



**RIPE NCC**

RIPE NETWORK COORDINATION CENTRE

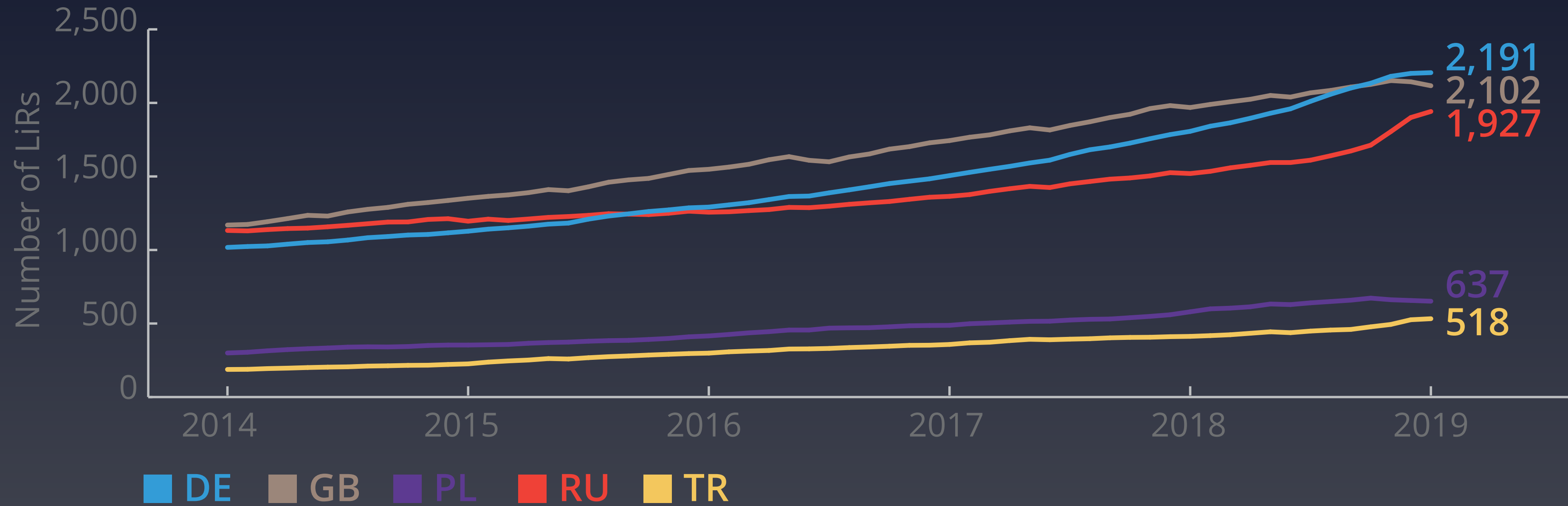
# RIPE NCC Country Report Russia

# Report Background



- New initiative by the RIPE NCC
- Based on our own data and tools
- Each report gives a tailored analysis of the state of the Internet in its target country - no set template
- This really is a new initiative - we would love your feedback!

