



IXP Country Jedi

Measuring how many
local paths stay local

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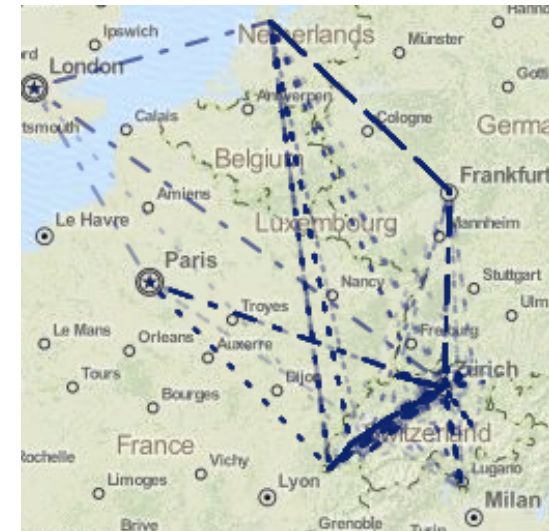
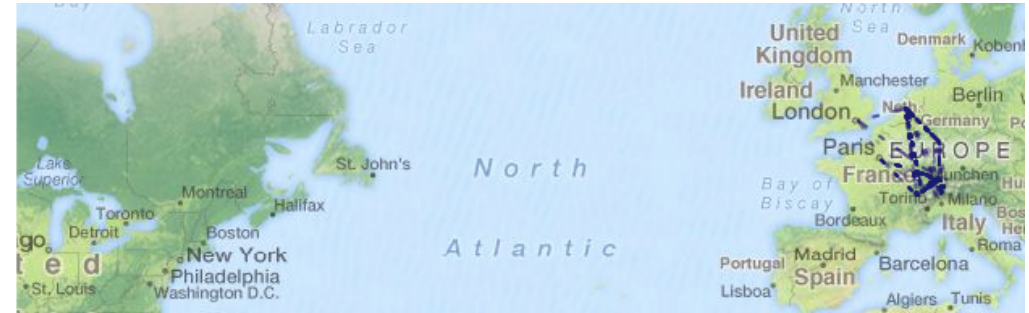
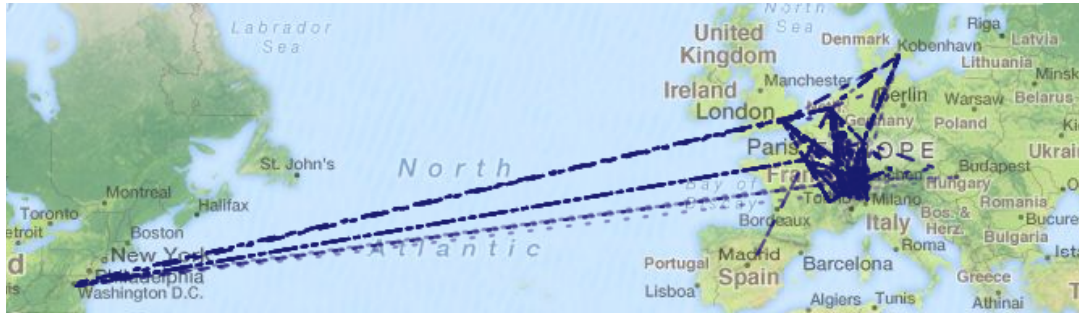
RIPE
NCC

- IXP-Jedi tool & concept by Emile Aben:
 - <https://github.com/emileaben/ixp-country-jedi>
 - <https://labs.ripe.net/Members/emileaben/measuring-ixps-with-ripe-atlas>
- **Overview:**
- Country Map
- IXP & Country Grid
 - drill down to details;
 - interactive
- Methodology
- Actions

- Country level: regulators, politicians, cyber-security...
 - how much traffic stays within the country? where do the paths go?
 - comparing countries performance with each other
- Operators
 - routing & traffic optimization
- IPv6 advocates
 - comparing IPv4 and IPv6 paths
- IXP operators
 - shows how IXPs help to keep traffic local & regional
- RIPE Atlas community
 - more probes in more networks = higher quality of measurements data
- Geolocation data community
 - use case for improving the data quality

Paths staying in the country?

- Snapshot (this week!) of the paths that do, or do not, stay local
- Difference between IPv4 & IPv6 paths

