

RPKI implementation at Fusix Networks

RIPE RPKI Deployathon, 8 March 2019

About Fusix



Consulting ISP in The Netherlands



We operate a network with POPs in ~20 Dutch data centers, and help people connect to it so they can service their customers



Our typical customers: (a) “we just need bandwidth”; (b) companies that should be an ISP, but don't know how



POPs in USA for direct connectivity to Comcast, Verizon etc.



Selective peering, we prefer stable routes over cheap ones



Web portal for anti-DDOS, reverse DNS, BGP event notifications etc.



Routing security

Set ourselves apart

RPKI implementation



Choice of validator



Configuring validators



Choice of RPKI policy



Where to check RPKI validity



Troubleshooting & customer feedback



Future developments

Choice of validator

RIPE Validator v2

RIPE Validator v3

Routinator 3000

(We haven't tried Cloudflare's validator)

Configuring validators

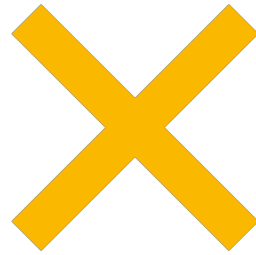


We use Juniper – see our book for config snippets
😊



Found out that you can put a maximum of 2
validators in one validation group (in accordance
with the small print, but without showing a
warning or log message – PR open)

Choice of RPKI policy



The only right choice: INVALID == REJECT



As a step in the right direction, I personally think it is acceptable to run with INVALID = lower local pref for a while, but in the end this is not a good solution

Where to check RPKI validity

Import

On import from transits

Import

On import from peers

Import

On import from customers

Export

On export to anyone

Only 3 reachability complaints in the first 6 months (support department needs to be able to recognize this)

In one of them, we were requested to whitelist; the other 2, customer said "Well OK that's their problem then"

Troubleshooting & customer feedback

Future developments



JUNOS upgrade to handle a certain trouble PR



Enable RPKI validity checks on all export (good suggestion Herr Volk & Teun, thanks!)



Step by step, enable RPKI on customer import (and help them create their ROAs)



How to handle blackhole /32s when



Questions?