IETF 111 – Online
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draft-ali-teas-spring-ns-building-blocks-01.txt

Building blocks for Network Slice Realization in SR

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Scope of the Draft

- Scope
  - Informational Draft
  - Lists essential building blocks needed for network slicing
  - Explains how these building blocks interact, seamlessly
- Goals
  - Scaling
  - Incremental deployments

History of the Draft

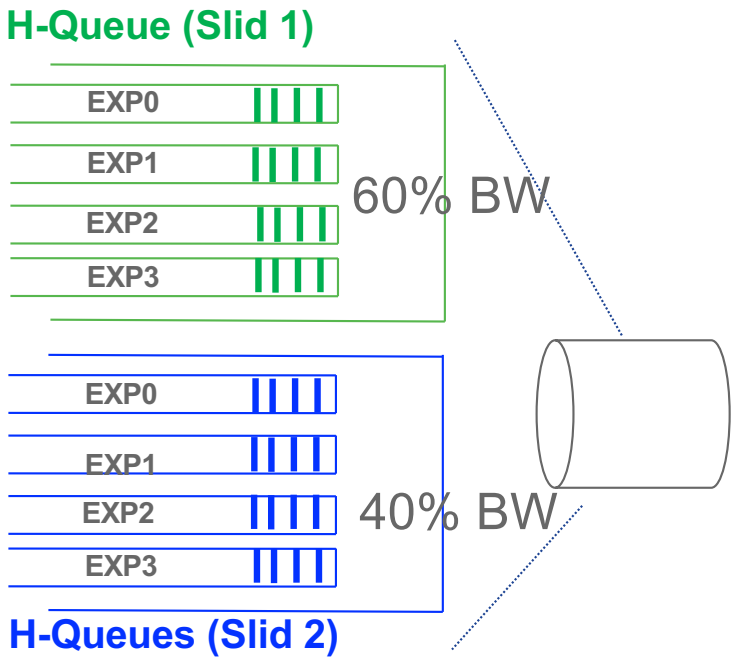
- History
  - Rev 0 was published in July 2018
  - Rev 2 was presented at IETF106 (in Spring WG)
  - Rev 4 was presented at IETF110 (in Spring WG)
    - >Addressed comments received
    - >Published as TEAS-Spring draft

Draft Summary

- Building Blocks
  - SR Policy - with or without Flexible Algorithm – Flexible Algorithm
  - TI-LFA with O(50 msec) protection
  - SR VPN
  - SR Service Programming (NFV, SFC)
  - OAM and Performance Management (PM)
  - QoS
  - Orchestration at the Controller
  - Stateless Slice identification (SLID)
- These building blocks need to work together, seamlessly

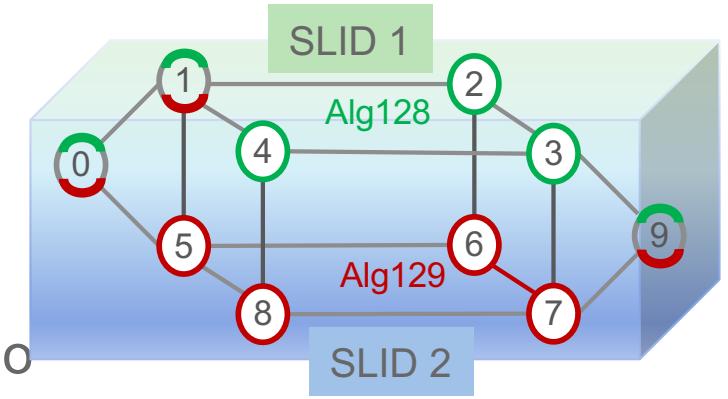
SLID Attributes

- SLID enables the differentiate treatment
  - QoS/ DiffServ policy on a per SLID
- SLID construct is like QoS
  - Independent of Routing and Topology
- Stateless
- Backward compatible
  - Incremental deployments



Seamless Building Blocks Example

- Flex-Algo and TI-LFA
  - The backup path is optimized per Flex-Algo
- Flex-Algo, TI-LFA and SLID
  - Slid does not create a new instance of Flex-Algo
    - >Scalable
  - TI-LFA works seamlessly for each SLID
    - >The slid is stateless
    - >Backup paths provide differentiated treatment



