

RPKI

Prefix Origin Validation at Route Servers

NANOG 67

Christoph Dietzel

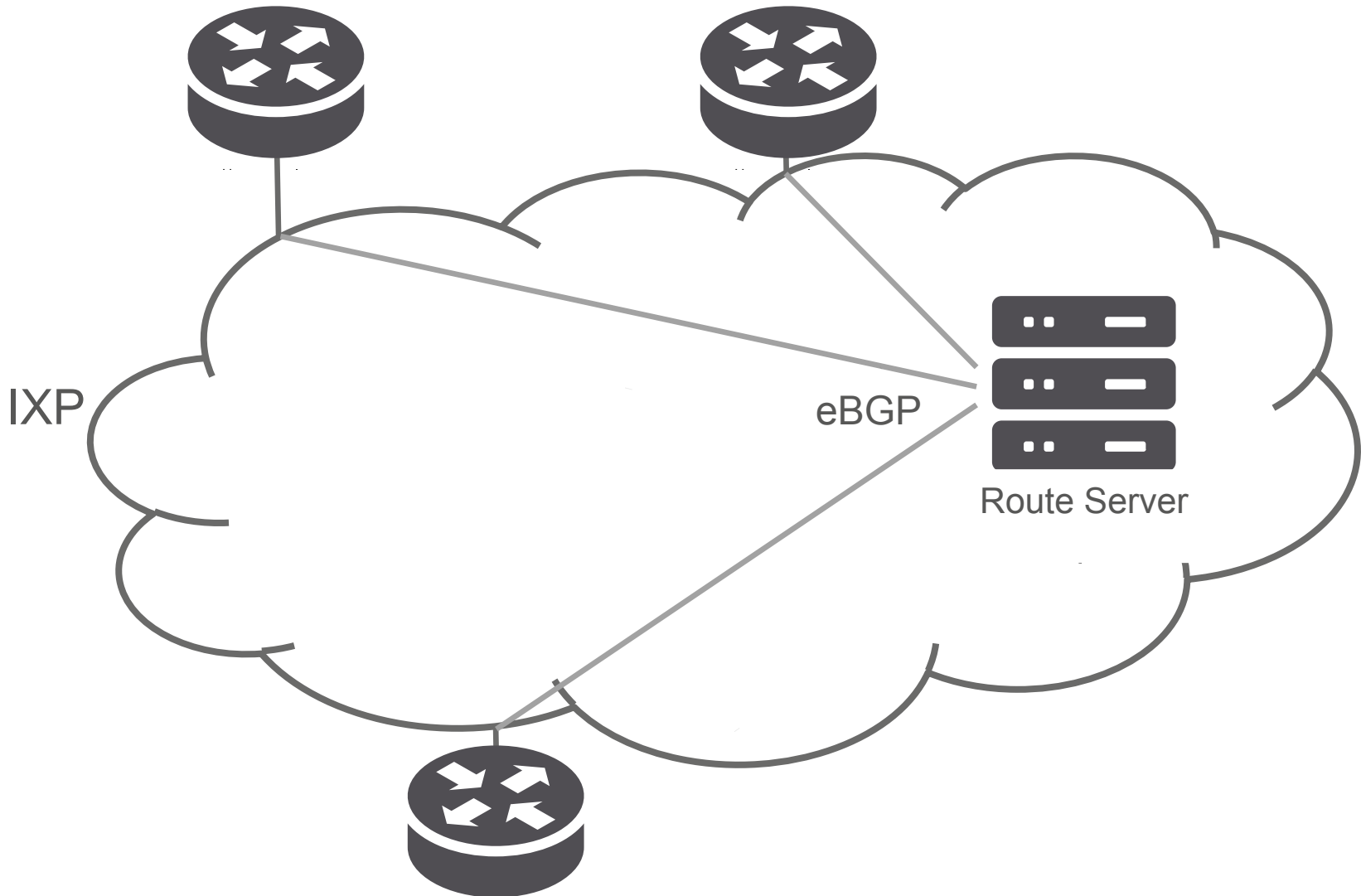
R&D, DE-CIX / INET, TU Berlin

Motivation

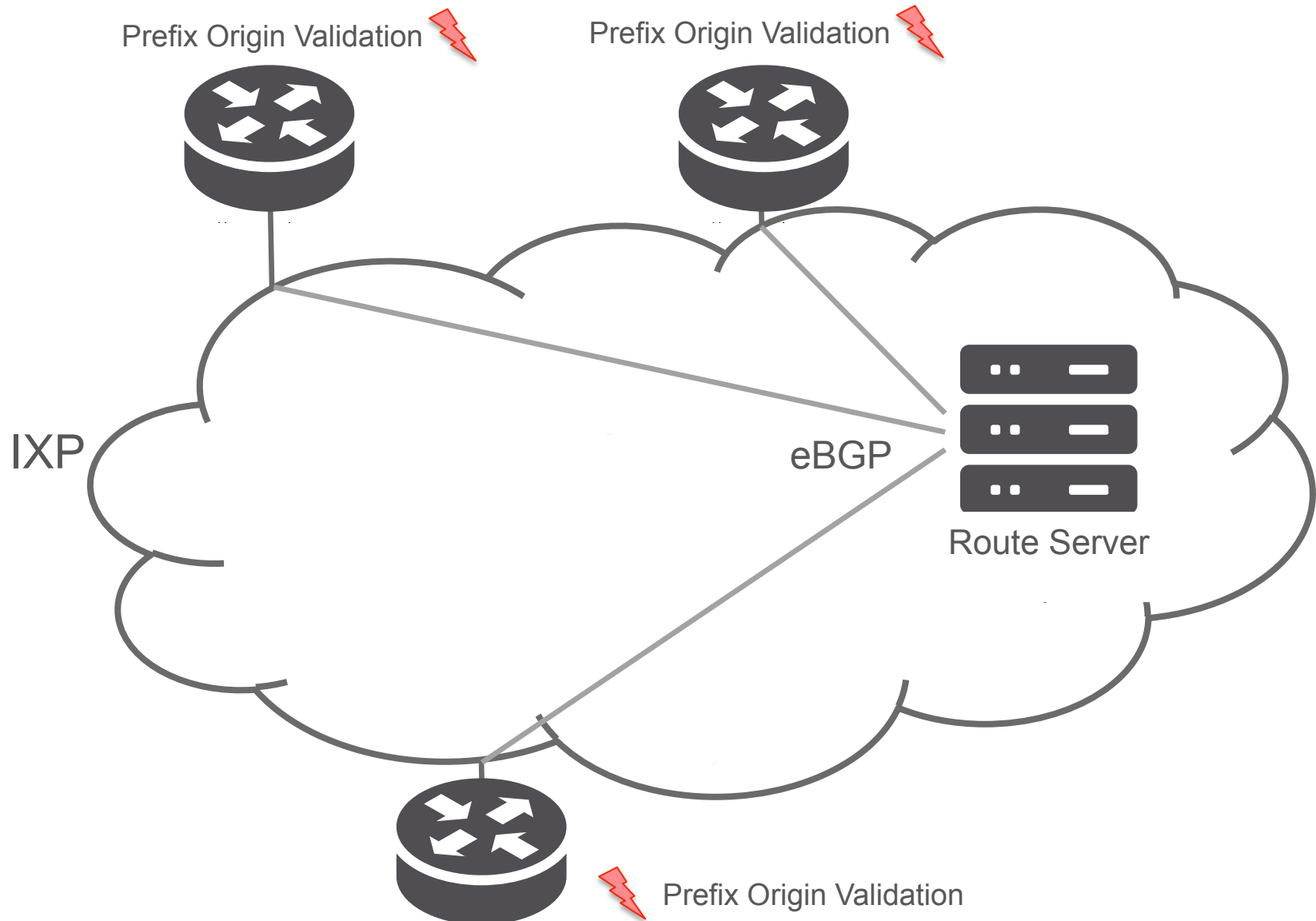
- » Boost acceptance and usage of RPKI-based prefix origin validation
 - » Support legacy hardware
- » Increase the security of the Internet routing system
 - » Prefix Hijacking
- » Increase peering quality through IXP's route servers
 - » Route Leaks



