Extensions to RSVP-TE for P2MP LSP Ingress/Egress Local Protection

draft-chen-mpls-p2mp-ingress-protection
draft-chen-mpls-p2mp-egress-protection

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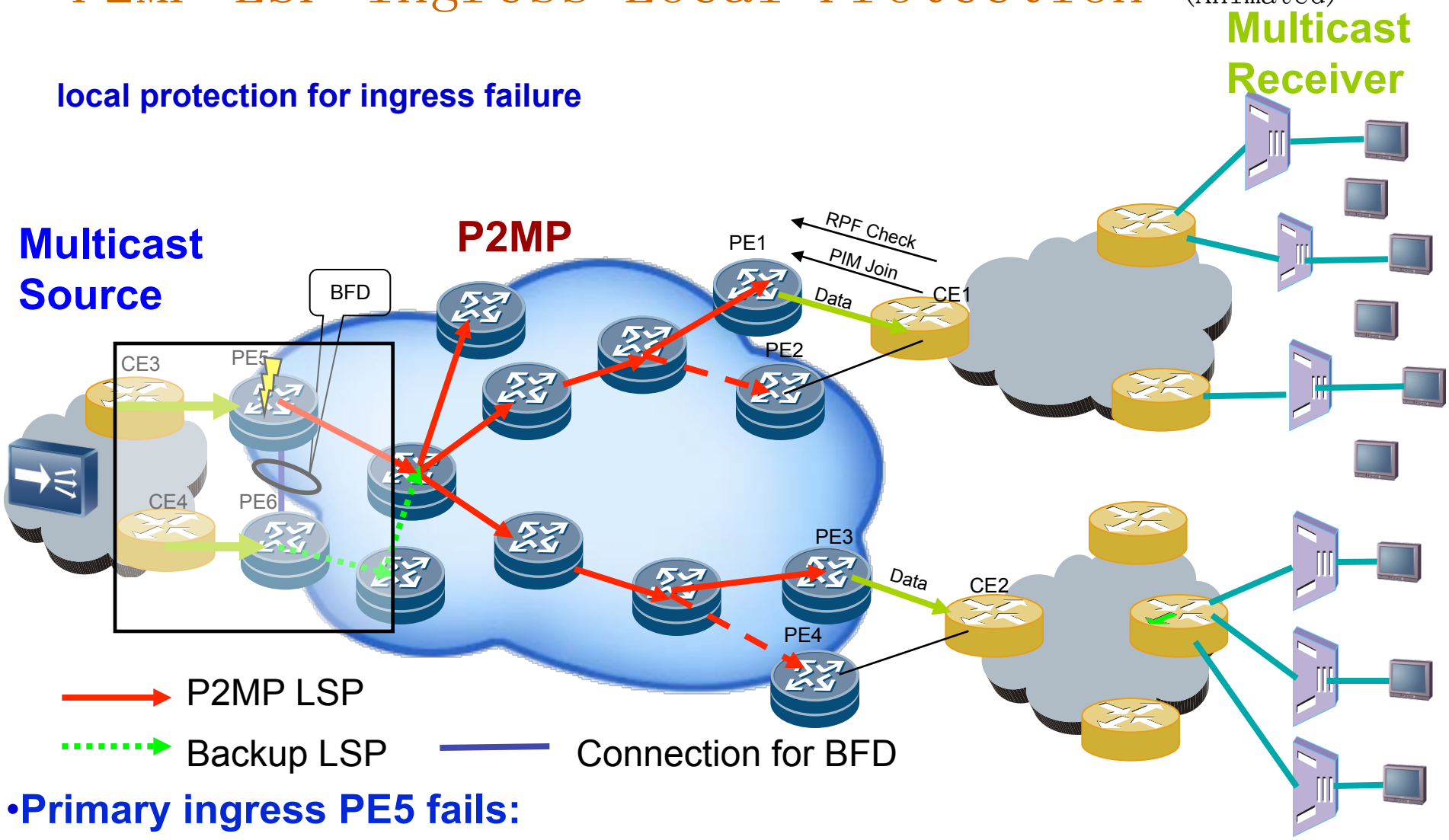
Contents

- **Proposed P2MP LSP Ingress & Egress Local Protection**
- **Advantages of P2MP LSP Ingress and Egress Local Protection**
- **It can be used for P2P LSP Ingress/Egress Protection accordingly**