# Russia's Internet Address Space

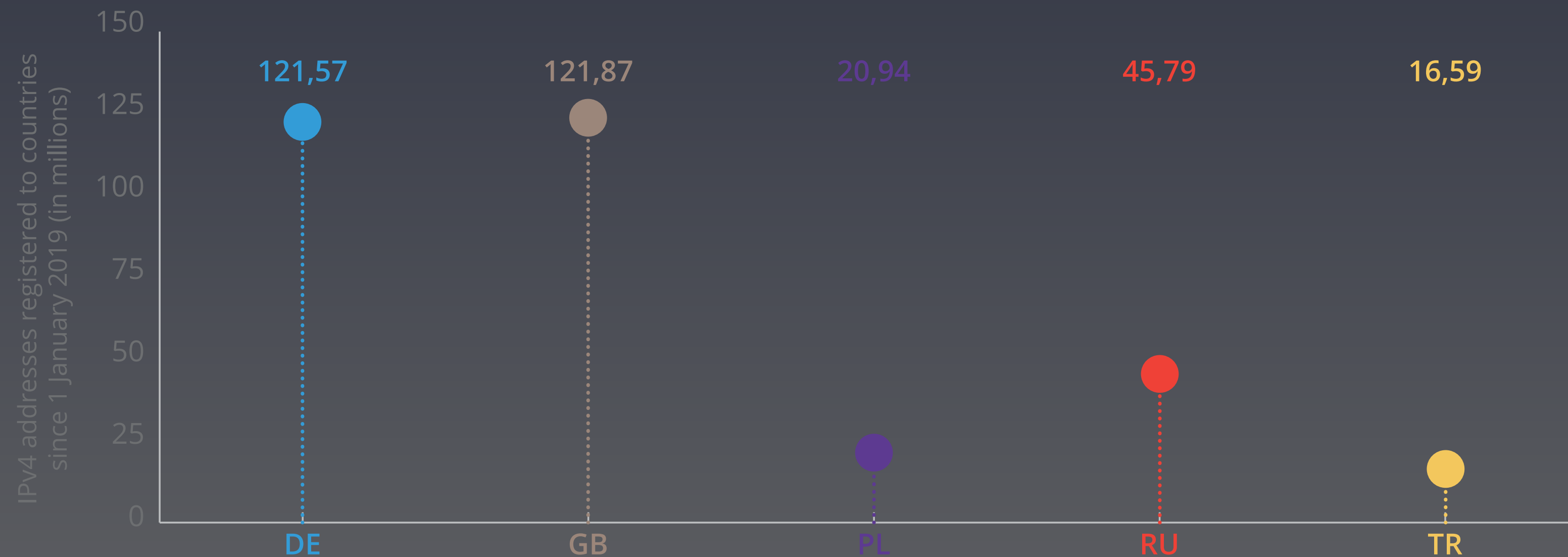


- As of 1 January 2019 Russia has 1,927 LiRs active - third highest number in the region
  - 72% increase in five years
  - 28% increase in 2018 alone

