



RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Visualising the User-to-user Internet with RIPE Atlas

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Active measurements network



- Probe distribution
 - 10,400 active RIPE Atlas probes
 - 309 active RIPE Atlas anchors
- Coverage
 - 178 countries covered
 - 3,600 IPv4 ASes (6.1%)
 - 1,377 IPv6 ASes (9.3%)
- ping, traceroute, DNS, SSLcert



RIPE Atlas distribution



UK

- 619 active probes
- 16 anchors



User-to-user measurements

Motivation



- Usually client-to-server gets measured
 - for traffic and cost optimisation
- What about de-centralised, peer-to-peer, server-less connections
 - let's go back to end-to-end (i.e. user-to-user)
- Sketches Internet eco system of a country

<http://sg-pub.ripe.net/ixp-country-jedi/de/2018/01/01/>

Ingredients



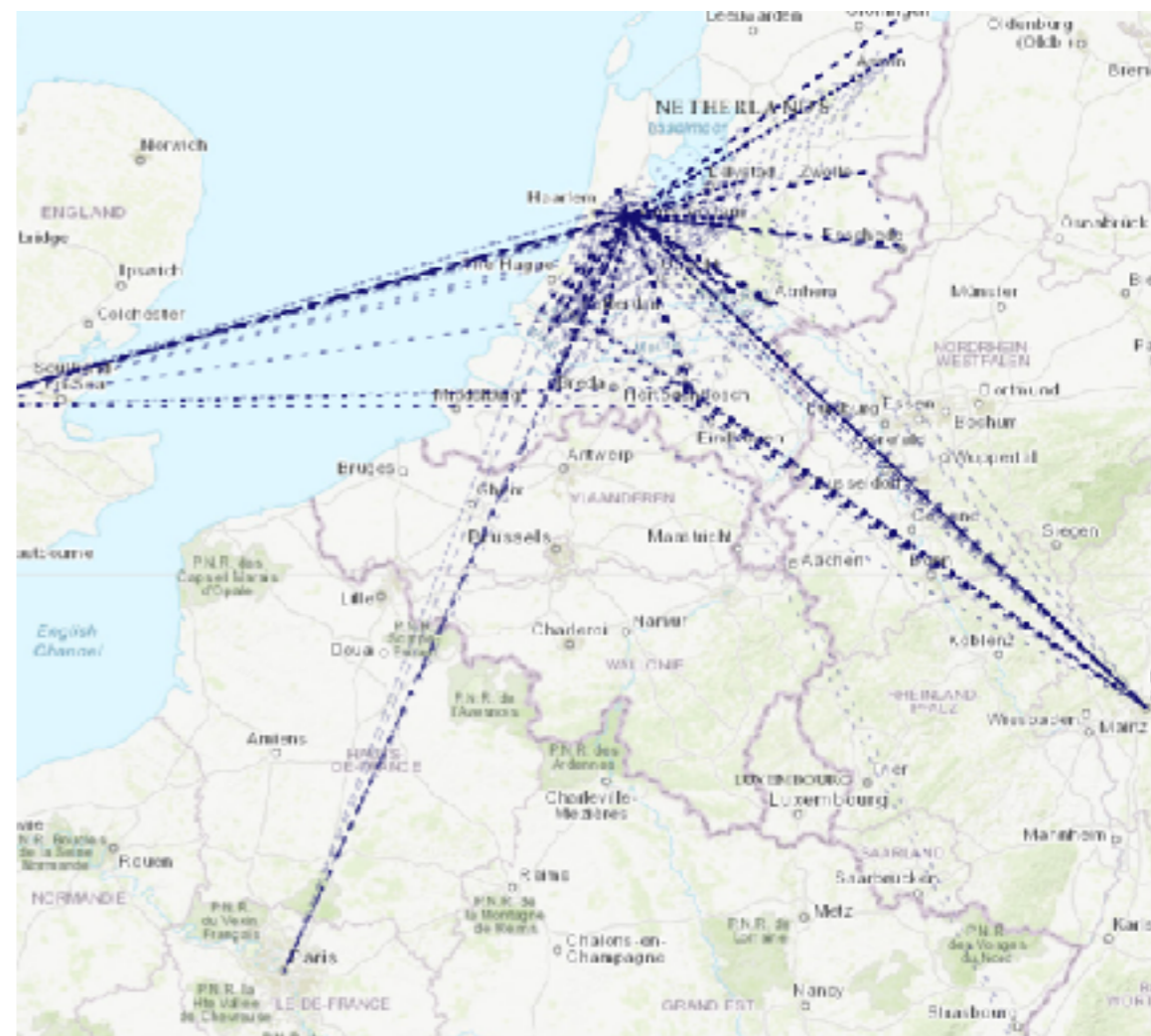
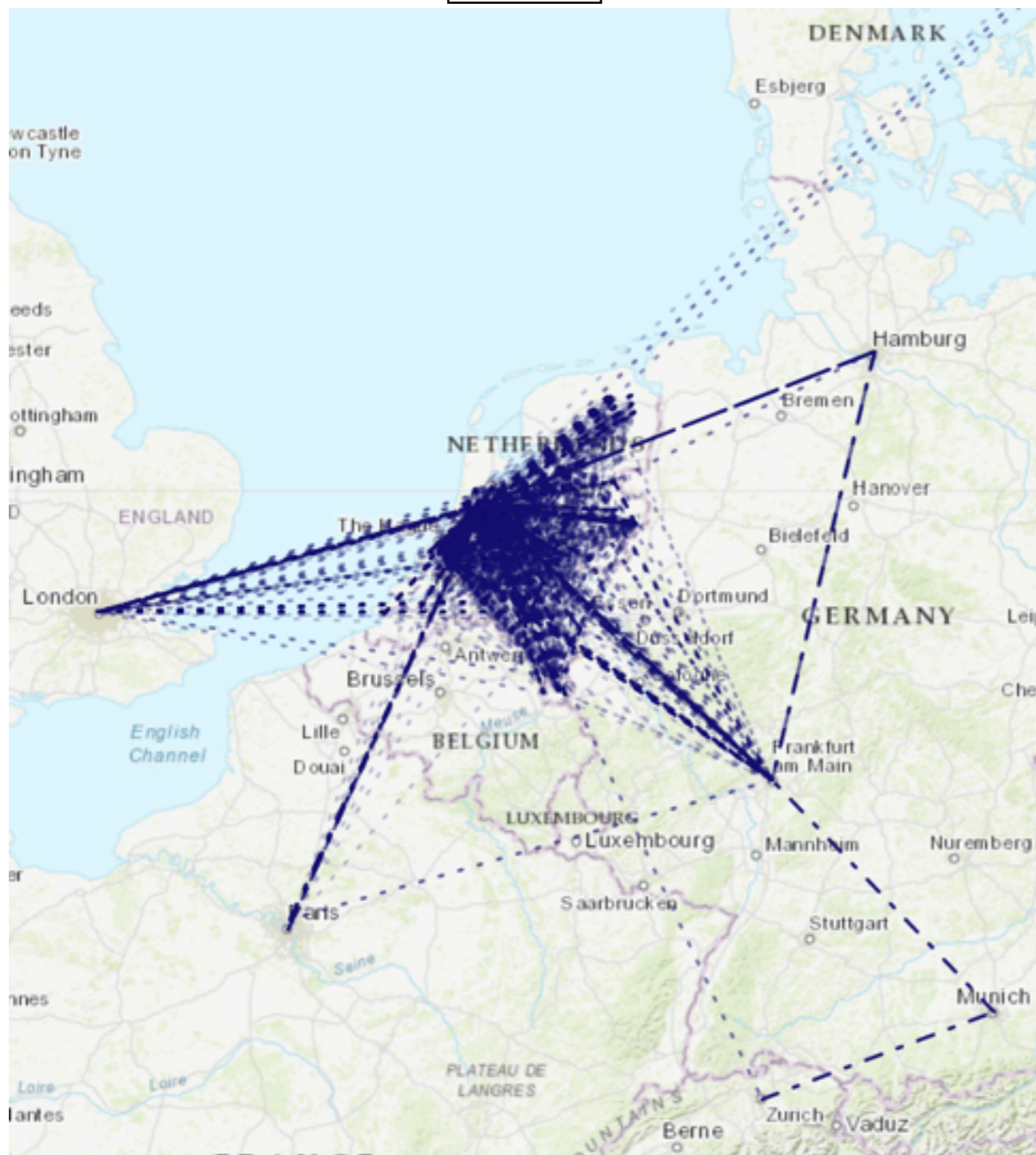
- RIPE Atlas
- IXP Country Jedi
 - mesh traceroutes between RIPE Atlas probes in a country
 - <https://www.ripe.net/ixp-country-jedi/>
- User population estimates (APNIC data)
 - measurement-based rough estimate
 - <https://stats.labs.apnic.net/aspop/>
- Many caveats: Results are ‘sketches’

