

# SR P2MP Policy

## draft-ietf-pce-sr-p2mp-policy

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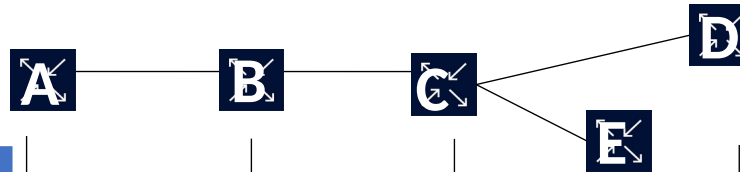


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# SR P2MP Objects

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

Candidate path Preference

Candidate path N preference

Path-Instance-1

Path-Instance-1

Path-Instance-N

Path-Instance-N

End to End Optimization

Replication segment

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

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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

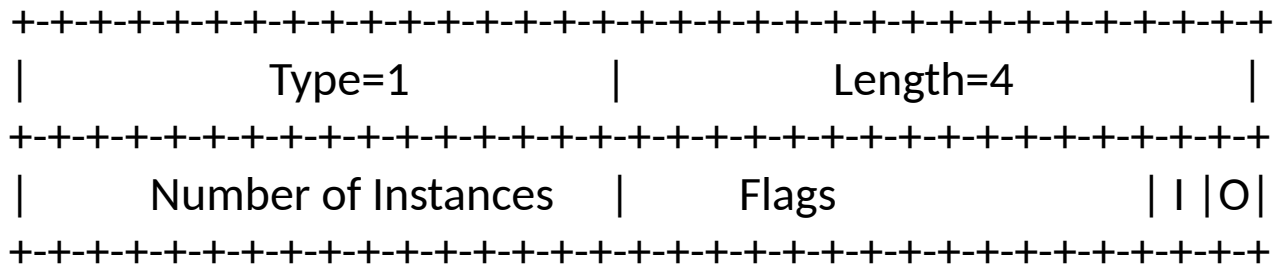
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# Extend PCEP Open object

- P2MP Capability during discover via a new optional TLV
- Path Computation Capabilities
- Leaf type as per RFC 8306
  - P2MP only will support leaf type 1 (new leaves to add), 2 (old leaves to remove) and 5 (the entire leaf list is overwritten and replaced with new leaf list).



Number of Instances 16 bits - Number of instances the advertising PCEP speaker supports. This is meaningful for PCEs. PCEs can determine the least number of instances that could be created for a SR P2MP policy.

Flags 16 bits

- I-bit indicates the support for Leaf type 1 and 2.
- O-bit indicates the support for Leaf Type type 5.

# New Procedures

- Local Optimization
  - When pcc lacks the support of multiple instances global MBB is not possible.
  - However, with knowledge of the PCCs' advertised capabilities, the PCE can detect this limitation and instead opt for local re-optimization of the candidate path.
  - In such cases, the PCE can compute the optimized LSP by send the PCUpd message using the existing Instance for candidate path, specifically targeting the PCCs where the optimized LSP triggers a change in forwarding state.

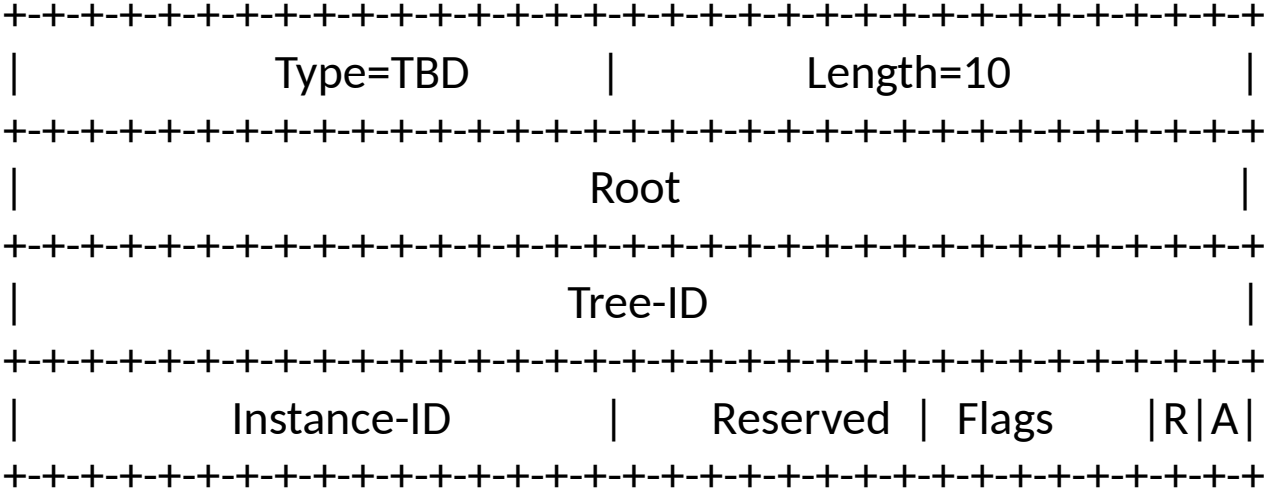
# Active/Standby instances

- A P2MP LSP is identified via:
  - Root-id
  - Tree-id
  - Instance-id (16 bits)

