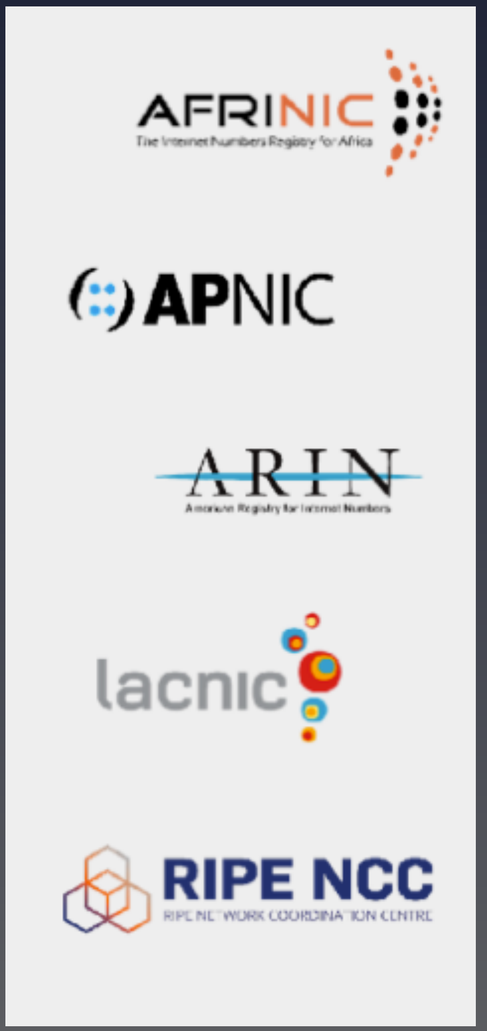
RIPE NCC
RIPE NETWORK COORDINATION CENTRE

RIPE NCC Update

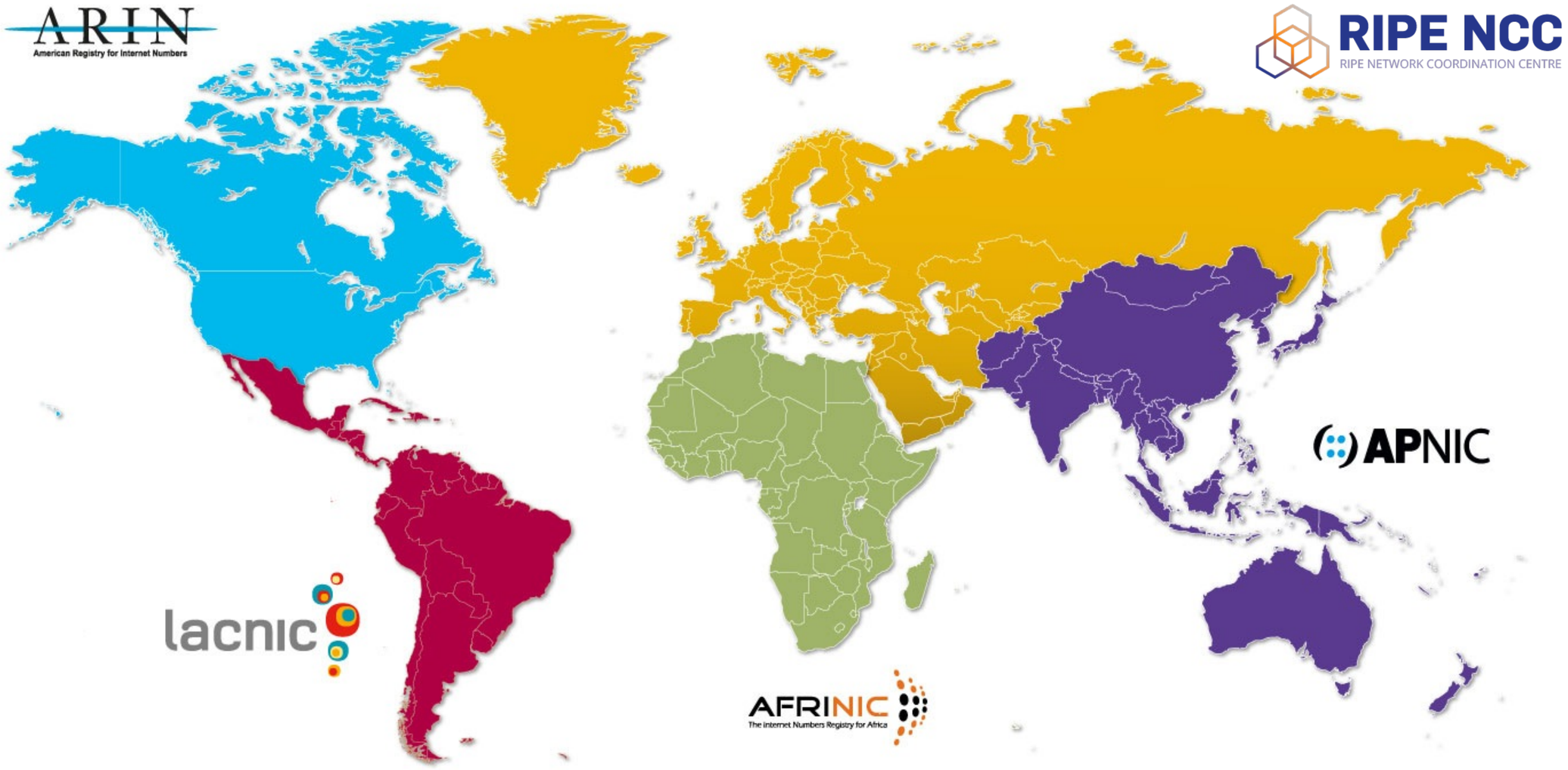
Gergana Petrova | e-Age 20 | 15 December 2020

Regional Internet Registries (RIR)

- Five RIRs globally
- Each is responsible for a distinct geographical region
- Primary role is to register IPv4 and IPv6 addresses and Autonomous System Numbers (ASNs) for use on Internet networks
- RIRs are governed by policies that have been developed (“bottom-up”) by their respective communities

