To Achieve 50ms Protection Switching for PBB-TE TESI

Linda Dubnar (ldunbar@huawei.com)
Ben Mack-Crane (tmackcrane@huawei.com)
Bob Sultan (bsultan@huawei.com)
ZhuSheng Deng (dengzhusheng@huawei.com)
It is impossible to achieve 50 ms protection switching if the switching is trigged by not receiving 3 consecutive CCMs

- **Steps for protection switching in PBB-TE:**
  - Fault detection at the destination node (not receiving 3 consecutive CCMs)
  - Source receiving the CCM with RDI set
  - Source node switching traffic from one ESP to another ESP

- **The Switch Initiation Time** (i.e. the time that it takes the source node trigger switching) **for PBB-TE is**
  - Time to detect the fault at destination + Time to signal to the source node

- **Bellcore GR253 requires Switching Initiation Time to be less than 10ms** (R5-41) to leave 40ms to switch traffic

- **What is left for fault detection?**
  - **Maximum:** 5 ms (most likely will be less if it takes more time for signal to go from Destination to Source).
  - To detect 3 consecutive lost CCM within 5 ms requires CCM to be sent less than 1ms interval, which is less than the minimal time interval for CCM.
More realistic approach to trigger PBB-TE protection switching

• Let the intermediate ports adjacent to the failure send a fault indication message to both ends for all the ESPs traversing through the interfaces.

• Many options of Fault Notification Message:
  – Intermediate interface re-send the last CCM with fault indication bit set, or
  – Adopt MAC status message from .1aj to indicate the fault, or
  – Create new CFM message for fault notification purpose.

• Fault Notification Message is a quicker way for source to detect the failure to initiate switching.
  – Use the mechanism defined in Qay for fault clearing.
  – Therefore, it is not necessary to send Fault Notification Message continuously.