

LSP Ping for SR Path SIDs

draft-xp-mpls-spring-lsp-ping-path-sid-00

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Intention of this draft

- Provides Target FEC stack TLV definitions for Path Segment ID
 - Two new sub-TLVs are defined as follows
 - SR Candidate Path's Path SID
 - SR Segment List's Path SID
 - Procedures for LSP Ping and Traceroute as defined in [[RFC8287](#)] and [[RFC8690](#)] are applicable to Path-SIDs as well

Principle of Path Segment

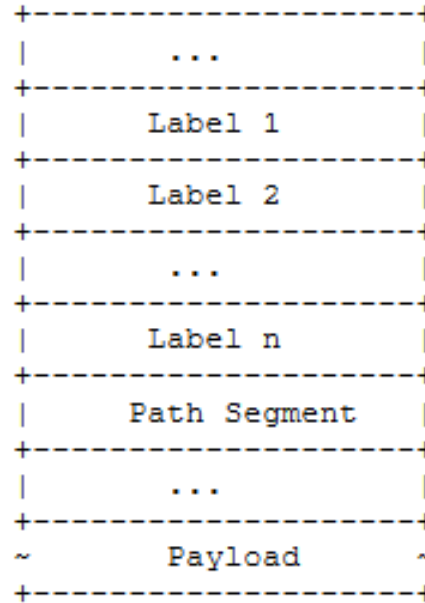


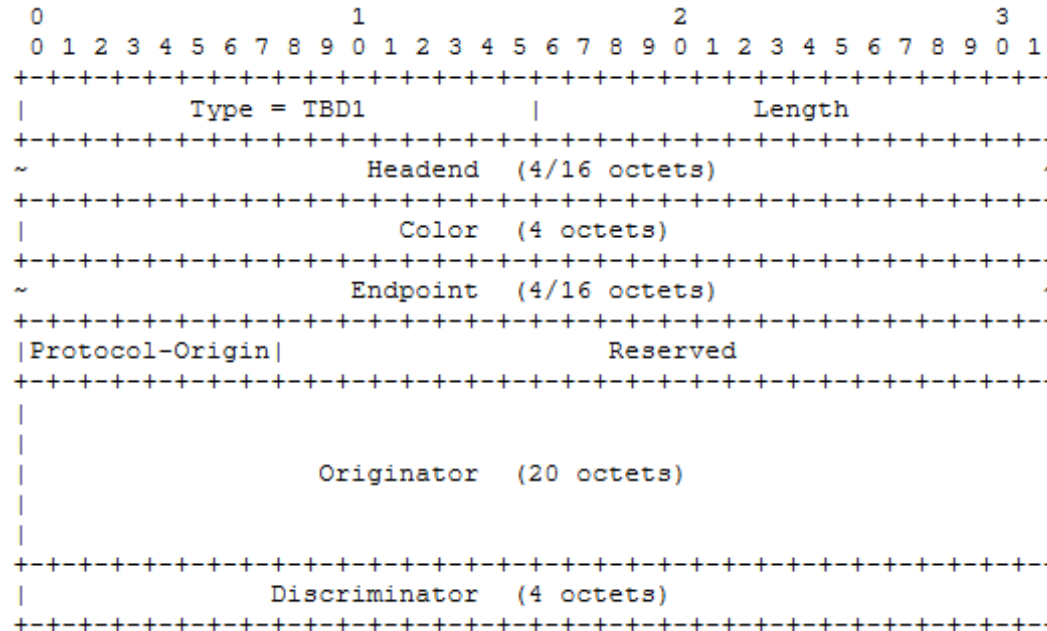
Figure 1: Label Stack with Path Segment

- A type of SR segment that is normally used by the egress nodes for path identification
- Path Segment with MPLS data plane is defined in [\[I-D.ietf-spring-mpls-path-segment\]](#)

