draft-trr-bess-bgp-srv6-args-01

Ketan Talaulikar (Cisco)

Kamran Raza (Cisco)

Jorge Rabadan (Nokia)

Wen Lin (Juniper)

Background

- During implementation and interop of BGP Services for SRv6 (RFC 9252) we found that:
  - The specifications were not detailed enough for End.DT2M signalling
  - Certain ambiguities needed to be clarified
  - Examples needed for more clarity
- An incorrect assumption needed to be addressed
  - For End.DT2M imposition, the procedure specified in RFC9252 is to perform OR-ing of SID advertised in RT3 and ARG advertised in RT1
  - However, this is workable only when the SID structures signalled via the two routes are identical
  - Generic mechanism is to pick ARG from RT1 and put it after LOC+FUNC in the SID advertised via RT3

This draft proposes to update RFC9252 for the procedures related to the signalling of EVPN Route Types 1 & 3 with the End.DT2M behavior

Purpose of SID Advertisements with Route Types

- Ethernet ES-AD Route Type 1 (with End.DT2M)
  - To provide Arg.FE2 when using ESI Filtering and the size of the ARG
- IMET Route Type 3 (with End.DT2M)
  - To provide LOC+FUNC parts of the SID
  - To indicate support for receiving Arg.FE2, the ARG size, and ARG position in the SID to be constructed

Example: With ESI Filtering

Ethernet AD-ES Route Type 1

Route Type 1:

< NLRI>

< other attrs >

BGP Prefix SID Attr:

  SRv6 L2 Service TLV:

    SRv6 SID Information sub-TLV:

      SID: 0:0:0:0:**aaaa**::

      Behaviour: End.DT2M

      SRv6 SID Structure sub-sub-TLV:

        LBL: 32, LNL: 16, FL: 16, **AL: 16**, TPOS-L: 0, TPOS-O: 0

IMET Route Type 3

Route Type 3:

< NLRI>

< other attrs >

BGP Prefix SID Attr:

  SRv6 L2 Service TLV:

    SRv6 SID Information sub-TLV:

      SID: **2001:db8:1:fbd1::**

      Behaviour: End.DT2M

      SRv6 SID Structure sub-sub-TLV:

        LBL: 32, LNL: 16, **FL: 16**, AL: 16, TPOS-L: 0, TPOS-O: 0

Example: Without ESI Filtering
(or no multi-homing)

Ethernet AD-ES Route Type 1

Route Type 1:

< NLRI>

< other attrs >

BGP Prefix SID Attr:

  SRv6 L2 Service TLV:

   SRv6 SID Information sub-TLV:

    SID: ==::==

    Behaviour: End.DT2M

    SRv6 SID Structure sub-sub-TLV:

     LBL: 32, LNL: 16, FL: 16, **AL: 0**, TPOS-L: 0, TPOS-O: 0

IMET Route Type 3

Route Type 3:

< NLRI>

< other attrs >

BGP Prefix SID Attr:

  SRv6 L2 Service TLV:

   SRv6 SID Information sub-TLV:

    SID: **2001:db8:1:fbd1::**

    Behaviour: End.DT2M

    SRv6 SID Structure sub-sub-TLV:

     LBL: 32, LNL: 16, FL: 16, **AL: 0**, TPOS-L: 0, TPOS-O: 0

Processing on Ingress PE to form the End.DT2M Service SID used in the packet

- Received Route Type 3 gives the LOC+FUNC and the structure of the SID
  - Check if ARG is supported (e.g., when ESI filtering is in use) via the SID Structure in RT3
- IF no support for ARG:
  - Then the encoded SID is just LOC+FUNC signalled via RT3
- Else:
  - Check for matching Route Type 1 and if has been signalled with End.DT2M behavior
  - If yes, check that the ARG Length (AL in SID Structure) in Route Type 1 <u>match</u> to what is advertised in Route Type 3
  - If ARG length is consistent, encode the ARG value signalled via Route Type 1 into the position of ARG as indicated by the SID structure of Route Type 3 (i.e., after the LOC+FUNC)

Processing change from RFC9252 (instead of OR-ing)

Backward Compatibility

- No encoding changes

- Mostly procedural clarifications

- Interoperates with RFC9252 procedure for OR-ing of SID values between Route Types 1 & 3 as long as their SID Structures are identical

Next Steps …

- Seek WG review and inputs
- Can we do an expedited WG adoption?
  - The need for these clarifications have been acknowledged by many WG members