RIPE NCC
RIPE NETWORK COORDINATION CENTRE

RIPE NCC RIS

Routing Information Service

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What is RIS?

- RIS is a routing data collection platform
- Collecting BGP data since 1999
- Up-to-date routing information, as opposed to information in databases and routing registries, such as:
  - What is being announced
  - Which prefixes are seen and where
  - Which ones are not seen

THANK YOU TO OUR COMMUNITY

22 collectors

1446 global peers

RIS Collectors

Collector	Location	IXP	Deployed	Removed	Collector	Location	IXP	Deployed	
RRC00	Amsterdam	Multi-hop	1999		RRC13	Moscow	MSK-IX	2005	
RRC01	London	LINX	2000		RRC14	Palo Alto	PAIX	2005	
RRC02	Paris	SFINX	2001	2008	RRC15	Sao Paulo	PTT-Metro SP	2006	
RRC03	Amsterdam	AMS-IX	2001		RRC16	Miami	NOTA	2008	
RRC04	Geneva	CIXP	2001		RRC18	Barcelona	CATNIX	2015	
RRC05	Vienna	VIX	2001		RRC19	Johannesburg	NAPAfrica JB	2016	
RRC06	Tokyo	DIX-IE	2001		RRC20	Zurich	SwissIX	2015	
RRC07	Stockholm	Netnod	2002		RRC21	Paris	FranceIX	2015	
RRC08	San Jose	MAE-West	2002	2004	RRC22	Bucharest	InterLAN	2017	
RRC09	Zurich	TIX	2003	2004	RRC23	Singapore	Equinix SG	2017	
RRC10	Milan	MIX	2003		RRC24	Montevideo	LACNIC multi-hop	2019	
RRC11	New York	NYIIX	2004		RRC25	Amsterdam	RIPE multi-hop	2021	
RRC12	Frankfurt	DE-CIX	2004						

Why collect BGP data?

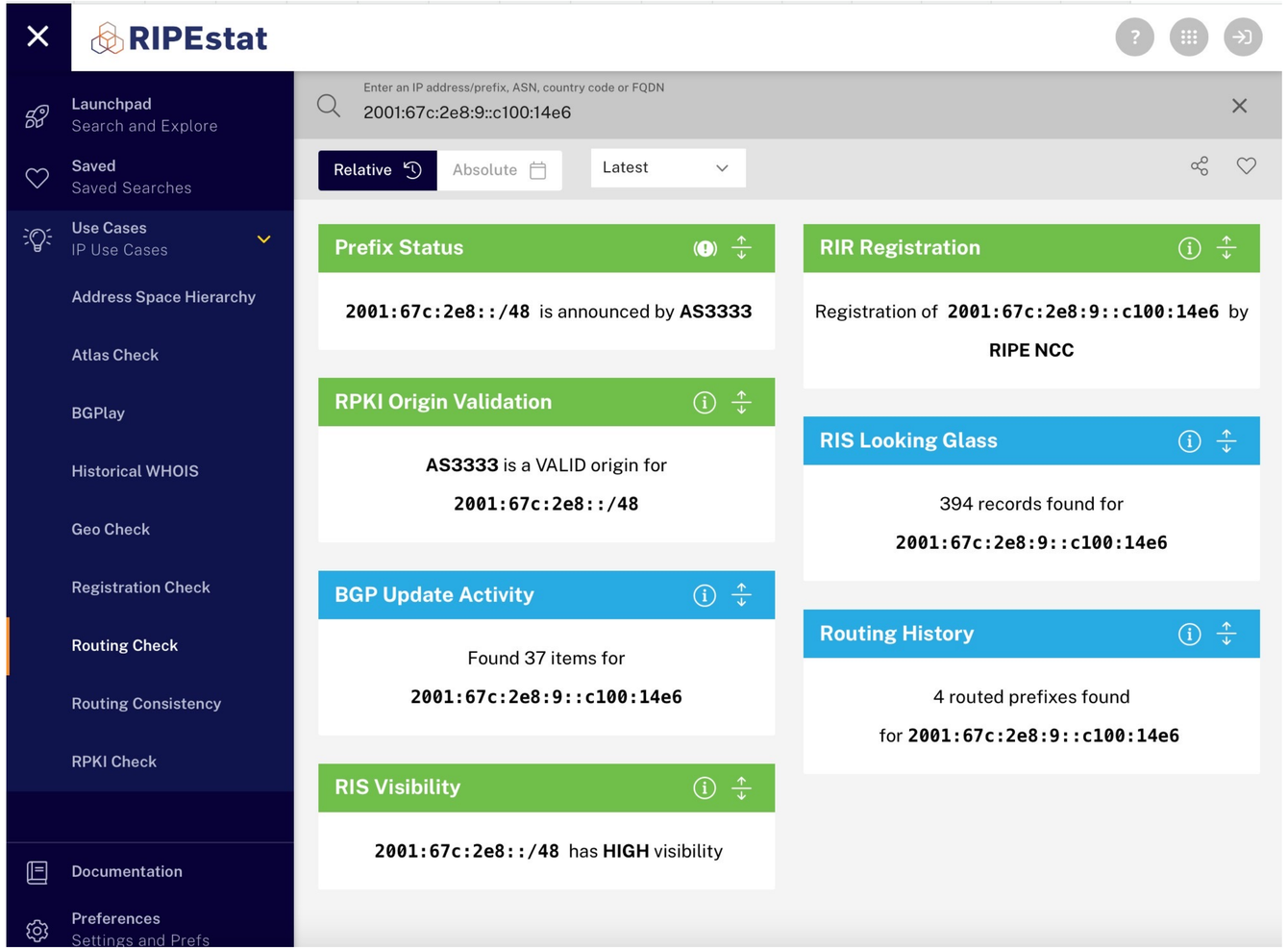
- The Internet routing system doesn’t have in-built security mechanisms
- Better visibility = greater security = lower risk of a BGP hijack