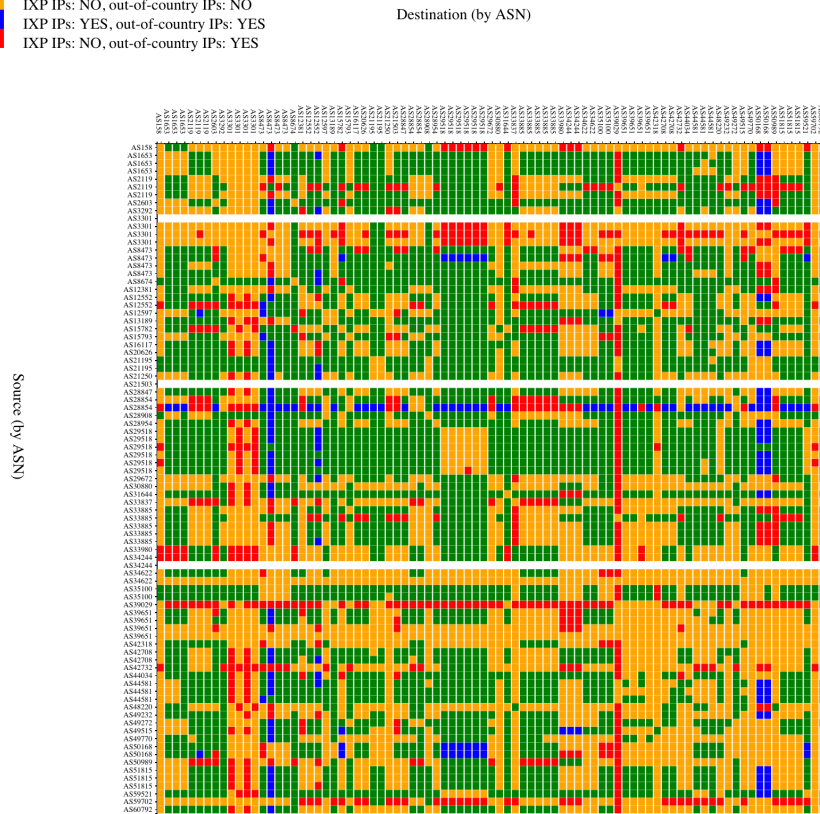


- Live Demo!

- <http://sg-pub.ripe.net/emile/ixp-country-jedi/CH-2015-05/>

- “Vanilla” Sweden

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

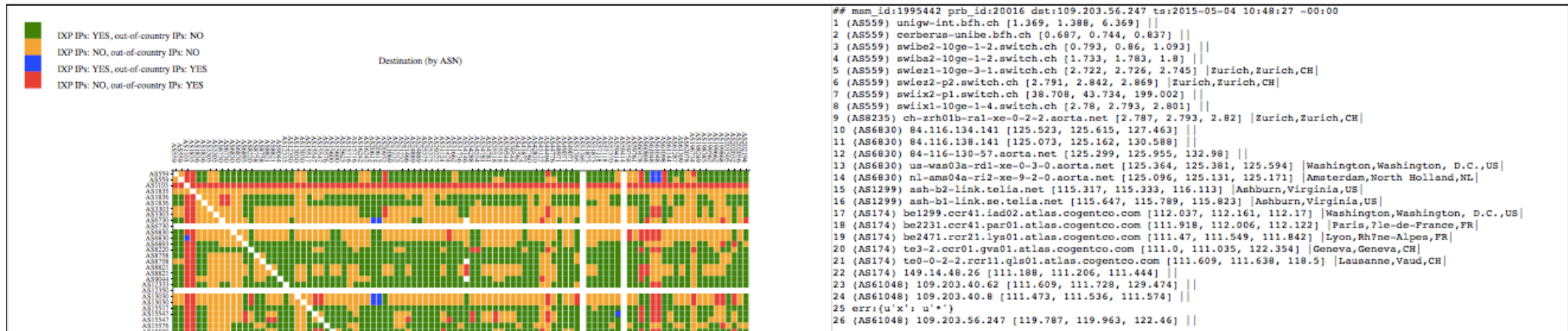


- “extended” Sweden (+Oslo&Copenhagen)