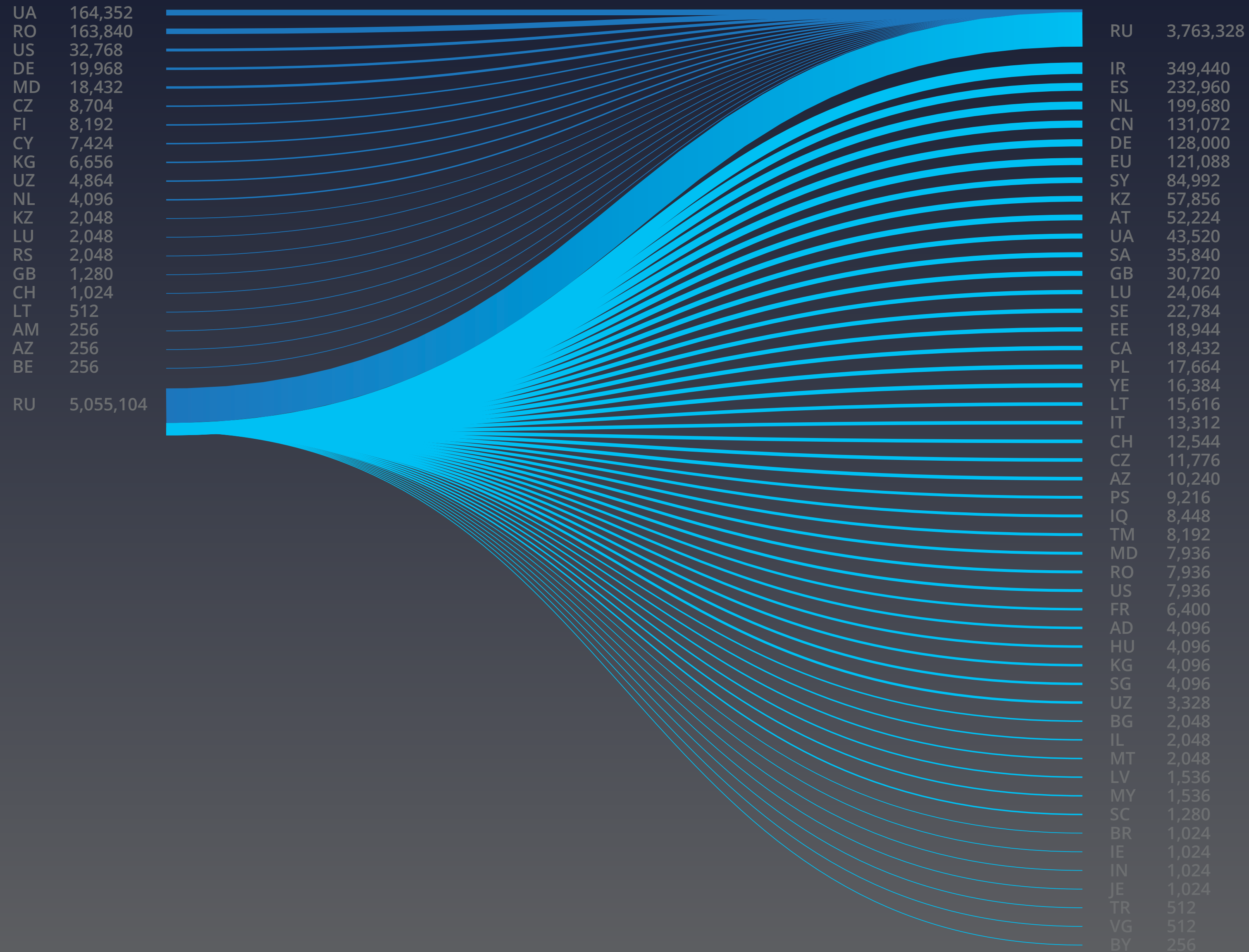
# IPv4 Resources



- 45.5 million IPv4 addresses allocated - sixth largest number in the region
- DE and GB were early adopters, got big allocations before RIPE NCC was established



