Prop-083v003

Alternative criteria for subsequent IPv6 allocations

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Introduction

This is a proposal to enable current APNIC account holders with existing IPv6 allocations to receive subsequent IPv6 allocations from APNIC to facilitate network deployments.

Examples:
- For use in networks that are not connected to the initial IPv6 allocation
- Transitional technologies such as 6RD
- Other reasons accepted by APNIC as valid circumstance, or as decided by the community in policy amendments.

Summary of the Current Problem

• LIR with an existing /32 IPv6 allocation

• Unable to deaggregate /32 due to the community practice of 'filter blocking' or 'bogon lists' [1]

• LIR may want to build a network in a separate location and provide IPv6 connectivity

• Due to routability problems by de-aggregating, the LIR cannot use a subset of their initial allocation in the new location.

Summary of the Current Problem cont....

For example:

• LIR has a /32 allocation for main network in Australia

• LIR wants to build a new network in Cambodia

• Cambodia is not connected to Australian network & ISP is using a local transit provider to obtain dual stacked connectivity

• LIR needs to obtain extra resources for local announcement, but is not eligible due to usage policy

• Other valid examples of subsequent allocation may be to facilitate transitional technologies such as 6RD.

Summary of the Current Problem cont….

Example of community bogon filtering:

ipv6 prefix-list ipv6-ebgp-strict permit 2400::/12 ge 19 le 32

This above statement in the IPv6 BGP filter would block 2400:xxxx::/33, /34, /35 or 'smaller'

LIR needs to obtain a new /32 allocation to be able to have IPv6 connectivity in the new location with an independent (from their primary network) transit provider.

Situation at other RIR's

AfriNIC, and LACNIC have no similar policies we could find.

ARIN: A similar policy, 2009-5 has been adopted [3] and integrated into the ***ARIN Number Resource Policy Manual*** (thanks David Farmer)

RIPE: A similar policy, 2009-5 [4] was rejected in favor of 2009-6 [5] (thanks Ingrid Wijte)

RIPE's 2009-6 recommended that routing announcements requirements be relaxed so that LIR's can announce smaller (i.e. if they have a /32, they can announce a /35) prefixes. APNIC Policy 082 at this meeting is basically the same, but does not address this issue covered by this policy proposal.

Details of the Proposal

1. It is proposed that alternative criteria be added to the subsequent IPv6 allocation policy [2] to allow current APNIC account holders with a valid reasons should be able to receive subsequent allocations.

2. The list of valid reasons can be finalised according to further clarifications, or additions by APNIC or the Community

3. Suggested initial valid reasons are:
    1. Disparate networks announced by separate networks
    2. Transitions technologies such as 6RD.

Details of the Proposal cont….

2. To qualify for subsequent IPv6 allocations under the proposed alternative criteria, account holders must:

- Be a current APNIC account holder with an existing IPv6 allocation

- Be announcing its existing IPv6 allocation

- Have a compelling reason for requiring the subsequent allocation.

Details of the Proposal cont....

Examples for valid reasons:

- Have a compelling reason for establishing a separate network which is not connected to the network of the initial allocation.

Examples of acceptable reasons for requesting resources for separate network installations are:

- Geographic distance and diversity between networks
- Autonomous multi-homed separate networks
- Regulatory restrictions requiring separate networks
- Each additional allocation must be announced from a separate ASN

- Transitional technologies such as 6RD
- Valid implementation plan must exist

Advantages and Disadvantages of the Proposal

Advantages

- This proposal enables current APNIC account holders to deal with problematic operational.

- Current APNIC account holders will be able to acquire resources and announce them separately to transit providers in disparate locations.

- Current APNIC account holders will be able to innovate with transitional technologies not constrained by present consumption policies

Disadvantages

- This proposal could cause faster consumption of IPv6 address space. However, given the size of the total IPv6 pool, the author of this proposal does not see this as a significant issue. [Reference Slide]

Effect on APNIC Members

Same as advantages on previous slide

Effect on NIRs

The proposal allows for NIRs to have the choice as to when to adopt this policy for their members

References

[1] For example, see "IPv6 BGP filter recommendations"
http://www.space.net/~gert/RIPE/ipv6-filters.html

[2] See section 5.2, "Subsequent Allocation Section" in "IPv6 Address Allocation and Assignment Policy"
http://www.apnic.net/policy/ipv6-address-policy#5.2

[3] ARIN Prop 2009-5
https://www.arin.net/policy/proposals/2009_5.html

[4] RIPE Prop 2009-5
http://www.ripe.net/ripe/policies/proposals/2009-05.html

[5] RIPE Prop 2009-6
http://www.ripe.net/ripe/policies/proposals/2009-06.html

Questions?

Comments

- Having multiple ASN's shouldn't automatically allow for an additional allocation – proven needs basis

- Each additional allocation should be evaluated as though it were a 'separate member' for the purposes of further assignments and usage

- Solving routing issues with resource distribution? Perhaps – but we need to be able to do business without interference from community filtering projects – which are positive in many ways, but in practice cause much pain to those who get previously bogon'd ranges and spend years chasing providers up to update their filters.

- Although this policy primarily relates to subsequent allocations, there is no reason these principles cannot be related to initial allocation requests

How much IPv6 does APNIC have at the moment?

- 2001:0200::/23 (512 * /32 or 33,554,432 * /48's)
  2001:0C00::/23
  2001:0E00::/23
  2001:4400::/23
  2001:8000::/19 (8,192 * /32 or 536,870,912 * /48's)
  2001:A000::/20 (4,096 * /32 or 268,435,456 * /48's)
  2001:B000::/20
  2400:0000::/12 (1,048,576 * /32 or 68,719,476,736 * /48's)

ARIN Number Resource Policy Manual (6.11)

6.11. IPv6 Multiple Discrete Networks

Organizations with multiple discrete IPv6 networks desiring to request new or additional address space under a single Organization ID must meet the following criteria:

- The organization shall be a single entity and not a consortium of smaller independent entities.

- The organization must have compelling criteria for creating discrete networks. Examples of a discrete network might include:

    – Regulatory restrictions for data transmission,

    – Geographic distance and diversity between networks,

    – Autonomous multihomed discrete networks.

ARIN Number Resource Policy Manual (6.11)

6.11. IPv6 Multiple Discrete Networks (continued….)

- The organization must keep detailed records on how it has allocated space to each location, including the date of each allocation.

- The organization should notify ARIN at the time of the request their desire to apply this policy to their account.

- Requests for additional space:

  – Organization must specify on the application which discreet network(s) the request applies to

  – Each network will be judged against the existing utilization criteria specified in 6.5.2 as if it were a separate organization, rather than collectively as would be done for requests outside of this policy