Outline

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Comment 33: Comment

- The RoE DM mechanism is different from the eCPRI DM mechanism in that it sends the measured delay back to the requester in the correctionVal field instead of sending its arrival timestamp back to the requester in the dmTimestamp field.

The RoE mechanism removes the need for the requester to retain the departure timestamp of the DM request packet and might make the DM operation easier to use. On the other hand, this difference causes an implementation to include two slightly different mechanisms.

Consider changing the DM response mechanism so it is identical to that of eCPRI.
Comment 33: Proposed Change

• The Working Group should determine whether to retain the existing mechanism or make it identical to that of eCPRI.
Comment 33: Discussion, RoE DM

- Requester sends request, no timestamp storage, waits for answer
- Answer is calculated by Responder
Comment 33: Discussion, eCPRI DM

- Requester (Node 1) sends request, **stores timestamp**, waits for response, **correlates response to request**
- Answer is calculated by Requester
Comment 33: Discussion, RoE Remote DM

- Remote Requester sends request, receives response, calculates answer
- Remote Responder gets answer without any calculation
- No timestamp storage
Comment 33: Discussion, eCPRI Remote DM

- Remote Requester sends request, receives response, calculates answer
- Remote Responder stores timestamp
- Remote Responder calculates answer
Comment 72: Comment

- For DM latency measurement, there are two cases. Both cases should timestamp when the packet’s message timestamping point (the first DA bit of the ENET frame) crosses from the RoE world into the network (i.e. crosses the reference plane), as specified by IEEE 1588. However, the network boundary has two scenarios.
  1. RoE packet is generated and transmitted directly by an Ethernet PHY to a network. In this case, the reference plane is the Ethernet MDI.
  2. RoE packet is generated but is sent through other non-RoE network functions (e.g. an integrated Ethernet switch) before it goes through a PHY to be transmitted to an external network. In this case, the message reference plane is the boundary between the RoE packet generator/receiver and the non-RoE functions (e.g. the interface to the switch). These boundaries are not standardized.
Comment 72: Proposed Change

• Describe these scenarios (perhaps in an Annex) and indicate, for scenario 2, that the reference plane is not a PHY's MDI, but the point where the RoE packet leaves the RoE "world" and enters the "world" of another protocol.

If this is described in an Annex, a reference to this annex should be provided in subclauses 6.2 and 10.1, where the timestamp reference plane is mentioned.

Note that these special scenarios are only for RoE DM. They do not affect PTP.
Comment 72: Discussion, Scenario 1

- RoE DM and PTP timestamp reference plane is at Ethernet MDI, where RoE packet crosses its network boundary.
Comment 72: Discussion, Scenario 2

- Network boundary that defines RoE DM timestamp reference plane is now at boundary of RoE Mapper
  - It is desirable to include the packet switch in the measured delay
- PTP timestamp reference plane is unchanged
Comments 52 and 53: Comments

- The PCS processed all zeros and PCS processed repeating error control characters do not guarantee 8B/10B codeword alignment, if continued over an extended duration, because of a lack of comma characters in the stream. A K28.1 comma character should be inserted occasionally if this replacement pattern is continued (e.g. after every 2048 consecutive codewords of the replacement pattern, for 8B/10B encoded datastreams). K28.1 is used instead of K28.5 to differentiate it from CPRI's K28.5.

- The injection of K28.1 characters periodically during extended assertions of PCS processed replacement patterns should be described in subclause 7.3.7, along with the replacement patterns, instead of in this subclause.
Comments 52 and 53: Proposed Change

- Add statement after NOTE 5 to indicate this behaviour for this replacement pattern scenario.
- Remove this paragraph and, instead, describe the periodic injection of K28.1 characters during extended assertions of PCS processed replacement patterns in subclause 7.3.7.
Comments 52 and 53: Discussion

- K28.1 selected instead of K28.5 to differentiate it from CPRI frame alignment.
- K28.5 could still be used, but its occurrence not be coincident with 66.667us CPRI frame periodicity, regardless of the bit rate.
- Commas, from IEEE 802.3:

<table>
<thead>
<tr>
<th>Code Group Name</th>
<th>Octet Value</th>
<th>Octet Bits HGF EDCBA</th>
<th>Current RD – abcdei fghj</th>
<th>Current RD + abcdei fghj</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>K28.0</td>
<td>1C</td>
<td>000 111 000</td>
<td>001111 0100</td>
<td>100000 1011</td>
<td>1</td>
</tr>
<tr>
<td>K28.1</td>
<td>3C</td>
<td>001 111 000</td>
<td>001111 0010</td>
<td>100000 0110</td>
<td>1.2</td>
</tr>
<tr>
<td>K28.2</td>
<td>5C</td>
<td>010 111 000</td>
<td>001111 0101</td>
<td>100000 1010</td>
<td>1</td>
</tr>
<tr>
<td>K28.3</td>
<td>7C</td>
<td>011 111 000</td>
<td>001111 0011</td>
<td>100000 1100</td>
<td>1</td>
</tr>
<tr>
<td>K28.4</td>
<td>9C</td>
<td>100 111 000</td>
<td>001111 0000</td>
<td>100000 1101</td>
<td>1</td>
</tr>
<tr>
<td>K28.5</td>
<td>BC</td>
<td>101 111 000</td>
<td>001111 0100</td>
<td>100000 0101</td>
<td>2</td>
</tr>
<tr>
<td>K28.6</td>
<td>DC</td>
<td>110 111 000</td>
<td>001111 1010</td>
<td>100000 0101</td>
<td></td>
</tr>
<tr>
<td>K28.7</td>
<td>FC</td>
<td>111 111 000</td>
<td>001111 1000</td>
<td>100000 0111</td>
<td>2</td>
</tr>
<tr>
<td>K23.7</td>
<td>F7</td>
<td>111 101 111</td>
<td>111010 1000</td>
<td>000101 0111</td>
<td>1,2</td>
</tr>
<tr>
<td>K27.7</td>
<td>FB</td>
<td>111 110 111</td>
<td>110110 1000</td>
<td>010011 0111</td>
<td></td>
</tr>
<tr>
<td>K29.7</td>
<td>FD</td>
<td>111 111 101</td>
<td>101110 1000</td>
<td>010001 0111</td>
<td></td>
</tr>
<tr>
<td>K30.7</td>
<td>FE</td>
<td>111 111 110</td>
<td>011110 1000</td>
<td>100001 0111</td>
<td></td>
</tr>
</tbody>
</table>

NOTE 1—Reserved.
NOTE 2—Contains a comma.
Comments 112: Comment

• In Figure 11, the dashed blocks attached to "Radio Interface" are outside of scope for RoE. They should not know about the different RoE modes in the caption attached to the associated arrows. Since they are out of scope, there is no need to represent this block. It is sufficient to only have the "Radio Interface" block for it already implies the type of traffic (CPRI, native RoE time domain or native RoE frequency domain).
Comment 112: Proposed Change

- Remove the dashed blocks attached to "Radio Interface" blocks here and in Figure 27.

PCS processing is for structure-aware and structure-agnostic line-coding-aware RoE modes. CPRI processing is required only for CPRI structure-aware RoE modes.

Ethernet timestamp reference plane (e.g. for PTP and RoE DM)

- Measured delay of Ethernet network (e.g. for PTP and RoE DM)

Maximum end-to-end transport time, including de-jitter RoE packet buffering

- Radio timestamp reference plane (ingress time)

- Radio timestamp reference plane (presentation time)
Comment 112: Discussion

- This implies that the reader understands the CPRI functions are contained within the solid blocks.
- Do we need new text to highlight this?
Comments 142: Comment

- in Table 26, loss_ToD appears in the 1st row. It should not. It should instead be reported in the 1588 sync domain not by the RoE mapper (or demapper). There is no point in having a parameter/defect that does not apply only to an RoE mapper (or demapper) and whose state is determined out of scope of this standard.
Comment 142: Proposed Change

• Remove loss_ToD and related items (e.g. loss fo ToD event indication) from this table, and in the various forms they take in all subsequent tables in the rest of clause 12.
Comment 142: Discussion

• loss_ToD defect is the source of many important consequential actions for RoE

• Does it matter that how it is asserted/deasserted is out of scope of this standard? The specifications for this could be proprietary or could be defined by some timing profile.
Comments 143: Comment

- It is unclear what benefit there is of only looking at subType or Opcode. It would be preferable for the administrator to know the number of all packets that are invalid in some way or another, e.g. what if the flowID is unknown (that's just an example).
Comment 143: Proposed Change

• Simplify by merging enParams 6 and 7 into one "invalid received packet count" / .rx_invalid_cnt with a default of 0 and a Description reading "Contains an integer count of the number of invalid RoE control packets. The counter increments by one for each occurrence of an invalid RoE control packet."
Comment 143: Discussion

• It would be fine to combine all "unrecognized packet" errors into one counter and indicator. However, would it be better to have counters and indicators for all the different fields that are not recognized? subType, opCode, flowID, others?