

# MPLS Source Label

draft-chen-mpls-source-label-01

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# Problem Statement and Motivation

- No information about source encoded in MPLS label stack
  - A MPLS label identifies a FEC and assumes the destination address semantic
  - Intermediate and egress LSRs can *NOT* tell from which LSR a packet is sent. Especially for:
    - MP2P and MP2MP LSP (e.g., LDP based LSP, L3VPN, etc. )
    - Segment Routing based LSP (without per-flow state)
- Source identification is critical for some applications
  - Performance Measurement, Traffic Matrix Collection
  - Segment Routing - “... *preserving information on the topological and service journey of a packet (e.g. the ingress to the domain for accounting/billing purpose).*”

# Solutions

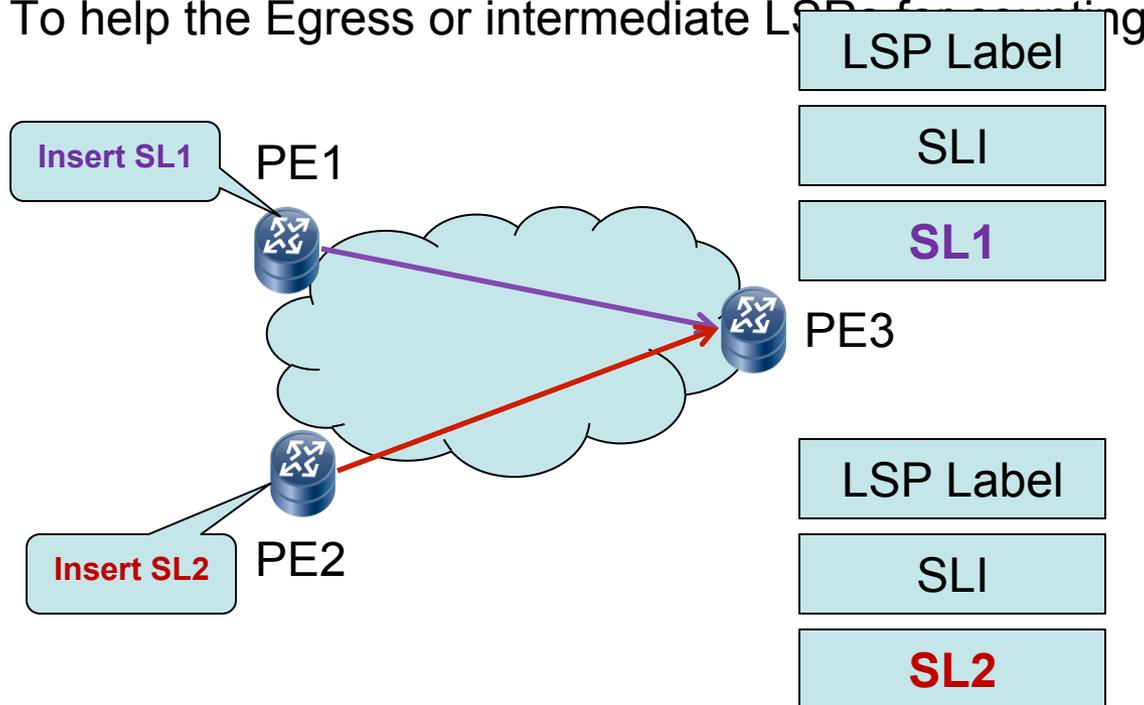
- MPLS Source Label (SL)
  - Designed to identify ingress LSR of an LSP, could be:
    - Global label, or
    - Locally significant label
      - Similar to BGP VPLS Label Block (RFC 4761)
- Source Label Indicator (SLI)
  - A special purpose label (TBD)
  - Placed immediately before the SL
  - Indicate the next label is a SL



MPLS label stack

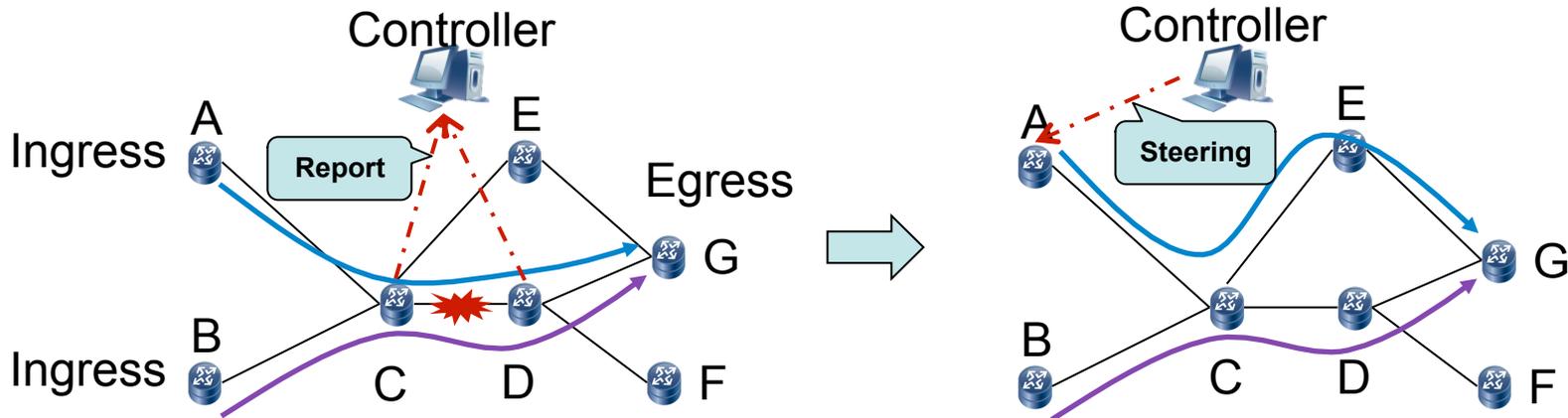
# Use Cases (1)

- Performance Measurement (E.g., Packet Loss, throughput)
  - Source identification is the precondition of PM
  - To help the Egress or intermediate LSP forwarding



# Use Cases (2)

- Traffic Matrix Collection and Steering
  - When Link C-D reaching its threshold
  - Collect the traffic matrix over Link C-D ( at either node C or D):
    - Which flows are from node A and B? (Based on Source Label)
    - What's the volume of each flow?
  - Then determine which flows should be moved onto other paths



# Compatibility Consideration

- Egress LSR
  - Source Label Capability (SLC) negotiation: Egress signal to Ingress LSR it is able to process SL
  - Based on the SLC, ingress LSR can choose whether or not to insert SL into the stack
- Transit LSR
  - There is no change in forwarding behavior for transit LSRs. But if a transit LSR can recognize the SLI, it may use the SL to collect traffic throughput and/or measure the performance of the LSP.
- So, there is no compatibility issue.

# Next Steps

- Would like to solicit more comments and update the draft.
- WG adoption?