

# PCEP P2MP SR Policy

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# Update/Relevant Drafts

[RFC9524 segment routing replication for multipoint service delivery](#)

[draft-ietf-pim-sr-p2mp-policy-07 \(Last call soon, added SRv6\)](#)

[draft-ietf-pim-p2mp-policy-ping-04 \(we have a implementation now, asking for last call\)](#)

[draft-ietf-bess-mvpn-evpn-sr-p2mp-07 \(work in progress\)](#)

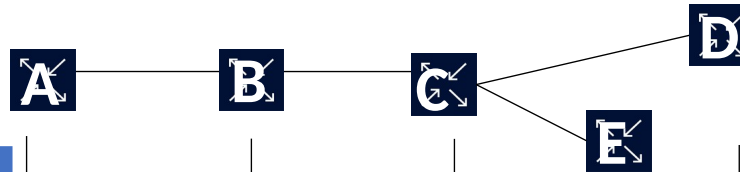
[draft-ietf-pce-sr-p2mp-policy-05 \(work in progress, under implementation by multiple vendors\)](#)

[draft-ietf-idr-sr-p2mp-policy-04 \(draft now, need to progress the work here\)](#)



# SR P2MP Objects

Non-SR-P2MP nodes



Head-end policy = PMSI

**SR P2MP Policy**

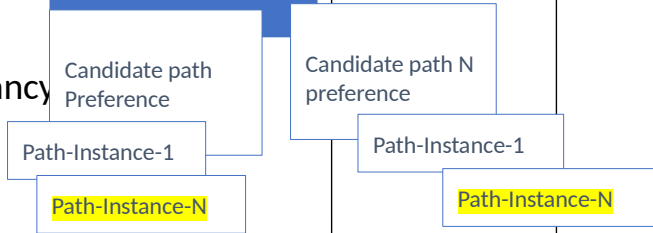
- ROOT Node, key
- Tree-ID, key

SR P2MP Policy

Identifier of a tree:

- root-id
- tree-id
- path-instance-id

P2MP LSP Redundancy



End to End Optimization

**Replication segment**

- Node-ID
- Tree-ID
- Root
- Instance ID
- Inc Rep SID
- Rep SID Action

**Replication segment**

- Node-ID
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**Replication segment**

- Node-ID
- Tree-ID
- Root
- Instance ID
- Inc Rep SID
- Rep SID Action

Forwarding info  
Sid-List  
Fast Reroute

Forwarding Info

- Next-hop-group-id [nh-id] //array of nh
  - Next-hop-id <id>
  - Next-hop-add
  - Next-hop-int
  - Protect-nh <id>
  - Sid-list [list of outgoing labels]

Forwarding Info

- Next-hop-group-id [nh-id] //array of nh
  - Next-hop-id <id>
  - Next-hop-add
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# Major Changes to draft version 5

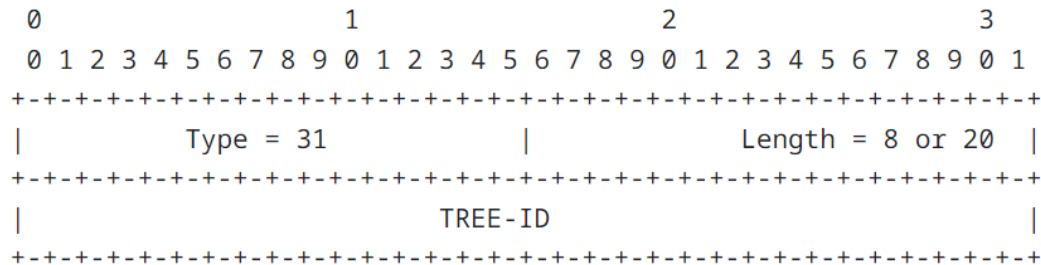
- In P2MP SR Policy each candidate path has 2 or more path-instances for global optimization
  - Previously the path-instance identifier was assigned by the PCC
  - This has changed, and PCE now assigns the path-instance identifier.
  - Path-instance identifier is unique per P2MP SR Policy
  - Since the PCE now assigns the path-instance ID, all replication segments within the tree (root, transit, leaf) SHOULD have the same path-instance for easy identification of the tree “end-to-end”
- Detail procedure for deletion of path-instances and candidate-paths
  - PCC Initiated
    - Delete the entire candidate-path and its path-instances by sending a PCRpt message from PCC to PCE with the “R” flag set and the path-instance ID set to 0. In response PCE will send PCInit to all replication segment with “R” flag set for that tree-id to remove all the path-instances
    - Delete a specific path-instance under CP, PCC sends a PCRpt message from PCC to PCE with the “R” flag set and the path-instance ID set to specific path-instance to be deleted. In response PCE will send PCInit to all replication segments with “R” flag set for that tree-id and specific path-instance ID.

# Major Changes to draft version 5 (Cont)

- Symbolic Name
  - Symbolic name is per Candidate path and need to be unique on the PCC. It is recommended for the symbolic name to be root-id+tree-id+cp discriminator
- Aligned SR P2MP policy with unicast counterpart and reuse unicast concepts in SRPA and CCI
  - In par with [draft-ietf-pce-segment-routing-policy-cp] section 4.2, P2MP policy reuses the four TLVs used in the SRPA object.
    1. SRPOLICY-POL-NAME TLV: (optional) encodes P2MP SR Policy Name
    2. SRPOLICY-CPATH-ID TLV: (mandatory) encodes P2MP SR Policy Candidate path Identifier
    3. SRPOLICY-CPATH-NAME TLV: (optional) encodes P2MP SR Policy Candidate path name.
    4. SRPOLICY-CPATH-PREFERENCE TLV: (optional) encodes P2MP SR Policy Candidate path preference value.

# Major Changes to draft version 5 (Cont)

- P2MP Policy extended association object



Length: 8 or 20, depending on length of Root (IPv4 or IPv6)

Tree-ID: Tree ID that the replication segment is part of as per draft-ietf-spring-sr-p2mp-policy

- The Central Control Instructions (CCI) Object used by the PCE to specify the controller instructions is *defined* in [[RFC9050](https://datatracker.ietf.org/doc/html/draft-ietf-pce-pcep-extension-pce-controller-sr-07#name-cci-object)].  
<https://datatracker.ietf.org/doc/html/draft-ietf-pce-pcep-extension-pce-controller-sr-07#name-cci-object>  
 defines CCI object-type for SR-MPLS. This document reuses the SR-MPLS CCI object-type for SR P2MP Policy, to incorporate some common ideas like multi-topology etc...

# What is next

- The team is working on implementation and improvements to the draft.
- Soon we will need early assignment of IANA values for this draft.
- Any comment/suggestion is welcome.