



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Spotting Latency Issues With RIPE Atlas

Lia Hestina | IDNOG8 2023 | Jakarta

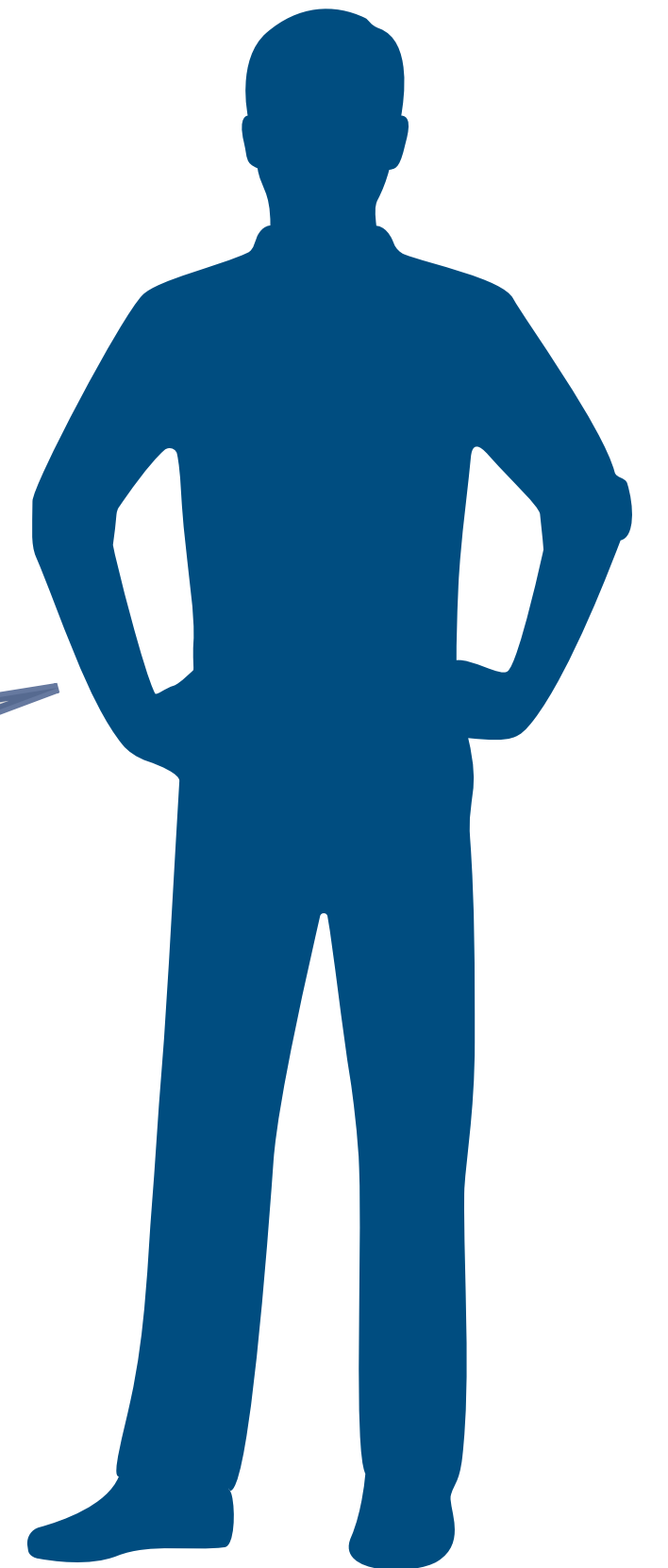
Tiket PP Keliling Dunia





Masalah Santoso

- Latency tinggi
- Gamer yang gak sabaran
- Aplikasi waktu nyata, tidak dapat diprediksi



Santoso
Perusahaan permainan daring
Mengoperasikan LAN sendiri
Pengguna dari seluruh dunia – berbagai jaringan

RIPE Atlas



- RIPE Atlas: platform pengukuran Internet, didanai oleh anggota RIPE NCC dan para sponsor
- Tujuan: melihat jangkauan Internet
- Probes dihosting oleh sukarelawan, menggunakan sistem kredit
- Data dapat diakses oleh publik

atlas.ripe.net

RIPE Atlas



- Melakukan enam jenis pengukuran:
 - **Ping, Traceroute, DNS, NTP, SSL/TLS dan HTTP**(anchors saja)
- Dapat diakses melalui **GUI, API dan CLI Tool**

atlas.ripe.net

Lakukan test dengan RIPE Atlas





Create a New Measurement

Step 1 Definitions

+ Ping

+ Traceroute

+ DNS

+ SSL

+ HTTP

+ NTP

Step 2 Probe Selection

Worldwide

10



+ New Set - wizard

+ New Set - manual

+ IDs List

+ Reuse a set from a measurement

Step 3 Timing

This is a One-off:

Start time (UTC):

As soon as possible



Stop time (UTC):

Never



> Measurement API Compatible Specification

Create My Measurement(s)

Costs summary

Define a measurement first

Users who will supply credits for this measurement:

lhestina@ripe.net



Masalah terdeteksi!



Probe	ASN (IPv4)	ASN (IPv6)		Time (UTC)	RTT		Hops	Success	
4429	55430		🇮🇩 📶	2020-05-13 19:02	270.039	🟡	17	✗	📘
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	✗	📘

Latensi tinggi
Terdeteksi

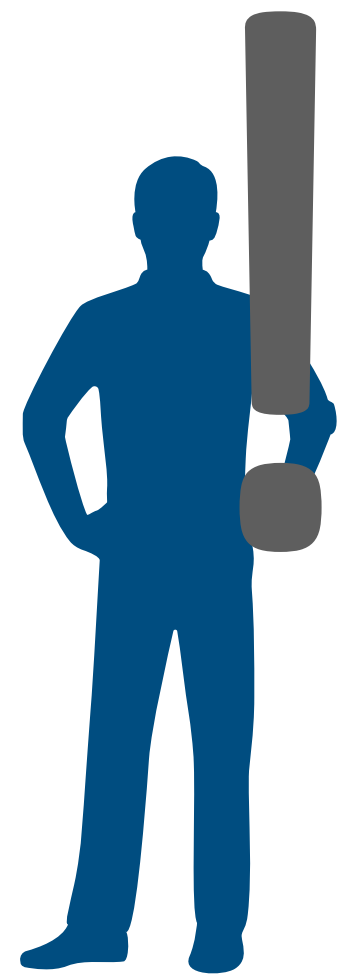
Probe	ASN (IPv4)	ASN (IPv6)		Time (UTC)	RTT		Hops	Success	
1037	55430		🇮🇩 📶	2020-05-13 18:36	40.742	🟡	13	✓	📘
4429	55430		🇮🇩 📶	2020-05-13 18:36	40.020	🟡	13	✓	📘
14042	55430		🇮🇩 📶	2020-05-13 18:36	38.630	🟡	13	✓	📘
22798	55430	55430	🇮🇩 📶	2020-05-13 18:36	38.872	🟡	13	✓	📘
24422	55430		🇮🇩 📶	2020-05-13 18:36	39.624	🟡	13	✓	📘
25828	4788		🇺🇸 📶	2020-05-13 18:36	36.563	🟡	13	✓	📘
28850	4844		🇮🇩 📶	2020-05-13 18:36	36.242	🟡	13	✓	📘
54623	4773	4773	🇮🇩 📶	2020-05-13 18:36	40.107	🟡	12	✓	📘
55415	55430	55430	🇮🇩 📶	2020-05-13 18:36	36.952	🟡	13	✓	📘

