Considerations of address selection policy conflicts

draft-arifumi-6man-addr-select-conflict-00

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What is this document

* Design Team is working on address selection problems in a way of updating RFC 3484 policy table.

* This draft focuses on “conflict problem” that can happen when multiple entities, usually ISPs, update policy table.

* This draft does not assume any concrete updating mechanism, or propose any concrete solution mechanism.

* Just wants to see if we can share the goal.
What is policy?
How does it conflicts?
Src addr-sel policy and conflict

* Source address selection policy
  * “Use src addr A, for connecting addr B”
  * E.g. “Use fd00::100, when connecting 2001:db8::/64”

* Src. policies conflict when different src addrs are specified for a dst addr.
  * Entity-1: “Use addr1 for dst Site-1”
  * Entity-2: “Use addr2 for dst Site-1 and Site-2”

Which src address to be chosen for Site-1?
Dst addr-sel policy and conflict

* Destination address selection policy
  * “Prefer dst A rather than dst B.”
  * E.g. “Prefer IPv6 rather than IPv4.”

* Dst policies conflict when preferences are opposing.
  * Entity-1: “Prefer IPv6 rather than IPv4”
  * Entity-2: “Prefer IPv4 rather than IPv6”

Which to prefer, IPv6 or IPv4?
Solution part

Can we agree on what the goal is, not how to reach the goal?
Solving src policy 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 dst policy conflict

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

- This looks very similar to a routing protocol. The above can be interpreted,
  - Via Entity-1, IPv6 is better than IPv4.
  - Via Entity-2, IPv4 is better than IPv6.

- By quantifying the degree of preference, these can get merged just like routing protocols do.
  - To IPv6 via Entity-1, with pref 50
  - To IPv4 via Entity-2, with pref 40

Also, it has to be coordinated with routing table.
At the end

This document addresses:
- What the dst/src address selection policy is.
- How do they conflict.
- Goal of solving the conflicts.

Want to see if we can agree on what the goal is, not how to reach the goal?

Then, we can proceed to how to reach the goal.