Who is RIS for?

- Network operators, policy makers
  - To check specific routing incidents
  - To troubleshoot Internet routing
  - To develop future plans based on routing trends
- Researchers
  - To investigate notable events occurring in the Internet (i.e. network disruptions in specific countries, Facebook outage, etc)

How can you use RIS?

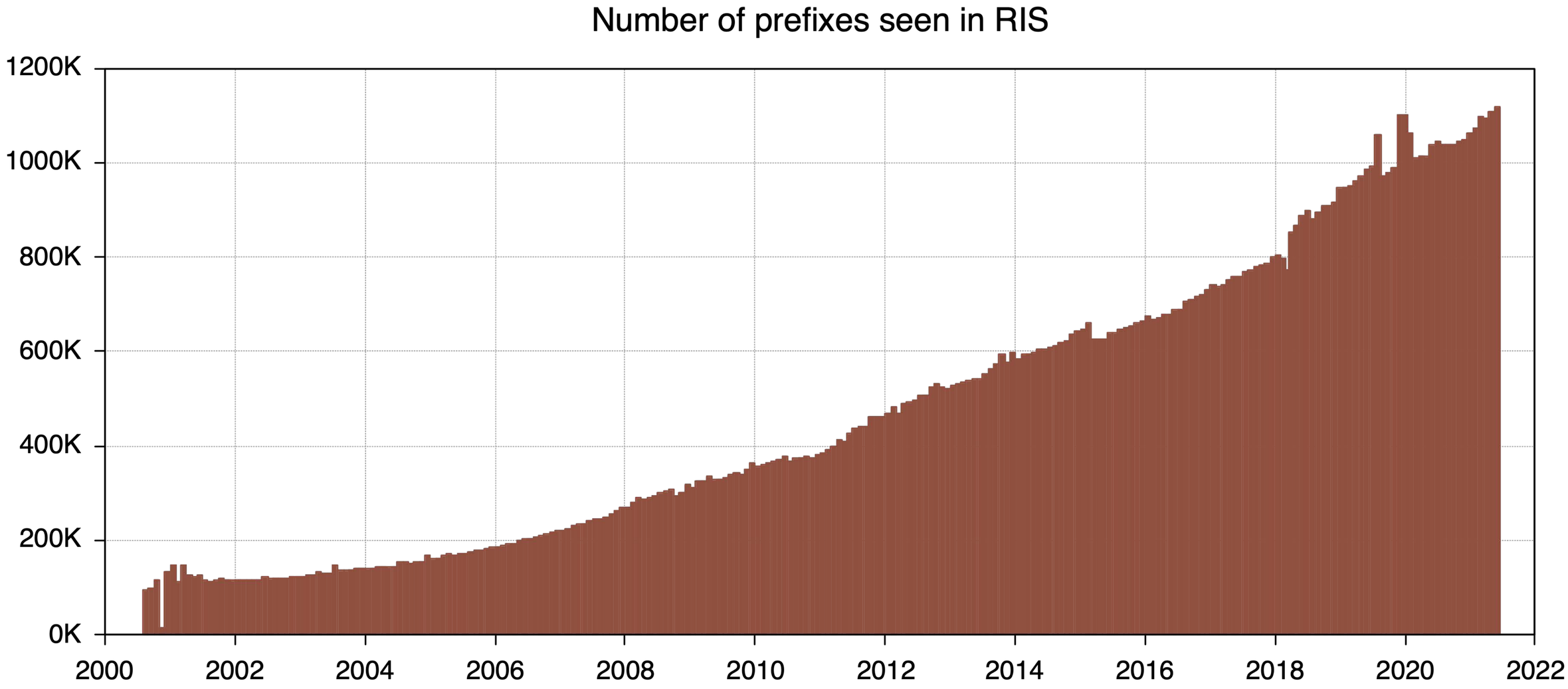
- Available as:
  - Raw data
  - Live stream (RIS Live)
  - Whois query interface (RISwhois)
- Visualisations available in RIPEstat



