

Policy Proposal 2005-8

to amend ARIN IPv6 assignment and utilization requirements

ARIN XVI

Los Angeles

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RFC3177

- IETF IESG/IAB recommendations:
 - IPv6 address assignments should be /128, /64 or /48
 - /64 when one (and only one) subnet
 - /48 for most, including home users
- RIRs co-operated to create one “globally coordinated IPv6 policy”
 - Incorporated the RFC3177 recommendations

Geoff Huston's Analysis

- Concern over early rate of IPv6 allocation
 - Already large allocations (/19 & /20)
- Did data analysis on real RIR allocations
 - Projected IPv6 prefix usage out 60 years
 - With current /48 policy and HD ratio of 0.8
 - Showed possible consumption of /1 to /4
- Presented at ARIN XV and RIPE50
 - Suggestions to increase expected lifetime:
 - /56 assignments
 - HD ratio 0.94

Why Change Now?

- Fairness to the future
 - Don't repeat the IPv4 early adopter “bonus”
 - Address space is critical, global, public resource – must be managed prudently
 - WSIS/WGIG, Government interest, ...
- Heavy inertia for future change
 - Networked devices in the billions?
 - Leave enough addresses for the next generation
 - Develop a survivable allocation model

How We Got Here

- Feedback from ARIN XV and RIPE50 to pursue ideas
- Geoff Huston wrote APNIC policy proposal
- Similar proposal submitted to RIPE
- Similar proposal submitted to ARIN
 - Became 2005-8 (this proposal)
 - 2005-5: IPv6 HD ratio
- RFC 3177bis submitted to IETF

RFC 3177bis

- draft-narten-ipv6-3177bis-boundary-00.txt
- Revisit the RFC 3177 recommendations
- Verify that there are no architectural issues with moving /48 to something else (i.e., /48 is just policy)
- Adopted as WG document by IPv6 WG
- No substantive architectural issues identified

APNIC/RIPE Feedback

- Presented at recent APNIC and RIPE
 - Concern for impact on already-assigned /48s
 - Unclear effect on utilization measurements
- Pushback from LIRs
 - LIRs should themselves determine assignment size
 - Should just do CIDR for end sites
- No consensus: continued analysis
 - Looking for the appropriate density metric (when LIR needs more space, what is metric?)

If LIRs Determine Assignment Size?

- Who defines best practices?
 - Reverse delegation on nibble boundaries?
 - Same assignment size if changing providers?
 - Assurance that end sites can easily obtain an adequate number of subnets?
- Address space is a public resource
 - With IPv6, need a serious mind set change
 - There is an abundance of address space
 - A simple request should be sufficient justification

Concerns

- Creating incentives that ensure good balance between waste and stinginess?
 - Want smaller assignments to small end sites
 - Don't want, e.g., home users locked into /64 forever!!!
- Subnets everywhere!
 - Even cell phones will be routers
- Global co-ordination (again?)
 - This should be a uniform policy across RIRs

Discussion???

- What we are trying accomplish?
 - Less waste
 - Smaller assignments to small end sites
 - Provide encouragement for generous assignments
 - Not make addresses an “expensive” commodity in IPv6
 - limit cost to ISP/LIR relative to assignment size
- Are we on the right track?