RIPE NCC
RIPE NETWORK COORDINATION CENTRE

Visualising the User-to-user Internet with RIPE Atlas

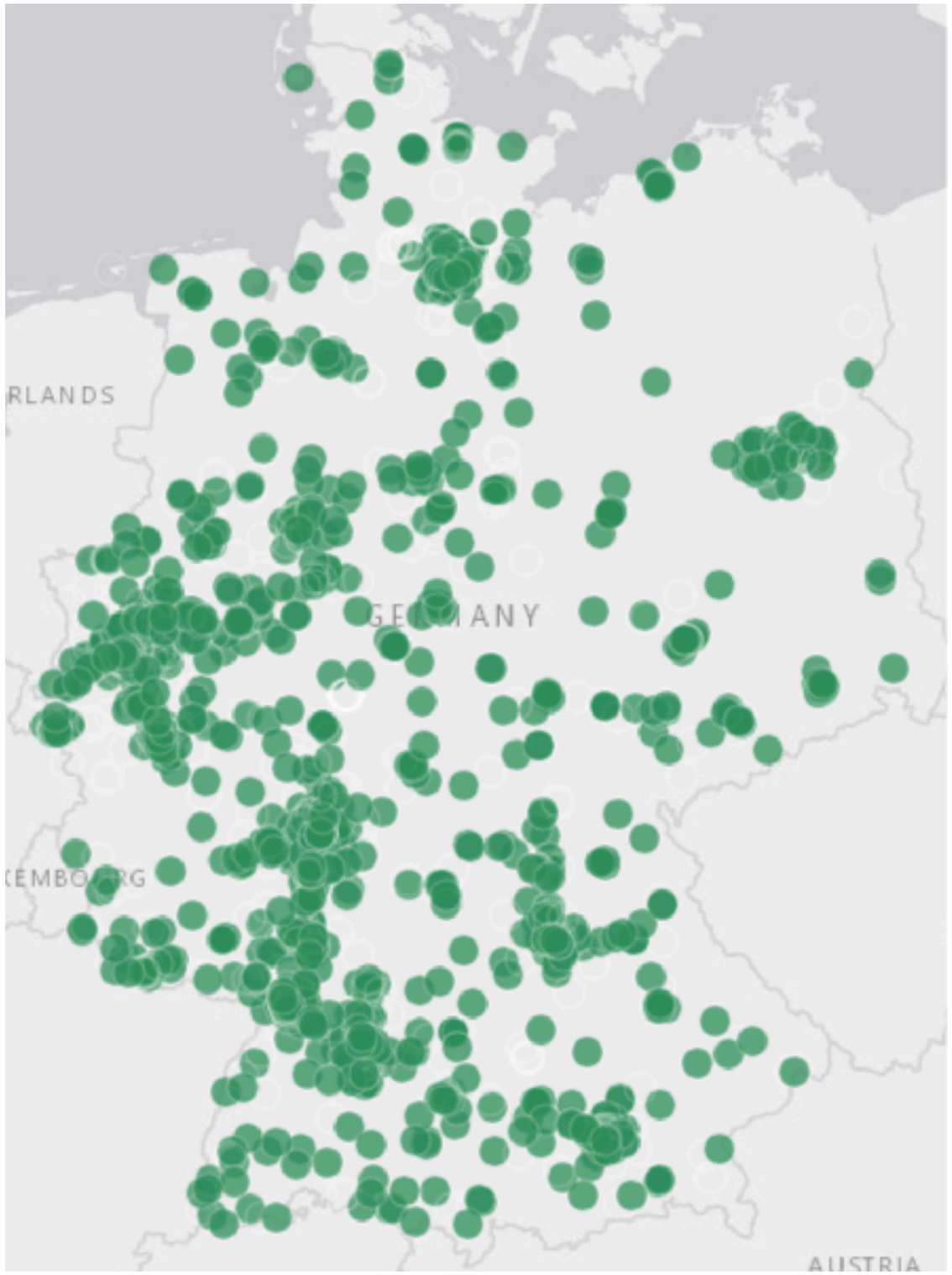
Mirjam Kühne

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



Germany

- 1,415 active probes
- 37 anchors

User-to-user measurements

Motivation

