Freie Universität Berlin

Monitoring, Testing, and Deployment of RPKI Using RTRlib and RPKI MIRO

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RTRlib: In a Nutshell

General objective

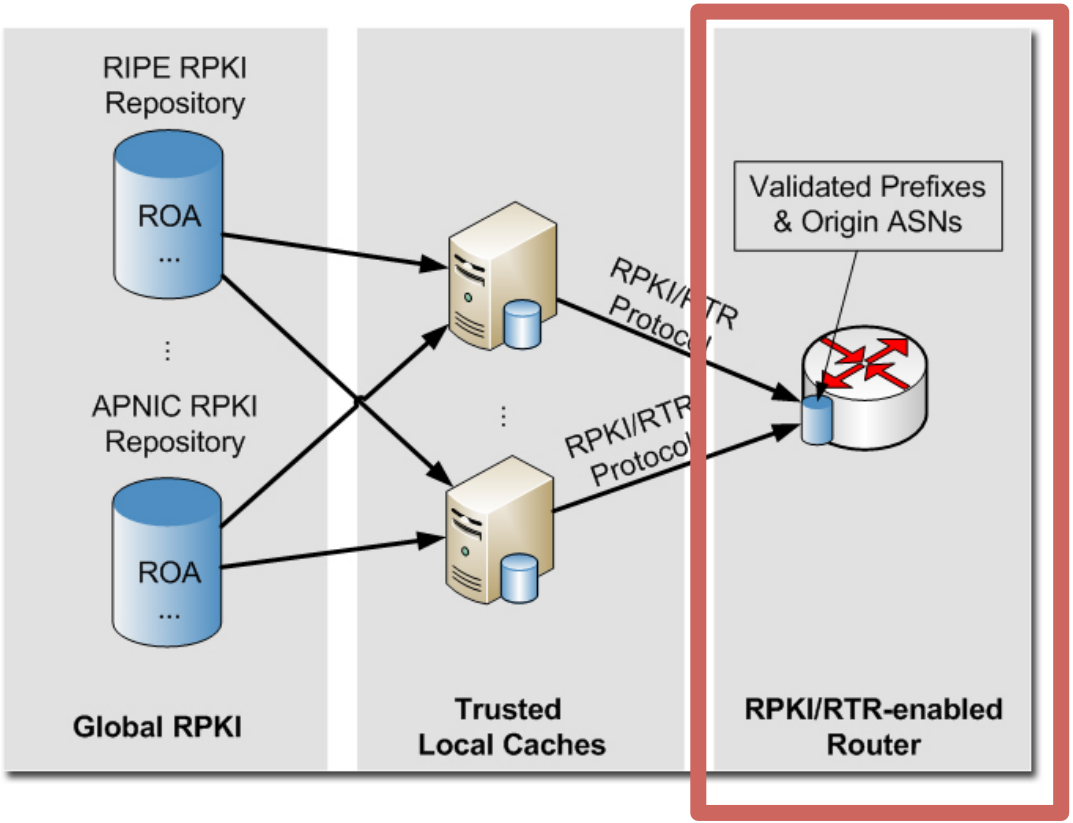
- Highly efficient implementation of RPKI-RTR client protocol
- C library for RPKI prefix origin validation

Details

- Fetch validated prefixes + origin ASes from RPKI cache
- Keep the routers validation database in sync
- Provide an interface between local database and routing daemon to access validated objects
- Allow also for validation of BGP updates
- Fully compliant with all relevant IETF RFCs/drafts

It's open-source!
http://rtrlib.realmv6.org
https://github.com/rtrlib/rtrlib/

RTRlib in the RPKI Architecture



Applications Using RTRlib

Open Source BGP Daemons + RPKI Origin Validation

- Quagga
  - Fork will be integrated in the master branch soon
- BIRD
  - External CLI, as well as
  - Integration in main BIRD source code, should be available w/ next release

Open Source Routing

BIRD

Example Monitoring Tools

- REST BGP RPKI Validator
- RPKI Web Browser Plugin
- Support in CAIDA BGPStream
- Advantage using RTRlib underneath: Independent of specific cache server

