

MPLS-TP Shared Mesh Protection

draft-cheung-mpls-tp-mesh-protection-03

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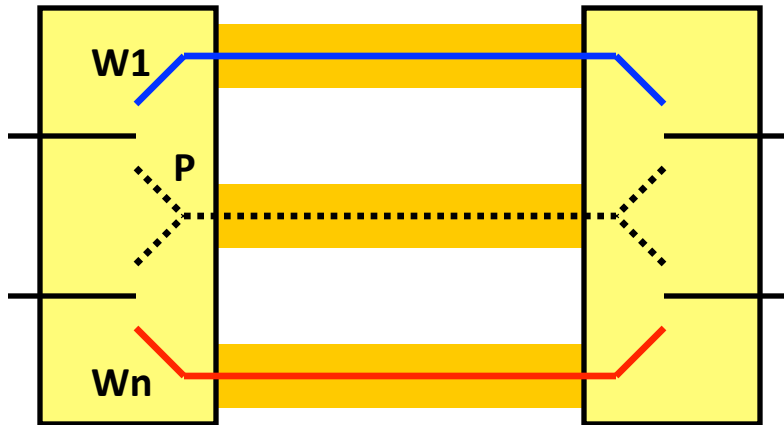
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Motivation

- MPLS-TP has requirements for shared protection in RFC5654.
 - [Requirement 66] MPLS-TP must support the ability to **share protection resources** amongst a number of transport paths.
 - [Requirement 68] MPLS-TP should support 1:n (including 1:1) **shared mesh recovery**.
 - [Requirement 69] MPLS-TP must support **sharing of protection resources**.
- This work proposes a shared mesh protection mechanism to meet those requirements.

Shared Protection – Linear

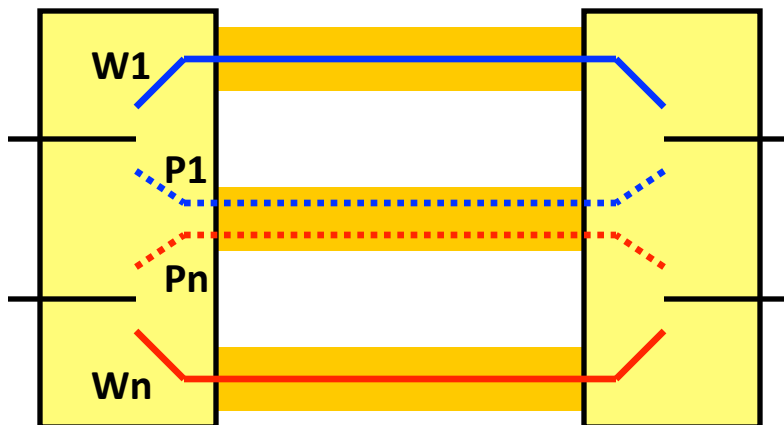
1:n architecture



1 protection path is shared by working paths.

- 2-phase protocols should be used to prevent misconnection.

(1:1)ⁿ architecture



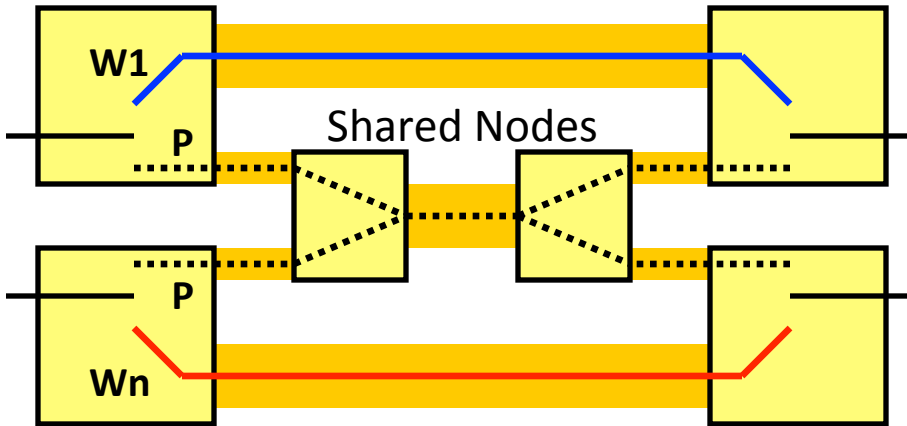
1-phase

is shared protection paths.)

- 1-phase protocol can be used.
→ Fast protection time !!

Shared Protection – Mesh

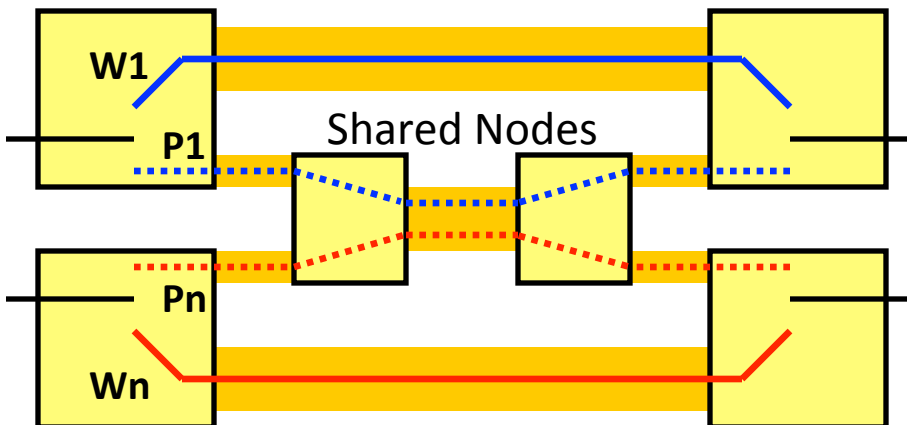
1:n architecture



1 protection segment is shared by N working paths.

