Cl **00** *SC* **0** *P* **0** *L* **0** # 53

Hugh Barrass Cisco

Comment Type **GR** *Comment Status* **D**

It is not clear whether the overall structure of this draft is intended to reflect the intended structure of the finished product. In any case, here are some general comments:

It can be assumed that there will be (at least) one new clause that we can call the "TimeSync Clause."

Changes to Clause 30 and 45 must be made directly to those clause and do not need to be summarized in the TimeSync Clause.

It is useful to describe the generic changes to all of the RS clauses within the TimeSync clause, however, the changes to the individual RS clauses (22, 35, 46, 81) must be made in the respective clauses. The specific definitions can reference the generic definition if necessary, but certain aspects will be unique for each clause.

Similarly, it is very useful to list the supported PHYs and the requirements for each PHY in the TimeSync clause, but specific optional requirements that change or restrict PHY behavior must be placed in the appropriate clause (and reflected in the appropriate PICS).

Cross-clause requirements and also "change clauses" (e.g. Clause 66) have been included in the past but have caused numerous problems and should be considered as "historical mistakes, not to be repeated."

If operation is intended over XGMII (for 10Gb/s) then consideration should be made regarding the effect of extension sublayers interposed between two XMGIIs (i.e. should timestamping be performed only at the first XGMII or could it be performed at the "embedded XGMII?"

SuggestedRemedy

Restructure the document with change instructions for clauses 30, 45, 22, 35, 46 and 81 - plus specific PHY clauses as the TF decides.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Clause 45 will be changed subject to comment #33.
Clause 22, 35, 46 (RS clauses) are not intended to be changed at this time. All the necessary changes to these clauses (optional changes needed to support TimeSync) will be included in Clause 90 following the TF decision. The impact of TimeSync work on existing clauses should be minimized, if possible.

Support for 40G/100GE is not currently contemplated within TimeSync TF.

Cl **00** *SC* **0** *P* **19** *L* **29** # 35

Garner, Geoffrey Samsung

Comment Type **ER** *Comment Status* **D** *incorrect numbering*

It appears that the subclauses 99.7, 99.8, 99.9, 99.9.1, 99.9.2, and 99.10 and its subclauses should be numbered 90.7, 90.8, 90.9, 90.9.1, 90.9.2, and 99.10 (and similarly for the subclauses of 99.10).

SuggestedRemedy

Change 99.7, 99.8, 99.9, 99.9.1, 99.9.2, 99.10, and subclauses of 99.10 to 90.7, 90.8, 90.9, 90.9.1, 90.9.2, 90.10, and similarly for subclauses of 90.10, respectively. In addition, Figure 99-2 and a reference to it should be renumbered 90-2, and the reference should be changed to 90-2. The reference occurs on p.18, line 34.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **19** *L* **31** # 37

Garner, Geoffrey Samsung

Comment Type **TR** *Comment Status* **D**

Text needs to be supplied, as indicated in the respective editor's notes, for subclauses 99.7, 99.8, 99.9, 99.9.1, 99.9.2 (note that another comment indicates that the "99" should be "90"). The PICS Proforma of 99.10 needs to be filled in.

Presumably, this will include the parmameters that will represent the difference in time between the reference plane (i.e., the boundary between a port of a time-aware system and the network media, see 3.14 of P802.1AS D6.7) and where the timestamp is actually taken (i.e., the timestamp measurement plane, see 3.22 of P802.1AS). There are two such parameters, one for ingress and one for egress. In previous discussions, these paramters have been referred to as ingress and egress latencies; it has been indicated that they are management objects, and it also has been indicated that they could be data sheet parameters. In any case, they need to be described in the appropriate subclause(s). The editor's note in subclause 99.9 seems to refer to them.

SuggestedRemedy

Supply the material indicated in the comment above (i.e., the material indicated in the editor's notes (and include the objects that represent the difference in time between the reference plane and timestamp measurement plane, on both ingress and egress)).

Proposed Response *Response Status* **W**

PROPOSED REJECT.
No suggested remedy is provided.

Cl **90** *SC* **90.1** *P* **15** *L* **1** # 39
Ouellette, Michel Huawei

Comment Type **E** *Comment Status* **D** *spelling corrections*

The optical support...

SuggestedRemedy

replace "optical" with "optional"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **90.1** *P* **15** *L* **14** # 29
Marris, Arthur Cadence

Comment Type **T** *Comment Status* **D**

I think it inappropriate to have a list of PHYs in the Clause. It is unnecessary and will soon be out-of-date.

SuggestedRemedy

Delete the text 'Specifically, the optional TimeSync capability may be supported by the PHYs identified in 90.4.'

Delete 90.4

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Quite the contrary - not all PHYs are intended to support 802.3bf hence mentioning the ones which are intended for this optional feature is reasonable. The same was done for 802.3az.

