Public Policy Consultation

- *An open public discussion of Internet number resource policy held by ARIN facilitating in-person and remote participation.*

- *Held at ARIN's Public Policy Meetings and at other forums as approved by the ARIN Board of Trustees.*

Welcome Remote Participants!
https://www.arin.net/ppcnanog66

Webcast

Live Transcript

Meeting material

- **Discussion Guide**

- **Presentations**

Chat rooms:

- **on-record**

- **hands-up**

PUBLIC POLICY CONSULTATION

Rules & Reminders

- **The Chair moderates discussions so that all can speak and all can be heard.**

- **Please state your name and affiliation each time you are recognized at the microphone.**

- **Please comply with the rules and courtesies outlined in the Discussion Guide.**

At the Head Table…

- **John Curran, *President & CEO***
- **Aaron Hughes, *Board***
- **Dan Alexander, *AC Chair***
- **Kevin Blumberg, *AC Vice Chair***

Agenda

- **ARIN Update (Transfers and 4.10 Assignments)**
- **Advisory Council Report**
- **Number Policy Discussions**
- **ARIN Public Policy Consultations**

Post-IPv4 Depletion Observations

- The need for IPv4 is still great
  - More people seeking IPv4 space in the transfer market
  - Increase in specified and inter-rir transfers
- Seeing more attempted hijackings (mostly legacy space)
  - Important to keep resource and POC records up to date
- Starting to get more requests for /24s from the /10 block reserved for IPv6 deployment
- Hearing lots of questions and confusion around transfers, waiting list, pre-approvals and STLS

ARIN
American Registry for Internet Numbers

Transfers of IPv4 Addresses

3 ARIN Transfer Policies Available:

– Mergers and Acquisitions (NRPM 8.2)
  - Traditional transfer based on change in business structure, including company reorganizations, supported by legal documentation

– Transfers to Specified Recipients (NRPM 8.3)
  - IPv4 market transfer based on financial transaction, supported by justified need (within region)

– Inter-RIR transfers to Specified Recipients (NRPM 8.4)
  - IPv4 market transfer based on financial transaction, supported by justified need (outside region)

Transfers to Specified Recipients (NRPM 8.3)

- Allows orgs with unused IPv4 resources to transfer them to orgs in need of IPv4 resources

- **Source**
  - Must be current registrant, no disputes
  - Not have received addresses from ARIN for 12 months prior