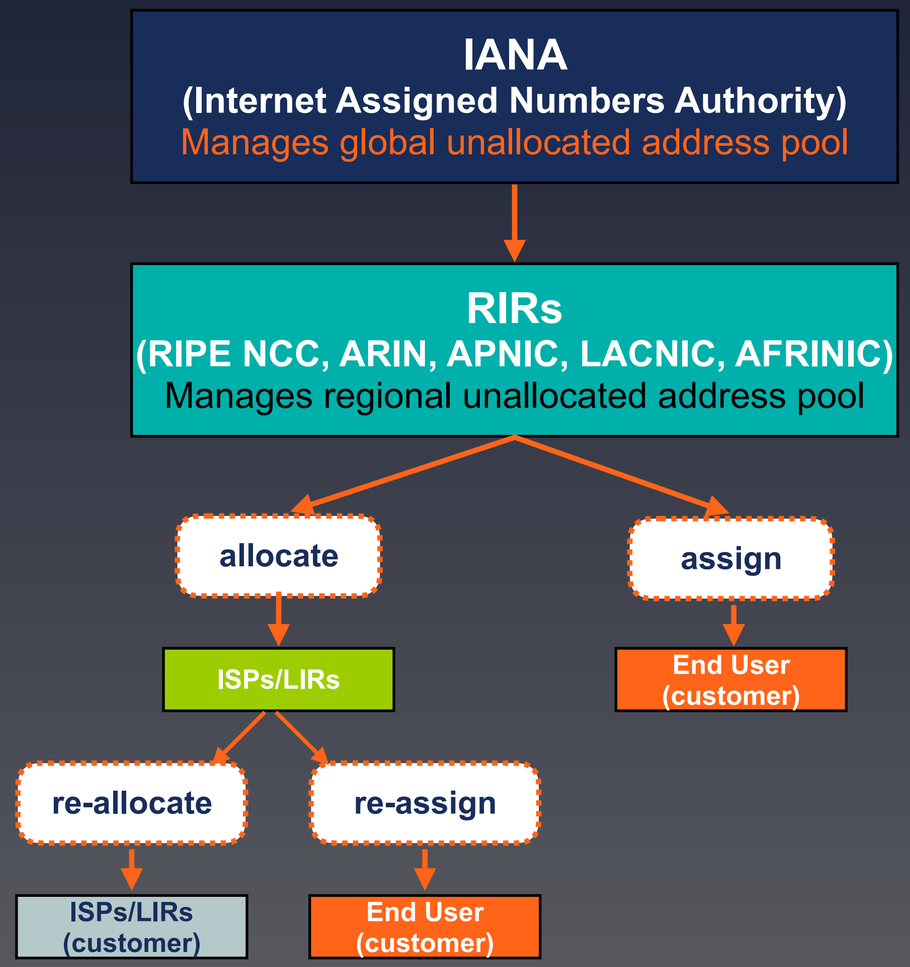


Where are the RIRs?

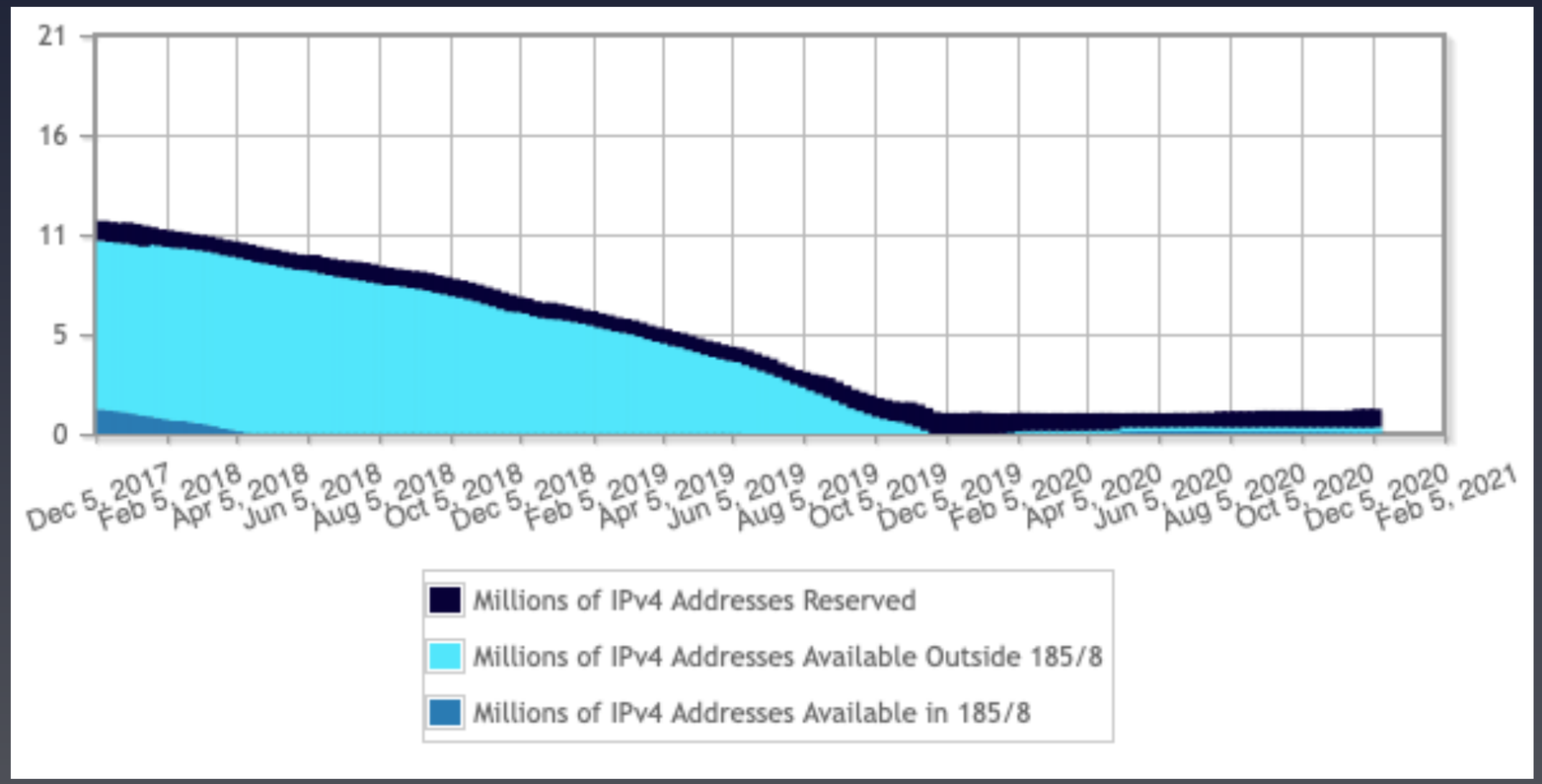


Core RIR Functions

- Receive large IP address blocks from IANA
  - Distribute those in smaller blocks to its members
  - Publish and maintain a list of who has which block
  - Implement the rules (policies) set by the RIPE community
- Support the infrastructure of the Internet through technical coordination
- Provide services for the benefit of the Internet community at large



