PW Endpoint Fast Failure Protection
draft-shen-pwe3-endpoint-fast-protection-01

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It is desirable to protect every link/node along the data path by using a local-repair mechanism.

There is a lack of such mechanism for egress AC, egress PE and switching PE.

Global repair is relatively slow, as it is driven by ingress CE/PE and may be dependent on control plane convergence.

This draft proposes a mechanism based on local-repair technique.

- Fast restoration in the order of 10s of milliseconds.
- Based on upstream label assignment, context-specific label switching, multi-homed CE, and redundant PWs.
- LDP signaled single/multi-segment PWs.
Egress AC Failure

Protection establishment:

- PLR (PE2) sets up a bypass LSP to a protector.
- Protector (PE4)
  - Learns primary PW’s label (upstream assigned label) from PE2 via LDP.
  - Installs a FIB entry for the label in a context-specific label space. Nextrhop is CE2.
  - Assigns a UHP label for the bypass LSP, pointing to this label space.

Local repair:

- PE2 tunnels PW packets through the bypass LSP.
- PE4 looks up PW label in context-specific label space, and sends packets to CE2.
- PLR is the penultimate hop router of the transport LSP.
- PLR is the penultimate hop router of the transport LSP of previous segment (seg-1).
- Protector is a switching PE (S-PE2) on the backup PW.
- During local repair, S-PE2 looks up seg-1’s label in a context-specific label space, and swap to seg-4’s label.
Updates in Rev 01

- Switching-PE protection for multi-segment PW.
- FEC 128 and FEC 129.
- IPv4 and IPv6 context IDs.
- Co-located protector model and centralized protector model.
- IGP advertisement of context ID as virtual node dual-homed to primary PE and protector.
- Simplified (TE-)path computation and selection for context ID.
- Global revertive mode and local revertive mode.
Next Steps

- Questions and comments?
- WG adoption?