P2MP LSP Ingress Local Protection (Animated)

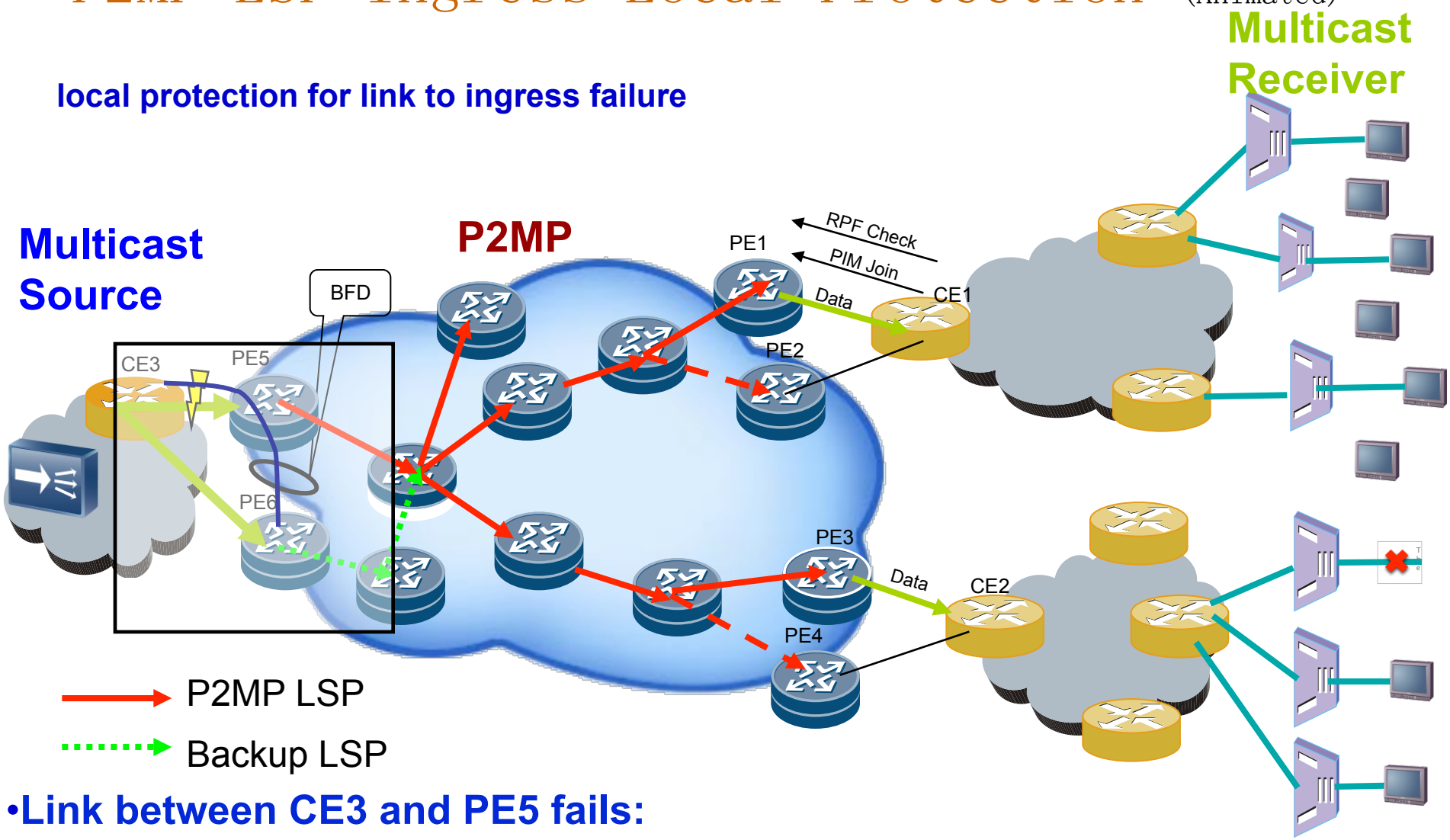
local protection for ingress failure



- **Primary ingress PE5 fails:**
  - **Traffic to backup tunnel**
  - **Traffic merged into P2MP LSP**

P2MP LSP Ingress Local Protection (Animated)

