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 ??