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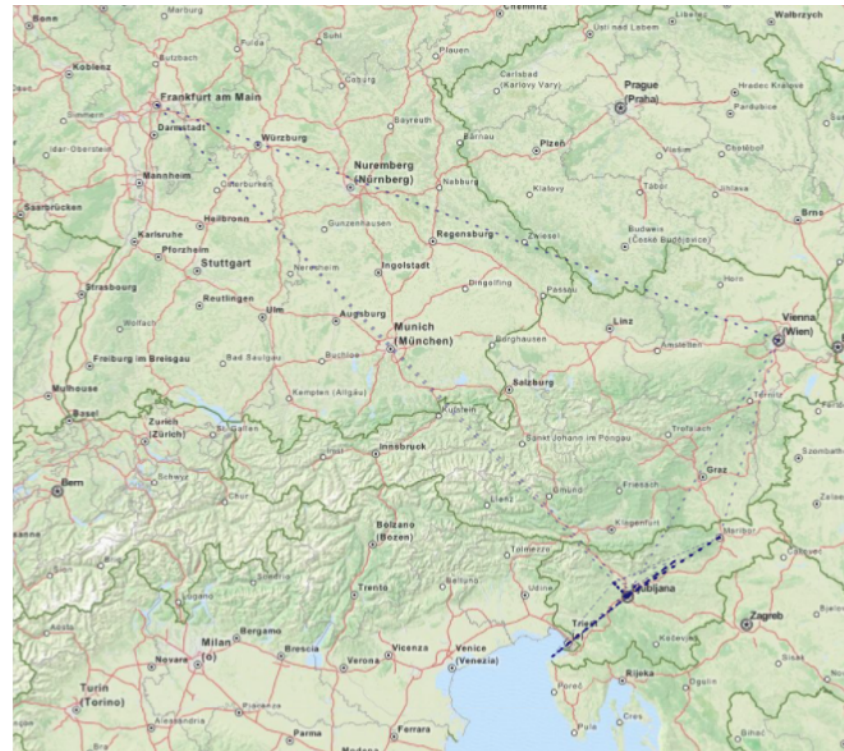
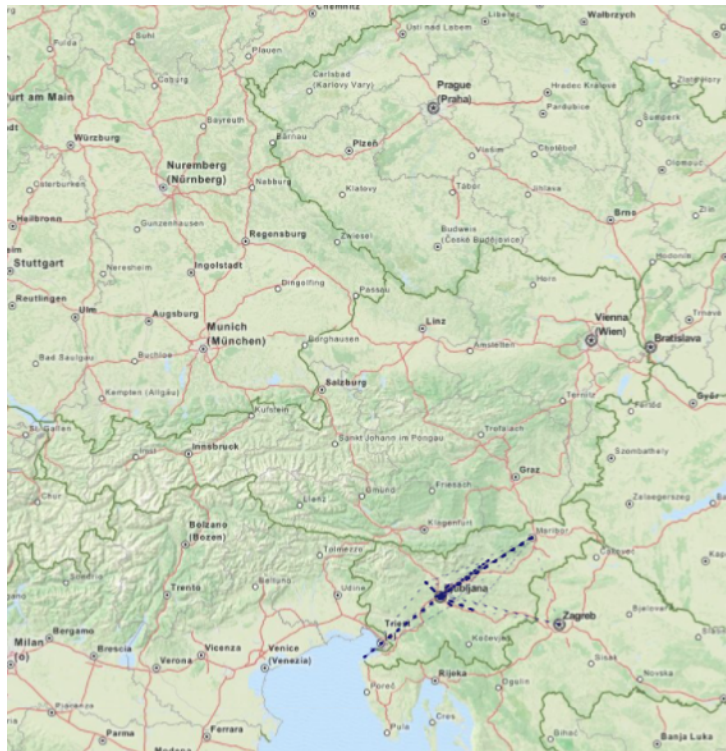


- Interactive tool! <http://sg-pub.ripe.net/emile/ixp-country-jedi/CH-2015-05/ixpcountry/>

