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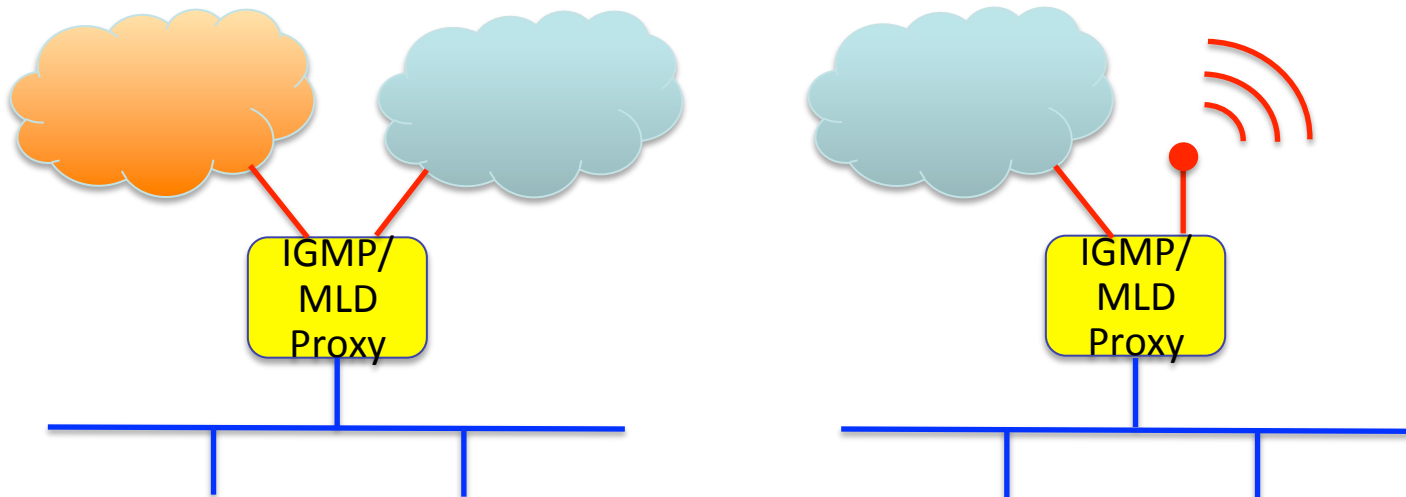
Multiple Upstream Interface Support for IGMP/MLD Proxy

draft-asaeda-pim-mldproxy-multif-01

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Overview

- Background
 - IGMP/MLD proxy attached to different networks (e.g., Internet and Intranet) or different interfaces (e.g., ethernet and wireless link)
- Proposal
 - Enable “per-channel load balancing” for IGMP/MLD proxy (as the extension of RFC4605) as simple as possible
 - “Flow-based load balancing” is not discussed
 - Will do if consensus

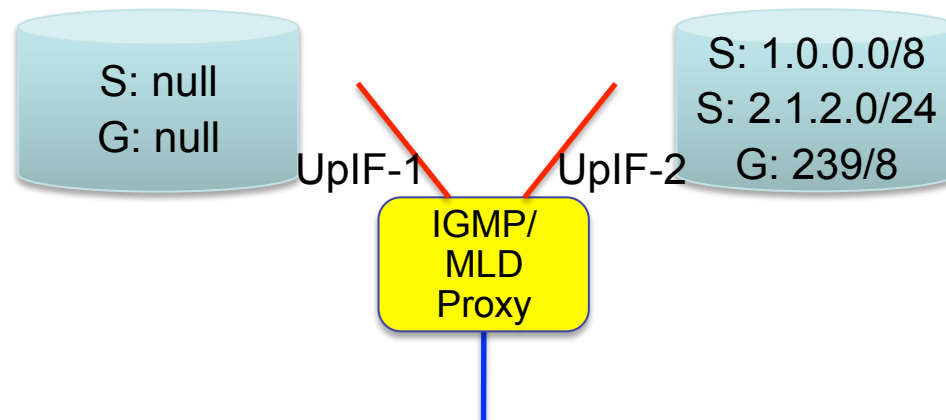


Terminology, Configuration

- Candidate upstream interfaces
 - Manually configured
- Upstream interface (or selected upstream interface)
 - Selected from candidate upstream interfaces
- Supported address prefix
 - Address prefix for which a candidate upstream interface supposes to be an upstream interface
- Configuration
 - “Supported **source/multicast** address prefixes” on each candidate upstream interface
 - “Interface priority” on each candidate upstream interface
 - “Upstream IF Take-over” option