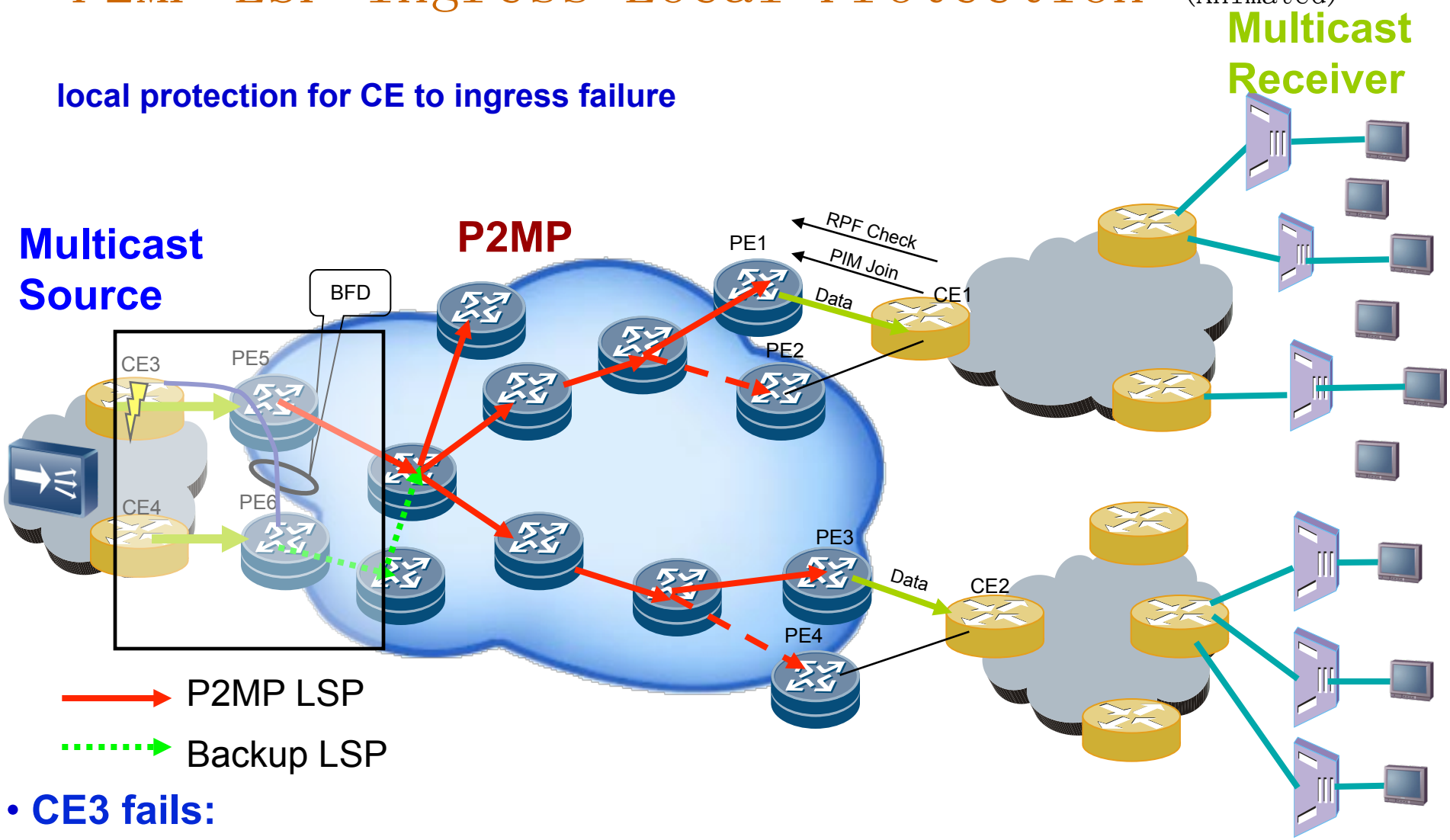
local protection for link to ingress failure



- **Link between CE3 and PE5 fails:**
  - **Traffic to backup tunnel**
  - **Traffic merged into P2MP LSP**

P2MP LSP Ingress Local Protection (Animated)

