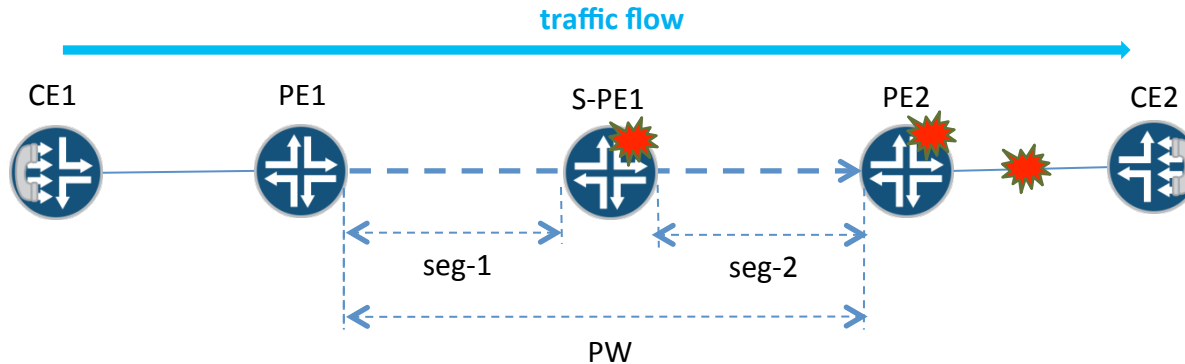# PW Endpoint Fast Failure Protection
draft-shen-pwe3-endpoint-fast-protection-01

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Motivation

- 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
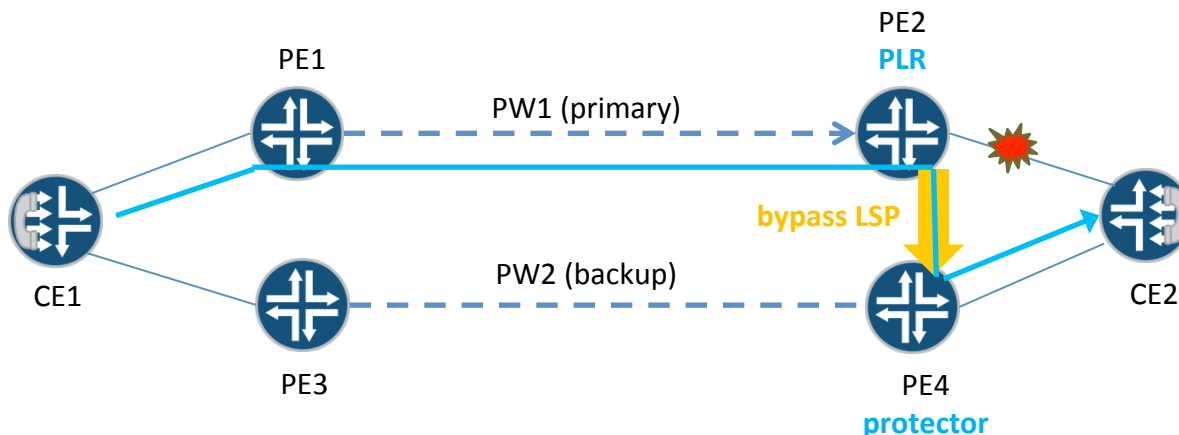
Protection establishment:

- 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. Nexthop is CE2.
  - Assigns a UHP label for the bypass LSP, pointing to this label space.
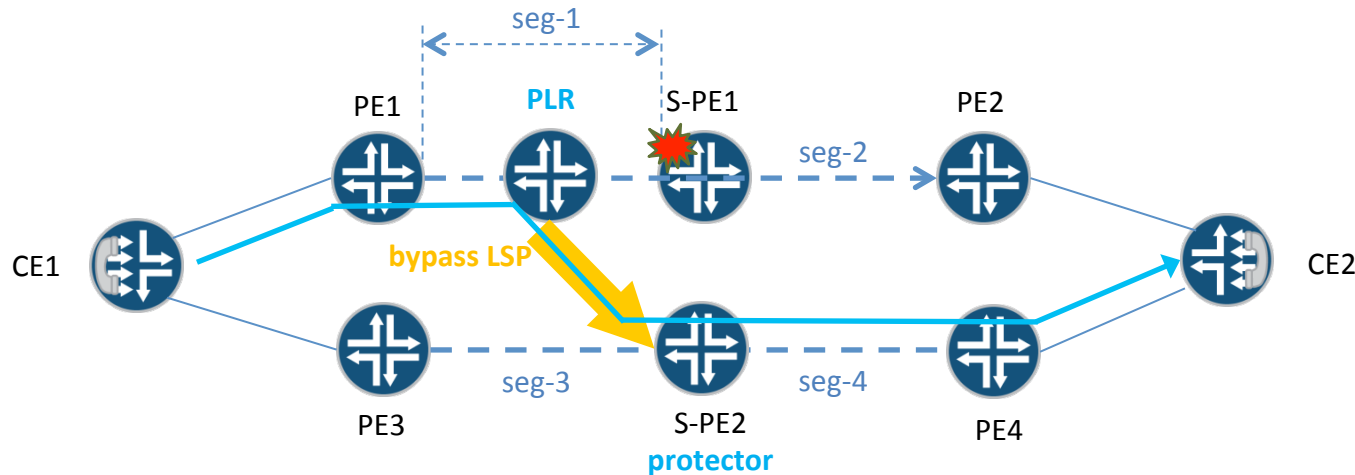
Local repair:

- PE2 tunnels PW packets through the bypass LSP.
- PE4 looks up PW label in context-specific label space, and sends packets to CE2.

Egress PE Failure
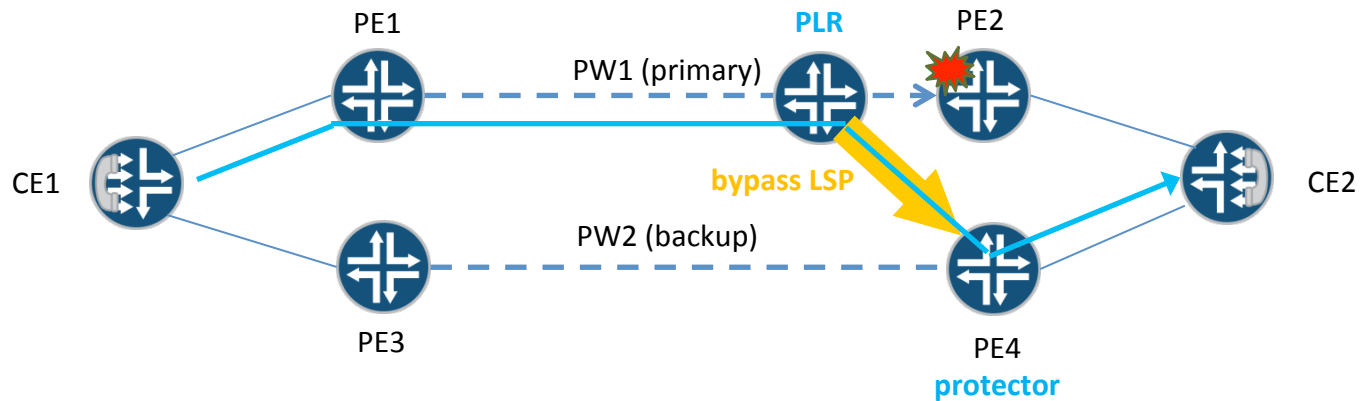
- PLR is the penultimate hop router of the transport LSP.

Switching PE Failure

- 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?