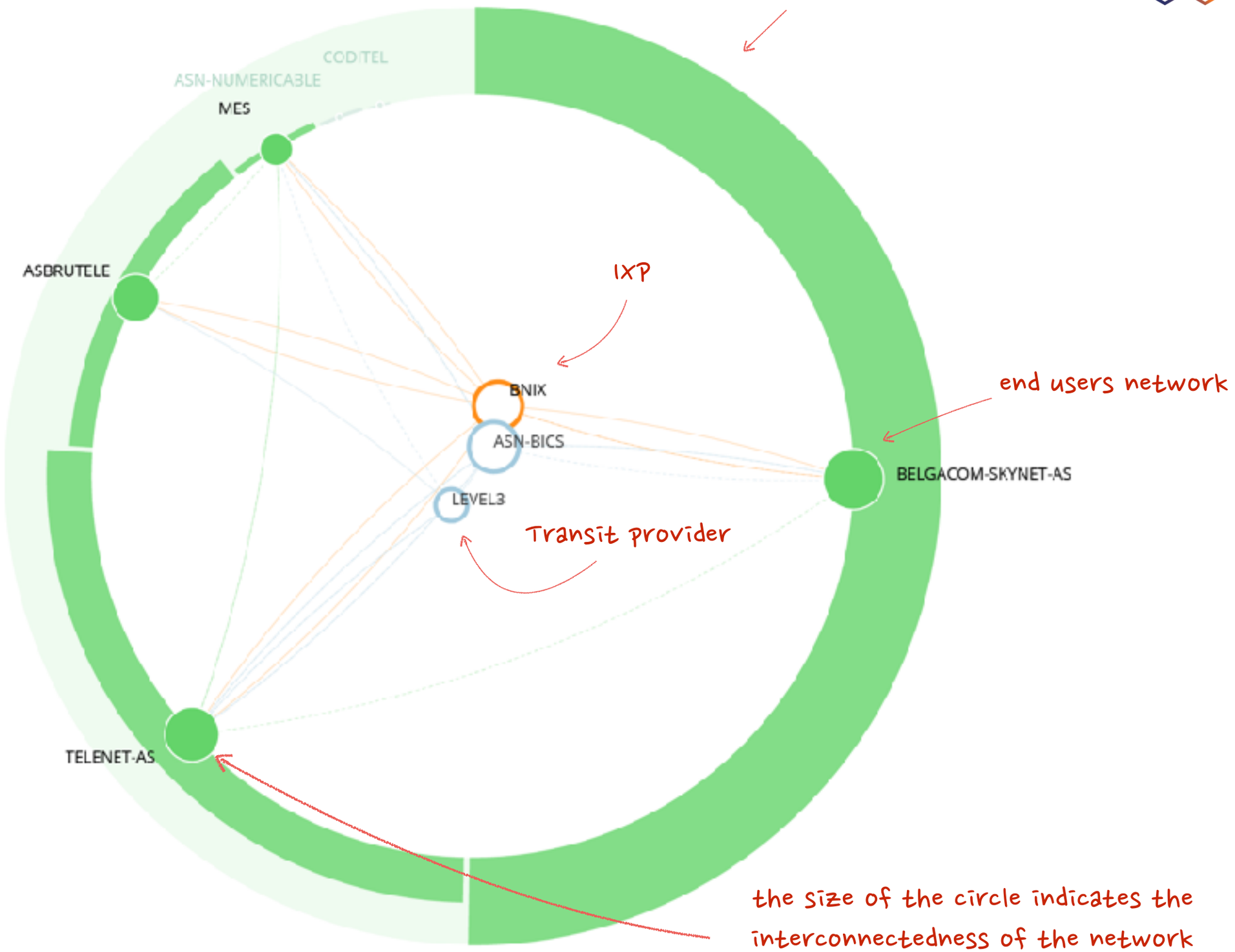
- Usually client-to-server gets measured
  - for traffic and cost optimisation
- What about de-centralised, peer-to-peer, server-less connections
  - let’s go back to end-to-end (i.e. user-to-user)
- Sketches Internet eco system of a country

