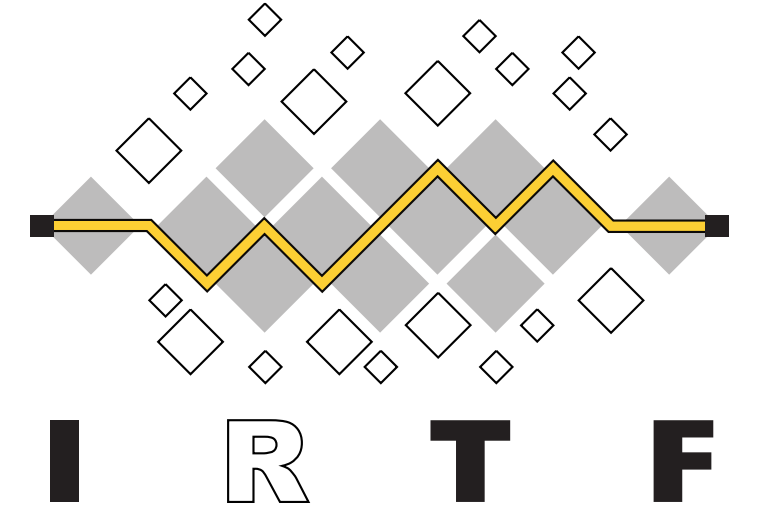


# Applied Networking Research Workshop 2020



## Withdrawal Symptoms

Filtering of Announcements from a  
Route Collector System

*Stephen Strowes, René Wilhelm, Emile Aben*  
RIPE NCC



**Studying 2a10::/12**

# Debogonising 2a10::/12



- In January 2020 we advertised a fresh /12 from RRC03
  - <https://tma.ifip.org/2020/wp-content/uploads/sites/9/2020/06/tma2020-camera-paper23.pdf>
  - <https://vimeo.com/425663114>

# Advertising 2a10::/12



Prefix	IRR	ROA	Responsive address
2a10::/12	no	no	
2a10:4::/32	yes	yes	2a10:4::1
2a10:5::/32	no	yes	2a10:5::1
2a10:6::/32	yes	no	2a10:6::1
2a10:7::/32	no	no	2a10:7::1
2a10:3:4::/48	yes	yes	2a10:3:4::1
2a10:3:5::/48	no	yes	2a10:3:5::1
2a10:3:6::/48	yes	no	2a10:3:6::1
2a10:3:7::/48	no	no	2a10:3:7::1

# Beacons and Anchors

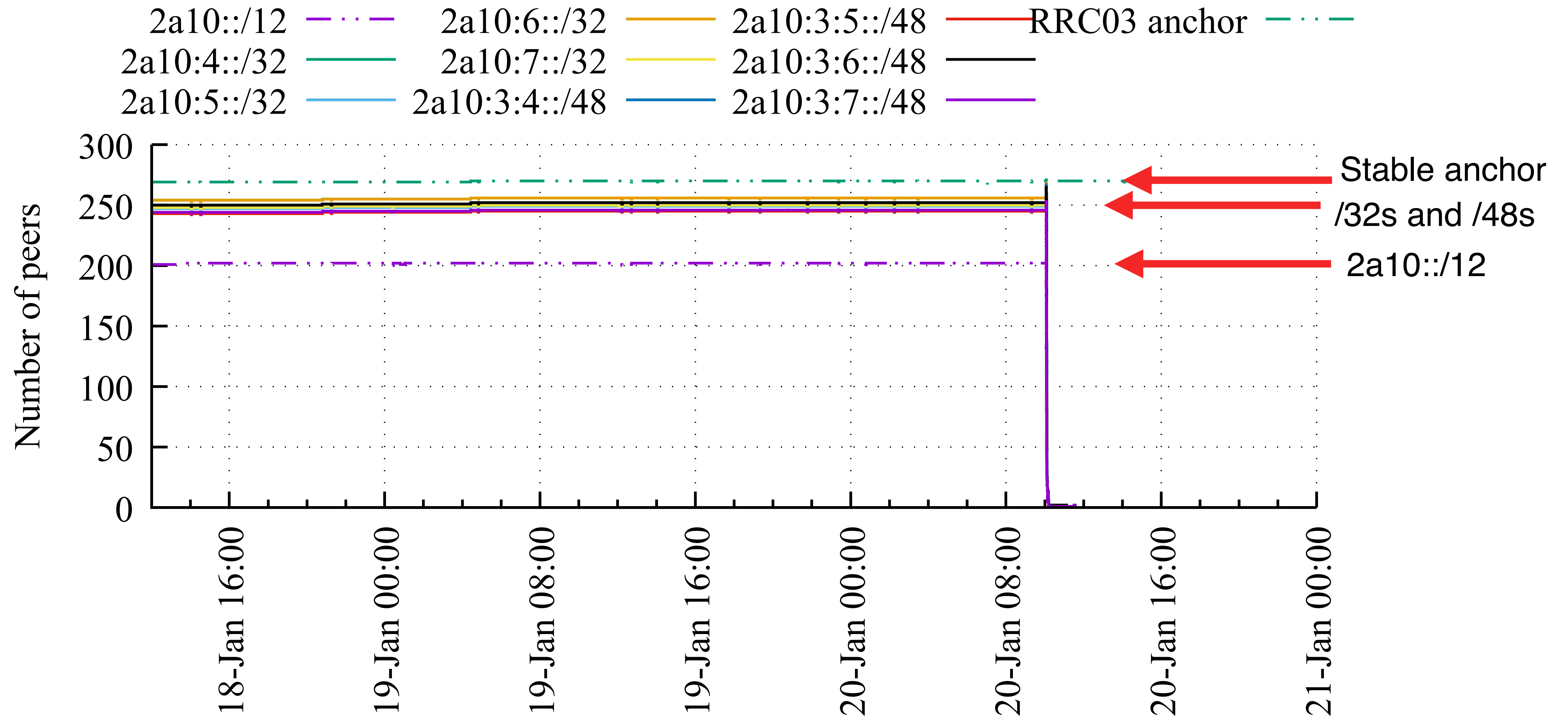


- In addition, there are stable anchors and predictable beacons
  - RRC03 anchor: 2001:7fb:ff03::/48
  - RRC03 beacon: 2001:7fb:fe03::/48
  - <https://www.ripe.net/analyse/internet-measurements/routing-information-service-ris/current-ris-routing-beacons>

