RSVP-TE Extensions For Signaling GMPLS Restoration LSP

draft-gandhi-ccamp-gmpls-restoration-lsp-01

Author list:

Rakesh Gandhi (rgandhi@cisco.com)

Zafar Ali (zali@cisco.com) - Presenter

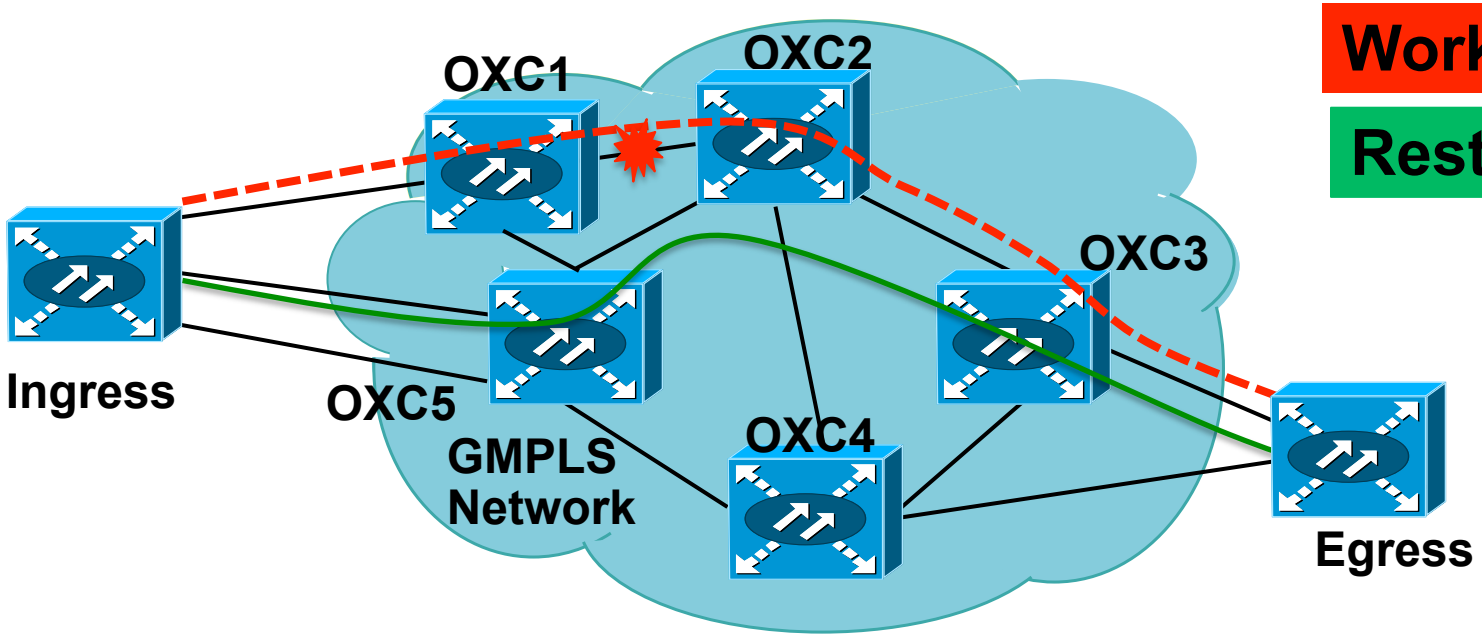
Gabriele Maria Galimberti (ggalimbe@cisco.com)

Acknowledgment: George Swallow (swallow@cisco.com)