- End-to-end protection path cannot be established until shared nodes are setup.
- Requires 2-phase protocol.

(1:1)ⁿ architecture



to N working paths.

- ⇒ phase protocol is enough.
- Fast protection time !!

Proposed Approach (1)

in [RFC4428](#) (GMPLS-based recovery mechanism) as well as [ITU-T G.808.1](#) (Generic protection switching).

- End-to-end protection paths can be pre-established and monitored.
- Each end node uses [existing end-to-end linear protection protocol](#).
 - This includes retransmission to handle lost messages.
 - Same technique is used in MPLS-TP and Ethernet, linear and ring protection solutions.

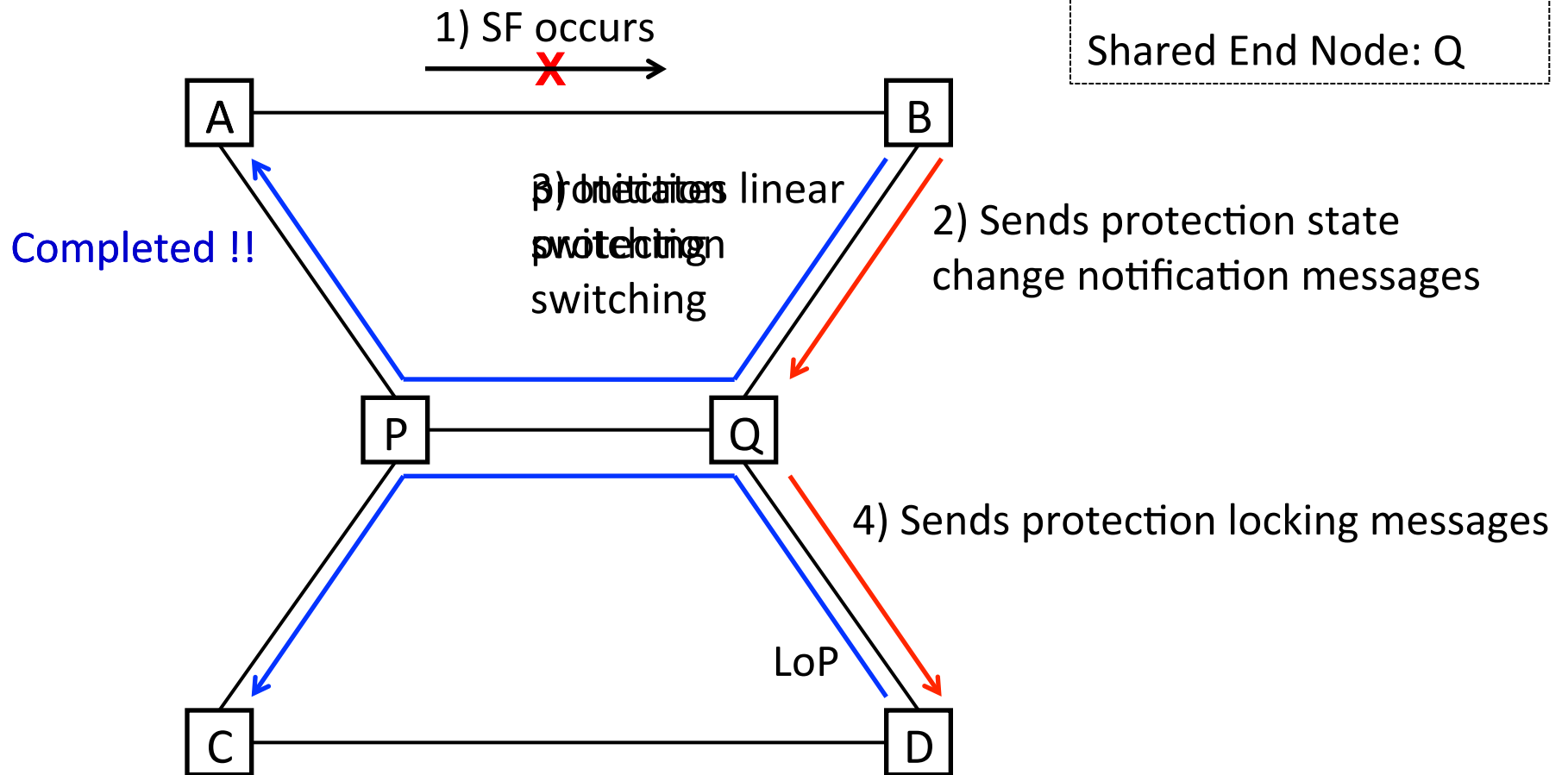
Proposed Approach (2)

- Notification of protection switching event to shared node
 - Generation of Lockout/Clear command upon receiving lock/unlock request from shared node.
 - Shared node coordinates the use of protection resource.
- It compares priority assigned to each protection path.
- It sends lock/unlock request to end nodes having equal or lower priority.

Operation Example

[Assumptions]

Shared End Node: Q



Next Steps

- We need continued discussion and development on the shared mesh protection mechanism.
- We need continued discussion and development on the shared mesh protection mechanism:
 - draft-zhang-mpls-tp-shared-mesh-protection
 - draft-pan-shared-mesh-protection
- There are currently three I-Ds on shared mesh protection:
 - The working group does not need three solutions!
 - draft-zhang-mpls-tp-shared-mesh-protection
 - draft-pan-shared-mesh-protection
 - We want to take up the best ideas from all three I-Ds
- We kindly ask the WG experts to review and document and provide us feedback.