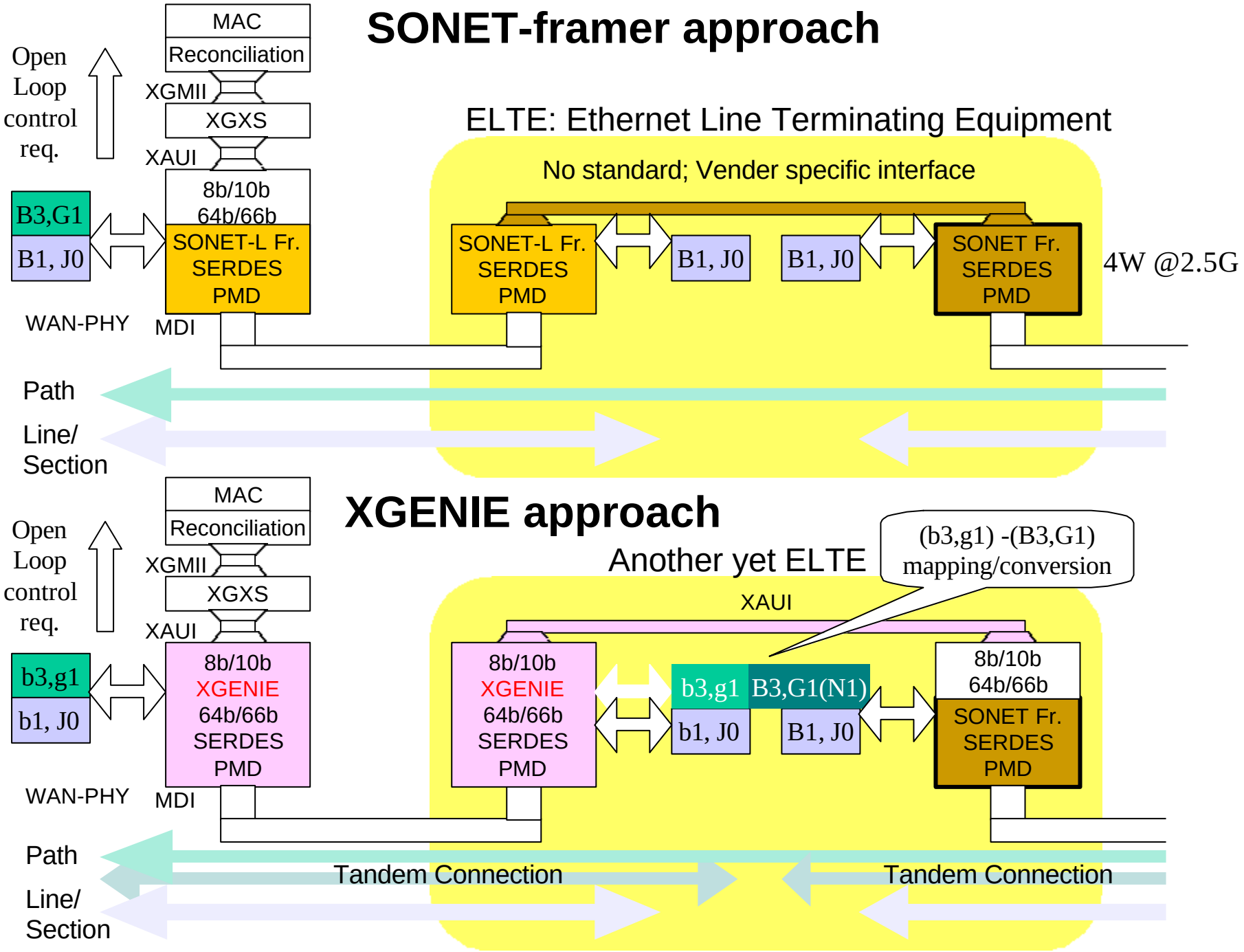
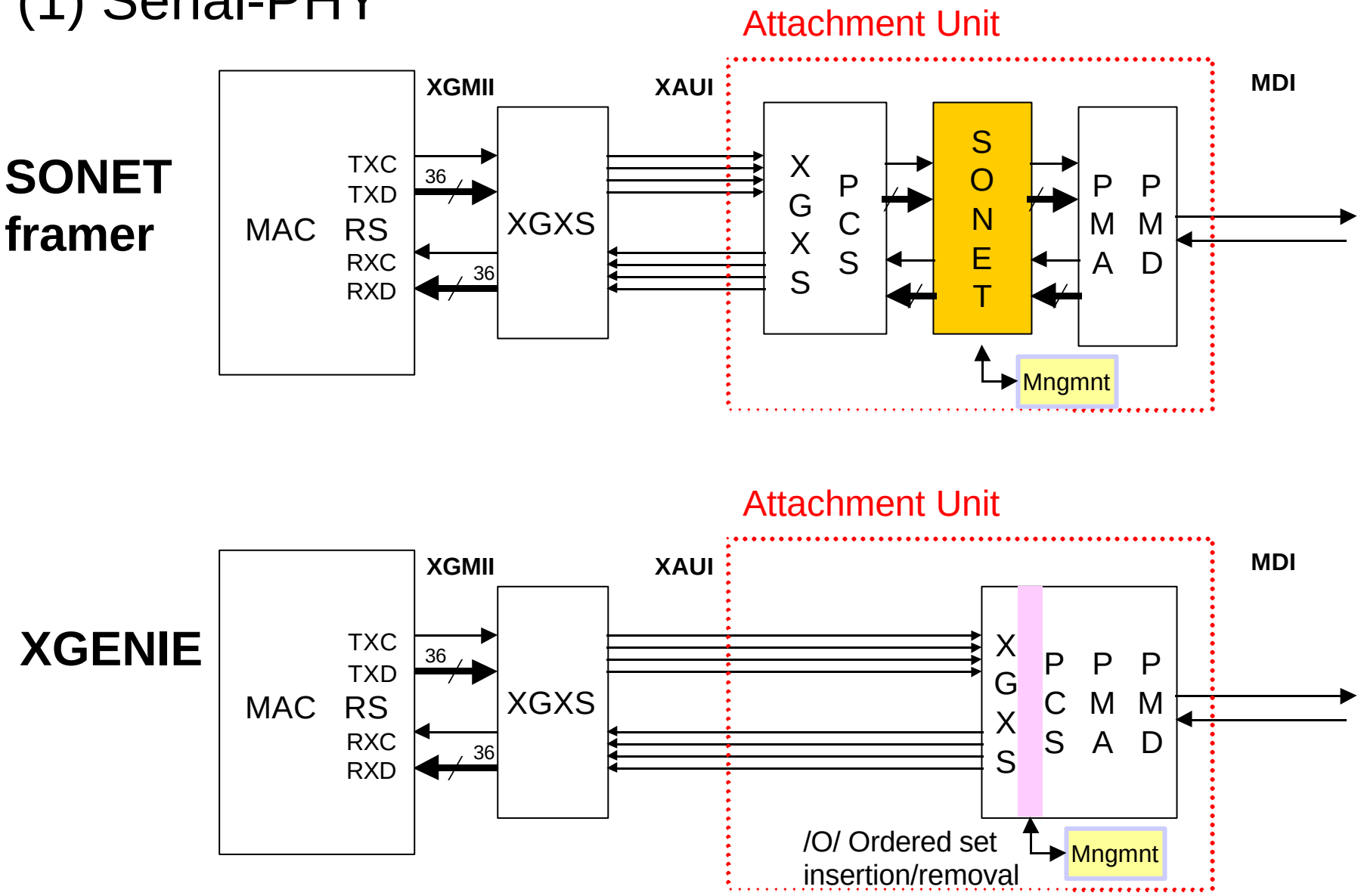