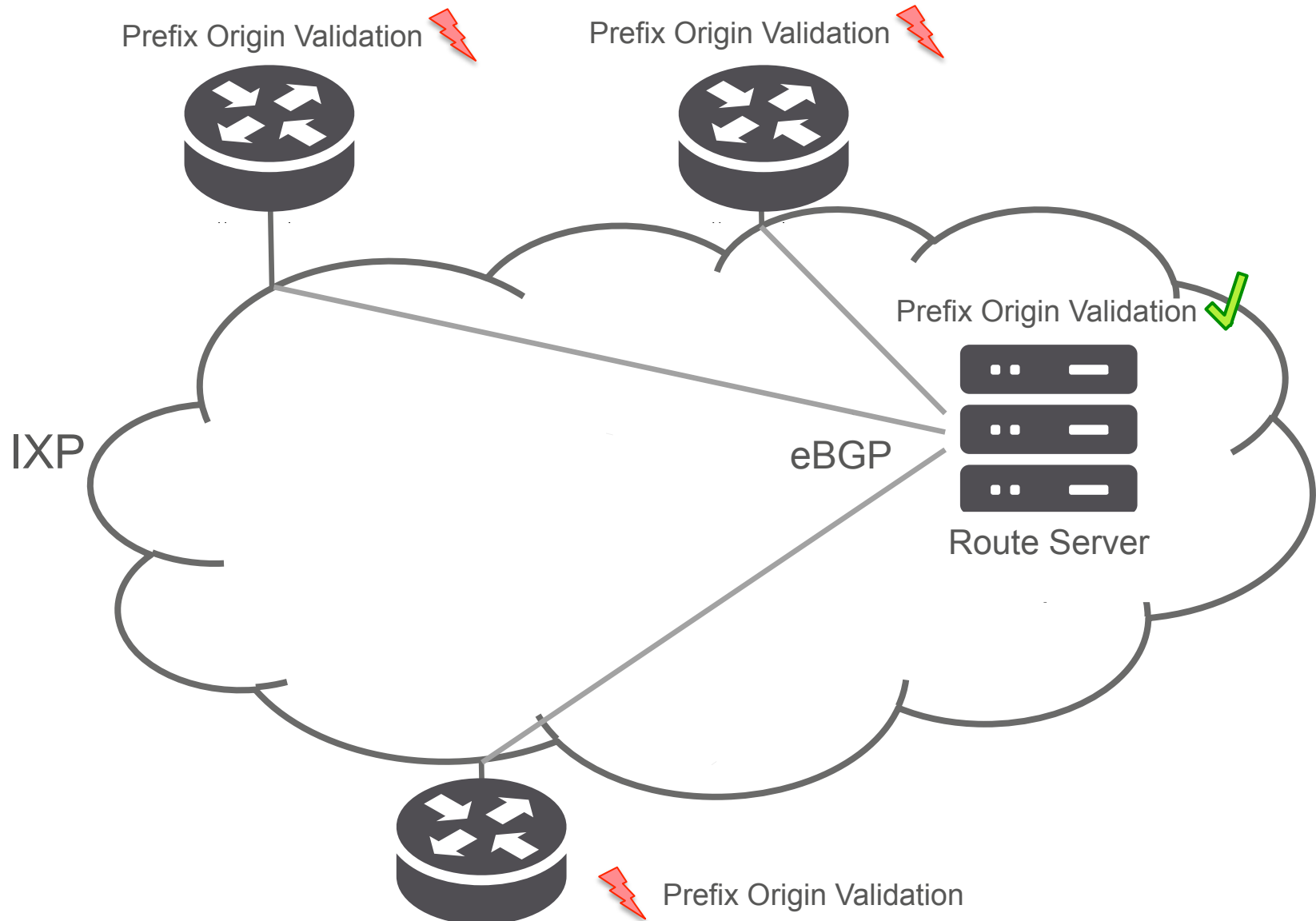
IXP – Route Server Architecture



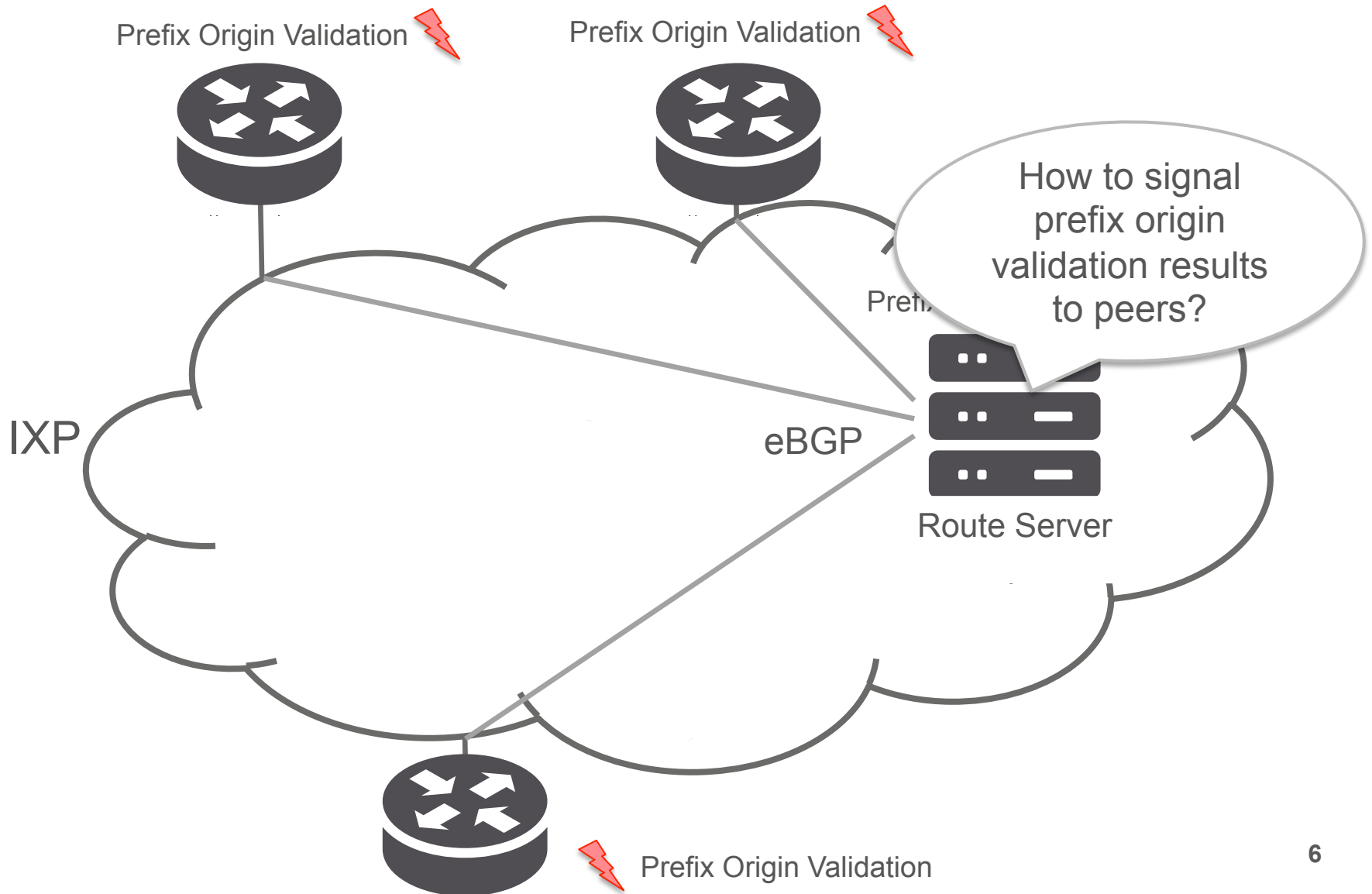
IXP – Prefix Origin Validation Support



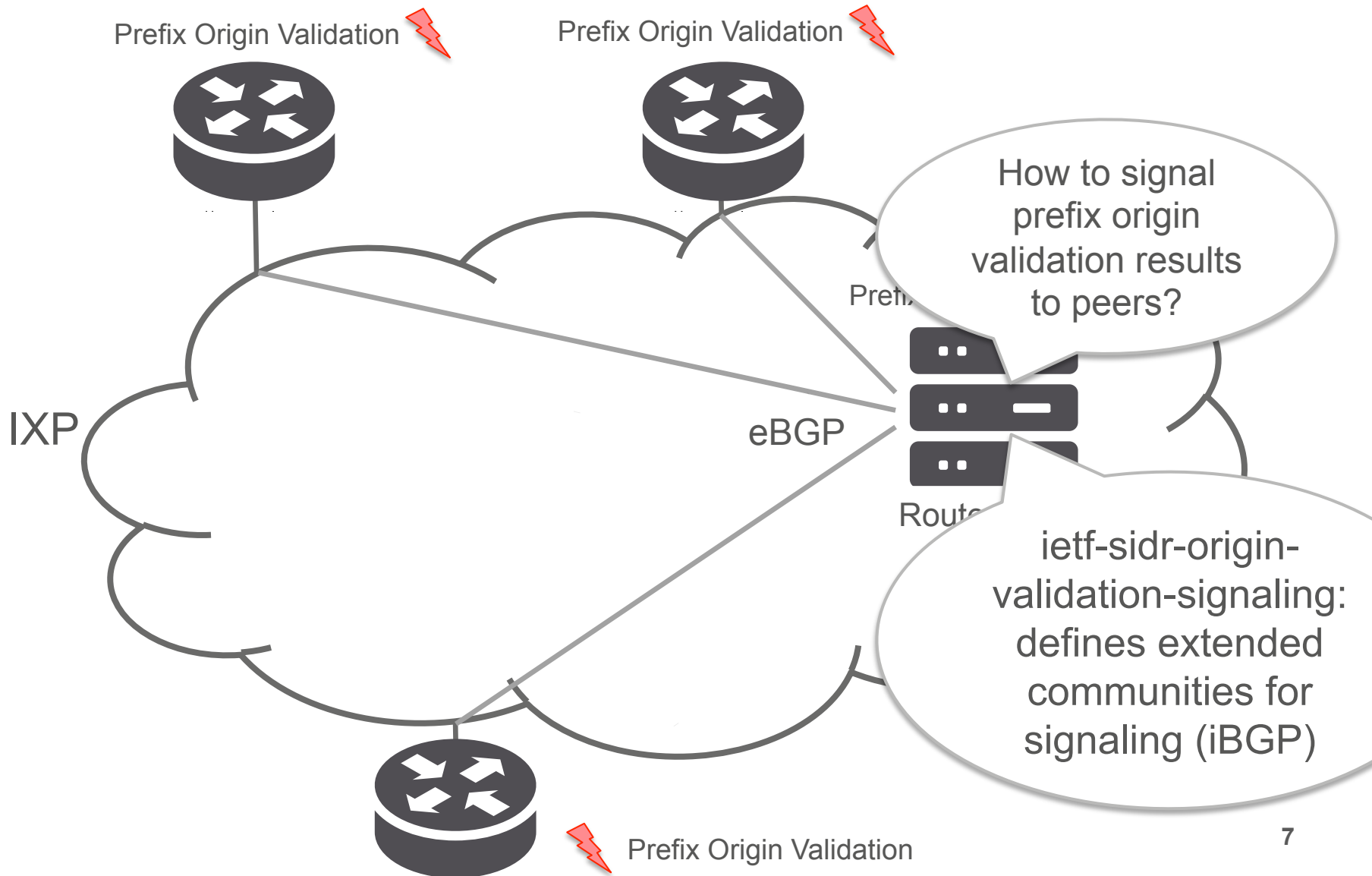
IXP – Prefix Origin Validation Support