- **Recipient**
  - Must demonstrate need for 24-month supply under current ARIN policy
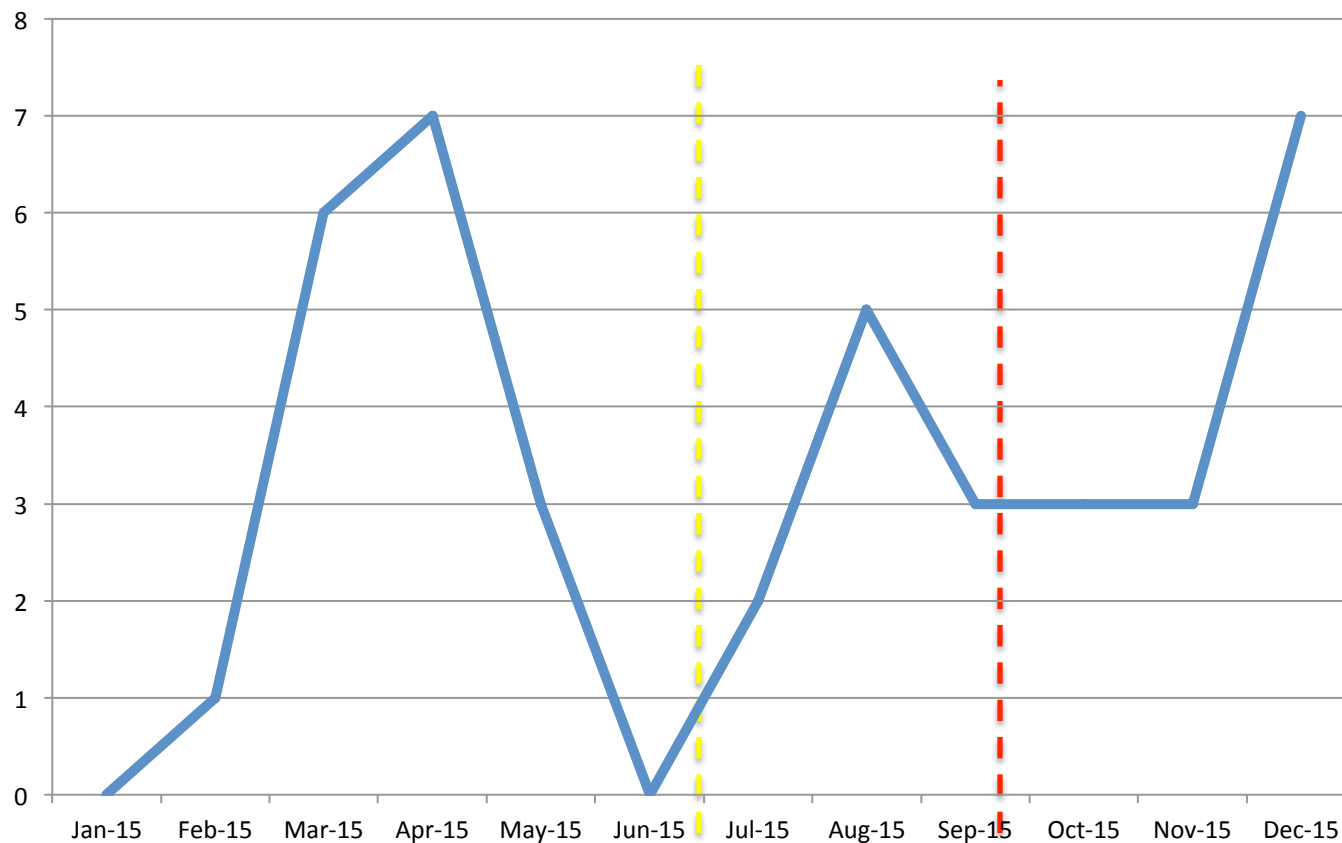
