Some Ideas on Origin Validation Testing

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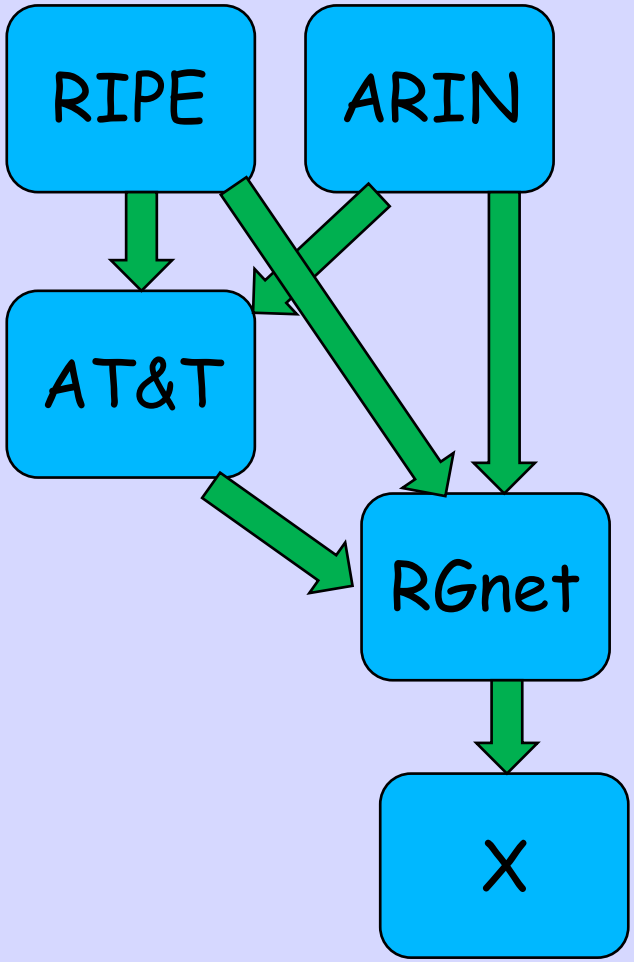
General Pieces

- CA Interoperation: can my CA be a child of RIPE, ARIN, NTT, and root 1918?
- Do caches (AKA validators) all produce the same results?
- Do caches fetch from each if the global RPKI is not reachable?
- Do routers produce consistent results when using multiple caches?
- Do routers actually validate, log, SNMP, …?

Certificate Authority Testing

Do Dragon Labs, RIPE, ARIN, AfriNIC, … CAs Interoperate?

Today we have a three deep CA, RIPE->RGnet->X. But what if



We should be testing this Q1 2017 and report on it in Chicago

Validators/Caches

Do they produce consistent results?

(Validators/Caches)

Now all implementation do everything in one, but consider

- Multiple redundant fetchers with access to the global internet that get RRDP data
- One active validator, and one standby (avoid race conditions) getting the RRDP data and validating it
- Multiple caches with validated data that routers can contact

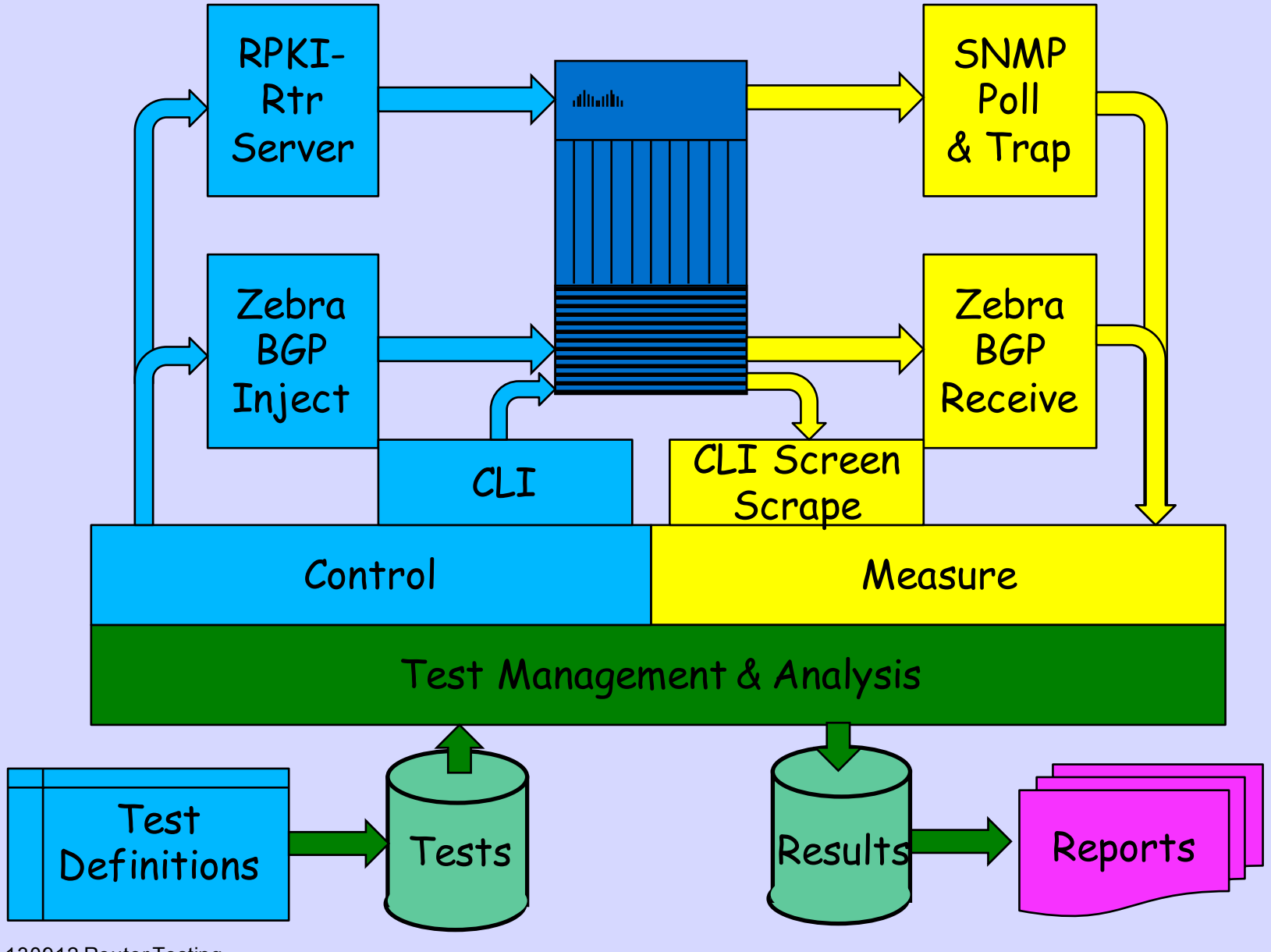
Router Testbed

Test if a router correctly performs RPKI-Based Origin Validation

Measure Semantics, not Speed, etc.

Testbed for Regression Testing so that fixed bugs do not reappear

Test Harness



130912 Router Testing

Assumptions

- The RPKI implementation itself is tested
- The RPKI cache is tested
- The RPKI-Rtr Protocol Service is tested
- We can control cache content change at a very fine granularity
- We can control BGP content change at a very fine granularity
- A little more detail at

  https://psg.com/131007.origin-test.pdf

How to test these things reproducibly and constantly to insure against regression etc.?

How do we organize such a set of activities?