What's Next: DNSSEC & RPKI

Mark Kosters

Why are DNSSEC and RPKI Important

- **Two critical resources**
  - DNS
  - Routing
- **Hard to tell when it is compromised**
- **Focus of Government funding - DHS**

What is DNSSEC?

- **DNS responses are not secure**
  - Easy to Spoof
  - Examples of malicious attacks
- **DNSSEC attaches signatures**
  - Validates responses
  - Can not Spoof

ARIN's DNSSEC Deployment

- Working with IANA on signing in-addr.arpa and ip6.arpa
- ARIN's /8 zones have been signed since Q2 of 2009
- Provisioning networks will be made through ARIN Online
- Available (estimate) Q3 of 2010 for IPv4
- IPv6 delegations will be secured after ip6.arpa signed

What is RPKI?

- **Routing today is insecure**
  - IAB Report calls it "Routing by Rumor"
  - Multiple occurrences of taking others traffic
    - Pakistani Youtube incident http://ripe.net/news/study-youtube-hijacking.html
    - More Recently a root server in China
  - No evidence that is totally malicious – but it could be in the future

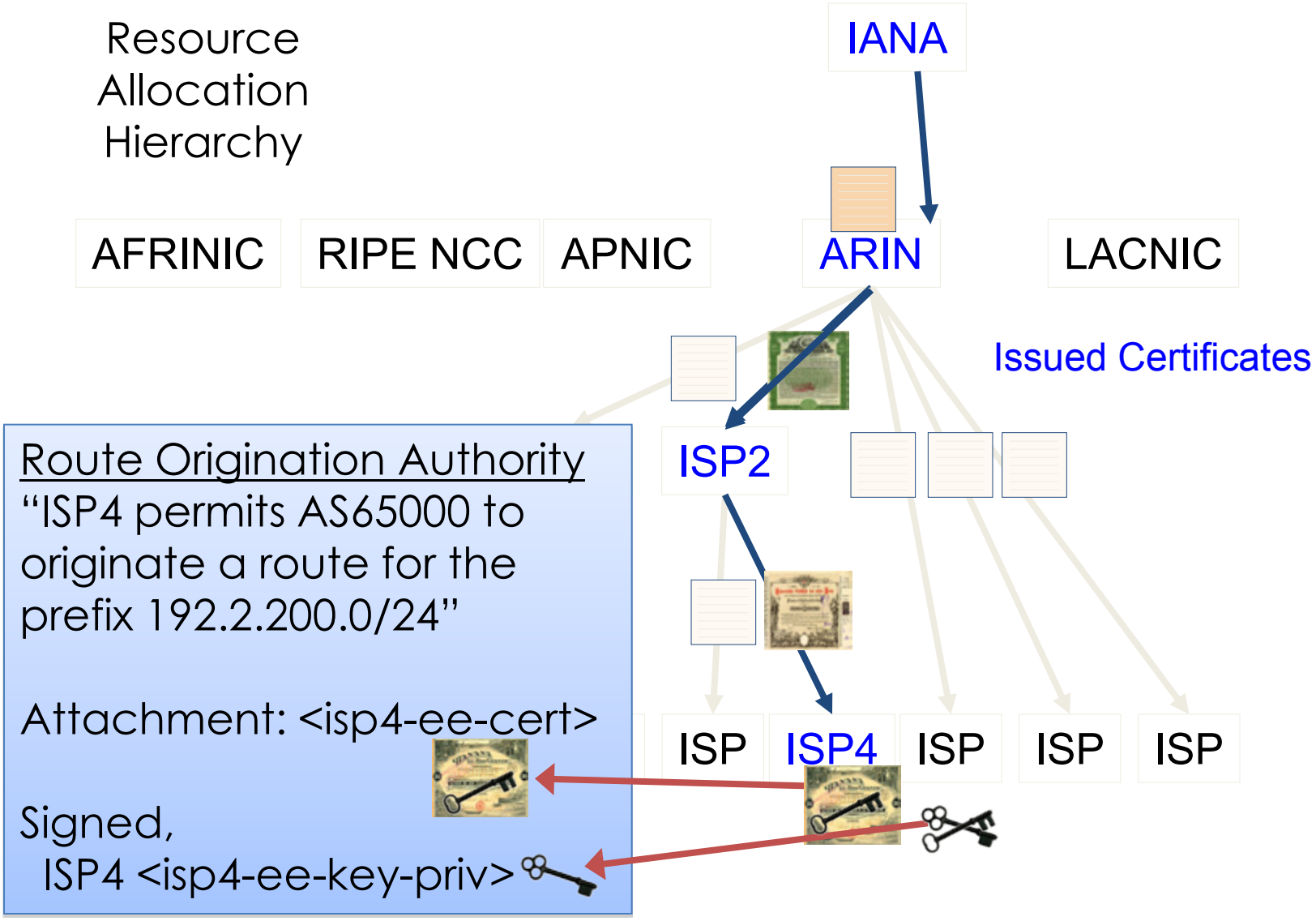
What is RPKI?

