IEEE 802.3 Ethernet Working Group
<mark>DRAFT</mark> Liaison Communication

Source: IEEE 802.3 Working Group[1]

To:	Stefano Ruffini	Rapporteur Q13/15, ITU-T stefano.ruffini@calnexsol.com
	Silvana Rodrigues	Associate Rapporteur Q13/15, ITU-T silvana.rodrigues@huawei.com
CC:	Konstantinos Karachalios	Secretary, IEEE-SA Standards Board Secretary, IEEE-SA Board of Governors sasecretary@ieee.org
	Paul Nikolich	Chair, IEEE 802 LMSC p.nikolich@ieee.org
	Adam Healey	Vice-chair, IEEE 802.3 Ethernet Working Group adam.healey@broadcom.com
	Jon Lewis	Secretary, IEEE 802.3 Ethernet Working Group jon.lewis@dell.com
	Steve Gorshe	Chair, IEEE P802.3cx Task Force steve.gorshe@microchip.com
	Glenn Parsons	Chair, ITU-T Study Group 15 glenn.parsons@ericsson.com
From:	David Law	Chair, IEEE 802.3 Ethernet Working Group dlaw@hpe.com

Subject: Liaison reply to ITU-T SG15 Q13 liaison SG15-LS36

Approval: Agreed to at IEEE 802.3 [plenary | interim] meeting, [where], [date]

Dear Mr. Ruffini,

Thank you for your liaison and update on your work in this area. Thank you also for your questions. After review and discussion, the IEEE P802.3cx Task Force provides the following response.

Question (1): Which of the capabilities in the list can be retrieved from an implementation of an Ethernet interface?
- All those capabilities, except "Avoid sending messages at the AM/CWM insertion point" can be retrieved from an implementation of an Ethernet interface. However, in some cases, the capability only indicates that the function defined by 802.3cx is not supported and it does not give any further indication as to what alternate method is used.

---

[1] This document solely represents the views of the IEEE 802.3 Working Group, and does not necessarily represent a position of the IEEE, the IEEE Standards Association, or IEEE 802.

- For (upcoming) 802.3cx-compliant devices, these capabilities can be found via the MDIO registers described in subclauses 45.2.1 (PMA/PMD), 45.2.2 (WIS), 45.2.3 (PCS), 45.2.4 (PHY XS), 45.2.5 (DTE XS), and 45.2.6 (TC) of 802.3cx or via the management objects (which use those MDIO registers) described in subclause 30.13 of 802.3cx.
    1. For example, the PCS sublayer has the following TimeSync PCS capability MDIO registers:
        a. 3.1800.13:12: Data delay measurement point ability
            i. Indicates whether the PCS supports the beginning of the SFD or the beginning of the symbol after the SFD as the data delay measurement point (a.k.a. the PTP message timestamp point)
            ii. A value of 11 indicates that both the beginning of the SFD and the beginning of the symbol after the SFD are supported as the data delay measurement point
            iii. A value of x0 indicates that only the beginning of the SFD is supported as the data delay measurement point (this was the original spec for 802.3)
            iv. A value of 01 indicates that only the beginning of the symbol after SFD is supported as the data delay measurement point
        b. 3.1800.11: Multilane ability
            i. Indicates whether the 802.3cx method for dealing with dynamic multilane distribution and merging delays is supported
            ii. A value of 1 indicates the 802.3cx method is supported and used
            iii. A value of 0 indicates some other method is supported and used
        c. 3.1800.10: PCS dynamic path data delay ability
            i. Indicates whether the 802.3cx method for accounting for the dynamic delays of alignment marker, codeword marker, and idle insertion and removal is supported
            ii. A value of 1 indicates the 802.3cx method is supported and used
            iii. A value of 0 indicates some other method, or no method, is supported and used
        d. 3.1800.3 and 3.1800.2: Tx/Rx path data delay with sub-nanosecond resolution
            i. Indicates whether the PCS' path data delay is specified with sub-nanosecond resolution
            ii. A value of 1 indicates that sub-nanosecond resolution is supported and used
            iii. A value of 0 indicates that sub-nanosecond resolution is not supported
        A pre-802.3cx device would have the default value of 0 for all of the above PCS capability register bits.

    2. The TimeSync PCS configuration MDIO register is described below:
        a. 3.1813.13 Data Delay Measurement Point
            i. This configuration register is used to select either the beginning of the SFD or the beginning of the symbol after the SFD (if supported) as the data delay measurement point (a.k.a. the PTP message timestamp point)
            ii. Reading this register shows whether the beginning of the SFD or the beginning of the symbol after the SFD (if supported, see above list item 1.a.ii) is selected as the data delay measurement point
            iii. If supported (see above list item 1.a.ii), a value of 1 configures the PCS to use the beginning of the symbol after the SFD as the data delay measurement point

       iv.   A value of 0 configures the PCS to use the beginning of the SFD as the data delay measurement point

Question (2): Are the capabilities fixed or can they be configured?

- The selection of the data delay measurement point (a.k.a. the PTP message timestamp point) is configurable (see above list item 2.a.i)
- Otherwise, if the 802.3cx capability is supported, then it is used. This is so because the 802.3cx capability will either give better performance (see above list items 1.c.ii and 1.d.ii) and/or because the alternative is not defined (see above list items 1.b.iii and 1.c.iii).

Question (3): Are there other capabilities that IEEE802.3 thinks are relevant for time-stamping accuracy?

- See the last 3 paragraphs (and the 2 numbered list items) at the end of 90A.7 in P802.3cx/D3.3. This draft (see attached document) has successfully completed IEEE Standards Association Balloting and has been submitted to IEEE RevCom for approval. Publication is expected later this year.

Please let us know if you have any follow-up questions regarding the IEEE P802.3cx responses.

Sincerely,

David Law

Chair, IEEE 802.3 Ethernet Working Group