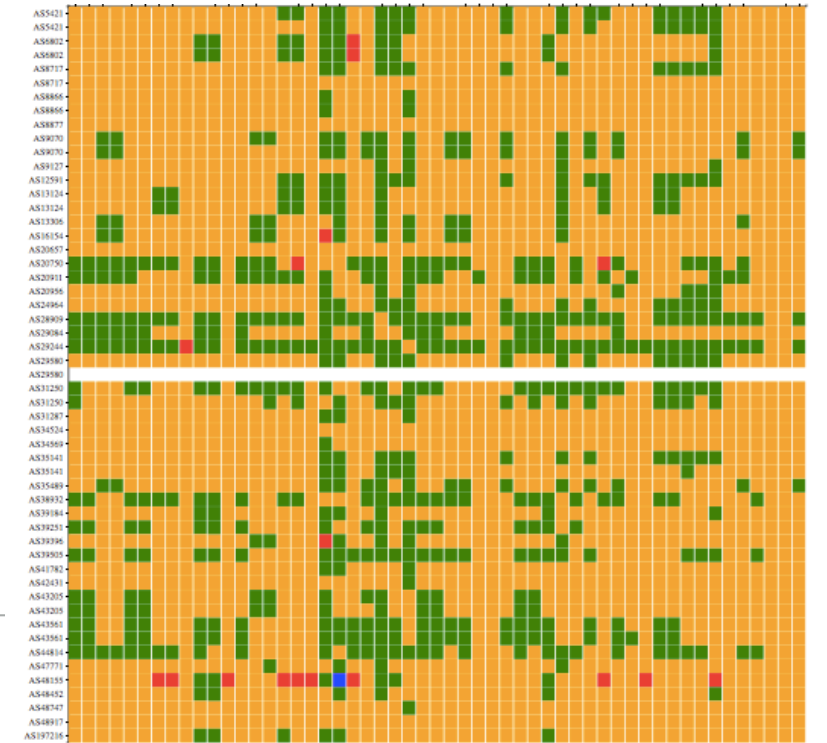
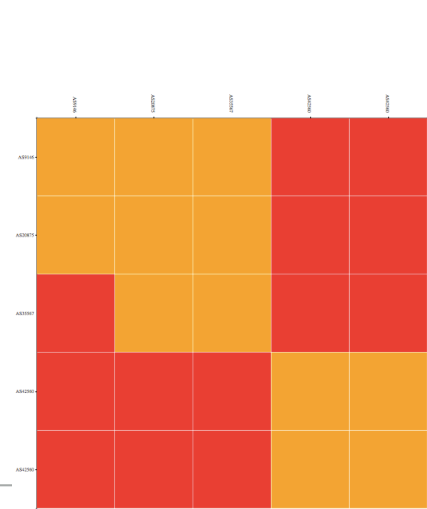
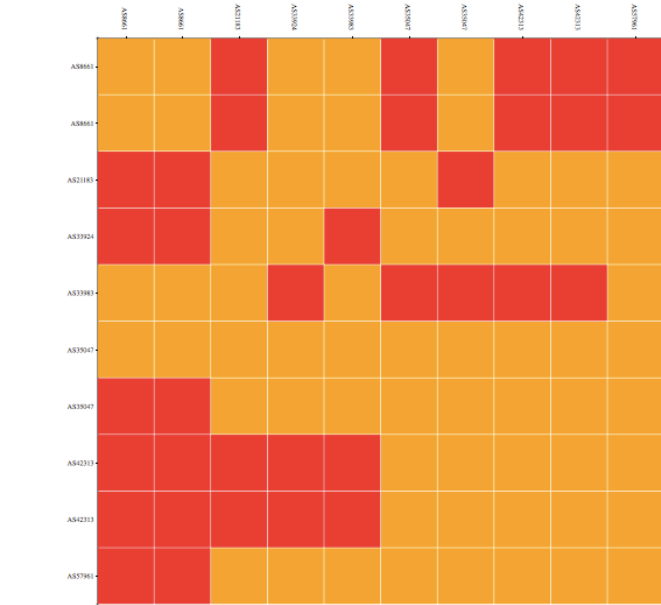
