

# ROA Signing Party!

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# AS-SETs

AS-SETs **can't be** used to:

- Perform origin validation;

AS-SETs **can be** used to:

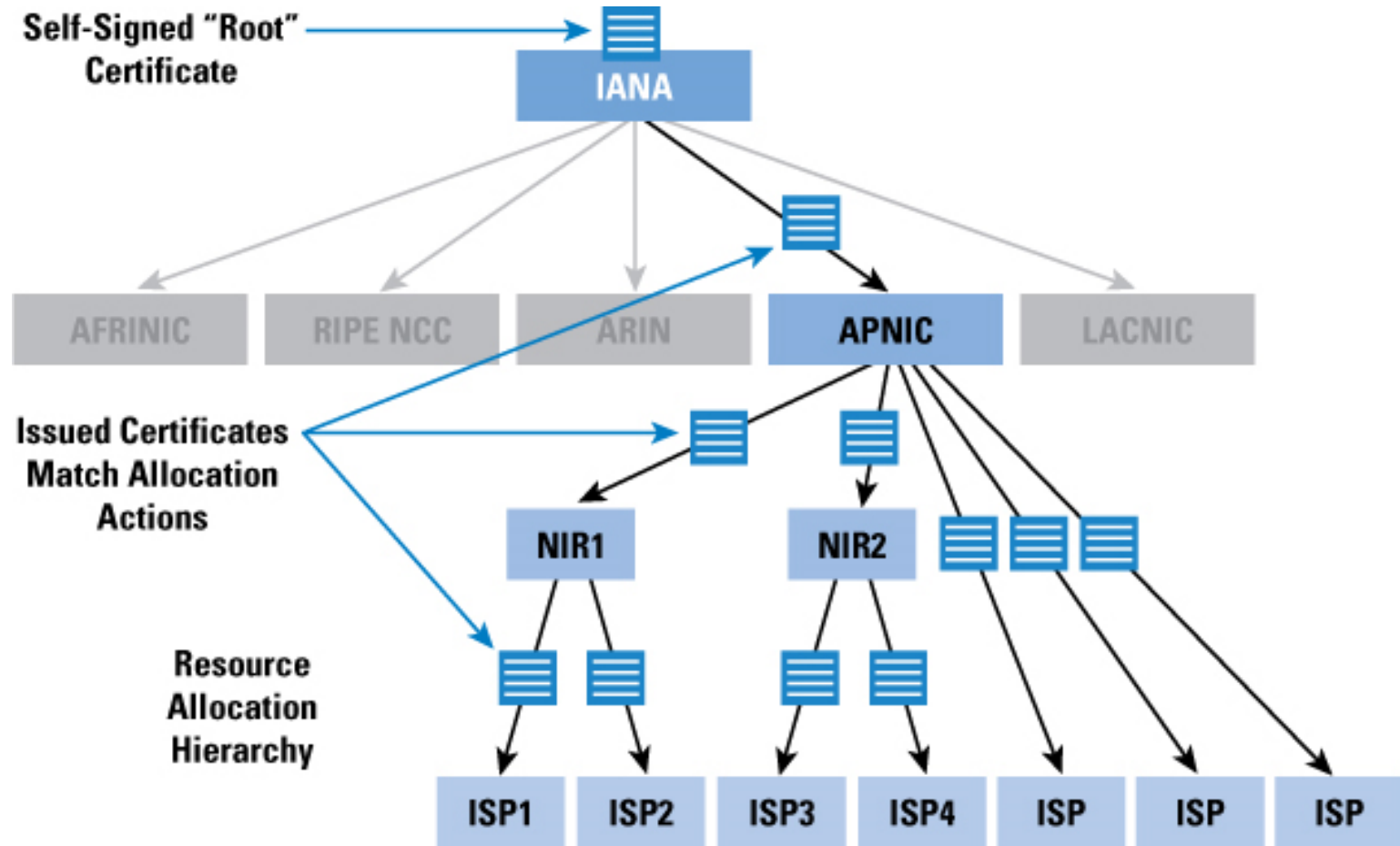
- Filter some hijacks;
- Filter some route leaks;

Many AS-SETs are **poorly maintained**;

AS-SETs **are not authorized**;

Unique naming between registries – **of course No!**

# What is ROA?



# ROA object

1. ASN;
2. Prefix;
3. Max-length;

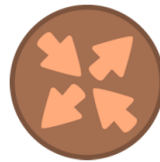
<https://tools.ietf.org/html/rfc6482>

# check\_roa(asn, prefix)

- **Valid** – prefix matches ROA with corresponding asn and within maximum length;
- **Invalid** – ROA(s) record exists, but without corresponding asn or exceeds maximum length;
- **Unknown** – ROA that covers prefix does not exist.