Paths between RIPE Atlas probes



IPv4

IPv6



The Netherlands

How many paths go via an IXP?

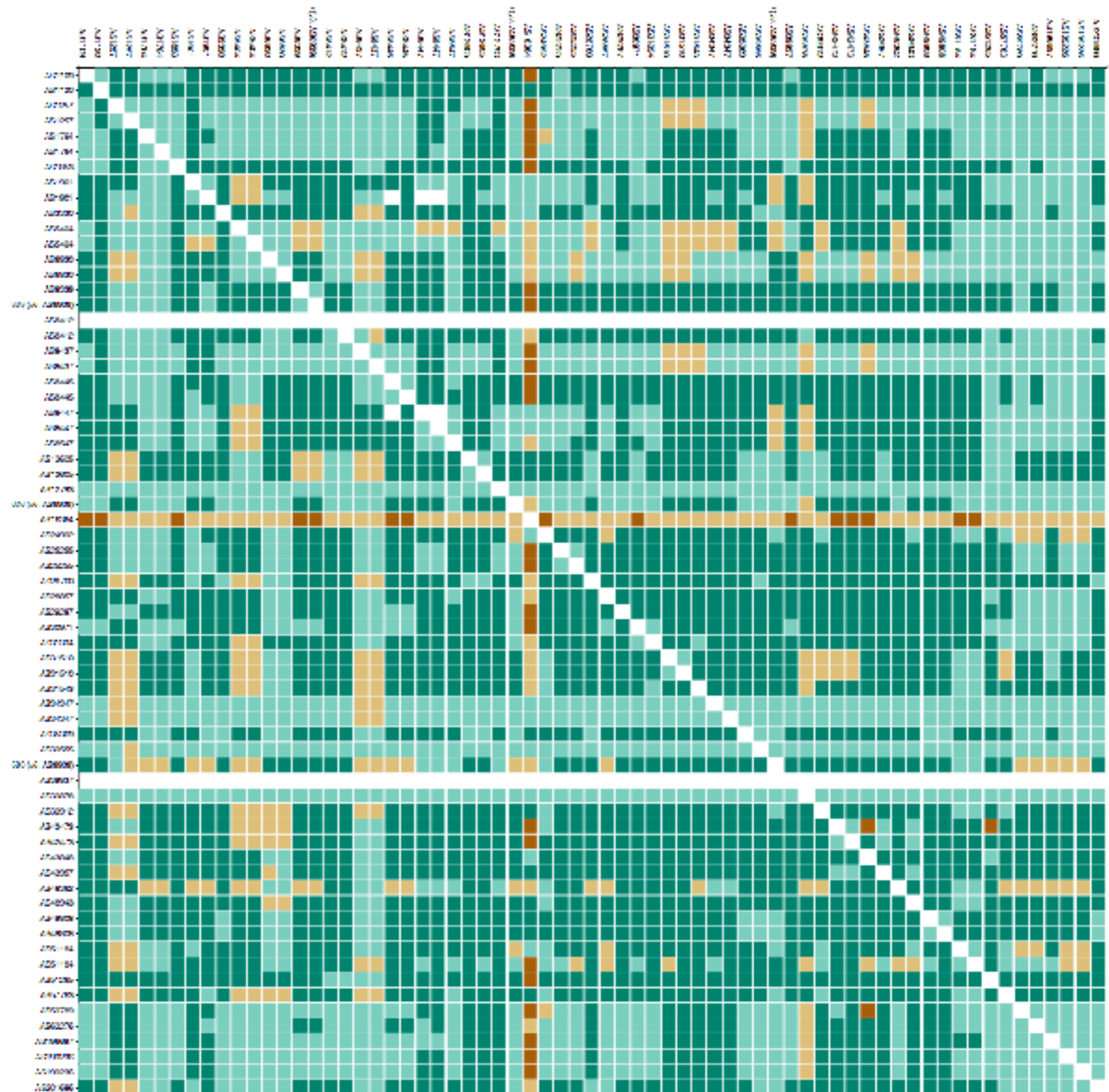


