



IETF 110 – Online
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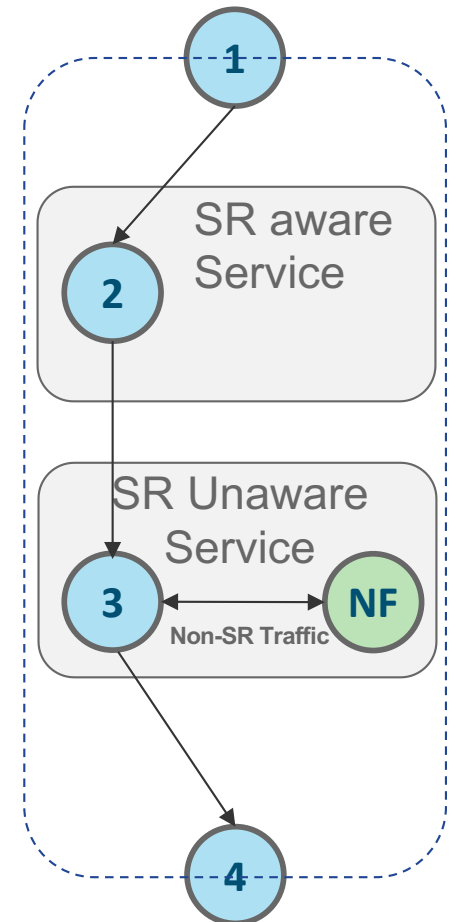
draft-ali-spring-sr-service-programming-oam-03

OAM for Service Programming with Segment Routing

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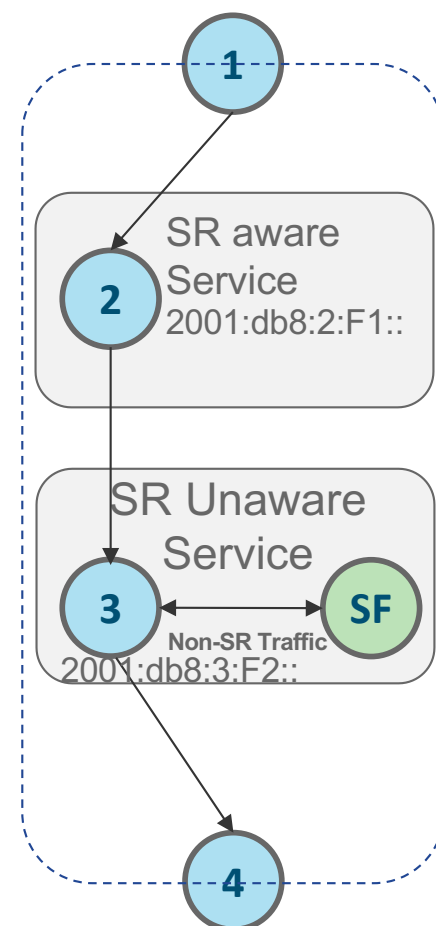
Service Programming with Segment Routing

- 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::>



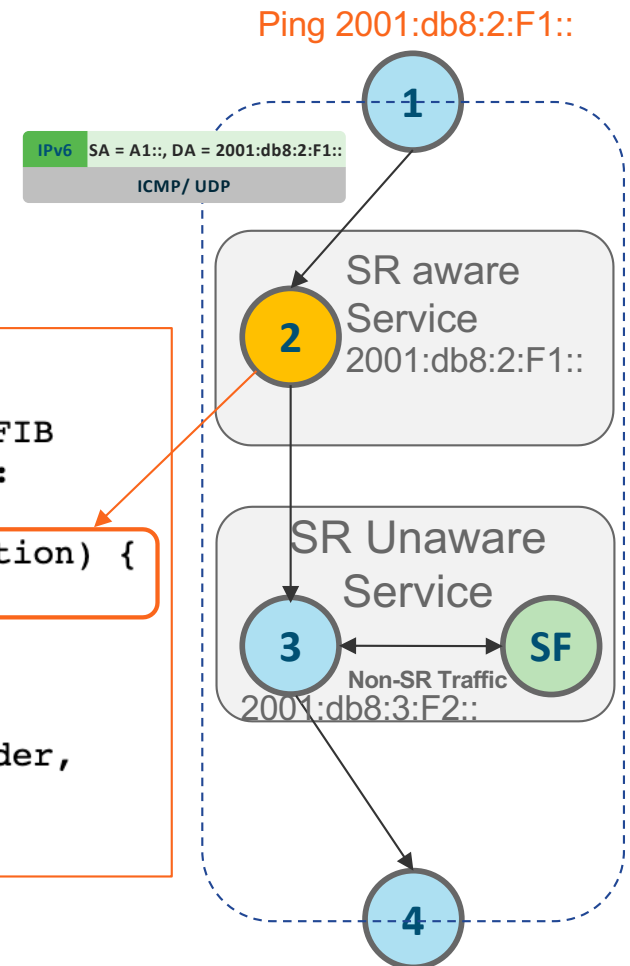
SR Aware Service (Ultimate Segment)

