

FEC/ Architecture/ Extender Sublayer

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Logic Ad Hoc

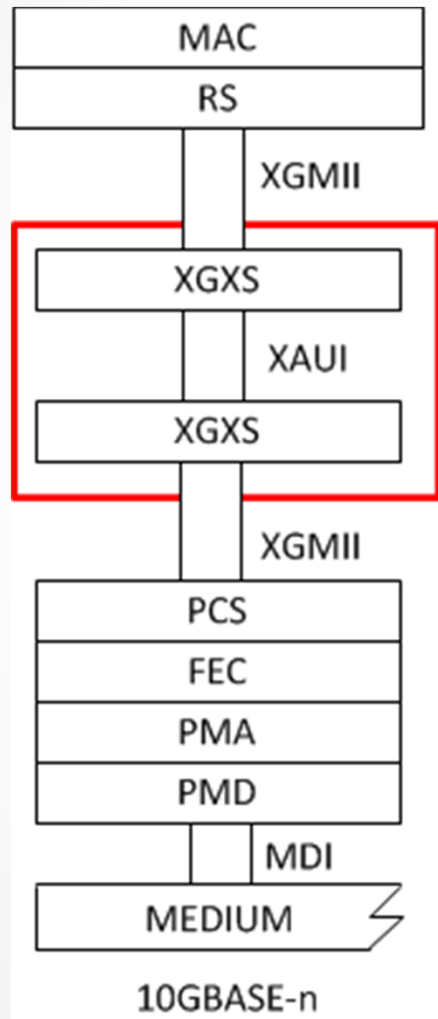
August 20, 2013



Introduction

- **Presentation is based on continuing discussions of my prior presentation to the Study Group in July.**
 - http://www.ieee802.org/3/400GSG/public/13_07/dambrosia_400_02_0713.pdf

10 GbE Architecture



XGXS Sub-layer

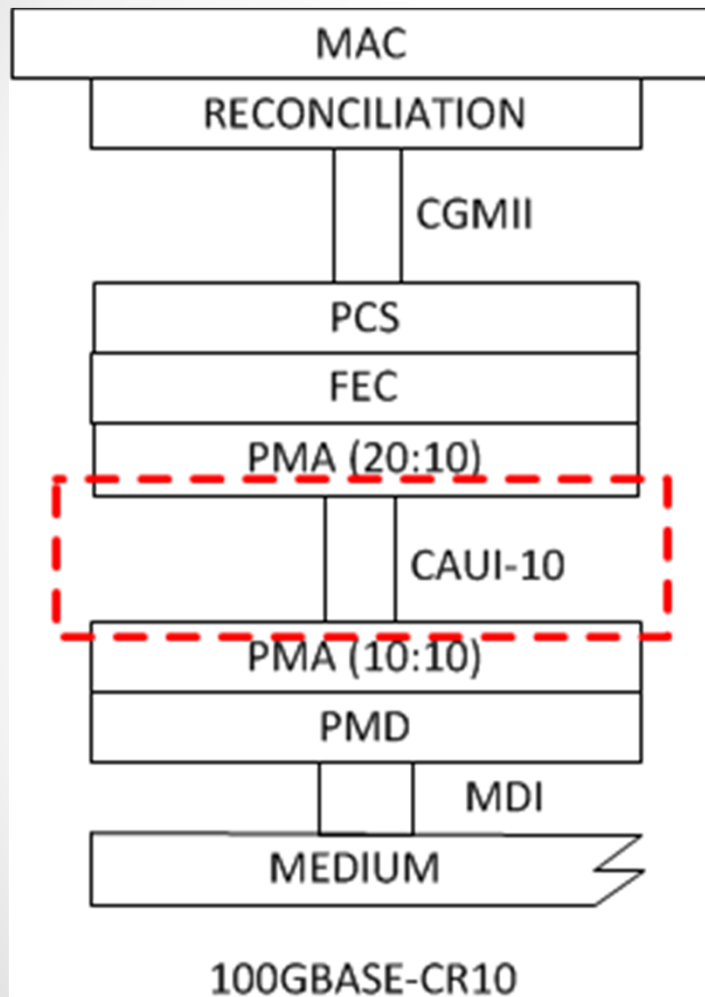
- XGMII Extender contains XAUI
- 8B / 10B encoding / decoding
- Clock / data recovery in XGXS