- **Attaches certificates to network resources**
  - AS Numbers
  - IP Addresses
- **Allows ISPs to associate the two**
  - Route Origin Authorizations (ROA's)
  - Follow the Allocation chain to the top

What is RPKI?

- **Allows routers to validate Origins**
- **Start of validated routing**
- **Need minimal bootstrap info**
  - Trust Anchors
  - Lots of focus on Trust Anchors

Resource Cert Validation



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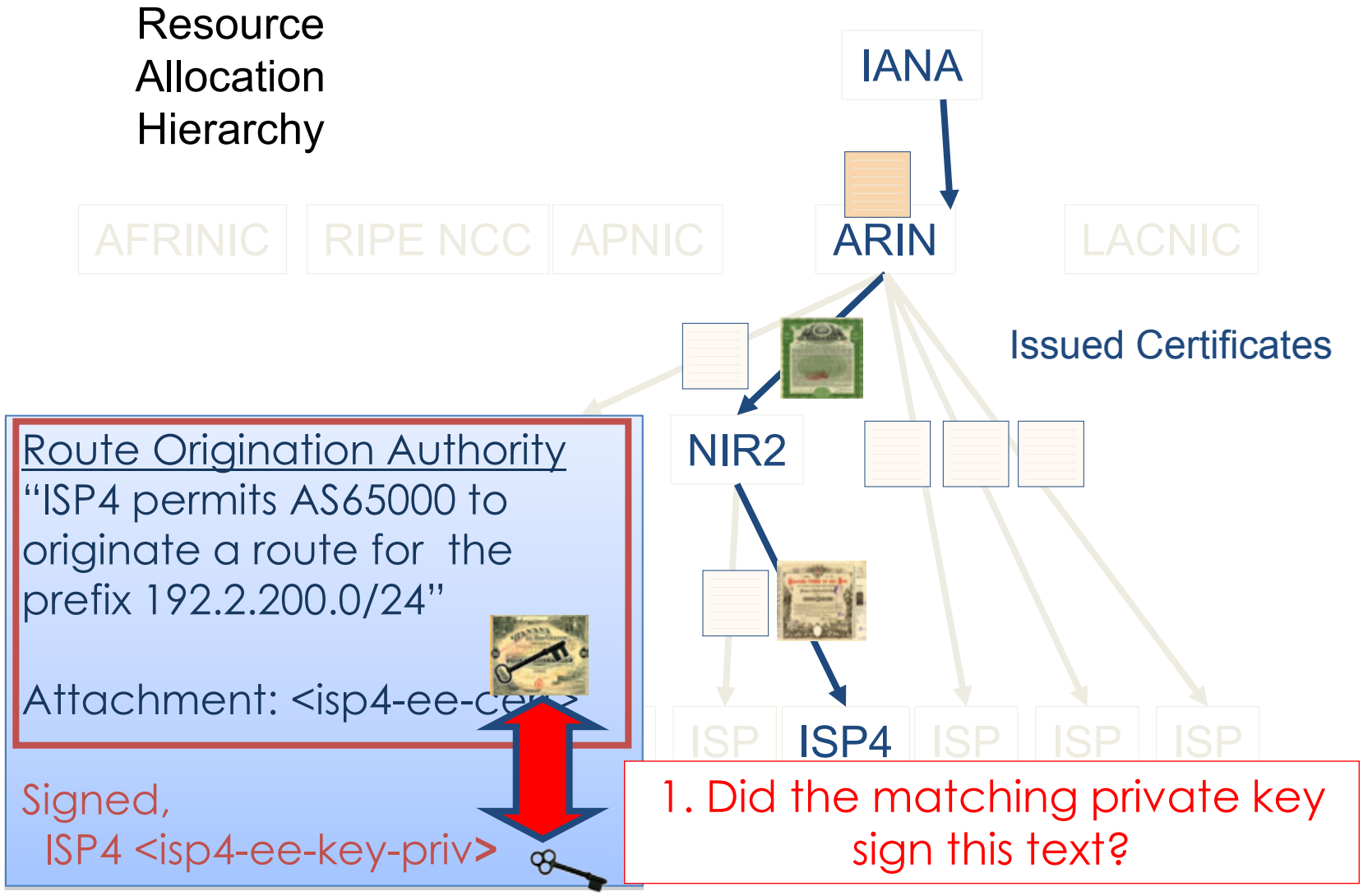

