RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Open-sourcing RIPE Atlas

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(Presented by Philip Homburg)

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Overview

- Introduction to RIPE & the RIPE NCC
- What is RIPE Atlas?
- Open-sourced RIPE Atlas tools
- How to take part in the RIPE Atlas community

Author & Presenter

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- Presenter
  - Philip Homburg, Research Engineer

Introduction to RIPE and the RIPE NCC

RIPE and the RIPE NCC

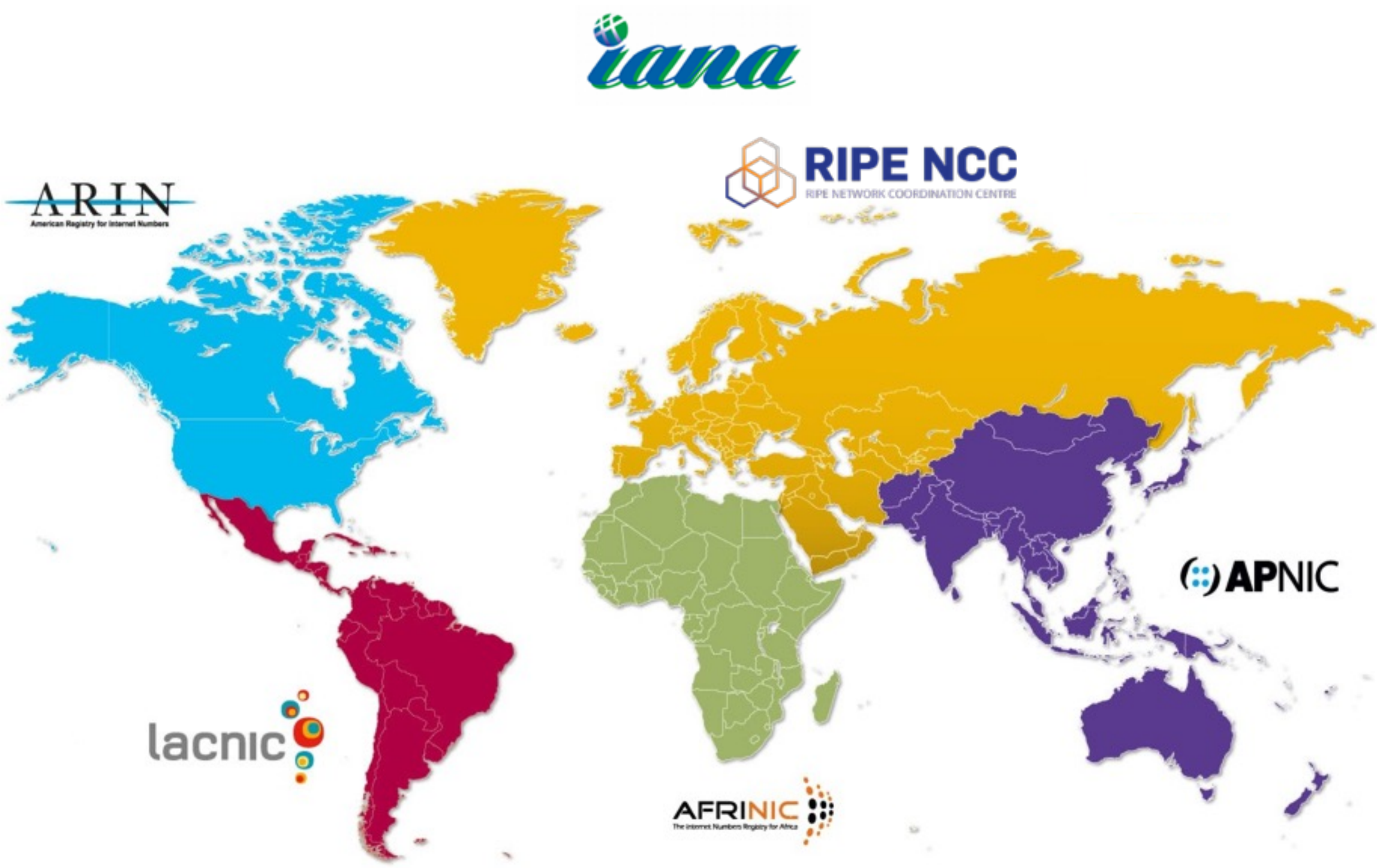
RIPE

- Réseaux IP Européens (RIPE)
- Started in 1989
- Not a legal entity
- An open community
- No official membership
- Makes polices
- Meets twice a year
- Work is done in Working Groups on mailing lists

