

Prop-033-v001: End site allocation policy for IPv6

Policy SIG

APNIC 22

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The Proposal

- Change existing policy to remove the default use of a /48 for end site allocations as they were too prescriptive
- Propose that the end site allocation size be a matter for LIR or ISP determination
- As the HD ratio requires a prefix length for the calculation to work, measure utilization efficiency for subsequent allocations using a hypothetical /56 allocation unit

Impact

- End Users
 - The size of an end site assignment is a local decision for the LIR or ISP to make, using a longest prefix value of a /64
- ISPs and NIRs
 - ISPs and LIRs **may** choose whether they make changes to their procedures for assigning address blocks to end sites
- APNIC
 - Subsequent allocations to the LIR or ISP will be based on an address utilization calculation using a threshold HD Ratio value 0.94 with a hypothetical allocation unit of a /56

Calculation of HD Ratio

- For each end site allocation convert the allocation size into equivalent /56 units:

Each **/48** end site = **256** x /56 units

Each **/52** end site = **16** x /56 units

Each **/56** end site = **1** x /56 units

Each **/60** end site = **1/16** x /56 units

Each **/64** end site = **1/256** x /56 units

Calculation of HD Ratio

- The HD ratio threshold is then calculated:
$$\text{HD} = \log(/56 \text{ units allocated}) / \log (16,777,216)$$

$$0.94 = \mathbf{6,183,533} \times /56 \text{ units}$$

Examples

1. An ISP uses only /48 end site allocations

$$0.94 \text{ HD} = \mathbf{24,154} \times \mathbf{/48} \text{ end site allocations}$$

2. An ISP uses only /56 end site allocations

$$0.94 \text{ HD} = \mathbf{6,183,533} \times \mathbf{/56} \text{ end site allocations}$$

3. An ISP uses only /60 end site allocations

$$0.94 \text{ HD} = \mathbf{98,936,532} \times \mathbf{/60} \text{ end site allocations}$$

Examples (cont)

4. An ISP uses a mix of /48, /56 and /60 end site allocations:

8,000 x /48 end site allocations, plus
80,000 x /52 end site allocations, plus
3,000,000 x /56 end site allocations

= 6,328,000 x /56 unit equivalents

= 0.94 HD ratio

Summary

- End Site allocation is a matter for LIR / ISP to determine
- HD ratio calculation is based on /56 unit equivalents