Path Segment Allocation

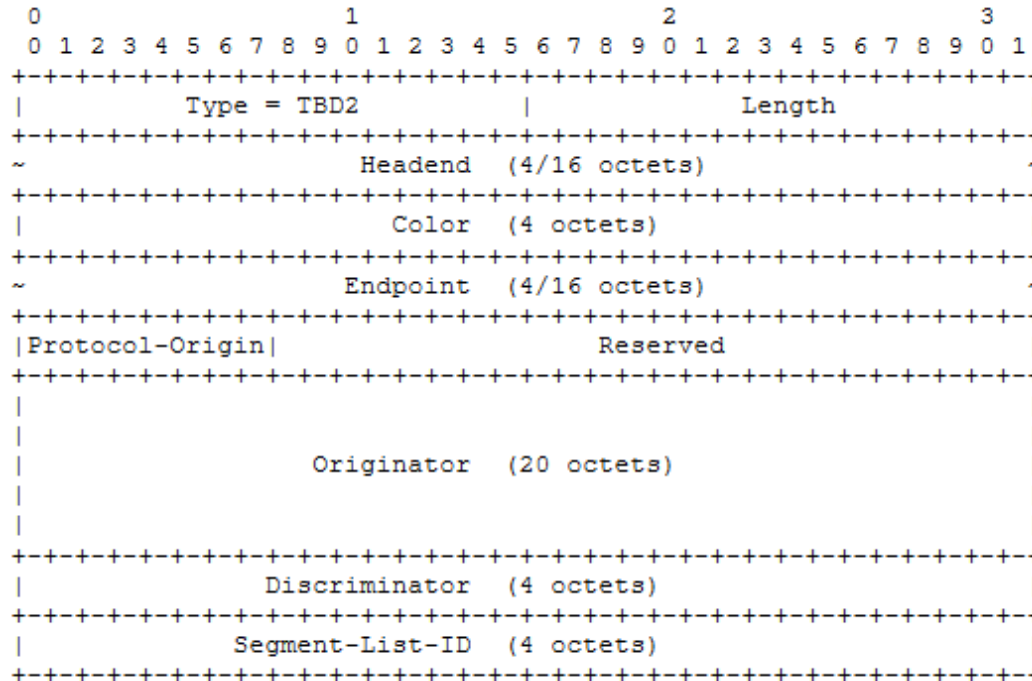
- Several ways for allocating the Path Segment to the ingress node
 - Allocated by the egress node, through a communication channel between the egress and ingress nodes. The details of this way are FFS.
 - Allocated by a centralized controller, using three methods
 - PCEP
 - BGP SR Policy
 - Via Configuration
- If Path Segment is allocated by a centralized controller, then the controller **MUST** make sure that the egress node knows the Path Segment and it can process it

SR Candidate Path's Path SID Sub-TLV



- As specified in [[I-D.ietf-idr-sr-policy-path-segment](#)], the Path Segment can be used to identify an SR candidate path
- As specified in [[I-D.ietf-spring-segment-routing-policy](#)], an SR candidate path can be identified through the tuple <headend, color, endpoint, Protocol-Origin, Originator, Discriminator>

SR Segment List's Path SID Sub-TLV



- As specified in [[I-D.ietf-idr-sr-policy-path-segment](#)], the Path Segment can be used to identify an SR path (specified by SID list)
- As specified in [[I-D.ietf-spring-segment-routing-policy](#)] and [[I-D.Ip-idr-sr-path-protection](#)], an SR path can be identified through the tuple <headend, color, endpoint, Protocol-Origin, Originator, Discriminator, Segment-List-ID>

Path-SID FEC Validation

- Target FEC Stack sub-TLV is SR Candidate Path's Path SID sub-TLV
 - Firstly check the basic length of the received sub-TLV
 - Secondly validate that the Path Segment ID is signaled or provisioned for the SR Candidate Path
 - When the received Protocol-Origin field is 10 which means PCEP, validate that the Path SID matches with the PCEP tuple identifying the SR Candidate Path
 - When the received Protocol-Origin field is 20 which means BGP SR Policy, validate that the Path SID matches with the BGP tuple identifying the SR Candidate Path
 - When the received Protocol-Origin field is 30 which means Via Configuration, validate that the Path SID matches with the YANG tuple identifying the SR Candidate Path

Path-SID FEC Validation(cont.)

- Target FEC Stack sub-TLV is SR Segment List's Path SID sub-TLV
 - Firstly check the basic length of the received sub-TLV
 - Secondly validate that the Path Segment ID is signaled or provisioned for the SR Segment List
 - When the received Protocol-Origin field is 10 which means PCEP, validate that the Path SID matches with the PCEP tuple identifying the SR Segment List
 - When the received Protocol-Origin field is 20 which means BGP SR Policy, validate that the Path SID matches with the BGP tuple identifying the SR Segment List
 - When the received Protocol-Origin field is 30 which means Via Configuration, validate that the Path SID matches with the YANG tuple identifying the SR Segment List

Some Considerations

- Currently it seems there is no control plane protocol on allocating Path SID by the egress node, if it's brought up later, then new Target FEC might need to be defined
- Currently it seems there is no PCEP details on allocating Path SID to identify an SR Segment List, which is outside the scope of this draft
- Currently it seems there is no YANG details on allocating Path SID, which is outside the scope of this draft
- Currently LSP Traceroute is mentioned in this draft, nevertheless the use case for Path-SID traceroute is still unclear to the authors, it's FFS

Next steps

- Ask for more reviews and comments
- Revise this draft to resolve comments
- Ask for WG adoption