- XGXS encoding does not match 10 GBASE-R (64b/66b) PCS
- Added complexity
- Limited flexibility

Multiple PCS's possible

- Clauses 48 (8B/10B), 49 (64B/66B), 55 (twisted pair PCS)

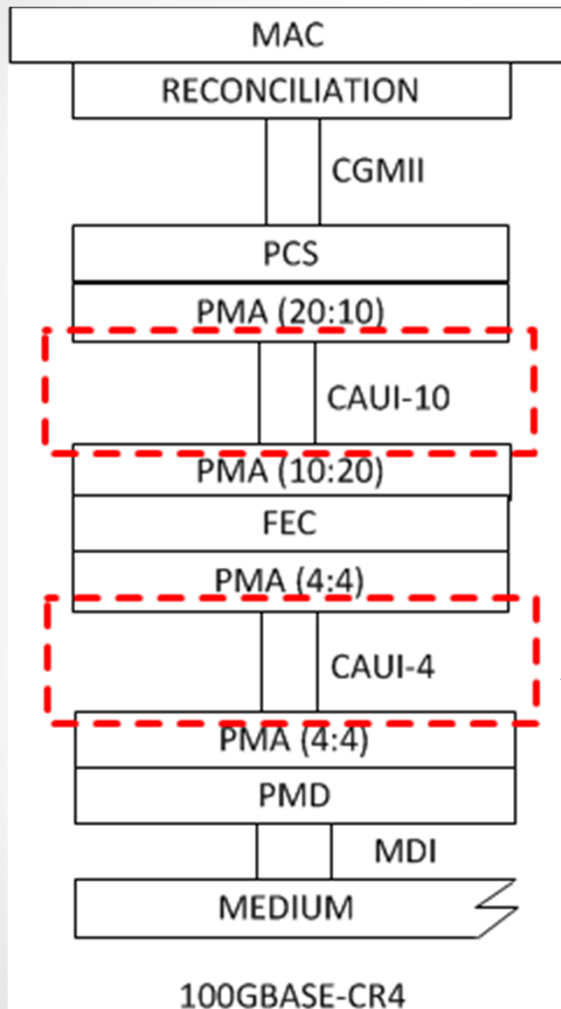
802.3ba 40 / 100 GbE Architecture



CAUI-10

- No extender sublayer
 - No additional encoding
 - Can move between sub-layers in PHY
 - Increased flexibility
 - Reduced complexity
- Not above PCS!

100GBASE-CR4 Architecture



CAUI-10

- No extender sublayer
- No additional encoding
- Can only be between PCS and top FEC