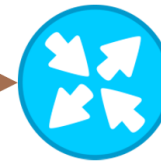
# ROA Validation: AS\_PATH Violation

ROA (178.248.232.0/21, 197068, 32)



ASXXX

178.248.232.0/21  
AS\_PATH: ASXXX AS197068



ASYYY

ROA check OK!

# ROAs

ROA Validation **can't be** used to:

- filter route leaks;
- filter malicious hijacks.

ROA Validation **can be** used to:

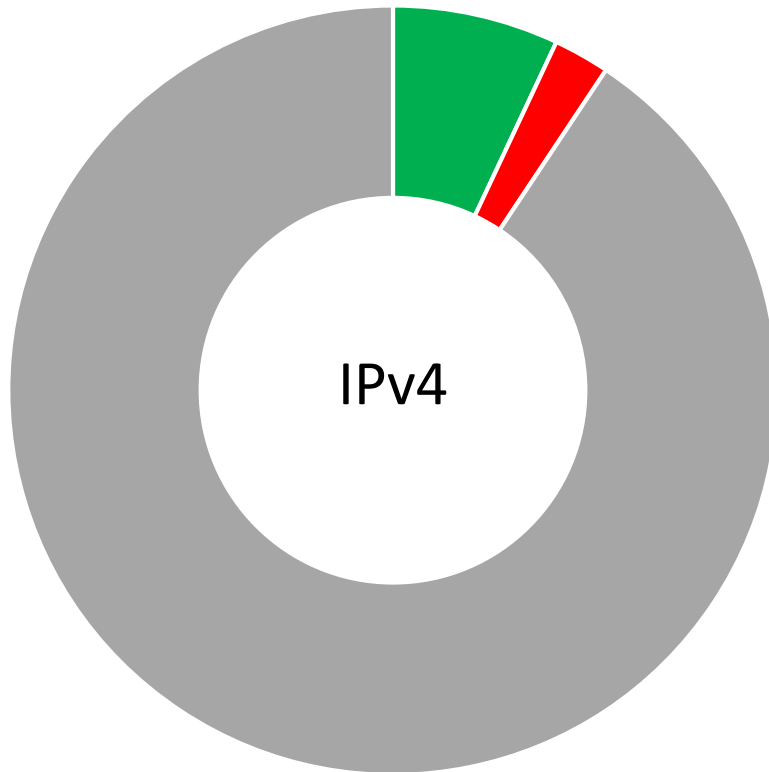
- filter mistake hijacks;