# IPv4 Address Transfers

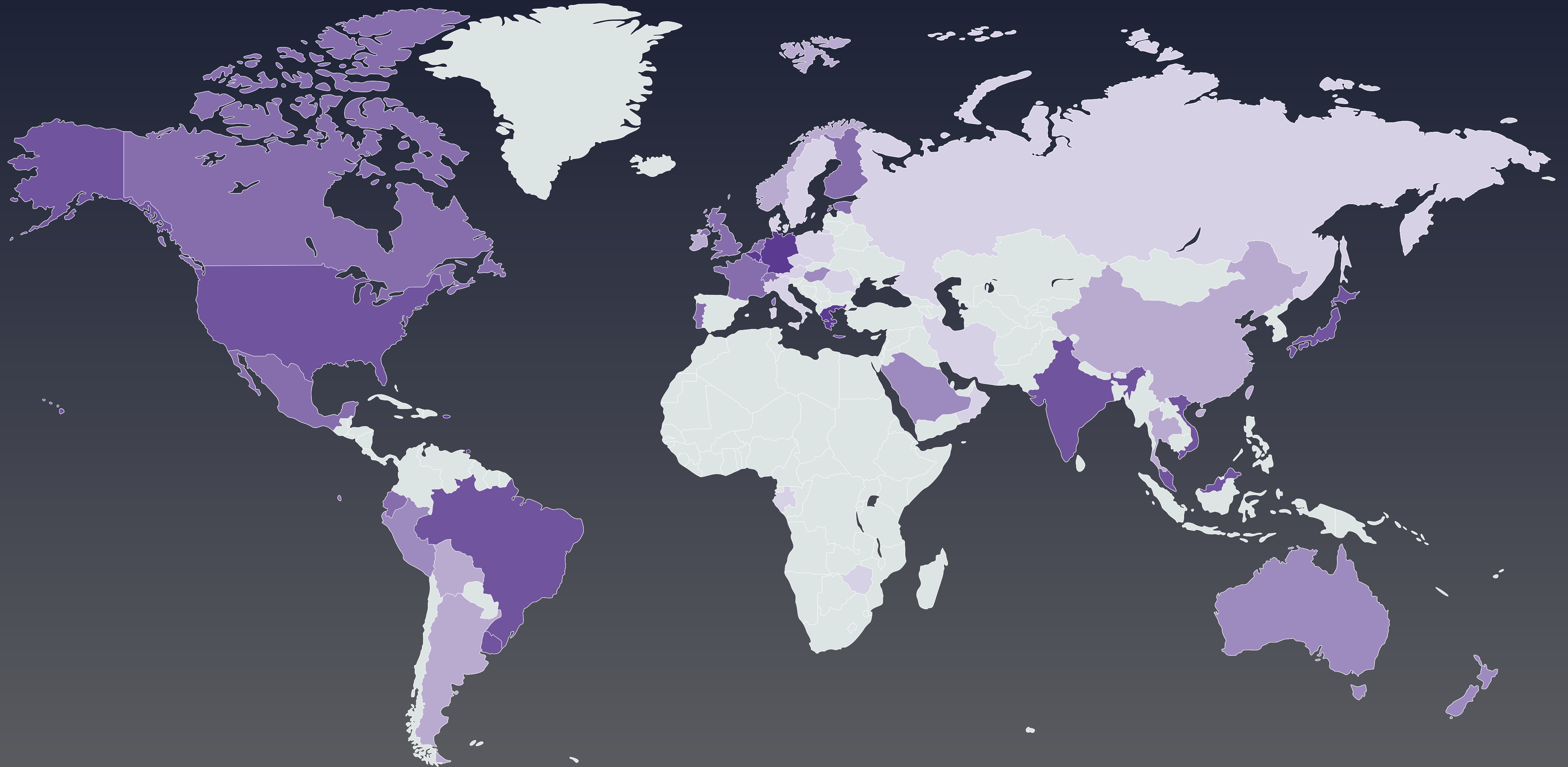


# IPv4 Address Transfers



- Russia is the third largest source of IPv4 transfers (after Romania and the US)
- Second largest receiver of IPv4 transfers (after Iran; just ahead of Saudi Arabia and Germany)
- 2/3 of all IPv4 addresses transferred by Russian organisations stay in Russia

