draft-ali-spring-sr-service-programming-oam-03

OAM for Service Programming with Segment Routing

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Service Programming with Segment Routing

- SID bounds to a Network Function
  - Just another type of segment

- SR Service Segments
  - SR Aware Services (Node 2)
    > SID instantiated on an SRv6 aware service
  - SR Unaware Services
    > SID instantiated on an SRv6 router / host connected to the service (Node 3)
      - Use proxy function to remove / hide SRH before sending to SRv6 unaware service

- SR Service Segments can be integration with VPN and TE
Problem Statement

- Ability to perform OAM functions to an SR Service Segment, e.g.,
  - [R1] Ping 2001:db8:2:F1::
  - [R1] Ping 2001:db8:3:F2::

- Ability to perform OAM functions when SR Service Segments are integration with VPN and TE, e.g.,
  - [R1] Ping B4DT6:: via segment-list <2001:db8:2:F1::, 2001:db8:3:F2::>
SR Aware Service (Ultimate Segment)

- Processes the OAM payload as per RFC8986

4.1.1. Upper-Layer Header

When processing the Upper-Layer header of a packet matching a FIB entry locally instantiated as an End SID, N does the following:

S01. If (Upper-Layer header type is allowed by local configuration) {  
S02. Proceed to process the Upper-Layer header  
S03. } Else {  
S04. Send an ICMP Parameter Problem to the Source Address  
with Code 4 (SR Upper-layer Header Error)  
and Pointer set to the offset of the Upper-Layer header,  
interrupt packet processing, and discard the packet.  
S05 }
SR Aware Service (Transit Segment)

• SHOULD skip applying service to OAM payload
  > Implements the END functionality
SR Unaware Service (Ultimate Segment)

• Processes the OAM payload as per [I-D. draft-ietf-spring-sr-service-programming]

• Example
  – 2001:db8:3:F2:: is a SID for SRv6 static proxy (IPv6)

When processing the Upper-layer header of a packet matching a FIB entry locally instantiated as an SRv6 static proxy SID for IPv6 traffic, the following pseudocode is executed.

S01. If (Upper-layer header type != 41 (IPv6)) {
S02. Process as per [RFC8986] Section 4.1.1
S03. } 
S04. Perform IPv6 decapsulation.
S05. Submit the packet to the IPv6 module for transmission on interface IFACE-OUT via NH-ADDR.
SR Unaware Service (Transit Segment)

- Processes the OAM payload as per [I-D. draft-ietf-spring-sr-service-programming]
- Skip applying service to OAM payload
  > Implements the END functionality

When processing an IPv6 packet matching a FIB entry locally instantiated as an SRv6 static proxy SID for IPv6 traffic, the following pseudocode is executed.

S01. When an SRH is processed {
    <snip>
S15. If (Upper-layer header type != 41 (IPv6)) {
S16. Resubmit the packet to the IPv6 module for transmission to the new destination.
S17. }
<snip>
Next Steps

• The authors would like the WG to review and adopt the document