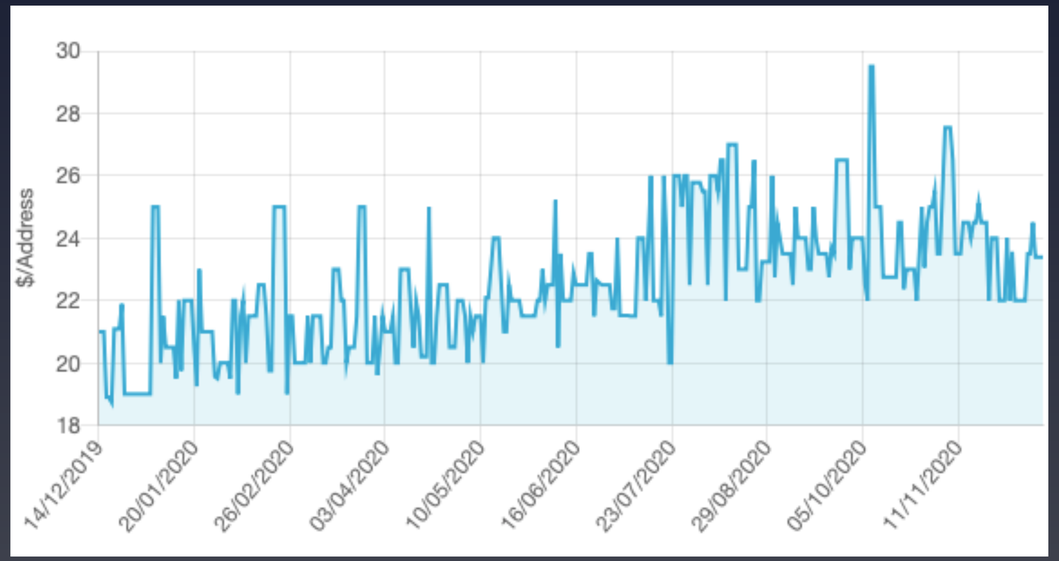
RIPE NCC's IPv4 Address Pool



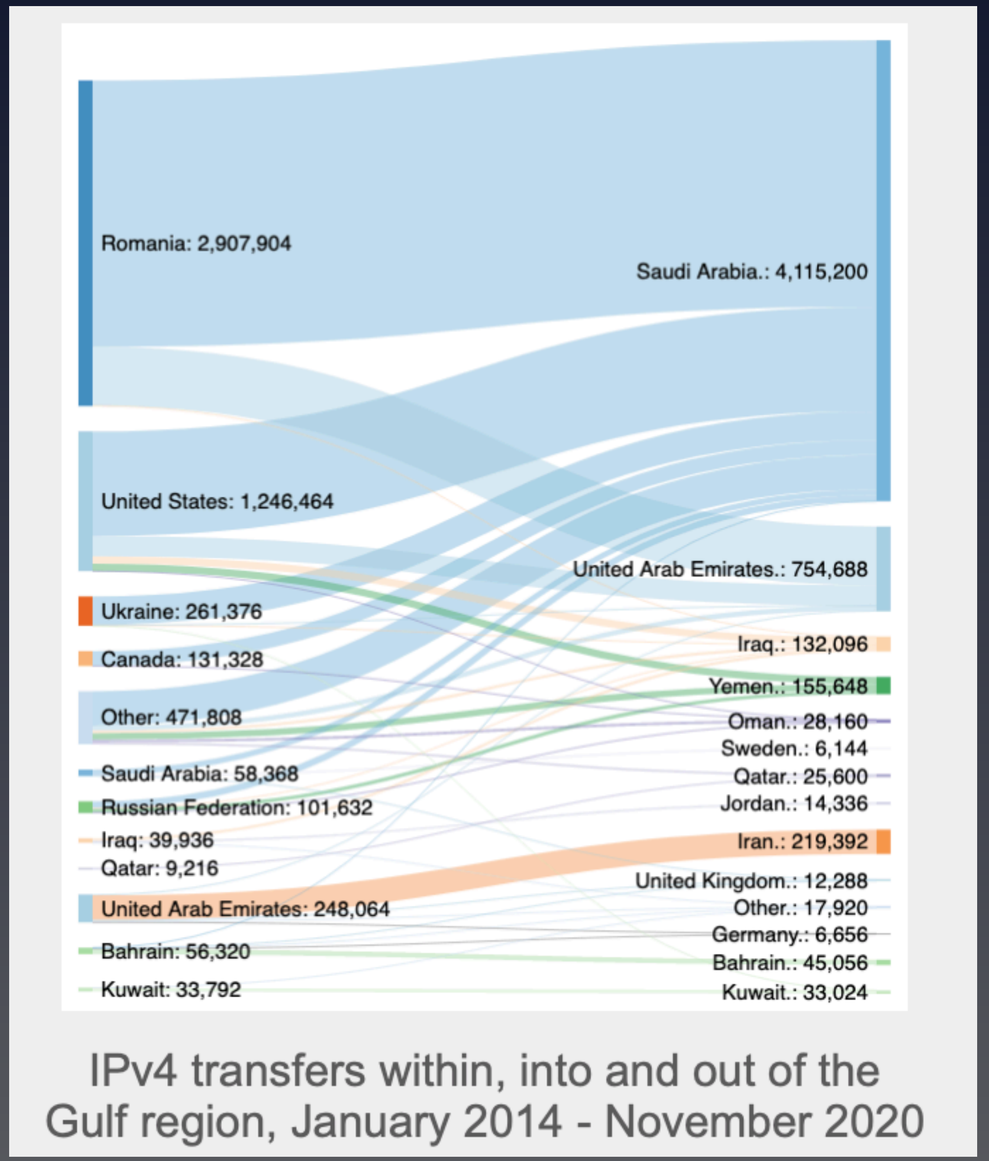
LIRs that have never received an IPv4 allocation from the RIPE NCC are eligible to receive a single /24 allocation

https://www.ripe.net/manage-ips-and-asns/ipv4/ipv4-available-pool

IPv4 Transfer Market



- $22-$30 depending on the size of the block
- Increase of demand
- Big blocks are becoming scarce

