Linear 1:1 Protection Switching for P2P PBB-TE Connections

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Requirements-I

- Operating on a per tunnel basis (not per I-SID)
  - Protection can be offered or not depending on service requirements
- 1:1 protection: a protection entity is utilised to protect normal traffic signal.
- Bidirectional switching
- 100% of impaired working traffic should be protected for a failure on a single working entity
- The connectivity of the working entity and the protection entity should be periodically monitored
- Subsequent to a protection switching event frames should be delivered in-order
- Protection entity is dedicated to the working entity
- No extra traffic on protection entity
- Similar to those already in G.8031
Requirements-II

- Both directions of working (protection) should be co-routed for operational simplicity
- Monitoring for both working and protection entities requires that MEPs be activated for the purpose of monitoring
- ESP monitored via CC messages
  - CC message has same ESP DA/SA/VID as traffic
  - CC requirements set at time protection group established
  - Where the ESP DA is unicast CC message DA is also unicast
  - CC message rate is configurable
- Revertive and non-revertive switching should be provided as options
  - Revertive: normal traffic is restored to the working entity after the condition(s) causing a switch have cleared
  - Non-revertive: normal traffic is allowed to remain
- Lock-out of protection, and manual switch commands should be supported
- Management Initiated Protection switching triggers
  - Initiated by operator (Manual Switch/Non-Revertive)
  - Signal Fail is declared on active entity and is not declared on standby entity, and the detected Signal Fail
- Unidirectional failure on working path triggers bidirectional switching action
  - E.g. use of RDI as flag
- Signal fail
  - Includes loss of CC messages
Normal traffic is transmitted via the working entity. There is no extra traffic on ESP B.
A protection switching event has occurred, due to signal fail condition on the working entity. At the source node the normal traffic is forwarded to the protection entity ESP#B. At the sink node, the normal traffic is received from the protection entity.
Observations

• These slides do not cover shared protection
• G.8031 provides useful material for considering implementation, but care is required as it is based on VLAN based Ethernet subnetwork connection protection