ARIN IP Address Stewardship

3 February 2011
About ARIN

• Regional Internet Registry (RIR)
  – Established December 1997 by Internet community

• 100% community funded

ARIN’s region includes Canada, many Caribbean and North Atlantic islands, US Minor Outlying Islands, and the United States.
## Emergence of the RIRs

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>African Network Information Center (AfriNIC) formed.</td>
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<tr>
<td>2002</td>
<td>Latin American and Caribbean Registry (LACNIC) formed.</td>
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<tr>
<td>1998</td>
<td>Internet Corporation for Assigned Names and Numbers (ICANN) formed.</td>
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<tr>
<td>1997</td>
<td>American Registry for Internet Numbers (ARIN) formed; management of</td>
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<tr>
<td></td>
<td>domain names and number resources split.</td>
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<tr>
<td>1993</td>
<td>InterNIC created by NSF to separate the commercial and DoD network</td>
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<td></td>
<td>registry functions; Asia Pacific Network Information Centre (APNIC)</td>
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<tr>
<td></td>
<td>formed.</td>
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<tr>
<td>1992</td>
<td>RFC 1366 establishes geographic regions; Réseaux IP Européens Network</td>
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<td></td>
<td>Coordination Centre (RIPE NCC) formed.</td>
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<td>1991</td>
<td>Registry function contract moved to Network Solutions, Inc.</td>
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<td>1980s</td>
<td>IANA/NSF contract registry function to SRI International (called</td>
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<tr>
<td></td>
<td>Network Information Center (DDN-NIC).</td>
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<td>1980s</td>
<td>NSFNET/ARPANET addressing managed by Jon Postel at USC/ISI via a NSF</td>
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<td></td>
<td>contract (function called the Internet Assigned Numbers Authority (IANA)</td>
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Key Regional Registry System Documents

• IETF RFC 2050
  Formally defines the RIR system and sets three goals for IP address space management:
  – conservation
  – routability – uniqueness/aggregation
  – registration

• ICANN ICP-2
  Requires adherence to global policies regarding address space conservation, aggregation, and registration.
ARIN’s Mission

• ARIN, a nonprofit, member-based organization:
  – supports the operation of the Internet through the management of Internet number resources throughout its service region
  – coordinates the development of policies by the community for the management of Internet Protocol number resources
  – advances the Internet through informational outreach
IP Address Space Status

- **Internet Protocol v4 (IPv4)**
  - Total of 4.3 billion IP addresses available
  - Well entrenched and used by every ISP and hosting company to connect customers to the Internet
  - Allocated based on documented need
  - Not designed for a global/commercial Internet
  - IANA free pool was depleted 3 February 2011

- **Internet Protocol v6 (IPv6)**
  - IETF began working on what became IPv6 in the early 1990s
  - Exponentially larger address pool
  - Deployed in 1999
  - Should meet world IP addressing needs well into the future
Relevant Number Policies

**ARIN 2009-1: Specified Transfer Policy**

- Approved & implemented
- Provides incentive for a party that may be able to free up IP address blocks (e.g. by renumbering) to be able to transfer space to a party which qualifies to receive space per ARIN’s existing number resource policies.
- Not a market, per se, but it enables limited market-like behavior for those who have qualified need for address space for their infrastructure growth.
- ARIN approves address space request from a recipient as usual, but then notes qualification if no ARIN resources are available.
- If transferor and recipient both agree, ARIN receives address space from the transferor, and updates registration to reflect recipient.
- ARIN not party to compensation, if any.
Relevant Number Policies

ARIN 2010-6: Simplified M&A transfer policy
- Approved & implemented
- Unused space must be returned to ARIN

ARIN 2009-3: Allocation of IPv4 Blocks to Regional Internet Registries (Global)
- Approved (pending global policy)
- Reclaimed space may be returned to IANA; will be reissued evenly among RIRs

ARIN 2010-10: Global Policy for IPv4 Allocations by the IANA Post Exhaustion
- Second attempt at global reissuance policy for returned space
- ARIN AC recommends adoption
- Reclaimed space reissued evenly among RIRs
New related policy proposals

Globally Coordinated Transfer Policy (PP 119)

– “Any RIR's resource registrant may transfer IPv4 addresses to the resource registrant of another RIR as long as the two RIRs agree and exercise Internet stewardship and the values expressed in RFC2050.”

Protecting Number Resources (PP 120)

– “ARIN shall use any reasonable and practical methods to proactively look for fraudulently obtained or abandoned number resources and seek the return of those resources to ARIN.”
ARIN views the principles of Internet number resource stewardship (conservation, aggregation, registration) being equally important post-depletion as they are today.

Per its stewardship duty, ARIN does not support Internet number resource usage outside of these principles, and furthermore actively protects number resources in the region to insure that they are managed per the ARIN community developed policies.
The ARIN community has established policies which post-depletion will:

- satisfy the requirements of those with valid need for additional IPv4 address space and,

- encourage return of address space and its reuse in other regions which continue to subscribe to these stewardship principles.
Resources

- Information Page at
  www.arin.net/knowledge/v4-v6.html

- Outreach Microsite
  www.TeamARIN.net

- Social Media at ARIN
  www.arin.net/social.html