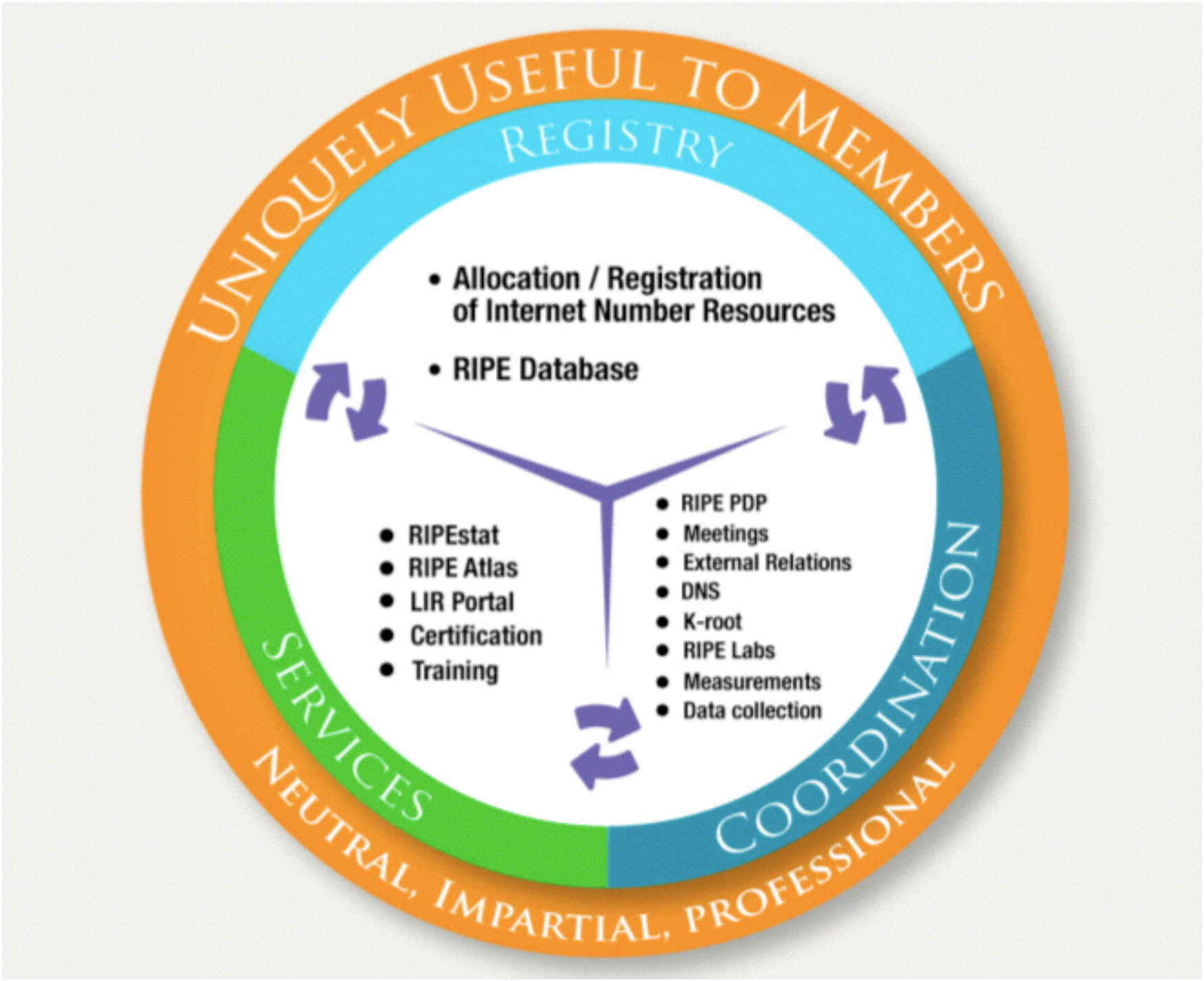
RIPE NCC
RIPE NETWORK COORDINATION CENTRE

- RIPE Network Coordination Centre
- Started in 1992
- Not-for-profit organisation
- Located in Amsterdam
- Is an Regional Internet Registry (RIR)
- Has members called Local Internet Registries (LIRs)
- Implements policies
- Facilitates two RIPE Meetings each year
- Provides services to both members and non-members
- Governed by an Executive Board elected by membership
- Neutral, Impartial, Open, Transparent