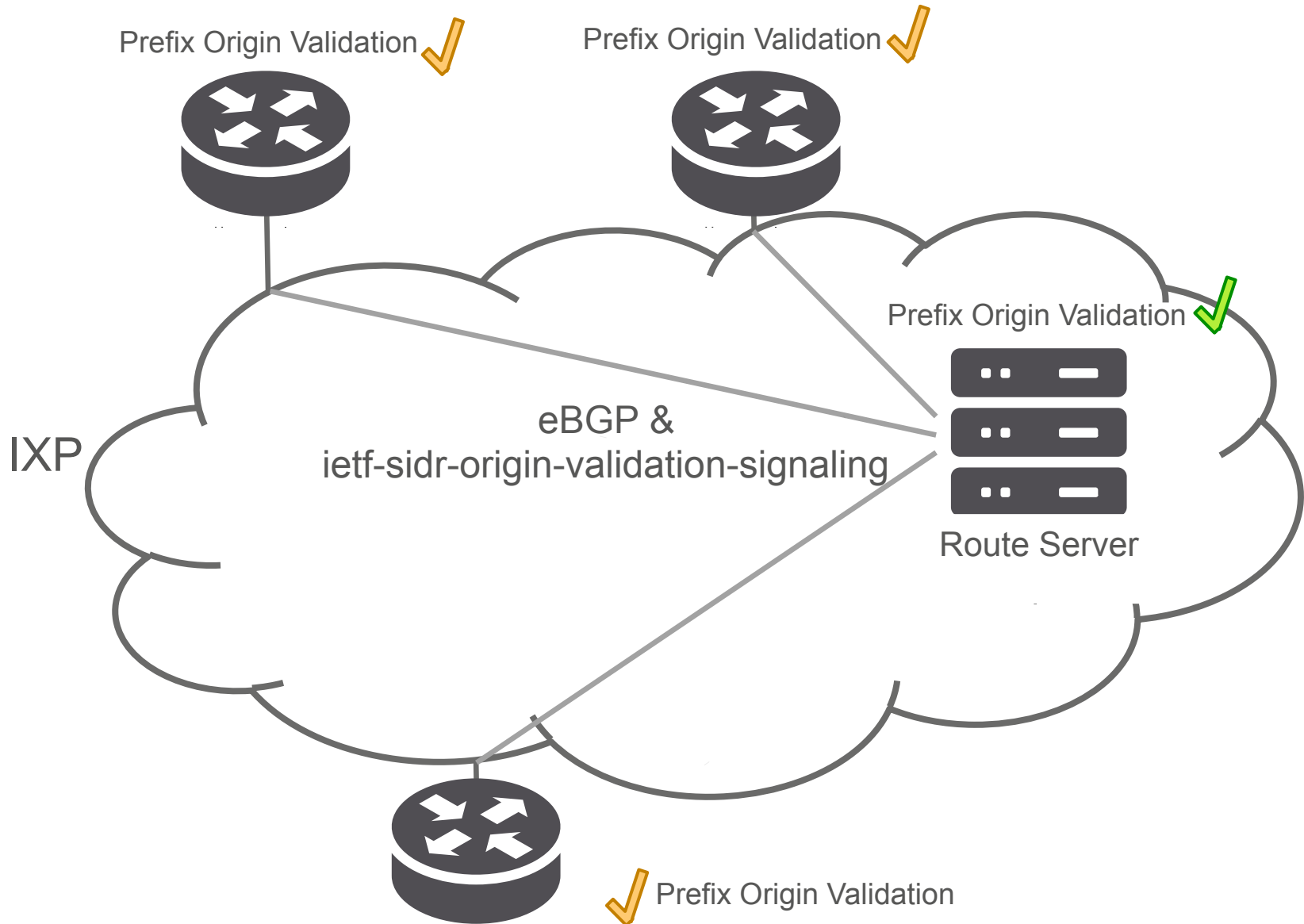
IXP – Prefix Origin Validation Support



IXP – Prefix Origin Validation Support



kklf-sidr-route-server-rpki-light

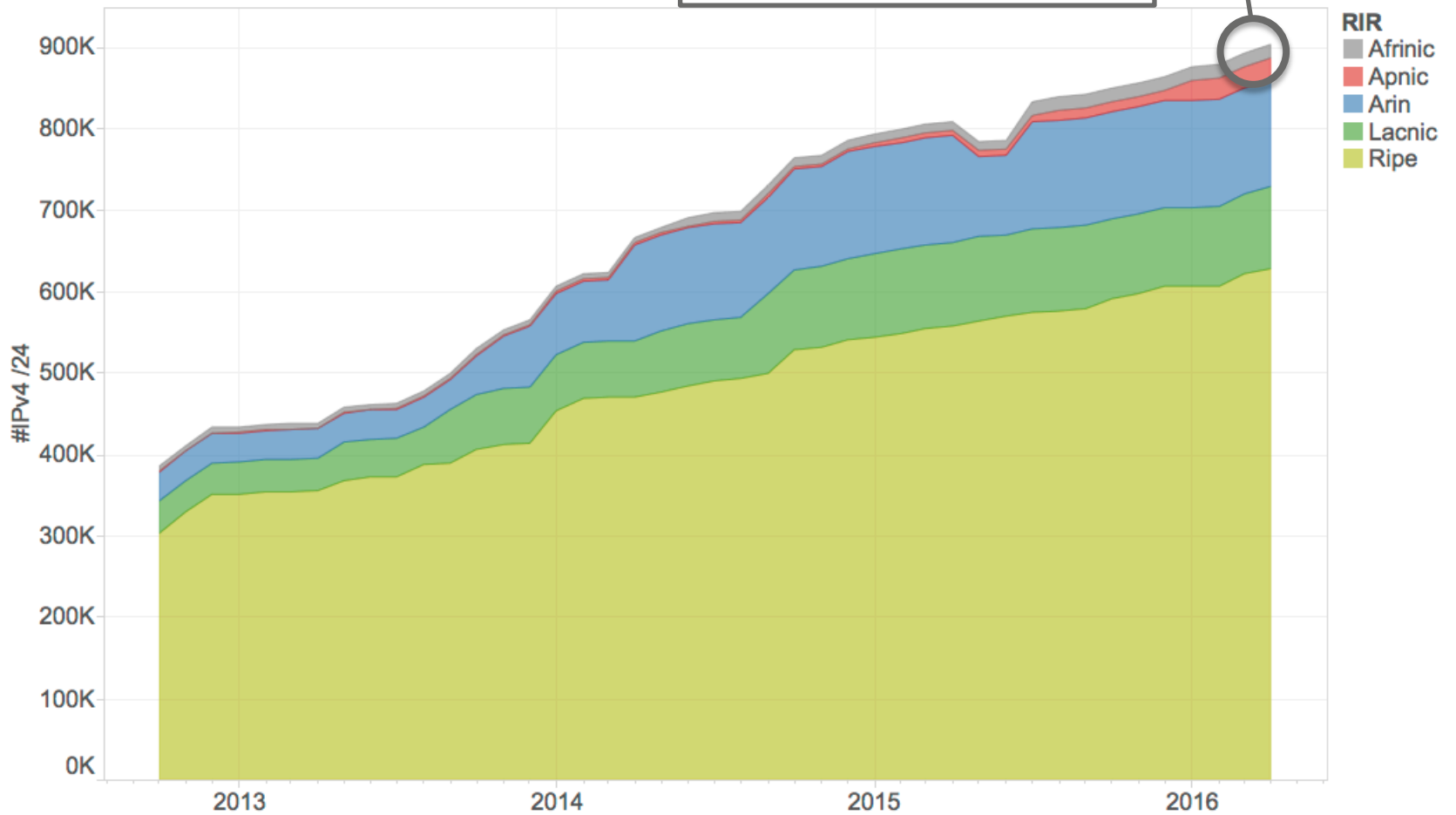


IETF - Internet Draft

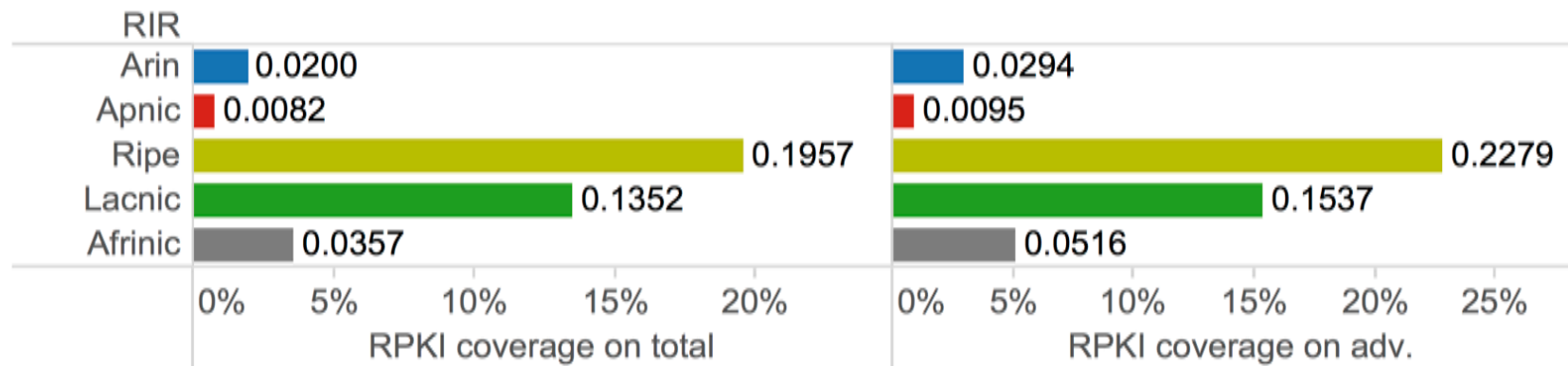