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

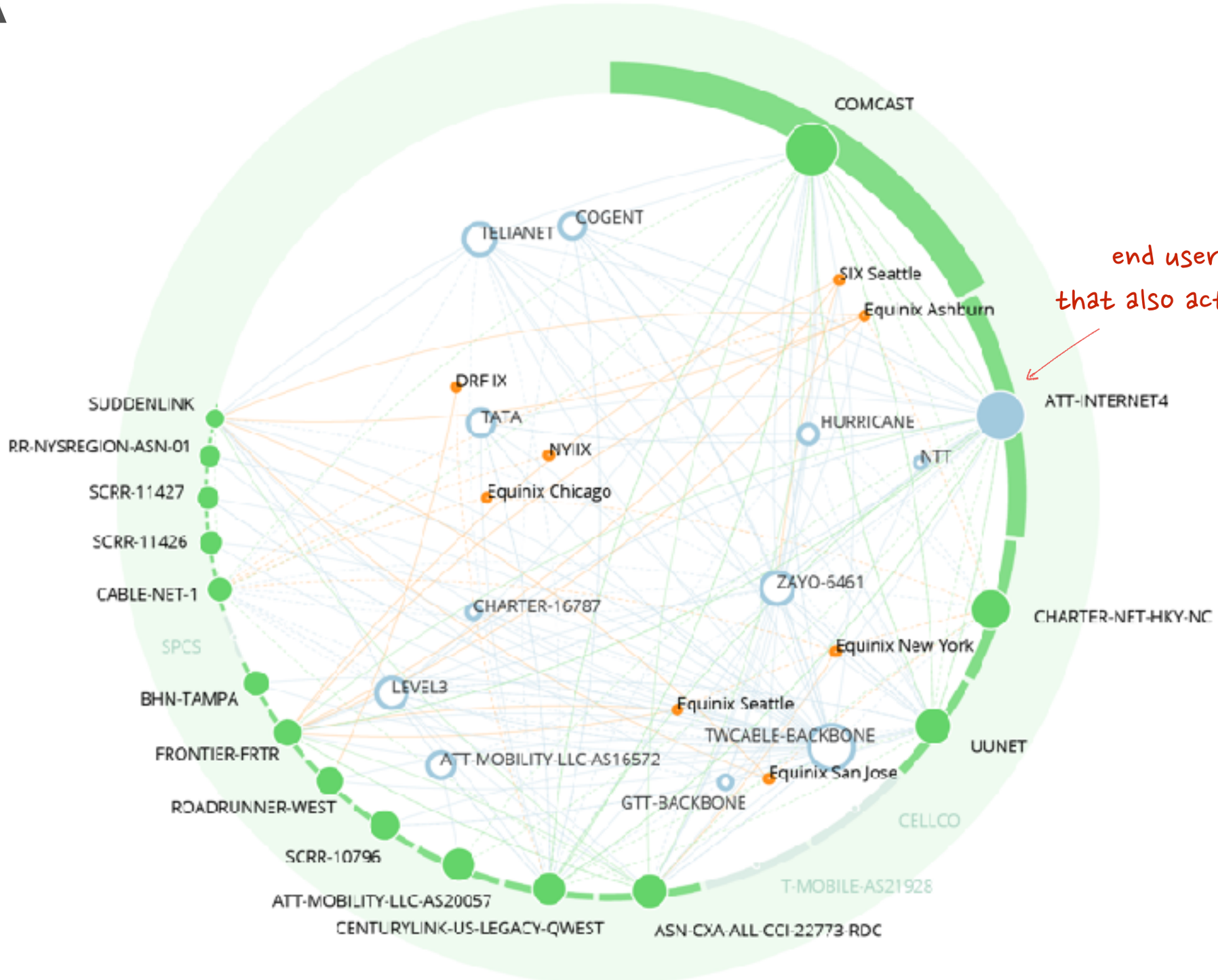
Ingredients

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

Belgium

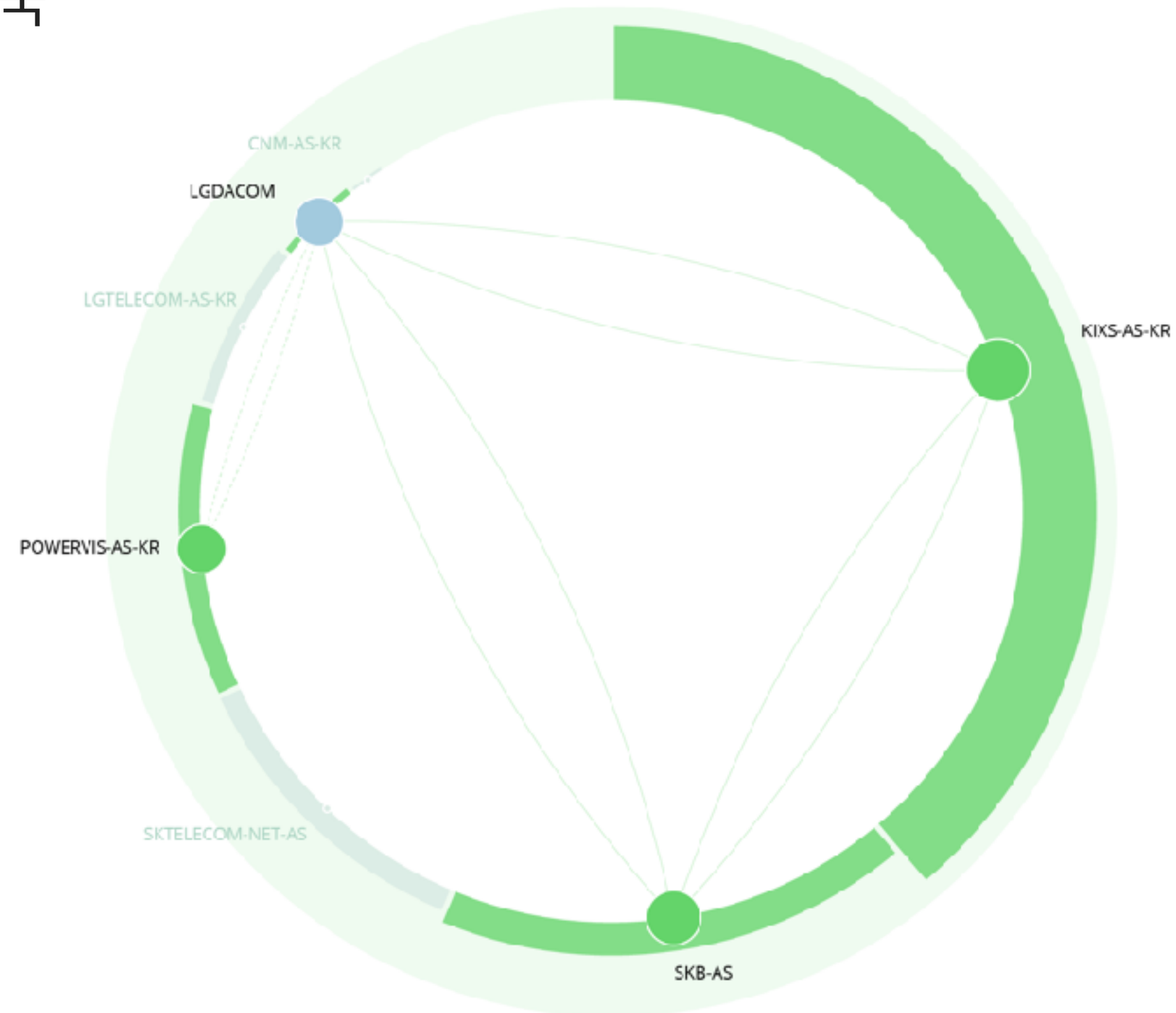

size of ring segment is a measure
for the amount of end users in the network
CODTEL
ASN-NUMERICABLE
MES
ASBRUTELE
IXP
BNIX
ASN-BICS
LEVEL3
end users network
BELGACOM-SKYNET-AS
Transit provider
TELENET-AS
the size of the circle indicates the
interconnectedness of the network