IXP: Yes
Out of country IPs: No

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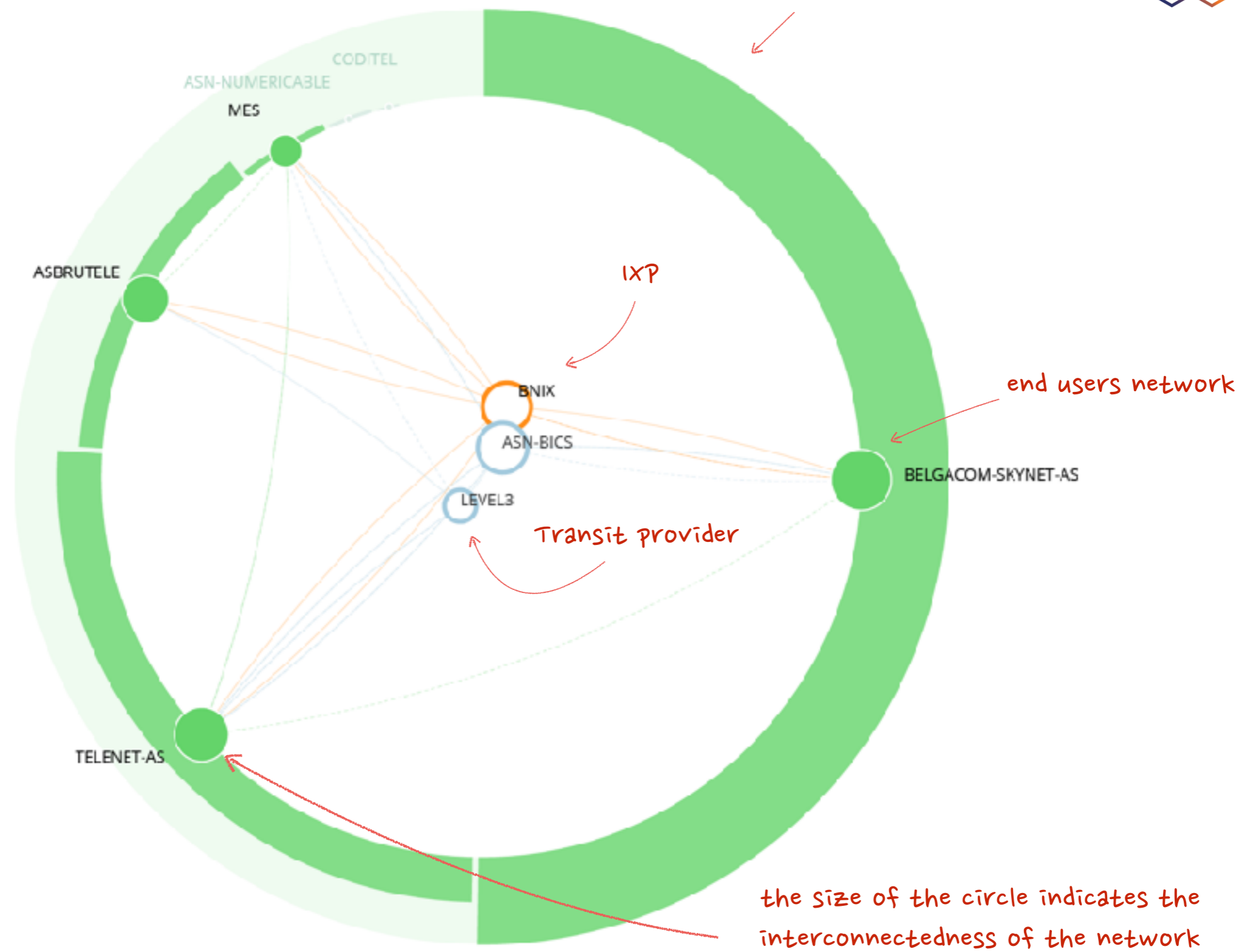




