RSVP-TE Extensions For Signaling GMPLS Restoration LSP

draft-gandhi-ccamp-gmpls-restoration-lsp.txt

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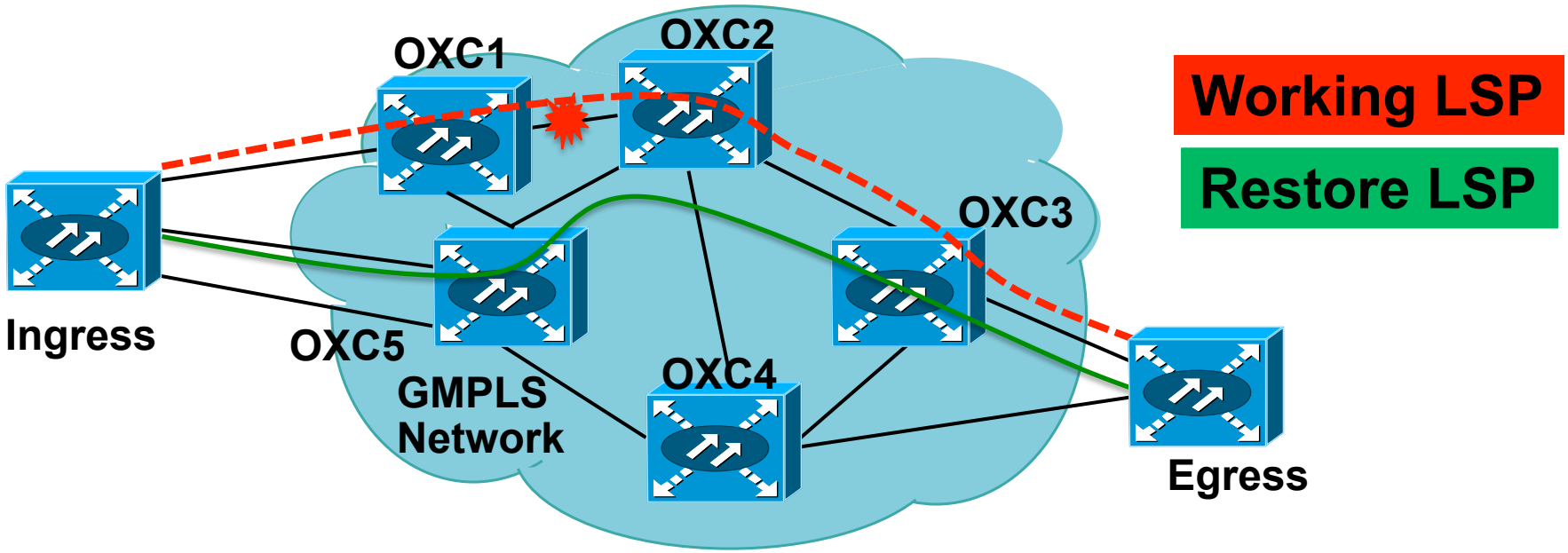
Outline