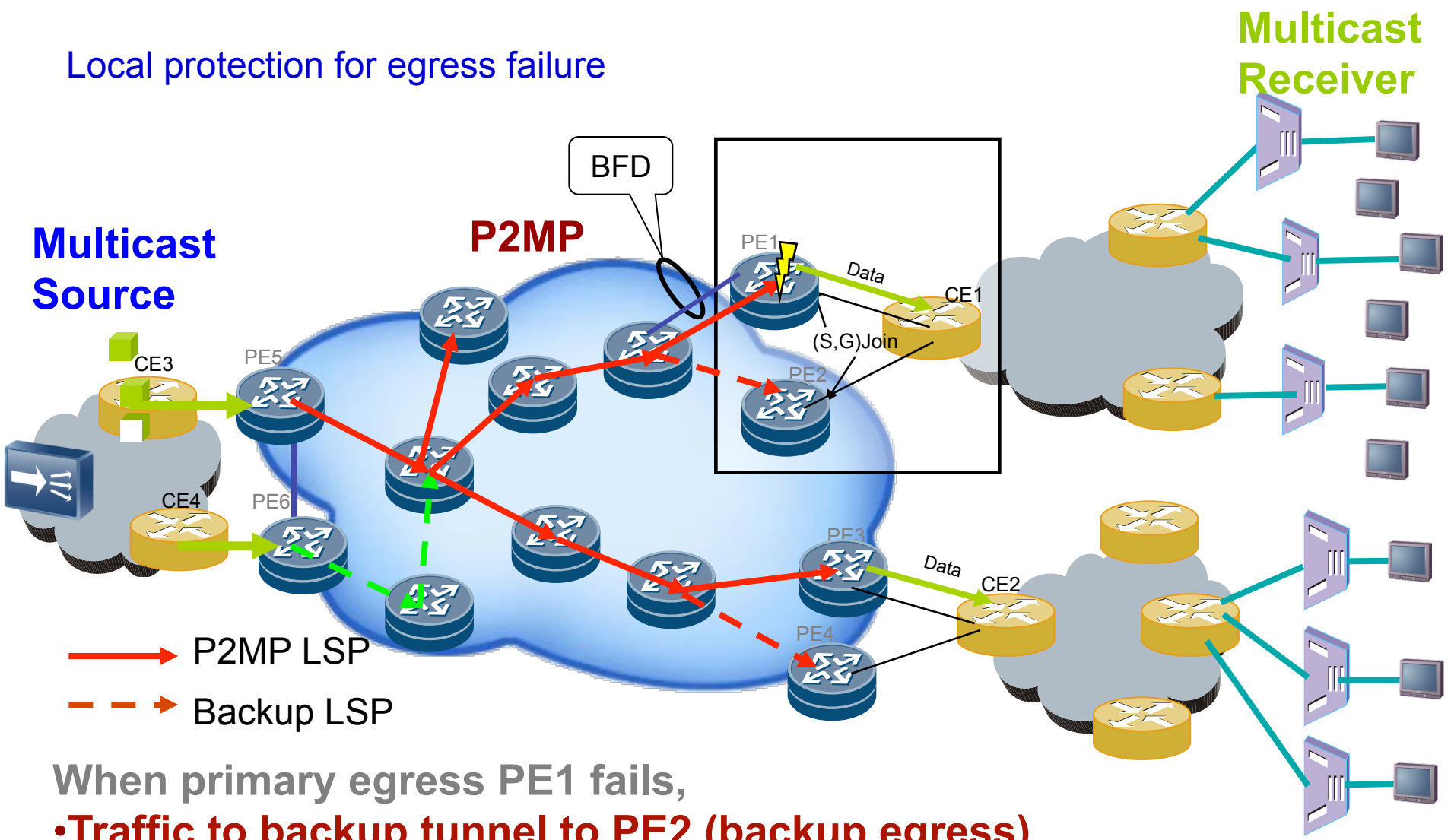
local protection for CE to ingress failure



- **CE3 fails:**
  - **Traffic to backup tunnel**
  - **Traffic merged into P2MP LSP**

P2MP LSP Egress Local Protection(Animated)

