

Segment Routing Policy for P2MP

draft-voyer-spring-sr-p2mp-policy-02

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Motivation of this draft

SR Replication addresses network service providers use cases such as IPTV, or;

Any other use cases w/ Point-to-Multipoint MPLS multicast technology

Simplifies multicast by removing RSVP-TE and mLDP while providing traffic engineering via Segment Routing Policy attributes

Make the network infrastructure more programable friendly

SR-Replication

A Point-to-Multipoint (P2MP) segment connects a Root node to a set of Leaf nodes in a Segment Routing Domain. We define two types of a P2MP segment: Spray and TreeSID.

Spray P2MP segment enables a Root node to directly replicate a packet using a SR path to each Leaf node. This requires no states in the network.

Whereas TreeSID P2MP segment, a controller computes a tree from a Root node to a set of Leaf nodes via a set of Replication nodes. A packet is replicated at the Root node and on Replication nodes towards each Leaf node.

SR-Replication Policy

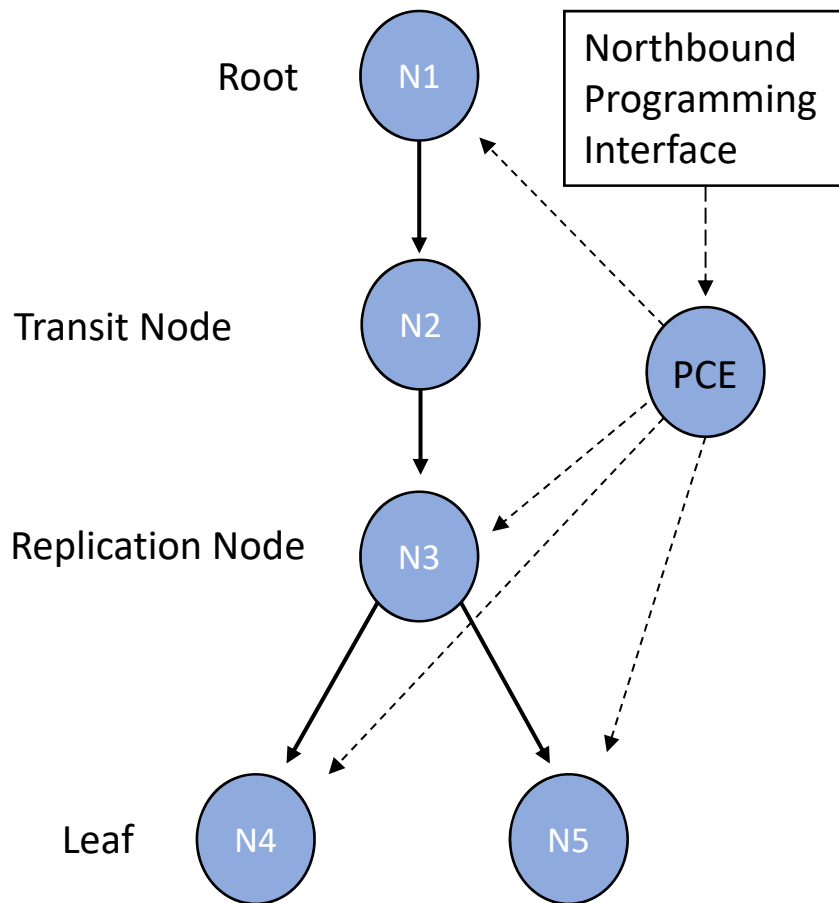
The SR Replication policy is a variant of an SR policy [[I-D.ietf-spring-segment-routing-policy](#)], and applies equally to the Spray and TreeSID P2MP segments unless explicitly specified.

- Can be provisioned either on the root or via a controller.
- It's defined by following elements:
 - Root node: This is the headend of the P2MP segment.
 - Leaf nodes: A set of nodes that terminate the P2MP segment.
 - Constraints: PCE traffic engineering calculation of the P2MP segment

A SR Replication Policy is identified through the tuple <Root node, Tree-ID>.

SR-Replication with use of a PCE

In a TreeSID P2MP segment, packet replication occurs at the Root node and on Replication nodes towards the Leaf node.



A SR Replication policy can be instantiated and maintained in a centralized fashion using a Path Computation Element (PCE)

North-bound APIs on a PCE can be used to:

1. Create P2MP SR policy
2. Delete P2MP SR policy
3. Update P2MP SR policy

A tree can be instantiated from a PCE via NETCONF, PCEP or BGP

Local protection and path protection can be applied using SR policies computed by a PCE.

Other work document related

Work in-progress

- PCE-TreeSID: draft-dhs-spring-pce-sr-p2mp-policy-00
- MVPN: draft-parekh-bess-mvpn-sr-p2mp-00
- SRv6 TreeSID: upcoming

Reference documents:

SR Policy

- SR Policy: draft-filsfils-spring-segment-routing-policy

Next Steps

- Looking for WG adoption