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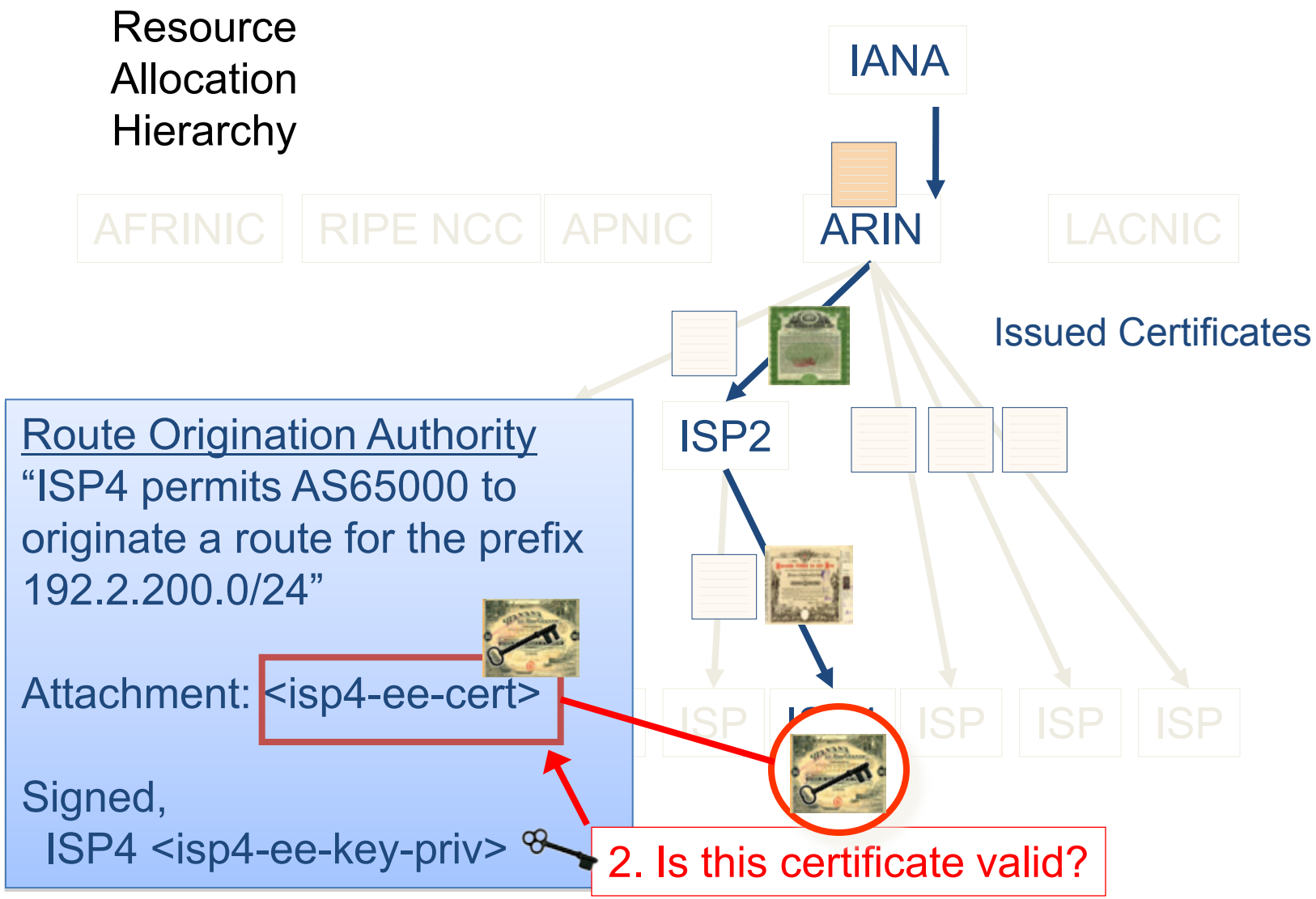