Supported Address Prefix

- Longest match
 - Candidate upstream interface having longest prefix is selected as the upstream interface
 - Default values of both source and multicast address prefixes are null value



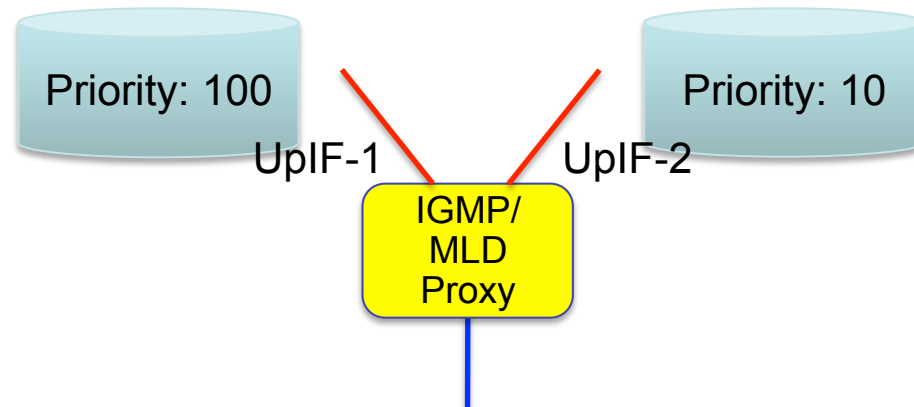
Supported Address Prefix

– Possible Scenarios

- No address prefix configured on each candidate upstream interfaces
 - UpIF is selected based on “interface priority” values
- Multiple candidate upstream interfaces configure same address prefixes
 - UpIF is selected based on “interface priority” values
- Configured address prefix is overlapped among multiple candidate upstream interfaces
 - E.g., 1/8 by UpIF-A and 1.1/16 by UpIF-B, or 239/8 by UpIF-A and 239.254/16 by UpIF-B
 - UpIF having longest prefix is selected
- For (S,G) channel, S’s prefix matches UpIF-1’s configuration and G’s prefix matches UpIF-2’s configuration
 - Source prefix is takes priority over multicast address prefix, hence UpIF-1 is selected for the (S,G) channel

Interface Priority

- Each configured upstream interface has own priority value
 - Default value is the lowest value (0)



Interface Priority

– Possible Scenarios

- Upstream interface is selected based on the interface priority values of candidate upstream interfaces, when;
 - None of the candidate upstream interfaces configure the supported address prefix, or
 - The supported **source** and **multicast** address prefixes defined by candidate upstream interfaces are identical, or
 - The supported **source** address prefix mismatches, but the **multicast** address prefix matches and is identical, or
 - Neither **source** nor **multicast** address matches the supported address prefixes for all candidate upstream interfaces

Default Values

- The default of “supported address prefixes” is “(null, null)”
- The default of “interface priority” is “lowest value (0)”
- When all values are default, the configured upstream interface having lowest IP address is selected as the upstream interface for all multicast channels

Upstream Interface Take-Over

- A new upstream interface takes over the originally selected upstream interface, when;
 - An IGMP proxy recognizes that an adjacent upstream router is not working
 - E.g., No PIM HELLO listened (within the know period), No IGMP/MLD general query received (within the know period), No packet arrived (after subscription), etc.
- Option
 - This take-over operation is optionally configured
 - Default: Disable (?)

Open Issue – 1

- Candidate but non-selected upstream interfaces can be the downstream interface or should not be the downstream interface?
 - We might prefer; “should not be the downstream interface”

Open Issue – 2

- After the upstream interface being taken over detects link-up, shall it come back?
 - Need to avoid flapping
 - Will do the same procedure PIM does?

Next Step

- History
 - -00 draft was submitted as the originally-proposed solution draft on Oct. 15, 2012
 - -01 draft was submitted on Feb. 25, 2013
 - We've sought comments about this draft on Homenet ML
- How we move forward?