Specified Recipient Transfers
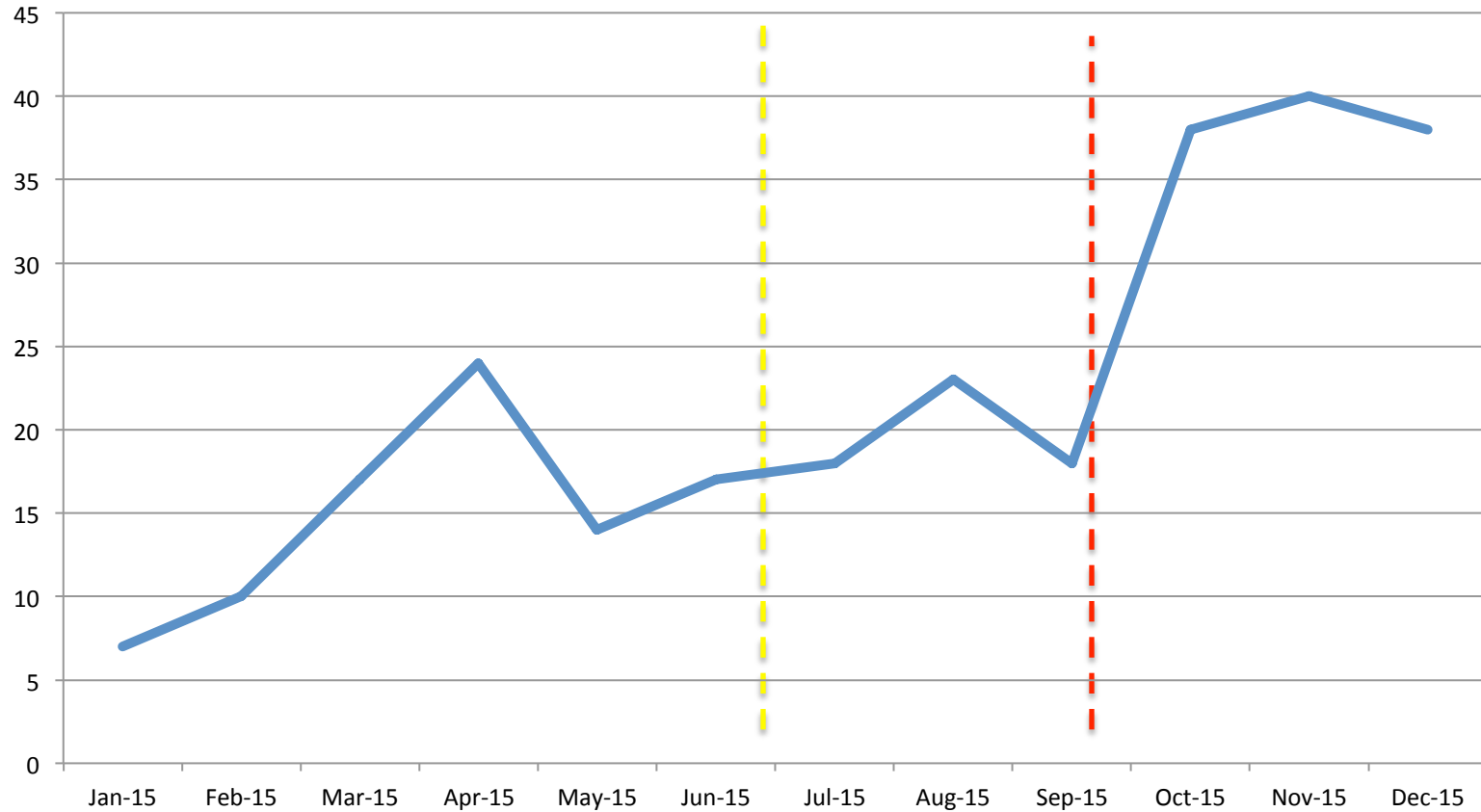
------- = waiting list initiated
------- = IPv4 depletion