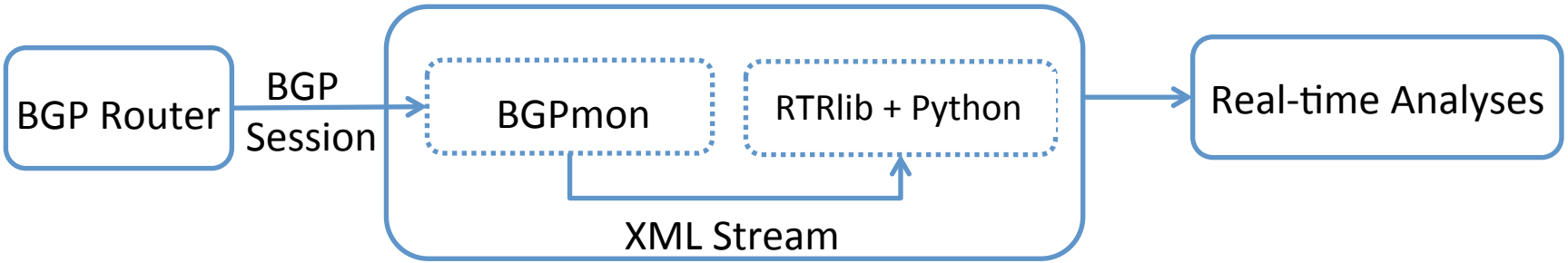
RTRlib: Live Monitoring of Origin Validation

Objective: Emulate origin validation of your BGP peer

Setup – No Firmware Changes at Your Router:

- Tools: RTRlib + Python Script + BGPmon
- Establish peering between your router and BGPmon

Demo
http://rpki-read.realmv6.org



RPKI MIRO: In a Nutshell

General objective

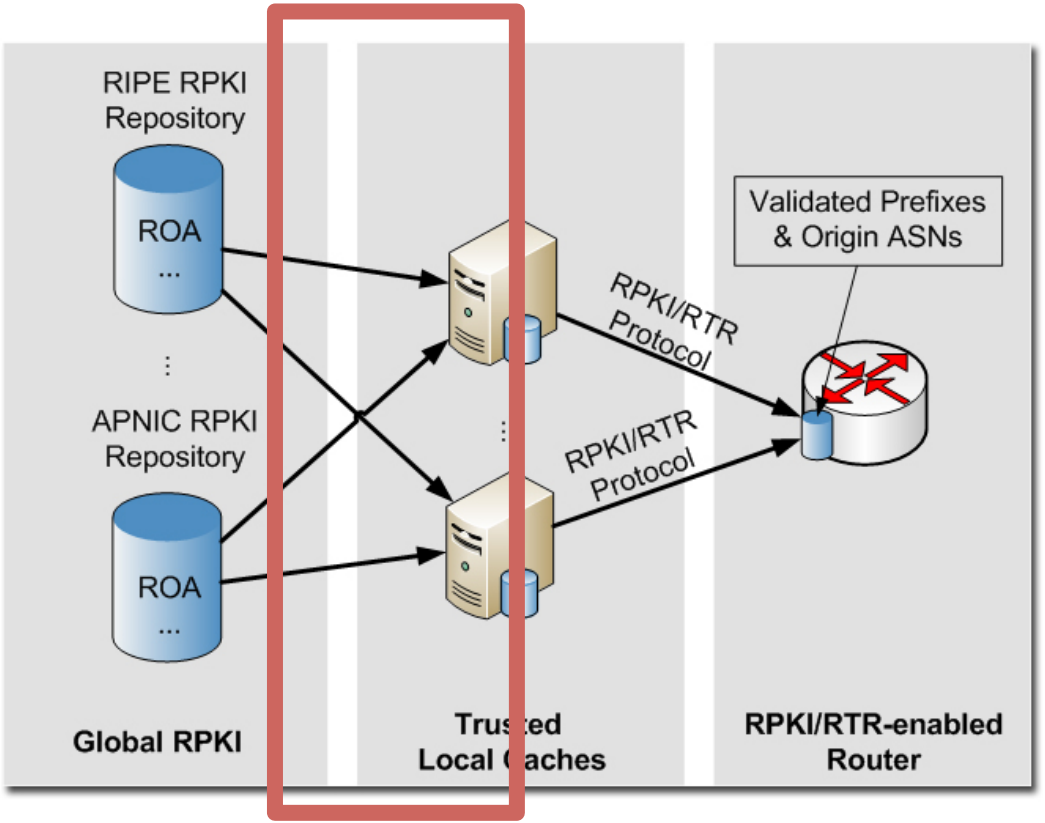
- Monitoring and Inspection of RPKI Objects

