SR P2MP Policy
draft-ietf-pce-sr-p2mp-policy

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PCC Init Example

1. BGP
   - MC AD Routes

2. Root:
   - Learn about the leaves via the AD routes

3. Update Controller:
   - RootID
   - Leaves

4. Calculate the Tree and its Replication Segments

5. Program PCCs with Replication Segments and forwarding information, including SID-LISTs

ROOT  None SR-P2MP nodes  LEAVES
SR P2MP Objects

Non-SR-P2MP nodes

Head-end policy = PMSI

P2MP LSP Redundancy:

End to End Optimization

SR P2MP Policy
- ROOT Node, key
- Leaf Node
- Tree-ID, key

Candidate path 1
- Preference
- PLSP-ID = 1
- TE-Info

Path-Instance-1
LSP ID (tree-1)

Path-Instance-2
LSP ID (tree-2)

SR P2MP Policy
- Node-ID???
- Tree-ID
- Root
- Instance ID
- Inc Rep SID
- Rep SID Action

Forwarding info
Sid-List
Fast Reroute

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

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]

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PCC Init Example

P2MP Policy objects:

\(<P2mp\ Policy> ::= <Common\ Header>\n\<SRP>\n\<P2MP\ LSP>\n\<association-list>\n\[<end-point-list>]\n\n
optionally a list of end-point can be added. This is true weather it is PCC initiated or PCE initiated

Replication Segment objects:

\(<Replication\ Segment> ::= <Common\ Header>\n\<SRP>\n\<P2MP\ LSP>\n\<(cci-list>|\n\(<\text{CCI}><intended-path>)\n\<cci-list> ::= <\text{CCI}>\n\[<cci-list>]\n\<intended-path> ::= ((<PATH-ATTRIB><ERO>)\n\[<intended-path>]\n
• P2MP LSP is identified via the root-id, tree-id and instance-id
  • Instance-id is unique per P2MP Policy
• On the root the Policy and Replication Segment can be downloaded via Single PCUpdate message
• CCI object Identifies the multicast state on the central controller and the incoming replication SID
• The outgoing interfaces of the multicast state are identified with Multipath and ERO objects.
Next Steps

- Comments, suggestions are welcome
Thank You!