Asia Pacific Network Information Centre

APNIC

APRICOT BALI 2007

Progress Report on Resource Certification

February 2007

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Objective

- To create a robust framework that allows validation of assertions relating to IP addresses and ASNs and their use

and

- To make it easier for anyone to see if someone is lying about actual control over addresses and/or routing!

Uses

- Signing of IRR entries

  "Yes, I am the right-of-use holder and that's *precisely* the information I entered into the IRR."

- Signing of Routing Origination

  "Yes, I am the right-of-use holder for this address prefix and I am permitting ASx to originate a route to this address prefix."

- Signing of Route Requests

  "Please route address prefix a.b.c.d/x through customer interface xxx."

Resources for this work

- APNIC's allocation database
- Public / Private key technology
- X.509 v3 certificate technology
- IP resource extensions to X.509 v3 certificates
- PKI models and trust relationships

The Overall Objective

- To support a PKI that mirrors the existing resource allocation state
  - Every resource allocation can be attested by a matching certificate that binds the allocated resource with the resource issuer and recipient
- To use these resource certificates to make signed assertions that can be validated through this PKI

Trial Activity Status

- Specification of X.509 Resource Certificates
- Generation of resource certificate repositories aligned with existing resource allocations and assignments
- Tools for Registration Authority / Certificate Authority interaction (undertaken by RIPE NCC)
- Tools to perform validation of resource certificatesExtensions to OpenSSL for Resource Certificates (open source development activity, supported by ARIN)

Current Activities

- Tools for resource collection management, object signing and signed object validation (APNIC, and also open source development activity, supported by ARIN)
- LIR / ISP Tools for certificate management
- Testing, Testing, Testing
- Operational service profile specification

Working notes and related material we've been working on in this trial activity:

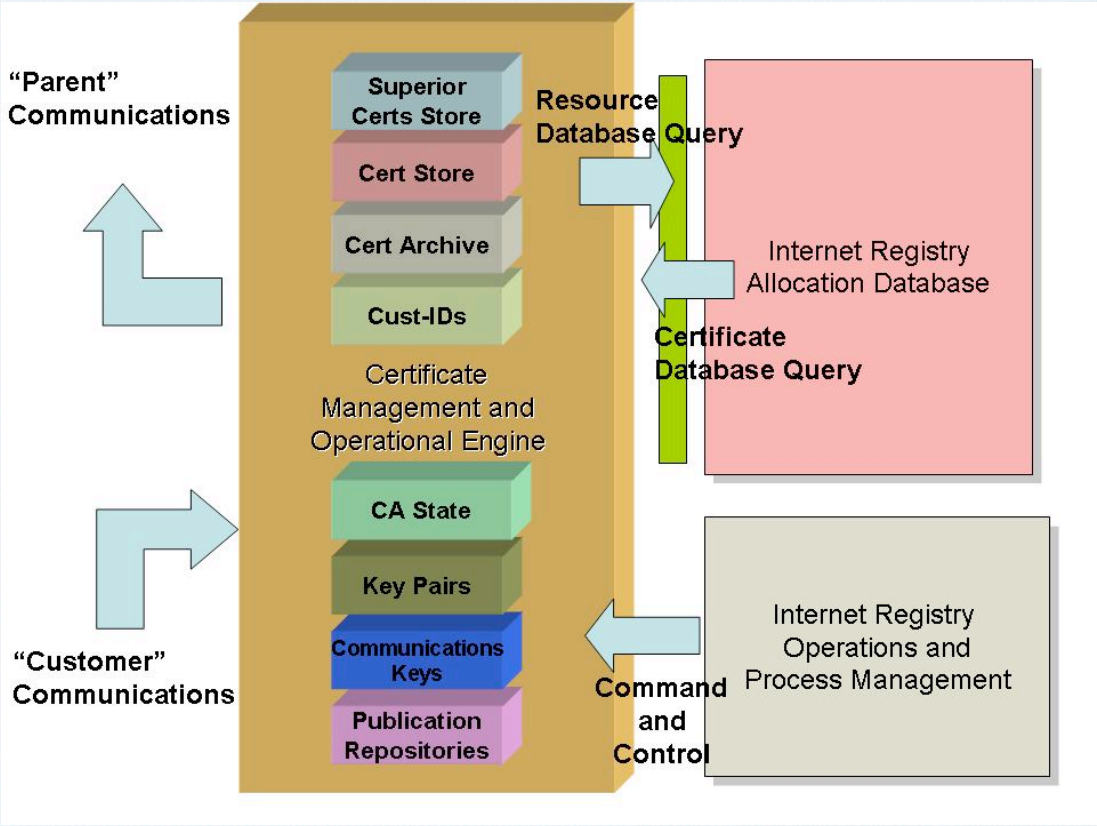
http://mirin.apnic.net/resourcecerts

Focus points for Q1 2007

- Can we design the certificate management subsystem to be an largely automated “slave” of the resource allocation function?
- Provide a toolset to allow IRs to manage certificate issuance
- Use the same toolset to provide “hosted” certificate services

Focus points for Q1 2007

- Defining the components and interactions of a “certificate engine”



Focus points for Q1 2007

- Automated certificate issuance
- Client-side tools that allow certificate management to be ‘out-sourced’
- Considerations of splits, mergers and resource transfers

Next Steps

- Development of the Certificate Engine
- End Entity Certificates
- Tools for Relying Parties
- Evaluation of Progress

Thank You

http://mirin.apnic.net/resourcecerts

Questions?