Distribution of Address Selection Policy using DHCPv6

Arifumi Matsumoto*, Tomohiro Fujisaki
NTT Lab.
Ruri Hiromi, Kenichi Kanayama
Intec Netcore, Inc.
Background

- Every network has its own design and routing policy
- Host’s address selection policy is uniform in every environment

Routing Policy and Addr-selection Policy have to be consistent
Our Proposal

- RFC3484 Policy Table provides a powerful mechanism for address selection config.
- Policy Table auto-config. helps many cases

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Prec.</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>::/0</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>3</td>
</tr>
</tbody>
</table>
When this is necessary?

- In many cases when a host has multiple addresses, such as IPv6, IPv4 and ULA.
  - **source address selection**
    - Ingress Filtering Problem
    - Half-Closed Network Problem
    - Combined Use of Global address and ULA
    - Smooth Site Renumbering
    - Multicast Source Address Selection
  - **destination address selection**
    - IPv4 or IPv6 prioritization
    - ULA and IPv4 dual-stack environment
    - ULA or Global prioritization

Detailed in draft-arifumi-v6ops-addr-select-ps-01.txt
Standardization Status

We are working on parallel jobs

• Get support from ipv6 community (v6ops)
  – Problem statements
    draft-arifumi-v6ops-addr-select-ps-01.txt
  – Requirements for address selection policy distribution
    draft-arifumi-v6ops-addr-select-req-00.txt
  – Evaluate solutions for address selection

• Develop a spec. (dhc)
  – v6ops isn’t a place for making protocols
  – So, in dhc we are brushing up specification.
    draft-fujisaki-dhc-addr-select-opt-02.txt
  – and standardize it with inputs from v6ops

These 2 drafts became WG item on monday
Discussion about DHCP-specific issues

• **Lifetime of Policy Table**
  – What kind of lifetime it should have?
    • When the address changes, policy should also change accordingly.
  – Should be same as DNS server info’s lifetime?
    • This issue isn’t documented in RFC3646.

• **IA-Option usage should be mandatory?**
  – For reliable transport and lifetime management
  – Or, stateless-DHCP with lifetime option is Okay?

• **Multi-Interface environment have to be considered, if this becomes an DHCP option RFC?**
  – Surely policy tables can conflict. However, this isn’t only true for this option. How about DNS server option?
  – A lot of OSes seem to have “one default interface”.

• **Any other considerations?**
Q. Do you think this proposal is mature enough?

Thanks!