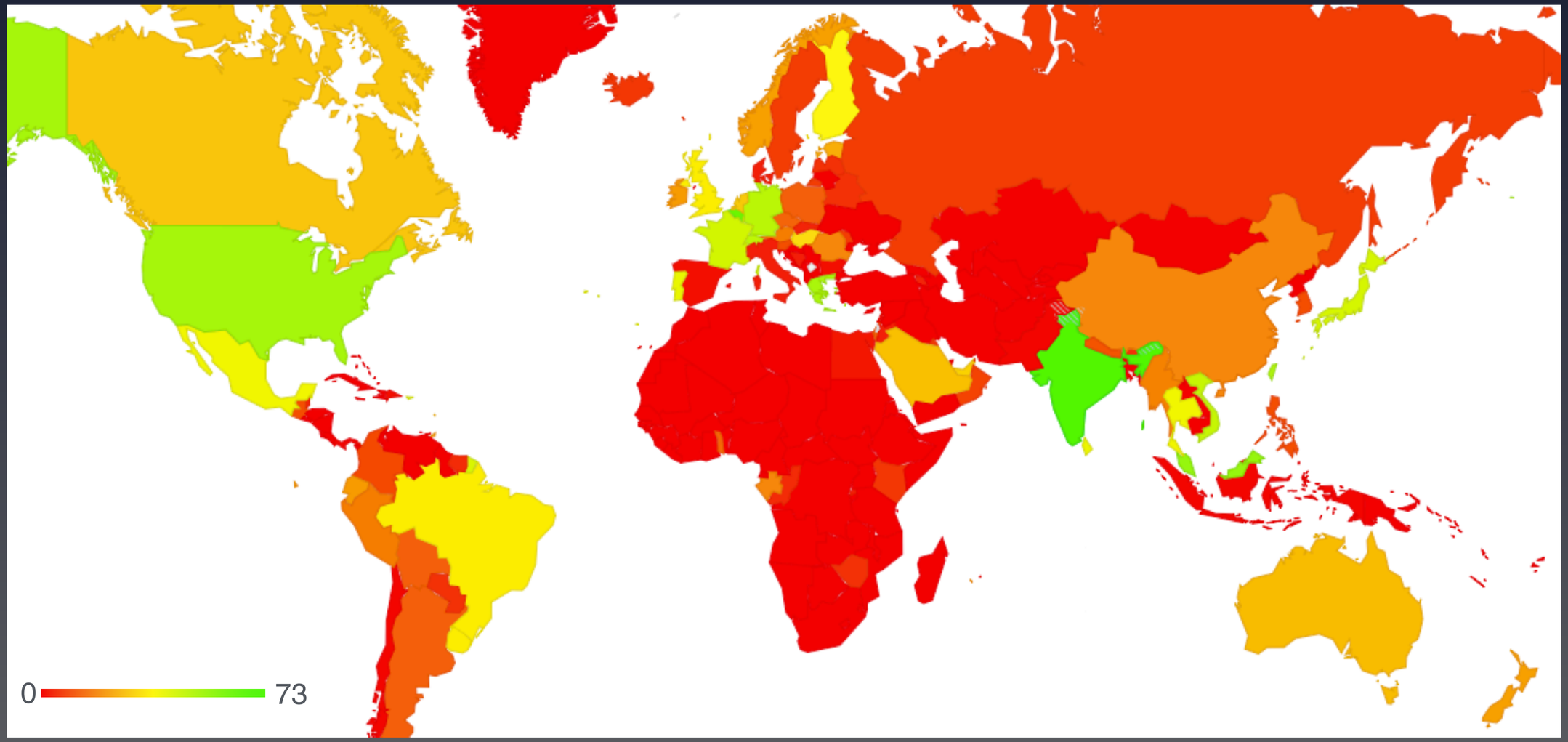


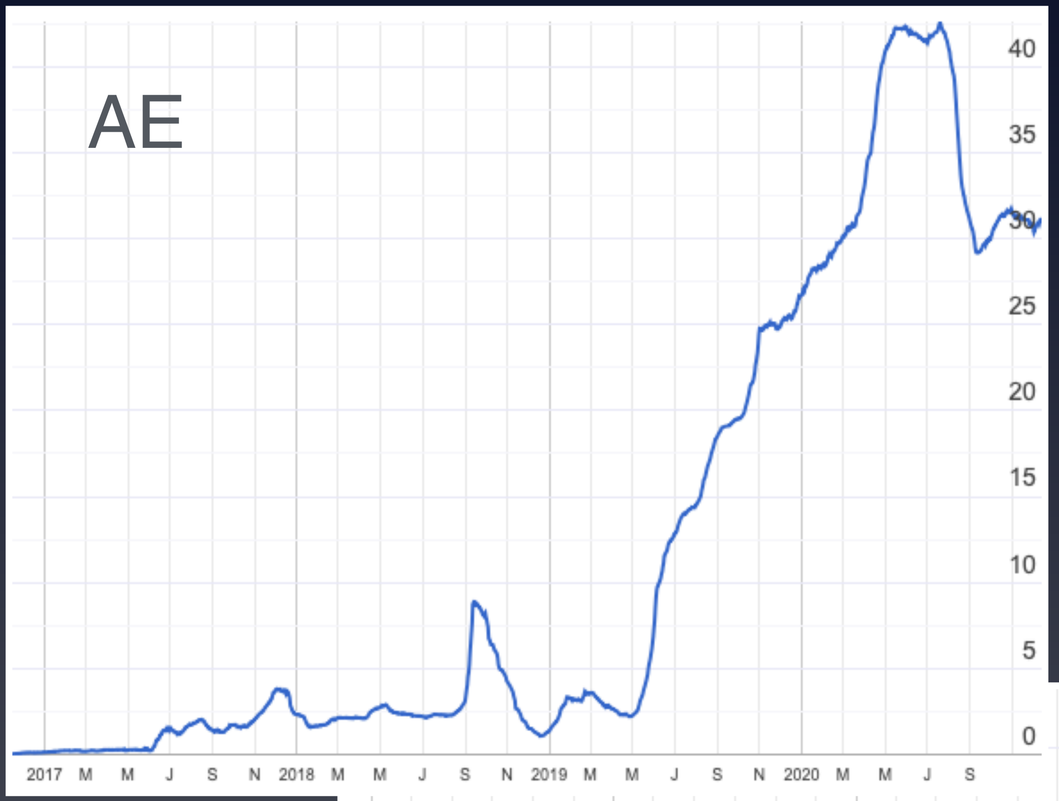
IPv4 transfers within, into and out of the Gulf region, January 2014 - November 2020

