Routing Security and the RIPE NCC

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Routing Security and RIPE

- RIPE NCC maintains 2 tools for Routing Security

  - Internet Routing Registry (IRR)

  - Resource Public Key Infrastructure (RPKI)

- Both tools have the same goal but work differently

Internet Routing Registry

- RIPE documented the use of an IRR already in 1995

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Network Working Group                                    T. Bates
Request for Comments: 1786              MCI Telecommunications Corporation
Category: Informational                                  E. Gerich
                                                        Merit, Inc.
                                                      L. Joncheray
                                                        Merit, Inc.
                                                   J-M. Jouanigot
                                                             CERN
                                                   D. Karrenberg
                                                          RIPE NCC
                                                      M. Terpstra
                                                Bay Networks, Inc.
                                                            J. Yu
                                                        Merit, Inc.
                                                      March 1995


                  Representation of IP Routing Policies
                        in a Routing Registry
                             (ripe-81++)
```

History of Route(6) Objects

Route and Route6 objects in the RIPE Database
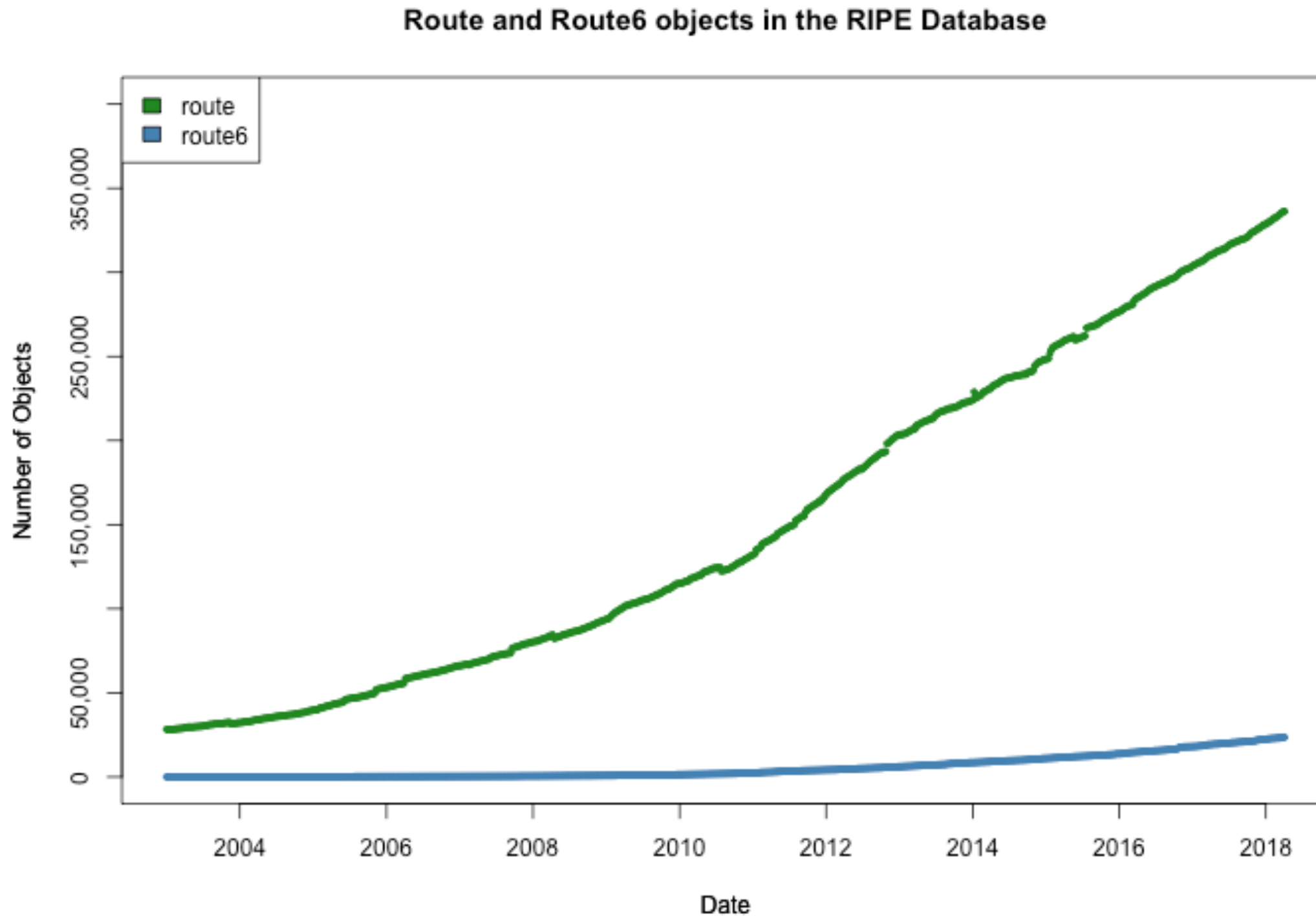
Route Object Creation Made Easy

- In the past it was not always easy to create a route(6) object

  - Different authorisation layers

- In 2014 we made things a bit easier

  - Creating the "pending" state

- Recently it was decided to remove the ASN authorisation requirement for ROUTE(6) object creation

  - Only the prefix holder will authorise

  - More info soon!

RPKI since 2011

- A security framework for verifying the association between resource holders and their Internet resources

- Attaches digital certificates to network resources upon request that lists all resources held by the member