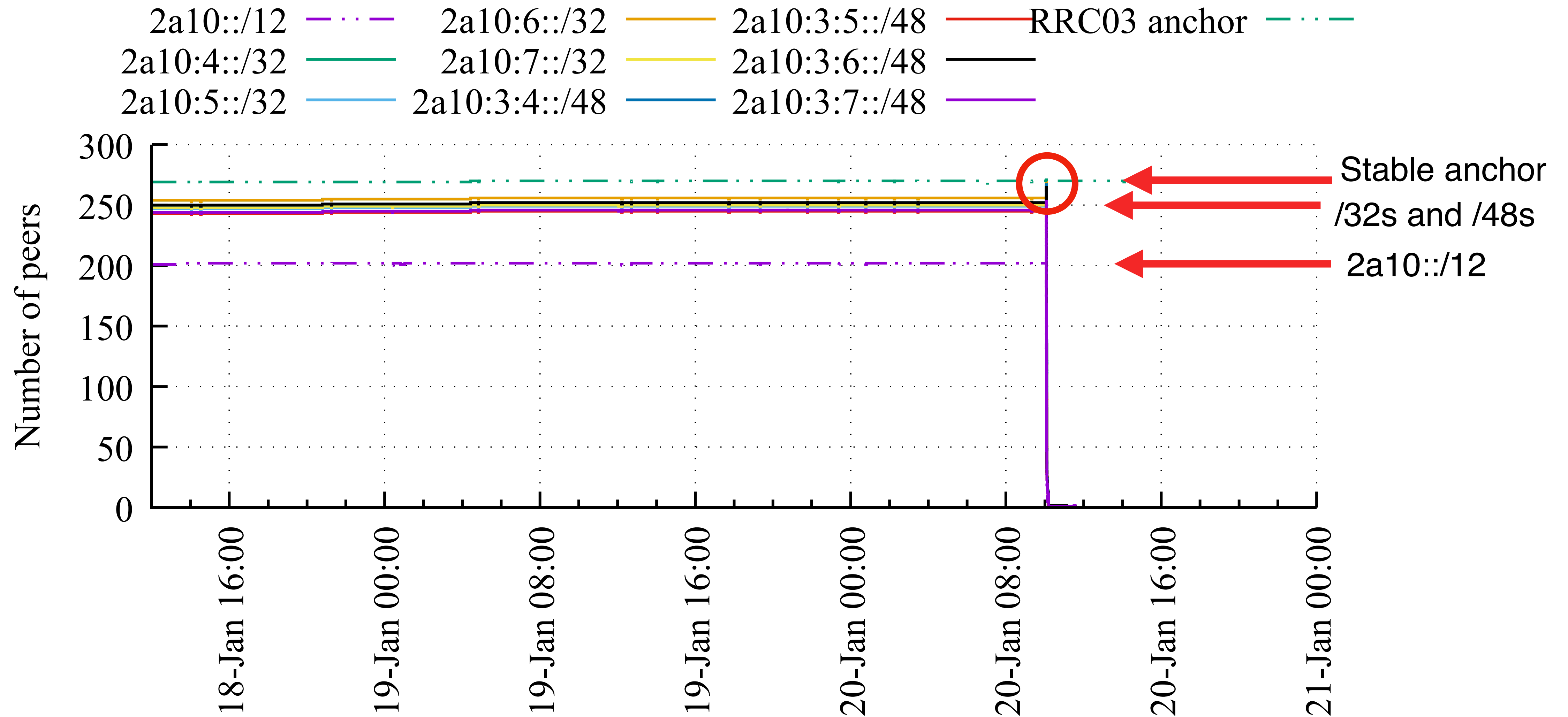


# **Announcement and Withdrawal**

# Withdrawing 2a10::/12

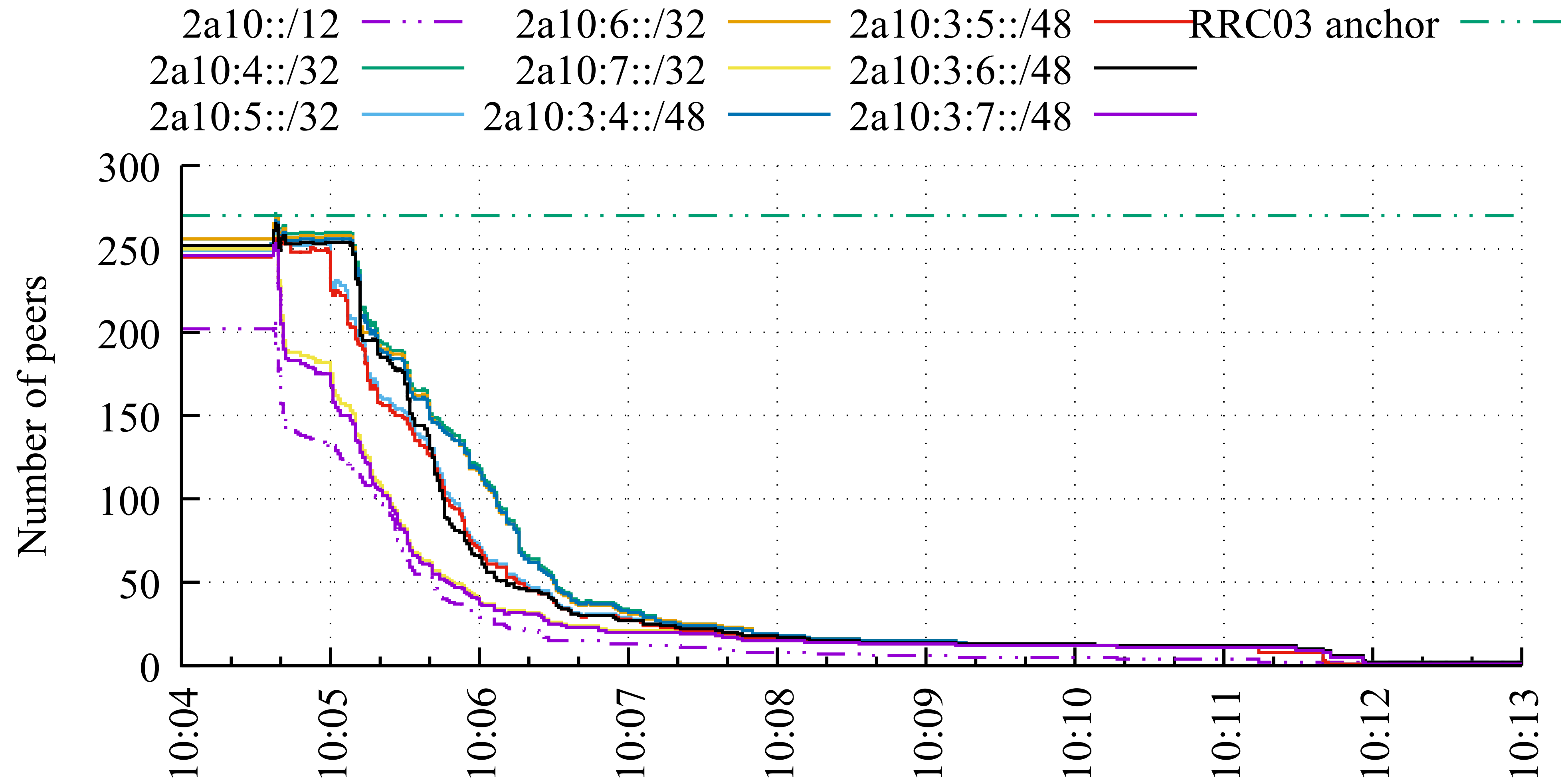


# Withdrawing 2a10::/12





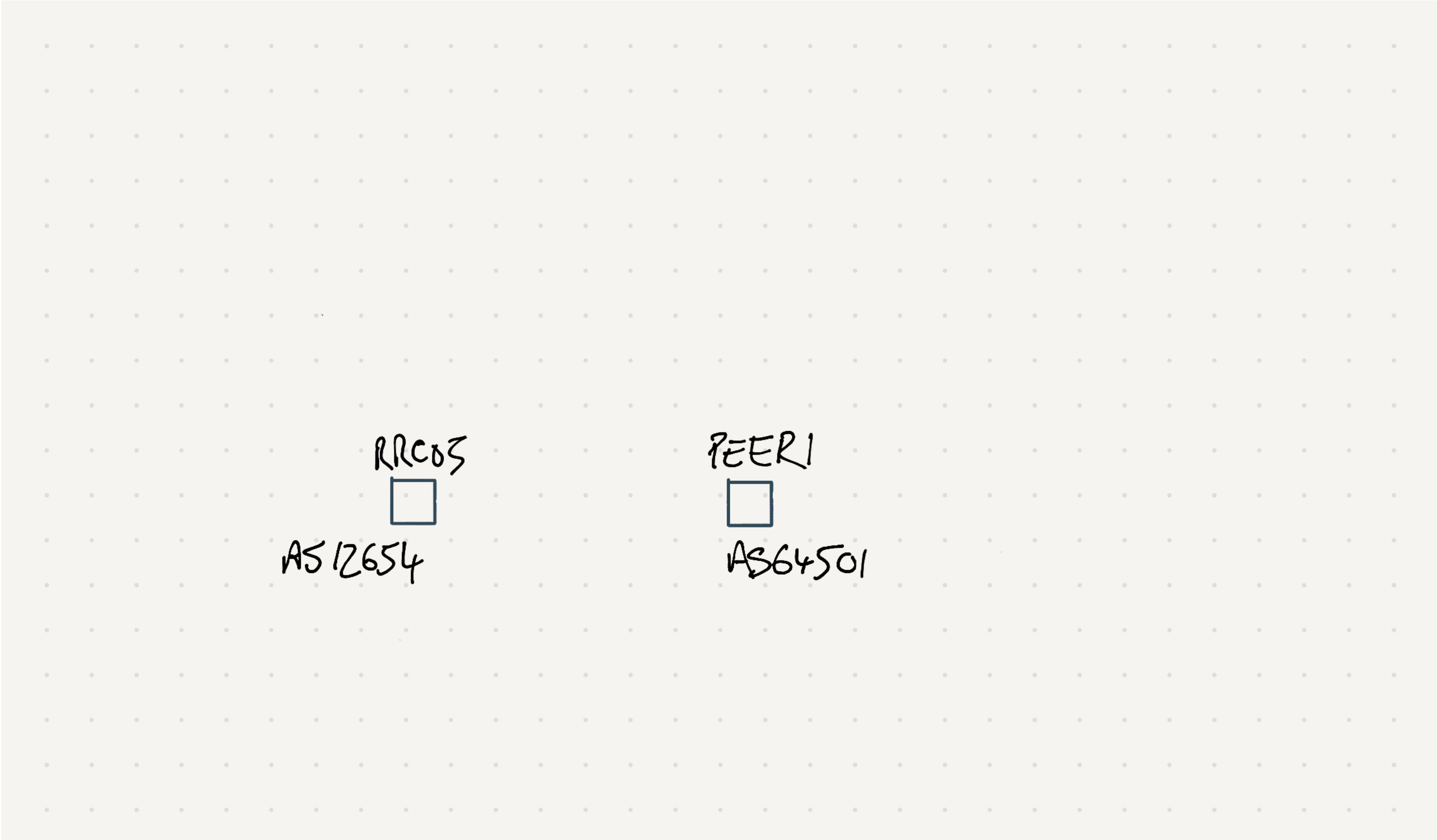