Outline

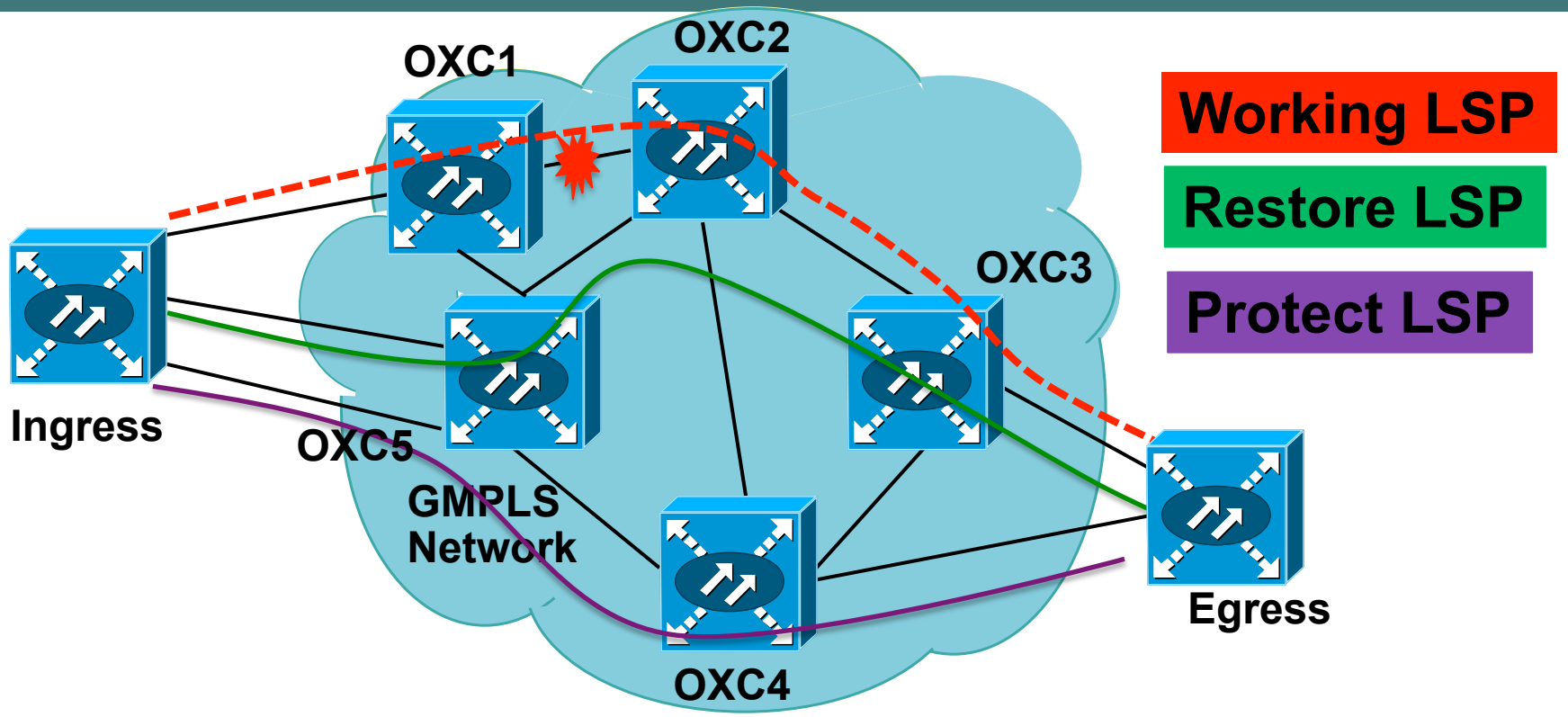
- **Requirements and Use Cases**
- **Clarification need and update from last IETF**
- **Clarification Statement**
- **Next Steps**

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



- Resources for failed LSP need to be remain intact <u>at least in control plane</u> 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 <u>after</u> 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 protect LSP.

Agenda

- Requirements and Use Cases
- Clarification need and update from last IETF
- Clarification Statement
- Next Steps

Clarification need and update from last IETF

- Solution in RFC4872, RFC4873 and RFC6689 assumes working LSP is torn down before restoration LSP is signaled.
- This is not the case for 1+R, 1:1+R, 1+1+R Use cases.
- We had private discussions with Igor, et al. and agreed on need for this draft.
- During last IETF meeting, there was an agreement on the need to clarify usage of association in the context of 1+R, 1:1+R, 1+1+R Use cases.

Agenda

- Requirements and Use Cases
- Clarification need and update from last IETF
- Clarification Statement
- Next Steps

Signaling Procedure For 1+R

- **Working LSP:**
  - **PROTECTION object with P = 0**
  - **LSP has ASSOCIATION object with association ID = LSP-ID of itself [RFC6689].**
- **Restoration LSP:**
  - **PROTECTION object with P = 0**
  - **LSP has ASSOCIATION object with association ID = LSP-ID of working LSP (recall that working is not torn down so LSP-ID of working is valid).**
- **If working LSP is torn down, restoration LSP inherits both PROTECTION and ASSOCIATION object properties from the working LSP [RFC6689].**

- **Note that RFC6689 states to use association ID = LSP-ID of itself for restoration LSP. We are proposing to modify that in the case of working LSP not torn down to use the LSP-ID of the LSP it is restoring to enable unique identification and resource sharing.**

Signaling Procedure For 1+1+R

- **Working LSP:**
  - **PROTECTION object with P = 0**
  - **LSP has ASSOCIATION object with association ID = LSP-ID of protect LSP (LSP_ID of itself when Protect is not UP) [RFC6689].**
- **Protect LSP:**
  - **PROTECTION object with P = 1**
  - **LSP has ASSOCIATION object with association ID = LSP-ID of working LSP [RFC6689].**
- **Restoration LSP for working:**
  - **PROTECTION object with P = 0**
  - **LSP has ASSOCIATION object with association ID = LSP-ID of working LSP.**
- **Restoration LSP for protect:**
  - **PROTECTION object with P = 1**
  - **LSP has ASSOCIATION object with association ID = LSP-ID of protect LSP.**
- **If working [protect] LSP is torn down, restoration LSP inherits both PROTECTION and ASSOCIATION object properties from the working [protect] LSP [RFC6689].**

Agenda

- Requirements and Use Cases
- Changes From Revision-00
- Solution
- Next Steps

Next Steps

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

Thank You.