Inter-RIR Transfers (NRPM 8.4)

- RIR must have reciprocal, compatible needs-based policies
  - Currently APNIC and RIPE NCC
- **Transfers from ARIN**
  - Source cannot have received IPv4 from ARIN 12 months prior to transfer
  - Must be current registrant, no disputes
  - Recipient meets destination RIR policies
- **Transfers to ARIN**
  - Must demonstrate need for 24-month supply under current ARIN policy

Inter-RIR Transfers

------- = waiting list initiated

------- = IPv4 depletion
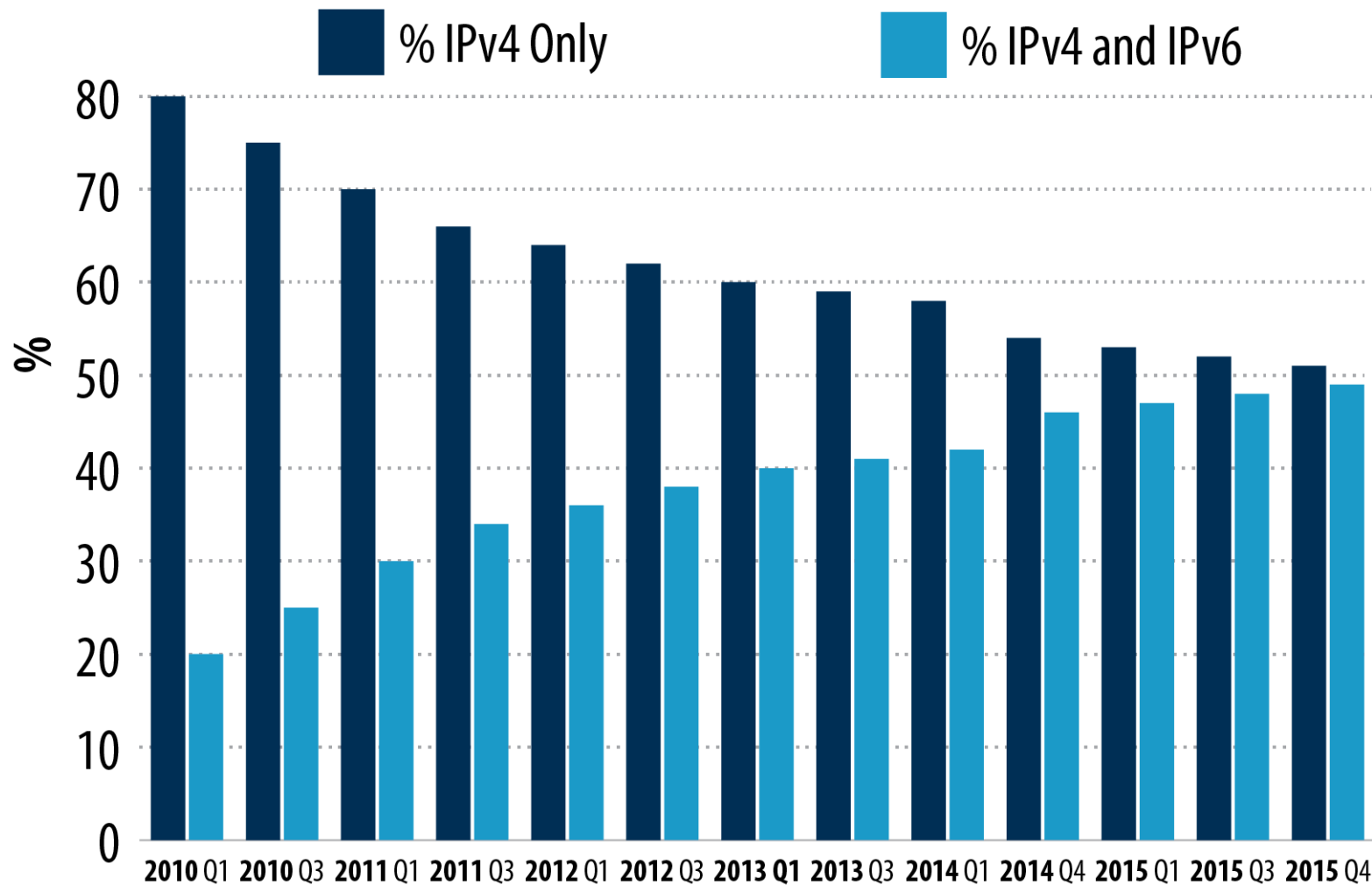
IPv4 Resources Transferred (8.3 & 8.4)

- **Transfers to Specified Recipients (8.3)**
  - 452 prefixes, ranging from /24s to a /10
    - In July 2015 this was 170 prefixes
  - 23 ASNs
- **Inter-RIR Transfers (8.4)**
  - 201 prefixes, from /24s to /13s
    - In July 2015 this was 45 prefixes to APNIC
    - 188 ARIN to APNIC
    - 10 ARIN to RIPE NCC
    - 3 APNIC to ARIN