# Withdrawing 2a10::/12



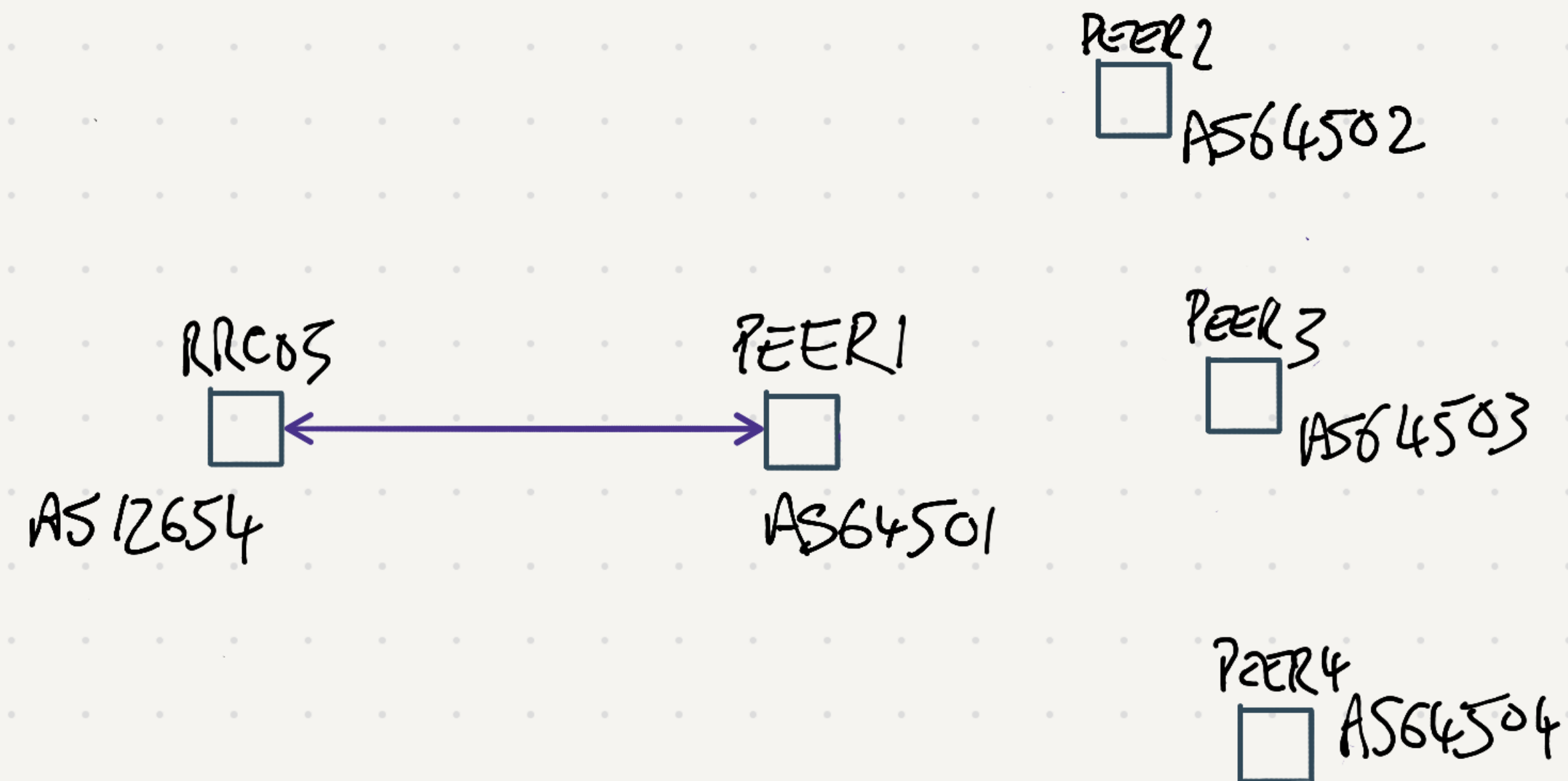


# Expectations

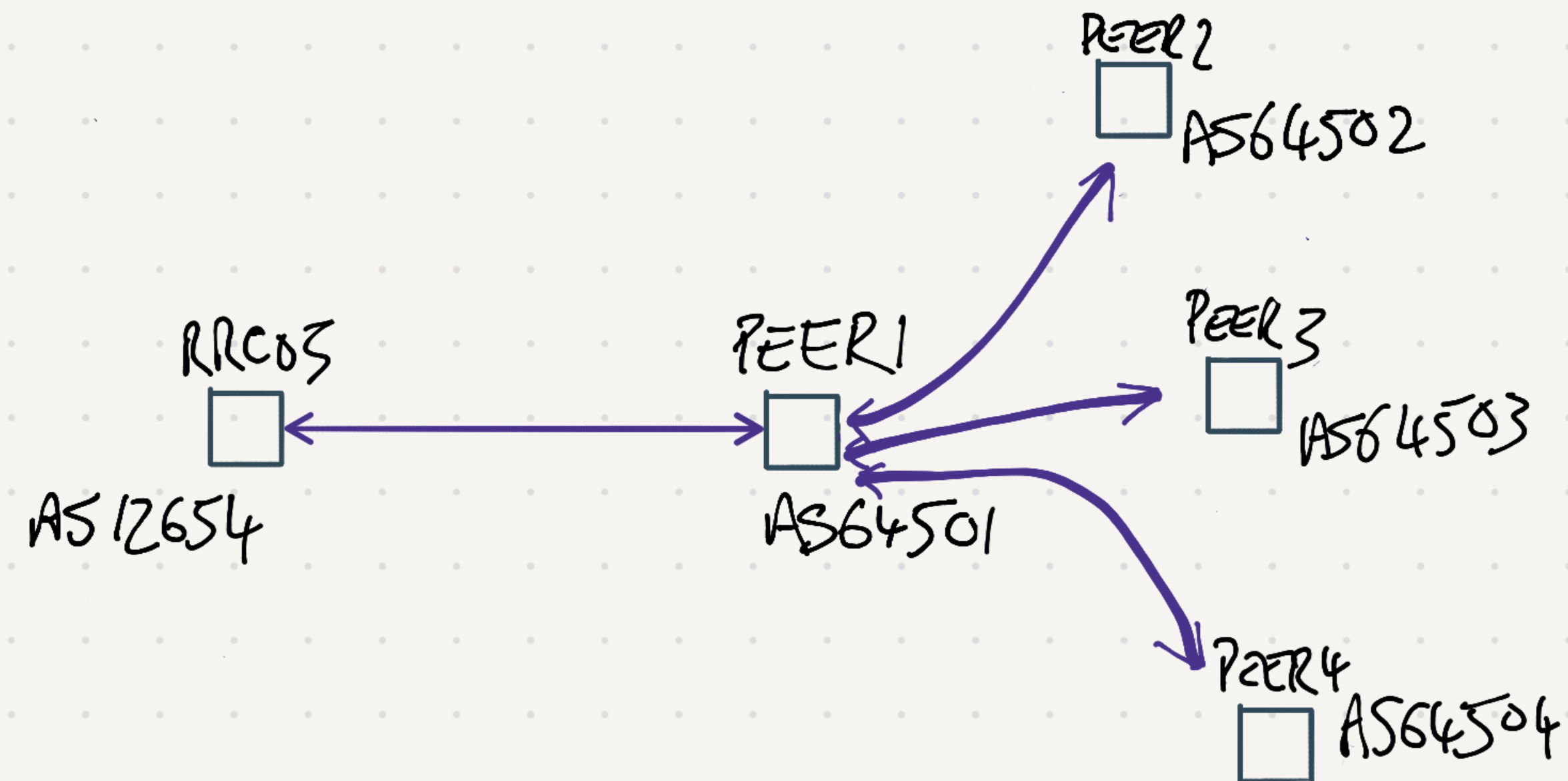
# Expectations



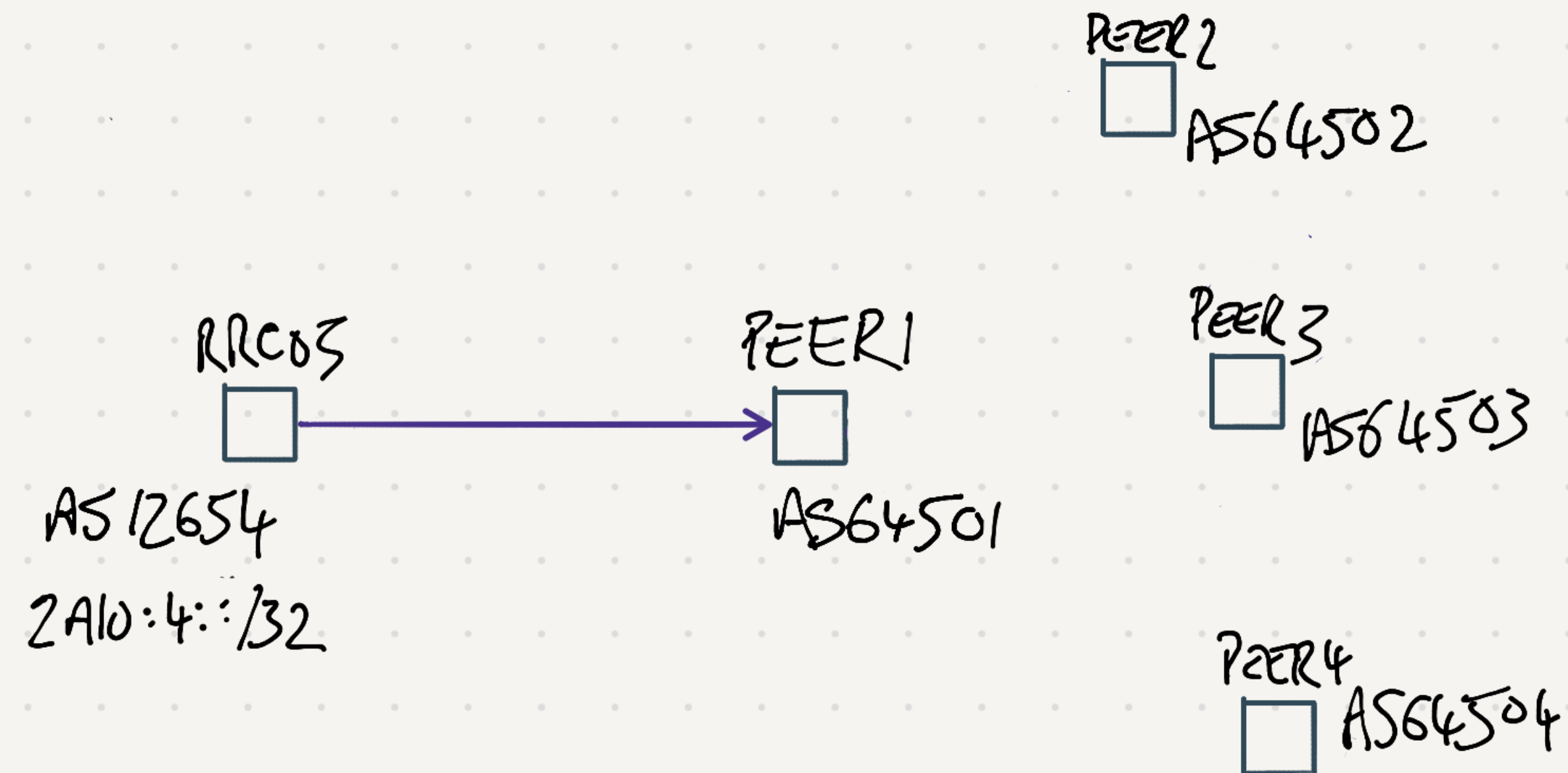
# Expectations



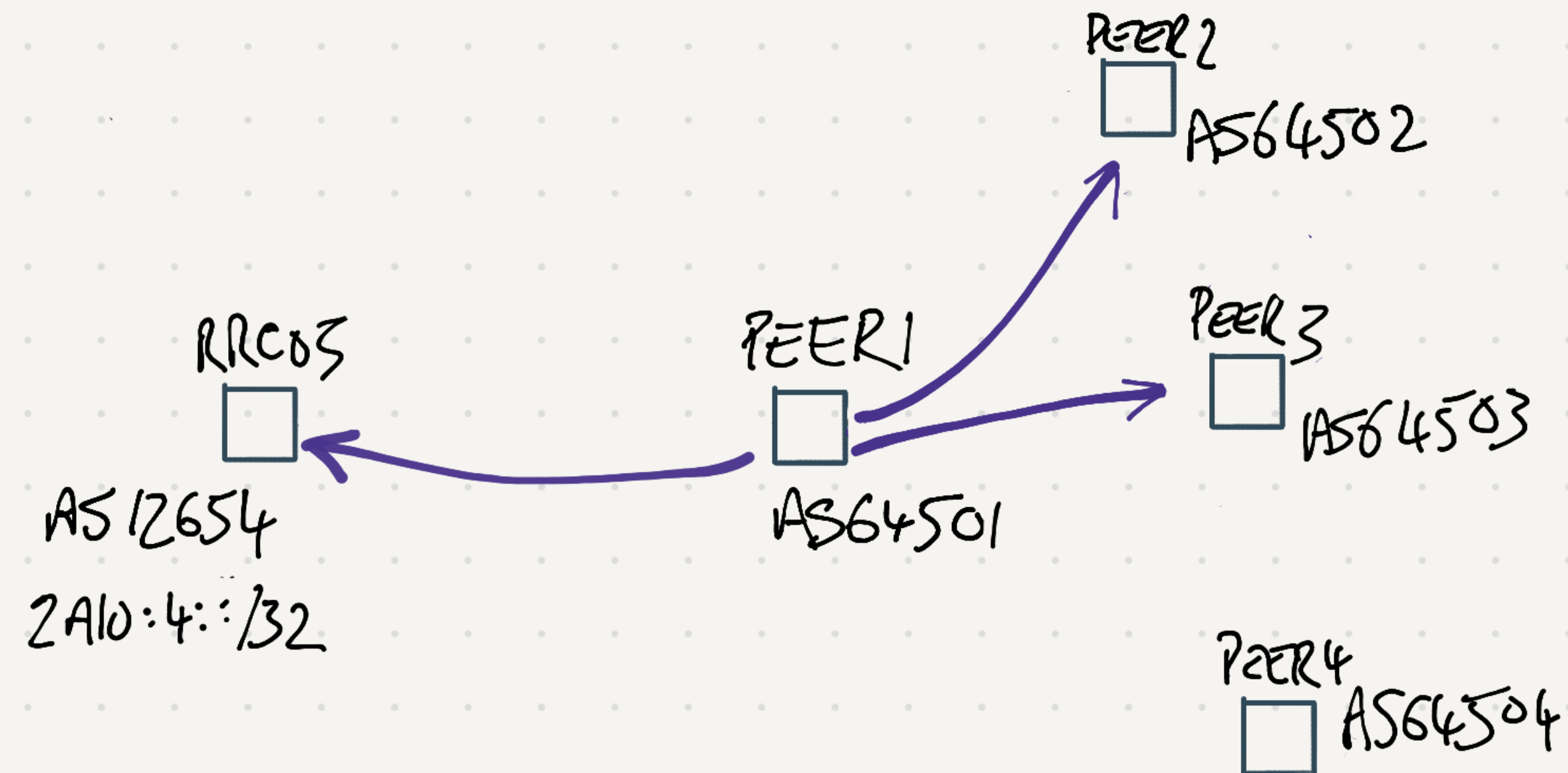
# Expectations



# Expectations



# Expectations





<https://www.ripe.net/analyse/internet-measurements/routing-information-service-ris/ris-peering-policy>

## RIS Peering Policy

Please announce all your IPv4 and IPv6 BGP routes to the RRC. With this information, our global visibility calculations become more accurate and it helps other AS operators to ensure that their prefixes are visible on your network. The use of TCP MD5 signatures is not supported. Participating peers will be listed on the RIS webpages. All BGP traffic will be recorded, stored in the RIS Database and made available to the Internet community.





