PHY Layer Support

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SONET/SDH PHY

- All SONET/SDH framers support POS
  - Packet Over SONET is a widely deployed protocol for carrying packets over links at speeds of OC-3c and above
- Some SONET/SDH framers will support GFP in addition to POS
  - GFP may become a popular standard
  - 802.17 should support the pt to pt model of GFP
  - as it is functionally equivalent to POS this allow the same reconciliation layer to work with both
    - Therefore selection of the PHY layer becomes a software switch
  - Other standards bodies will work to insure that the link layer interface and optics interfaces will be standard
    - SPI 3/4/5
    - SFI 3/4/5

SONET/SDH PHY

- SONET Framers allow a trivial re-conciliation layer between the MAC and the PHY
  - SONET Framer provides the frame delineation function normally associated with the lower MAC layer
  - Framer provides Start and End of Packet markers on receive
  - MAC provides Start and End of Packet markers on transmit
  - Framer CRC functions not necessarily needed for protection of the packet
    - POS – CRC should be turned off
    - GFP – CRC is required as part of frame delineation
  - All POS and most GFP framers have no requirement to prepend the length of the packet
    - Pre-pending the length should not be a requirement for the MAC
    - Could be optional behavior for interoperation with particular implementations

SONET/SDH Clocking

- Each RPR station is independently timed
- Interfaces should support:
  - Local timing from a clock source
    - No better than Stratum-3 required
    - Stratum-3 might be required for interoperation with WDM gear
  - Line timing from the received clock
    - Minimizes pointer adjustments when the RPR ring is part of a larger SONET/SDH network
  - RPR network should not be part of the synchronization network
    - No requirement to pass clock from east to west fibers or meet hold-over times etc.

Ethernet PHY

- MAC layer does framer delineation (as in Ethernet)
- Reconciliation layer adds preamble / SFD / IPG
- Reuse GMII/XGMII for MAC to PHY interface