Local protection for egress failure

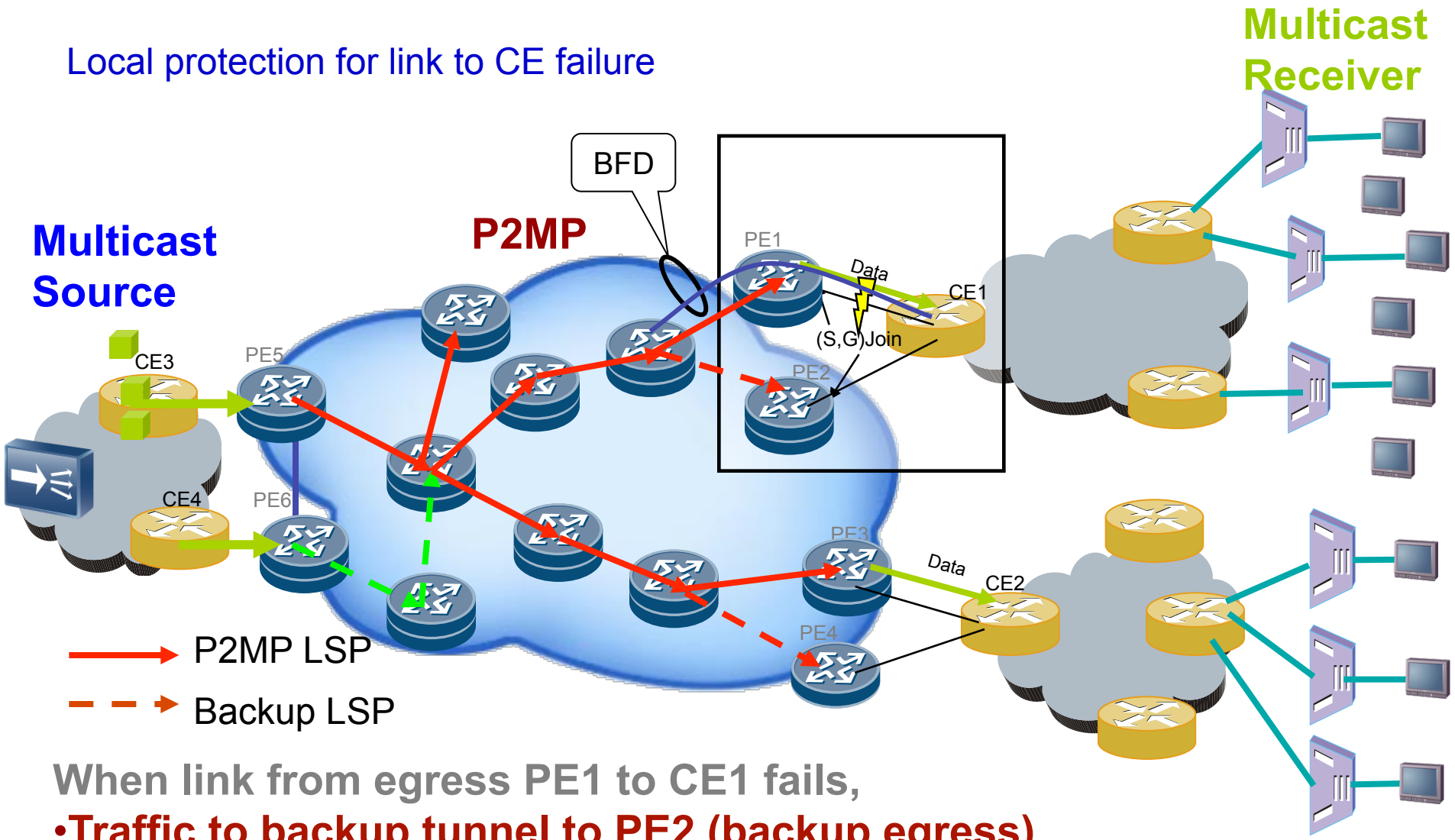


When primary egress PE1 fails,

- Traffic to backup tunnel to PE2 (backup egress)
- Traffic delivered to CE1 from PE2

P2MP LSP Egress Local Protection(Animated)