Latensi lebih rendah
sesudah **debugging**

Solusi yang telah dicoba



- Berkomunikasi dengan peers, perbaiki hasil routing & RTT
- Berkomunikasi dengan ISP



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		14	✓		
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	✓		

**Latensi
RENDAH**

Saatnya bersorak!



1. Meningkatkan Kinerja

Pilih jalur yang lebih pendek, tingkatkan latensi, keandalan dan keamanan

2. Kontrol dan fleksibilitas.

Ulangi pengujian sebanyak yang diperlukan!

3. Service desks ❤️ menggunakan GUI RIPE Atlas

Untuk memvalidasi temuan-temuan/anomali perlukan



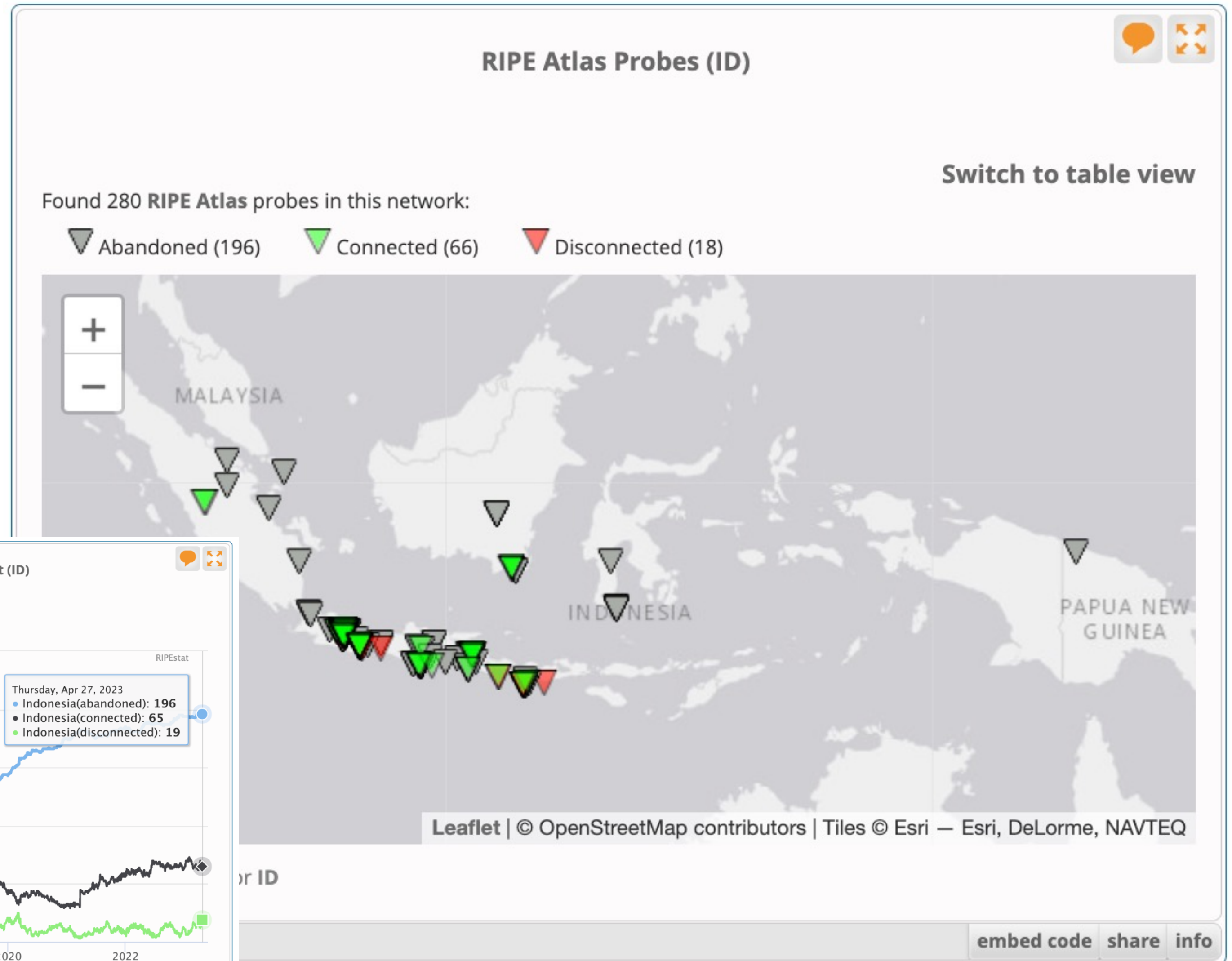
RIPE Atlas

A view into the
Indonesia (ASEAN)

Indonesia

66 probes terhubung
5 anchors

- 7108 University Lambung Mangkurat Banjarmasin
- 6521 Universitas Pasundan Bandung
- 6850 Batam Internet Exchange Batam
- 6681 PT Biznet Gio Nusantara Jakarta
- 7016 PT Herza Digital Indonesia Jakarta Selatan



Fullscreen + -

Origin (ASN or ix-ID)

