802.3 SPMD SG:
Support for standby PSE

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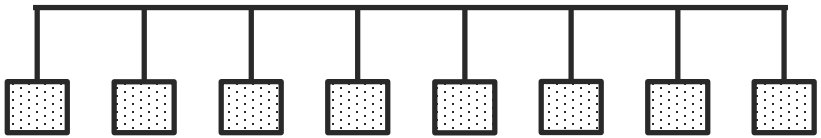
Background

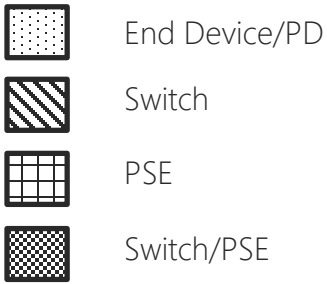
- I proposed the following objective

  Support optional standby PSE functionality

- This slide deck provides the justification for that request.

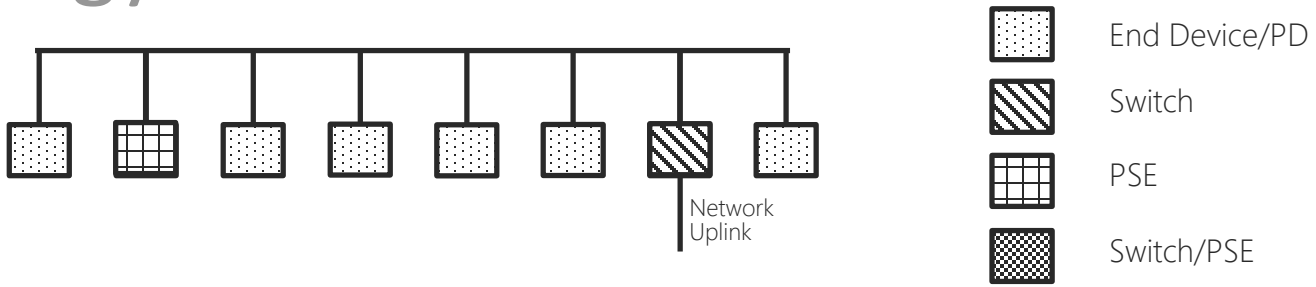
SPMD Topology – No Switch/PSE





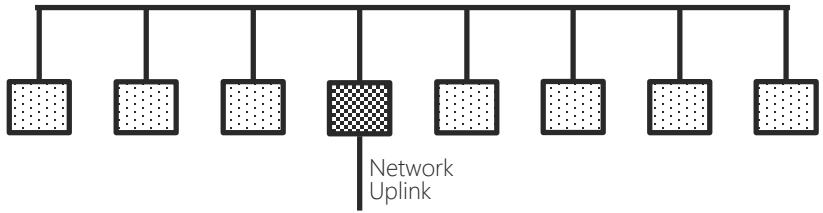
- This topology has no Switch, PSE or Switch/PSE nodes

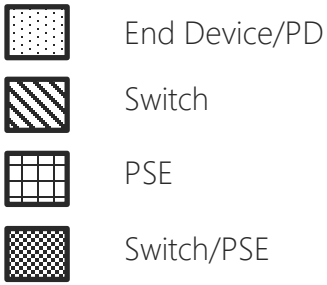
SPMD Topology – non-redundant



- This topology has a single Switch node and a single PSE node
- This has two “single points of failure”
  - Failure of the Switch means network access is lost
  - Failure of the PSE means the PDs fail

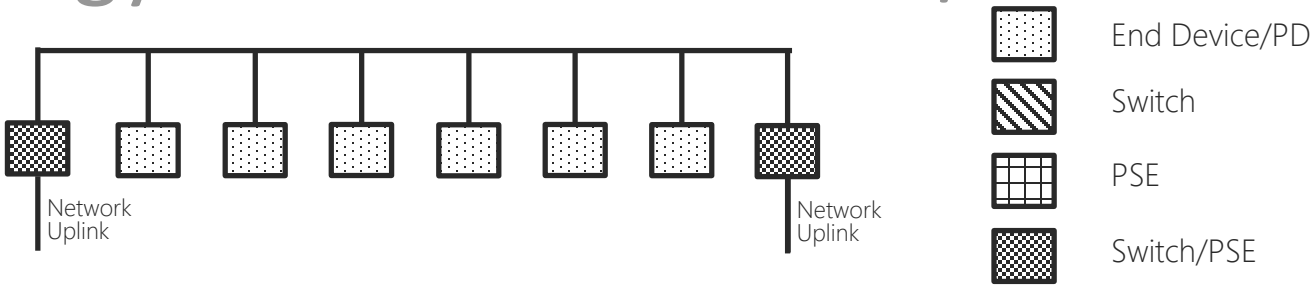
SPMD Topology – non-redundant - 2





- This topology has a single Switch/PSE node
- This has a single point of failure
  - Failure of the Switch/PSE means network access is lost and the PDs fail

SPMD Topology – redundant Switch/PSE



- This topology is a single mixing segment, with two Switch/PSEs
- This provides resilience against a single failure causing loss of network access or power.
  - Many protocols (e.g. VRRP, REP) make use of two uplink devices
  - PSEs are expected to run “active/standby”, using software for role arbitration
  - If the active ceases to power the line, standby takes over ASAP.

Summary

- There is a clear benefit to providing redundancy for network uplinks and provision of power
- A number of widely deployed automation protocols, e.g., PRP(link), REP(link), EAPS(link), DLR(link), use an “Ethernet Ring” to provide resilience
- 10SPE/SPMD already supports redundancy for network access using multiple switches
- SPMD should support power redundancy using active/standby PSEs

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Consensus

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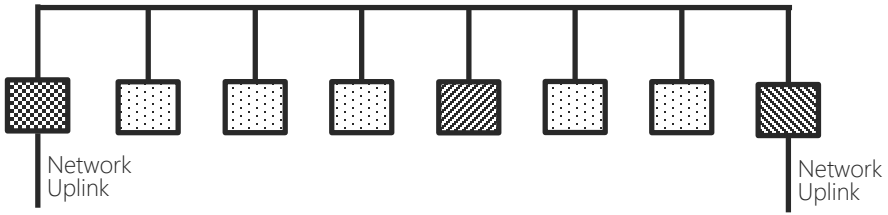
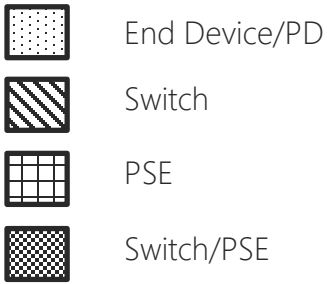
SPMD Topology – ???





- This topology is