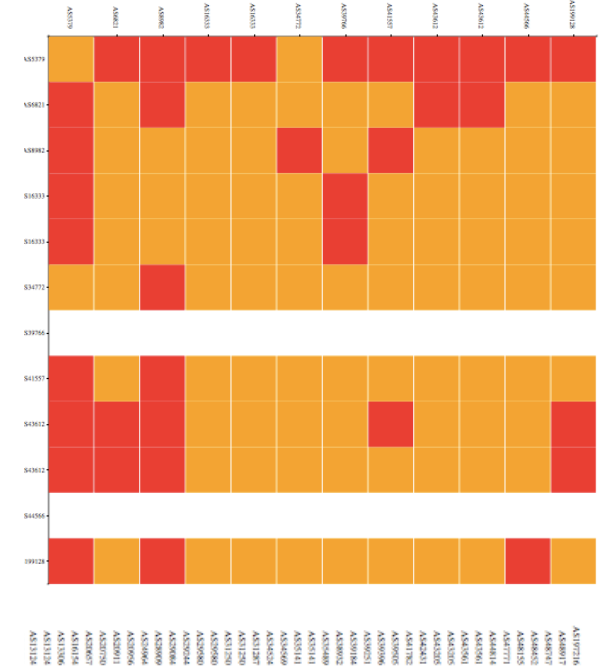
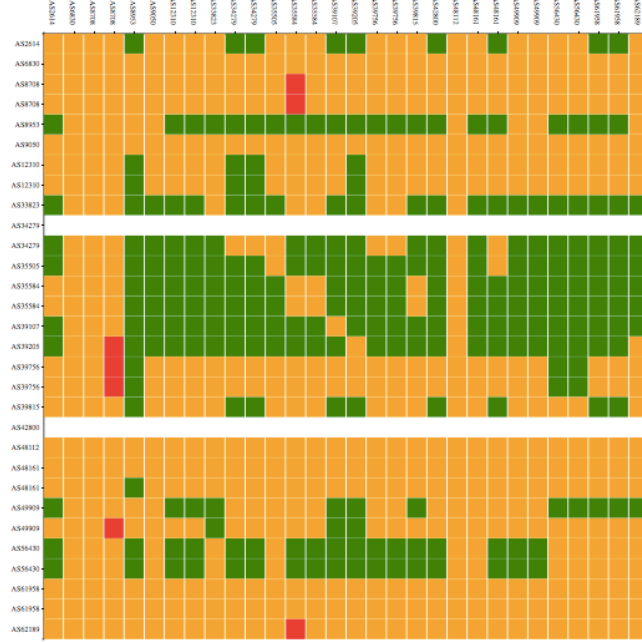
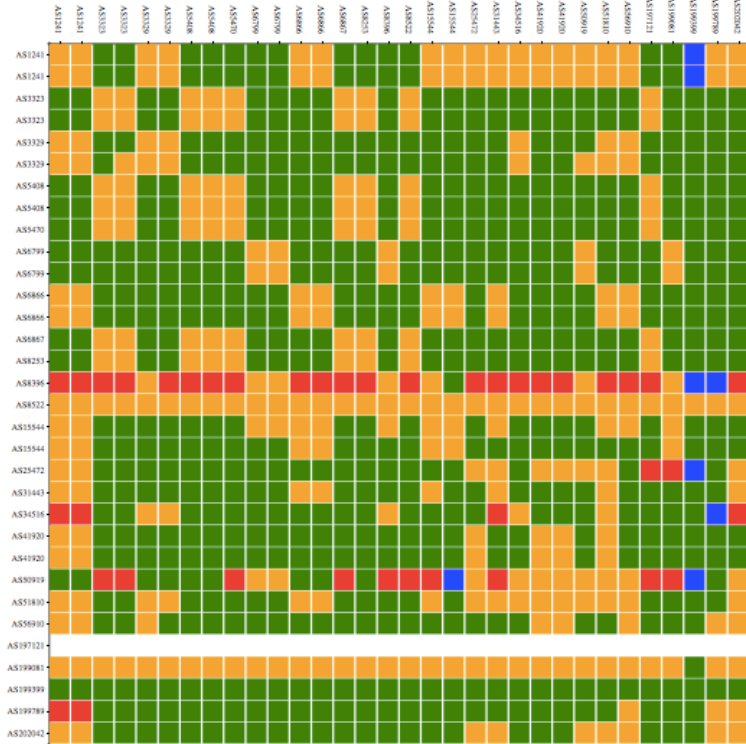