  https://www.arin.net/knowledge/statistics/transfers.html
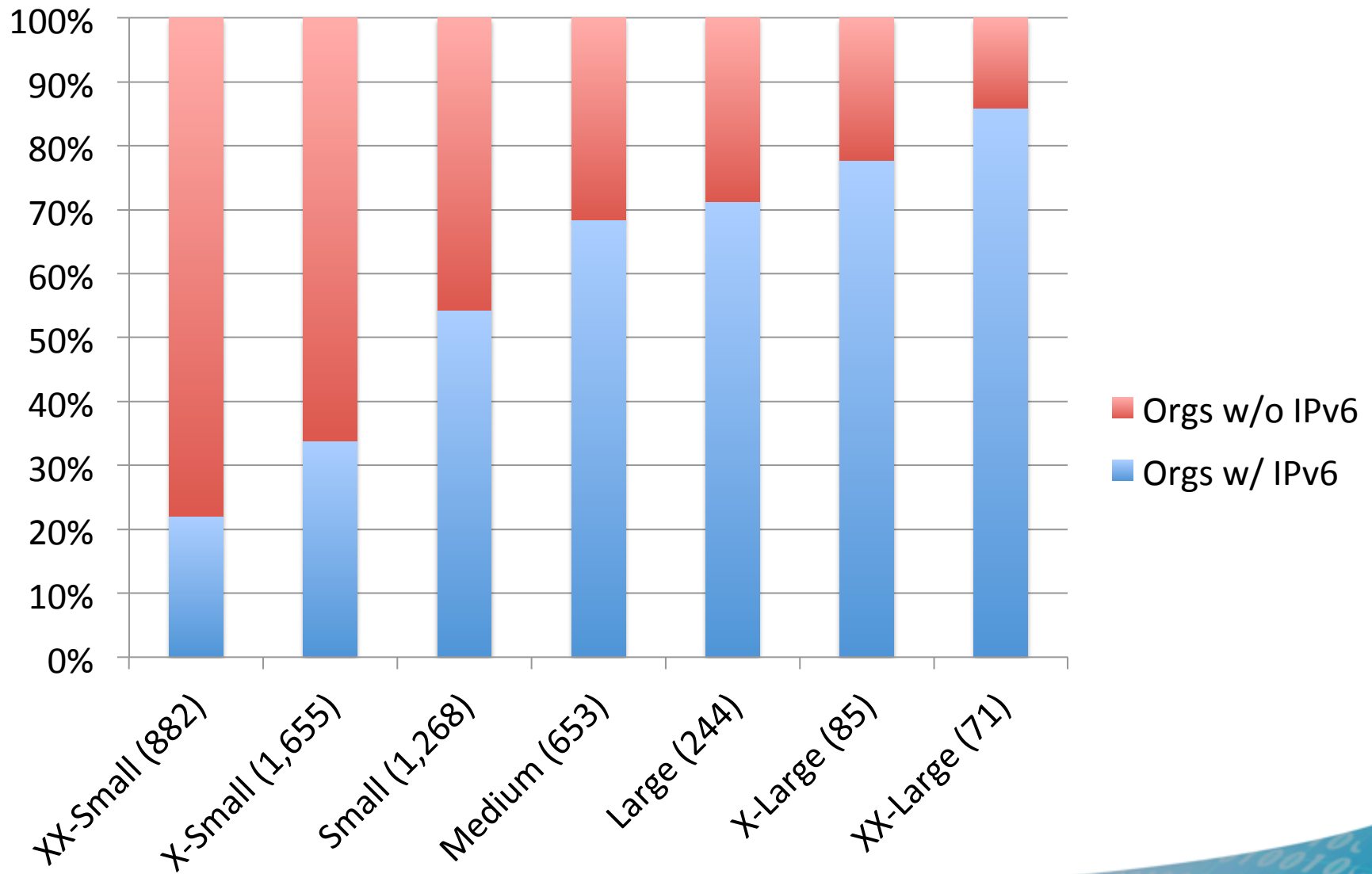
Reserved IPv4 Block for IPv6 Deployment

- /10 reserved under policy in April 2009 (23.128.0.0/10)
  - 12 /24s issued to date

- Must be used to facilitate IPv6 deployment
  - Examples include IPv4 addresses for key dual stack DNS servers, and NAT-PT or NAT464 translators

- You must already have your IPv6 allocation or assignment in order receive a /24 from this block

- One per organization every six months, /24 maximum size

- Should be enough to last several years
  - Good interim option if IPv4 needs are small

ISP Members with IPv4 and IPv6

5,284 total members as of 31 January 2016

IPv6 Adoption Rate by ISP Size

Chart legend:
- Orgs w/o IPv6 (red)
- Orgs w/ IPv6 (blue)

Categories:
- XX-Small (882)
- X-Small (1,655)
- Small (1,268)
- Medium (653)
- Large (244)
- X-Large (85)
- XX-Large (71)

Update on Advisory Council Activities

Dan Alexander, AC Chair

AC Role in the PDP

1. **Work with author on proposals**

   Ensure clarity and valid problem statement

2. **Work on Draft Policies**

   Gather input from the community and present to community for discussion

3. **Work on Recommended Draft Policies**

   Find to be fair and impartial, technically sound, and supported by community; recommend adoption, present to community

