Current Status of IPv6 Address Selection Design Team

draft-ietf-6man-addr-select-considerations-00

draft-arifumi-6man-addr-select-conflict-01

draft-arifumi-6man-rfc3484-revise-02

Arifumi Matsumoto
NTT PF Labs.
Address Selection Design Team

• Assembled after 72\textsuperscript{nd} IETF

• Members: 15 ppl

• Goal
  • This team designs a protocol that dynamically updates RFC 3484 policy table.
  • And solves RFC5220 PS, satisfying RFC5221 REQ.
Issues considered: 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
Issues considered:
How dynamic are the updates going to be?

- Not frequent except the multi-home TE, host mobility cases.
- Update frequency not generally different to general configuration requests (e.g. via DHCPv6)
- Only in the multi-home TE case, the router kicks the policy update.
Issues considered:
RFC3484 Default Policy

• We believe radical changes for RFC3484 is not needed to combat address selection PS.

• But, RFC3484 is said to have some issues

• Many OSs have already modified RFC3484

• Minor changes of default behavior are suggested in
  • draft-arifumi-6man-rfc3484-revise-02
Issues considered: differing administrative domains

- When, for example, a host has multiple interfaces, it may have multiple policies.
- draft-arifumi-6man-addr-select-conflict-01
  - It tries to show a method to merge policies.
  - basically by obeying routing system’s decision.
Solving srcaddr policy’s conflict

- Conflict
  - Entity-1: “Use addr1 for dst Site-1”
  - Entity-2: “Use addr2 for dst Site-1 and Site-2”

- Solution: “let’s leave which to choose to the routing decision”
  - Routing system decides which way to take for Site-1.
  - Then, adopt the policy from it.

In other words, let the src addr selection avoid contradiction with routing system.
Solving dstaddr policy’s conflict

- **Conflict**
  - Entity-1: “Prefer IPv6 rather than IPv4”
  - Entity-2: “Prefer IPv4 rather than IPv6”

- **Solution:** “Let’s leave which to choose to the routing decision”
  - Routing system decides which way to take for the prefix.
  - Then, adopt the policy from it.

- **Example in the fig.**
  - IPv6 via Entity-1 pref 50
  - IPv4 via Entity-2 pref 40

![Routing decision diagram]

- IPv6
  - good(50)
  - poor(10)

- IPv4
  - good(40)
  - poor(20)

Host/Site

Entity-1
IPv6

Entity-2
IPv4
Next Step is to see HOW
How to deliver policy

- RA option
  - Easier to kick policy refresh by a router
    - to support multi-home TE case.
  - Limited data space. at most 20 entries

- DHCP option
  - Hard to kick policy reconfigure by a server.
  - Abundant data space, host specific policy.

- Routing Protocol like mechanism
  - Easier to deliver changing policy
  - Applicability is different from above two
We need inputs regarding...

- The overall considerations draft needs detailing HOW.
  - draft-ietf-6man-addr-select-considerations-00

- Merging method needs review by more people.
  - draft-arifumi-6man-addr-select-conflict-01

- RFC3484 bis also needs more reviews.
  - draft-arifumi-6man-rfc3484-revise-02

- Regarding the distribution mechanism,
  - We will prepare RA option spec.
  - Modify DHCPv6 option to meet the merging method.