7713

Date

01/03/2023

Address Family

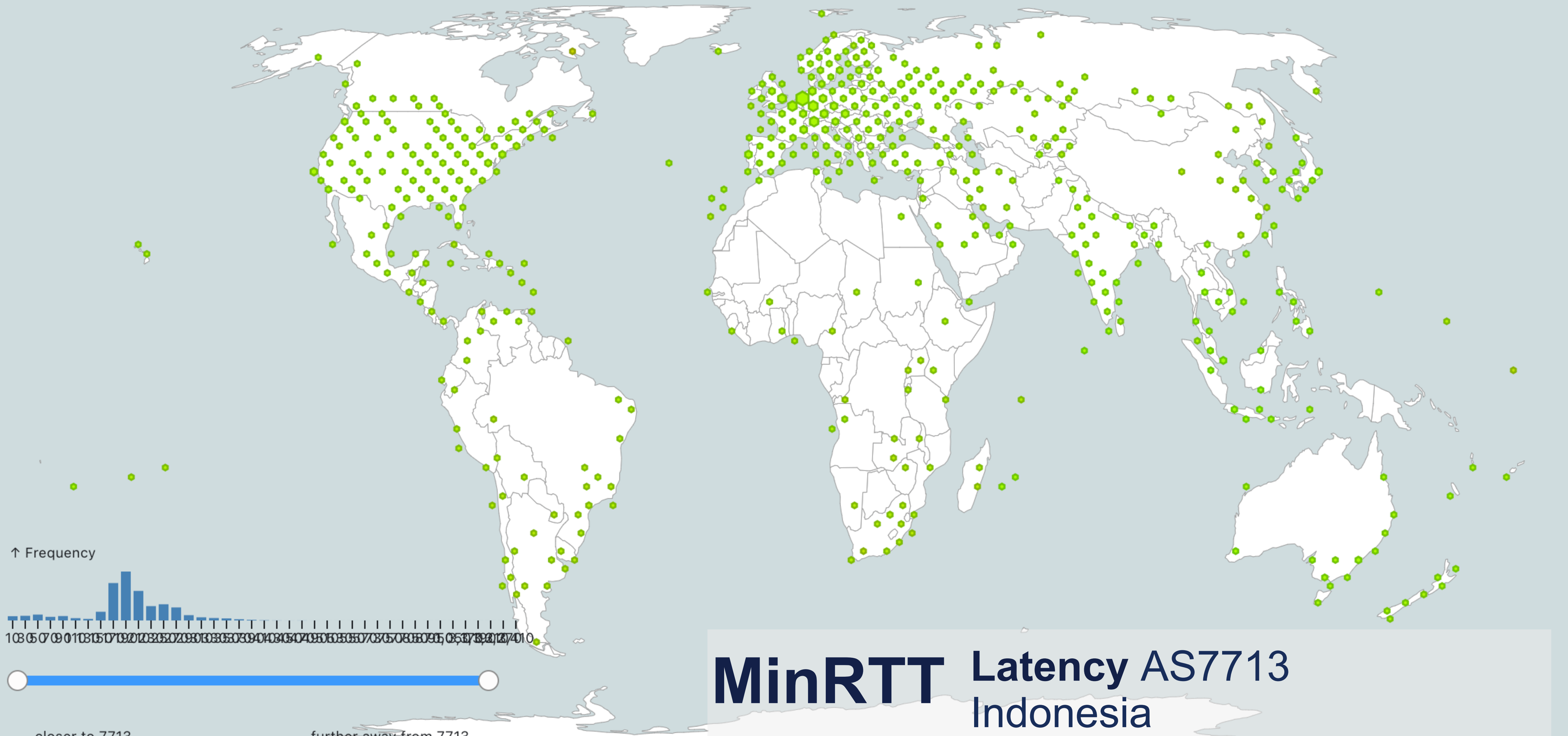
IPv4

Protocol

Any

Aggregate function

Median



MinRTT Latency AS7713 Indonesia

<https://observablehq.com/@ripenc/atlas-latency-worldmap>

Fullscreen + -

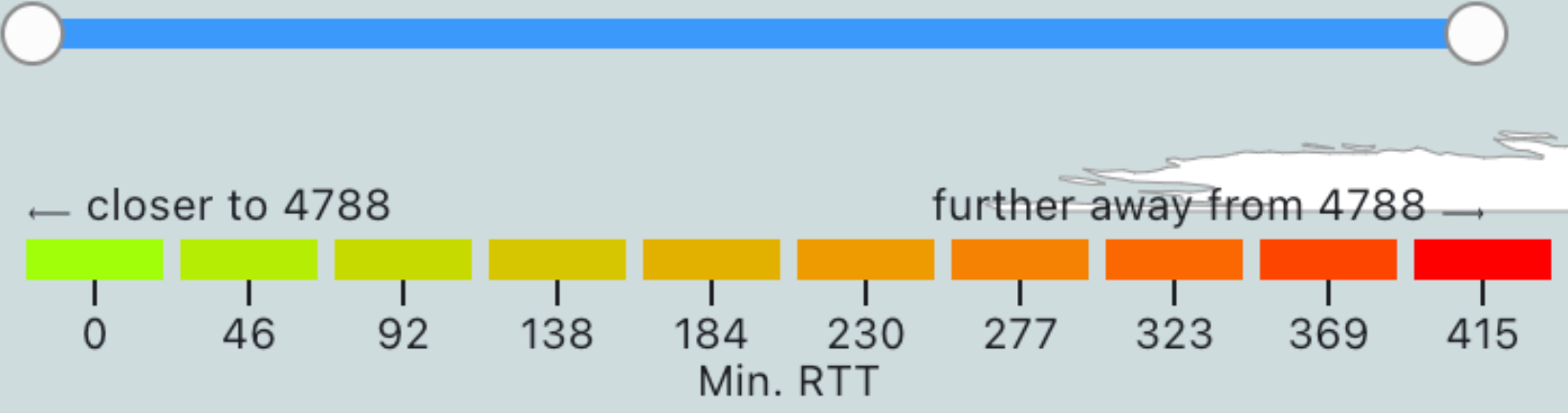
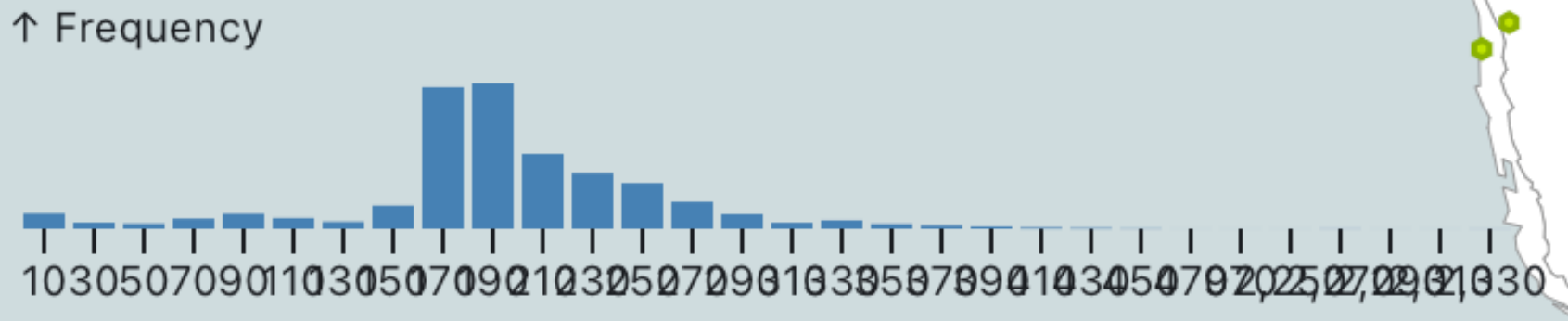
