ARIN31

BARBADOS

Draft Policy 2013-3

Tiny IPv6 Allocations for ISPs

Advisory Council Shepherds:
David Farmer and Chris Grundemann

2013-3 – Problem Statement (1 of 2)

ARIN's fee structure provides a graduated system wherein organizations pay based on the amount of number resources they consume.

At the very bottom end of the scale, it is presently not possible to be an XX-Small ISP with an IPv6 allocation because the minimum allocation size of /36 automatically promotes one into X-Small ISP status, resulting in a doubling of annual fees.

2013-3 – Problem Statement (2 of 2)

While tiny in absolute terms, the extra costs incurred represent a disincentive to IPv6 deployment.

To the author's knowledge, it has never been possible for an LIR/ISP to get a /40 allocation direct from ARIN; such assignments have been limited to organizations that qualify as end sites or /48s for critical infrastructure. It is understood there is an expected correction of the XX-Small fee category to "/40 or smaller".

Proposed Fee Schedule Corrected

ISP / ALLOCATIONS INITIAL REGISTRATION OR ANNUAL FEES			
Service Category	**Initial Registration or Annual Fee (US Dollars)**	**IPv4 Block Size**	**IPv6 Block Size**
XX-Small	$500	/22 or smaller	/40 or smaller
X-Small	$1,000	Larger than /22, up to and including /20	Larger than /40, up to and including /36
Small	$2,000	Larger than /20, up to and including /18	Larger than /36, up to and including /32
Medium	$4,000	Larger than /18, up to and including /16	Larger than /32, up to and including /28
Large	$8,000	Larger than /16, up to and including /14	Larger than /28, up to and including /24
X-Large	$16,000	Larger than /14, up to and including /12	Larger than /24, up to and including /20
XX-Large	$32,000	Larger than /12	Larger than /20

2013-3 – Intent (1 of 3)

- Add optional /40 minimum allocation size, allowing IPv6 allocations for XX-Small ISPs without changing their fee category
  - **In addition to /32 or /36 which are already available**
- Smaller /36 or /40 Minimum allocations can be expanded up to /32 without renumbering or additional justification
  - **This requires a minimum of /32 be reserved to allow expansion without renumbering**

2013-3 – Intent (2 of 3)

- Specifies generic requirements for return or reduction of IPv6 blocks
  - **Currently only X-Small and XX-Small ISPs are expected to reduce from /32 to /36 or /40 for financial reasons**
  - **However, there may be other unforeseen reasons in the future for ISP or End Users to reduce or return blocks, therefore this part of the policy has been kept generic**

2013-3 – Intent (3 of 3)

- Requirements for return or reduction of IPv6 blocks
  - **Must not increase the number of blocks held**
  - **Return whole blocks to the extent practicable**
  - **Partial blocks retained must conform to applicable policies, as to size, alignment, etc…**
  - **Blocks retained within a single reserved space or aggregate to the extent practicable**
  - **All blocks returned must not be in use**

2013-3 – Disadvantages

- This is really a Problem with the Fee Structure
  - **So fix the Fee Structure**
  - **Don't change the Allocation Policy to fit the Fee Structure**
- This creates a financial incentive for ISPs to make under sized end user sub-assignments
  - **This is especially acute with a /40 allocation size**
  - **ISPs are not the ones harmed, their end users are and it may not be immediately visible to them**

2013-3 – Advantages (1 of 2)

- Allows all ISPs an IPv6 allocation without changing their fee category
- Eliminates financial disincentive for XX-Small ISPs to deploy IPv6
- Unlike proposed fee structure alternatives, this is a long-term solution

2013-3 – Advantages (2 of 2)

- While /36 and /40 allocations are suboptimal, this is mitigated by
  - **Allowing expansion to /32 without renumbering or additional justification**
  - **It is completely voluntary from a policy perspective**
  - **Allowing the selection of /32, /36, or /40 and eventual expansion to /32 is based solely on an ISPs own internal business justifications**

2013-3 – Policy Statement (1 of 2)

Part 1: In subsection 6.5.2. Initial Allocation Size, insert "or /40" at the end of the first sentence of subsection 6.5.2.1 clause (b), and add a new clause (g), resulting in;

b. In no case shall an LIR receive smaller than a /32 unless they specifically request a /36 **or /40**. In no case shall an ISP receive more than a /16 initial allocation.

…

g. An LIR that requests a smaller /36 or /40 allocation is entitled to expand the allocation to any nibble aligned size up to /32 at any time without renumbering or additional justification. Such expansions are not considered subsequent allocations. However, any expansions beyond /32 are considered subsequent allocations, and must conform to section 6.5.3.

2013-3 – Policy Statement (2 of 2)

Part 2: Add a new subsection to section 6 "IPv6";

6.12 Reduction or Return

ARIN will accept the return of whole or partial block(s) allowing an organization to reduce their holdings as long as:

a. The resulting number of retained aggregate blocks does not increase.

b. Whole blocks are returned to the extent practicable.

c. Partial block(s) retained must conform to current applicable allocation or assignment policies, as to size, alignment, etc…

d. Block(s) retained are within a single reserved space or aggregate set aside for the organization in the ARIN database to the extent practicable.

e. All block(s) returned are not in use by the organization or its customers.

2013-3 – Questions

- Should there be a requirement to retain only the first or last block when part of a block is returned?
  - **Or should this be flexible, as in the current text**
- Should a /28 be reserved for all allocations of /32 or below?
- Should there be a sun-set clause eliminating /36 and /40 allocations when the fee schedule changes?

2013-3 – Discussion

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