RIPE NCC
RIPE NETWORK COORDINATION CENTRE

RIPE Atlas

Global Internet Measurement Network

Contributor, Emile Aben

July 2016 | IDNOG

Overview

- RIPE Atlas

- Coverage: July 2016

- Features

- New features

- Plans for the future

- RIPE Atlas view of Indonesia

- RIPE Atlas Community

What is RIPE Atlas

- RIPE Atlas

- Thousands of measurement nodes

- Hosted by volunteers globally

- Distributed partly by RIPE Atlas ambassadors
  - APNIC staff, Budiwijaya, Anurag Bhatia and many more!

- Probes run different measurements
  - ping, traceroute, DNS, SSL

- https://atlas.ripe.net
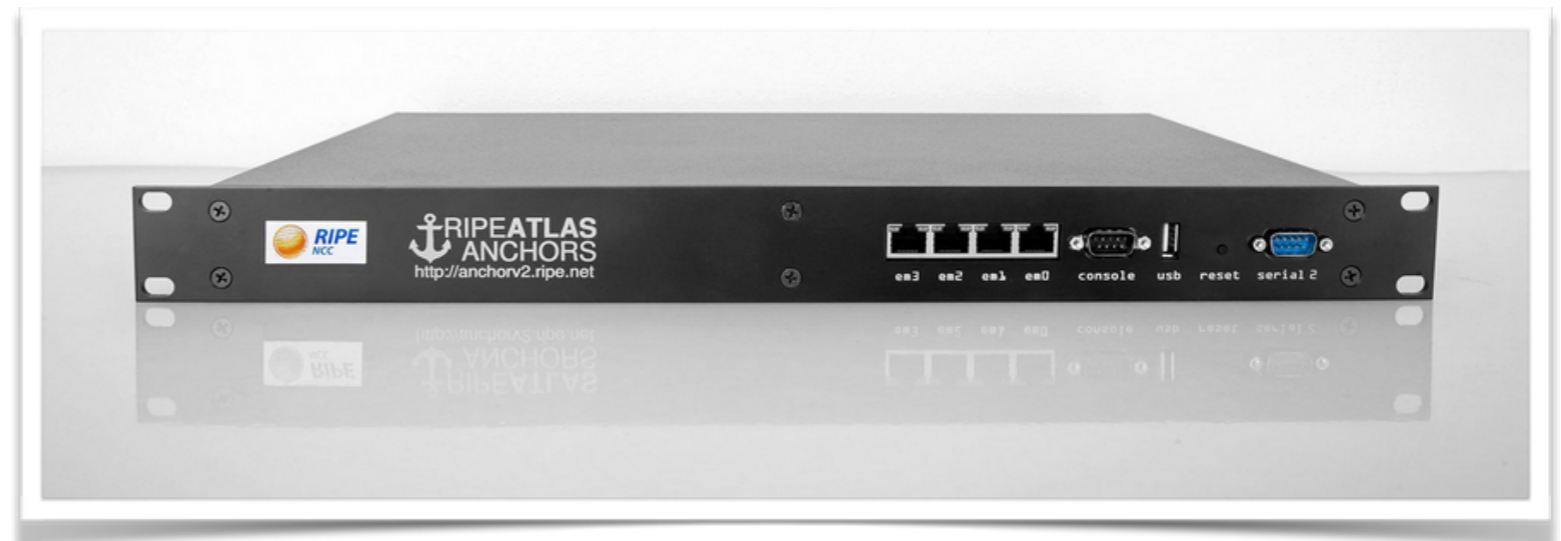
RIPE Atlas Infrastructure

