

SRv6 inter-domain mapping SIDs

draft-salih-spring-srv6-inter-domain-sids

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Updates from last version

- New Co-authors
- Slight enhancements for SID behaviors to cater to cases like oam
- Added a section on Interworking Procedures with examples

Processing END.REPLACE

“Replace destination address with a new SID and forward packet on an outgoing interface”

```
S01. When an SRH is processed {  
  S02. If (Segments Left == 0) {  
    S03. Stop processing the SRH, and proceed to process the next  
         header in the packet, whose type is identified by  
         the Next Header field in the routing header. Procedure is as  
         per Section 4.1.1 of [RFC8986].  
  S04. }  
  S05. If (IPv6 Hop Limit <= 1) {  
    S06. Send an ICMP Time Exceeded message to the Source Address with Code 0  
         (Hop limit exceeded in transit), interrupt packet processing, and discard packet  
  S07. }  
  S08. Decrement IPv6 Hop Limit by 1  
  S09. Update IPv6 DA with new destination address(SID) mapped with END.REPLACE SID.  
  S10. Submit the packet to the IPv6 module for transmission  
         to the new destination via a member of J.  
  S11. }
```

J, of one or more L3 adjacencies of immediate BGP neighbors

Processing END.REPLACEB6

“Replace destination address with a new SID and encapsulate new Srv6 header”

S01. When an SRH is processed {

S02. If (Segments Left == 0) {

S03. Stop processing the SRH, and proceed to process the next

header in the packet, whose type is identified by

the Next Header field in the routing header. Procedure is as

per Section 4.1.1 of [RFC8986].

S04. }

S05. If (IPv6 Hop Limit <= 1) {

S06. Send an ICMP Time Exceeded message to the Source Address with Code 0

(Hop limit exceeded in transit), interrupt packet processing, and discard packet

S07. }

S08. Decrement IPv6 Hop Limit by 1

S09. Update IPv6 DA with new destination address(SID) mapped with END.REPLACEB6.

S10. Push an IPv6 header with an SRH.

S11. Set outer IPv6 SA = T and outer IPv6 DA to the first SID in the segment list

S12. Set outer Payload Length, Traffic Class, Hop Limit, and Flow Label fields

S13. Set the outer Next Header value

S14. Submit the packet to the IPv6 module for transmission to the First SID.

S15. }

S10 - S13. Implementation may choose to avoid outer encapsulation for flex-algo and best effort based SRv6 transport tunnels.

S12. The Payload Length, Traffic Class, Hop Limit, and Next Header fields are set as per [RFC2473]. The Flow Label is computed as per [RFC6437].

Processing END.DB6

“Decapsulate received srv6 header and Bind (encapsulate) new Srv6 header”

S01. When an SRH is processed {

S02. If (Segments Left != 0) {

S03. Send an ICMP Parameter Problem to the Source Address,

Code 0 (Erroneous header field encountered),

Pointer set to the Segments Left field,

interrupt packet processing and discard the packet.

S04. }

S05. If (Upper-Layer header type == 4(IPv4) OR Upper-Layer header type == 41(IPv6) OR

Upper-Layer header type == 143(Ethernet)) {

S06. Remove the outer IPv6 header with all its extension headers.

S07. Push the new IPv6 header with the SRv6 SIDs associated with the END.DB6 sid in an SRH.

S08. Set outer IPv6 SA = T and outer IPv6 DA to the first SID in the segment list.

S09. Set outer Payload Length, Traffic Class, Hop Limit, and Flow Label fields

S10. Set the outer Next Header value

S11. Submit the packet to the IPv6 module for transmission to First SID.

S12. } else {

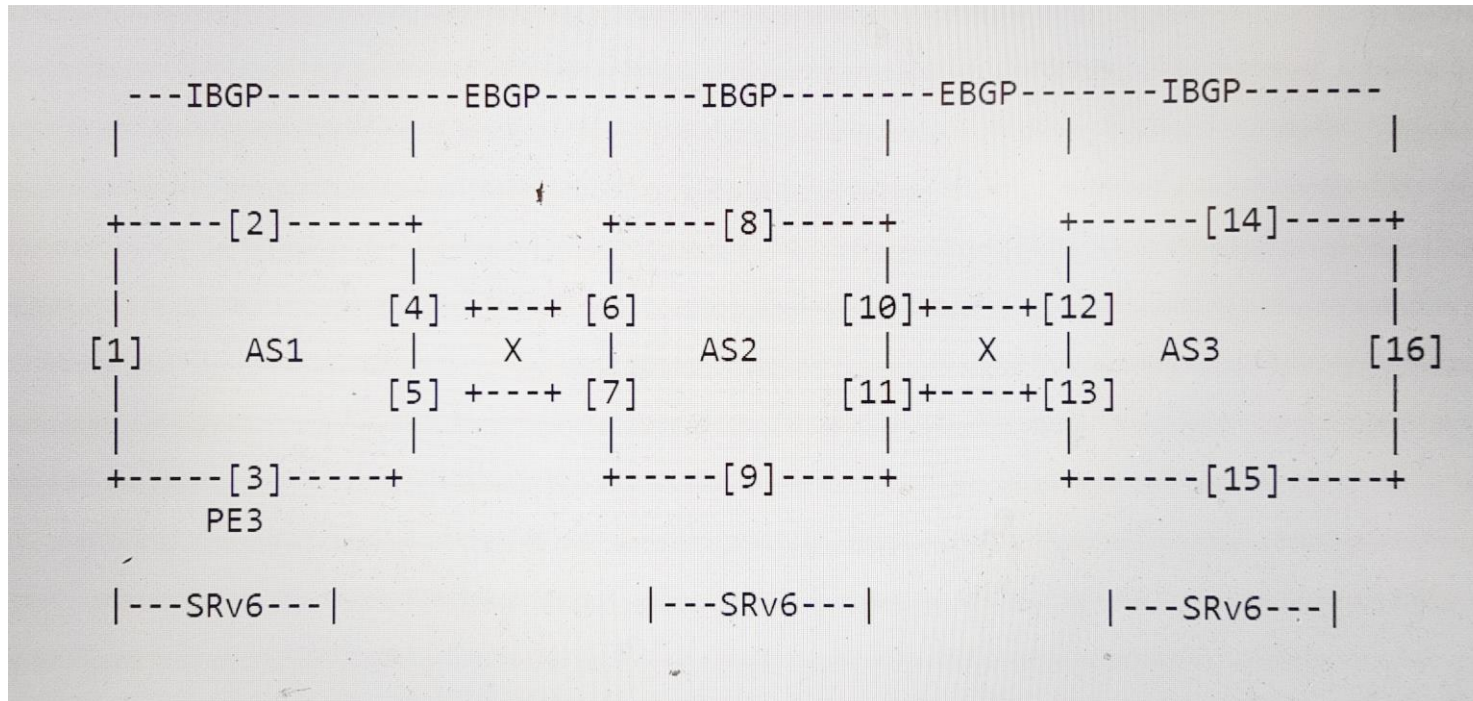
S13. Process as per Section 4.1.1 of [RFC8986].