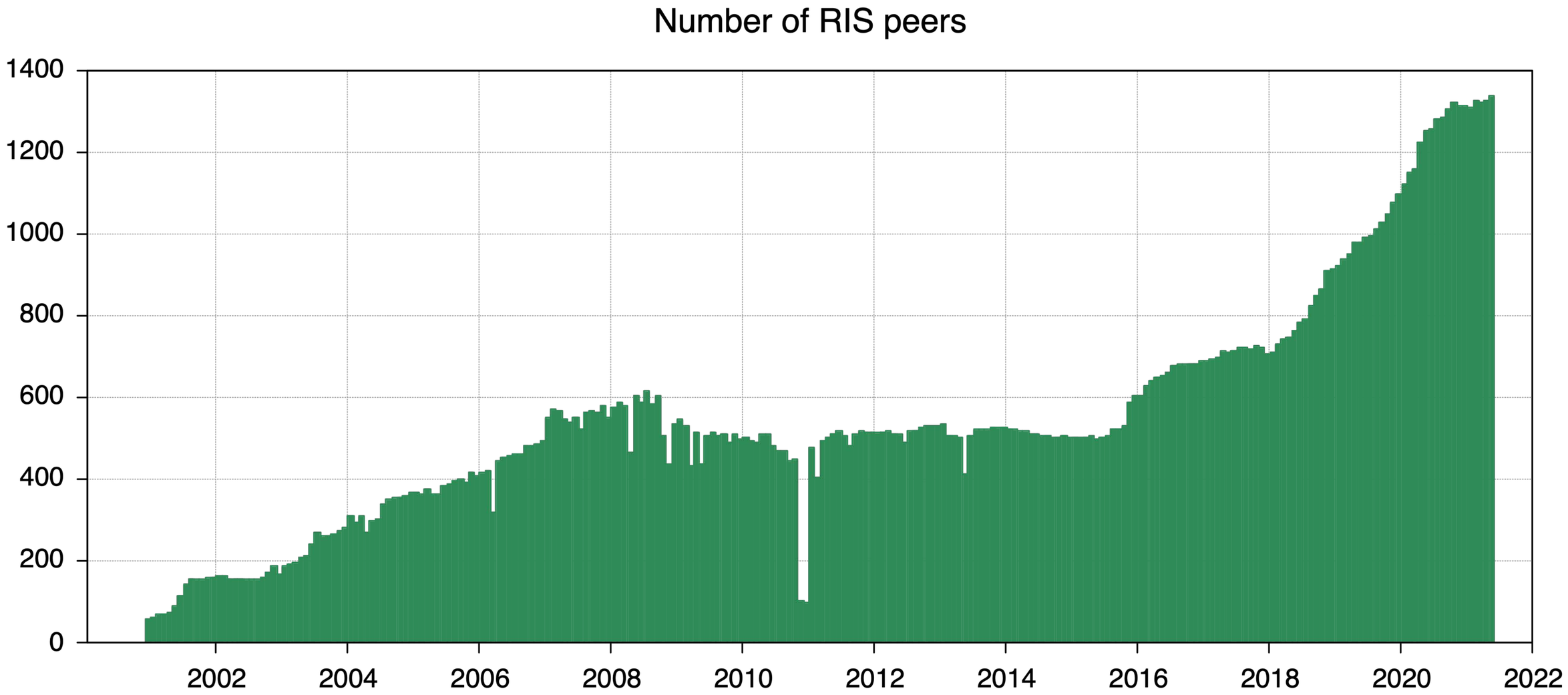
More tools to use RIS

- Others have developed tools based on RIS data
- bgp.he.net
  - This service uses RIS data and provides a dashboard with various aspects of the Internet routing system.
- BGPalerter
  - This software monitors RIS data in near real-time to detect route hijacks and other incidents.
- https://ihr.iijlab.net/ihr/en-us/ (Internet Health Report) / CAIDA IODA
  - These research projects uses RIS data to build experimental views using Internet routing data.

BGP Growth – Number of Prefixes



RIS Growth – Number of Peers



Negative Effects of Growth

- More data does not bring more diversity in routes
- More peers bring more noise in the data
- More input data causes bigger delays for output data

Planned Improvements

- Pipeline improvements (shorter delays for output)
- **Peering coordination**
  - Diversity encouraged
  - Increasing coverage in RIPE NCC region
- Higher multi-hop capacity
- Prototypes showing useful data
  - Public Kafka
  - Metadata for peers
- Updated RIS website and documentation

RIS Peering strategy (1)

- Tier-1* coverage (full tables): AT&T, Cogent, Deutsche Telekom, Lumen Technologies (AS3459), NTT Communications, PCCW Global, Sprint (T-mobile US), Telecom Italia Sparkle, Tata Communications, Telia Carrier