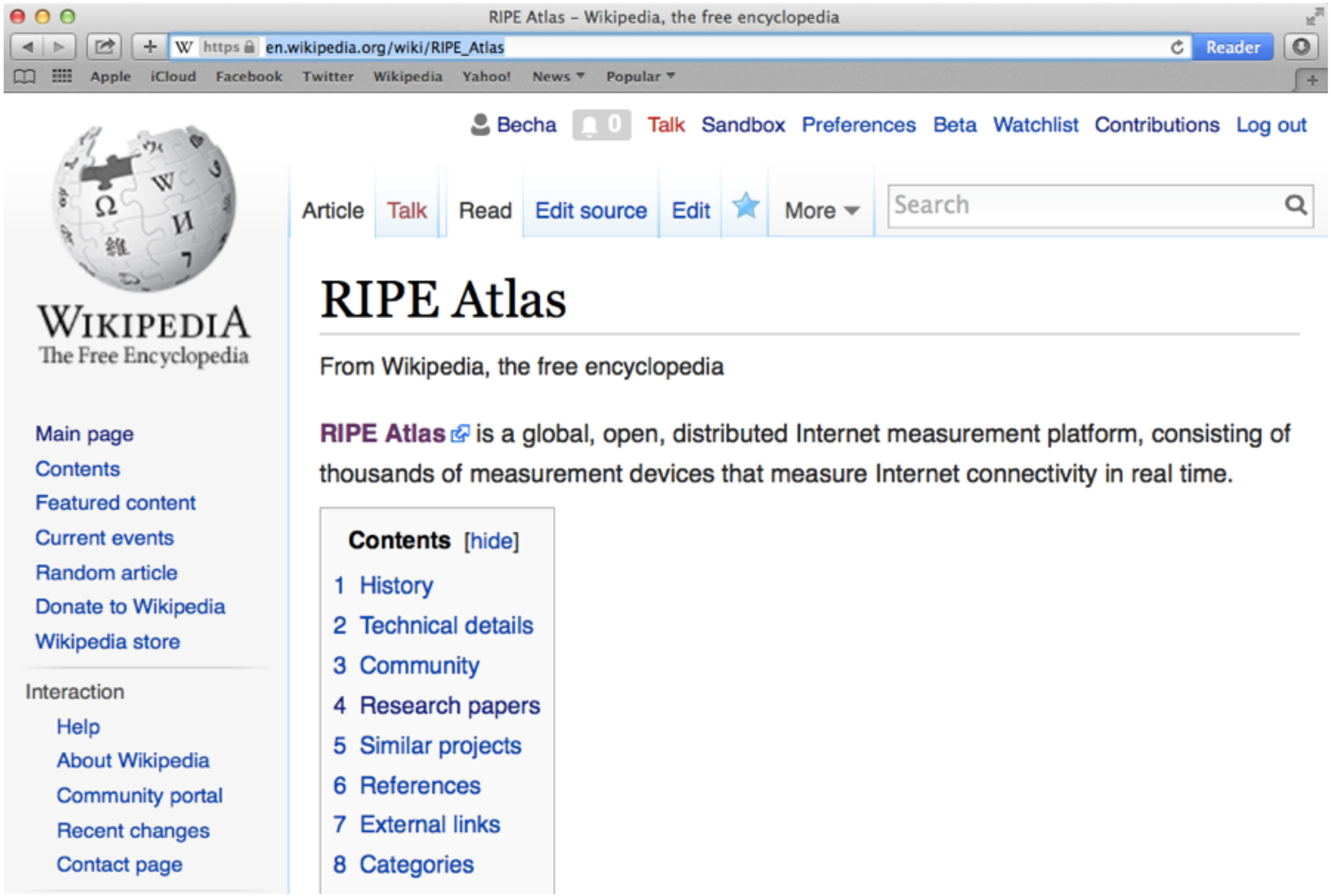
The Internet Registry System



Not Only an RIR: RIPE NCC Services



What is RIPE Atlas?