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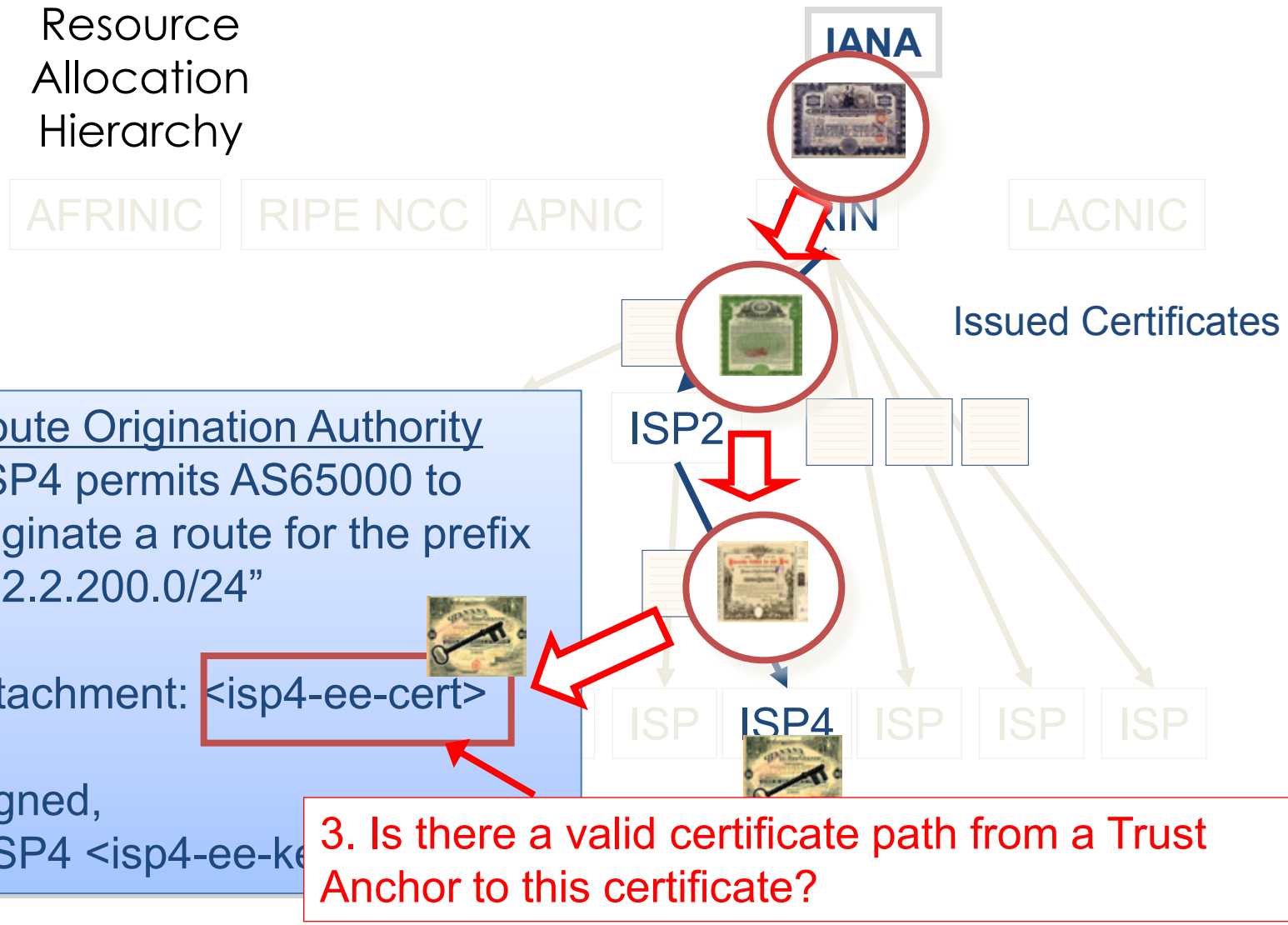
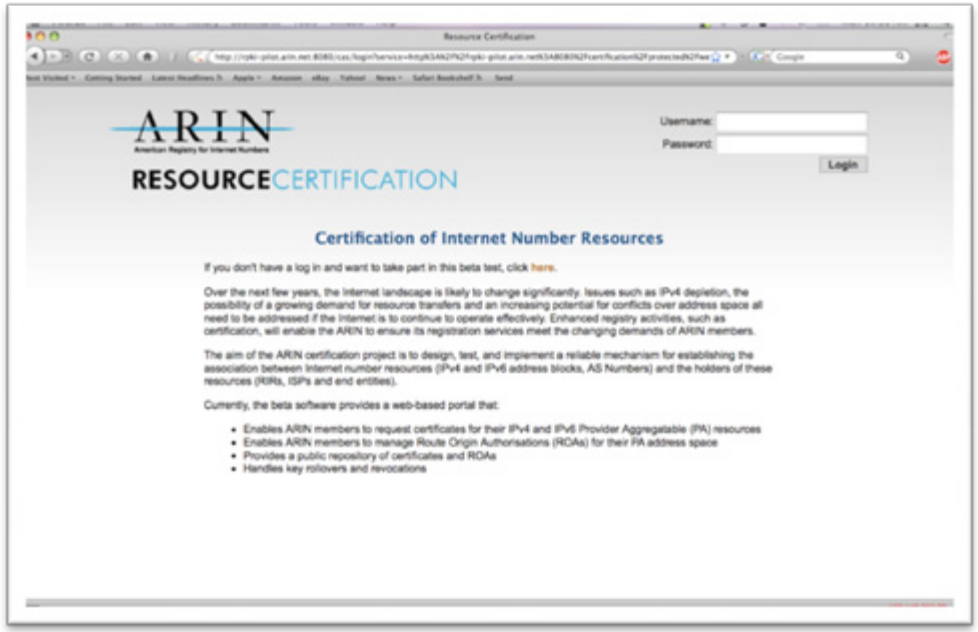


Ok, Now what

- **We have a pilot**
  - https://rpki-pilot.arin.net
- **Get some experience**
- **Participate!**



RPKI Roadmap to Production - 4 phases

- **Phase 1: Pilot**
  - Operational since 7/2009
- **Phase 2: Initial Production**
  - End of Q4 of 2010
- **Phase 3: Global Consistency**
  - Estimate 2011
- **Phase 4: Single Trust Anchor**
  - Estimate 2011

Questions?