Draft Policy 2025-1: Clarify ISP and LIR Definitions and References to Address Ambiguity in NRPM Text

2.4. Local Internet Registry (ISP)

A Local Internet Registry (ISP) is an IR that assigns IP addresses to the users of the network services that it provides. ISPs are generally Internet Service Providers (ISPs) whose customers are primarily end users and possibly other ISPs. While ISP has been historically referenced in policies for ease of comparing other region's policies, ISP is not used in the ARIN service region; ISP is the equivalent term.

2.18 Internet Service Provider (ISP)

An Internet Service Provider (ISP) is a type of organization that provides Internet services to other organizations, its customers, and\or individuals other than its employees. Internet services include, but are not limited to, connectivity services, web services, colocation, dedicated servers, virtual private servers, and virtual private networks.

6.5.1. Terminology

  a. [Retired]

  b. The term nibble boundary shall mean a network mask which aligns on a 4-bit boundary (in slash notation, /n, where n is evenly divisible by 4, allowing unit quantities of X such that 2^n=X where n is evenly divisible by 4, such as 16, 256, 4096, etc.)

6.5.2. Initial Allocation to ISPs

6.5.2.1. Size

1. All allocations shall be made on nibble boundaries.

2. In no case shall an ISP receive smaller than a /32 unless they specifically request a /36 or /40. In order to be eligible for a /40, an ISP must meet the following requirements:

- Hold IPv4 direct allocations totaling a /24 or less (to include zero)

- Hold IPv4 reassignments/reallocations totaling a /22 or less (to include zero)

In no case shall an ISP receive more than a /16 initial allocation.

3. The maximum allowable allocation shall be the smallest nibble-boundary aligned block that can provide an equally sized nibble-boundary aligned block to each of the requesters serving sites large enough to satisfy the needs of the requesters largest single serving site using no more than 75% of the available addresses.
This calculation can be summarized as /N where N = P-(X+Y) and P is the organization's Provider Allocation Unit X is a multiple of 4 greater than 4/3*serving sites and Y is a multiple of 4 greater than 4/3*end sites served by largest serving site.

4. For purposes of the calculation in (c), an end site which can justify more than a /48 under the end-user assignment criteria in 6.5.8 shall count as the appropriate number of /48s that would be assigned under that policy.

5. For purposes of the calculation in (c), an ISP which has subordinate ISPs shall make such reallocations according to the same policies and criteria as ARIN. In such a case, the prefixes necessary for such a reallocation should be treated as fully utilized in determining the block sizing for the parent ISP. ISPs which do not receive resources directly from ARIN will not be able to make such reallocations to subordinate ISPs and subordinate ISPs which need more than a /32 shall apply directly to ARIN.

6. An ISP is not required to design or deploy their network according to this structure. It is strictly a mechanism to determine the largest IP address block to which the ISP is entitled.

7. An ISP 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. /40 allocations shall be automatically upgraded to /36 if at any time said ISP's IPv4 direct allocations exceed a /24. Expansions up to and

including a /32 are not considered subsequent allocations, however any expansions beyond /32 are considered subsequent allocations and must conform to section 6.5.3. Partial returns of any IPv6 allocation that results in less than a /36 of holding are not permitted regardless of the ISP's current or former IPv4 address holdings.

6.5.3. Subsequent Allocations to ISPs

1. Where possible ARIN will make subsequent allocations by expanding the existing allocation.

2. An ISP qualifies for a subsequent allocation if they meet any of the following criteria:

- Shows utilization of 75% or more of their total address space

- Shows utilization of more than 90% of any serving site

- Has allocated more than 90% of their total address space to serving sites, with the block size allocated to each serving site being justified based on the criteria specified in section 6.5.2

3. If ARIN can not expand one or more existing allocations, ARIN shall make a new allocation based on the initial allocation criteria above. The ISP is encouraged, but not required to renumber into the new allocation over time and return any allocations no longer in use.

4. If an ISP has already reached a /12 or more, ARIN will allocate a single additional /12 rather than continue expanding nibble boundaries.

6.5.4.1. Reassignment to Operator's Infrastructure

An ISP may reassign up to a /48 per PoP as well as up to an additional /48 globally for its own infrastructure.

6.5.7. Existing IPv6 Address Space Holders

ISPs which received an allocation under previous policies which is smaller than what they are entitled to under this policy may receive a new initial allocation under this policy. If possible, ARIN will expand their existing allocation.

6.5.8. End-user Allocations

6.5.8.1. Initial Assignment Criteria

Organizations may justify an initial assignment for addressing devices directly attached to their own network infrastructure, with an intent for the addresses to begin operational use within 12 months, by meeting one of the following criteria:

a. Having a previously justified IPv4 end-user assignment from ARIN or one of its predecessor registries, or;

b. Currently being IPv6 Multihomed or immediately becoming IPv6 Multihomed and using an assigned valid global AS number, or;

c. By having a network that makes active use of a minimum of 2000 IPv6 addresses within 12 months, or;

d. By having a network that makes active use of a minimum of 200 /64 subnets within 12 months, or;

e. By having a contiguous network that has a minimum of 13 active sites within 12 months, or;

f. By providing a reasonable technical justification indicating why IPv6 addresses from an ISP are unsuitable.

Examples of justifications for why addresses from an ISP may be unsuitable include, but are not limited to:

- An organization that operates infrastructure critical to life safety or the functioning of society can justify the need for an assignment based on the fact that renumbering would have a broader than expected impact than simply the number of hosts directly involved. These would include: hospitals, fire fighting, police, emergency response, power or energy distribution, water or waste treatment, traffic management and control, etc.

- Regardless of the number of hosts directly involved, an organization can justify the need for an assignment if renumbering would affect 2000 or more individuals either internal or external to the organization.

- An organization with a network not connected to the Internet can justify the need for an assignment by documenting a need for guaranteed uniqueness, beyond the statistical uniqueness provided by ULA (see RFC 4193).

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- An organization with a network not connected to the Internet, such as a VPN overlay network, can justify the need for an assignment if they require authoritative delegation of reverse DNS.