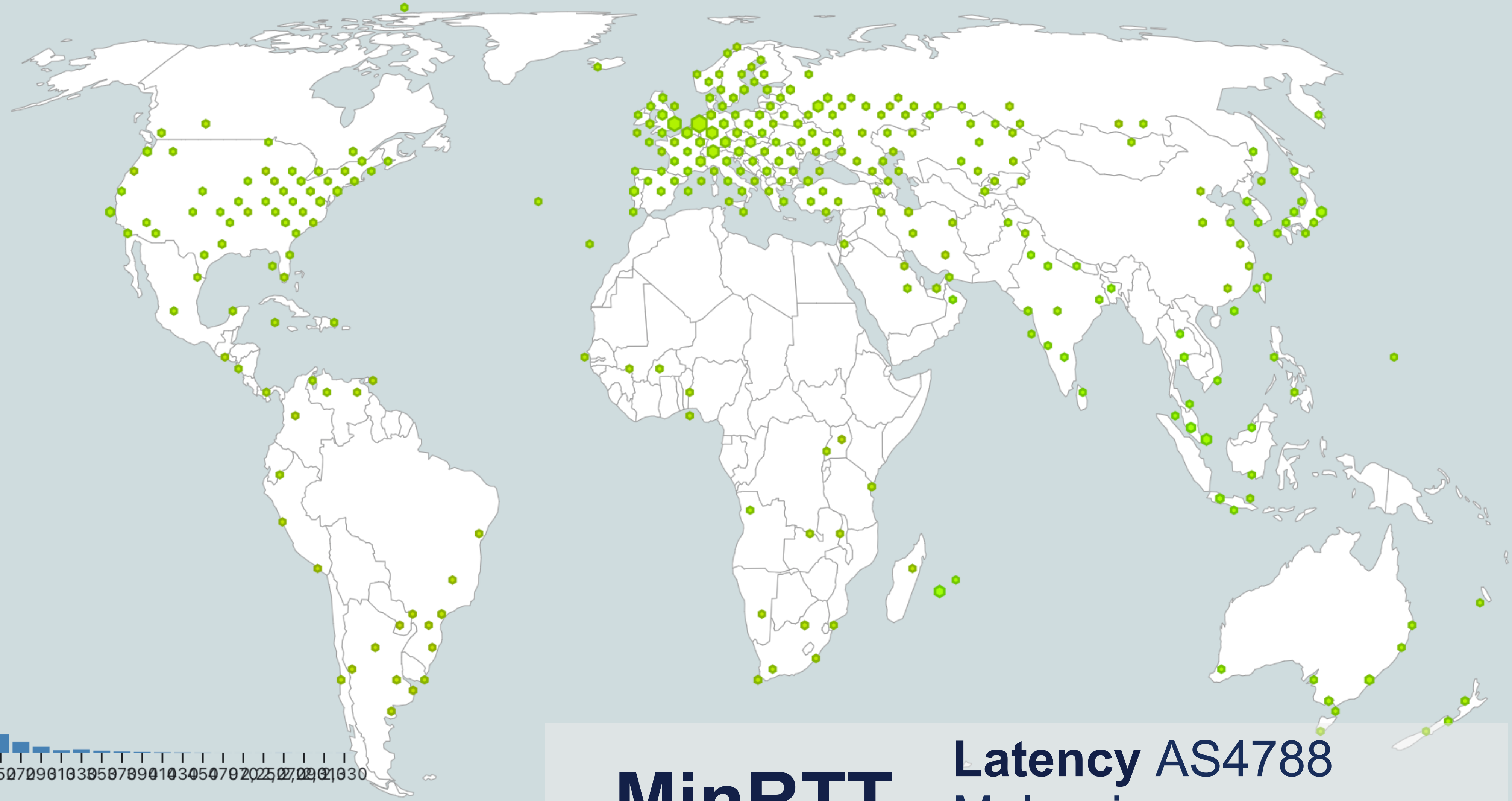
Origin (ASN or ix-ID)
4788

Date
18/06/2023

Address Family
IPv4

Protocol
Any

Aggregate function
Median



MinRTT **Latency AS4788**
Malaysia

<https://observablehq.com/@ripenc/atlas-latency-worldmap>

Fullscreen + -

Origin (ASN or ix-ID)