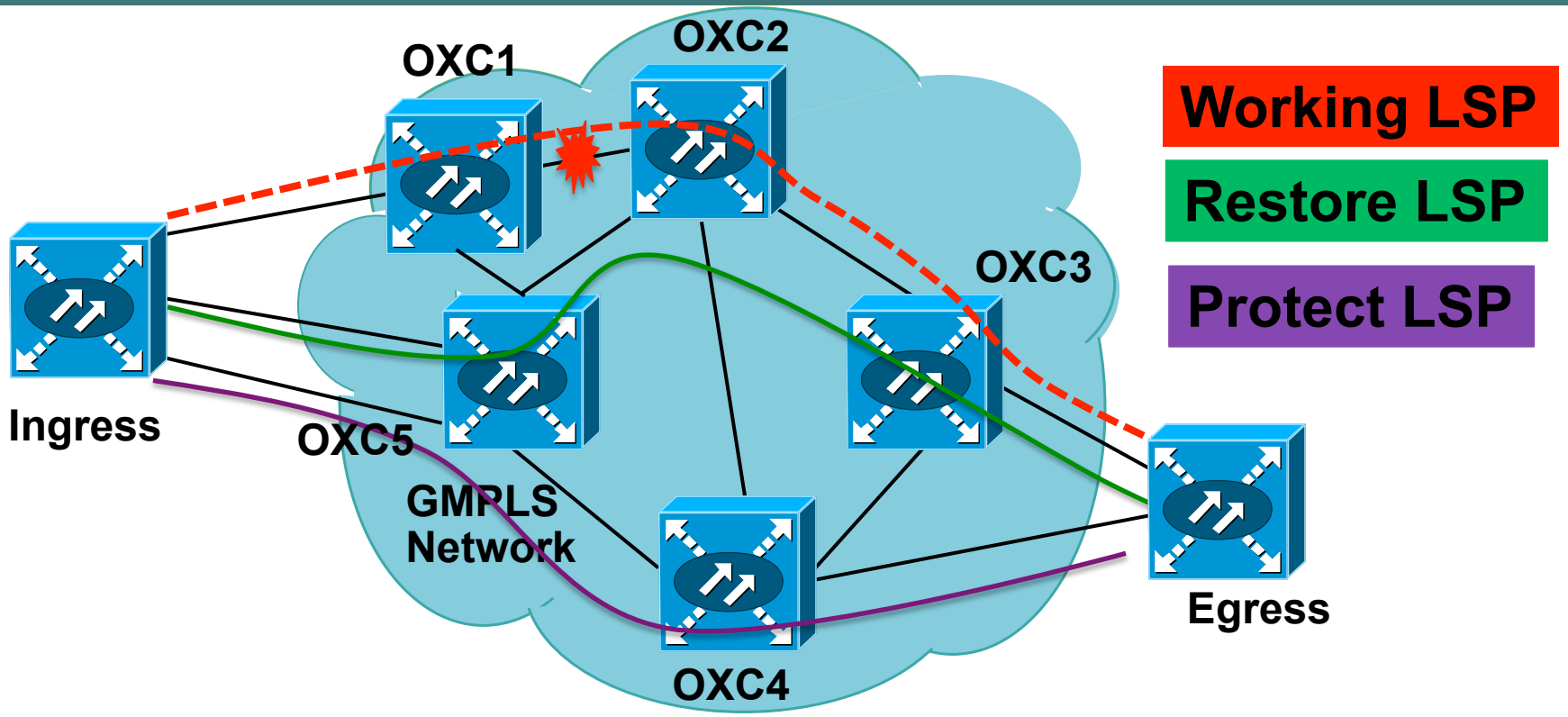
- **Requirements and Use Cases**
- **Solution**
- **Next Steps**

Transport Requirements for Restoration LSP (1+R Use case)



- **Resources for failed LSP need to be remain intact in at least in control plane as:**
  - **The LSP follow a nominal path (minimum latency, minimum cost, etc.).**
  - **Deterministic behavior after failure is recovered (deterministic SLAs).**
  - **Revert operation to the failed resources is desirable.**
- **Restoration LSP is signaled after failure is detected.**

Transport Requirements for Restoration LSP (1:1+R, 1+1+R Use cases)



- Same Requirements as outlined in previous slide.
- Restoration LSP is signaled after failure of working LSP and/ or protecting LSP.