**Observations**

# Observations



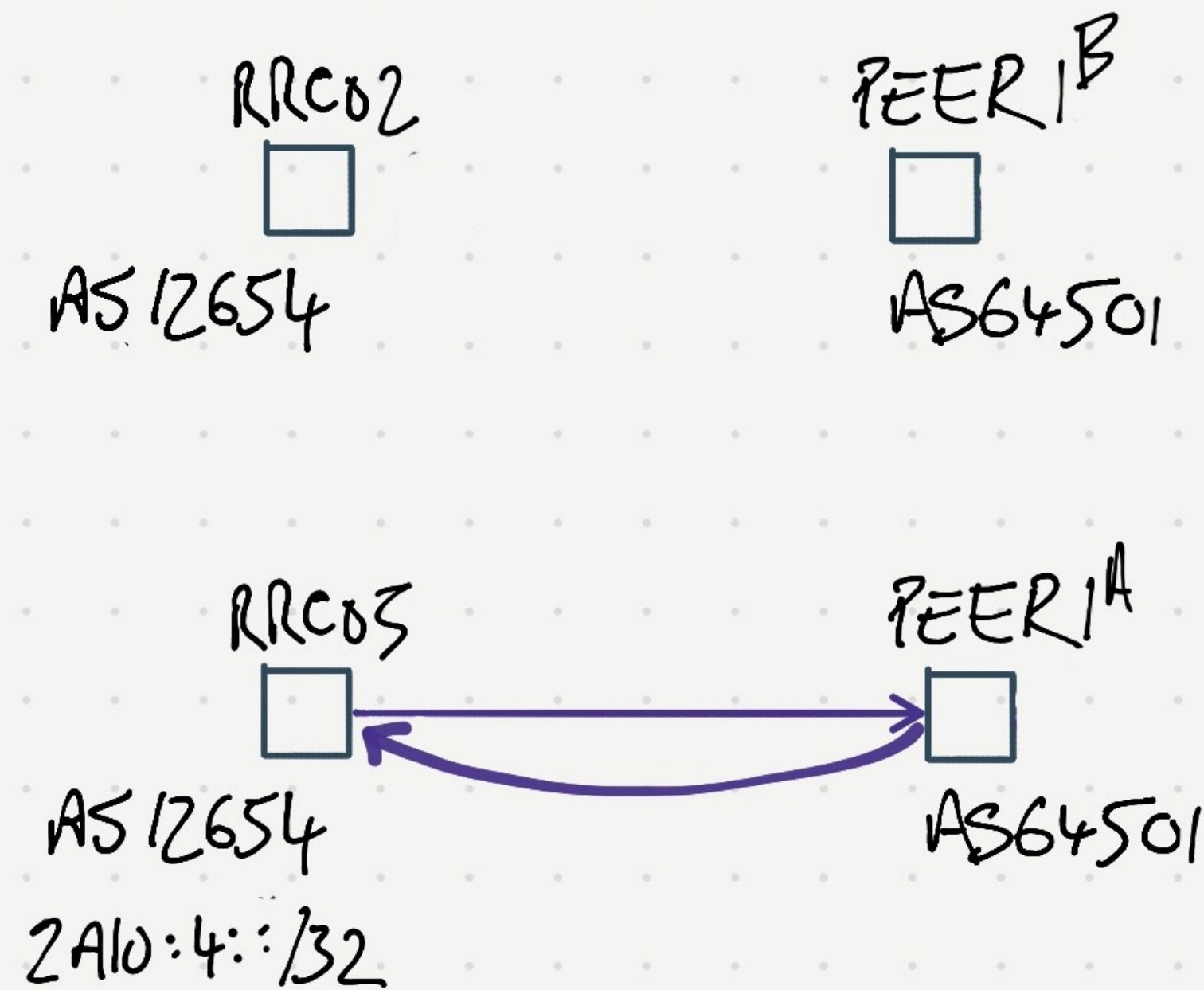
- Only three AS paths of length two are ever observed for the test prefixes
  - i.e., originating at AS12654 and returned to any RRC via any peer

# Observations



- Only three AS paths of length two are ever observed for the test prefixes
  - i.e., originating at AS12654 and returned to any RRC via any peer
- Two of these are collected by RRC03, paths via:
  - AS20495 (We Dare B.V.)
  - AS64271 (rixCloud, Inc)