Details

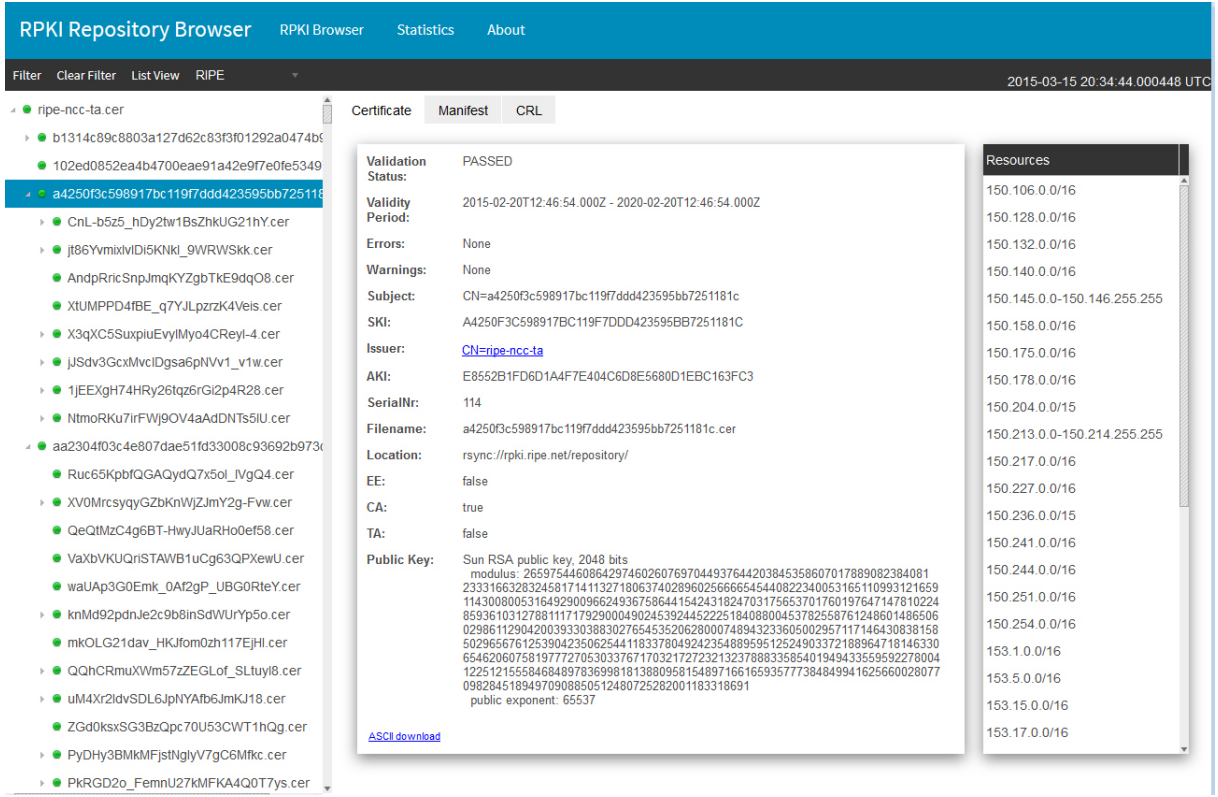
- Functions to collect RPKI data from remote repositories
- An intuitive browser to visualize RPKI objects
- Statistical analysis of the collected objects.