Agenda

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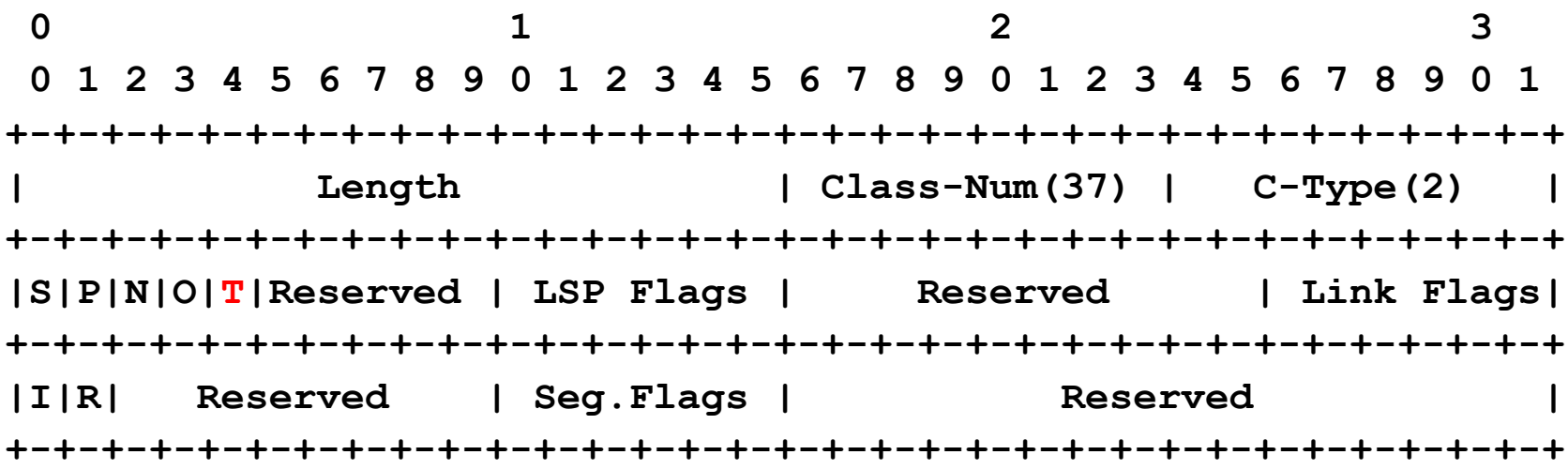
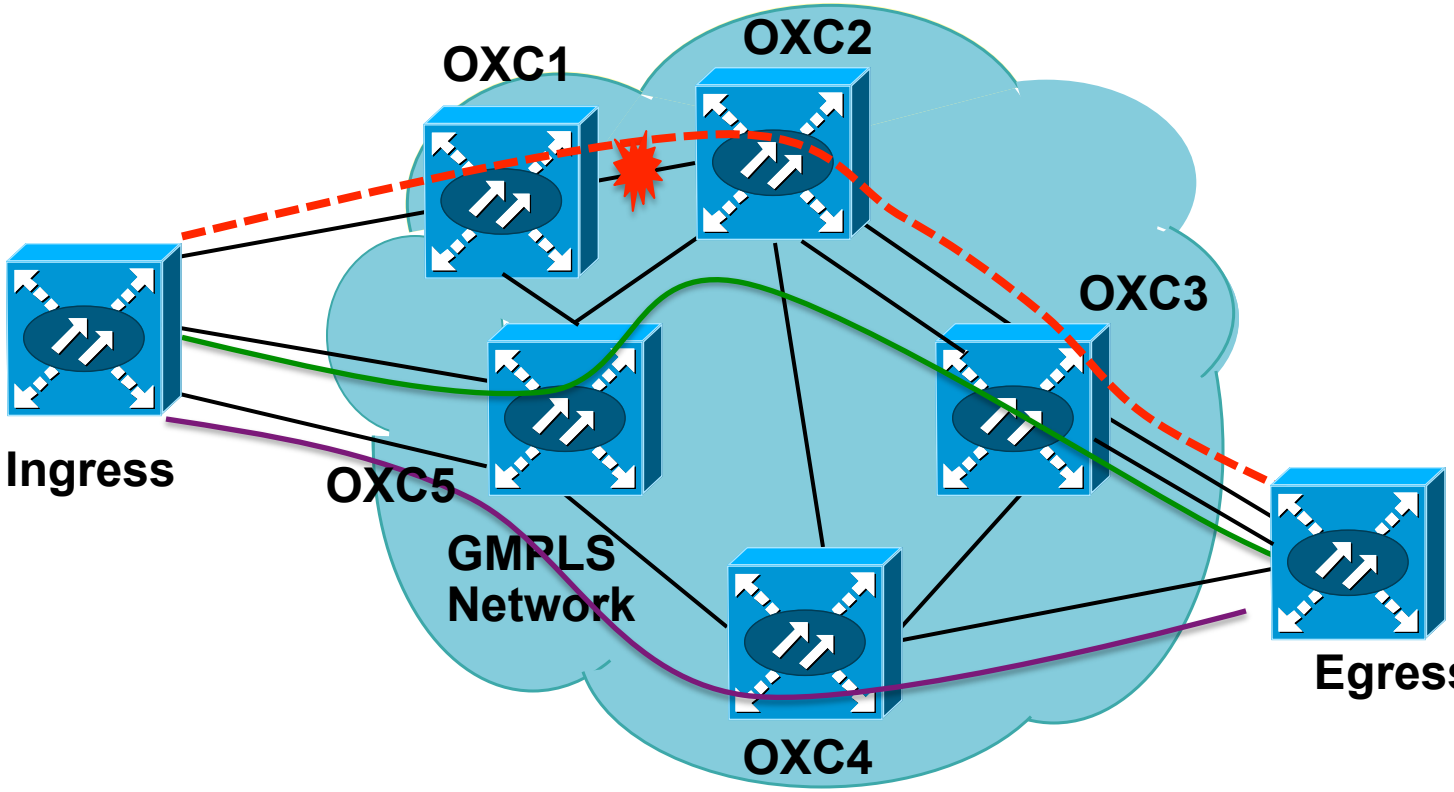
PROTECTION Object with T Bit