Network Address Translation (NAT)

- Instead of one IPv4 address per customer
  - Share a single IPv4 address with multiple customers
  - Internal addresses only have to be unique locally
  - Common amongst mobile network operators
- However:
  - It breaks the “openness” of the Internet
  - Inhibitor to “permissionless innovation”
  - NATs are expensive to scale
  - Difficult for law enforcement to identify people behind IPs

IPv6

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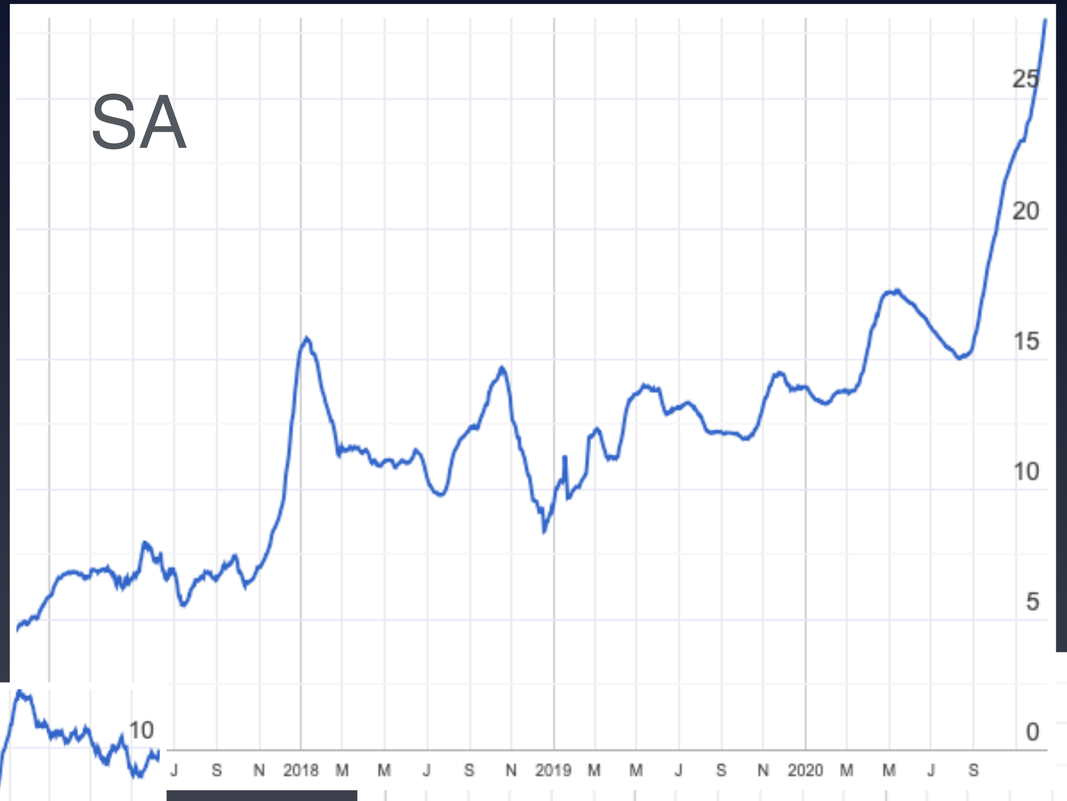
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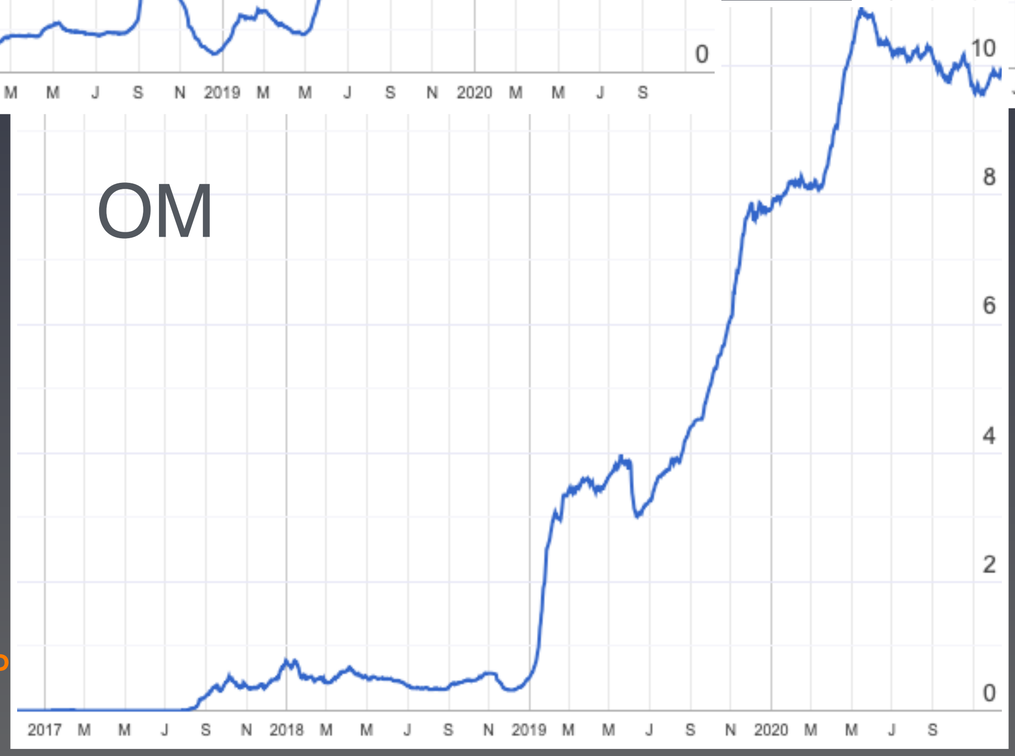
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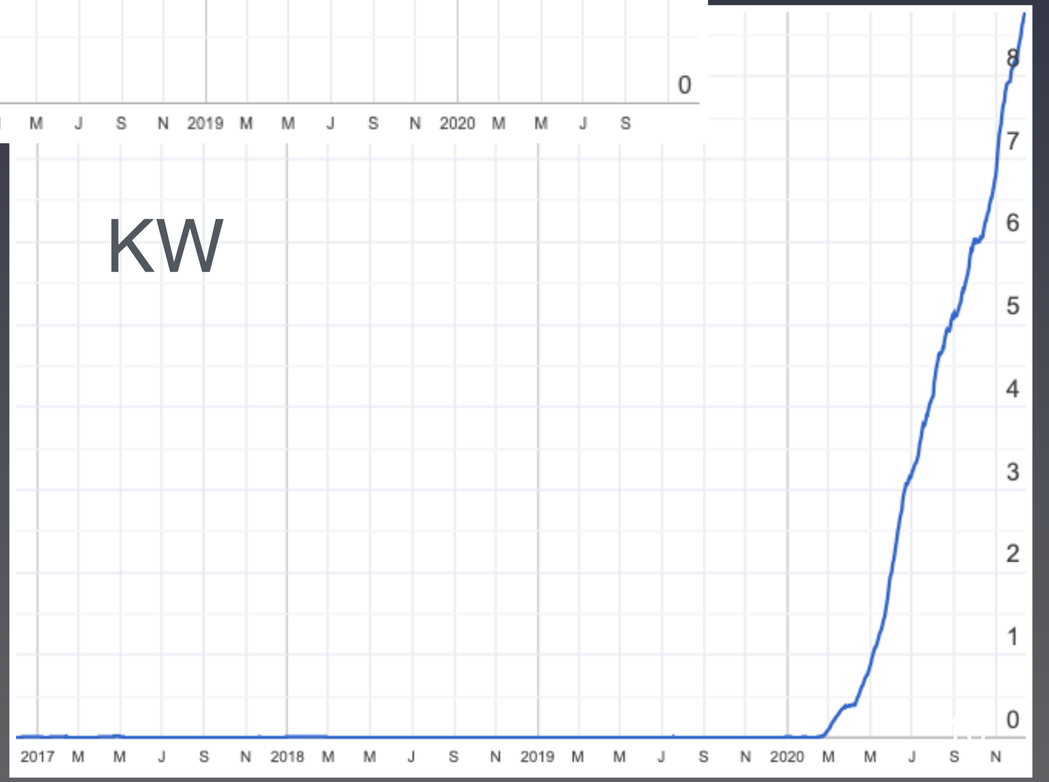
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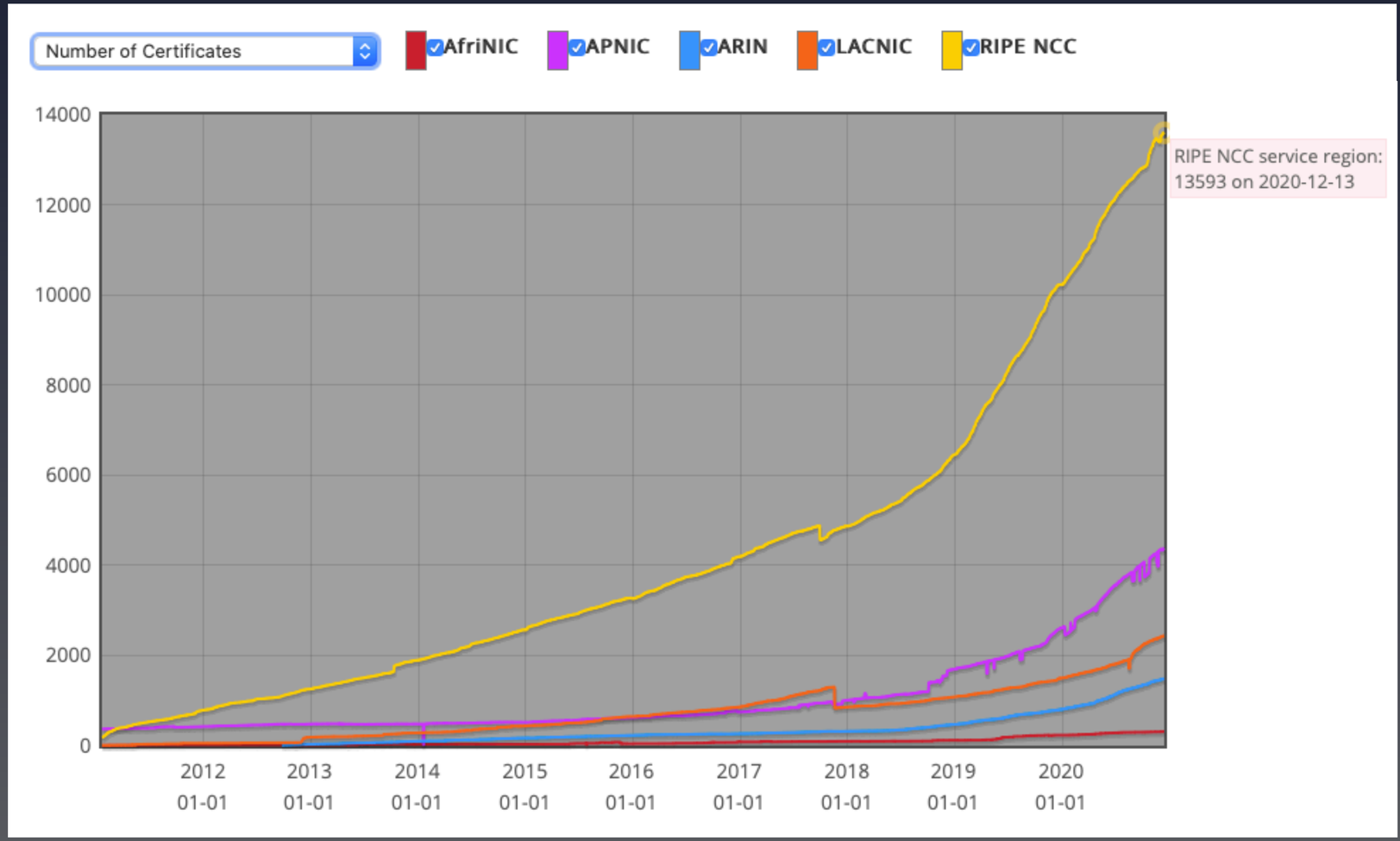
Routing Security

