XAUI as a SUPI Alternative

Rich Taborek nSerial

Tampa, FL

Presentation Purpose

- Why Propose This Now?
- Why Wasn't This Proposed Before?
- Illustrate WAN PHY & Its Interfaces
- Describe XAUI WAN PHY Extensions
- XAUI Advantages
- Summary

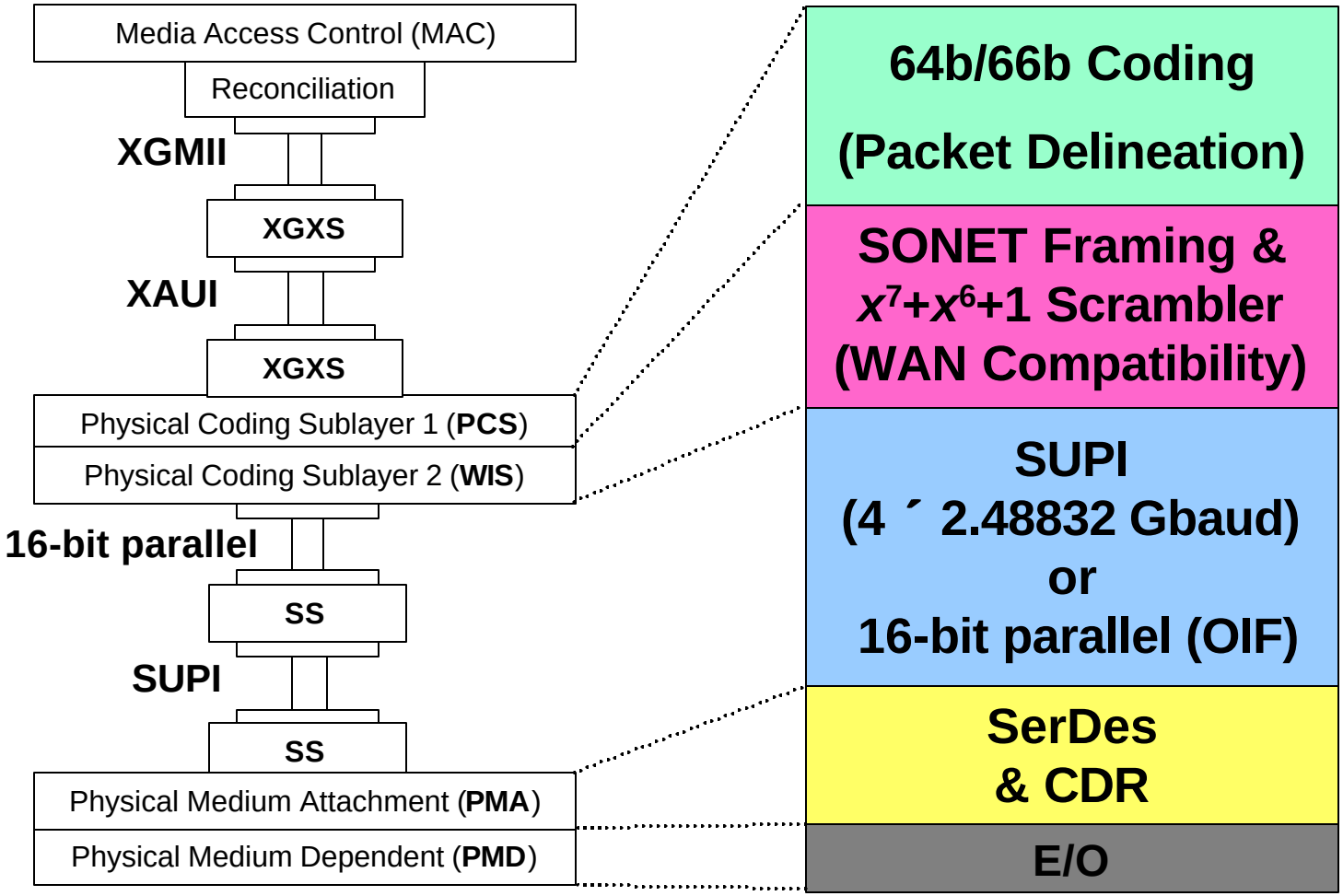
Why Propose This Now?