Cl **90** *SC* **90.1** *P* **15** *L* **7** # 28
Marris, Arthur Cadence

Comment Type **E** *Comment Status* **D** *spelling corrections*

optical?

SuggestedRemedy

Change 'The optical' to 'Optional'

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
[ED: was T, changed to E]

Cl **90** *SC* **90.1** *P* **15** *L* **7** # 50
Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D** *spelling corrections*

This says "The optical support for the...", but many of the interfaces addressed are not optical. Should this be "optional" rather than "optical"?

SuggestedRemedy

Change "optical" to "optional"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
[ED: was T, changed to E]

Cl **90** *SC* **90.1** *P* **15** *L* **9** # 40
Ouellette, Michel Huawei

Comment Type **E** *Comment Status* **D** *Figure 90.6*

Figure 90.6 cannot be found

SuggestedRemedy

Is Figure 90.1 the proper reference?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Yes, it is.
See comment #36

Cl **90** *SC* **90.1** *P* **15** *L* **9** # 36
Garner, Geoffrey Samsung

Comment Type **ER** *Comment Status* **D** *Figure 90.6*

There is a reference to "Figure 90.6". It appears this should be a reference to Figure 90-1 (at least, it is Figure 90-1 that shows the gRS and Time Synchronization (TimeSync) Client referred to in the sentence).

SuggestedRemedy

Change "Figure 90.6" to "Figure 90-1".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **90.2** *P* **15** *L* **21** # 41

Ouellette, Michel Huawei

Comment Type **T** *Comment Status* **D**

... of certain packets...

SuggestedRemedy

the proposed architecture provides initiation times of "all" packets? This is what the current architecture does.

We need to be consistent as this can be confusing for the reader and designer.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
[ED: was E, changed to T]
[ED: no proposed changes to draft]
Yes, the way the architecture is designed now, it provides signalling for **all** transmitted / received packets. The assumption is that 802.1AS client can perform correlation between frames of interest and frame transmission / reception signals provided by 802.3bf.
The baseline proposal was presented to 802.1AS and meets their requirements.

Please note also that using Figure 11-3 from 802.1AS as the base consideration for overall system architecture, it might be not possible to distinguish specific packets at 802.3 level if MACSec is enabled and frame content is encrypted. Marking all passing frames eliminates this problem.

Cl **90** *SC* **90.5** *P* **16** *L* **10** # 47

Ouellette, Michel Huawei

Comment Type **T** *Comment Status* **D**

it is not clear from the figure and text if there is any correlation between the TSSI indications and the frames that arrive/depart to the MAC client.

Can it be assumed that the TSSI indication are correlated (or happen simultaneously) with the MA_DATA.request and MA_DATA.indication primitives? If not, then the TSSI indications might not be sufficient to meet the requirements of 802.1AS.

SuggestedRemedy

Discuss if there are situations (eg., errored frame) where there could be a TS_RX.indication event but the data is not sent to the MAC client eg., MA_DATA.request. Such situation might pose some problems to external timestamping process as there is no 1 to 1 mapping of the indication and frame being transmitted to the upper layers.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(1) for specific relationship between TSSI and MAC service interface signalling, please see slide 8 in law_1_0110.pdf as presented at the meeting. Such a figure will not be included in the draft due to the lack of temporary relationships in this figure.
(2) note that TS_TX.indication will be generated when MAC Control frames are transmitted while these frames do not generate MA_DATA.request on the MAC Service Interface. Likewise, TS_RX.indication will be generated when MAC Control frame is received, yet MA_DATA.indication will not be generated in that case. This is an inherent result of the MAC architecture of 802.3

Cl **90** *SC* **90.5.1** *P* **15** *L* **44** # 42

Ouellette, Michel Huawei

Comment Type **E** *Comment Status* **D** *language improvements*

... outside of scope...

SuggestedRemedy

replace "outside of scope" with "outside the scope"

same comment on line 48.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Change both locations (line 44 and 48)

Cl **90** *SC* **90.5.1** *P* **16** *L* **3** # 43
Ouellette, Michel Huawei

Comment Type **E** *Comment Status* **D** *language improvements*

... is not defined anywhere in ....

SuggestedRemedy

suggest to remove the work "anywhere" from the sentence

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **90.5.1** *P* **16** *L* **9** # 27
Marris, Arthur Cadence

Comment Type **E** *Comment Status* **D** *spelling corrections*

Spelling 'prohibts'

SuggestedRemedy

prohibits

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **90.5.2.1** *P* **17** *L* **6** # 30
Marris, Arthur Cadence

Comment Type **T** *Comment Status* **D**

Change "to be notified on event of transmission and/or reception of a new Ethernet frame" to

"to be notified when an Ethernet frame crosses the xMII interface"

SuggestedRemedy

as above

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **90.5.2.1** *P* **17** *L* **7** # 44
Ouellette, Michel Huawei

Comment Type **E** *Comment Status* **D** *spelling corrections*

... service promitives...