133481

Date

18/06/2023



Address Family

IPv4



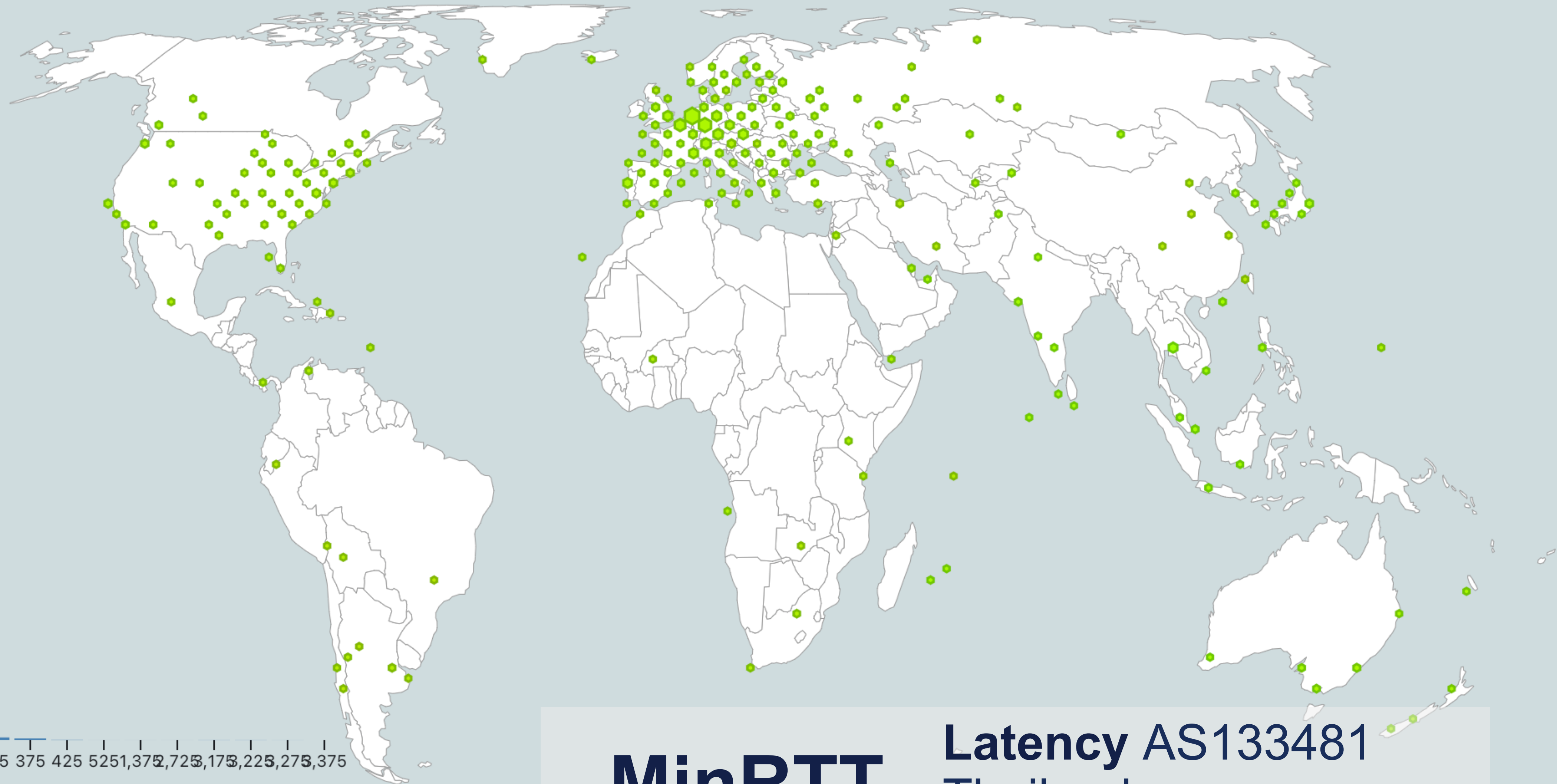
Protocol

Any

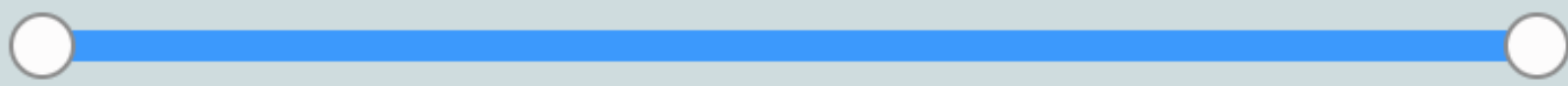
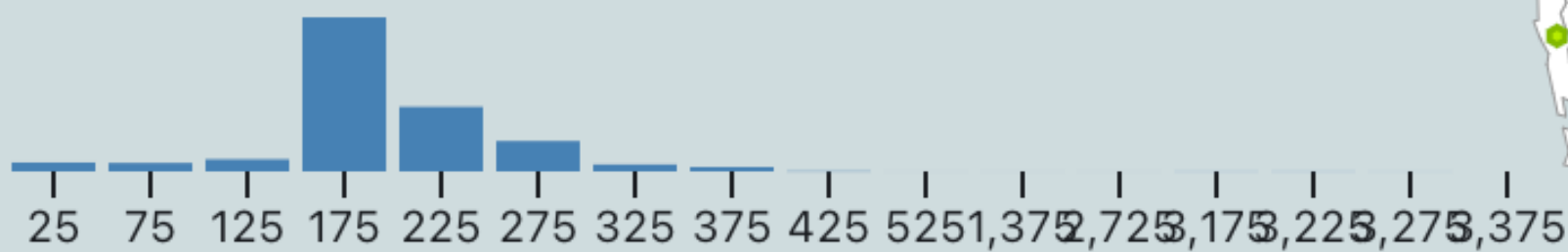


