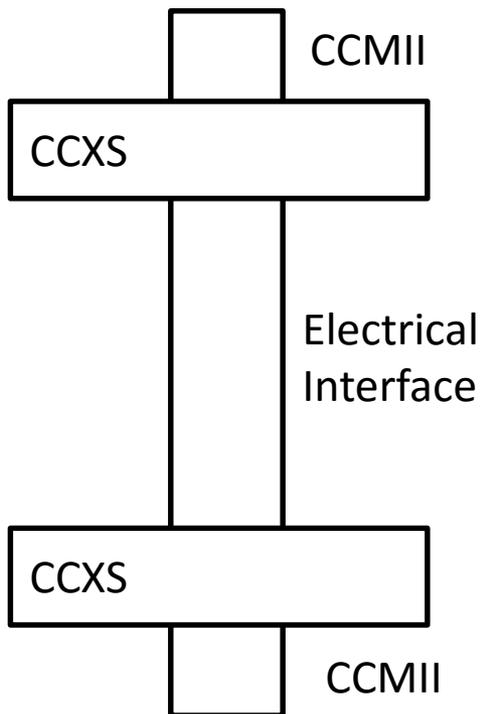


Overview CCMII Extender Proposal

**IEEE P802.3bs Task Force
April 6, 2016 Ad Hoc Call
(Work in Progress)**

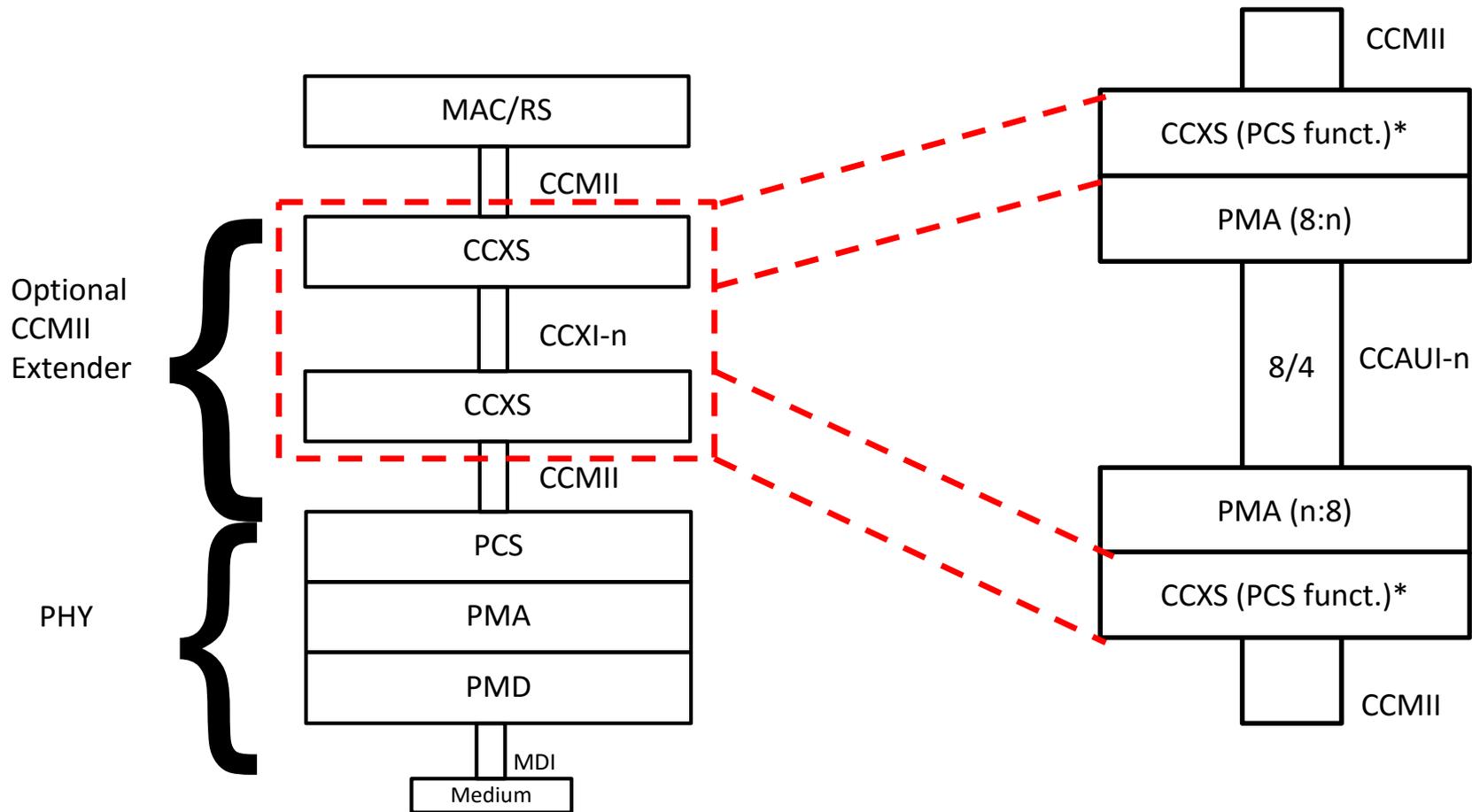
John D'Ambrosia

Comments on CCMII Extender



- CCMII is the only media independent interface
- Different implementations or future PHYs may require changing FEC, which would require a return to CCMII (from a standardization perspective)
- The CCMII Extender, as shown, is an extension of the CCMII.
- This allows support for new PCS / PMA functionality below the extended CCMII, if needed.
- The CCXS provides the coding / FEC of the electrical interface, not the coding / FEC of the PHY.

CCMII Extender Functional Concept



* Note - Same as PCS (including FEC)

Summary of Major Concepts

The CCMII Extender allows the extension of the CCMII to the PCS via a physical instantiation.

The CCMII Extender is composed of a CCXS at the RS end, a CCXS at the PHY end with a physical instantiation of CCAUI-n between two adjacent PMA sublayers.

A CCMII Extender with the optional Energy-Efficient Ethernet (EEE) capability (see Clause 78) encodes and decodes Low Power Idle (LPI) signals. The assertion of LPI at the CCMII is encoded in the transmitted symbols. Detection of LPI encoding in the received symbols is indicated as LPI at the CCMII."