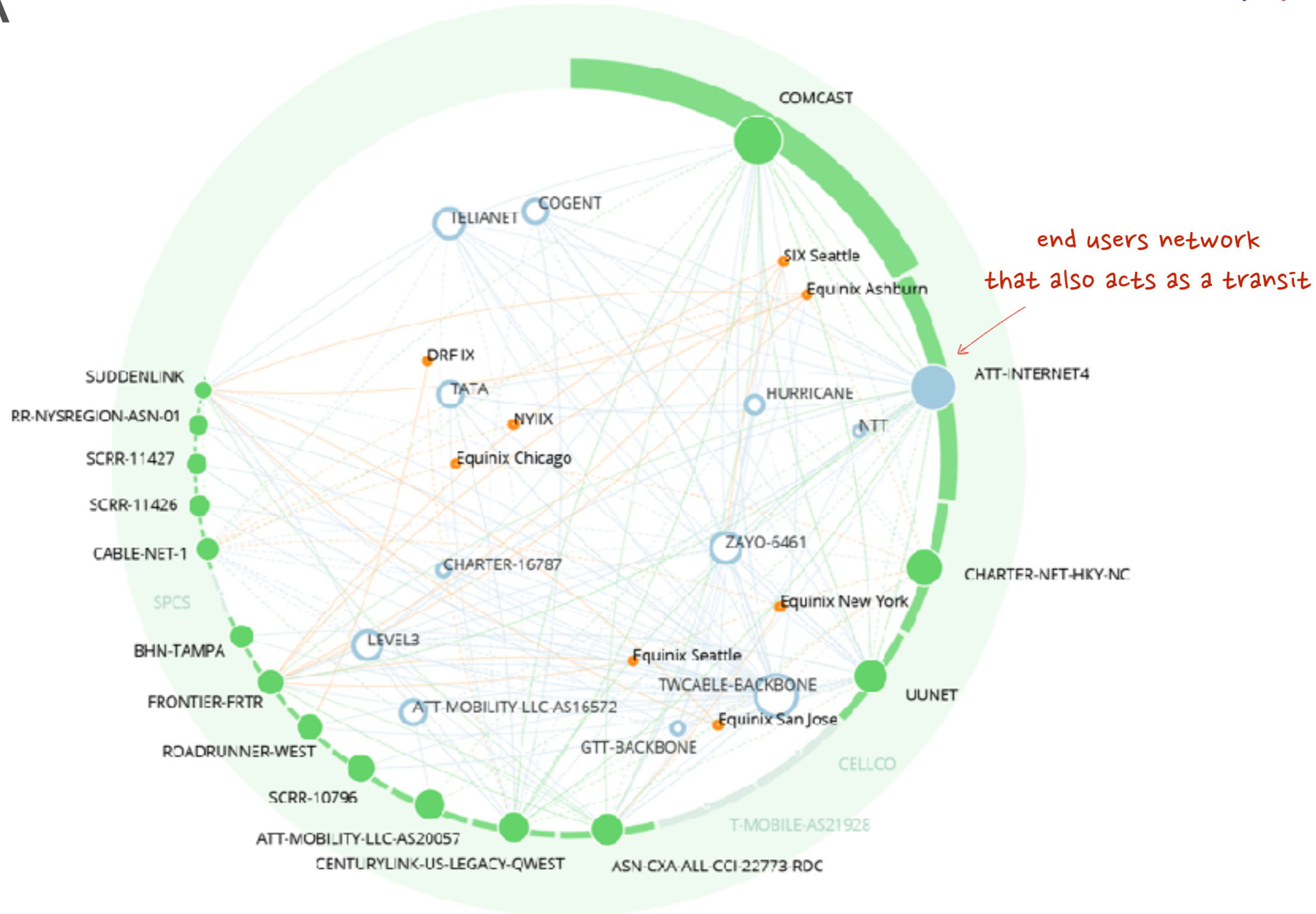
User-to-user measurements



size of ring segment is a measure for the amount of end users in the network



USA

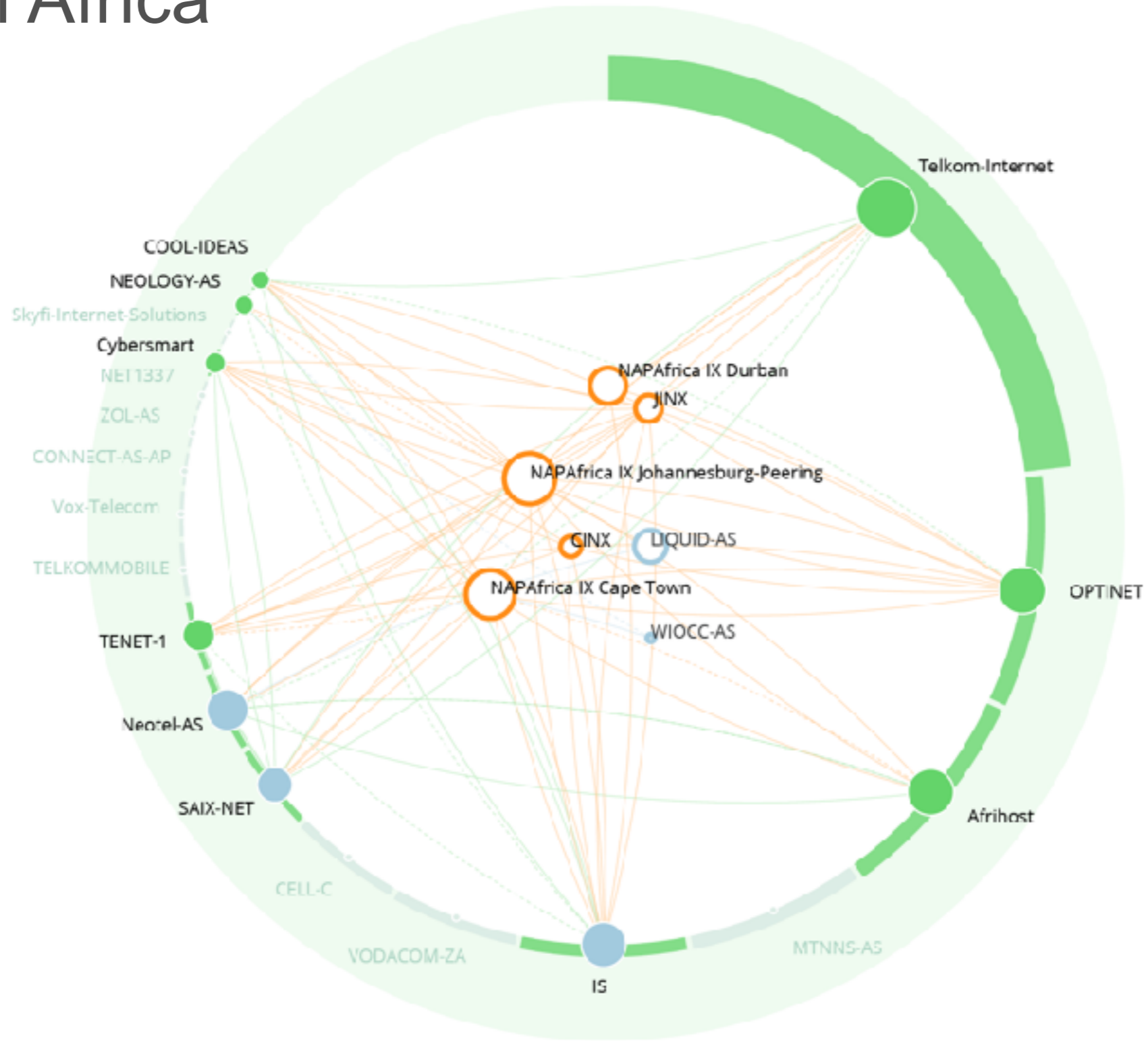