- Probe distribution

  - 14,000 RIPE Atlas probes distributed

  - 9,300+ RIPE Atlas probes active

  - 206 RIPE Atlas anchors active - 12 sponsored by APNIC
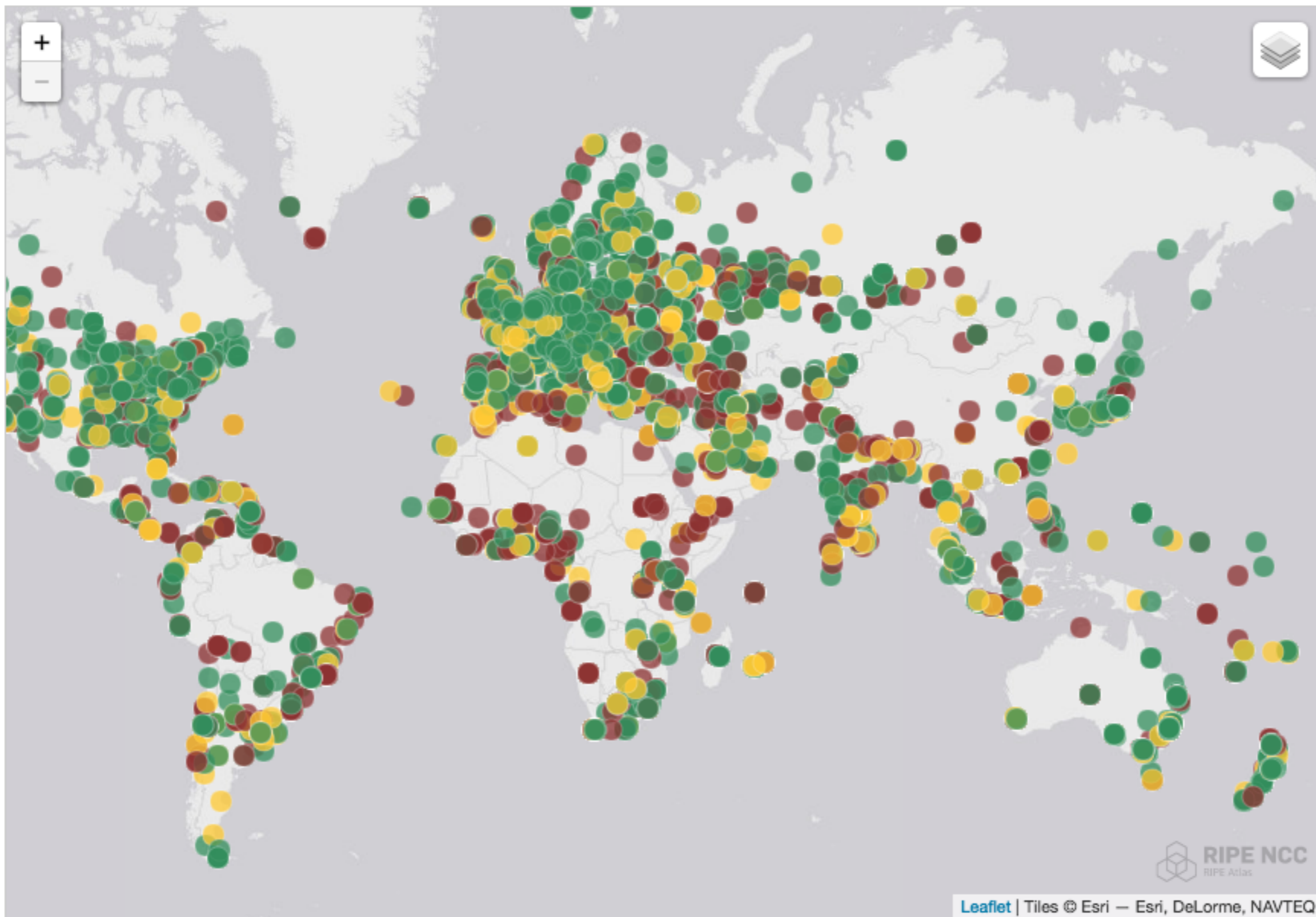
RIPE Atlas probe

RIPE Atlas anchor

Coverage

RIPE Atlas Coverage

Connected: 9321　Disconnected: 1999　Abandoned: 4751

RIPE Atlas Coverage, July 2016

Coverage

IPv4 ASNs covered
3379 (6.266%)

IPv6 ASNs covered
1222 (10.621%)

Number of countries covered
184 (93.878%)

## Measurements currently running

	Built-in	User-defined
Ping	40	3788
Traceroute	43	2969
DNS	144	4325
SSL Certificate	4	163
NTP	0	38
HTTP	4	417

Country	Probes
United States of America	1053
Germany	997
France	752
United Kingdom	621
Netherlands	543
Russia	509
Czech Republic	269
Switzerland	257
Italy	251
Ukraine	214

RIPE Atlas Anchors

- 42 more anchors in 2016

- From 164 to 206

- Renewal of support contracts: one replaced!

RIPE Atlas Anchors
Growth in the number of RIPE Atlas anchors over time

2015-12-30
cr-sjo-as263779
anchors: 161
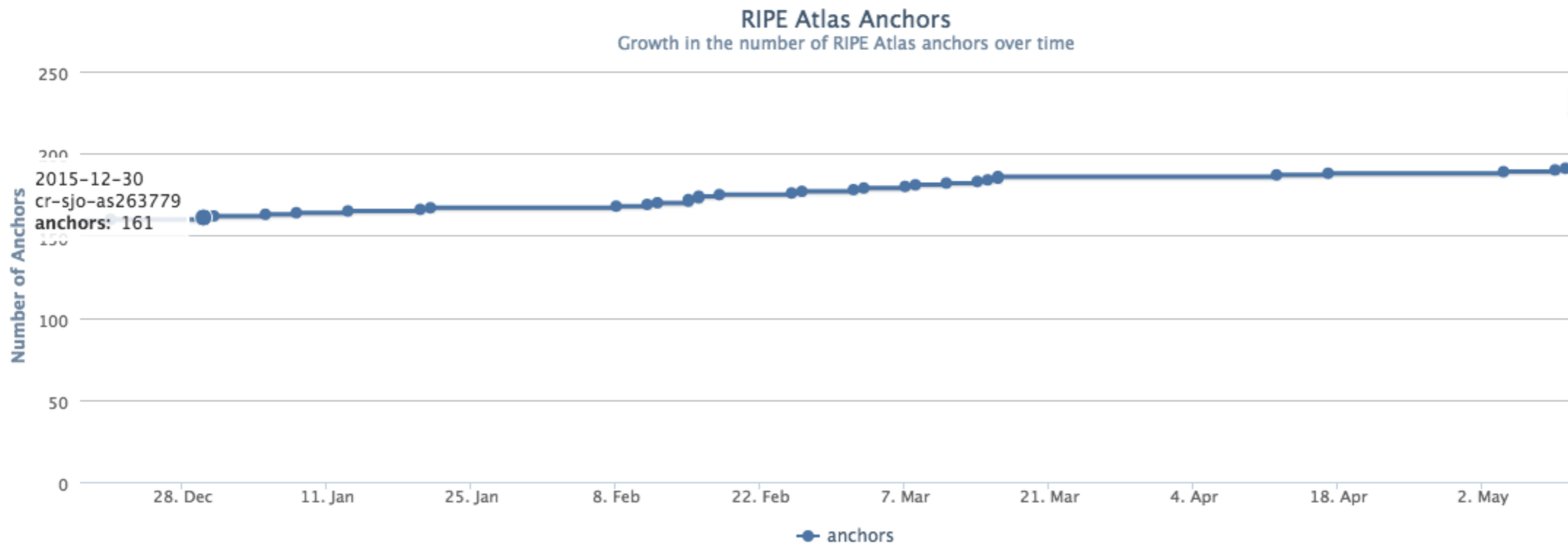
RIPE Atlas features

