

Consideration M and O Flags of IPv6 RA <draft-daniel-ipv6-ra-mo-flags-00>

IPv6 WG – 60th IETF

S. Daniel Park (soohong.park@samsung.com)

Syam Madanapalli(syam@samsung.com)

Tatuya Jinmei(jinmei@isl.rdc.toshiba.co.jp)

Background

- **M and O flags of IPv6 RA indicate whether the Stateful (RFC 3315) and Stateless DHCPv6 (RFC 3736) protocol services are available.**
- **Detailed considerations of IPv6 RA M and O flags are outside the scope of 2462bis since WG decided in the discussion for 2462bis that we'd need a separate BCP document for the detailed consideration.**
- **We need to clarify the processing and behavior of M and O flags.**
- **DHCPv6 admin policy should be clarified in conjunction with M and O flags.**

Introducing DHCPv6 Policies

- **Introducing two internal (conceptual) variable for DHCPv6 policy as M-Policy and O-Policy.**
- **The value of this variable in conjunction with the "ManagedFlag" and the "OtherConfigFlag" of RFC2461 is used for invoking the DHCPv6 for autoconfiguration.**
- **If we invoke Stateful DHCPv6 [RFC3315] for address autoconfiguration, we basically SHOULD NOT invoke Stateless DHCPv6 [RFC3736] since RFC3736 is a subset of full DHCPv6 as RFC3315.**
 - RFC 3315 can provide other configuration information.

M-Policy

- **Policy 1: The host SHOULD invoke Stateful DHCPv6 for address autoconfiguration regardless of the content of receiving RAs or the existence of RAs.**
- **Policy 2: The host SHOULD invoke Stateful DHCPv6 for address autoconfiguration (along with other configuration information) if and only if it sees an RA with the M bit is ON.**
- **Policy 3: The host SHOULD NOT invoke Stateful DHCPv6 for address autoconfiguration regardless of the content of receiving RAs or the existence of RAs.**

O-Policy

- **Policy 1: The host SHOULD invoke Stateless DHCPv6 for getting other configuration information regardless of the content of receiving RAs or the existence of RAs.**
- **Policy 2: The host SHOULD invoke Stateless DHCPv6 for getting other configuration information if and only if it sees an RA with the O bit is ON.**
- **Policy 3: The host SHOULD NOT invoke Stateless DHCPv6 for getting other configuration information regardless of the content of receiving RAs or the existence of RAs.**

Possible Scenarios

M Flag O Flag	OFF	ON
OFF	M-Policy : 1 Stateful DHCPv6 M-Policy : 2 or 3 & O-Policy : 1 Stateless DHCPv6	M-Policy : 1 or 2 Stateful DHCPv6 M-Policy : 3 & O-Policy : 1 Stateless DHCPv6
ON	M-Policy : 1 Stateful DHCPv6 M-Policy : 2 or 3 & O-Policy : 1 or 2 Stateless DHCPv6	M-Policy : 1 or 2 Stateful DHCPv6 M-Policy : 3 & O-Policy : 1 or 2 Stateless DHCPv6

- The transition of the M/O flags from OFF to ON just indicates that the network provides configuration information through DHCPv6. This SHOULD NOT be treated as a trigger to invoke DHCPv6 unless the policy dictates.
- The transition of the M/O flags from ON to OFF does not mean anything

Default value of Policies

- **If the node implements [RFC3315], the default value of M-Policy is 2.**
- **If the node does not implement [RFC3315], the default (and only) M-Policy value is 3.**
- **When assuming [RFC3637] will be implemented much wider than [RFC3315] in terms of other configuration information, the default value of O-Policy is either 1 or 2. Perhaps value 1 is better since this service might be crucial for the node (i.e., there may be no alternative to get the other configuration information.)**

Moving Forward

- **Resolving several open issues described in this draft.**
 - Default policy value (enough clear ?)
 - When does a node reset itself once the DHCPv6 flag goes ON.
 - Does it do this on a reboot ?
 - Does it do this when it has moved to a new network ?
 - and how does it detect this ?
 - Security Considerations (enough ?)
 - Authenticated DHCPv6
 - SEND
 - Log message (beside using SEND)
 - Others ?

- **Is it ready for WG adoption ?**