# Paths with two ASNs

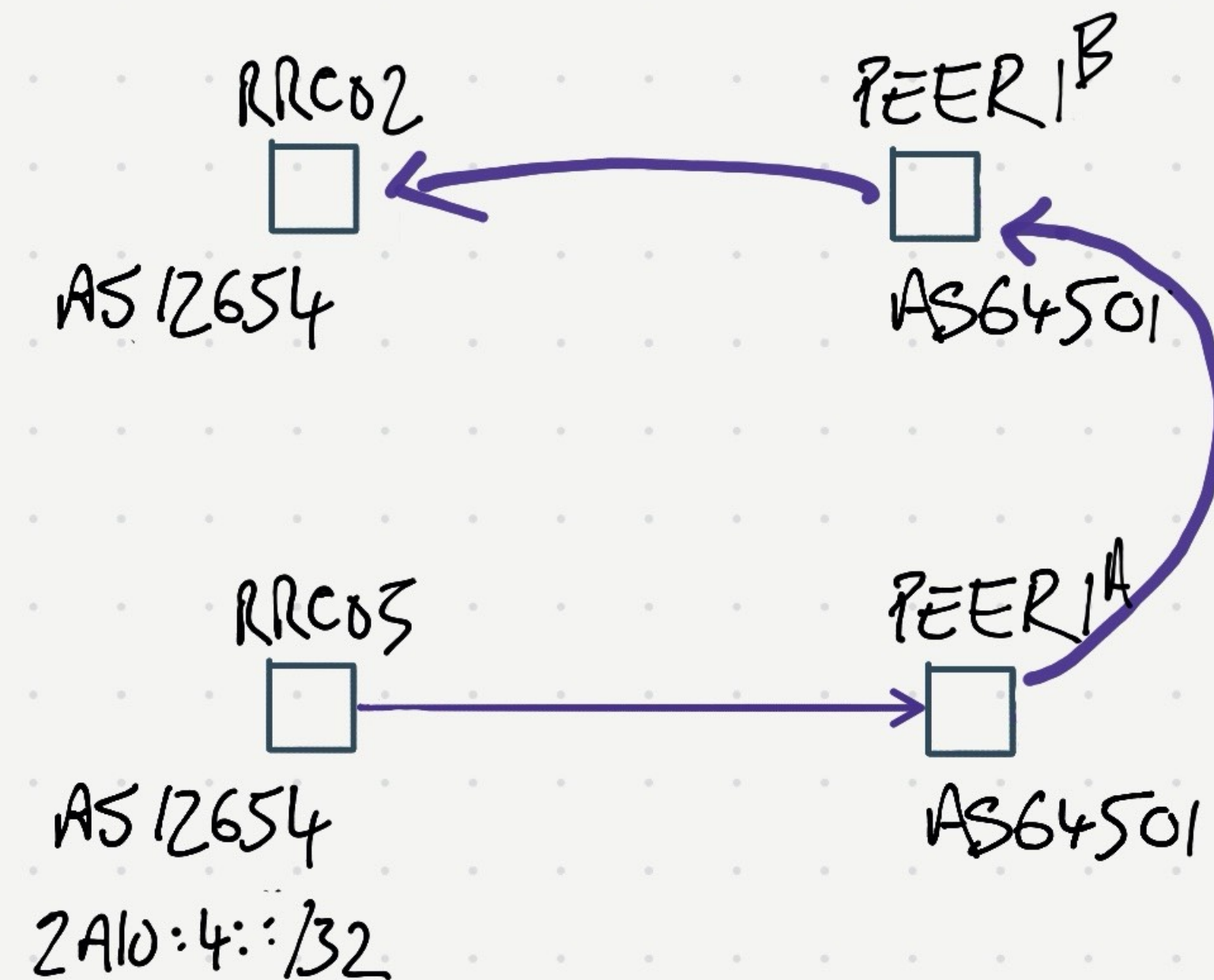


# Observations



- Only three AS paths of length two are ever observed for the test prefixes
  - i.e., originating at AS12654 and returned to any RRC via any peer
- One two-hop path via AS8218 (Zayo France SAS) propagates to six RRCs but not back to RRC03 itself

# Paths with two ASNs



# Withdrawal



- After withdrawal,
  - 17 new peers are observed in total across at 7 RIS route collectors
  - 8 of those are at observed at RRC03

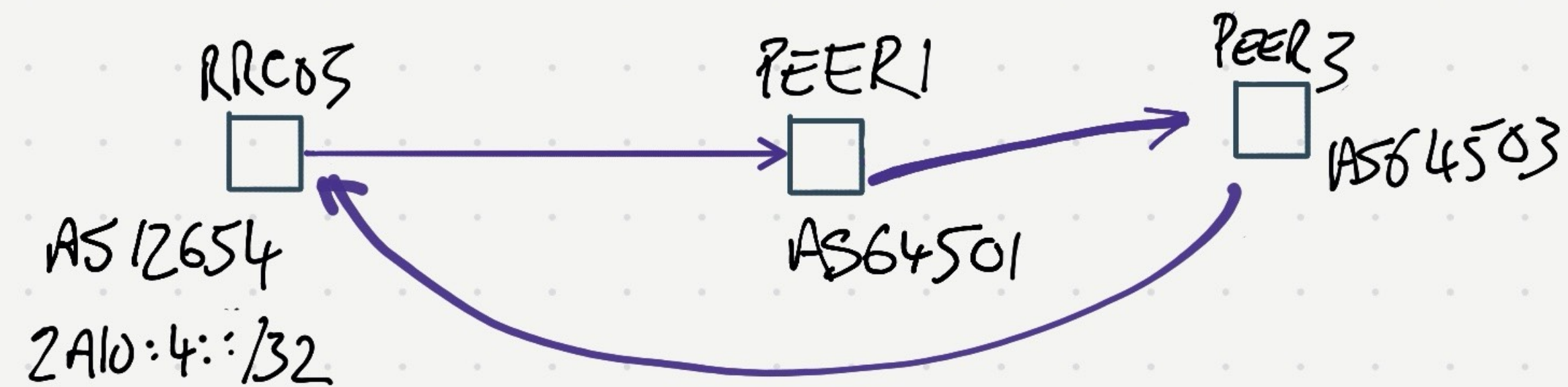
# Withdrawal



- Withdrawal naturally triggers path hunting
- In this phase, RRC03 observes announcements for these increasingly longer paths via peers not previously seen
- Appears those peers are not filtering the announcements
  - instead, they're simply not propagating announcements back along the link received



# Withdrawal





# Closing Remarks

# Closing Remarks



- BGP operations are complex and full of implicit details
  - this is just one
- It's an operational quirk of the route collector system
  - many people use RIS data and the RRC beacons & anchors
  - if you are using announcements from a given RRC, table dumps from that RRC may offer a poor view of its visibility
- The announcement of completely fresh address space may be insightful for routing researchers
  - everything we have is available in public routing datasets



# Questions



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