# IPv6 Penetration by Google



# IPv6 Penetration



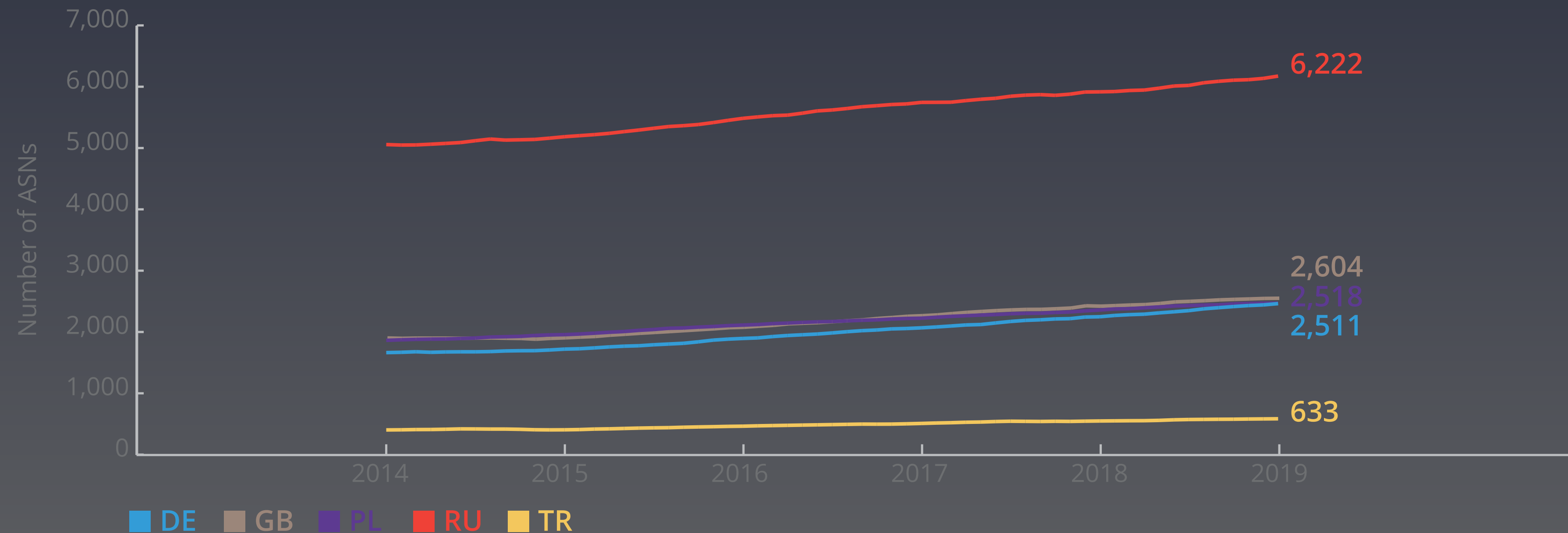
- Approximately 74% of LIRs active in Russia have received IPv6 allocations
- Of top 300 websites in Russia:
  - 10 have native IPv6 support
  - 15 have IPv6 support via Cloudflare
  - Remainder do not support IPv6
- In 2018 MTS switched IPv6 by default for its customers using newer Apple devices



