Multicast Tree Setup via PCEP
[draft-li-pce-multicast]

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IETF 113, March. 2022
Motivation

A draft of multicast tree management based on PCE:

- **Covering multiple multicast trees** (IP, mLDP, SR-P2MP)

Our consideration of the Procedures:

- **Multicast Tree Information Discovery**: collect relevant information of root and leaf nodes to calculate multicast tree.

- **Multicast Tree State Setup/Update**: association between multicast tree and P2MP path under different forwarding technologies (mLDP, SR-P2MP, BIER).

- **Multicast Statistics Synchronization**: Synchronize multicast statistics between egress and PCE and between PCE and ingress for multicast service analysis and business development.
Multicast Tree Information Discovery

➢ Procedures
  • Root Discovery: PCC report. Carrying Tree Identifier and VPN information TLV
  • Leaf Discovery: PCC report. Carrying Tree Identifier and VPN information TLV, and selectively carries BFR information TLV of egresses in BIER scenario

➢ Tree Identifier:
  • IP multicast: Multicast Address TLV, i.e. (s,g)/(*,g) tuple
  • mLDP multicast: mLDP FEC TLV for mLDP multicast
  • SR-P2MP multicast: (Root, Tree-ID) tuple, defined in I-D.ietf-pce-sr-p2mp-policy
Multicast Tree State Setup/Update (Labeled Tree)

- Procedures are as per I-D.ietf-pce-sr-p2mp-policy. Follow the label download process

- Newly defined TLVs:
  - **Tree Label**: Identifying a multicast tree at the forwarding level
  - **VPN Forwarding Identifier**: determine which VRF to forward the packet to for egresses

- Extension to Objects:
  - **CCI Object**: Tree Label TLV, VPN Forwarding Identifier TLV
  - **LSP Object**: Multicast Address TLV or mLDP FEC TLV (associate multicast tree and p2mp path)
Multicast Tree State Setup/Update (BIER Tree)

- **Procedures:**
  1. PCE combine BFR info of egresses
  2. PCE sends VPN Forwarding Identifier to egresses
  3. PCE sends BitString and VPN Forwarding Identifier to ingress

- **Newly defined Object and TLV:**
  - TFSS Object for Tree state management
  - BIER Attribute TLV (BitString)

- **Extension to Object:**
  - LSP Object: Multicast Address TLV (associate multicast tree and BitString)
Multicast Statistics Synchronization

- **Egresses syncs to PCE**: multicast statistics is the number of listeners or next-hop devices connected directly to egress.

- **PCE syncs to ingress**: overall of all egresses multicast statistics
Further Action

• comments are welcome.

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