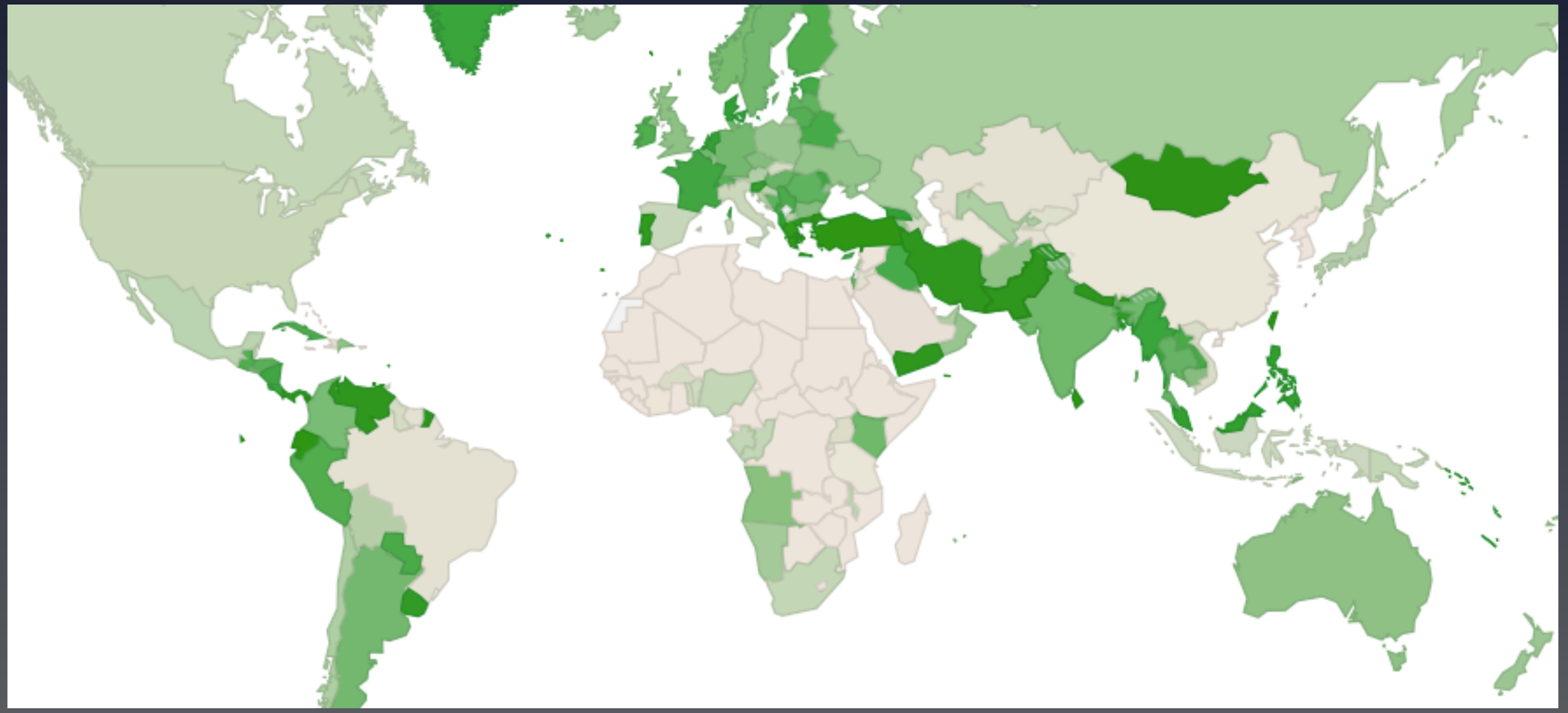
- Resource Public Key Infrastructure (RPKI)
- RPKI is a security framework that helps network operators make more informed and secure routing decisions
- Ties IP addresses and ASNs to public keys of their rightful holders
- Authorised statements from resource holders
  - “ASN X is authorised to announce my Prefix Y”
  - Signed, holder of Y