Aggregate function

Median

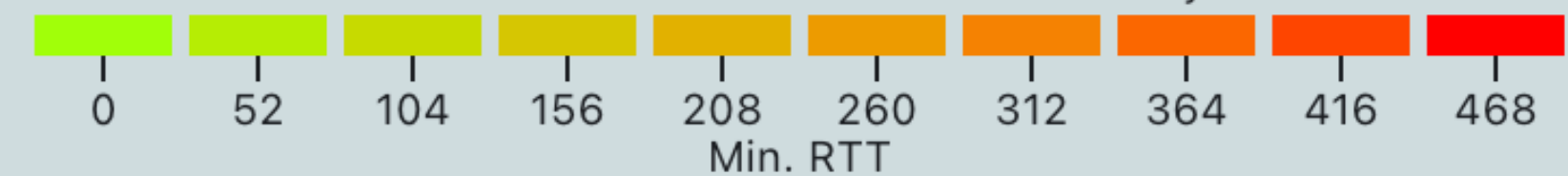


↑ Frequency



← closer to 133481

further away from 133481 →



MinRTT

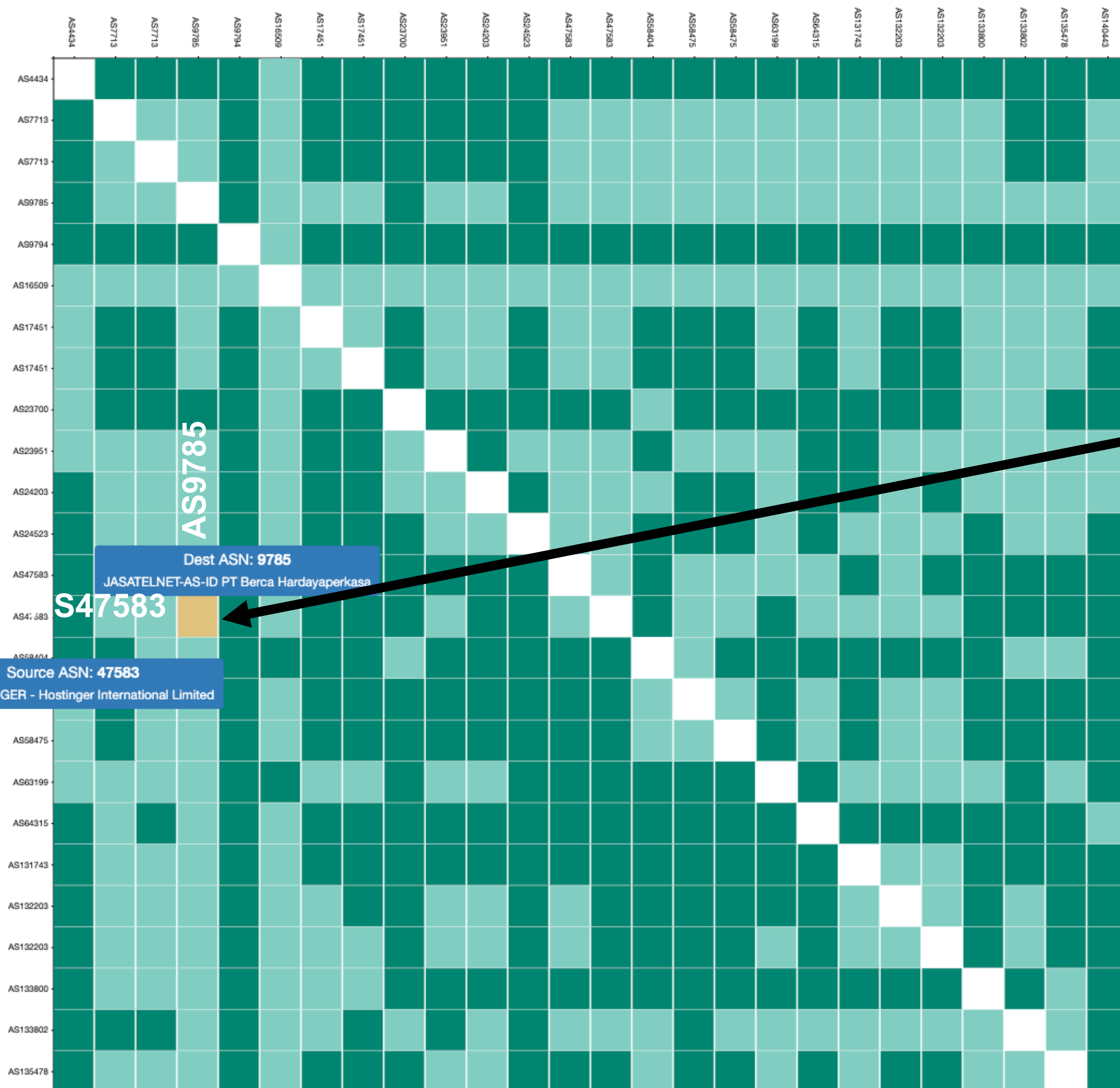
Latency AS133481 Thailand

<https://observablehq.com/@ripenc/atlas-latency-worldmap>

3. Mengidentifikasi anomali dalam Min. RTT explorer Terlihat oleh Probe 33413 di AS17451



3. Mencari anomali dalam Country IXP JEDI



Dest ASN: 9785
 JASATELNET-AS-ID PT Berca Hardayaperkasa

Source ASN: 47583
 HOSTINGER - Hostinger International Limited

IPv4 Traceroute:

- AS(v4) Path:
- 1) AS47583
 - 2) AS4800
 - 3) AS6939
 - 4) AS131111
 - 5) AS45306
 - 6) AS9785

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

v4 Local IXP found: NO, out-of-country IPs: YES

msm_id:54811339 prb_id:1002167 dst:202.69.97.85 ts:2023-06-02 05:01:17 +00:00

```

0: (AS47583) 153.92.14.53 (0.487 0.488 10.725) ||
1: (AS*) Uknown (*) (* * *) |*|
2: (AS4800) 182.23.9.141 (1.528 1.552 1.614) ||
3: (AS4800) 3602-tgr-x1.idola.net.id (1.661 1.685 1.822) ||
4: (AS4800) 3608-eq3-ib1.idola.net.id (13.908 13.98 14.002) ||
5: (AS*) Uknown (*) (* * *) |*|
6: (AS*) Uknown (*) (* * *) |*|
7: (AS6939) port-channel8.core2.par2.he.net (166.947) |Milan,IT|
8: (AS*) Uknown (*) (* * *) |*|
9: (AS*) Uknown (*) (* * *) |*|
10: (AS6939) moratel-international-pte-ltd.10gigabitethernet3-13.core1.sin1.he.net (170.016 170.139 170.140) ||
11: ( ) ip-103-83-6-17.moratelindo.net.id (185.73 185.779 186.128) ||
12: ( ) ip-103-83-6-26.moratelindo.net.id (171.376 171.425 171.623) ||
13: (AS131111) ip-103-85-60-234.moratelindo.net.id (171.188 171.211 171.316) ||
14: (AS45306) 119.15.135.138 (183.858 183.871 184.076) ||
15: ( ) 103.28.74.198 (170.965 170.993 171.047) ||
16: ( ) 220.157.96.30 (171.051 171.085 171.126) ||
17: (AS9785) net-97-85.jasatel.net.id (171.978 171.985 172.307) ||
    
```