The following is a list of the major concepts of CCMII Extender:

- a) Simple signal mapping to the CCMII
- b) The optional CCMII Extender can be inserted between the Reconciliation Sublayer and the PHY to transparently extend the physical reach of the CCMII to the PCS Sublayer
- c) Independent transmit and receive data paths
- d) The CCXS leverages all functions in the 200 GbE PCS and supports physical instantiations of CCAUI-n with adjacent PMA sublayers.
- e) Optionally extend LPI signaling to PHY for EEE

Physical Instantiations Support

It is assumed that the P802.3bs TF will develop CCAUIs (both C2C and C2M) based on

1. 8 lanes of the 25Gb/s NRZ signaling defined in Annex 120B/C
2. 4 lanes of the 50Gb/s PAM4 signaling defined in Annex 120D/E

A CCMII Extender may be implemented with any of the following physical instantiations of CCAUI-n.

- CCAUI-8 Chip-to-Chip (8 x 25 Gb/s, ½ CDAUI-16)
- CCAUI-8 Chip-to-Module (8 x 25 Gb/s, ½ CDAUI-16)
- CCAUI-4 Chip-to-Chip (4 x 50 Gb/s, ½ CDAUI-8)
- CCAUI-4 Chip-to-Module (4 x 50 Gb/s, ½ CDAUI-8)

Management

- Need to provide management / register functions in Clause 45
- Needed for 200 GbE and 400 GbE

Thank You