RPKI Adoption

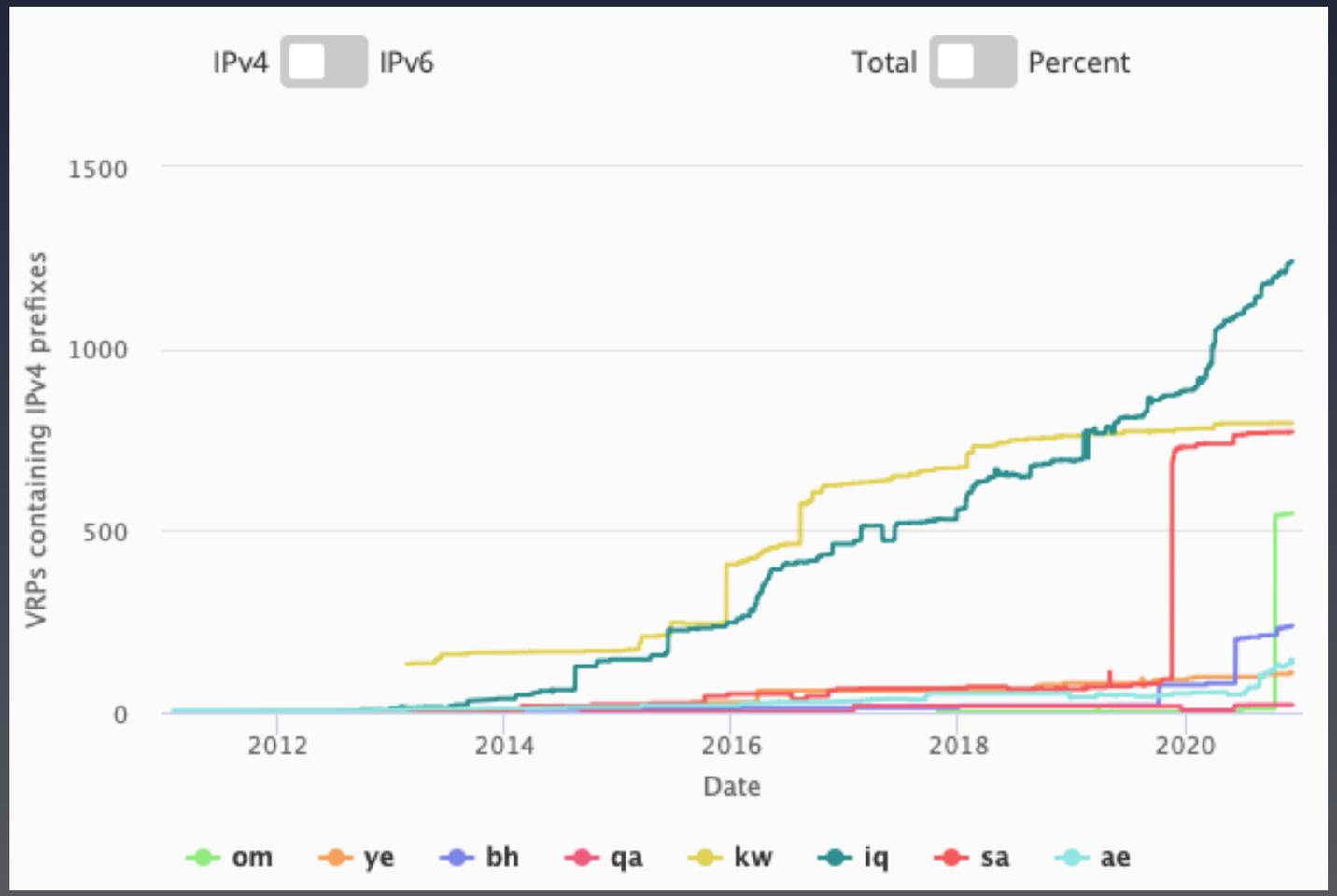
- Only resource holders with a properly delegated 'right of use' can generate a digital signature that associates Internet number resources with their signing
- Resource users can protect information related to their delegated resources with a digital signature
- Any attempt to alter this information results in the signature being invalidated



RPKI



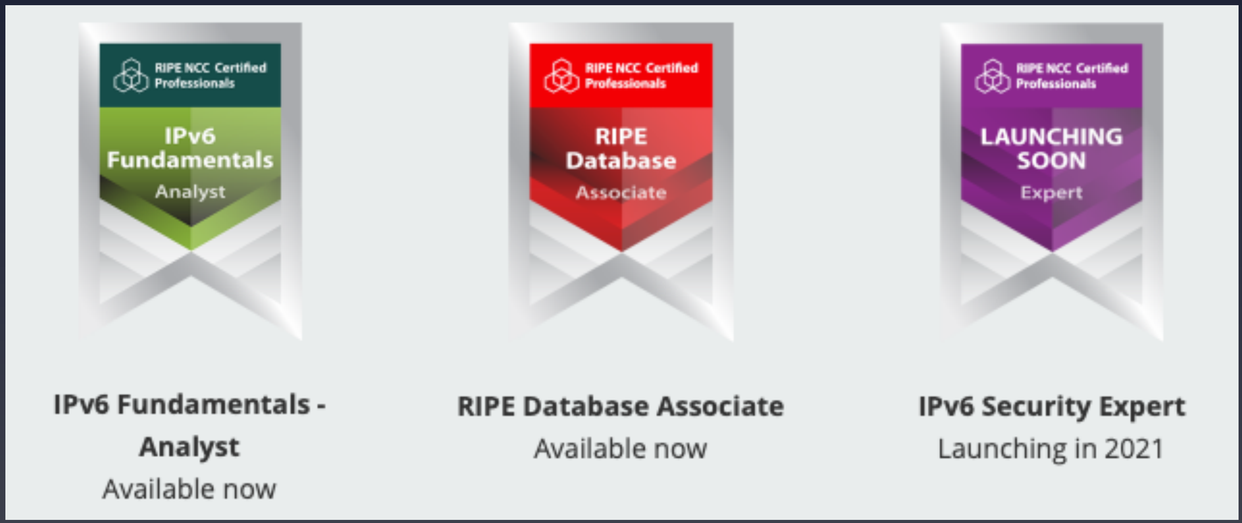
RPKI by country



Online Learning

- The RIPE Academy
  - Local Internet Registry, RIPE Database, IPv6
  - Enrol and get a certificate (it’s free!)
  - academy.ripe.net
- Webinars
  - RIPE Database, IPv6 addressing, RIPE Atlas, Internet Governance
  - You can also watch recordings of past webinars
  - ripe.net/support/training/learn-online/webinars

RIPE NCC Certified Professionals



- Free vouchers available until March 2021
- Write to exams@ripe.net
- ripe.net/certified-professionals

RIPE NCC Country Report: Gulf

- Technical overview of the Internet landscape in a country/region
- Insights based on RIPE NCC data
- For technical communities and decision makers
- labs.ripe.net/country-reports/ripe-ncc-internet-country-report-gulf-region

Major traffic exchange points in the Gulf region along with round-trip times

Questions

gpetrova@ripe.net