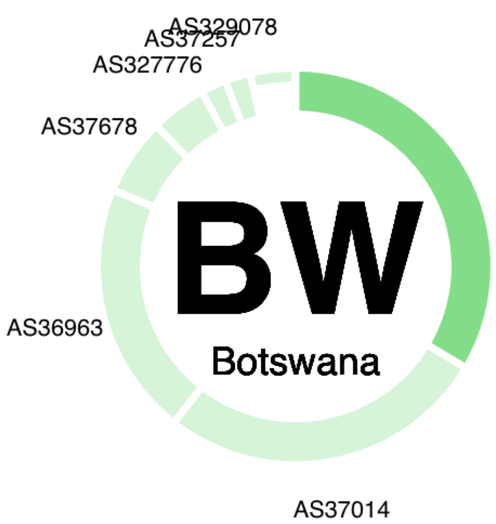
Some reasons to love RIPE Atlas

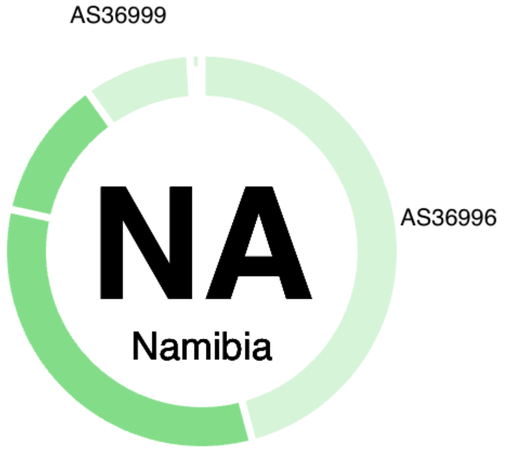
12,000 Probes	Global Coverage
Trusted Source	Non-profit organisation Volunteers: End Users
Safe & Secure	Regular third-party security review
Open Data	Measurement results open to all
Community Driven	From the community for the community

Fair Use/
NON Monetary

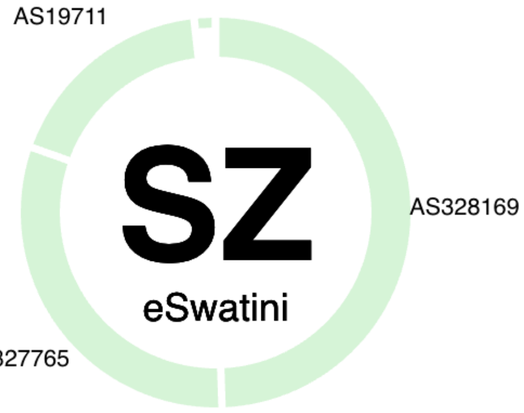
RIPE Atlas probe coverage
Showing ASNs covering at least 1% of the country's population (2023-09-20)

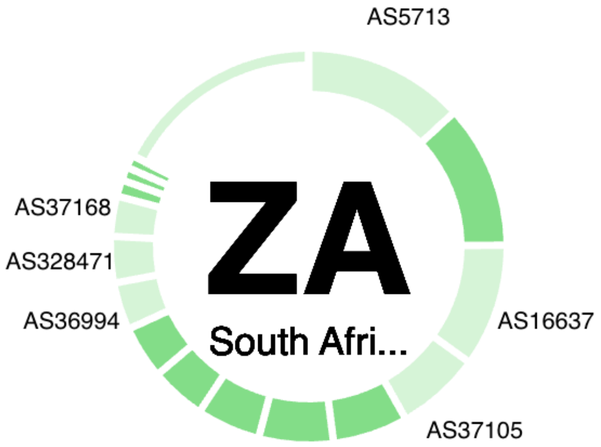
ASN is not covered
ASN has at least 1 probe

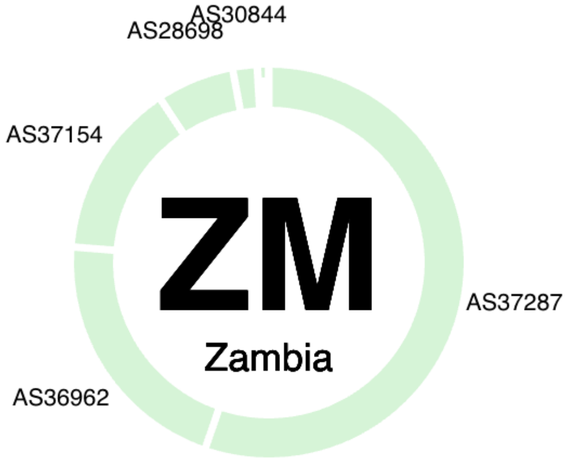




We'd like to install probes in these ASNs







Be the CHAMPIONS!

1. NO Network LEFT BEHIND, Install a Probe
2. KEEP your Latency LOW
3. KEEP your Traffic LOCAL

What do you do now?

1. Create RIPE NCC Access ACCOUNT
2. INSTALL RIPE Atlas probe strategically
3. Start testing, MONITOR your network performance
4. Got a disconnected probe? RECONNECT!

Redeem This Voucher

SAFNOG8

Questions

lhestina@ripe.net

atlas@ripe.net

Use Cases

A distributed view of the Internet
https://labs.ripe.net/author/alun_davies/ripe-atlas-a-distributed-view-of-the-internet/

The Kazakhstan outage as seen from RIPE Atlas
https://labs.ripe.net/author/emileaben/the-kazakhstan-outage-as-seen-from-ripe-atlas/

Detecting DNS root manipulation
https://labs.ripe.net/author/qasim-lone/detecting-dns-root-manipulation/

DNS vulnerability, configuration errors that can cause DDoS
https://labs.ripe.net/author/giovane_moura/dns-vulnerability-configuration-errors-that-can-cause-ddos/