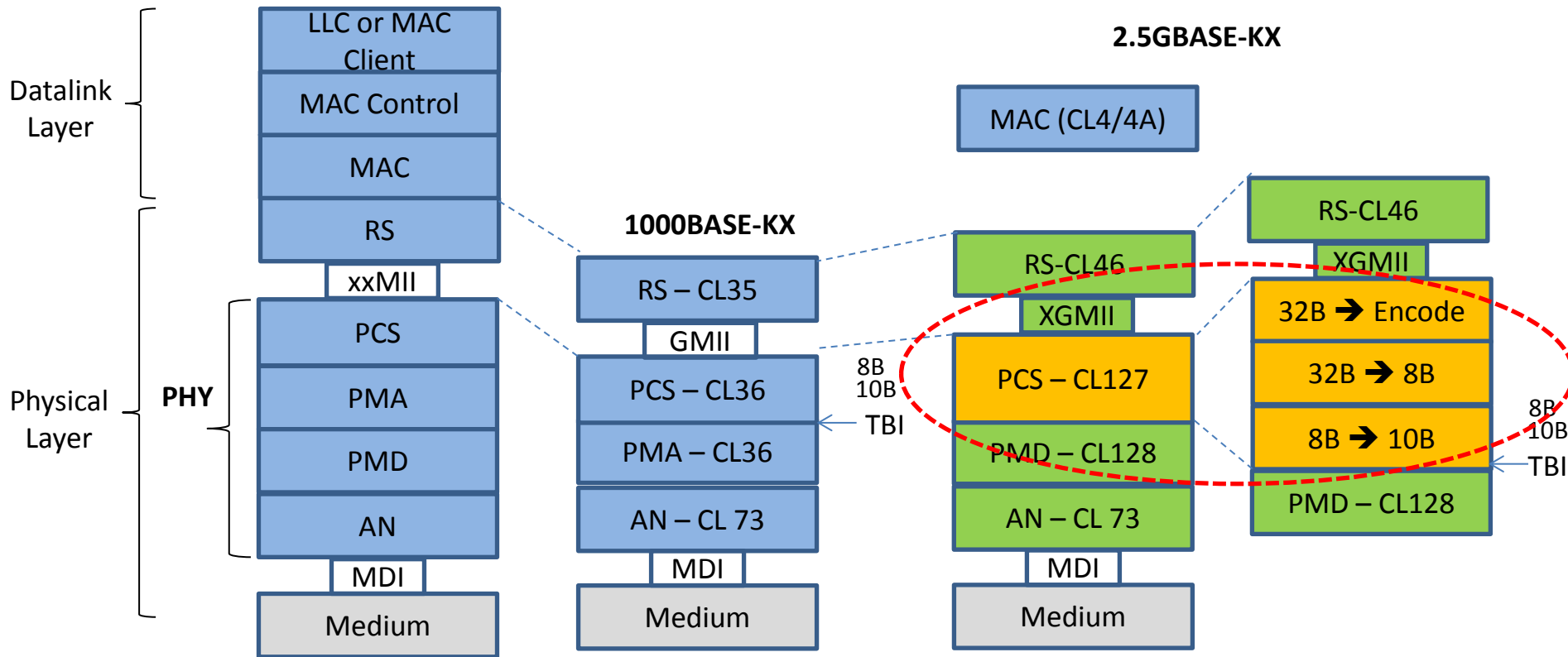


802.3cb 2.5G – Logical PCS – XGMII and Scaled up
1G in 2.5GBASE-KX
WG Ballot of D2.0 comment #356