# Russia's Networks









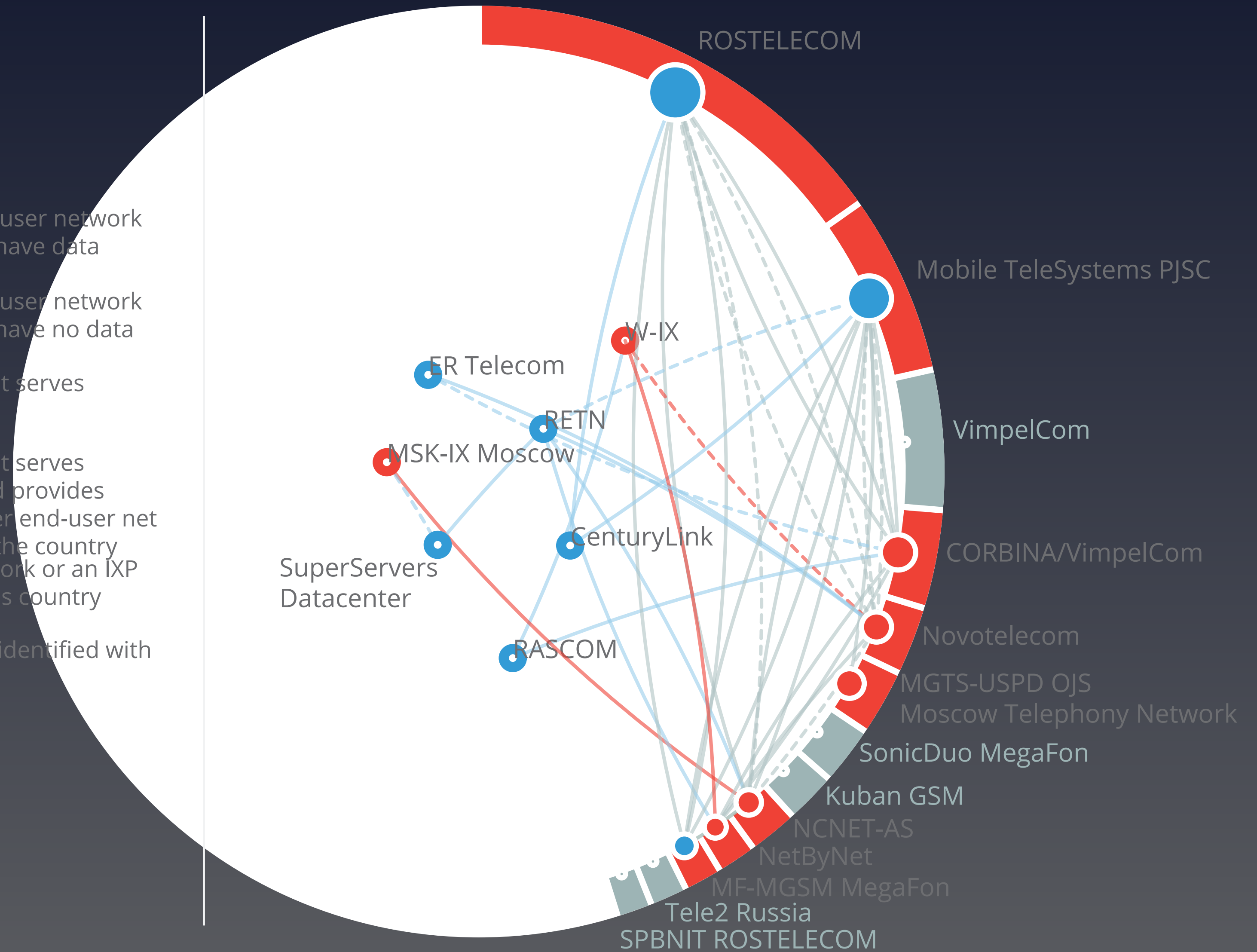
- 80,000 independent networks (or Autonomous Systems) on the Internet
- 6,228 of them are registered to Russia