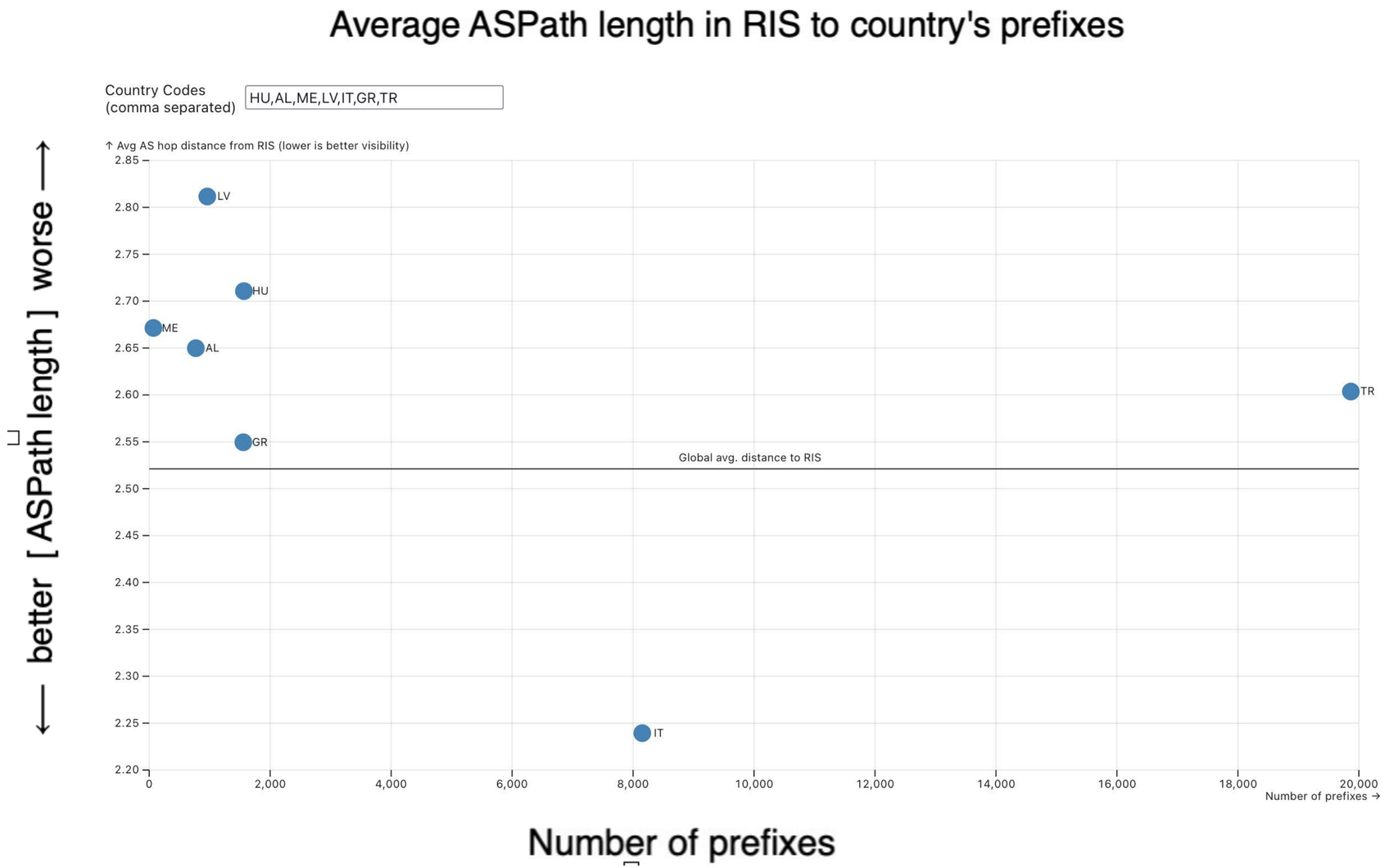
- Tier-1 coverage (customers cones): Liberty Global, Orange, Telxius (only IPv4), Zayo

- Missing: Verizon, GTT Communications
  - *Tier 1 list: https://en.wikipedia.org/wiki/Tier_1_network

Peering strategy (2)

- Adding one peer per country with low coverage (distant from RIS) in RIPE NCC region
  - In progress but slowly
- Challenges
  - Lack of contacts for some countries
  - No replies from contacted parties
  - Explaining the value of RIS in some countries
  - Contacting big networks

Distance from countries in Europe



https://observablehq.com/@emileaben/what-peers-would-decrease-as-distance-to-ris-most

Come peer with us!

- We invite **representative networks** in Hungary, Latvia, Montenegro, Turkey, Albania and Greece to peer with RIS!
  - Send us an email: ris-peering@ripe.net
  - Send us a peering request
  - Provide full feed when possible
- Goals
  - Better routing visibility and more security for
    - Your network
    - Your country
    - The Internet

Our questions

- Are these planned improvements helpful for peering coordinators?
- Should we look at other networks to improve our data?
- Can you help us with our challenges?
- What is your ASN wish list?
- Any other tips or suggestions?

Questions

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https://ris.ripe.net