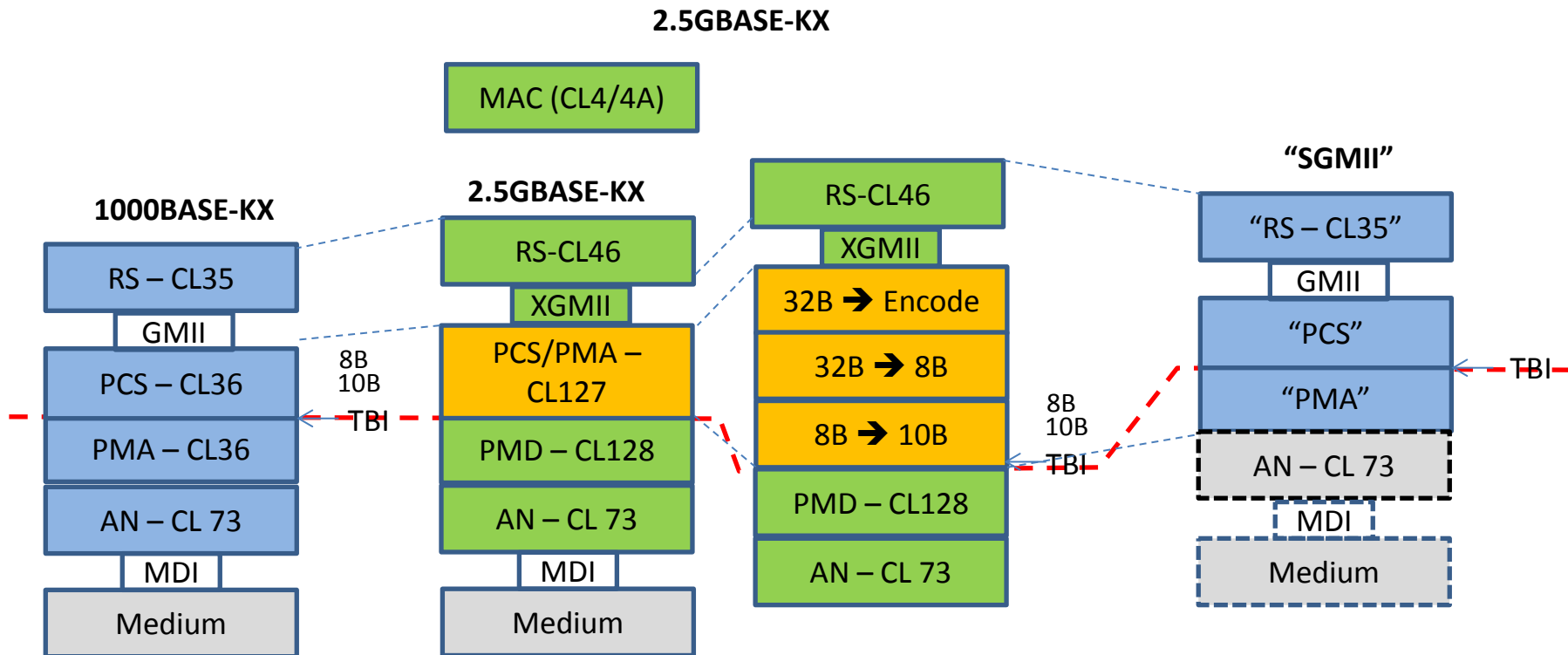
Yong Kim
Broadcom

2.5GBASE-KX compared to 1000BASE-KX



CL127 PCS/PMA “Undo” XGMII coding, and re-encodes to 8B/10B. Preserves “Remote Fault” link status signaling.

2.5GBASE-KX compared to 1000BASE-KX and SGMII



1000BASE-KX bit-rate scaled up 2.5X, and SGMII bit-rate scaled up plus AN are functionally equivalent. 2.5GBASE-KX only differs from this by the XGMII PCS artifact of Remote Fault link status signal.

WG Ballot Comment request a change

Comment #356. Also related to #246/247.

- Change current mandated transmit of remote fault link status when link fault is detected to be optional.
- Rationale
 - CL127 defines 1000BASE-KX 2.5 times speed-up operation. i.e. uses logical XGMII PCS and re-encode to 8B/10B PCS that 1000BASE-X specifies.
 - Remote fault is useful but artifact of logical XGMII, not a part of 1000BASE-X, so make it optional.
 - Allows “1G MAC/PCS speed up” as well as “10G MAC/PCS speed down” implementation friendly.
- .3bz “For” presentation on the same subject
 - http://www.ieee802.org/3/bz/public/jun16/marris_3bz_1_0616.pdf
- .3bz “Against” presentations on the same subject
 - http://www.ieee802.org/3/bz/public/jun16/Lo_3bz_01_0616.pdf
 - http://www.ieee802.org/3/bz/public/jun16/McClellan_3bz_01_0616.pdf

**PROPOSED CHANGES IF #356 ET AL
ARE ACCEPTED.**

Changes – CL127

- 127.2.5.6 sequence /Q/ "A sequence ordered_set is used to convey various link status such as local fault or remote fault." to "... convey various optional link status..."
And "The 24 bit data of the sequence ordered_set on the XGMII are mapped to S0, S1, S2, S3 (see 127.2.4.2), and /W0/, /W1/, /W2/, /W3/ are the 8B/10B mapped version." to "...ordered_set on the XGMII, when implemented, are mapped to S0,"
- 127.6.2.2 the optional link status signaling is enabled..."
- Add 127 PICS - LNKS; Implementation of PCS Link Status Signaling; Subclause 127.2.5.6 ; O; Yes [], No []
- Annex 127B (add clarifications - TBP)

Potential Changes – CL46 -- NOT!

- Shamelessly copied from marris_3bz_1_0616.pdf and modified to fit 802.3cb,
- Bring subclause 46.3.4 into 802.3cb and change the last sentence
from : – “ The RS shall implement the link fault signaling state diagram (see Figure 46 – 11).”
to: – “The RS shall implement the link fault signaling state diagram (see Figure 46 –11) for data rates of 5 Gb/s and above. For 2.5 Gb/s data rates implementation of the link fault signaling state diagram is optional.” ← this also changes 802.3bz. Not an intended consequence. So...

Changes in CL127 in lieu of any changes in CL46

- Word encode and Table 127-3 Word Encode (ordered set), and Word decode and Table 127-4 (ordered set) to reflect optional transmit and receive of link status signals to “idle”. Details TBD.
- Essentially making the “expression” of link status function optional, and layering religion preserved.

Thank you!