RIPE Atlas – Wikipedia, the free encyclopedia
https
en.wikipedia.org/wiki/RIPE_Atlas
Reader
Apple
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Becha
0
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Beta
Watchlist
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Edit source
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WIKIPEDIA
The Free Encyclopedia
Main page
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Featured content
Current events
Random article
Donate to Wikipedia
Wikipedia store
Interaction
Help
About Wikipedia
Community portal
Recent changes
Contact page
RIPE Atlas
From Wikipedia, the free encyclopedia
RIPE Atlas is a global, open, distributed Internet measurement platform, consisting of thousands of measurement devices that measure Internet connectivity in real time.
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2 Technical details
3 Community
4 Research papers
5 Similar projects
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7 External links
8 Categories

RIPE Atlas Coverage

- Countries: 181
- Originating ASNs:

  3,333 (IPv4) = 6,33% coverage
  1,212 (IPv6) = 11,22% coverage

Country	Probes
United States of America	1032
Germany	966
France	772
United Kingdom	610
Netherlands	514
Russia	481
Czech Republic	262
Italy	260
Switzerland	256
Ukraine	220

Community Participation

- 9,200 active **probes** hosted by volunteers
- 10,000 **active users** in 2015; 5,000 last quarter
- 166 **anchors** hosted by operators
- Nine **sponsors** in 2015; two already for 2016
- 300 **ambassadors**, at many conferences

Most Popular Features

- Six types of measurements: ping, traceroute, DNS, SSL/TLS, NTP and HTTP (to anchors)
- APIs to start measurements and get results
- Powerful and informative visualisations
- CLI tools
- Streaming data: real-time results
- Plus: “Time Travel”, LatencyMON, DomainMON
- Roadmap shows what’s completed and coming

Open-sourced RIPE Atlas tools

Open Data

- All measurement results are available
  - Via API, website and visualisations

- Probe (measurement) source code published
  - https://labs.ripe.net/Members/philip_homburg/ripe-atlas-measurements-source-code
  - https://github.com/RIPE-Atlas-Community/RIPE-Atlas-probe-fw-code-4520

Everything on GitHub!

- RIPE NCC repository
  - https://github.com/RIPE-NCC
- Collecting community contributed code
  - https://github.com/RIPE-Atlas-Community/ripe-atlas-community-contrib
- Also using GitHub for:
  - Multilingual documentation
  - Sharing learning material

Hackathons

- Two RIPE Atlas hackathons in 2015
  - https://labs.ripe.net/Members/becha/ripe-atlas-tools-hackathon-results
  - https://labs.ripe.net/Members/becha/ripe-atlas-hackathon-results
- All the code is contributed by and given back to the community

Python Modules

- Cousteau: A Python client for RIPE ATLAS API, actively maintained by the RIPE Atlas team
  - https://github.com/RIPE-NCC/ripe-atlas-cousteau
- Sagan: A parsing library for RIPE Atlas measurement results, actively maintained by the RIPE Atlas team
  - https://github.com/RIPE-NCC/ripe.atlas.sagan