SONET-framer approach
Open Loop control req.
MAC
Reconciliation
XGMII
XGXS
XAUI
8b/10b 64b/66b
B3,G1
B1, J0
SONET-L Fr. SERDES PMD
WAN-PHY
MDI
ELTE: Ethernet Line Terminating Equipment
No standard; Vender specific interface
SONET-L Fr. SERDES PMD
B1, J0
B1, J0
SONET Fr. SERDES PMD
4W @2.5G
Path
Line/ Section
XGENIE approach
Another yet ELTE
(b3,g1) -(B3,G1) mapping/conversion
XAUI
b3,g1
b1, J0
8b/10b XGENIE 64b/66b SERDES PMD
b3,g1
B3,G1(N1)
b1, J0
B1, J0
Tandem Connection
Tandem Connection

- Path overhead bytes: between WAN-PHY and WAN-PHY (not shown)
  - B3: 1byte: Bit-Interleaved Parity (BIP)8: monitoring BER of 6 x 10^{-6} or lower.
  - G1: 1byte: Path Status: Remote Error Counted value(4bit), Remote Defect Indicator(1 bit)
- Section overhead bytes: between WAN-PHY and ELTE
  - B1: 1 byte: Bit-Interleaved Parity (BIP)8: monitoring BER of 6 x 10^{-6} or lower.
  - J0: 1byte: Section Trace: section identifier
- Both approaches have the same function blocks other than the following: (to make it fair, here I assume 64/66 on SONET)
  - SONET-Framer approach requires
    - SONET-LITE framers for WAN-PHY and ELTE at WAN-PHY side,
    - vender specific backboard interface in ELTE.
    - It seems to be difficult to support CWDM PHY. (see next page)
  - XGENIE approach requires
    - attachment units (AU) for WAN-PHY and ELTE at WAN-PHY side,
    - standardized XAUI interface in ELTE.
    - It supports both Serial LAN-PHY and CWDM LAN-PHY. (see next page)
- In XGENIE, A liberal operator can use direct (loose) relay-mapping between (b3,g1) and (B3,G1).
  - b3: Bit error rate monitor by 8b/10b code violation or 64b/66b 2-bit header violation
  - g1: WAN-PHY to WAN-PHY path status: the same format as SONET G1
- For a conservative operator, XGENIE will suggest SONET Tandem Connection (N1) approach for end-end Path Status (g1) exchange.
  - N1 (G707 Annex D) Network operator byte defined for tandem connection monitoring
  - ELTE can perform strict conversion between (b3,g1) and (B3,G1).

SONET framer vs XGENIE (1/2)

(1) Serial-PHY



SONET framer vs XGENIE (2/2)

(2) CWDM-PHY