

# Enabling Operational Use of RPKI via Internet Routing Registries



## Cyber Security Division 2012 Principal Investigators' Meeting

10 October 2012

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# Agenda

- Introduction
- Technical Approach
- Timeline & Deliverables
- Technology Transition Plan
- Quad Chart

# Introduction

- Part of TTA 7
- Technical Developer is Larry Blunk
- Advertised routes are currently held in Internet Routing Repositories.
- RPKI is an initiative to make internet routing more secure through establishing trustworthy repositories of internet route advertisements.
- Applying trust to the IRR system is a natural fit to spread the adoption of RPKI to the broader Internet community.

# Technical Approach

- Extend the Routing Policy Specification Language to include RPKI attributes.
- Establish and operate a public RPKI validation cache.
- Modify registry software to allow searching on RPKI attributes.
- Augment existing tool sets to use the RPKI information being distributed via the IRRs.

# Timeline & Deliverables

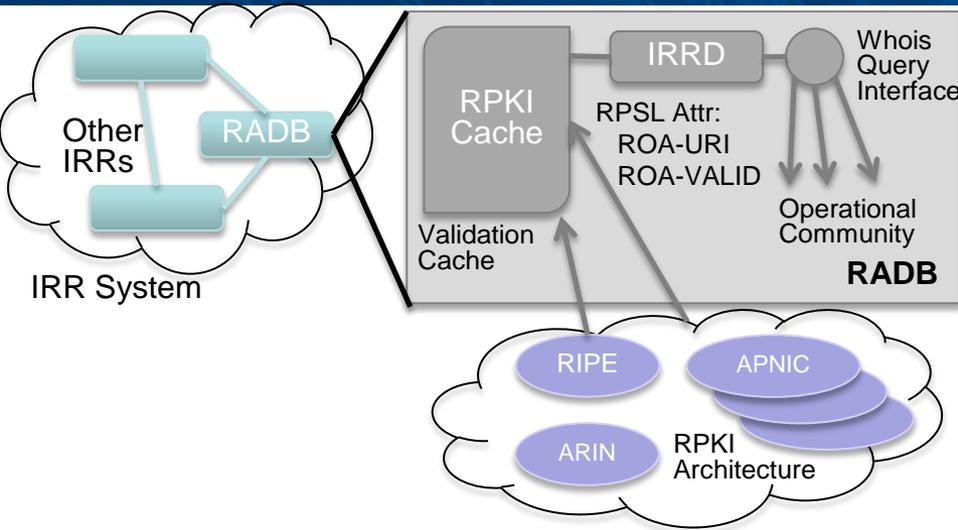
- 1 year funded effort for software development
- 4 deliverables:
  - Extend RPSL for RPKI (mo 1 - 3)
  - Create public validation cache (mo 4 - 6)
  - Add RPKI searching to IRRD (mo 7 - 10)
  - Augment IRR tool sets to use RPKI attributes (mo 11 - 12)
- Program reporting will be conducted throughout the project

# Technology Transition Plan

- RaDB is already operational
- Establish a more trusted validation cache
- Move toward broader use of RPKI attributes
- Integrating RPKI attributes with commonly used tool sets

## Title: Enabling Operational Use of RPKI via Internet Routing Registries

Date: 2012 – 10 - 10



### Operational Capability

#### Overall Performance Target:

To enable the operational use of RPKI via Internet Routing Registries enhancing the security posture of the DHS and the Internet as a whole

#### Benefits of RPKI Integration with the IRR System

- The IRR system and RADB are used by the network operational community for routing policy specification and route configuration generation
- Allows for an easy to use mechanism to disseminate RPKI object information to large numbers of users via a familiar interface
- Integration of RPKI with default RADB configuration supports rapid adoption by the Internet community
- Creates production quality stable and supported validation cache as a community resource to support ongoing deployment and adoption of RPKI

### Technical Approach

*Leverage the operational reach of the Routing Assets Database (RADB) to promote adoption of RPKI on a large scale*

- Develop RPSL extensions in the form of additional route attributes such as roa-valid or roa-uri that link the IRR with the RPKI architecture
- Operate a production public RPKI validation cache as part of RADB
- Develop and demonstrate RPKI support in IRR tools commonly used by the Internet community
- Implement changes to IRRD software that forms the basis of the IRR system to implement support for RPKI validation lookups and responses to route queries

### Schedule, Costs, Deliverables, & Contact Info:

Proposal Type: Type III

Duration: 1 Oct 2012 – 30 Sep 2013

#### Technical POC

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#### Deliverables & Schedule

- Develop RPSL extensions for RPKI (mo 1 - 3)
- Build/Operate Public Validation Cache (mo 4 - 6)
- RPKI Support in RRD (mo 7 - 10)
- Add RPKI Support to IRR Tools (mo 11 – 12)