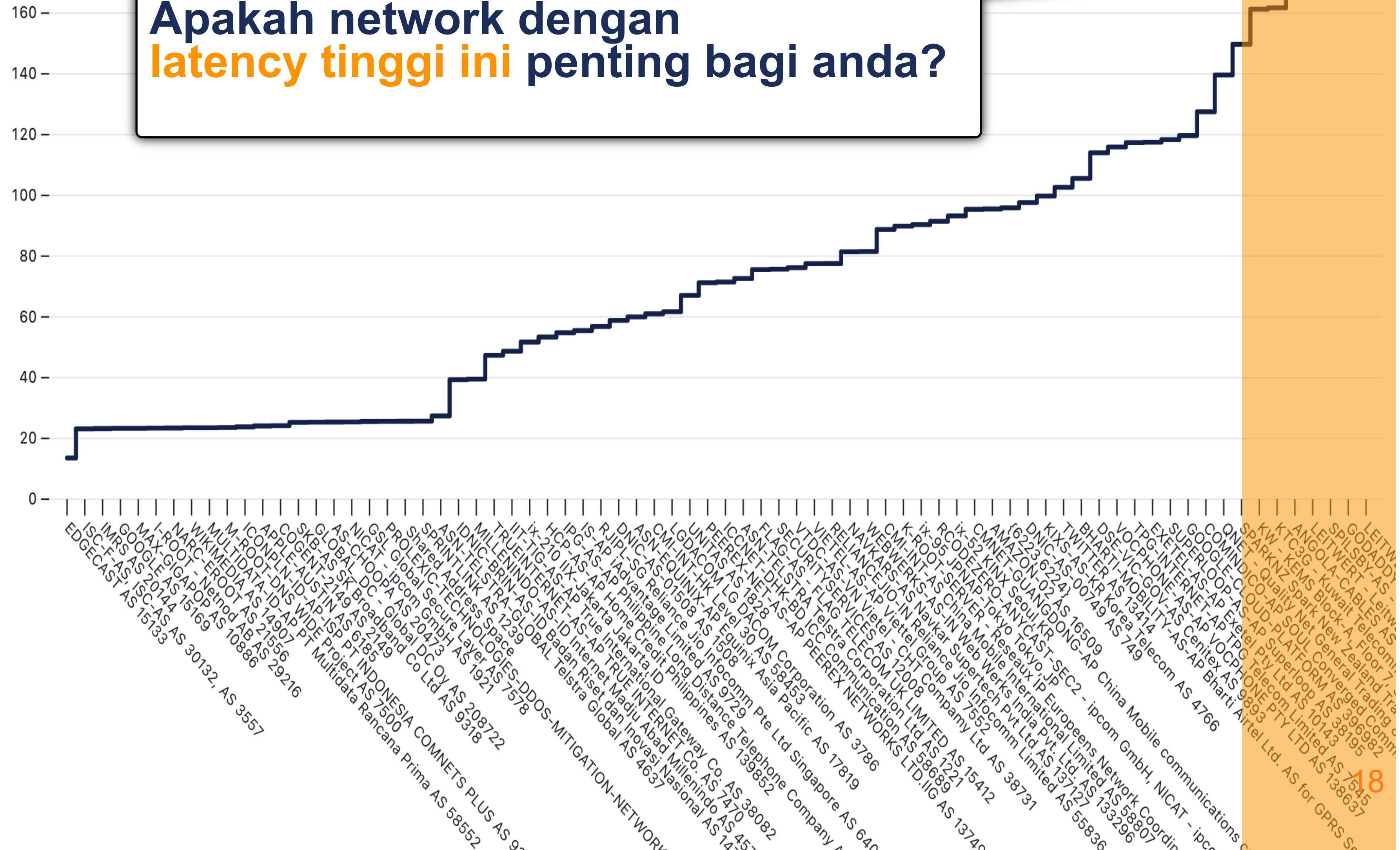

MinRTT

Lingkungan jaringan seperti yang terlihat melalui RIPE Atlas



Latency [ms]

Apakah network dengan **latency tinggi ini** penting bagi anda?



Coba probe anda disini



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



Yuk! Instal RIPE Atlas secara merata di Indonesia

https://sg-pub.ripe.net/petros/population_coverage/country.html?name=ID

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Network (ASN)	Network Name	Estimated User Population %	IPv4 Public Probes				
7713	telkomnet-as-ap	28.53	3	45305	LDP-AS-ID	0.3	0
23693	TELKOMSEL-ASN-ID	20.76	0	136093	FAZNET-AS-ID	0.3	0
4761	INDOSAT-INP-AP	10.44	1	138886	DBN-AS-ID	0.27	0
24203	NAPXLNET-AS-ID	9.57	1	138089	GMDP-AS-ID	0.23	0
45727	THREE-AS-ID	6.14	0	64300	JSN-AS-ID	0.22	0
18004	WIRELESSNET-ID	4.1	0	58821	IDNIC-LJN-AS-ID	0.22	0
23700	Fastnet-AS-ID	2.05	4	55685	JLM-AS-ID	0.22	0
9341	ICONPLN-ID-AP	1.63	1	136873	MEGADATA-AS-ID	0.19	0
17451	BIZNET-AS-AP	1.35	4	136119	BALIFIBERNET-AS-ID	0.14	0
63859	MYREPUBLIC-AS-ID	1.29	1	135477	JAVADIGITAL-AS-ID	0.12	0
17670	MNCKABELMEDIACOM-ID	0.89	1	141145	GIGANET-AS-ID	0.12	0
135478	ASN-CBNBroadband	0.75	0	141461	MNCKABELMEDIACOM-AS	0.11	0
131111	CEPATNET-AS-ID	0.53	0	141607	IDNIC-GAYATRI-AS-ID	0.1	0
139994	XLNET-FTTH-ID	0.46	0	134651	YETOYA-AS-ID	0.1	0
55699	STARNET-AS-ID	0.4	0	58485	WIFIAN-AS-ID	0.1	0
38511	TACHYON-AS-ID	0.31	0				