Features

- CLI Toolset (Magellan)

- DNSMON

- DomainMON

- LatencyMON

- Status Checks

- DNS Root Server Streaming Visualisation
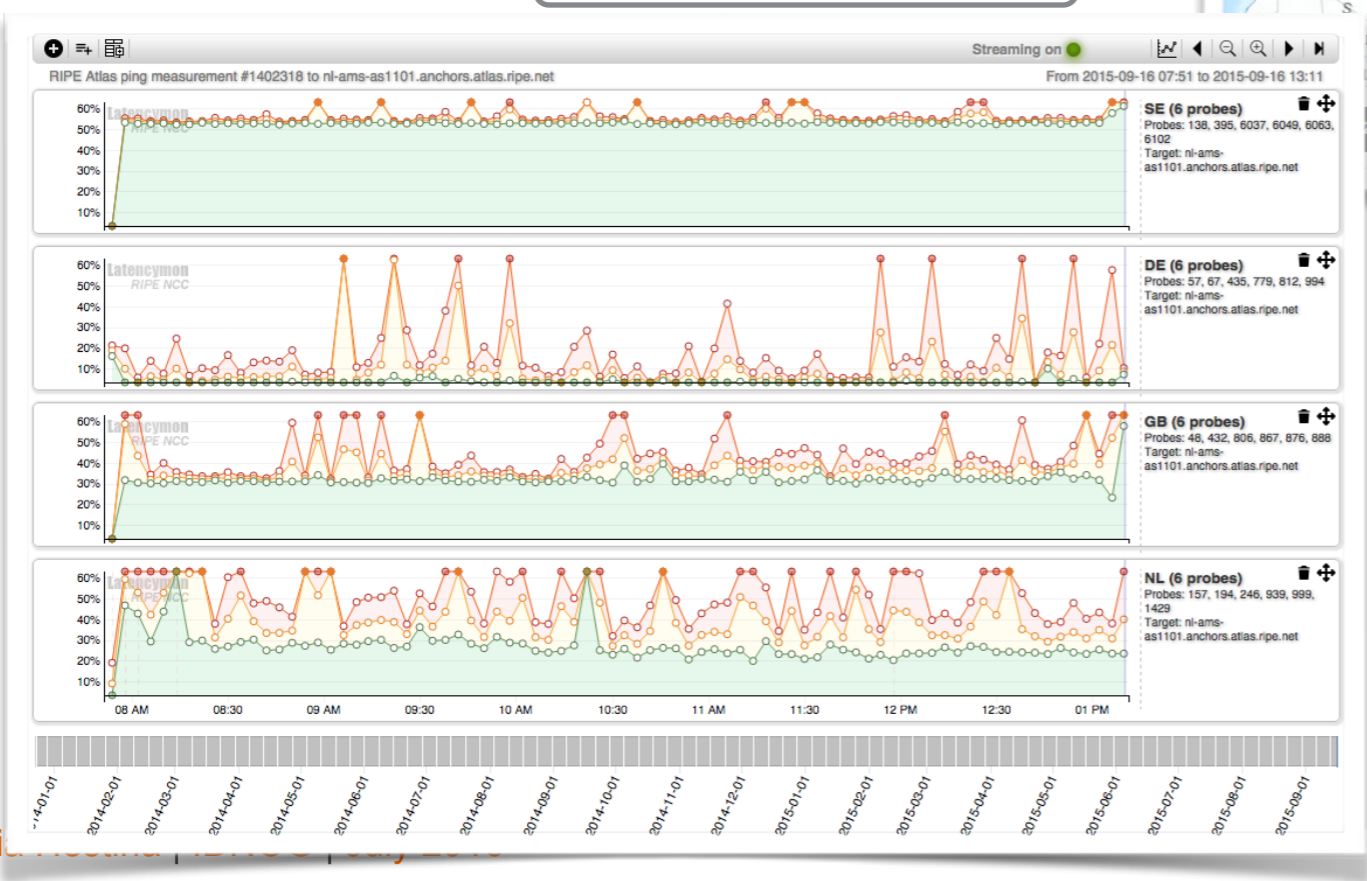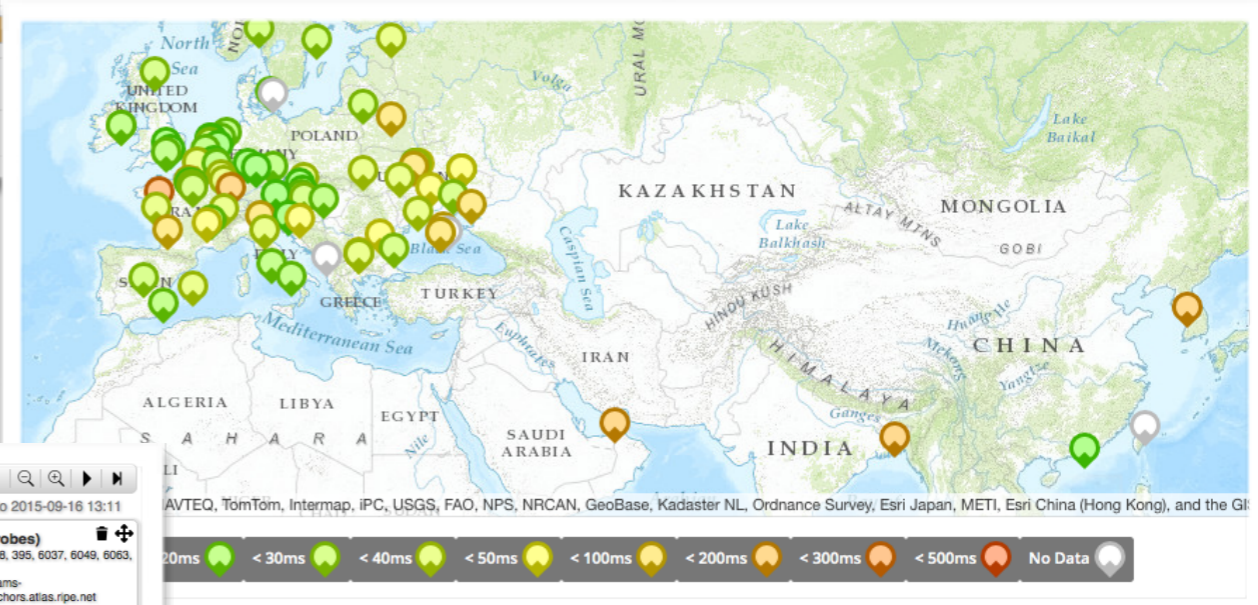
- IXP Jedi