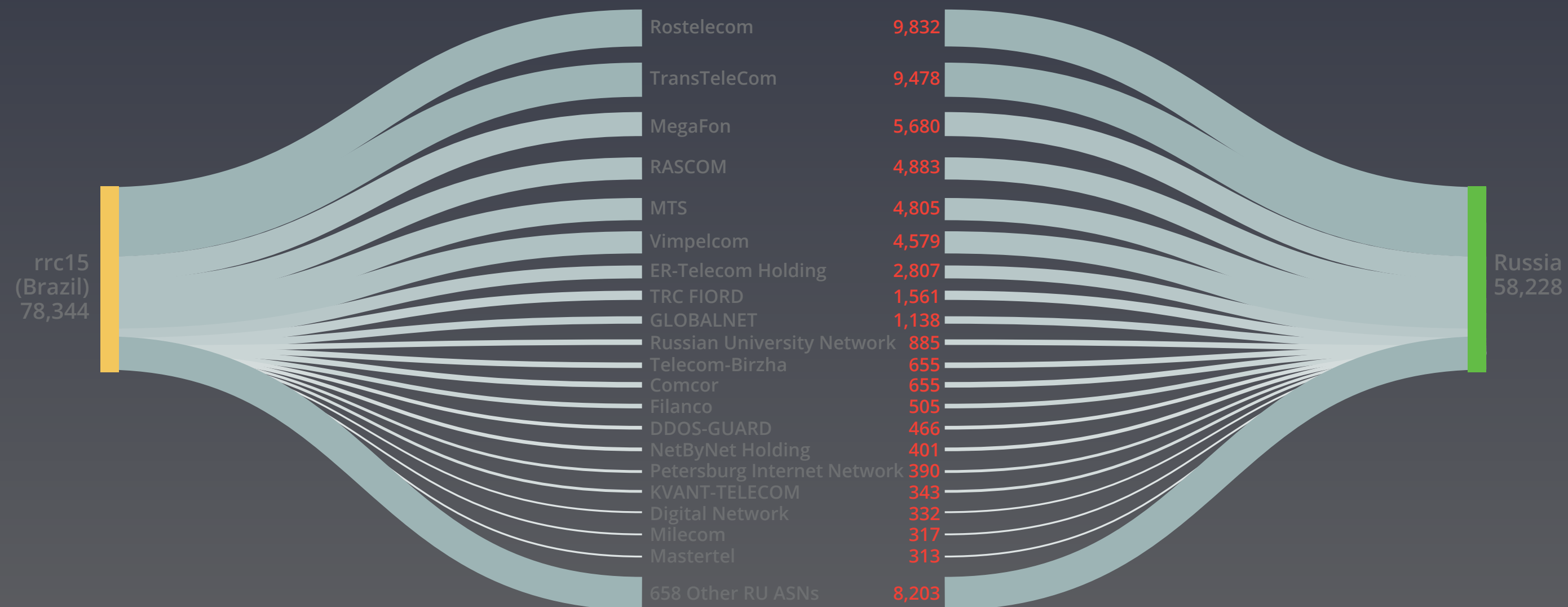
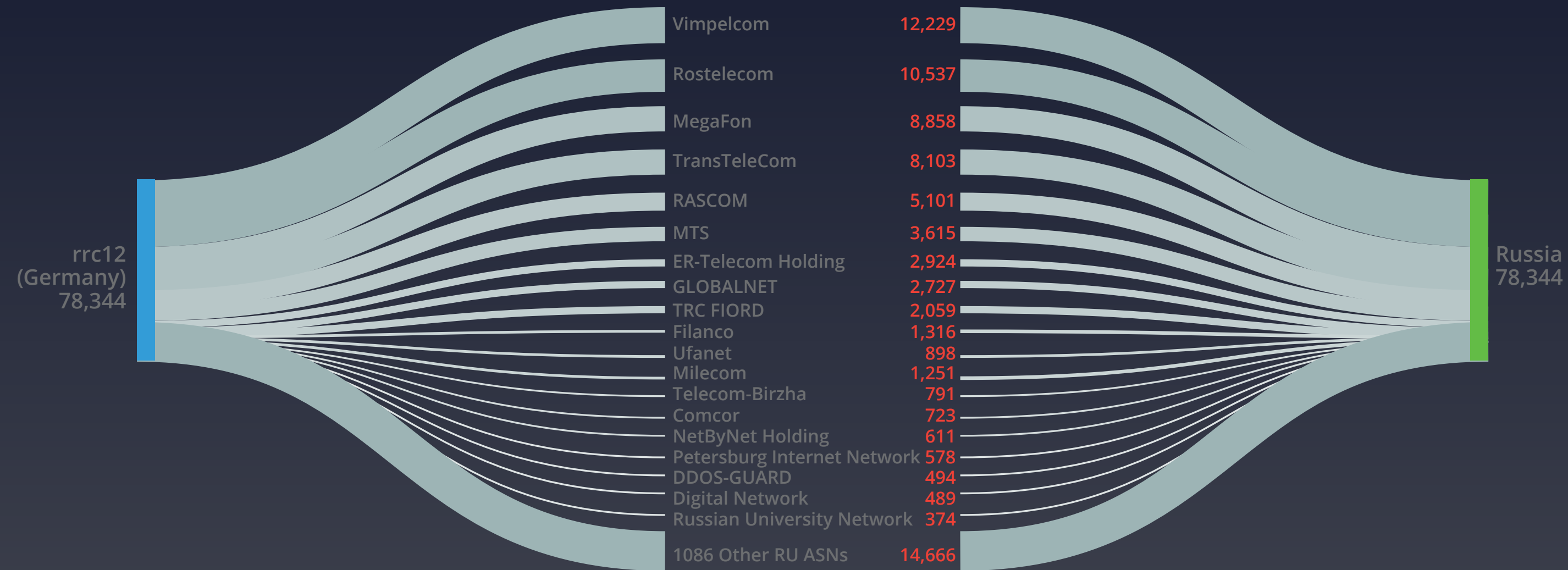
# Russia's Networks