S14. }

S15. }

S09. The Payload Length, Traffic Class, Hop Limit, and Next Header fields are set as per [RFC2473]. The Flow Label is computed as per [RFC6437].

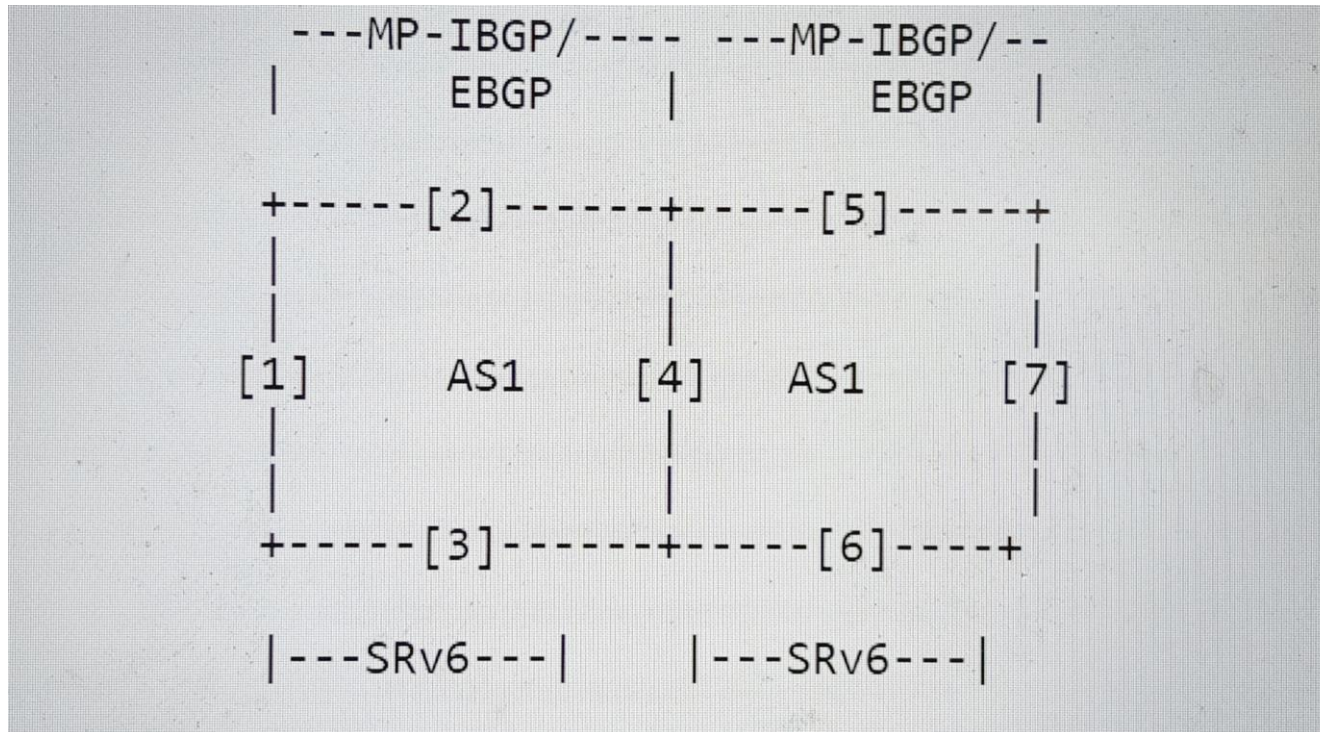
Option C Interworking Example



REPLACEB6 SID
12,6
13,7

REPLACE SID
10,4
11,5

Option B Interworking Example



DB6 SID
4

Next Steps

- WG Review and comments
- Requesting WG for adoption