- Open IP Map

Available Visualisations: Ping

List of probes: sortable by RTT

Map: colour-coded by RTT

LatencyMON: compare multiple latency trends

New features

Newest Features

- Always posted here:

  - https://atlas.ripe.net/resources/announcements/

- Improving security: two external reviews done:

  - https://atlas.ripe.net/docs/security/

- Increased limits: 1,000 probes per measurement

- Dealing with probes lifecycle

  - https://labs.ripe.net/Members/philip_homburg/a-visual-impression-of-probe-lifetimes
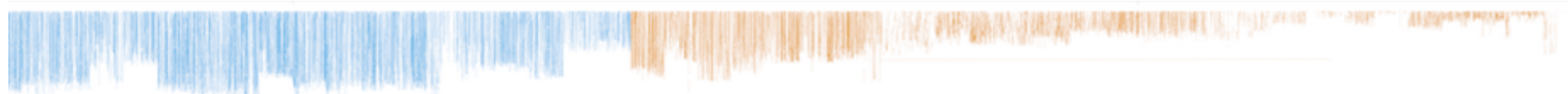
Newest Features

- 15 more ccTLD zones added to DNSMON

- For the rest of us: DomainMON

  - Monitoring second-level domains

  - Simple to set up, powerful visualisation of received data

  - https://atlas.ripe.net/domainmon/

- Documentation, documentation, documentation

  - New version of API (v2)

  - Helping users to troubleshoot own probe (SOS messages)