- Green is “good” - as far as we can see it
 - not a judgment, only one way of visualizing data
- Red or blue field: the path is going out of country
 - if this is a surprise: talk to your upstream(s)
- Yellow field: the path that is not going via a local IXP
 - if this is undesired: make a new peering agreement

- <http://sg-pub.ripe.net/emile/ixp-country-jedi/SI-2015-04/geopath/>
- `s/SI/{RO, BG, HR, BA, ME, AL, GR}`



More probes, better data quality



- Based on traceroute measurements using RIPE Atlas probes
- Identify ASNs in the country using RIPEstat
- Identify IXPs & IXP LANs using PeeringDB
- Construct mesh: from all (*) country probes to each other
 - max 2 probes per ANS; only “public” probes with “good” GeoLoc
- Hops geolocated using “OpenIPMap” database
- Source: <https://github.com/emileaben/ixp-country-jedi>

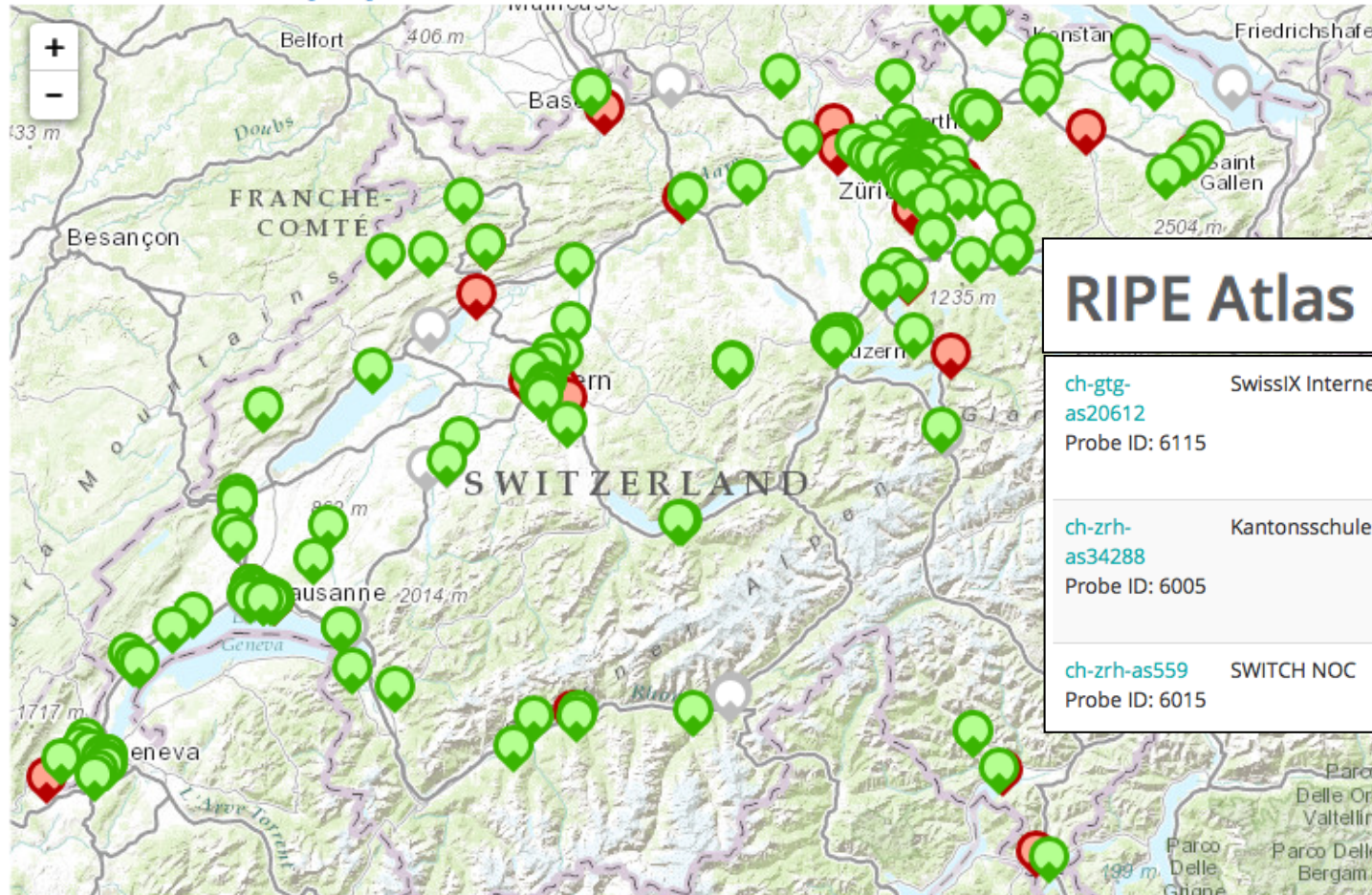
- Use this tool to find possible suboptimal routing & fix it
 - Find your ASN in the mesh
 - Find the person from another ASN
 - Take them out for tea :)
- Create own measurements towards “important” targets
- To improve accuracy of this diagnostic tool
 - If your ASN is not on the graph, apply for RIPE Atlas probe
 - Add more probes to your country to increase “resolution”
 - If you move, remember to update your probe’s geolocation
- Re-use & re-write all the code: it is free & open source software
- Improve infrastructure geolocation: contribute data to OpenIPMap!
 - <https://marmot.ripe.net/openipmap/>
 - <https://github.com/RIPE-Atlas-Community/openipmap>



