

# Tunnel Segment in Segment Routing

draft-li-spring-tunnel-segment-00

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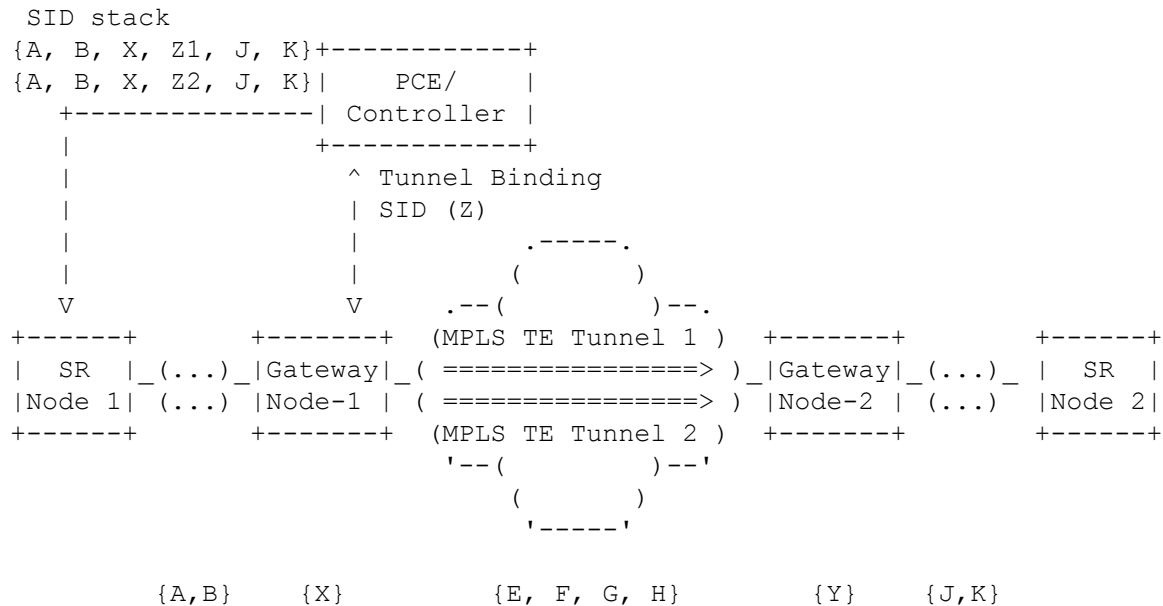




# Use cases (3)

## □ Differentiated Services

- Multiple tunnels between the same pair of gateway nodes to support different services though the explicit path is same.



# Creating and binding

## □ Manual

- Creating and binding a tunnel to its SID manually. Then several signaling ways can be used to propagate binding information: IGP/PCEP/BGP-LS

## □ Centralized

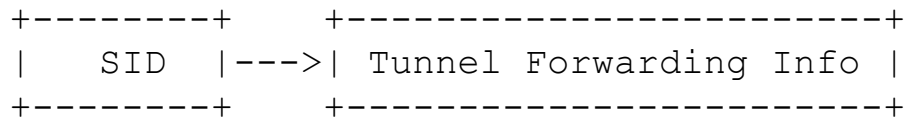
- A tunnel initialized and propagate binding relationship through PCEP extensions (Refer to draft-ietf-pce-pce-initiated-lsp and draft-zhao-pce-central-controller-user-cases).

## Comparison with Adjacency Segment

- ❑ It may be necessary to differentiate a tunnel segment from other adjacency segment in some scenarios since there are more attributes attached to a tunnel.
- ❑ Not only to inform the binding relationship between a tunnel and a SID but also to learn tunnel information as much as possible
- ❑ IGP Adjacency will need an IP (a borrowed one at least) while a Tunnel-SID won't.

# Forwarding Mechanism

□ In the gateway node, when received the packet with the tunnel segment SID as the topmost SID, it will use the forwarding mechanism shown in the following figure to steering the traffic to the corresponding tunnel



SID: Segment ID

# Requirements of Control Plane and Yang Models

- ❑ REQ 01/02/03: IGP/BGP-LS/PCE extensions SHOULD be introduced to advertise the binding relationship between a SID/label and the corresponding tunnel. Attributes of the tunnel MAY be carried optionally.
- ❑ REQ 04: PCE SHOULD support initiating IP tunnel.
- ❑ REQ 05: PCE SHOULD support to allocate SID/label for the corresponding tunnel dynamically.
- ❑ REQ 06: PCEP extensions SHOULD be introduced to distribute the binding relationship between a SID/label and the corresponding tunnel from a PCE to a PCC. Attributes of the tunnel MAY be carried optionally.
- ❑ REQ 07: An I2RS interface SHOULD be available for allocating SID/label to the corresponding tunnel. And augmentation on segment routing YANG models SHOULD be introduced.



## Next step

- ❑ Collect feedback and comments.
- ❑ Refine this draft according to comments.