  - Website menu restructure

Only Towards Anchors: HTTP

- IPv4/IPv6 LatencyMON comparison for anchoring measurements (ping, traceroute, HTTP)
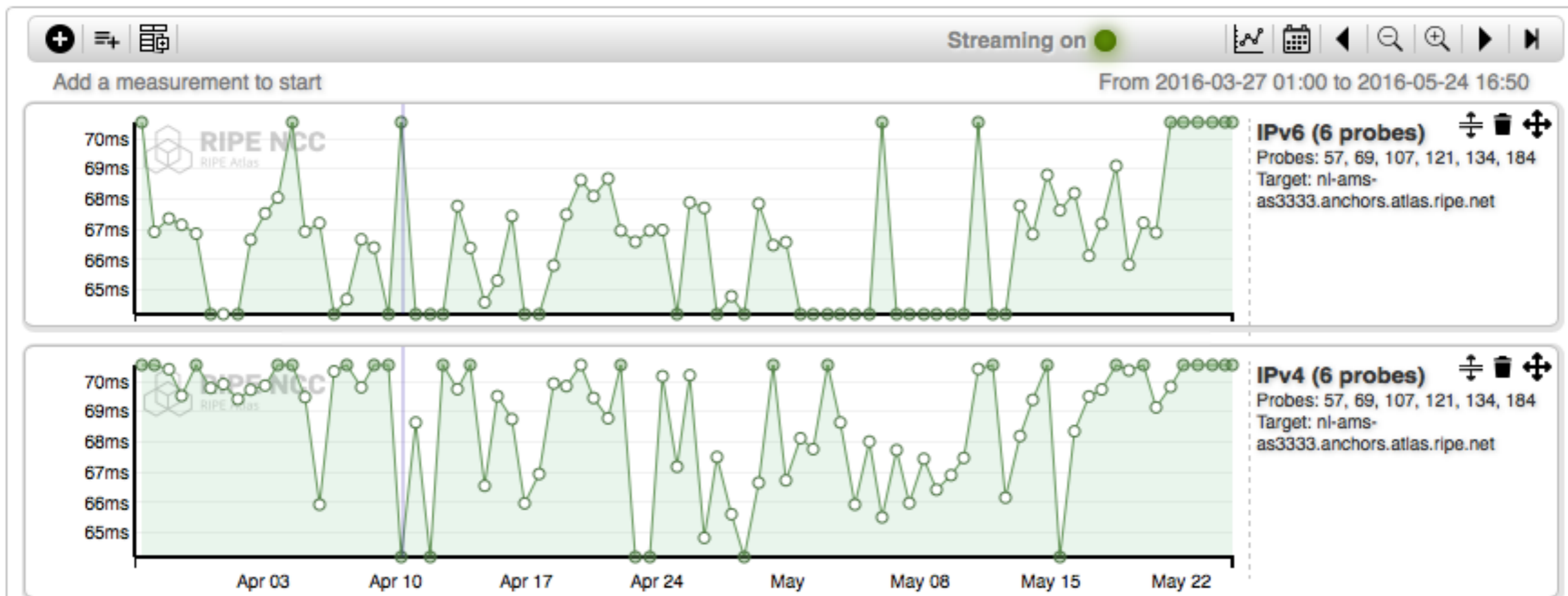
For the Community

- Sharing credits made easier

  - "Standing orders" and "shared access" to your credits

- Vouchers for claiming credits as "gifts"

  - Useful for ambassadors, trainings, workshops, other RIRs

- New communication channel: RIPE Forum

  - https://www.ripe.net/participate/mail/forum/ripe-atlas

- Coming up soon:

  - More credits for more contributions: the more popular your probe is, the more you earn!

RIPE Atlas
View of Indonesia

RIPE Atlas Probes and Anchors in ID

Connected: 36   Disconnected: 15   Abandoned: 35
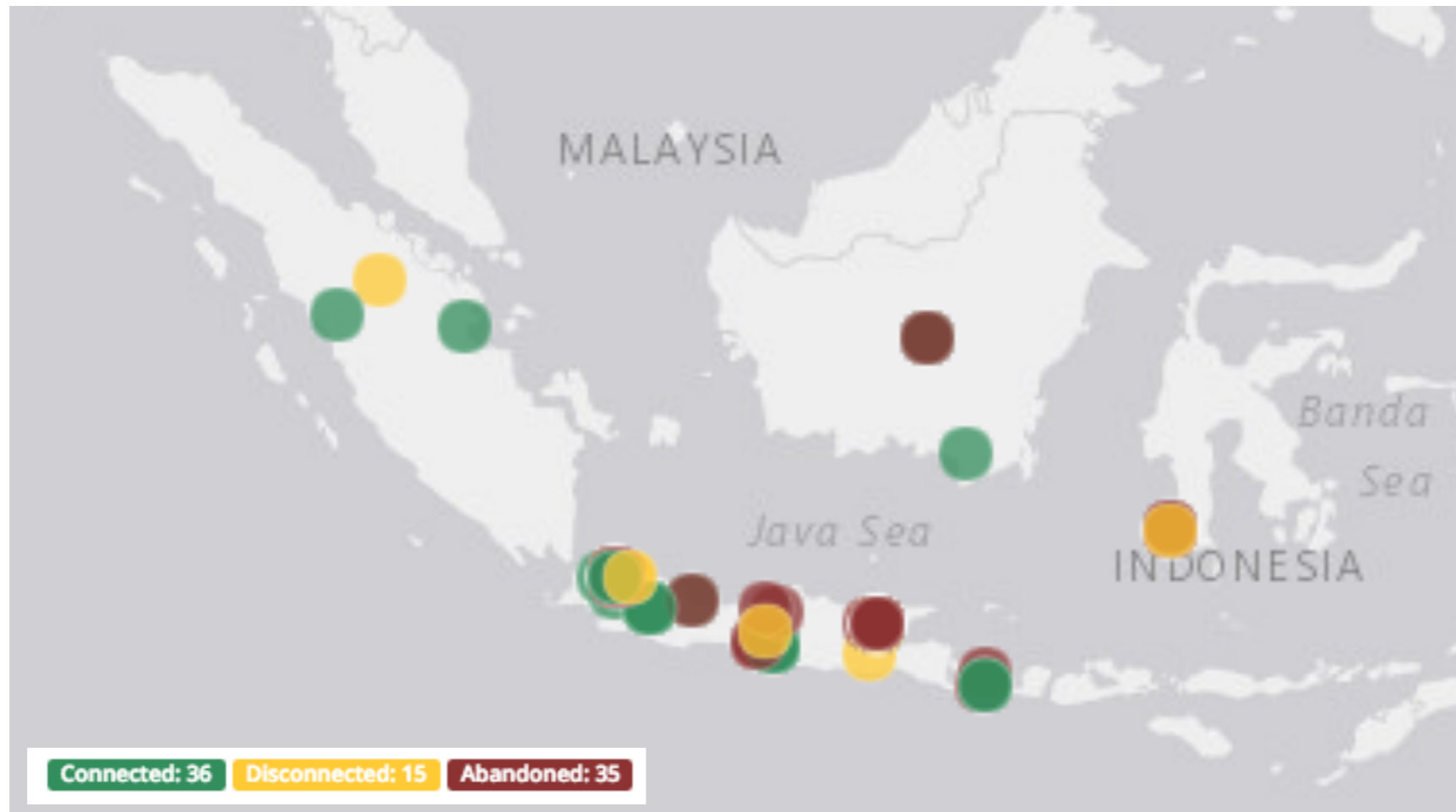
1 RIPE Atlas anchor, sponsored by APNIC

