

Policy Proposal 2005-8 to amend ARIN IPv6 assignment and utilization requirements

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Looking back

- RFC3177
 - IESG/IAB recommendation from IETF:
 - IPv6 address assignments to be /128, /64 or /48
 - RIRs co-operated to create one “globally coordinated IPv6 policy” based on RFC3177
 - To be reviewed after “operational experience”
- Some very large allocations of /19 & /20
 - Based on HD ratio of .80 and existing IPv4 customer base

Assignment policy issues

- Geoff Huston did analysis of allocation data
 - Possible issues with IPv6 consumption 60 years out
 - Feedback from ARIN XV and RIPE50 to pursue ideas
 - Proposals in APNIC, RIPE and ARIN
- Two proposals submitted to ARIN
 - 2005-8 (this proposal) to move from /48 to /56
 - 2005-5: IPv6 HD ratio was changed to .94
- RFC 3177bis submitted to IETF

RFC 3177bis

- Continues to evolve
 - draft-narten-ipv6-3177bis-boundary-01.txt
- Revisits the RFC 3177 recommendations
 - States that there are no architectural issues (i.e., /48 is just policy)
 - No architectural issues have been identified
- Closing the IETF loop
 - Address assignment is an RIR issue

Feedback from RIRs

- Presented at ARIN XVI
 - Defined /56 as new default allocation size
 - Already clearly not popular
 - Concern for impact on already-assigned /48s
 - Some IT systems are built assuming /48
 - Unclear effect on utilization measurements
- Pushback from ISPs
 - ISPs should determine assignment size
 - Should just do CIDR for end sites
 - No “classful” addressing!!

Current proposal

- Defines assignment chosen by ISP/LIR
 - Between /48 and /64, ISP/LIR decision
 - Some guidelines suggested
 - Awareness of nibble boundaries
 - If doing reverse DNS delegation
- Defines utilization as count of /56s
 - Rather than /48s as current unit of measure for HD ratio

Utilization issues

- How to count a /48?
 - First answer: count as 256 /56s
 - Observation: creates incentive to assign larger sizes than /56 (per HD ratio rules)
 - Issue: advantageous to give out /48!!
 - Alternative: count as 184 /56s (per HD 0.94)
 - Note: only removes incentive, does not provide disincentive
 - Should it be less? (to create disincentive?)
 - Geoff Huston plans to do some additional analysis here

Would best practice help?

- Desire: widely accepted guidelines for choosing assignment at ISP/LIR level
 - Who defines best practice?
 - Should be generous, but not wasteful
 - Balance LIR/ISP and End user concerns
 - Better to avoid “policy competition”
 - If provider A assigns /48...
- Where?
 - ARIN policy probably not the right place
 - So where?? For ISP policy

Other questions

- Documenting usage (justification for more)
 - Continue “not looking at customer infrastructure”?
 - What documentation is appropriate from an end site to guide LIR assignment choice?
 - Without documentation, can there be meaningful “justification”?
 - End site <-> LIR <-> RIR
- How much “over allocation” should one allow for future growth?
 - E.g., simple multiplier of initial justified space?

Continuing on

- Similar proposal at RIPE in 2 weeks
- Will be resubmitted in APNIC (by request of Policy SIG)
- Should be globally coordinated
- Expect to see it here again...
- Feedback requested:
 - Should there be a policy-based incentive for ISPs to make reasonable assignments?