-  A sizable end-user network for which we have data
-  A sizable end-user network for which we have no data
-  A network that serves end-users
-  A network that serves end-users and provides transit to other end-user networks within the country
-  A transit network or an IXP external to this country
-  An IXP that is identified with this country



# How Traffic Reaches Russia



# Traffic Within Russia



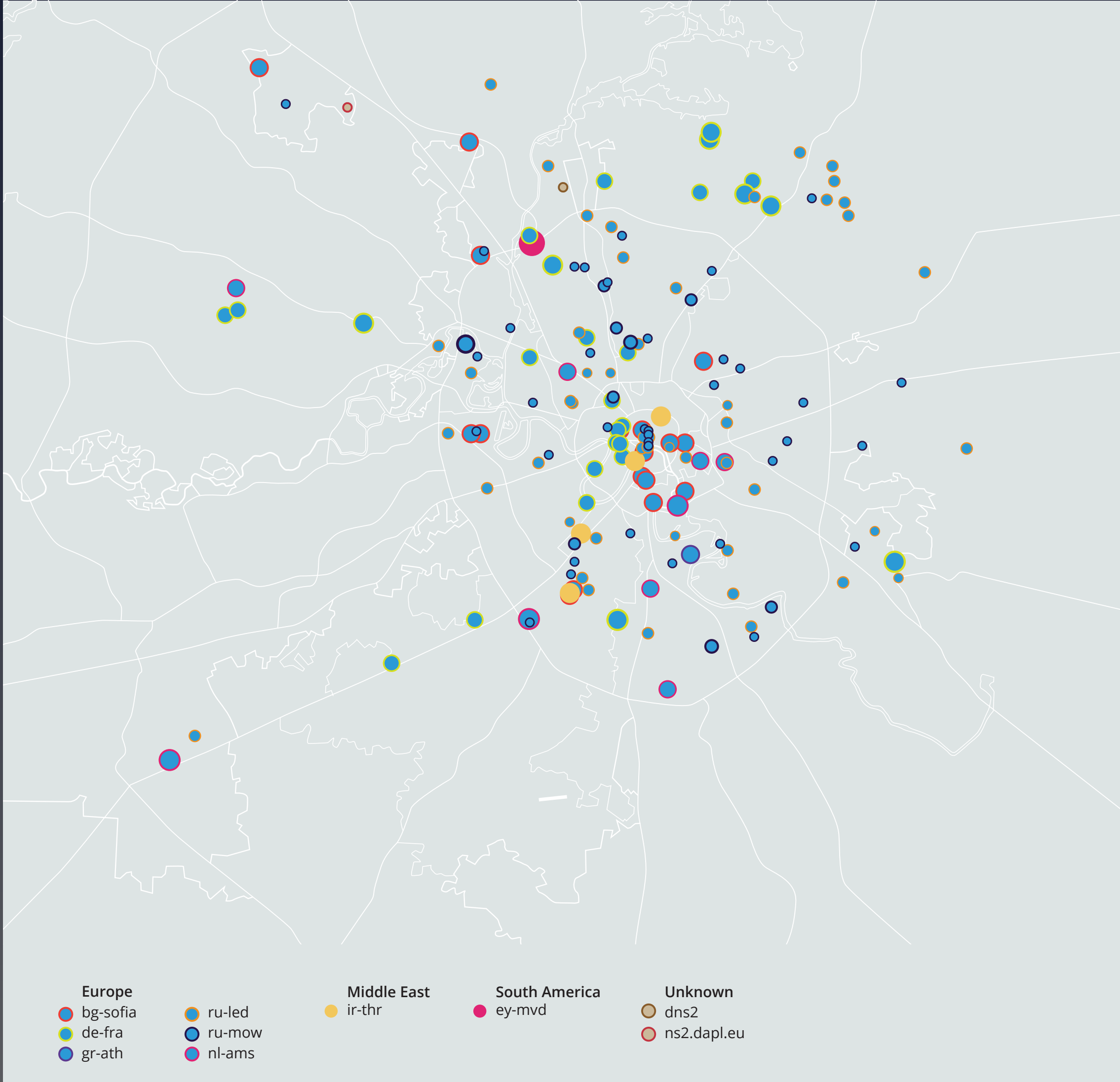
- RIPE NCC data collectors identified 350,000+ routes available for the approximately 32,000 IP prefixes announced by Russian networks (as of March 2019)
- 6% of these routes appear to have one or more foreign networks when sending traffic between two Russian networks

# Traffic Within Russia



- The presence of a foreign network on a route could mean any of the following:
  - The foreign network has infrastructure in a Russian data centre
  - The Russian prefix is used abroad, in foreign infrastructure
  - The Russian and foreign networks exchange traffic abroad - traffic sent over these routes actually leaves the country
- Just because these detour routes exist does not mean traffic is actually traversing them

# View from K-Root



# Conclusions



- RU market is healthy in terms of LIR count and address space available and transferred
- Internal and international connectivity is diverse - makes for resilient Runet
- Local traffic is mostly optimally routed - noted exceptions are not necessarily bad news
- IPv6 adoption needs to speed up
- Three K-root instances are locally hosted - anyone can apply for another



# Questions



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