4. **Review Last Call**

5. **Recommend to the Board of Trustees**

- AC's docket today
  - 2 Recommended Draft Policies
    - 2015-5 and 2015-11
    - Found to be fair/impartial, technically sound, and supported
    - Eligible for LAST CALL after today
  - 2 Drafts
    - 2015-2 and 2015-7
    - Works in progress

– 3 Drafts not being presented today

- Still working on them
- Will likely be on agenda for ARIN 37
- 2015-3 Remove 30 day utilization requirement in end user IPv4 policy
- 2015-6 Transfers and Multi-national Networks
- 2015-9 Eliminating needs-based evaluation for Section 8.2, 8.3, and 8.4 transfers of IPv4 netblocks

- Staff Policy and Experience Report
  - Provides feedback to the community on where new or modified policy work may be needed
    - "Return" language for 8.2 transfers due to reorganizations. "ARIN will work with the resource holder(s) to return or transfer resources as needed to restore compliance"
    - Routability of micro-assignments from section 4.10 smaller than a /24. This was discussed under 2014-22 but abandoned

Other AC Work

- Improve PPC Format
  - Frequency and content desired
  - Add status updates

- Community Feedback
  - Polling a larger audience than a show of hands in the room

- NRPM Simplification
  - How do requirements change after the depletion of the free pool
  - Apply lessons learned from transfer policies

Thank you!

Draft Policy ARIN 2015-2
Modify 8.4 (Inter-RIR Transfers to Specified Recipients)

Presented by Chris Tacit

Problem Statement

- Organizations that obtain a 24 month supply of IP addresses via the transfer market and then have an unexpected change in business plan are unable to move IP addresses to the proper RIR within the first 12 months of receipt.

Current Policy Statement

- Current Text of fourth bullet of 8.4 reads:

"Source entities within the ARIN region must not have received a <u>transfer</u>, allocation, or assignment of IPv4 number resources from ARIN for the 12 months prior to the approval of a transfer request. This restriction does not include M&A transfers." (Emphasis added.)

Proposed Policy Statement

- Current Text of fourth bullet of 8.4 to be changed to read:

"Source entities within the ARIN region must not have received an allocation, or assignment of IPv4 number resources from ARIN for the 12 months prior to the approval of a transfer request. This restriction does not include M&A transfers." (Emphasis added.)

Comments

- The proposal would allow organizations to perform inter-RIR transfers of space received via an 8.3 transfer regardless of the date transferred to ARIN . An example would be if an organization in the ARIN region acquires a block via transfer, and then 3 months later, the organization determines that it wants to launch new services out of region. Under current policy, the organization is prohibited from moving some or all of those addresses to that region's Whois; the numbers are locked in ARIN's Whois.

Comments (continued)

- It is important to note that 8.3 transfers are approved for a 24 month supply, and, on occasion, a business model may change within the first 12 months after approval. In addition this will not affect the assignments and allocations issued by ARIN they will still be subject to the 12 month restriction.

Discussion

- There has been a lot of discussion on PPML.

- <u>One view</u>: "This is not ARIN's problem" and resources can be requested from another region instead.

- <u>Response</u>: ARIN members operating global networks prefer to deal with one RIR as much as possible and this policy would reduce incentives to game the system by using 8.2 and then 8.4 which just creates unnecessary cost and work.

Discussion (continued)

- An amendment to the proposal now being considered would introduce a requirement that there must be some form of affiliate relationship between the source and recipient entity that will make it more likely that eliminating the 12 month anti-flip period in that situation will meet the needs of multi-region network operators without encouraging abuse.

- The proposed amendment is based on US statutory provisions defining ownership and control (i.e., affiliation).

Discussion (continued)

- Current Text of fourth bullet of 8.4 would be changed to read:

"Source entities within the ARIN region must not have received a transfer, allocation, or assignment of IPv4 number resources from ARIN for the 12 months prior to the approval of a transfer request, unless the source entities directly, or indirectly through one or more intermediaries, control, are controlled by, or are under common control with the recipient entities outside the ARIN region. This restriction does not include M&A transfers." (Emphasis added.)

