IS-IS Route Preference for Extended IP and IPv6 Reachability

draft-ietf-isis-route-preference-00.txt

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91st IETF, Honolulu, November 2014

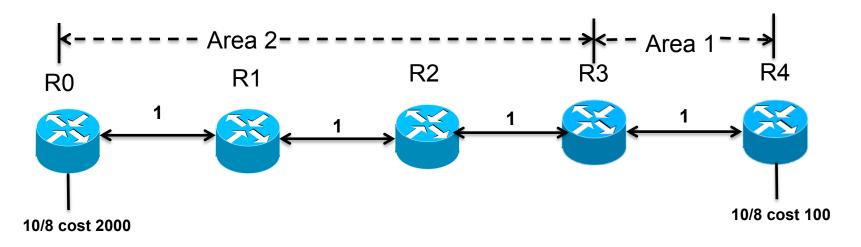# What prompted us to write this draft?

draft-litkowski-isis-ip-route-preference-issue-00
documented an interoperability issue with the Up/Down bit in L2 LSPs –
requested revision of existing RFCs (5302, 5305, 5308) to resolve this
issue

This draft defines a solution to this interoperability issue by clarifying the
preference rules for extended Reachability TLVs and correcting one
inconsistency in RFC 5308.

Stephane joined as co-author

The relevant content from Stephane's draft has been merged into this
draft (see Appendix).

Multi-Vendor Interoperability Issue

All routers are L2
R3 runs two instances:
     R3- Area 1 redistributes into R3- Area 2

R0 advertises 10/8 cost 2000
R3-Area2 advertises 10/8 cost 101 Up/Down bit set

R1 prefers path w lowest cost – sends traffic ->R2
R2 prefers path w Up/Down bit = 0 – sends traffic ->R1

Impact on existing RFCs

**Positioned as clarification (update) of RFC 5302/5305.
Correction of RFC 5308.**

Changes since Toronto

Became WG document

Incorporated flags defined in the new Prefix Attributes Draft
draft-ginsberg-isis-prefix-attributes-00.txt

X-bit: Reintroduces differentiation between Internal/External (to IPv4)

R-bit: Identifies the distinction between leaked/non-leaked routes

These flags do NOT impact route preference – only make categories within a given preference more distinct.

Warning regarding IPv6 preference changes:

"As changing the use of the up/down bit in TLVs 236 and 237 may introduce interoperability issues implementors may wish to support transition mechanisms from the [RFC5308] behavior to the behavior specified in this document."

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Route Preference

TLVs 135/235

1. L1 intra-area routes; L1 external routes
2. L2 intra-area routes; L2 external routes; L1->L2 inter-area routes; L2-L2 inter-area routes
3. L2->L1 inter-area routes; L1->L1 inter-area routes

TLVs 236/237

1. L1 intra-area routes; L1 external routes
2. L2 intra-area routes; L2 external routes; L1->L2 inter-area routes; L1->L2 external routes;L2-L2 inter-area routes; L2-L2 inter-area external routes
3. L2->L1 inter-area routes; L2->L1 external routes;L1->L1 inter-area routes; L1->L1 inter-area external routes