Local protection for link to CE failure



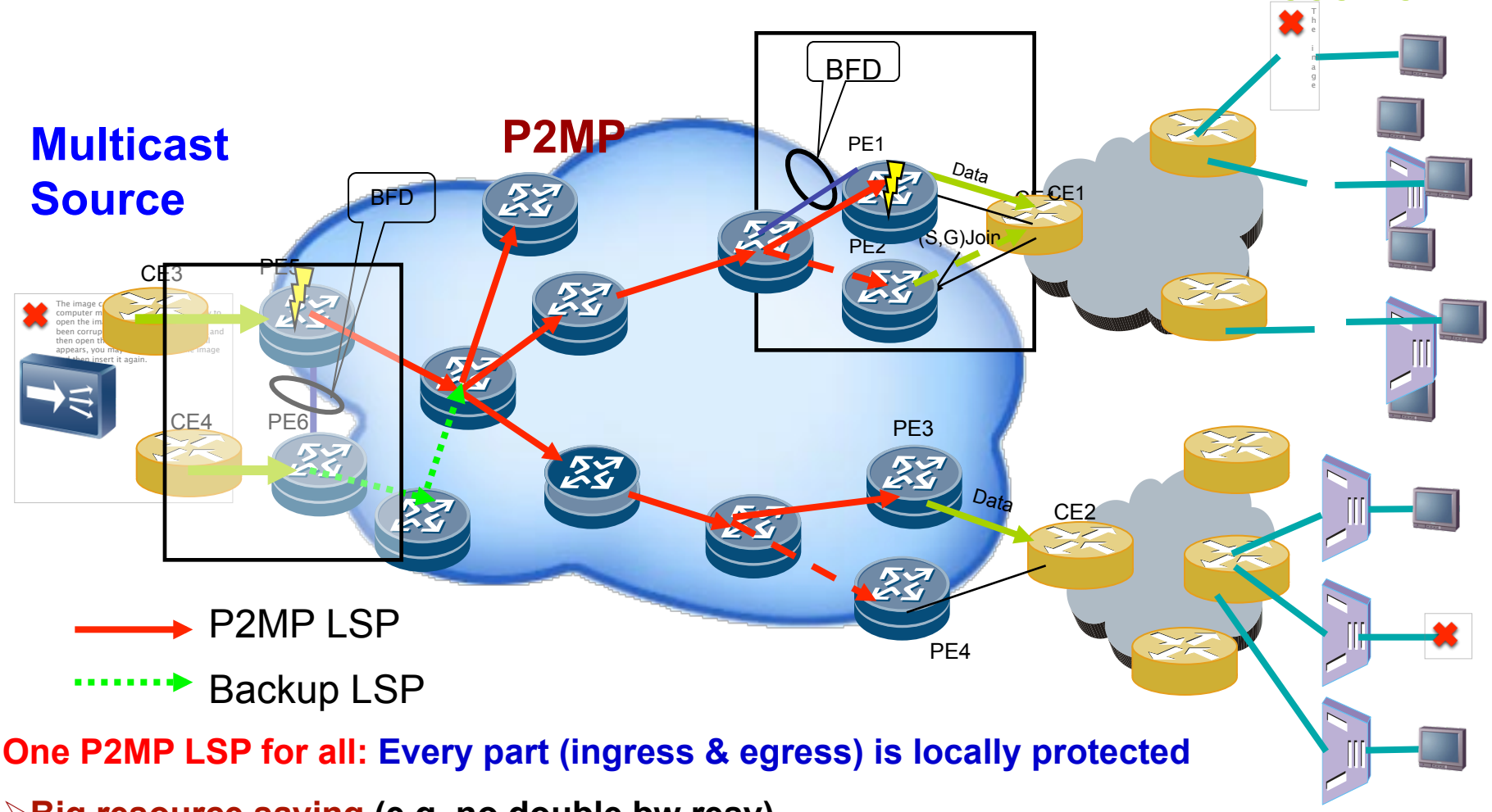
When link from egress PE1 to CE1 fails,

- Traffic to backup tunnel to PE2 (backup egress)
- Traffic delivered to CE1 from PE2

P2MP LSP Ingress & Egress Local Protection (Animated)

Existing scenario: double root and every leaf

Create two global P2MP LSP from each root to leaves, carrying data at same time



One P2MP LSP for all: Every part (ingress & egress) is locally protected

- **Big resource saving (e.g, no double bw resv)**
- **Faster failure recovery: local protection speed**

Advantages of P2MP LSP Ingress and Egress Local Protection

- All parts of P2MP LSP are locally protected
- Only one P2MP LSP is used to implement an E2E protection
  - Normally two P2MP LSPs are used
- Big saving on resource : 50% bandwidth saving
  - No need to reserve/use double bandwidth
- Faster recovery
  - Speed of local protection recovery
  - Flow recovery within 50ms when a failure happens
- Easier to operate

Next Step

- Welcome comments
- Request to make it into a working group document