Discussion (continued)

- A new section 2.17 would also be added to the NRPM to define control as follows:

The term "control" means the possession, directly or indirectly, through the ownership of voting securities, by contract, arrangement, understanding, relationship or otherwise, of the power to direct or cause the direction of the management and policies of a person. The beneficial ownership of more than 50 percent of a corporation's voting shares shall be deemed to constitute control.

PPC Input Sought

- Comments?

Recommended Draft Policy
ARIN-2015-5
Out of Region Use

2015-5 History

1. Origin: ARIN-prop-219 – May 2015
2. AC Shepherds: Tina Morris, David Huberman
3. Presented at:
    *   ARIN 36 – October 2015
4. Advanced to Recommended Draft Policy later in October 2015
5. Text Online & in Discussion Guide
    https://www.arin.net/policy/proposals/2015_5.html

Staff Understanding
Would allow an organization to receive Internet number resources from ARIN for use out of region as long as the applicant is currently using at least the equivalent of a

/22 of IPv4, /44 of IPv6, or 1 ASN within the ARIN service region.

In addition, the applicant must have a real and substantial connection with the ARIN region, which the applicant shall be responsible for proving.

Staff Comments

This policy would increase the complexity of ARIN staff review work in request cases that fit the profile of this policy. There would in an increase in the vetting and utilization verification work currently conducted by ARIN staff.

Legal Assessment

If the policy is enacted it will require ARIN staff to work with counsel with some attendant increase in costs in the first year to manage implementation. The policy is consistent with standard legal principles routinely utilized in the ARIN region. The policy creates no material legal risks.

Implementation

- Implementation of this policy would require additional review steps for number resource requests. It could have future staffing implications based on the amount of additional work the policy could present. It is estimated that implementation would occur within 3 months after ratification by the ARIN Board of Trustees.

- The following would be needed in order to implement:

  - **Updated guidelines and internal procedures**

  - **Staff training**

  - **Implementation of this policy may allow for registrations in the ARIN database that require unicode character sets. From an engineering standpoint, implementation of this policy could have a major resource impact. It is estimated that implementation would occur within 12 months, instead of the 3 months cited above.**

Presentation by the AC

Recommended Draft Policy 2015-5
Out of Region Use

Presented by Tina Morris

Draft Policy ARIN 2015-7 Simplified requirements for demonstrated need for IPv4 transfers

Presented by Kevin Blumberg

Problem Statement Overview

ARIN transfer policy currently inherits the demonstrated need requirements for IPv4 transfers from section 4 of the NRPM.

Because the section was written primarily to deal with free pool allocations and assignments, it is more complicated than is necessary for transfers.

This proposal seeks to simplify the needs assessment process for 8.3 transfers, while still allowing organizations with corner-case requirements to apply under existing policy.

Policy Statement

8.1.x Simplified requirements for demonstrated need for IPv4 transfers.

IPv4 transfer recipients must demonstrate (and an officer of the requesting organization must attest) that they will use at least 50% of their aggregate IPv4 addresses (including the requested resources) on an operational network within 24 months.

Organizations that do not meet the simplified criteria above may instead demonstrate the need for number resources using the criteria in section 4 of the NRPM.

Staff and Legal

- Staff would apply this policy language to 24-month needs assessments for 8.3 transfers, 8.4 transfers, and pre-approval requests.

- In order for staff to verify the demonstrated need of 50% of the total aggregate of IPv4 address space holdings by an organization, the policy criteria in NRPM Section 4 would continue to be utilized.

Staff and Legal (cont'd)

- This policy would allow organizations to potentially qualify for a larger amount of IPv4 address space than they can under existing policy.

- This policy could be implemented as written.

- The proposal indicates placement as "8.1.x". Staff would add the proposed policy language as sub-bullets to recipient need sections of both NRPM 8.3 and NRPM 8.3, specifically 8.3 bullet 5 and 8.4 bullet 8.

Legal Assessment

- No material legal issue exists if the policy is adopted.

- This policy if adopted would significantly lower the degree of utilization required and permit significantly larger transfers of resources than existing policy. This is in effect a bridge between maintaining a 'lighter' needs based structure, that permits substantially greater transfers.