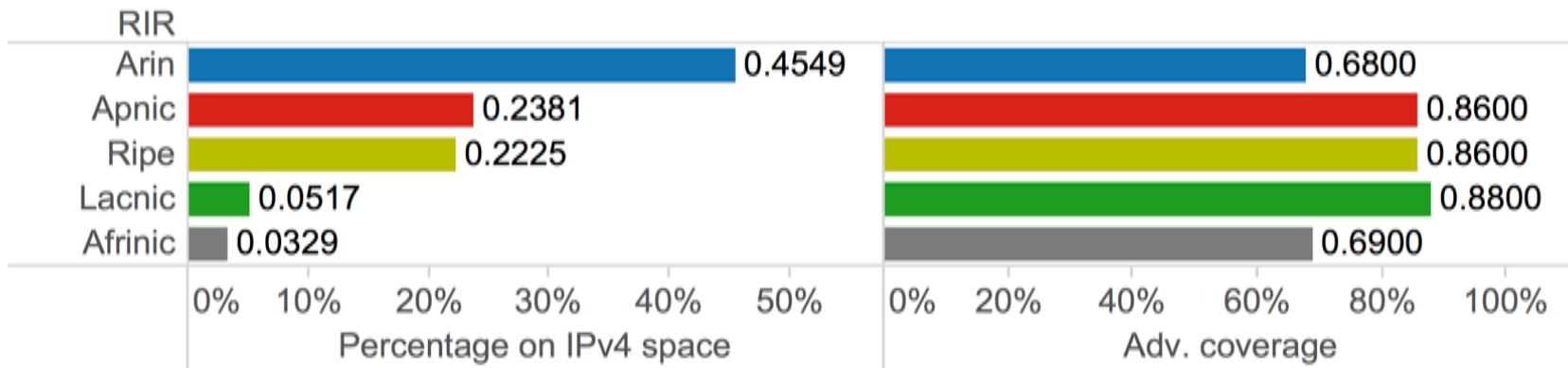
- » DE-CIX, AMS-IX, France-IX, and other IXPs discussed (during Euro-IX meetings) the idea of enabling route servers for prefix origin validation and signalling results to peers
- » "Internet Draft" version 01 submitted to the IETF SIDR working group
 - » Signalling RPKI Validation Results from a route servers to Peers
- » Authors
 - » AMS-IX: Aristidis Lambrianidis
 - » France-IX: Arnaud Fenioux
 - » DE-CIX: Thomas King & Daniel Kopp