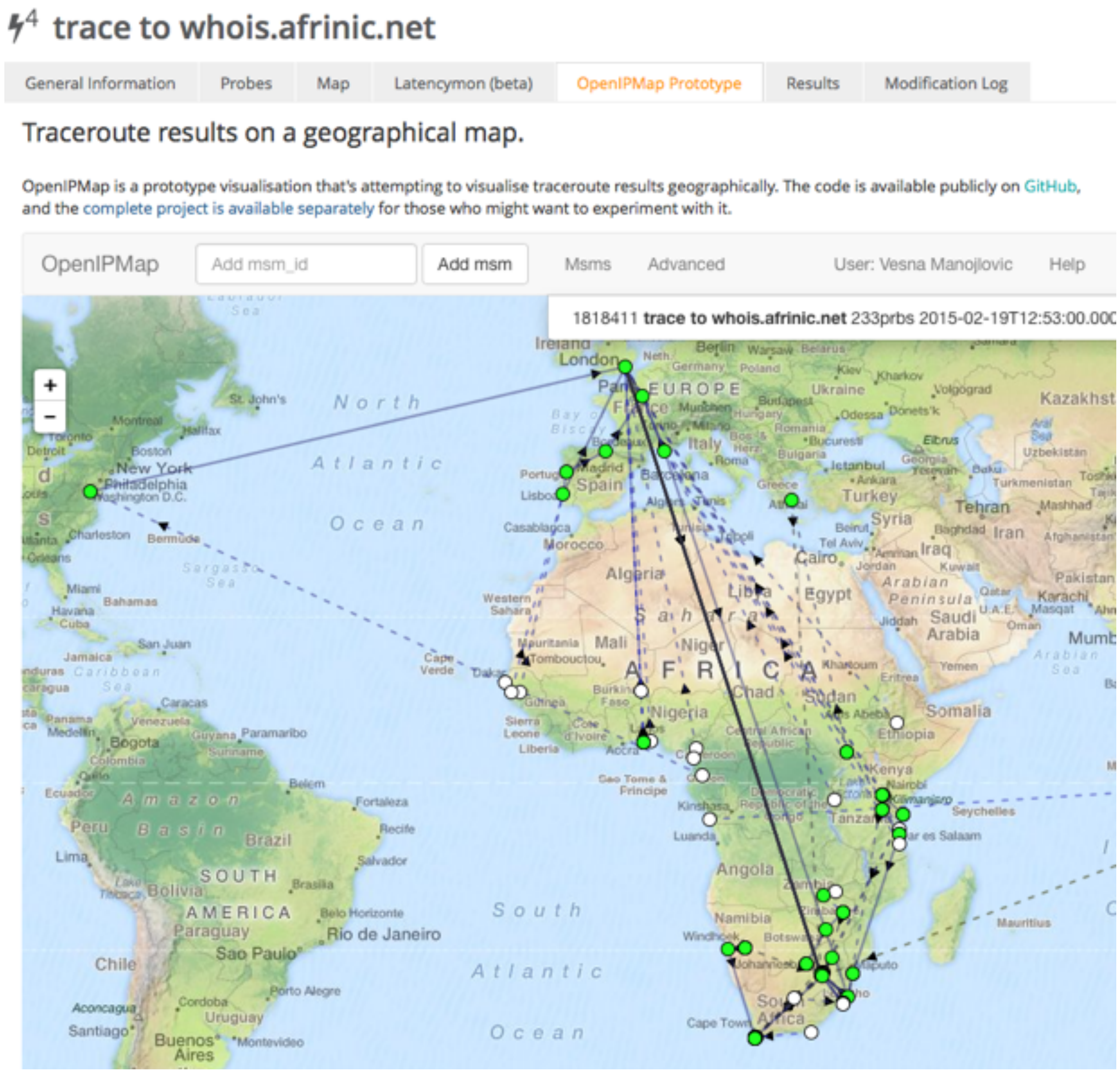
CLI Tools (Magellan)

- Command-line interface for RIPE Atlas API
  - Simple, familiar terminal use and human-readable results
- Free software (GPL)
  - Code: https://github.com/RIPE-NCC/ripe-atlas-tools
  - Documentation: https://ripe-atlas-tools.readthedocs.org/
- Included in the Linux / BSD distributions: OpenBSD, FreeBSD, Gentoo & Arch
  - In progress: Debian & Fedora
- Join this open-source project! (mailing list)

Crowdsourced Infrastructure Geolocation: OpenIPMap

- Visualising traceroutes on the map is difficult!
  - Routers' geolocation data is often very inaccurate
  - RIPE Atlas performs many traceroutes through Internet core
- Community of operators contributes data to OpenIPMap (think: OpenStreetMap for IPs)
  - https://marmot.ripe.net/openipmap/
- Modify, reuse and improve the code
  - https://github.com/RIPE-Atlas-Community/openipmap