It's open-source!
http://rpki-miro.realmv6.org
https://github.com/rpki-miro/

RPKI MIRO in the RPKI Architecture



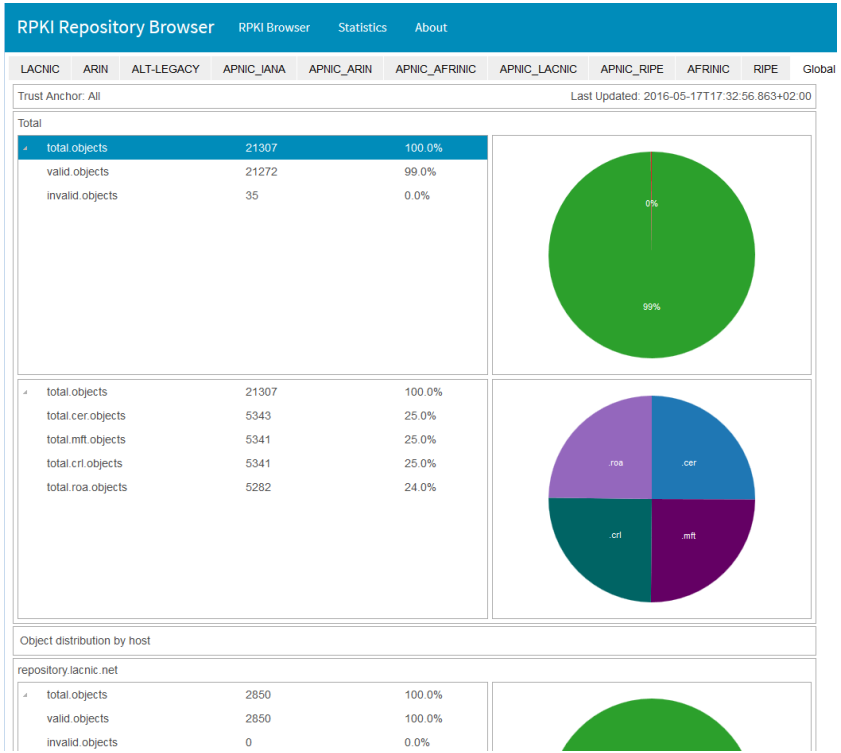
RPKI MIRO: Browser



Try it!
rpki-browser.realmv6.org

RPKI MIRO: Stats

- RPKI MIRO allows for distributed RPKI probes
- Fetching RPKI objects
  - Currently, only rsync support
  - Support for delta protocol on the way
- We can add your CA, let us know!



Contact

RTRlib (and integrations in Quagga, BIRD, and CAIDA BGPStream)

- http://rtrlib.realmv6.org
- http://rpki-read.realmv6.org
- https://github.com/rtrlib