- What Has Changed?
  - Very Strong Support For XAUI
  - Perceived Weak Support for SUPI
- IEEE P802ae “New Features” Deadline
  - If A Change Is To Be Made, Now Is The Time
- Optical Transceiver Module Activity
  - XGP: Ten Gigabit Pluggable
  - Applicable to 10GE, 10GFC, InfiniBand, OIF
  - XAUI(8b/10b) PCS/PMA Is The Primary Interface
  - SUPI Electrical Similar, But Logic Very Different
  - SUPI Forces Significantly Different PMD Specs

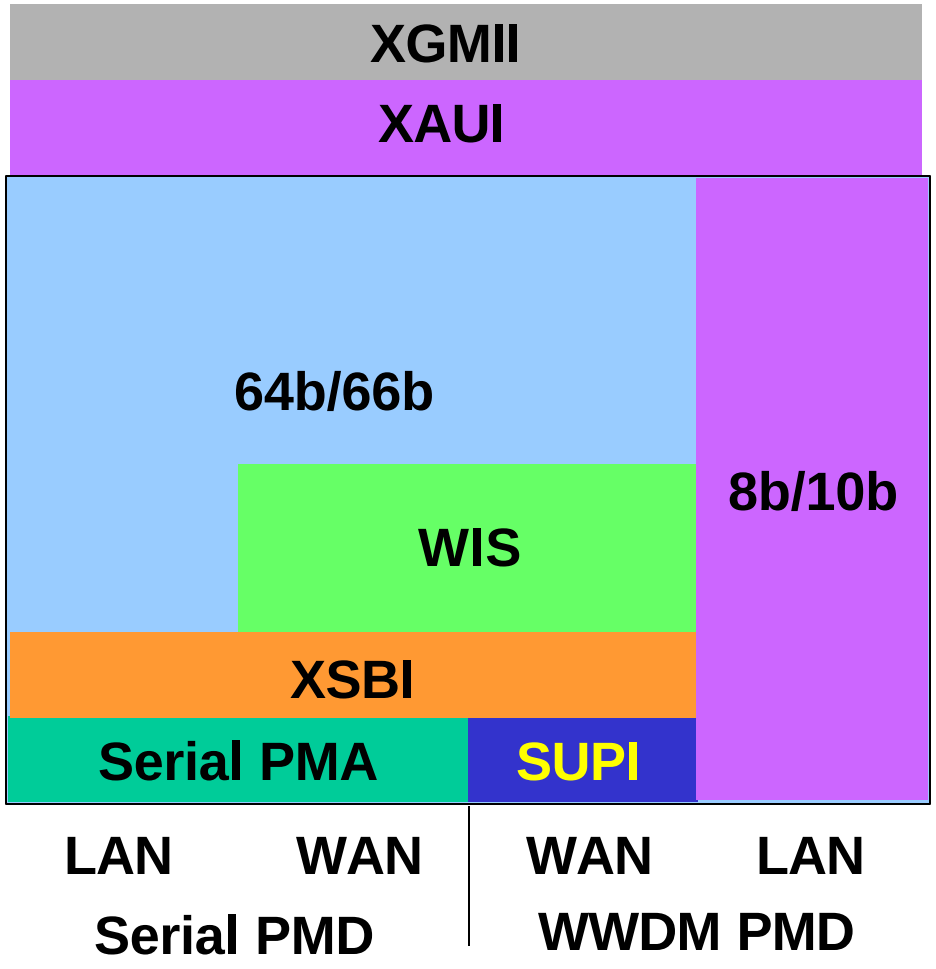
Why Wasn't This Proposed Before?

- Datacom vs. Telecom Tradition
  - Coded vs. Scrambled
  - Divergence Of LAN/WAN PHY Objectives
  - Claims That XAUI Is Not Applicable
    - WAN PHY Data Area Is Pseudo Random
      - Not True: A1/A2 Is Fixed And Not Scrambled
    - WAN PHY Data Has No Frame Or Gap Codes
      - Not True: A1/A2 Is Fixed And Represents An IPG
- Its Time To Dispell False Claims And Provide The Best P802.3ae Solutions

