draft-agrawal-bess-bgp-srv6-mpls-interworking-00

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Draft [I-D.agrawal-spring-srv6-mpls-interworking] describes SRv6 and MPLS interworking architecture in multi domain network where each domain run SRv6 or MPLS data plane independently.

This drafts extract the BGP protocol extensions proposed in [I-D.agrawal-spring-srv6-mpls-interworking] to signal SRv6 SID. This is done to independently state BGP protocol extensions and future applicability of them for other use cases.
“SRv6 tunnel for label route” Prefix SID attribute TLV

- Document introduces a NEW tlv called "SRv6 tunnel for label route" of the BGP Prefix-SID Attribute to signal SRv6 SIDs along with MPLS label bound to prefix in NLRI
- "SRv6 tunnel for label route" TLV signals AND semantics i.e. push label signaled in NLRI and perform H.Encaps with DA as SRv6 SID signaled in TLV
- "SRv6 tunnel for label route" TLV is encoded exactly like SRv6 Service TLVs in Prefix-SID Attribute [RFC9252] without transposition
- SID Behavior that may be encoded but not limited to is End.DTM
Tunnel BGP LU LSP across SRv6 C domain

RD V/v via 10 VPN Label

SRR1

BGP-LU
Prefix: E10
Label: 16010
NH=4

SRR2

BGP-LU
Prefix: E10
Label: 16010
PSA: {Type=New,
SID=B7:DTM::,
Behavior: End.DTM}
NH=7

SRR3

BGP-LU
Prefix: E10
Label: 0x3
NH=E10

E1

MPLS

16004
16010
VPN Label
Payload

IPv6
SA = A4::
DA= B:7:DTM::
NH= 137
MPLS
16010
VPN Label
Payload

MPLS
16010
VPN Label
Payload

E10
SRv6 SID bound to prefix in NLRI

- Bound the SRv6 SID of DPM behavior to PE loopback address signal in SAFI 4/1
- Receiving node perform H.Encaps, where destination of IPv6 header is set to SRv6 SID for traffic destined to address in NLRI
- Signal SRv6 SID of DPM behavior either in SAFI 4 or SAFI 1.
1. Border node allocates both Label and SRv6 SID bound to prefix.
3. TLV is encoded exactly like SRv6 Service TLVs in Prefix-SID Attribute without transposition.
4. Such an update can be processed by both legacy MPLS ABR and SRv6 capable ABR and use relevant encapsulation.
Address in NLRI is only bound to SRv6 SID

1. Border node allocates only SRv6 SID.
2. SRv6 SID is advertised in SAFI 1 as per section 5.3 and 5.4 of [RFC9252] as there is no label bound to NLRI.
Next Steps

The authors would like BESS WG review and comments.