Flags: 8 bits

- A - Activate the Instance-ID
- R - Remove the Instance-ID

SR-IPV4-P2MP-POLICY-ID TLV:

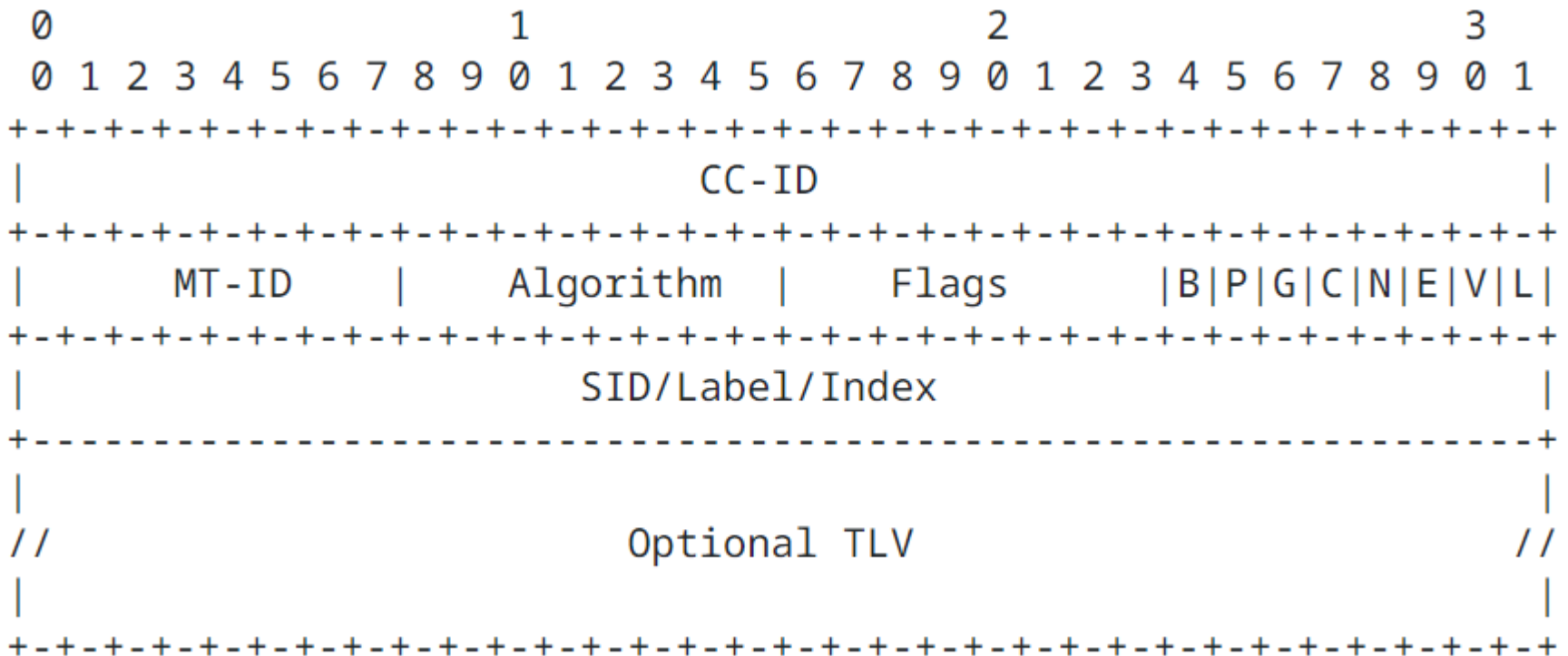


# Slicing for P2MP replication

- For setting up P2MP Policy and its replication segments over different slices, Segment Routing CCI object is used in draft:

<https://datatracker.ietf.org/doc/html/draft-ietf-pce-pcep-extension-pce-controller-sr-07#name-cci-object>

is used



## Next Steps

- Comments, suggestions are welcome
- The authors are working on this implementation and updating the draft.

**Thank You!**