  - AS Numbers

  - IP Addresses

- Operators associate those two resources
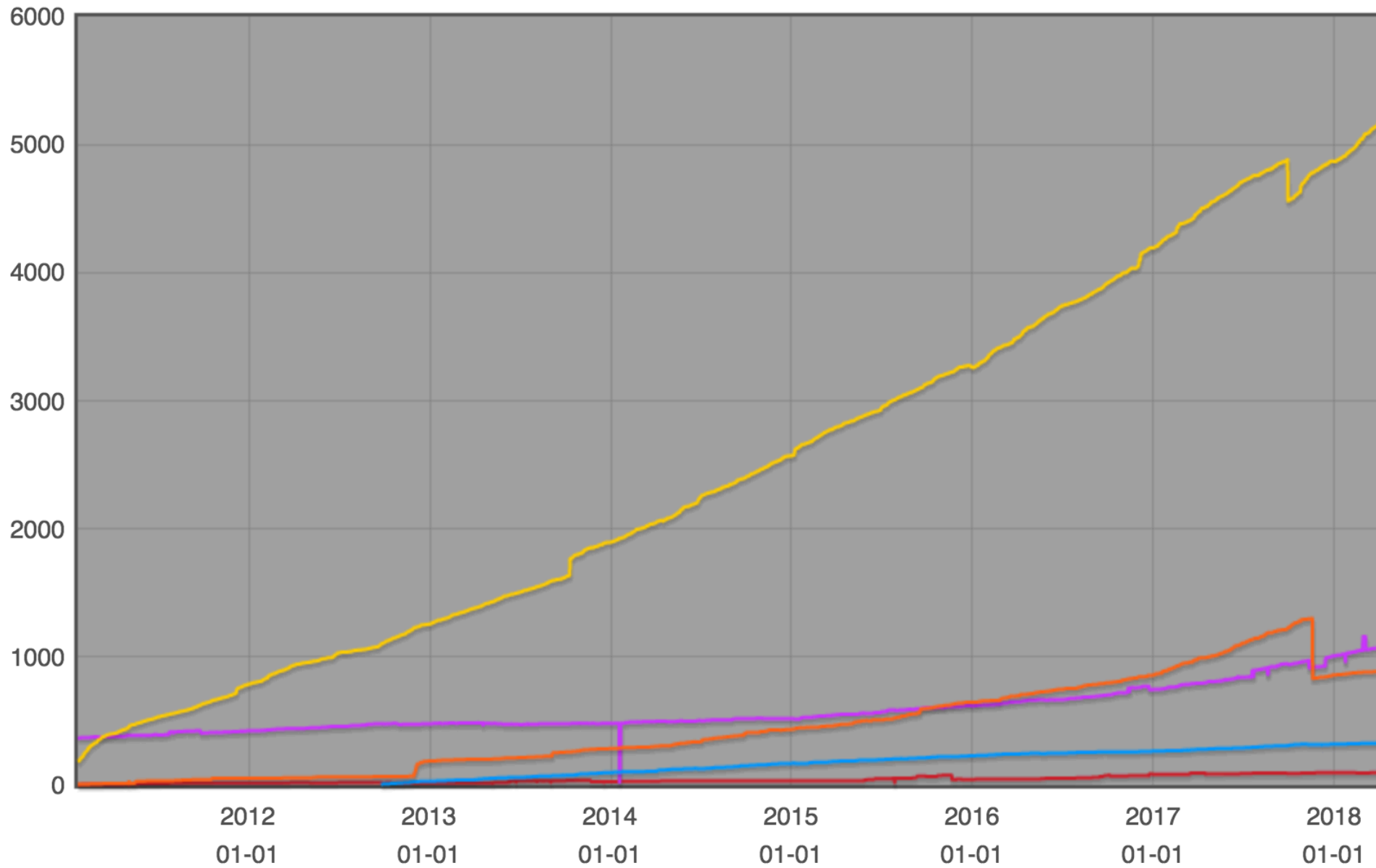
  - Route Origin Authorisations (ROAs)

RPKI Uptake

This graph shows the total number of resource certificates created under the RIR Trust Anchor. One certificate is generated per LIR, listing all eligible Internet number resources

ROA (Route Origin Authorisation)

- Members can use their certificate to create a ROA for each of their resources (IP address ranges)

  - Signed by the members private key

- ROA states:

  - Address range

  - Which AS this is announced from (freely chosen)

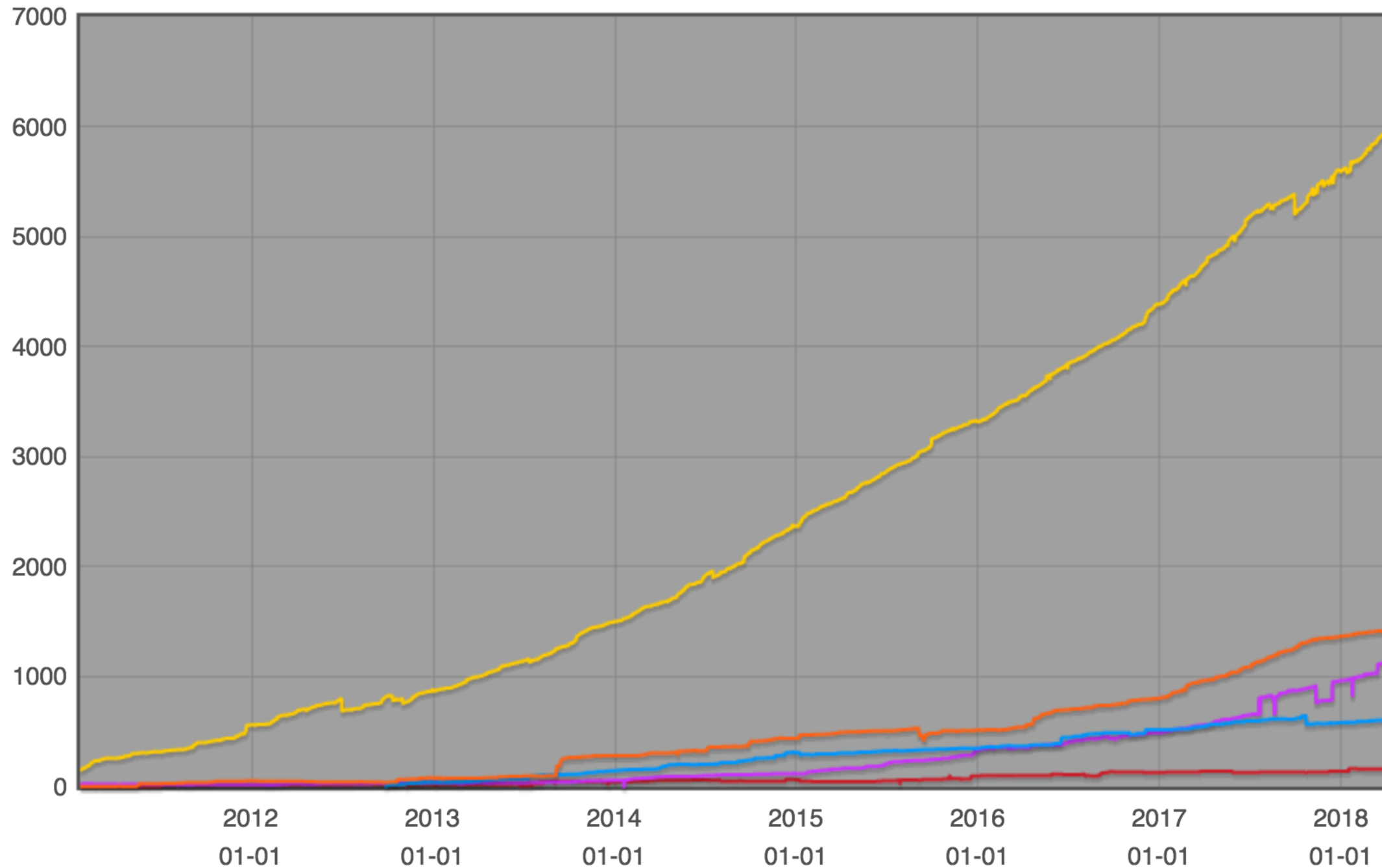 - Maximum length (freely chosen)

ROA Uptake

This graph shows the total number of valid Route Origin Authorisation (ROA) objects created by the holders of a certificate

Future Work

- Making it easier to create Route(6) objects and ROAs

  - Using one single interface in the LIR Portal

- Promote "taking the last step" in RPKI

  - The value is in validating!

Questions

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Questions

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