Extensions to RSVP-TE for P2MP LSP
Ingress Local Protection

draft-chen-mpls-p2mp-ingress-protection

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Protocol Extensions for Ingress Local Protection

**Locally detect & repair ingress failure**

**Ingress failure recovers within 50ms**

1. Desire for Ingress Protection
2. 1 to 1 or 1 to N backup
3. Info for creating backup LSP

Options:

1. New RSVP-TE Messages
2. New/Enhanced RSVP-TE Objects in existing messages
3. OSPF Opaque LSAs
RSVP-TE Objects for Ingress Local Protection

**PATH** Msg contains:
1. A bit in Attr Flags TLV
2. 1 to 1 or 1 to n in FRR
3. ERO, RRO, BW, etc in FRR

**RESV** Msg contains:
- Protection Status in RRO

**Status of protection** (such as protection is available/ready)

**ERO** contains path from backup ingress to next hops of primary ingress (maybe loose), to egresses

**RRO** contains path main LSP traversed
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1. **New** Object implies **Desire** for Egress Local Protection
2. 1 to 1 or 1 to N backup in FRR Object
3. Info for creating backup LSP in FRR, and **New**

**PATH Message**

- **Common Header** *(Existing)*
- **Label Request** *(Existing)*
- **FRR Object** *(Existing)*
- **Info for Backup Egresses** *(New)*

**RESV** Msg contains

- **Protection Status in RRO**

 Locally detect and repair egress failure
Egress failure recovers within 50ms
RSVP-TE Extensions for Egress Local Protection

PH of Egress (PATH Msg):
1. Create backup LSP to backup egress if desire for it (New Object)
2. Provide 1 to 1 or 1 to N backup for egress accordingly

PH of Egress (RESV Msg):
Report status of egress protection in RRO in RESV message (Such as set node protection bit in RRO for egress when backup LSP is up)
Next Step

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• Welcome comments
• Request to make it into a working group document
1. Ingress PE5 fails

2. Backup ingress PE6 detects it and puts traffic into backup LSP

3. Traffic merged into main LSP

Locally detect and repair ingress failure
Thus ingress failure recovers within 50ms
P2MP LSP Egress Local Protection

-- Locally detect and repair egress failure
Thus egress failure recovers within 50ms

1. Egress PE1 fails

2. PH of PE1 detects it and puts traffic into backup LSP

3. Backup egress PE2 sends traffic to CE1