Hostname ☐	ProbeID	Company	City ☐
id-jkt-as10208	6169	PT. Millenium Internetindo *Sponsored by: APNIC*	Jakarta

Status 😭

Most Wanted Eyeball Networks

- Based on Emile Aben's research and <u>article</u>

ASN	CC	Users	Online	Discon	Other	%	Organisation
45727	ID	8371789	0	0	0	11.32	THREE-AS-ID Hutchison CP Telecommunications, PT
24203	ID	3765576	0	0	2	5.09	NAPXLNET-AS-ID PT Excelcomindo Pratama (Network
18004	ID	1298720	0	0	0	1.76	WIRELESSNET-ID PT WIRELESS INDONESIA (WIN)
4832	ID	1099275	0	0	0	1.49	INTERNUXNET-AS-ID PT. iNterNUX
17451	ID	789158	1	0	0	1.07	BIZNET-AS-AP BIZNET NETWORKS
17670	ID	599490	0	0	1	0.81	INFOKOM-AS MNC Playmedia
63859	ID	598300	0	0	0	0.81	MYREPUBLIC-AS-ID PT. Eka Mas Republik
38511	ID	485704	0	0	0	0.66	TACHYON-AS-ID PT Remala Abadi
23679	ID	420830	0	1	0	0.57	NUSANET-AS-ID Media Antar Nusa PT.
9905	ID	241963	0	0	0	0.33	LINKNET-ID-AP Linknet ASN
4787	ID	191605	2	0	1	0.26	ASN-CBN PT Cyberindo Aditama
4795	ID	161444	0	0	0	0.22	INDOSATM2-ID INDOSATM2 ASN
4800	ID	142756	0	0	1	0.19	LINTASARTA-AS-AP Network Access Provider and Inter
133798	ID	142126	0	0	0	0.19	SMARTFREN-AS-ID PT. Smartfren Telecom, Tbk
23947	ID	136328	1	0	0	0.18	MORATELINDONAP-AS-ID PT.Mora Telematika Indones
18103	ID	122047	1	0	0	0.17	NEUVIZ-AS-ID-AP Neuviz Net
45294	ID	104382	1	0	0	0.14	WANXP-AS-ID PT. Wanriau Indoxp
55666	ID	97082	0	2	0	0.13	GMEDIA-AS-ID PT Media Sarana Data
9341	ID	93740	0	0	0	0.13	ICONPLN-ID-AP PT Indonesia Comnets Plus
24523	ID	85887	0	0	0	0.12	ORION-AS-ID Orion Cyber Internet

Measure Indonesia with IXP-Jedi?

- IXP-Country-Jedi

  - Are the paths between ASes staying in the country?

  - What is the difference between IPv6 and IPv4?

  - How many paths go via a local IXP?

  - Which peer could you add to improve reachability?

- Experimental tool

  - Depends on probe distribution in a country

  - Feature requests welcome!

IXP Country Jedi

- Tool and concept:

  - https://github.com/emileaben/ixp-country-jedi

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

- Interactive diagnosis tool (hover over the cell)

  - http://sg-pub.ripe.net/emile/ixp-country-jedi/latest/NL/ixpcountry

Do Paths Stay in the Country?