RPKI Global

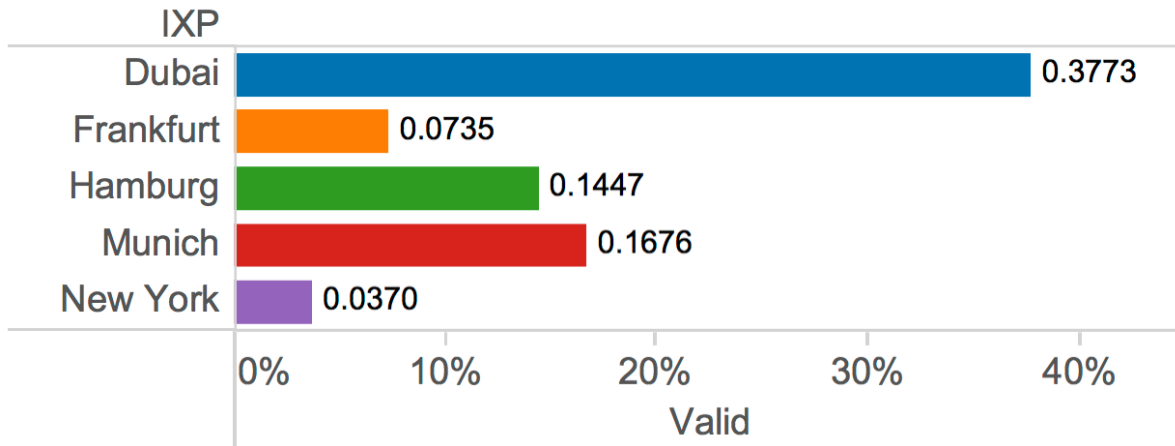
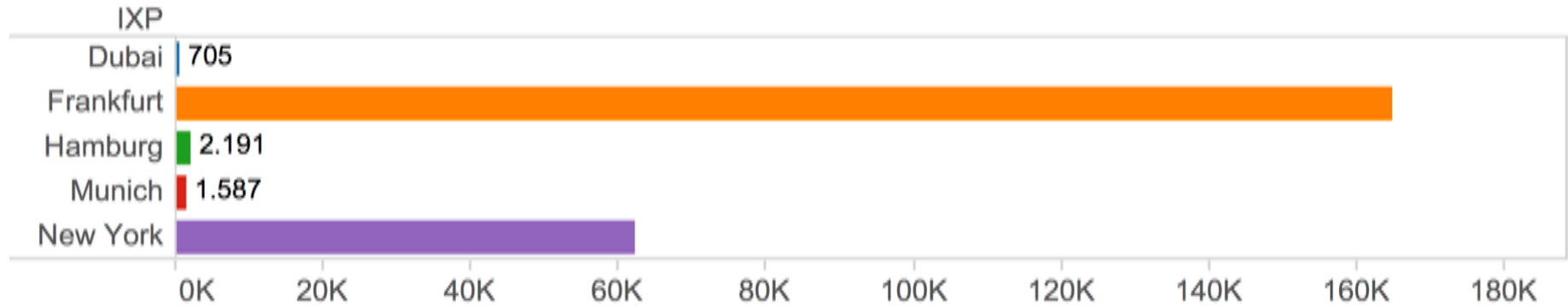
8.3% of advertised IPv4 space