github
SOCIAL CODING

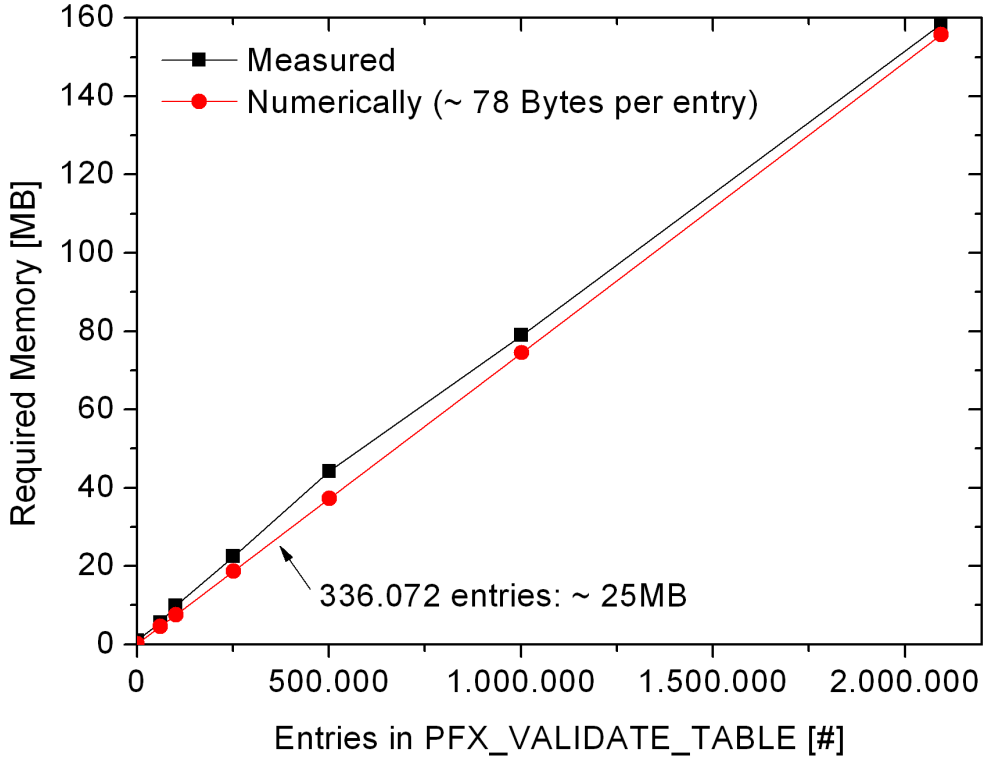
RPKI MIRO

- http://rpki-miro.realmv6.org
- http://rpki-browser.realmv6.org
- https://github.com/rpki-miro

Email: m.waehlisch@fu-berlin.de :: http://www.inf.fu-berlin.de/~waehl

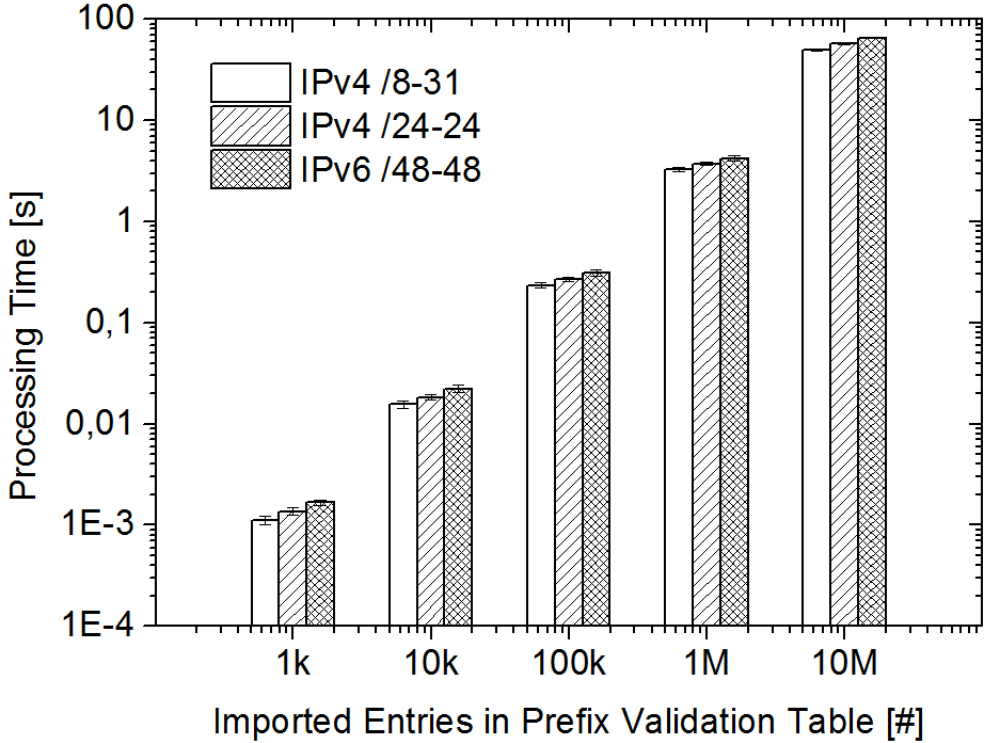
BACKUP

RTRlib: Memory Consumption



More details: M. Wählisch, F. Holler, T.C. Schmidt, J.H. Schiller, **RTRlib: An Open-Source Library in C for RPKI-based Prefix Origin Validation**, **In:** *Proc. of 7th USENIX Security Workshop on Cyber Security Experimentation and Test (CSET),* Berkeley, CA, USA:USENIX Assoc., 2013.

RTRlib: Delay While Loading ROA Data



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