- Snapshot of the paths that do, or don't, stay local

IPv4

1 January 2016

1 July 2016
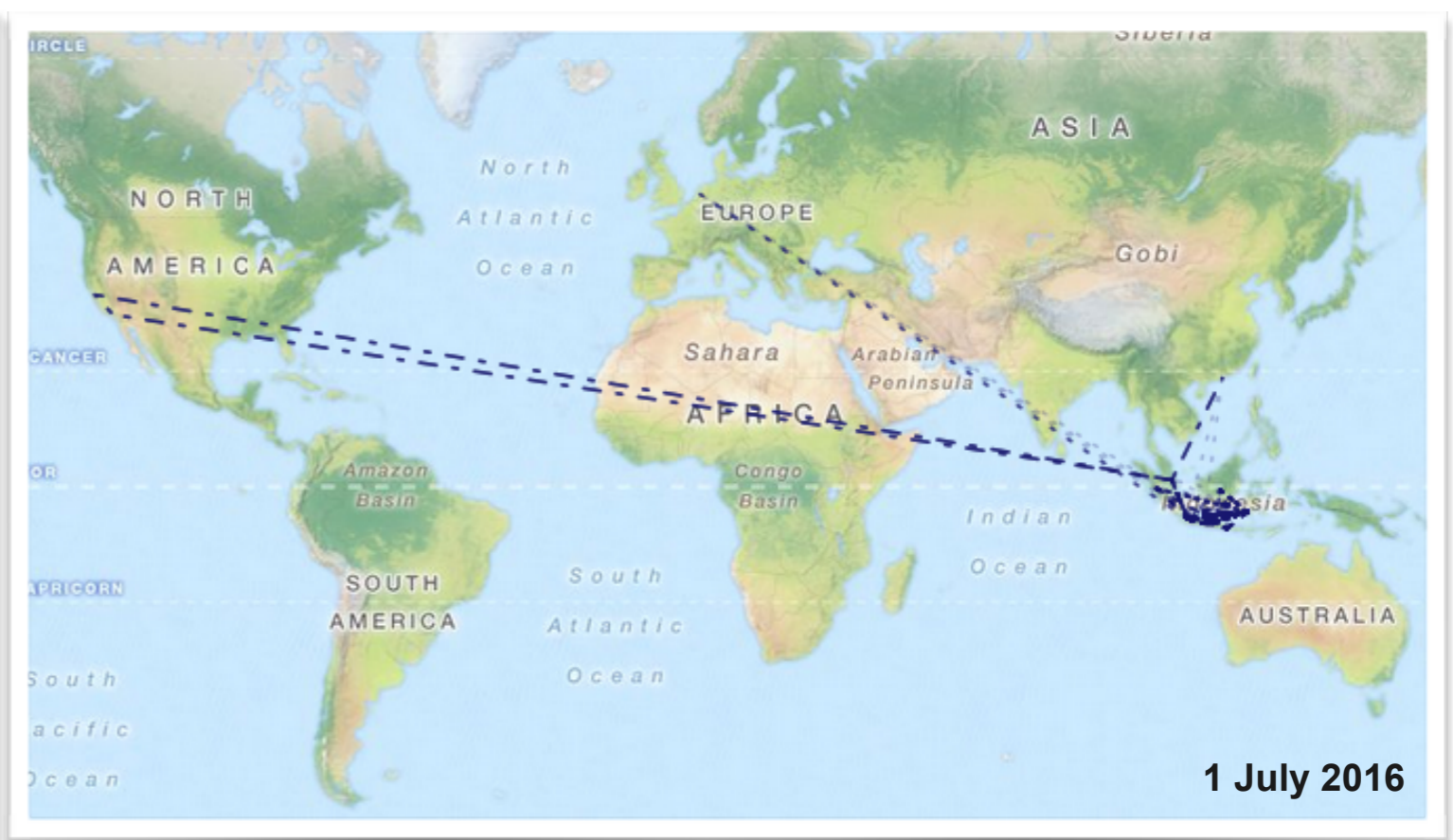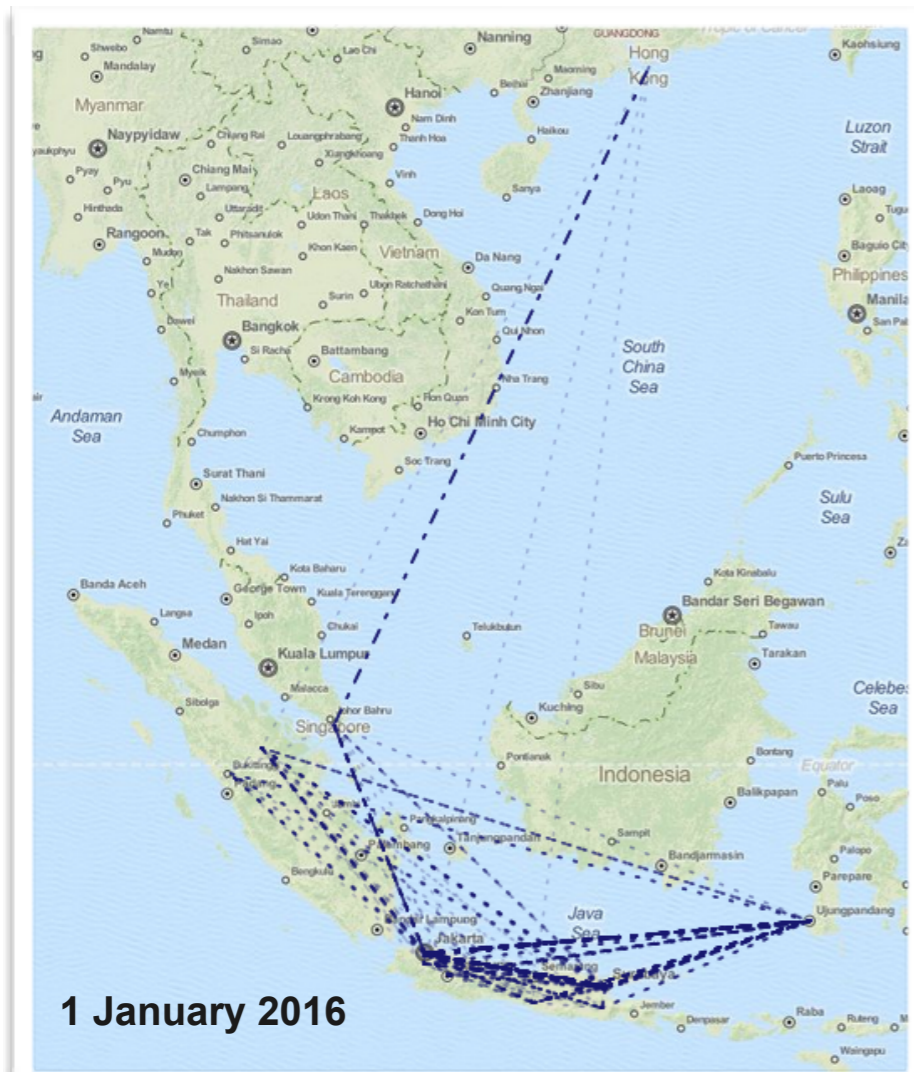
*Paths in this experiment,
i.e. NOT traffic