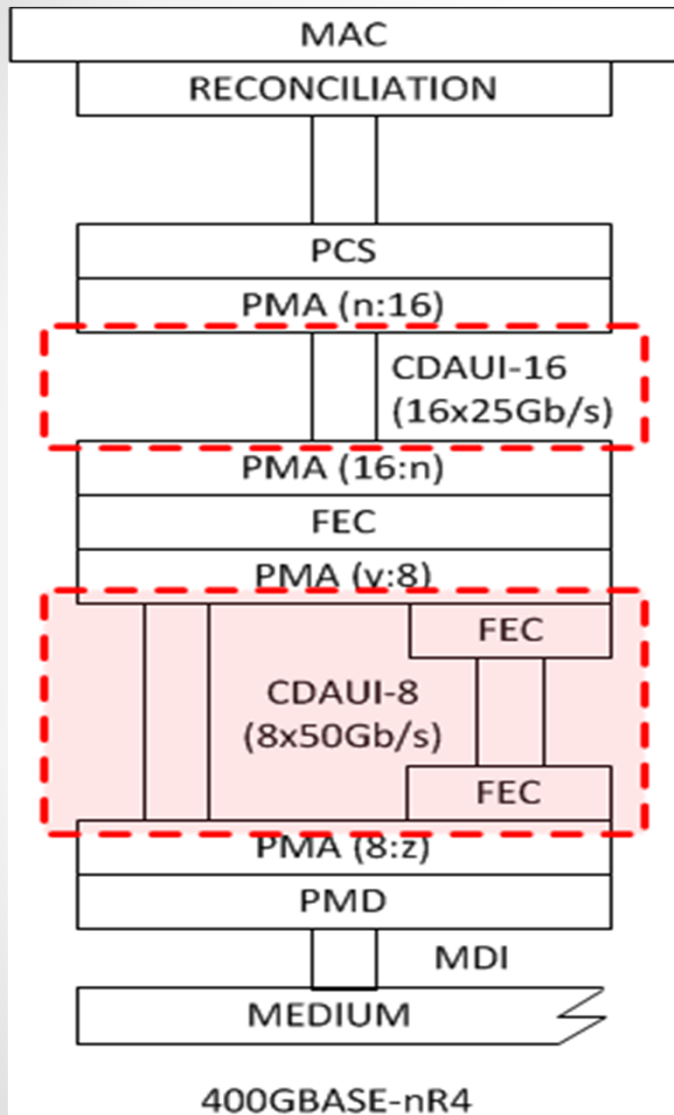
FEC

- Transcoding
- FEC encoding
- 4 lanes

CAUI-4

- No extender sublayer
- No additional encoding
- Can be between any sub-layers in PHY
- Added complexity / rules

For Discussion



CDAUI-16

- No extender sublayer
- No additional encoding
- Is FEC needed to meet interface channel requirements?
- Placement dependent on FEC

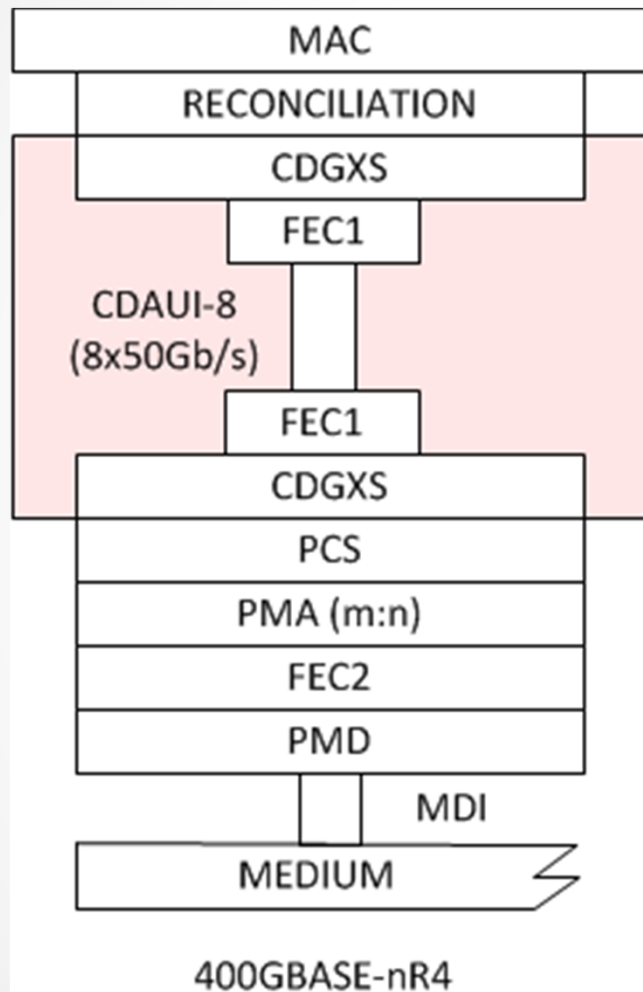
FEC

- TBD

CDAUI-8

- Will FEC be needed for this interface channel requirement?
- Do we need to reconsider an extender sub-layer concept?

For Discussion Now



- Will we need multiple PCS?
 - WHO KNOWS?
- Assume CDGXS would include
 - Encoding
 - FEC
 - CDAUI-n electrical specifications
 - Alignment markers?
- Would the FEC in CDGXS be the same FEC for the PMD?
 - Can we assume this?
 - Do we need independence?
- While part of the physical layer specification (not PHY), we haven't defined an optional physical instantiation above the PCS since XGMII / XAUI. Suggest specific objective.

Summary

- Reminder: This presentation is focused on highlighting questions to be asked, not providing answers!
- FEC discussion is extending into “Extender SubLayer”
- If we recognize that we may want an interface above the PCS – recognize an objective regarding the CDGXS.
 - Specify an optional CDGXS (400 Gigabit Extender Sublayer)