USA

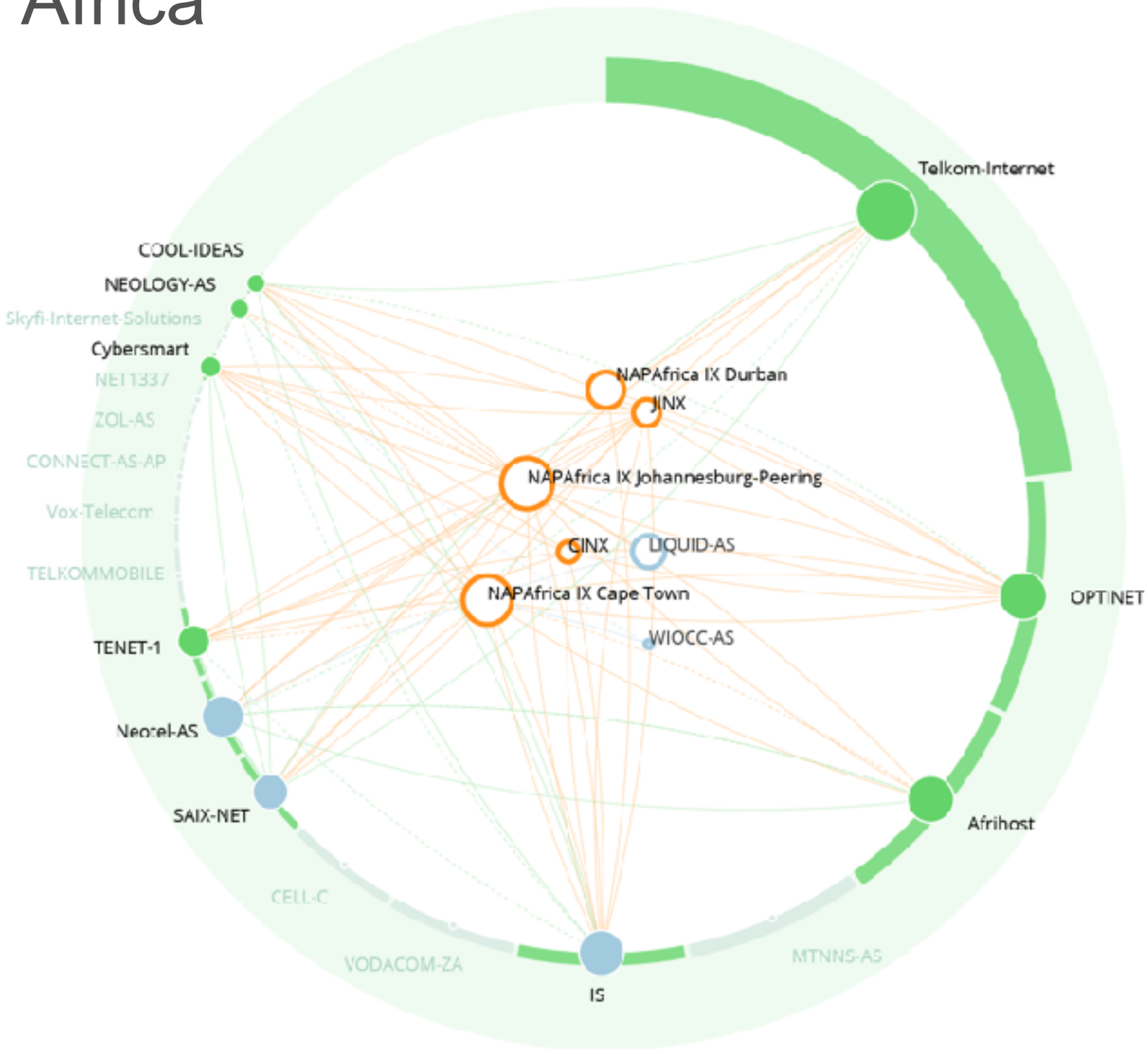


end users network
that also acts as a transit

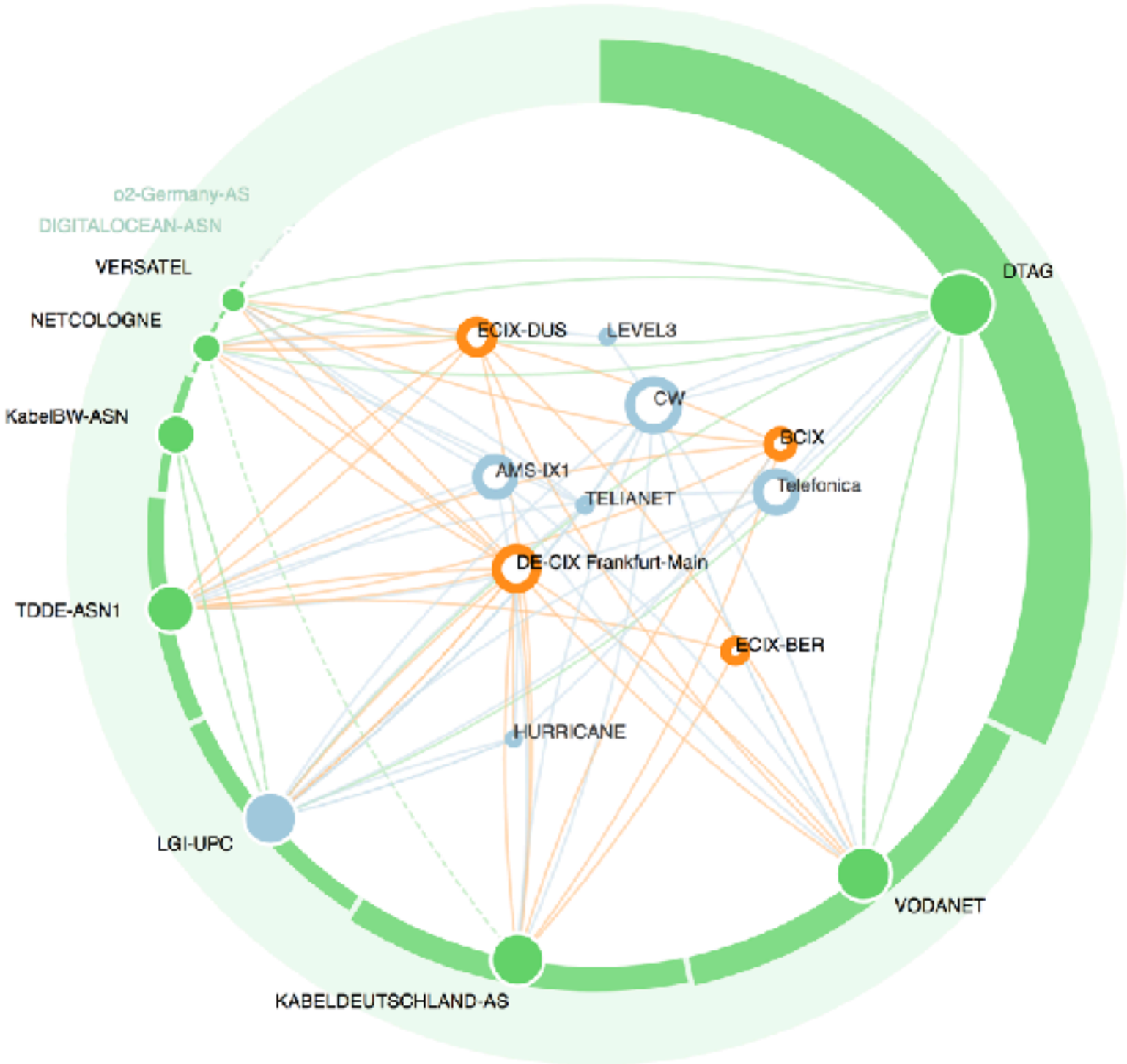
대한민국


CNM-AS-KR
LGDACOM
LGTELECOM-AS-KR
KIXS-AS-KR
POWERVIS-AS-KR
SKTELECOM-NET-AS
SKB-AS

South Africa



Germany


o2-Germany-AS
DIGITALOCEAN-ASN
VERSATEL
NETCOLOGNE
KabelBW-ASN
TDDE-ASN1
LGI-UPC
KABELDEUTSCHLAND-AS
VODANET
DTAG
ECIX-DUS
LEVEL3
CW
BCIX
Telefonica
AMS-IX1
TELIANET
DE-CIX Frankfurt-Main
ECIX-BER
HURRICANE

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

mir@ripe.net
@mir_ripe_labs