Do Paths Stay in the Country?

- Snapshot of the paths that do, or don't, stay local

IPv6

1 January 2016

1 July 2016

*Paths in this experiment,
i.e. NOT traffic

How Many Paths Go Via Local IXP?

Destination (by ASN)

Source (by ASN)

```
## msm_id:4453662 prb_id:4941 dst:103.20.91.60 ts:2016-07-06 08:54:49 -00:00
1 () 121.100.4.61 [1.342, 2.236, 3.676] ||
2 (AS38158) 121.100.5.10 [16.125, 16.441, 16.477] ||
3 (AS1299) snge-b1-link.telia.net [16.052, 16.193, 16.215] |Singapore,,SG|
4 (AS1299) las-b21-link.telia.net [203.598, 203.709, 203.827] |Los Angeles,California,US|
5 (AS1299) las-b3-link.telia.net [203.005, 203.066, 252.364] |Los Angeles,California,US|
6 (AS1299) ae-26.r00.lsanca07.us.bb.gin.ntt.net [229.457, 230.604, 413.143] ||
7 (AS2914) ae-2.r23.lsanca07.us.bb.gin.ntt.net [203.361, 203.854, 956.577] |Los Angeles,California,US|
8 (AS2914) ae-12.r22.snjsca04.us.bb.gin.ntt.net [222.115, 224.27, 235.134] |San Jose,California,US|
9 (AS2914) ae-2.r20.sngpsi05.sg.bb.gin.ntt.net [217.813, 217.869, 218.857] |Singapore,,SG|
10 (AS2914) ae-0.r00.jktajk02.id.bb.gin.ntt.net [229.939, 230.12, 249.951] |Jakarta,Jakarta Raya,ID|
11 (AS10217) ae-0.ntt-indonesia.jktajk02.id.bb.gin.ntt.net [230.389, 230.449, 372.949] ||
12 (AS10217) 202.171.0.137 [229.833, 230.111, 230.336] ||
13 () 202.171.27.38 [216.29, 216.29, 216.465] ||
14 (AS58381) 103.5.50.217 [227.115, 227.224, 227.333] ||
15 (AS58381) 103.20.91.60 [226.511, 226.683, 226.745] ||
```


- 🟩 IXP IPs: YES, out-of-country IPs: NO
- 🟧 IXP IPs: NO, out-of-country IPs: NO
- 🟦 IXP IPs: YES, out-of-country IPs: YES
- 🟥 IXP IPs: NO, out-of-country IPs: YES
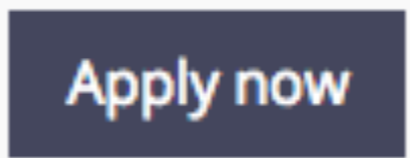
*Paths in this experiment,
i.e. NOT traffic

Actions on Indonesia

- Find possible suboptimal routing with this tool

  - Find your ASN in the mesh, find the person from another ASN, have tea together :)

- Improve accuracy of this diagnostic tool!

  - Your ASN not on the graph? **Apply now**

  - Moved? Update your probe's geolocation!

- Improve infrastructure geolocation: contribute data to OpenIPMap!

RIPE Atlas Community

Get involved!

- Use RIPE Atlas for your operations: monitoring, troubleshooting, measuring

- Do scientific **research**

- Participate in a **webinar**

- Add **multilingual** content

- Become an **ambassador** or a **sponsor**

- Host a RIPE Atlas anchor

- Contribute to the code: https://github.com/RIPE-Atlas-Community/ ripe-atlas-community-contrib/blob/master/README.md

Sponsors: We Thank You! ❤️

We appreciate the support of the following sponsors:

2016

2015

Interfaces Hackathon 21-22 May 2016

- 20 participants

- Eight projects proposals

- Five final projects presentations

- Code available on GitHub

Next: IXP tools

- **22-23 October, Madrid**

- **Weekend before RIPE 73**

Contact RIPE Atlas

- Use cases and updates: https://labs.ripe.net/ atlas

- Mailing list for active users:

  - ripe-atlas@ripe.net

  - https://www.ripe.net/participate/mail/forum/ripe-atlas

- Questions: atlas@ripe.net

- Twitter: @RIPE_Atlas and #RIPEAtlas

Questions