

Current Status of IPv6 Address Selection Design Team

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About this design team

- Assembled after 72nd IETF
- Members: 15 ppl
 - - Marc Blanchet- Tim Chown- Marcelo Bagnulo Braun- Suresh Krishnan- Tony Hain- Francis Dupont- Evans TJ- John.zhao- Sebastien Roy- Janos Mohacsi- Tim Enos- Teemu Savolainen- Tomohiro Fujisaki- Arifumi Matsumoto- Ruri Hiromi
- Goal
 - This team works on a protocol design for dynamic updating of the RFC 3484 policy table.

Approach and Output

- draft-chown-addr-select-considerations-01.txt
- Issues to Consider (in this order)
 1. Drivers for policy changes
 2. How dynamic changes the mechanism should support ?
 3. On Address changes and obtaining policy
 4. On RFC3484 default policies

Drivers for policy changes

- Examined each scenario in RFC 5220
 - Multiple Routers on a Single Interface
 - Ingress Filtering
 - Problem Half-Closed Network Problem
 - Combined Use of Global and ULA
 - Site Renumbering
 - Multicast Source Address Selection
 - (Temporary Address Selection)
 - IPv4 or IPv6 Prioritization
 - ULA and IPv4 Dual-Stack Environment
 - ULA or Global Prioritization
 - Other driver
 - A new address block is defined e.g. Teredo
- External triggers
Reflects routing changes outside of the site
- Internal triggers
the site administrator chooses to change a local policy
- IETF/IANA trigger

How Dynamic ?

- Internal Trigger
 - Many of the internal triggers for policy table changes are 'one-off' in nature
 - Thus, it is unlikely that such administrative changes will be frequent.
- External(routing) Trigger
 - The biggest cause of policy change lies where the route for certain destinations change frequently because of traffic engineering

we first need some consensus on the frequency of changes before working on solutions.

Considering Routing Trigger

- Multi-Address scenarios
 - A site with BGP multi-homing
 - A single prefix is used, so policy update isn't needed.
 - Now that we have IPv6 PI, this is not harder than in IPv4.
 - A site with multiple PA address from ISPs
 - In IPv4, NAT is used at the border in such a site. Even the most intelligent NAT-box has a function of static routing and a function of detecting up-stream link failure.
 - Do we need more, that may demand policy manipulation, than that in IPv6 ? For redundancy purpose, you can go shim6

If we can focus on only administrative triggers, the solution should be simpler

How to propagate policy changes

- Make it a rule that when an address changes, hosts should re-obtain policy.
 - However, not all policy change is tied to address change.
- DHCPv6 Reconfigure message
- DHCPv6 Lifetime Option (RFC4242)
- Lifetime based approach for RA
- Frequently and periodically broadcast policy e.g. via RA

On RFC3484 Default Policies

- Not every address selection issues are covered by policy table updates
 - E.g. longest prefix match issue (affecting DNS round robin)
- Do we need to update the default policy ?

At the end

- We welcome inputs.
- Ready for WG item ?