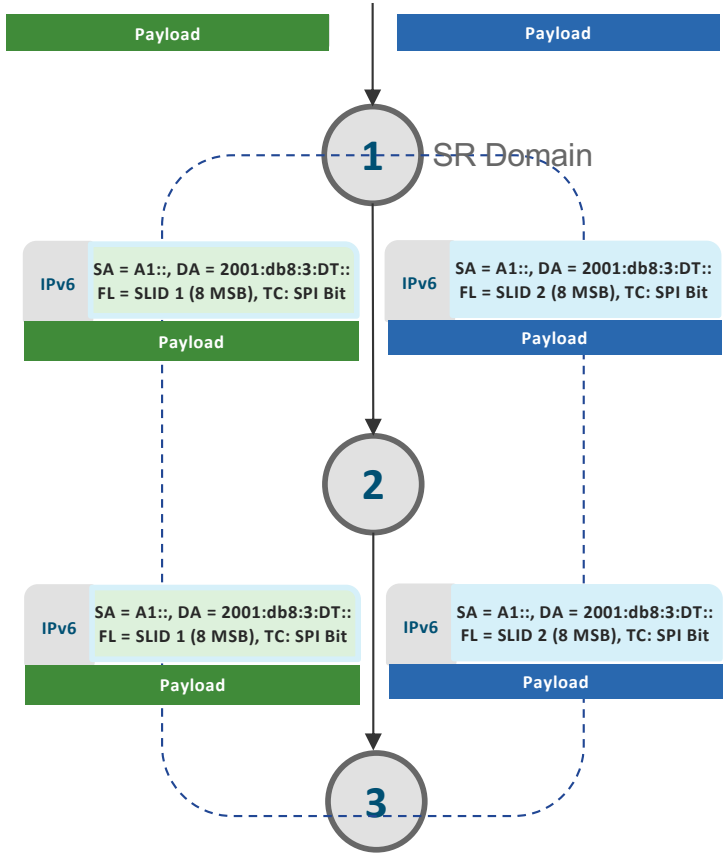
Underlay building blocks shared among SLIDs

Seamless Building Blocks (cont'ed)

- SLID work seamlessly with other building blocks for scaling
  - Flex Algo
    - >Like in previous slide
      - Orange & red Flex Algo and Green & Blue SLID works seamlessly
  - VPN
  - SR Policy (with or without flex algo)
  - QoS/ DiffServ policy, etc.
- SLID is a differentiated behavior at a node
  - Not too many SLIDs are needed
    - >Scaling

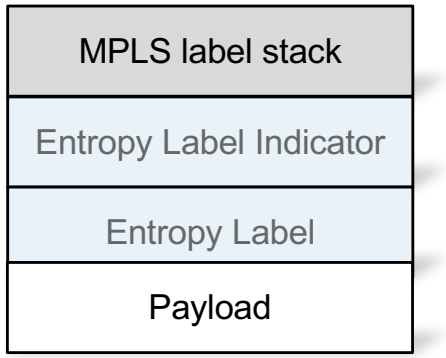
SLID for SRv6

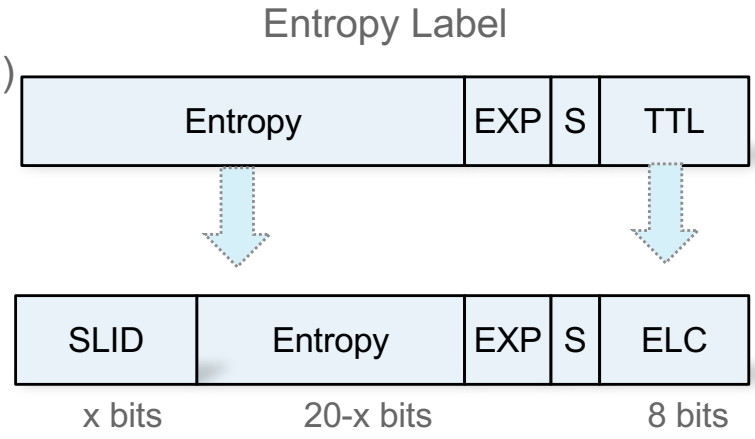
- Reference
  - draft-filsfils-spring-srv6-stateless-slice-id
- Ingress PE
  - Encapsulates an outer IPv6 header and optional SRH
  - MAY classify the traffic to a slice and sets the following in the outer IPv6 header
    - > SPI bit (SLID Presence Indicator) in the TC
    - > SLID in the 8 MSB of the Flow Label
- Per Slice Differential Treatment
  - The SLID is used to apply per-slice policies
- Backward Compatible
  - Node not supporting SLID provides slicing using non-SLID building blocks (default SLID)



SLID for MPLS

- Reference
  - draft-decraene-mpls-slid-encoded-entropy-label-id
- Similar to draft-filsfils-spring-srv6-stateless-slice-id for MPLS networks
- Ingress PE
  - MAY classify the traffic to a slice and sets the following in the entropy label of MPLS label stack:
    - > SLID in the x MSB of the entropy label
    - > SPI bit (SLID Presence Indicator) in the one bit of TTL field (ELC)
- Per Slice Differential Treatment
  - The SLID is used to apply per-slice policies
- Backward Compatible
  - Node not supporting SLID provides slicing using non-SLID building blocks (default SLID)





Next Steps

- The authors would like the WG provide comments
- The authors would like the WG to adopt the document