PW LDP Graceful Restart
draft-jiang-pwe3-ldp-gr

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Background

- RFC3478 defines MPLS LSP LDP GR
  - For HA Non-Stop-Forwarding
- PW is an important MPLS application
  - T-LDP is used for PW label distribution
- LDP GR for PW is required for HA-NSF
Related Works

- RFC 3478-LDP GR for LSP
- Assumption for LSP: IP service inside
- Even if LSP broken, can do IP routing
- No routing for non-IP traffic inside LSP
Scope

- LDP GR for Pseudo wire, including:
  - SS-PW
  - MS-PW
  - VPLS
  - H-VPLS
SS-PW LDP GR

- Same mechanism as LDP GR defined in RFC 3478
- PW status UP and label preserved during GR
- **Decoupled from** LDP GR for MPLS LSP
- May have separate configuration
- No need for New TLV, reuse FT TLV
- Upon failure, tear down PW
  - (or block forwarding at TPE)
- OAM like **BFD** b/w TPE can also detect and block
MS-PW LDP GR

- SS-PW LDP GR in relevant MS-PW segment(s)
- PW Status UP and label preserved during GR
- Upon GR Failure, PEs in both end will send:
  - PW label withdraw message to upstream peer
  - PW label release message to downstream peer
- To tear down MS-PW or block forwarding at TPE
- But if SPE Ctrl Plane fail, will need e2e OAM

![Diagram of MS-PW LDP GR]
MS-PW Static-Dynamic LDP GR

- Some MS-PW segments are statically set up without LDP (LDP message cannot be relayed).
- For TPEs to know LDP GR failure in the middle:
  - E2E OAM like BFD is running between TPEs.
  - SPE generates OAM messages and passes them to TPE.
- But if SPE Ctrl Plane fails, will need e2e OAM.
VPLS

- Application of SS-PW LDP GR
- For H-VPLS, may involve MS-PW LDP GR in spoke link
Next Step

- Open for community review
- Extend to P2MP PW and Multicast VPLS
Summary

• Extend MPLS LDP GR to PW level
• SS-PW/MS-PW included
• Unicast VPLS/H-VPLS included

Please comment, thank you.