# Engineers vs Mistakes

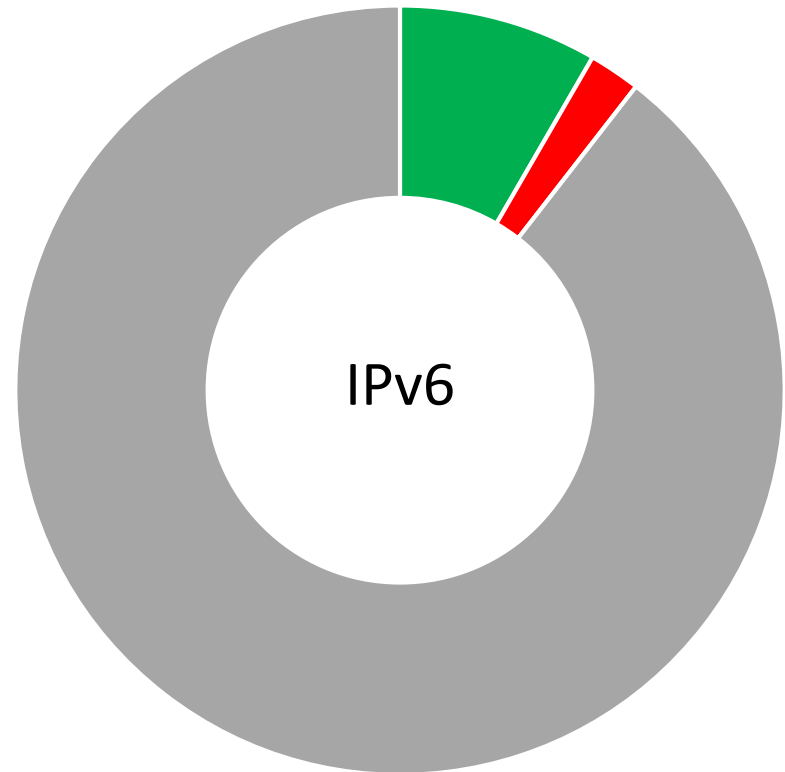




# Actual State

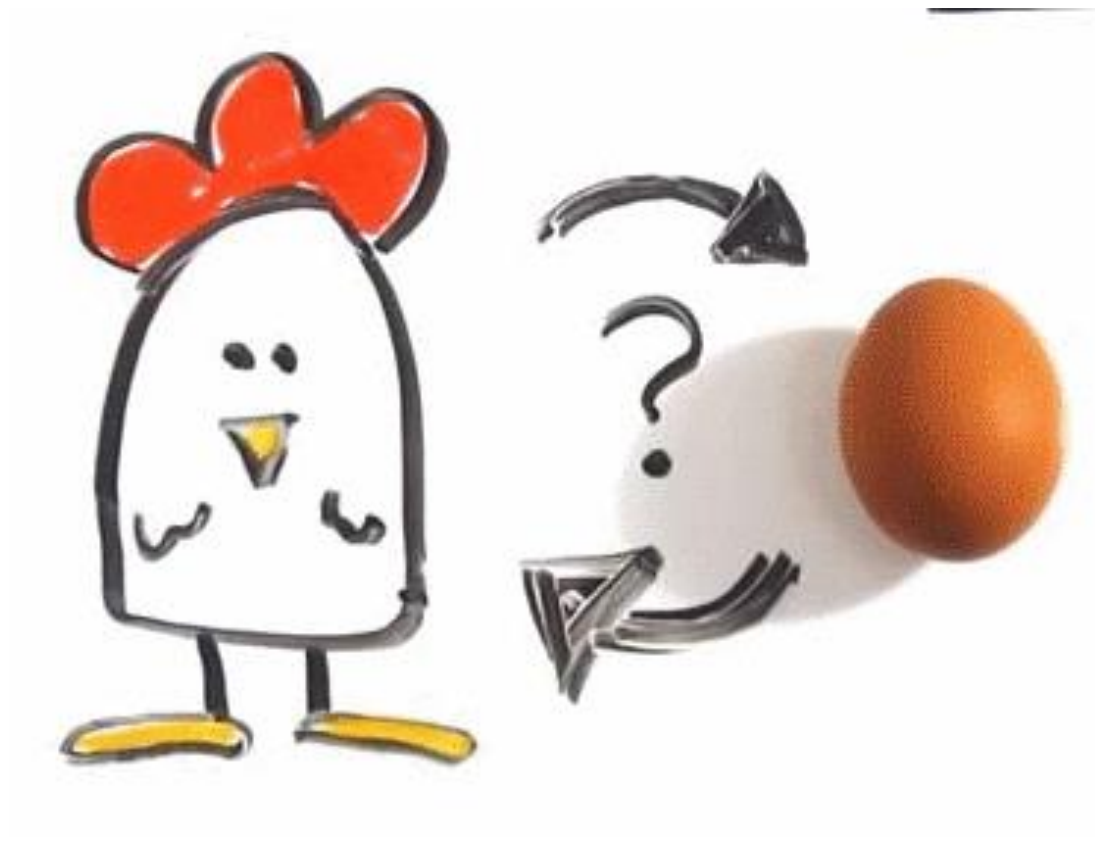


■ Valid ■ Invalid ■ Unknown



■ Valid ■ Invalid ■ Unknown

No ROA-validation – no ROAs?



# Wind of Change

## IXes will drop Invalids!



<https://www.manrs.org/participants/ixp/>

# How to Sign It?

It's simple:

1. <https://my.ripe.net/#/rpki>
2. Sign only aggregates;
3. Set max\_length to 32 in IPv4 (128 in IPv6);

# Example

 **14 BGP Announcements**  **3 ROAs**

14 Valid  0 Invalid  0 Unknown  3 OK  0 Causing problems

**BGP Announcements** | **Route Origin Authorisations (ROAs)** | **History** Search...

<input type="checkbox"/> AS number	Prefix	Most specific length allowed	Affects	
<input type="text" value="AS Number"/>	<input type="text" value="Prefix"/>	<input type="text" value="Max length"/>		<input type="button" value="Save"/> <input type="button" value="Refresh"/>
<input type="checkbox"/> AS197068	185.94.108.0/22	32	<span style="background-color: #28a745; border-radius: 50%; padding: 2px 5px;">5</span>	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
<input type="checkbox"/> AS197068	185.65.148.0/22	32	<span style="background-color: #28a745; border-radius: 50%; padding: 2px 5px;">3</span>	<input type="button" value="Edit"/> <input type="button" value="Delete"/>
<input type="checkbox"/> AS197068	178.248.232.0/21	32	<span style="background-color: #28a745; border-radius: 50%; padding: 2px 5px;">6</span>	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Show  of 3 items

# ROA Verification

- [radar.qrator.net](http://radar.qrator.net);
- [bgp.he.net](http://bgp.he.net);
- [localcert.ripe.net:8088/bgp-preview](http://localcert.ripe.net:8088/bgp-preview).