

Update on
draft-ietf-spring-segment-routing-mpls-12

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Summary

- **Purpose**: Specify the instantiation of segment routing over MPLS forwarding plane
- Key modifications
 - Address AD review comments (*thanks for the detailed review*)
 - Specify incoming label collision behavior

AD Review comments

- Why is this document on the Standards Track
 - Document specifies many things. See the reply to comments sent to spring@ietf.org on Mar/7/18
- Concern about SRLB and the concept of an SRLB
 - Addressed in detail in Section 2.3
- Concern about “index” and explanation of the “[SRGB(next_hop)+index]” notation
 - Specified in detail in section 2.4
- IPR declared in relation to draft-ietf-spring-segment-routing
 - We think we have done all IPR declaration. But we will do more if necessary
- How to instantiate the SID index into MPLS label
 - Addressed in detail in Section 2.4
- What is a “valid SRGB”?
 - Clearly explained in Section 2.4
- Next-hop not supporting SR-MPLS
 - Addressed in sections 2.10 and 2.11
- Validity of SRGB for non-top labels in case of SR-policy
 - Referred to “draft-filsfils-spring-segment-routing-policy”
- Concern about “same SRGB”, “service chain” and references to “VPN, VPLS, VPWS, LDP, RSVP-TE”
 - We removed these terms from the latest version (version 12)
- Other minor comments from AD
 - See reply to AD comments sent to spring@ietf.org on Mar/7/18

Incoming Label Collision

- Objectives
 - Simplicity !!
 - Routing protocol independence
 - Guarantees consistent FIB
 - Does **NOT** guarantee domain-wide consistency
- Idea
 - Define an SR FEC
 - A SR local label can only be assigned to single SR FEC
 - MPLS common sense: If a local label is assigned to more than one FEC, then select one FEC and attach it to that local label

Tie-breaking Rules

- SR-FEC
 - FEC identified by one or more SR-related parameter
 - E.g.: adj-SID FEC is identified by (next-hop, outgoing interface)
- MCC: MPLS Control Plane Client
 - Any control plane entity that installs forwarding entries
- Tie-breaking
 - Each MCC assigns local label to one FEC only
 - An MCC downloads the FEC with its SR local label
 - If RIB or FIB detects collision, apply tie-breaking rules to assign the local label to single FEC
 - Remaining FECs are downloaded without an SR local label (may use non-SR labels, e.g. LDP)
- Deterministic Tie-breaking rules
 - If the same set of FECs compete for the same label, then the same FEC will always be selected irrespective of the order by which the FECs are known
 - E.g. first-come-first-serve is NOT allowed

Tie-breaking Rules

- Each MCC downloads a single FEC with every local label
- If there is collision, RIB/FIB select the FEC with lowest admin distance among competing FECs
- If there is still more than one competing FEC for the same local label
 - Select the FEC with smallest numerical value

Redistribution of prefix SID index

- Redistribution of prefix-SID index with the prefix is allowed **only** if they have identical SRGB
- Otherwise receiving routing protocol is responsible for assigning an index to received prefix
 - If index is assigned, receiving protocol is responsible for downloading corresponding local label to FIB

Thank you!
Questions ??