대한민국



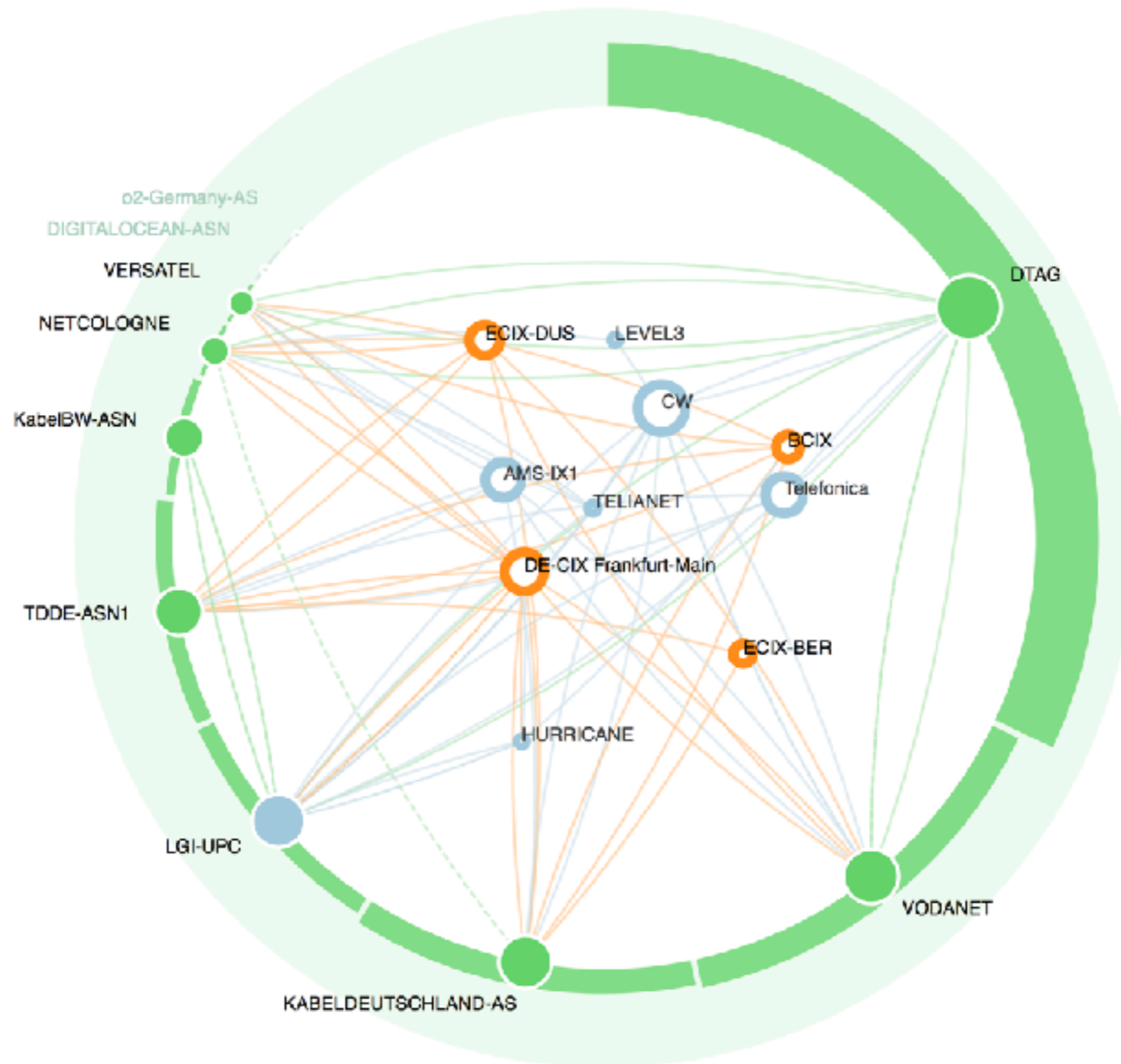


South Africa





Germany



References & Feedback



- RIPE Atlas
 - <https://atlas.ripe.net>
- IXP Country Jedi
 - <https://www.ripe.net/ixp-country-jedi/>
 - <http://sg-pub.ripe.net/ixp-country-jedi/de/2018/01/01/>
- RIPE Labs
 - <https://labs.ripe.net>



Questions



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