SuggestedRemedy

replace "promitives" with "primitives"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See comment #51.

Cl **90** *SC* **90.5.2.1** *P* **17** *L* **7** # 51
Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D** *spelling corrections*

typo - "promitives"

SuggestedRemedy

Change "promitives" to ""primitives"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **90.5.3.1.1** *P* **17** *L* **32** # 31
Marris, Arthur Cadence

Comment Type **T** *Comment Status* **D**

ONE or undefined do not seem like appropriate values for SFD.

SuggestedRemedy

Change to one of the following:
"TRUE or FALSE"
"PRESENT or NOT PRESENT"
"DETECTED or NOT DETECTED"

make similar change in 90.5.3.2.1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
"DETECTED or NOT DETECTED" seem most appropriate in this place. Same change in 90.5.3.2.1.

Cl **90** *SC* **90.5.3.1.1** *P* **17** *L* **35** # 45

Ouellette, Michel Huawei

Comment Type **T** *Comment Status* **D**

the "TS_SFD_Detect_TX" is used in the sentence but only explained and shown in a later section.

SuggestedRemedy

Suggest to remove the "TS_SFD_Detect_TX function" from the sentence, as it is explained in the a later section.

The text could look like the last paragraph of 90.5.3.1.1

"The SFD parameter can take any of the following two values: ONE or undefined. When asserted (SFD = ONE), the TimeSync Client is notified that a valid SFD was detected by the gRS sublayer. Otherwise, the value of SFD parameter is undefined".

Then in Section 90.6 the TS_SFD_Detect_TX is explained and depicted in the appropriate figure.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
[ED: was E, changed to T]
Change the text to read (page 17/35)
"(…) TS_SFD_Detect_TX function (see 90.6.1) in the xMII transmit signals (…)"

Cl **90** *SC* **90.5.3.2.1** *P* **18** *L* **5** # 46

Ouellette, Michel Huawei

Comment Type **T** *Comment Status* **D**

the "TS_SFD_Detect_RX" is used in the sentence but only explained and shown in a later section.

SuggestedRemedy

Suggest to remove the "TS_SFD_Detect_RX function" from the sentence, as it is explained in the a later section.

The text could look like this:

"The SFD parameter can take any of the following two values: ONE or undefined. When asserted (SFD = ONE), the TimeSync Client is notified that a valid SFD was detected by the gRS sublayer. Otherwise, the value of SFD parameter is undefined".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
[ED: was E, changed to T]
Change the text to read (page 17/35)
"(…) TS_SFD_Detect_RX function (see 90.6.2) in the xMII transmit signals (…)"

Cl **90** *SC* **90.6** *P* **18** *L* **22** # 32

Marris, Arthur Cadence

Comment Type **T** *Comment Status* **D**

Delete "as identified in 90.4,"

SuggestedRemedy

as above

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The use of "above/below" is discouraged since it is relative and text of the draft can be relocated, invalidating such references.

Cl **90** *SC* **90.6** *P* **19** *L* **26** # 52

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D** *incorrect numbering*

The numbering of this clause jumps from clause 90 to clause 99 on page 19. (due to an incorrect format in the caption of Figure 99-2 at the top of page 19?)

SuggestedRemedy

Change the numbering of Figure 99-2 and subclauses 99-7 through 99.10.3 to clause 90.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
See comment #35.

Cl **90** *SC* **90.6.2** *P* **18** *L* **53** # 34

Garner, Geoffrey Samsung

Comment Type **TR** *Comment Status* **D**

It appears that the reference to transmit signals should be to receive signals.

SuggestedRemedy

Change "transmit" to "receive", i.e., change "... sequence is detected on the transmit signals." to "... sequence is detected on receive signals."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **99.7** *P* **19** *L* **30** # 48

Anslow, Peter Nortel Networks

Comment Type **T** *Comment Status* **D**

This is an amendment to 802.3-2008, which will presumably in a later draft include changes to clauses 30 and clause 45.
At some point in the not too distant future, the amendment will then be incorporated into a revision of 802.3. At this point, having subclauses - "Summary of changes to Clause 30" and "Summary of changes to Clause 45" will be difficult to understand. Therefore it would be better to have something like "Summary of TimeSync features in Clause 30" and "Summary of TimeSync features in Clause 45"

SuggestedRemedy

Change the subclause titles to:
"Summary of TimeSync features in Clause 30" and "Summary of TimeSync features in Clause 45"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Change titles of clause 90.7 and 90.8 as proposed.