- Processes the OAM payload as per RFC8986

4.1.1.1. Upper-Layer Header

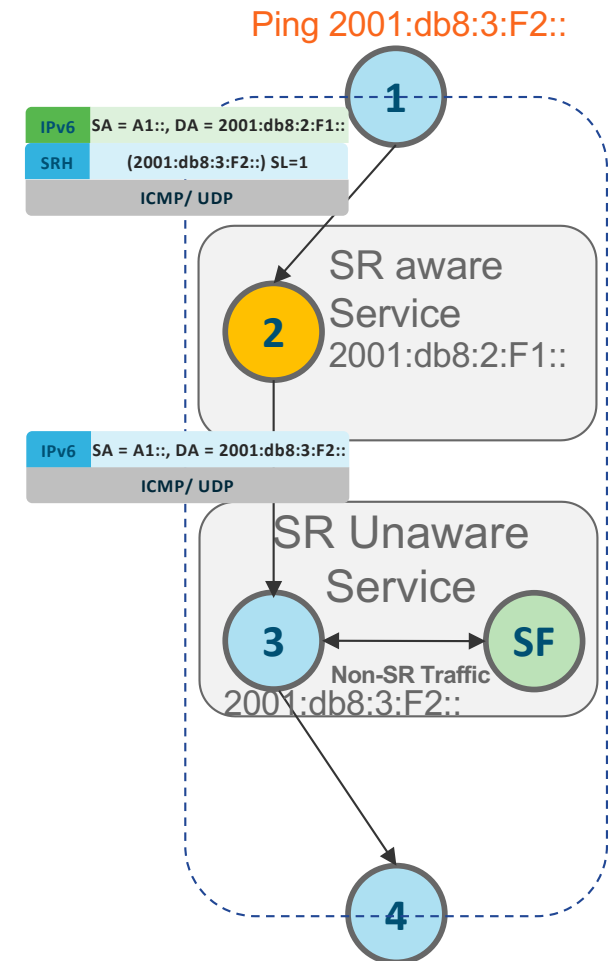
When processing the Upper-Layer header of a packet matching a FIB entry locally instantiated as an End SID, N does the following:

```
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

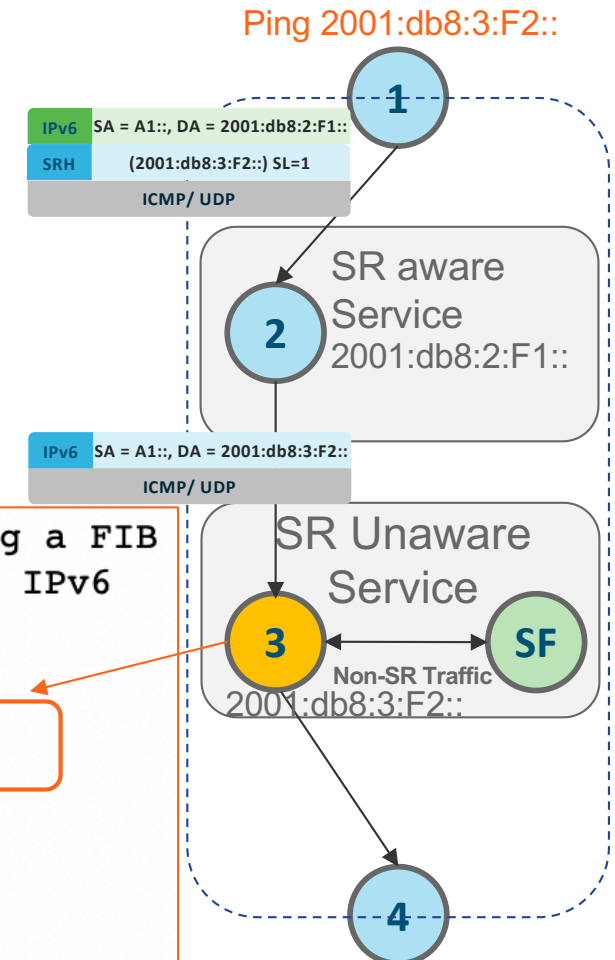


SR Unaware Service (Ultimate Segment)

- 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.
```

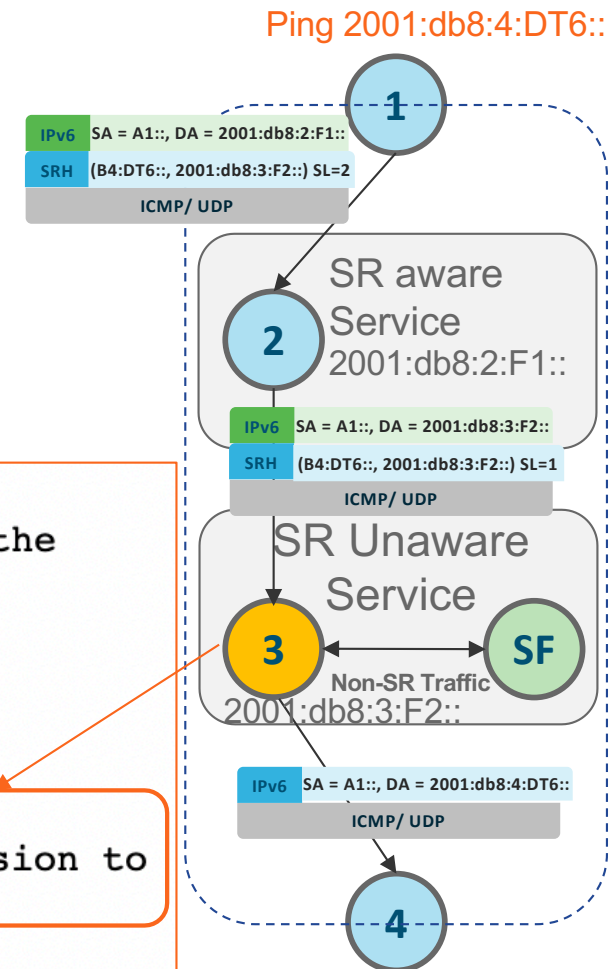


SR Unaware Service (Transit Segment)

- 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>  
S14. Copy Segment List[Segments Left] from the SRH to the  
    Destination Address of the IPv6 header.  
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