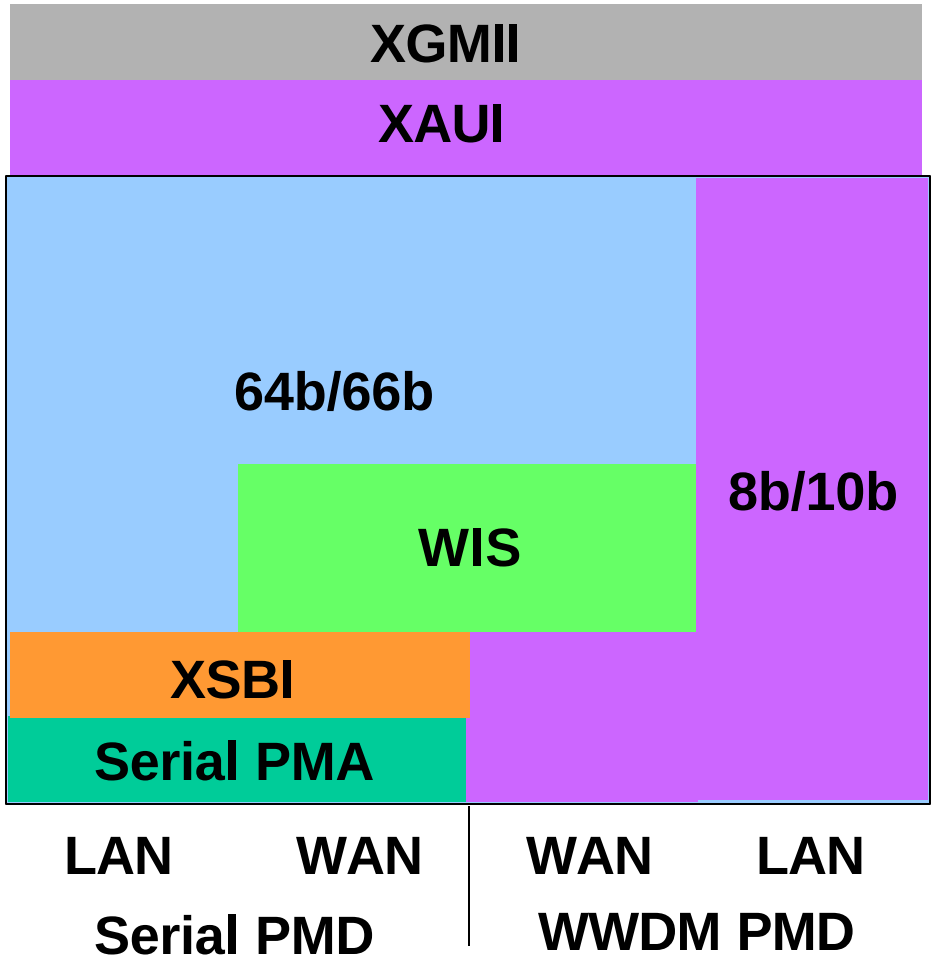
Current WWDM WAN PHY



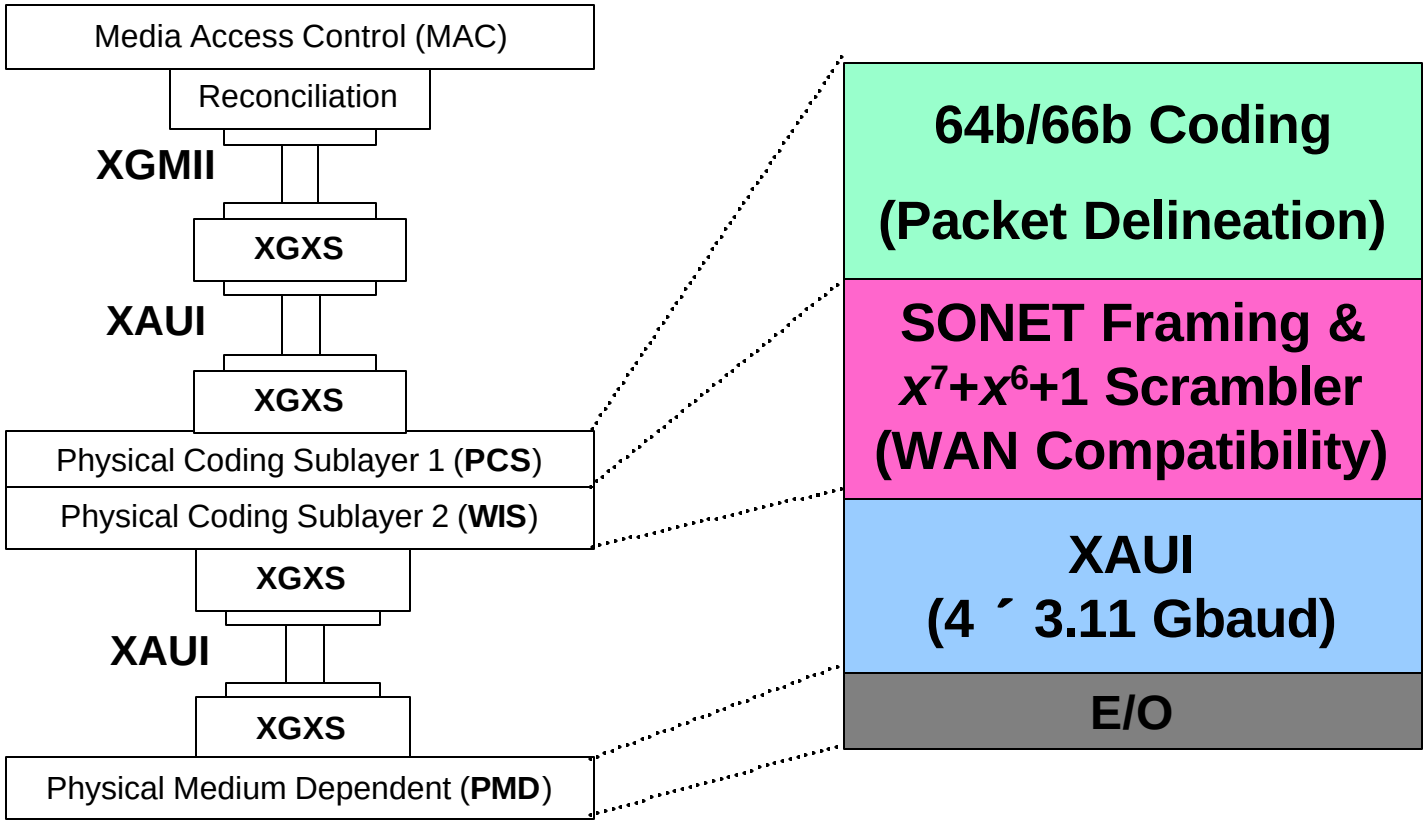
LAN/WAN PHY Components



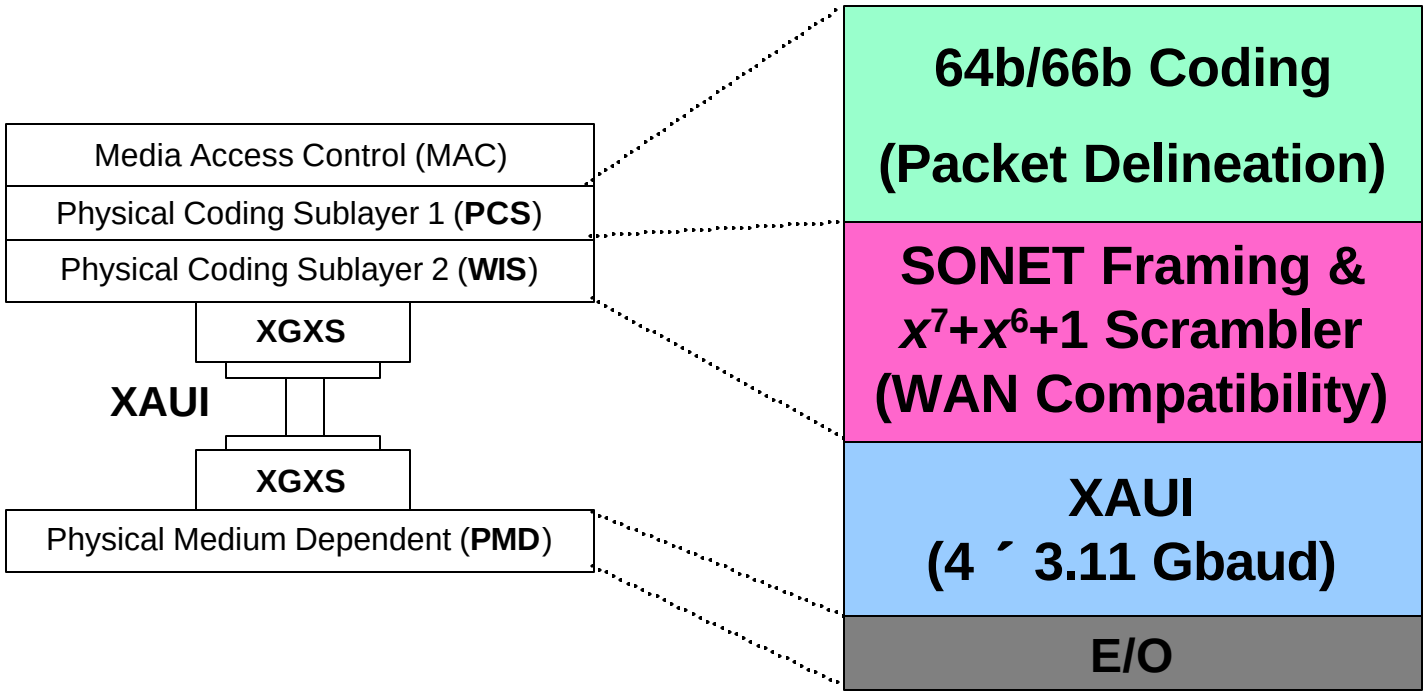
LAN/WAN PHY Proposal



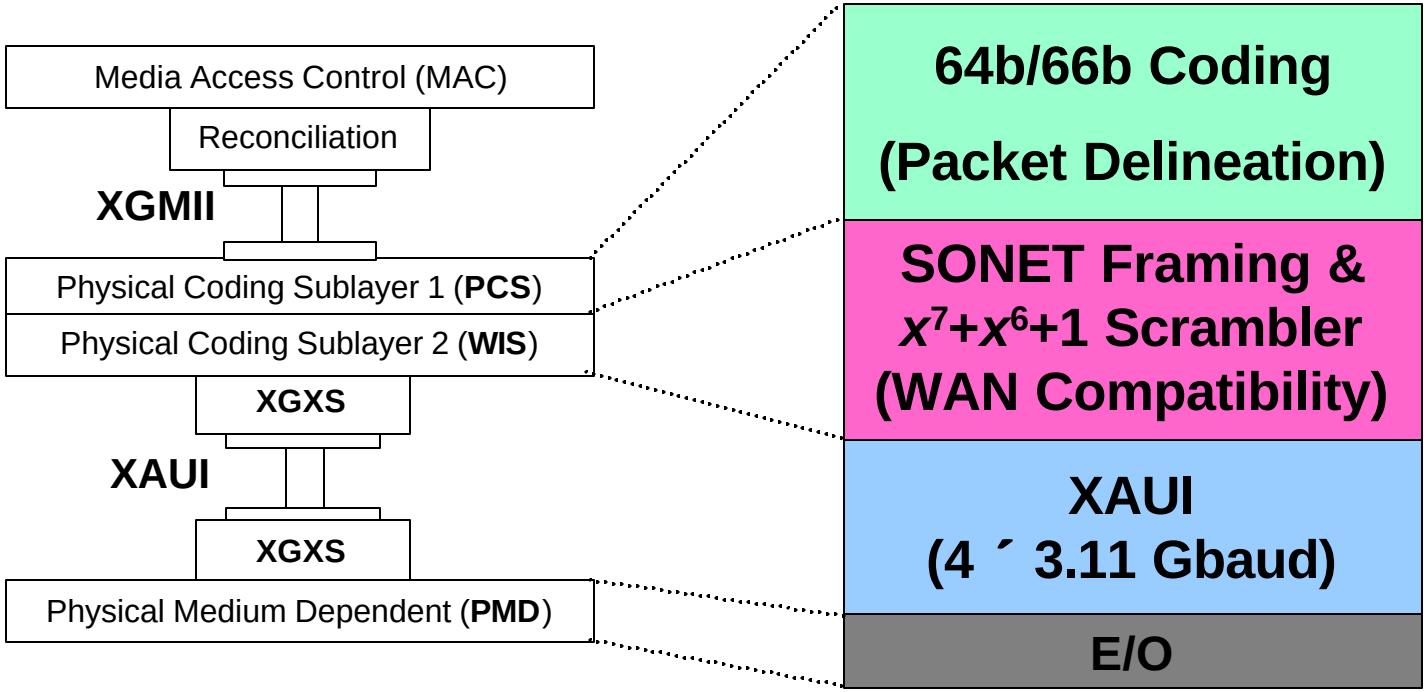
Proposed WWDM WAN PHY



w/Integrated MAC/PCS



w/Discrete MAC/PCS

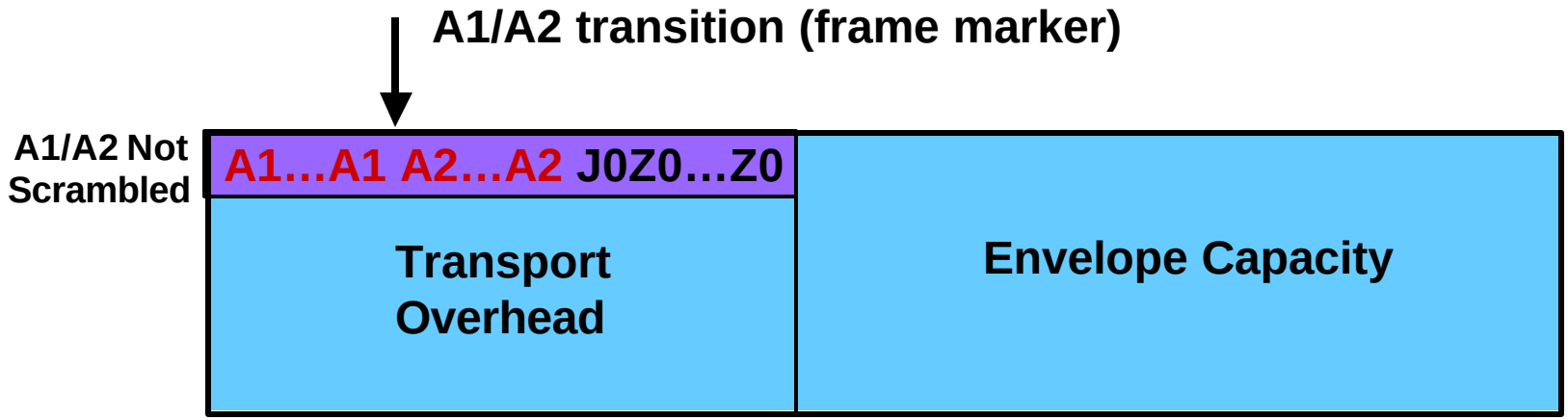


Particulars

- Replace SUPI/SS with XAUI/XGXS:
- Utilizes A1/A2 Bytes As Idle Sequence
  - A1/A2 = Random ||A||K||R||