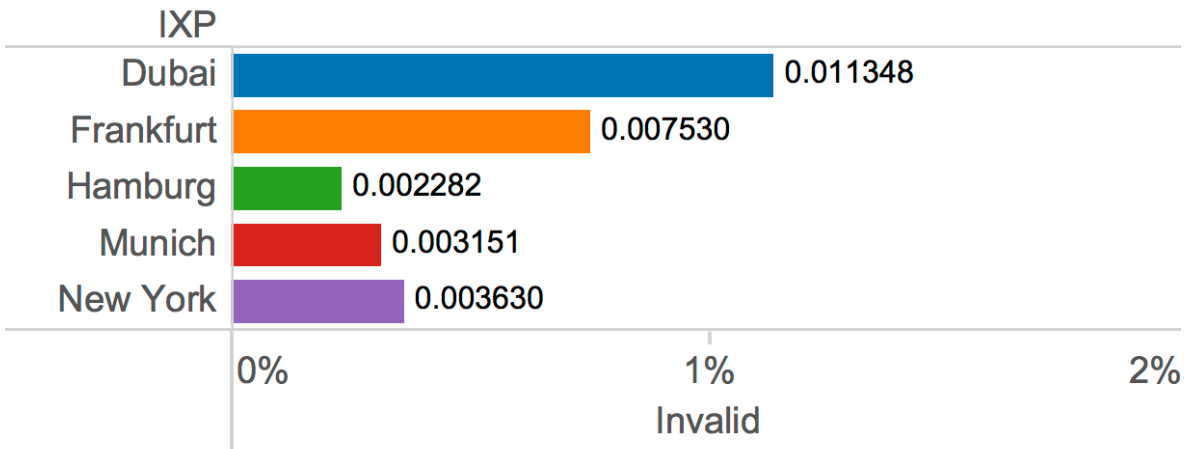
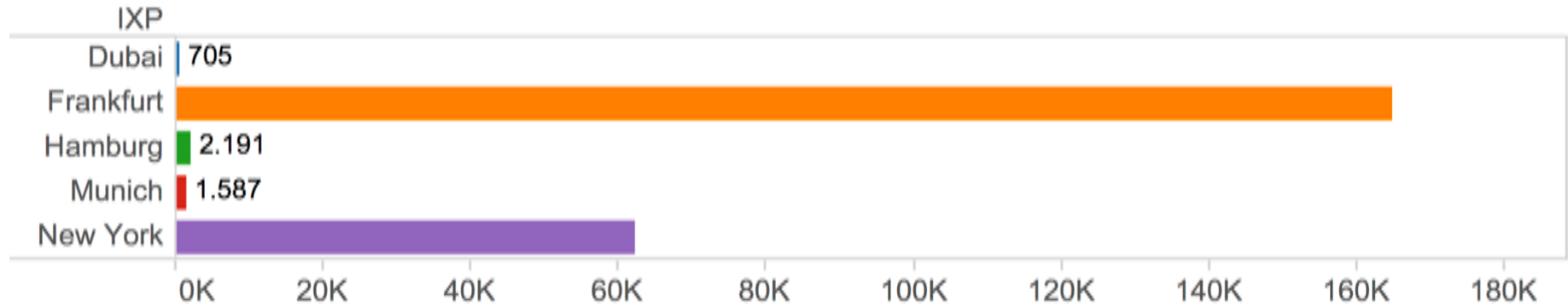
RPKI at RIRs



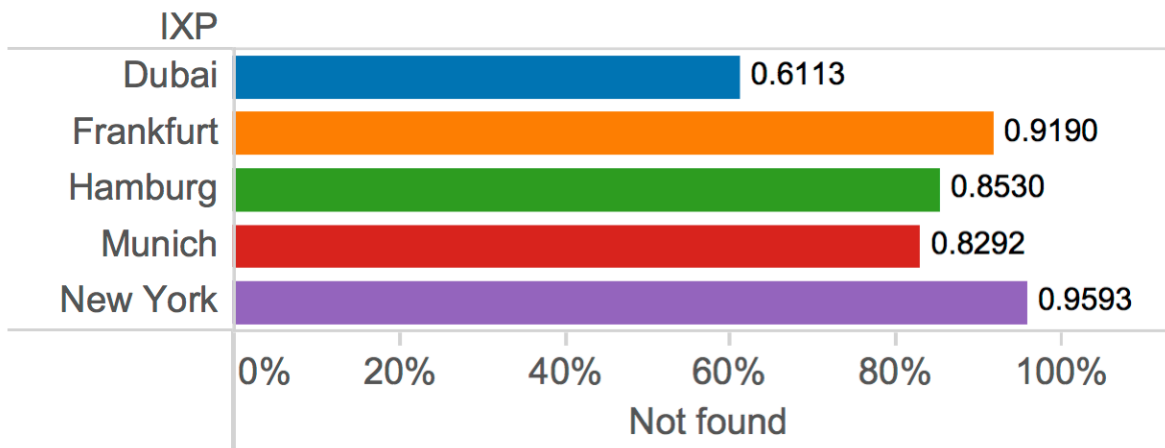
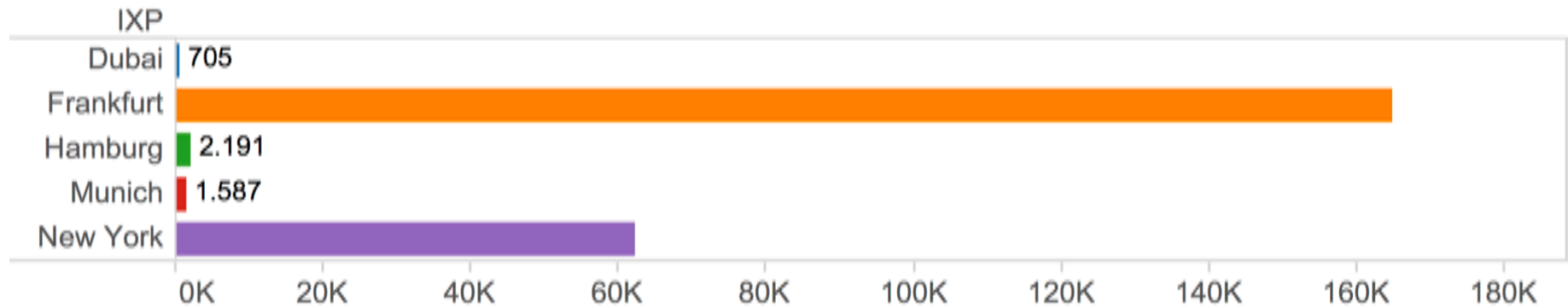
RPKI Covered Prefixes at DE-CIX



