

SRv6 inter-domain mapping SIDs

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

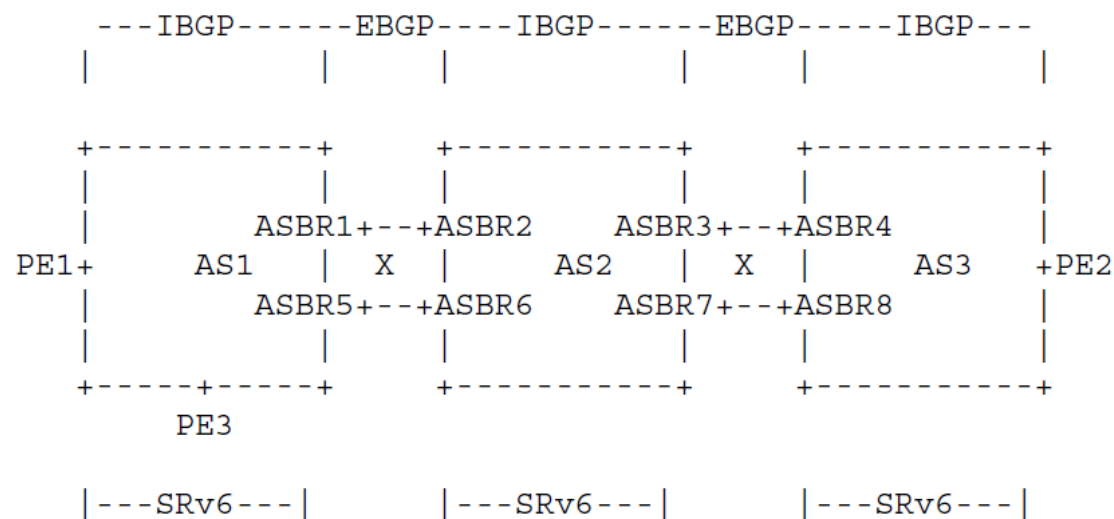
K. Salih, S. Hegde, M. Rajesh, R. Bonica

Introduction

- This draft introduces 3 new SRv6 endpoint behaviors, named END.REPLACE, END.REPLACEB6 and END.DB6
 - Helps in building paths over multiple SRv6 domains
- This will aid in end-to-end SRv6 intent-based path stitching too
- The END.REPLACE, END.REPLACEB6 sids help in Transport IW
- The END.DB6 sid helps in Service IW

Use-Case 1 (Transport IW)

- Use-case from seamless sr draft.
- Three different ASes (AS1, AS2 and AS3).
- All the three domains are having SRv6.
- BGP is used for getting option C style connectivity end to end from PE1 to PE2.
- END.REPLACE and END.REPLACEB6 are applicable here [defined for replacing destination address with a new SID. No SL change .]



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.     Send an ICMP Parameter Problem to the Source Address with Code 0 and Pointer set to the Segments Left field, interrupt packet processing and
discard the packet.
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. }
```

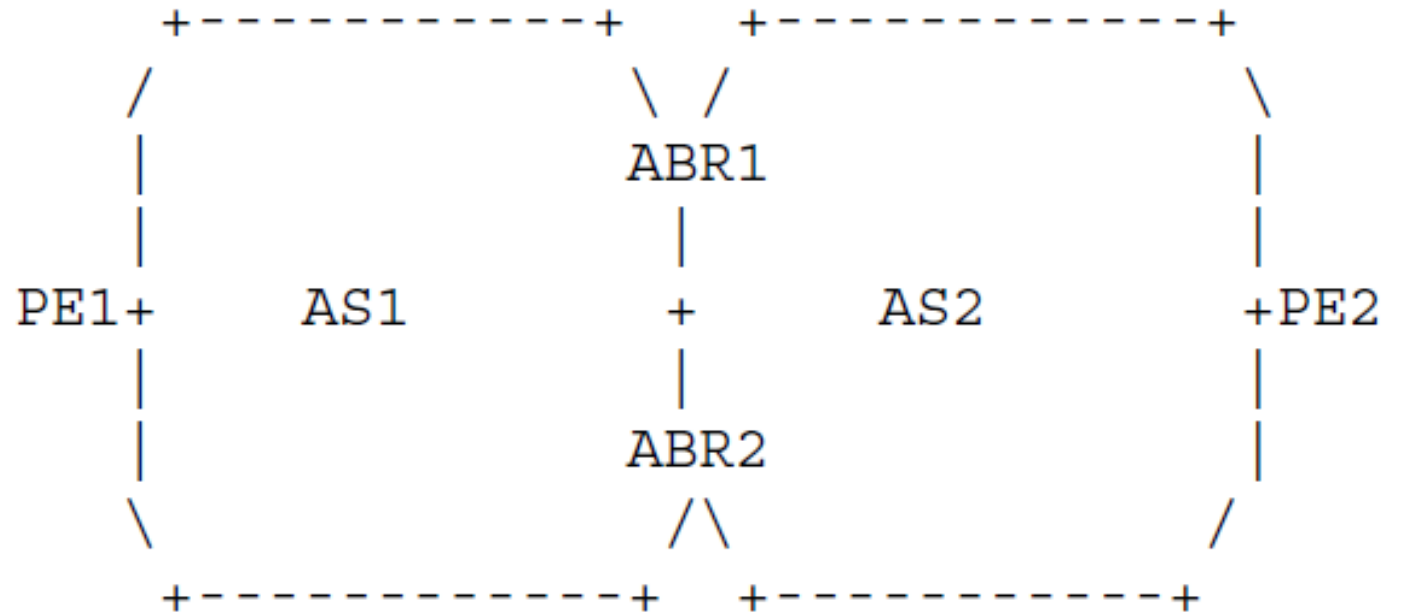
Processing END.REPLACEB6

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

```
S01. When an SRH is processed {
S02. If (Segments Left == 0) {
S03.     Send an ICMP Parameter Pblm to the Source Address with Code 0 and Pointer set to the Segments Left field, interrupt packet processing and discard the pkt
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. }
```

Use-Case 2 (Service IW)

- Two different SRv6 domains, AS1 and AS2.
- Services are running between PE1 and PE2 in option B style.
- The requirement here is to avoid service route lookup on ABR1 and ABR2 to provide option B style end to end connectivity.
- END.DB6 is applicable here [SID has been defined for Translation between SRv6 SERVICE SIDs]



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, Pointer set to the Segments Left field,
interrupt packet processing and discard the packet.
- S04. }
- S05. Remove the outer IPv6 header with all its extension headers.
- S06. Push the new IPv6 header with the SRv6 SIDs associated with the
END.DB6 sid in an SRH.
- S07. Set outer IPv6 SA = T and outer IPv6 DA to the first SID in the segment list.
- S08. Set outer Payload Length, Traffic Class, Hop Limit, and Flow Label fields
- S09. Set the outer Next Header value
- S10. Submit the packet to the IPv6 module for transmission to First SID.
- S11. }

Next Steps

- WG Review and comments