OpenIPMap Interactive Interface



IXP Country Jedi

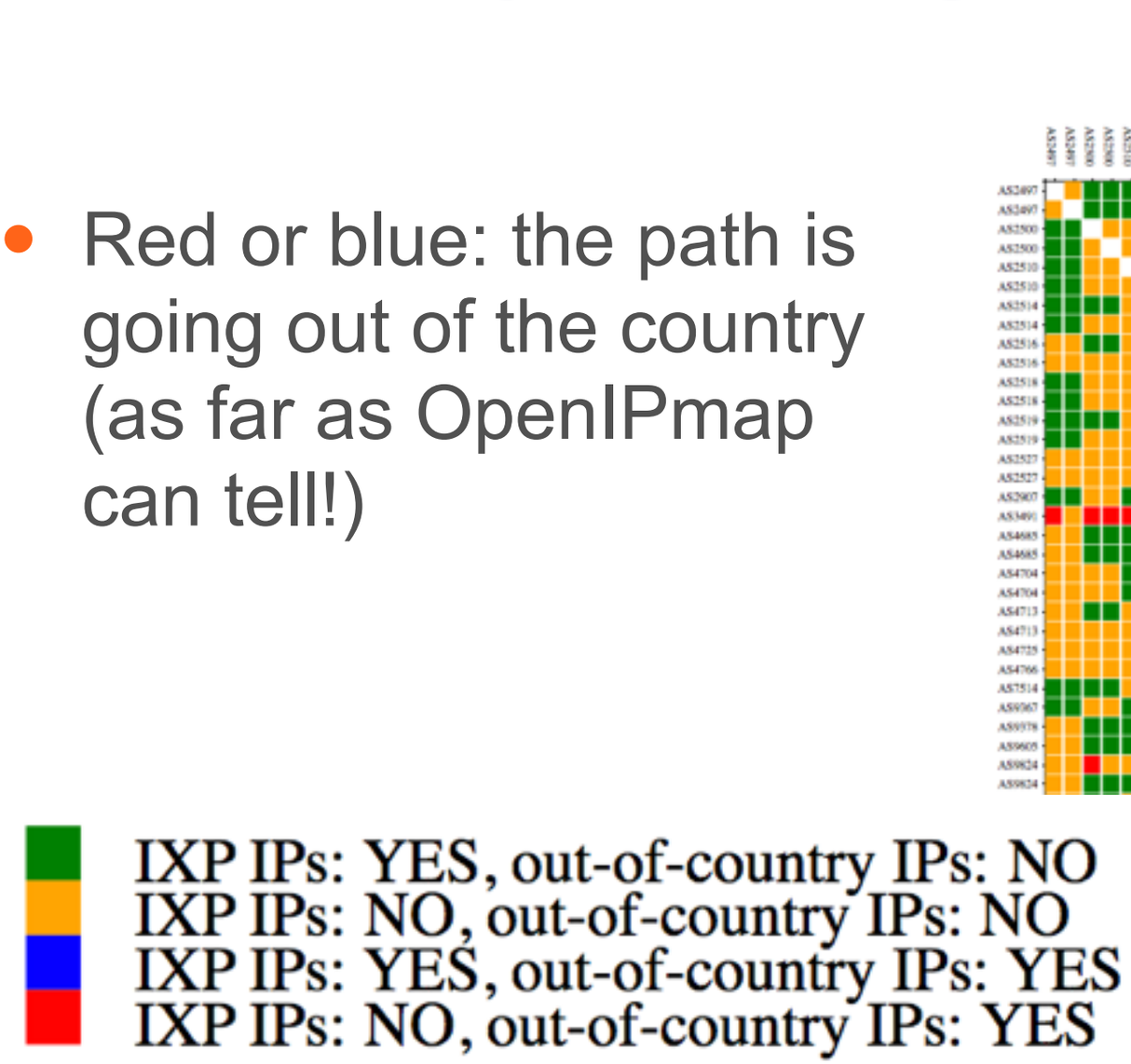
- Tool and concept by Emile Aben
  - https://github.com/emileaben/ixp-country-jedi
  - https://labs.ripe.net/Members/emileaben/measuring-ixps-with-ripe-atlas
- Method
  - Traceroute mesh between RIPE Atlas probes
  - Hops geolocated using OpenIPMap database

IXP Country Jedi

- Benefits:
  - Shows how IXPs help keep traffic local
  - Comparing countries' performances with each other
  - Routing and traffic optimisation
  - Comparing IPv6 and IPv4

How many paths go via local IXP?

- Red or blue: the path is going out of the country (as far as OpenIPmap can tell!)



How to take part in the RIPE Atlas Community

Get Involved!

- Use RIPE Atlas for your operations: monitoring, troubleshooting, measuring
- Do scientific research
- Contribute to the code
- Participate in a webinar
- Become an ambassador or a sponsor
- Host a RIPE Atlas anchor
- Place a probe in a new exotic location

More Hackathons!

- Join the hackathons in 2016
  - Before each RIPE Meeting - save the dates!
  - 21-22 May, Copenhagen
  - 22-23 October, Madrid

RACI

- RIPE Academic Cooperation Initiative
- Students & researchers:
  - Present your Internet-related research at RIPE Meetings
  - Tickets, travel and accommodation provided
  - Topics: network measurement and analysis, security, IPv6 deployment, BGP routing, Internet governance, peering and interconnectivity
- ripe.net/raci

Contact RIPE Atlas

- https://atlas.ripe.net
- https://github.com/RIPE-Atlas-Community/
- Articles and updates: https://labs.ripe.net/atlas
- Mailing list for active users: ripe-atlas@ripe.net
- Questions: atlas@ripe.net
- Twitter: @RIPE_Atlas and #RIPEAtlas