Counsel's Comment (cont'd)

An issue that does not have to be resolved before the policy is voted upon, but may be of importance to address is ARIN making clear whether an acquiring party taking appropriate advantage of such a policy change ought to have a corollary duty to fully disclose to ARIN whether they have use of any other number resources (by agreement) that effectively reduce their overall number resource needs.

Discussion

- Do you support this policy as written?

- Suggestion for addition of *duty to disclose* other number resources.

Recommended Draft Policy
ARIN-2015-11
Remove transfer language which only applied pre-exhaustion of IPv4 pool

2015-11 History

1. Origin: ARIN-prop-225 – September 2015
2. AC Shepherds: Milton Mueller, Robert Seastrom
3. Presented at:
   - ARIN 36 – October 2015
4. Advanced to Recommended Draft Policy in December 2015
5. Text Online & in Discussion Guide
   https://www.arin.net/policy/proposals/2015_11.html

Staff Understanding
Calls for the removal of language in 8.3 and 8.4 of NRPM that sets a condition on the amount of time that must pass before the source of an 8.3 or 8.4 transfer may request additional IPv4 address space as a recipient.

Staff Comments

- Per policy text due to IPv4 free pool depletion, ARIN staff no longer applies a 12-month lock-out to organizations requesting IPv4 space who have previously been the source of an IPv4 allocation/ assignment through an 8.3 or 8.4 transfer.

- ARIN staff notes that both 8.3 and 8.4 have language that prevents organizations from being a source in an approved 8.3 or 8.4 transfer if they have been a recipient of IPv4 address space in the 12 months prior, and this language is presently operative and would remain so even if the proposal change is made.

- Could be implemented as written.

Legal Assessment

No material legal issues.

Implementation

- This policy would have minimal resource impact from an implementation aspect. It is estimated that implementation would occur within 3 months after ratification by the ARIN Board of Trustees.

- The following would be needed in order to implement:
  - **Updated guidelines and internal procedures**
  - **Staff training**

Presentation by the AC

Recommended Draft Policy
ARIN 2015-11
Remove transfer language which only applied pre-exhaustion of IPv4 pool

Presented by Kevin Blumberg

Problem Statement

- NRPM sections 8.3 and 8.4 include language which is in effect "until exhaustion." As ARIN is no longer able to fulfill IPv4 requests, exhaustion has effectively occurred. This proposal serves to remove the outdated language from the NRPM

Policy Statement 1

Remove the following sections of the NRPM:

- Section 8.3 (Transfers to Specified Recipients ARIN region)
    - Remove entirely the 2nd bullet: "The source entity will be ineligible to receive any further IPv4 address allocations or assignments from ARIN for a period of 12 months after a transfer approval, or until the exhaustion of ARIN's IPv4 space, whichever occurs first."

- Section 8.4 (Inter-RIR Transfers to Specified Recipients)
    - Remove entirely the third bullet which reads "Source entities within the ARIN region will not be eligible to receive any further IPv4 address allocations or assignments from ARIN for a period of 12 months after a transfer approval, or until the exhaustion of ARIN's IPv4 space, whichever occurs first."

Staff and Legal

2015-11 is "purely removal of inoperative policy text," and will have "no effect on processing of requests.

Language in 8.3 & 8.4 prevents organizations from being a source in an approved 8.3 or 8.4 transfer if they received IPv4 address space in the 12 months prior, and this is would remain operative even if the proposal change is made.

Policy could be implemented as written

No material legal issues

Discussion

AC's assessment of conformance with Principles of Number Resource Policy:

ARIN 2015-11 contributes to fair and impartial number resource administration by removing from the NRPM text that has become inoperative since the depletion of the IPv4 free pool in September 2015, thereby avoiding confusion among people applying for 8.3 or 8.4 transfers. This proposal is technically sound, in that the removal of the text in question does not create any contradictions or loopholes in the application of policies that still matter. The proposal was supported by some community members on PPML and at the ARIN meeting in Montreal, and did not generate any opposition.

ARIN Public Policy Consultations

Dan Alexander

Chair of the ARIN Advisory Council