Other views of Switzerland

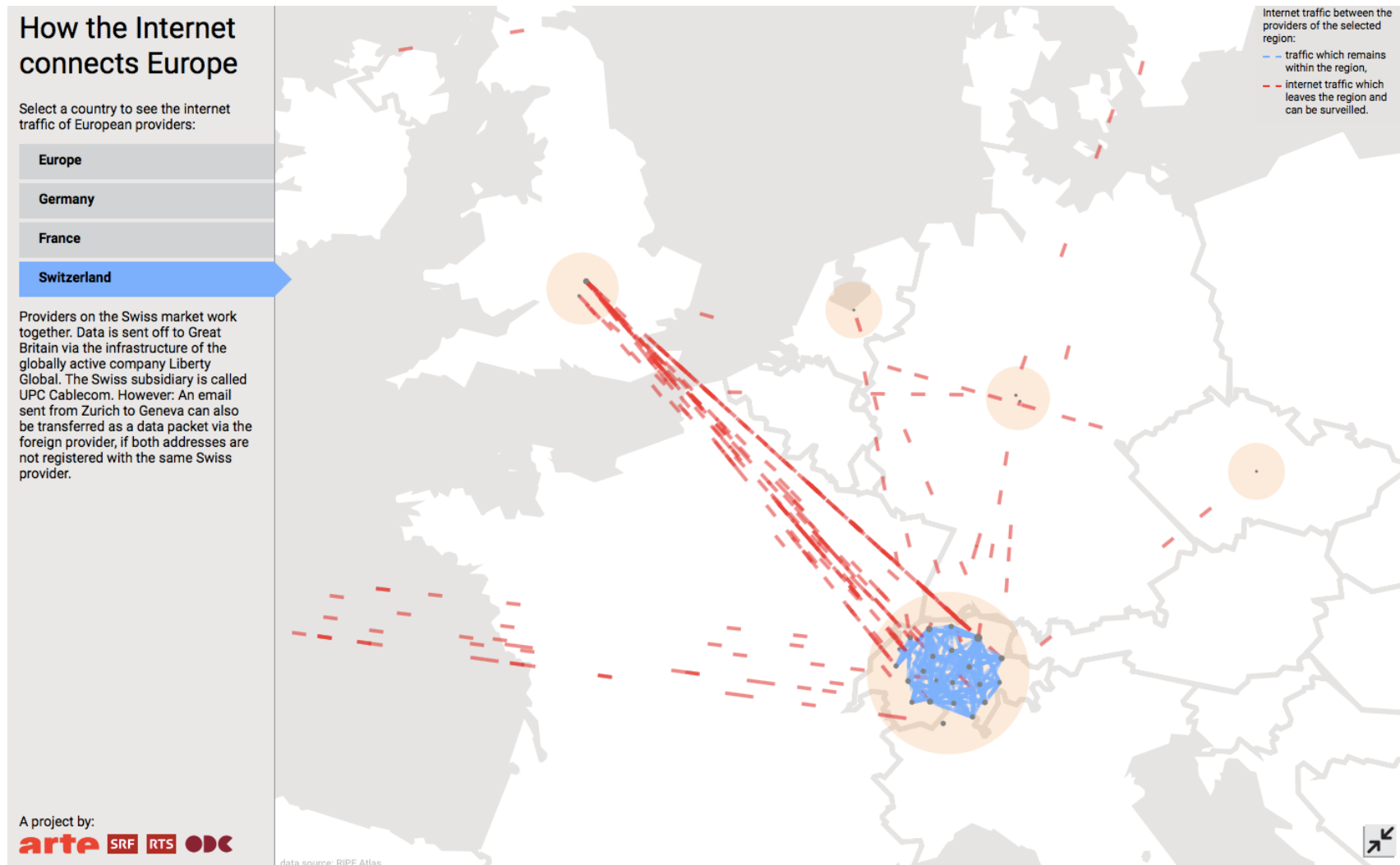


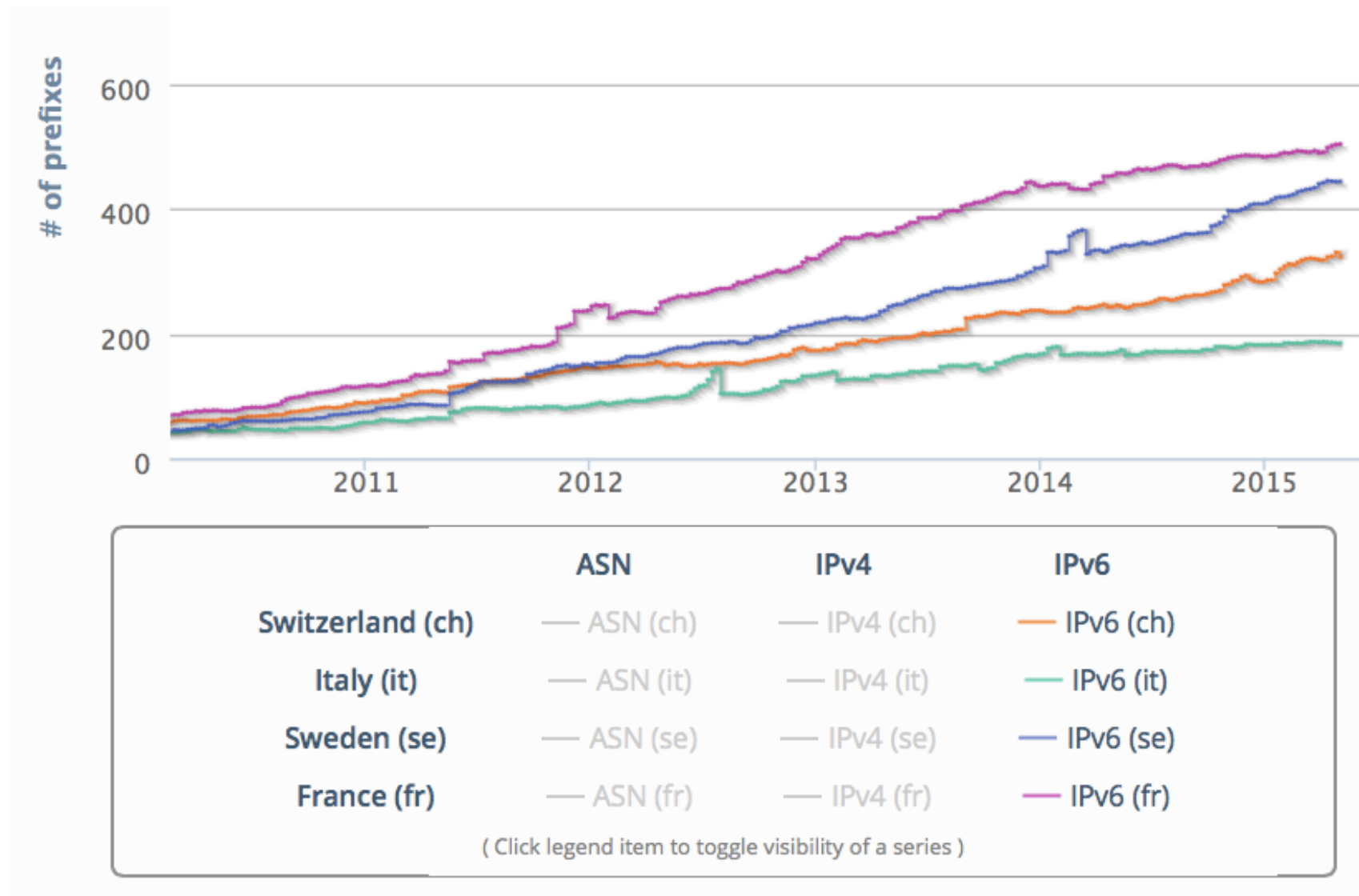
Switzerland (ch) 203 connected, 30 disconnected, 32 abandoned. 265 total



