Service Programming with Segment Routing

draft-xuclad-spring-sr-service-programming
(was draft-xuclad-spring-sr-service-chaining)

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IETF102, July 2018
Montreal, Canada
Context

draft-ietf-spring-segment-routing:

Segment Routing (SR) leverages the source routing paradigm. A node steers a packet through an ordered list of instructions, called segments. A segment can represent any instruction, topological or service-based. A segment can have a semantic local to an SR node or global within an SR domain. SR allows to enforce a flow through any topological path while maintaining per-flow state only at the ingress nodes to the SR domain.

draft-ietf-spring-segment-routing-policy:

The Segment Routing architecture [I-D.ietf-spring-segment-routing] specifies that any instruction can be bound to a segment. Thus, an SR Policy can be built using any type of Segment Identifier (SID) including those associated with topological or service instructions.
Service segments in SR architecture

Just another type of segment

• Stateless in the fabric
• Seamless integration with VPN and/or TE
• Service is opaque to the head-end and intermediate nodes
SR-MPLS service segments

• SID allocated on an SR-MPLS aware router connected to the service
  • Send with label stack to MPLS-capable service
  • Use proxy function to remove SR information before sending to MPLS-unaware service

• SID can be allocated from local or global label pool depending on the use-case
SRv6 service segments

• SID instantiated on an SRv6 router / host connected to the service
  • Send with SRH to SRv6-capable device
  • Use proxy function to remove / hide SRH before sending to SRv6 unaware service

• SID instantiated on an SRv6 aware service
  • Traffic processing depends on the SID
Metadata

• Can be stored in Segment Routing header
draft-ietf-6man-segment-routing-header

  • Tag field
  • TLVs
Conclusion & next steps

• Draft describes how a service is bound to a SID
  • Not a new architecture for service chaining
  • Not related to RFC 7665

• Seeking WG input and feedback