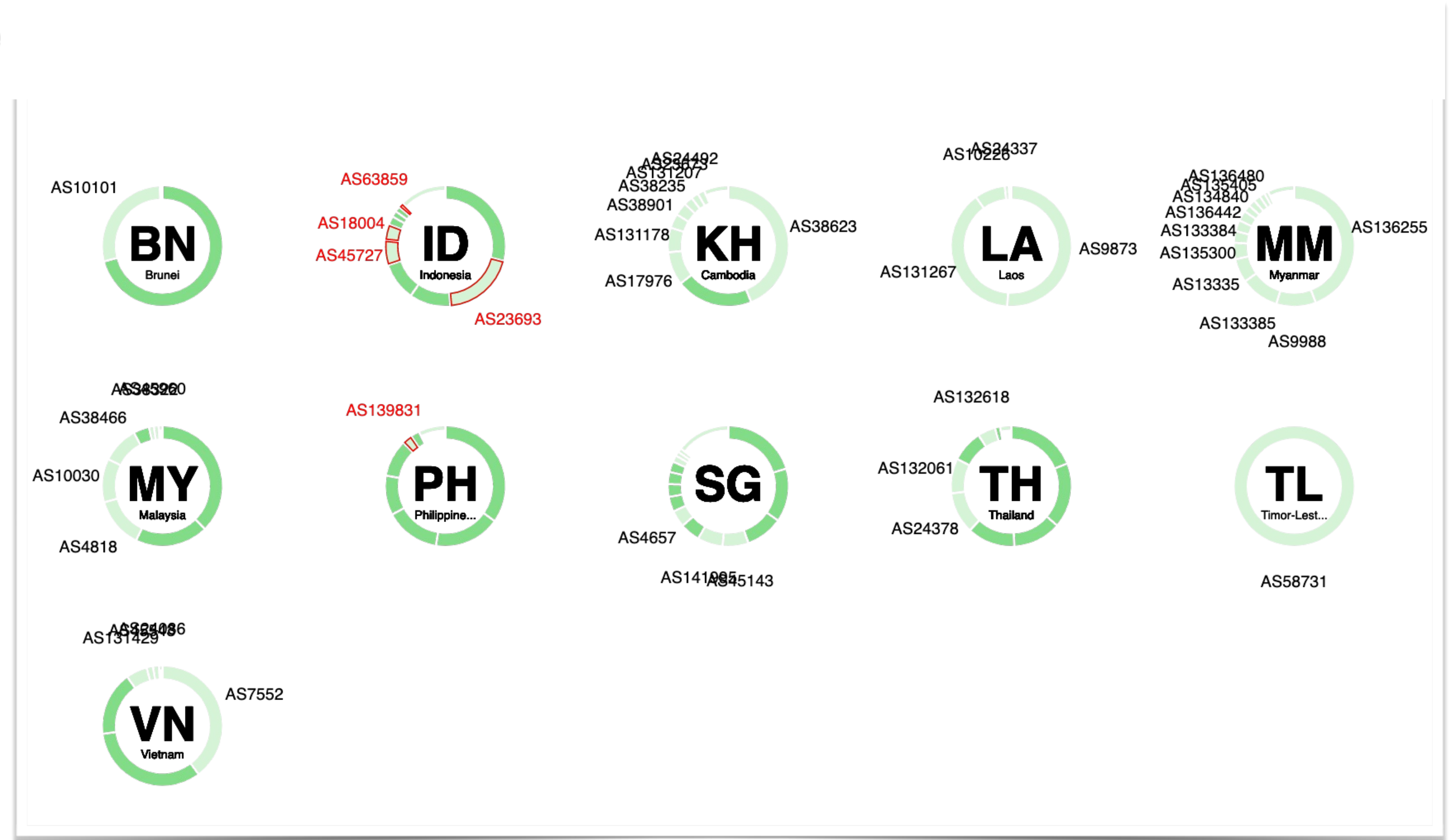
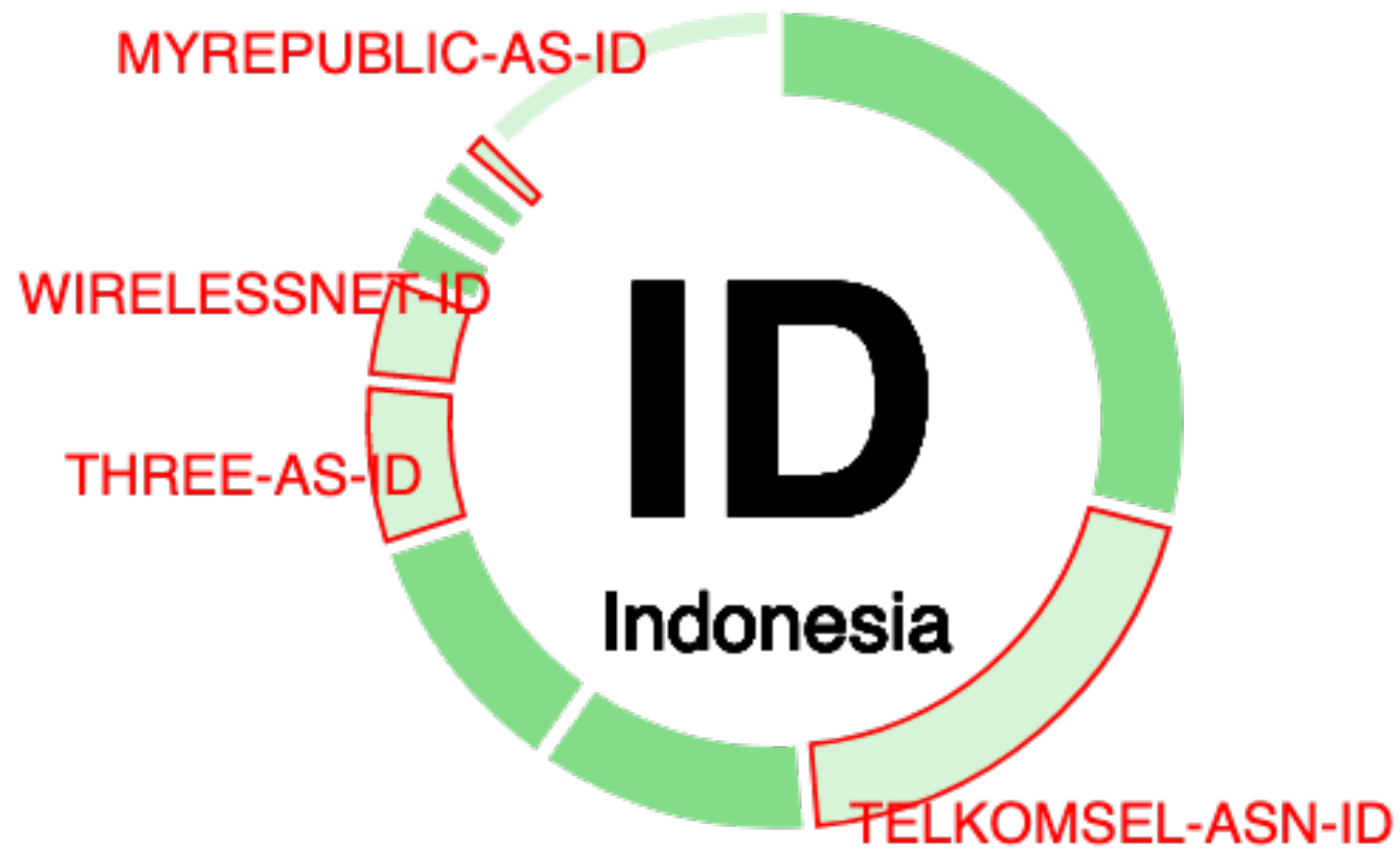
Yuk, bantu pasang probe di ASN berikut - ASEAN



RIPE Atlas probe coverage

Showing ASNs covering at least 1% of the country's population (2023-04-25)

- ASN is not covered
- ASN has at least 1 probe





Probe yang ada di **ASEAN**

Economy	Active Probes
BD	6
ID	69
KH	1
LA	2
MM	1
MY	26
PH	31
SG	113
TH	20
TL	1
VN	9



Distribusi di Asia Pacific

Enam Alasan mengapa RIPE Atlas Keren!



12,000+ Probe

Cakupan Global

Penggunaan secara Adil
TANPA Uang/investasi



Trusted Source

Organisasi nirlaba
Sukarelawan: End User

Safe & Secure

Ulasan/Review keamanan pihak ketiga secara teratur.

Open Data

Hasil pengukuran terbuka untuk semua orang.

Community Driven

Dari komunitas, untuk komunitas.



RIPE Atlas di Indonesia



What's next



1. Tingkatkan cakupan: 20 probe baru di ID - 2023

2. Instal probe perangkat lunak (SW) di beberapa lokasi: 7 September 2023

3. Sambungkan kembali probe ANDA!



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/