Cl **99** *SC* *P* **1** *L* **31** # 38

Ouellette, Michel Huawei

Comment Type **T** *Comment Status* **D**

... initiation times of certain packets...

SuggestedRemedy

although the PAR states "certain packets", the proposal in D.021 is for "all packets"

In addition, the abstract on pg 2, line 2 states "initiation times of all packets".

We need to be clear and consistent. Is it "certain" or "all".

If "certain", should we provide explanation as to which frame are being timestamped and which frames are not?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
[ED: was E, changed to T]
The text included on page 1 and 2 is taken from PAR.
A change to PAR is possible if deemed necessary by the Task Force.

Please note also that using Figure 11-3 from 802.1AS as the base consideration for overall system architecture, it might be not possible to distinguish specific packets at 802.3 level if MACSec is enabled and frame content is encrypted. Marking all passing frames eliminates this problem.

Cl **99** *SC* *P* **4** *L* **52** # 49

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D** *language improvements*

This says "This amendment add changes required to provides an accurate indication of ..." which is not a properly formed sentence - add should be adds and provides should be provide.

SuggestedRemedy

Change ""This amendment add changes required to provides an accurate..." to "This amendment adds changes required to provide an accurate..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* **99.8** *P* **19** *L* **38** # 33

Marris, Arthur Cadence

Comment Type **T** *Comment Status* **D**

Need to add Clause 45 to the 802.3bf draft as a matter of priority as this is probably the most important part of the standard

SuggestedRemedy

Add following registers to Clause 45

1.1800 and 1.1801
PHY transmit latency upper and lower
(ie 32 bit register containing PHY transmit latency in nanoseconds)

1.1802 and 1.1803
PHY receive latency upper and lower
(ie 32 bit register containing PHY transmit latency in nanoseconds)

In Clause 90 add subclause
90.x MDIO function mapping
The optional MDIO capability described in Clause 45 defines two variables that provide status information about the PHY. If MDIO is implemented, it shall map MDIO status variables to PHY status variables as shown in Table 90–x.

Add appropriate table

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Include Clause 45 in the next draft, with the following contents:

Add entries into table Table 45–3 (accounting for changes made by 802.3ba)

Replace last row in Table 45-3 with the following row [1]. Insert rows [2], [3], [4] at the end of the table 45-3.
[1] 1.1710 through 1799 | Reserved | -
[2] 1.1800 through 1.1803 | PHY transmit latency | 45.2.1.100
[3] 1.1804 through 1.1807 | PHY receive latency | 45.2.1.101
[4] 1.1807 through 1.32767 | Reserved | -

45.2.1.100 TimeSync PHY transmit latency (Register 1.1800, 1.1801, 1.1802, 1.1803)
The TimeSync PHY transmit latency register stores the maximum (Register 1.1800, 1.1801) and minimum (Register
1.1802, 1.1803) values of the PHY transmit latency, as defined in Table 45-65e. PHY transmit latency is expressed in units of ns.
Table 45–65e TimeSync PHY transmit latency register
Bits / Name / Description / R/W
1.1800.15:0 / Maximum TimeSync PHY transmit, lower / Maximum_PHY_transmit[15:0] / RO,NR
1.1801.15:0 / Maximum TimeSync PHY transmit, upper/ Maximum_PHY_transmit[31:16] / RO,NR
1.1802.15:0 / Minimum TimeSync PHY transmit, lower / Minimum_PHY_transmit[15:0] / RO,NR
1.1803.15:0 / Minimum TimeSync PHY transmit, upper/ Minimum_PHY_transmit[31:16] / RO,NR

45.2.1.101 TimeSync PHY receive latency (Register 1.1804, 1.1805, 1.1806, 1.1807)
The TimeSync PHY receive latency register stores the maximum (Register 1.1804, 1.1805) and minimum (Register
1.1806, 1.1807) values of the PHY receive latency, as defined in Table 45-65f. PHY receive latency is expressed in units of ns.
Table 45–65f TimeSync PHY transmit latency register
Bits / Name / Description / R/W
1.1804.15:0 / Maximum TimeSync PHY transmit, lower / Maximum_PHY_transmit[15:0] / RO,NR
1.1805.15:0 / Maximum TimeSync PHY transmit, upper/ Maximum_PHY_transmit[31:16] / RO,NR
1.1806.15:0 / Minimum TimeSync PHY transmit, lower / Minimum_PHY_transmit[15:0] / RO,NR
1.1807.15:0 / Minimum TimeSync PHY transmit, upper/ Minimum_PHY_transmit[31:16] / RO,NR

Add the following new clause into draft, numbering it 90.9, renumber the followign clauses.

90.9 MDIO function mapping
The optional MDIO capability described in Clause 45 defines variables that provide status information about the PHY. If MDIO is implemented, it shall map MDIO status variables to PHY status variables as shown in Table 90–1.