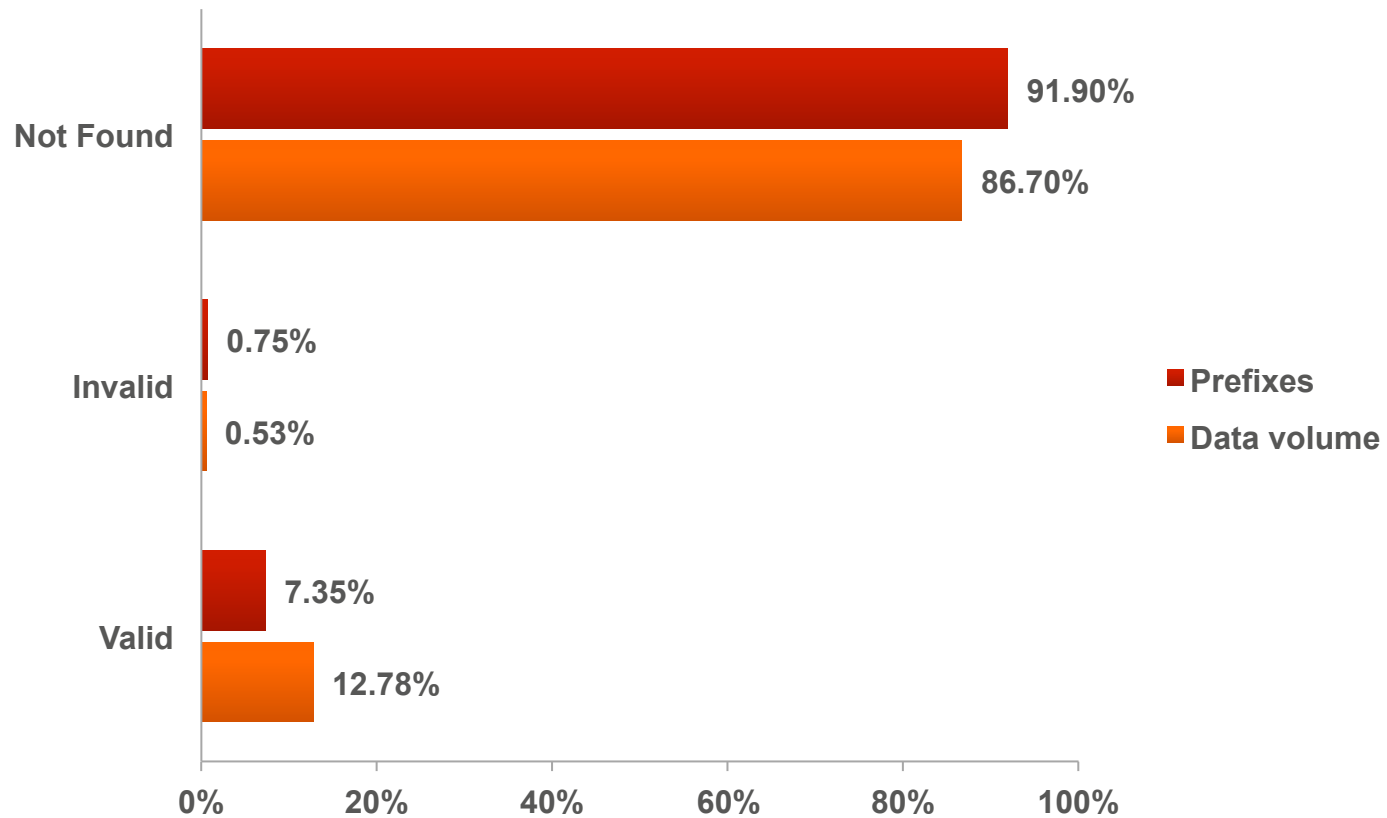
RPKI Covered Prefixes at DE-CIX



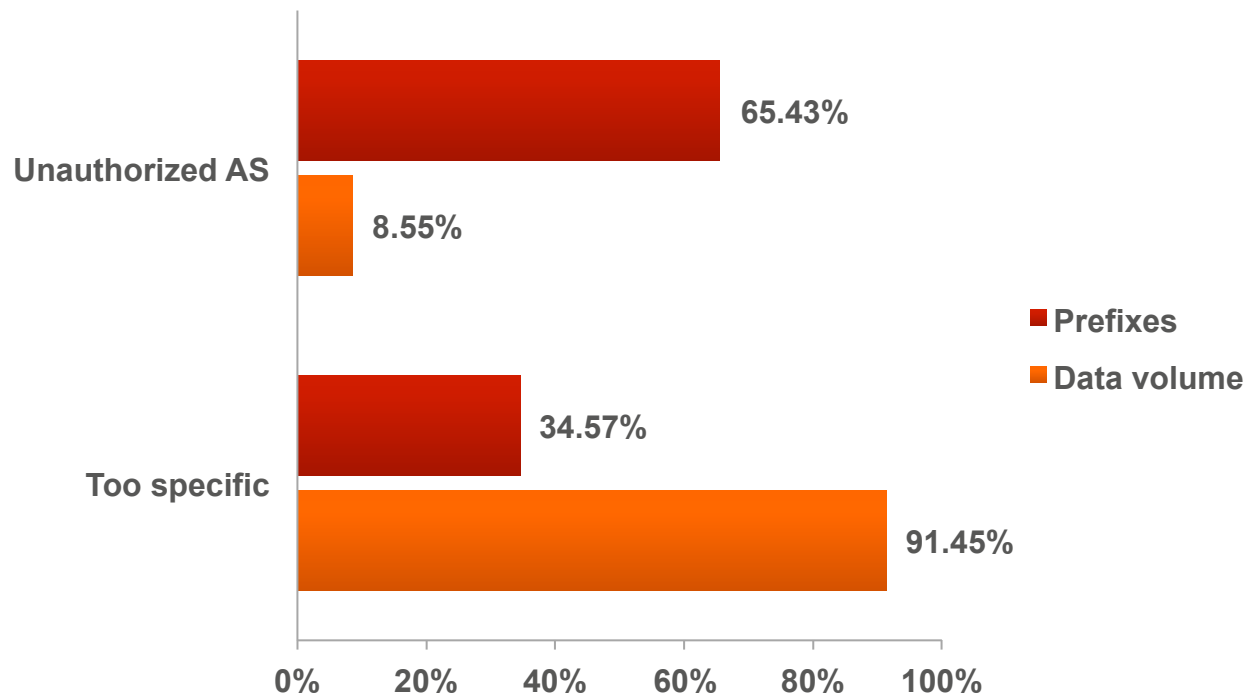
RPKI Covered Prefixes at DE-CIX



RPKI – Prefixes vs. Data Volume



RPKI Invalid – Prefixes vs. Data Volume



Conclusion

- » Advantages
 - » Supporting legacy hardware
 - » Added value for customers
 - » More resilient and secure Internet
- » Challenges
 - » Adoption of RS feature by peers
 - » Adoption of RPKI by ASes
 - » ARIN's Relying Party Agreement
- » Ongoing work
 - » Internet draft under development
 - » Observation of RPKI status
 - » Planning to implement RPKI at DE-CIX



Where networks meet