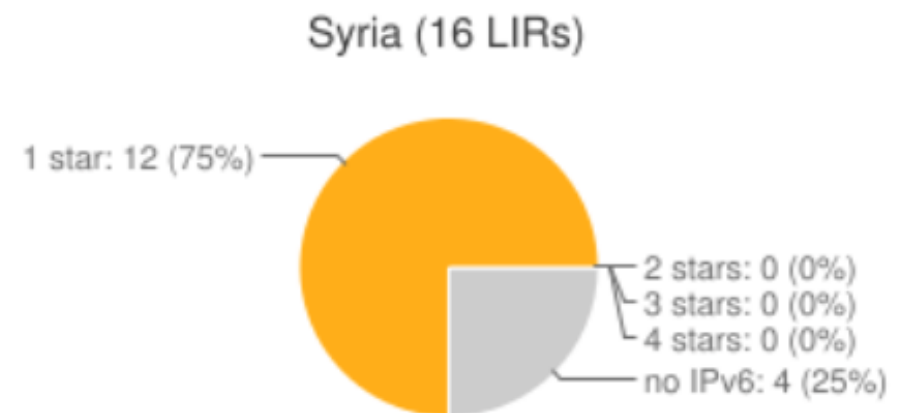
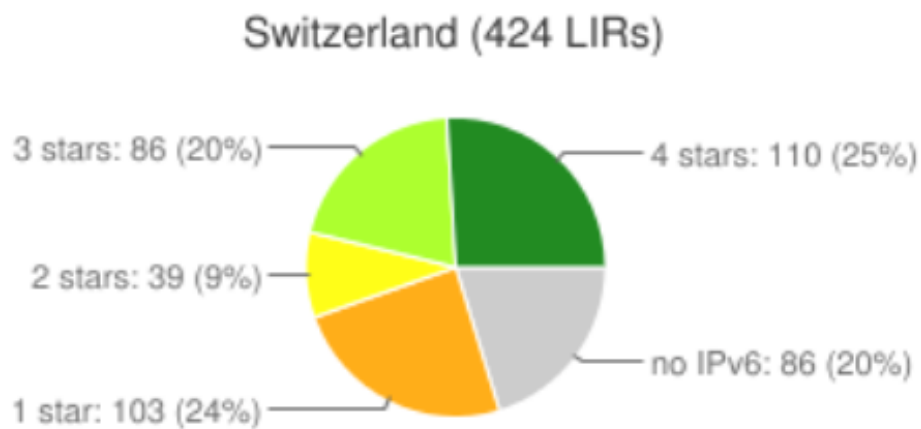
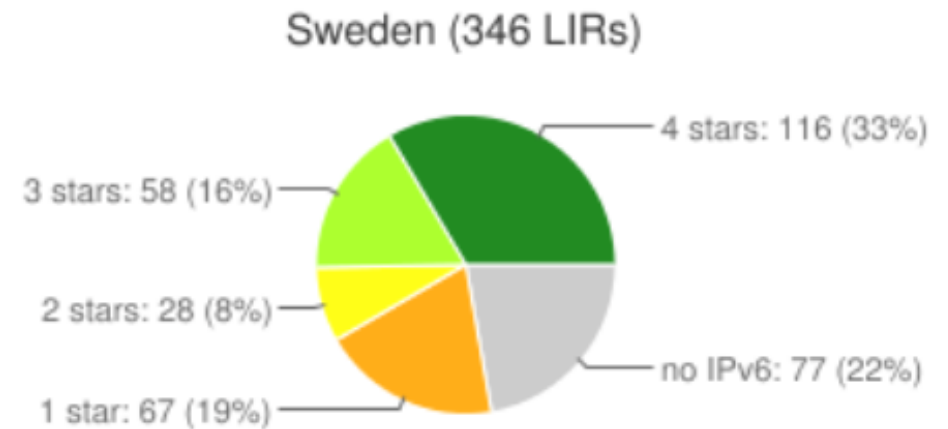
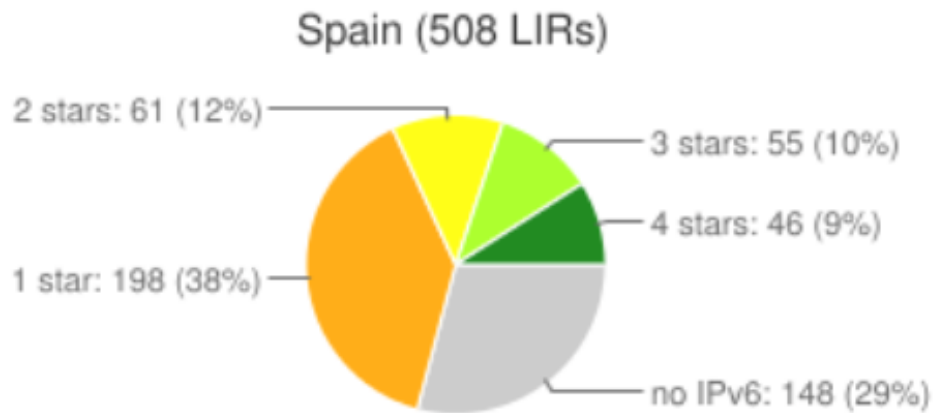
RIPE Atlas anchor locations		
ch-gtg-as20612 Probe ID: 6115	SwissIX Internet Exchange	Glattbrugg
ch-zrh-as34288 Probe ID: 6005	Kantonsschule Zug	Zurich
ch-zrh-as559 Probe ID: 6015	SWITCH NOC	Zurich

- <http://future.arte.tv/en/travelling-data-packets>
 - Based on RIPE Atlas data (caveat: they use their own methodology!!)





- <http://ipv6ripeness.ripe.net/4star/CH.html> (110 LIRs)
- <http://ipv6ripeness.ripe.net/5star/CH.html> (27 LIRs)



- <https://atlas.ripe.net>
- Mailing list for active users: ripe-atlas@ripe.net
- Articles and updates: <https://labs.ripe.net/atlas>
- Questions: atlas@ripe.net
- Twitter: @RIPE_Atlas and #RIPEAtlas