SR Replication Segment for Multi-point Service Delivery

draft-ietf-spring-sr-replication-segment-04

Authors:
Daniel Voyer, Bell Canada
Clarence Filsfils, Cisco
Rishabh Parekh, Cisco
Hooman Bidgoli, Nokia
Zhaohui Zhang, Juniper

Presenter Dan Voyer
Multiple Vendors are in the mist of implementing this draft.

- draft-ietf-pim-sr-p2mp-policy (adopted)
- draft-hb-spring-sr-p2mp-policy-yang-01 (should we move it to PIM WG?)
- draft-ietf-bess-mvpn-evpn-sr-p2mp-02 (adopted)
- draft-hsd-pce-sr-p2mp-policy-01 (Has asked for Adaptation, WG discussions)
- draft-hb-idr-sr-p2mp-policy-01 (Will ask for adaptation ietf 111)
- draft-hb-pim-p2mp-policy-ping-00 (New)
SRv6 Replication Segment

- Extends SRv6 Network Programming for replication function
  - Replication SID associated with a Replication Segment
  - SRv6 Replication SID encoded in FUNCT of SRv6 SID
  - H.Encaps function at Root node to encapsulate SRv6 Replication SID
  - **End.Replicate** function at Replication Nodes

- Like SR-MPLS
  - Replication SID label is associated with the Replication Segment
  - Replication SID in FUNCT portion of SRv6 SID is associated with the Replication Segment
End. Replicate Function

- Local function on a Replication Node
- Associated with a Replication SID
- Enables Node to:
  - Replicate incoming packet matching Replication SID in IPv6 DA. Downstream Replication SID written in outer IPv6 DA.
  - On Leaf node, payload is decapsulated and forwarded based on local config
  - Bud-node performs both actions
**Example**

- SRv6 SID space is 2001:db8:cccc::/48
- 2001:db8::<N>/128 is loopback of node N
- 2001:db8:cccc::<N>/64 is SID space at node N
- Function :CN:: is End.X with PSP to node N
  - 2001:db8:cccc::<N>:<C<J>::/128 is End.X PSP from node N to J
- Function :F<.<N>:: is End.Replicate function
  - 2001:db8:cccc::<N>:F<.<N>::/128 is End.Replicate at node N
- Replication Segment (Tree): 1 to 6,5,7
  - Replication via 2
  - Packet from node 2 to node 7 must traverse node 4
- Packet (A,B2) steered into RS at node 1

**Replication segment at 1:**

- Replication SID: 2001:db8:cccc:1:F1::0

**Replication State at 1:**

- Node 2: <2001:db8:cccc:2:F2::0>L12>

**Replication State at 2:**

- Node 6: <2001:db8:cccc:6:F6::0>
- Node 5: <2001:db8:cccc:5:F5::0>
- Node 7: <2001:db8:cccc:4:C7::0>, 2001:db8:cccc:7:F7::0>

Node 1 is root, node 2 is replication point, node 5, 6 and 7 are Leaf nodes of RS
Questions