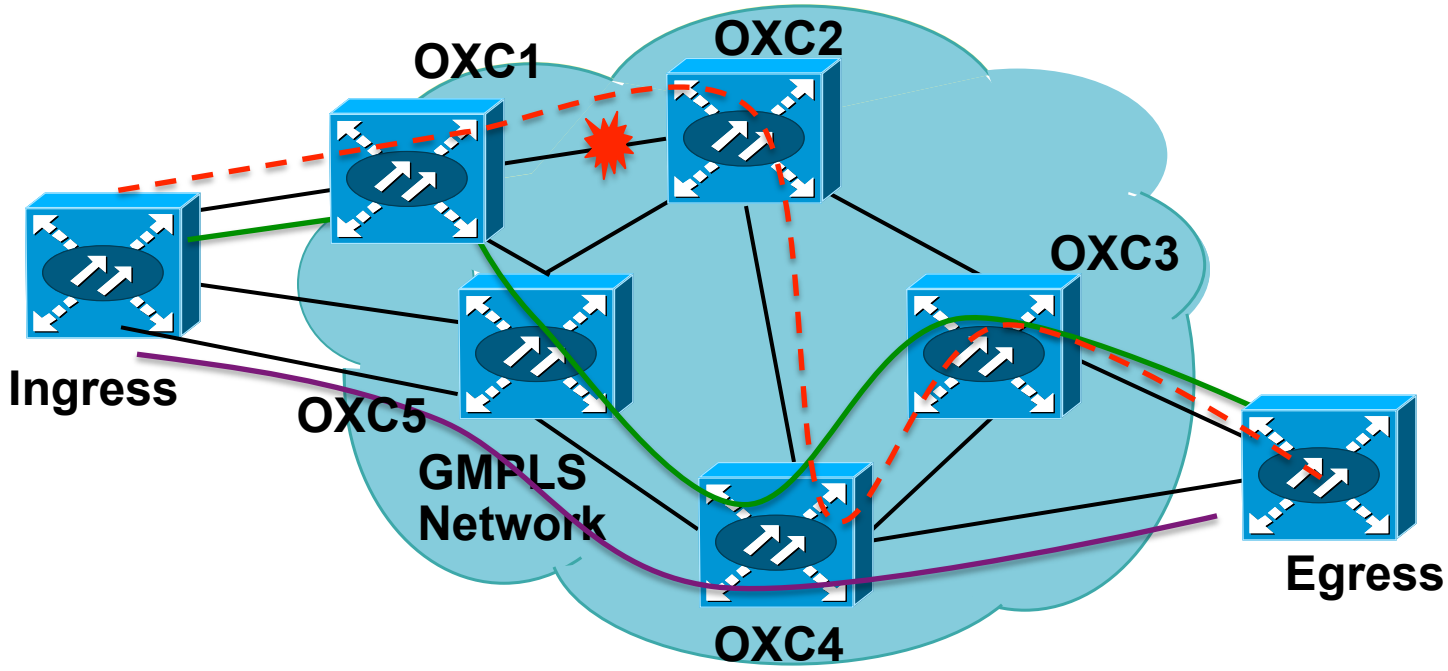
- **T bit – ResToration LSP**
- **LSP Flags (Protection Types) are modified for signaling transport style restoration.**

Solution (1+R, 1:1+R, 1+1+R) – No Resource Sharing



- Working LSP is signaled with: P = 0, S = 0, T = 0
- Restoration LSP for Working is signaled with P = 0, S = 0, T = 1 (after the failure of working LSP)
- Protecting LSP signaled with: P = 1, S = 0, T = 0
- Restoration LSP for Protecting signaled with P = 1, S = 0, T = 1 (after the failure of protecting LSP)

Solution (1+R, 1:1+R, 1+1+R) – Resource Sharing



1. When red working LSP fails, it is re-signaled with S = 1 to free up resources in data plane (but still kept in control plane).
2. Signal green restoration LSP with S = 0 to use shared data plane resources (from red working LSP).
3. OXC4 and OXC3 share resources between red and green LSPs as S bit is 1 and 0, respectively.
4. OXC5 and OXC4 do not share resources between green and purple LSPs as S bit is 0 in both LSPs.
5. Once the failure is repaired, green restoration LSP is torn down, red working LSP is resignaled with S = 0 to claim resources in data plane.

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Next Steps

- **We would like to make this draft a WG Document.**

Thank You.