  - ||K|| Code-Groups Used For Synchronization
  - ||A|| Columns Used For Deskew
  - ||R|| Columns Not Used. A1/A2 Length Fixed.
    - Both XAUI SUPI Use Recovered Clock To Attenuate Jitter
- XAUI Supports Link Status (RF, LF, BL)
- Non-A1/A2 WAN PHY Payload Is Not Affected
  - A1/A2 Reconstructed At (8b/10b) Receiver

A1/A2

- A1/A2 Located In Section Overhead
- Easy To Locate, Replace, Reconstruct
- Also Used For WIS Synchronization
  - WIS Expects A1/A2 To Appear Once Every 155520 Octets (Length Of The Frame)



XAUI Advantages

- Single Serial Bus Specifications For WWDM
  - Logical And Electrical
  - Applicable to LAN And WAN PHY
- Single (Closer?) WWDM PMD Specification
  - 3.125/3.110 (XAUI) vs. 3.125/2.488 (XAUI/SUPI)
  - Same 8b/10b Transmission Code for WAN/LAN
- Scalable To Any Number Of Lanes
  - Being Proposed to OIF for SPI-5, SFI-5, VSR-768
  - 16 Lanes, OC768 Rate (~40 Gbps)
- Simplest & Robust Sync, Deskew
- Provides Link Status Transport
  - Supports (RF, LF, BL)

Motion

Move that the P802.3ae Task Force authorize an ad hoc to develop a parallel draft targeted to replace SUPI/SS with an 8b/10b based signaling method as proposed in taborek_3_1100.pdf. Final decision to be made at the March Plenary.

Moved: R. Taborek	802.3 Voters	Y: 76	N: 23	A: 23
Second: Tom Dineen	Attendees	Y: 114	N: 31	A: 39

Motion Passes