Proposed Changes to the EMS Objectives

David Ofelt
HPE
2026-05

Scope

We have three features:

- Service Interface
- Per-packet metadata
- Packet-independent metadata

Current objectives limit the scope of the Packet-independent metadata to >=50GbE

The service interface is PMD/rate independent

Had a request from factory automation folks to support the per-packet feature

- So we kept that PMD/rate independent

Current Objectives

Adopted IEEE P802.3dt Objectives

Support full-duplex operation only

Preserve the IEEE 802.3/Ethernet frame format (see IEEE Std 802.3 subclause 3.1.1) at the MAC client service interface

Preserve the minimum and maximum Frame Size of the current IEEE 802.3 standard

Define an optional Per-packet metadata service

Define an optional Packet-independent metadata service, and associated modifications to the physical layers using the:

- 50GBASE-R PCS defined in Clause 133
- 100GBASE-R PCS defined in Clause 82, which use FECs defined in Clauses 91 and 161
- 200GBASE-R PCS defined in Clause 119
- 400GBASE-R PCS defined in Clause 119
- 800GBASE-R PCS defined in Clause 172
- 1.6TBASE-R PCS defined in Clause 175

* Approved by IEEE 802.3 WG 14 Nov 2025

Factory Automation

In a SG presentation (Ethernet Metadata Services Industrial Automation Use Cases), the interesting feature was described to be Link Level Retry (LLR)

Unfortunately this feature requires both types of metadata

So- supporting **just** per-packet metadata on a broader range of PMDs might not make sense.

Supporting both types is currently out of scope and is a huge amount of work

Large Number of PMDs

As part of David Law's presentation at the last interim (Thoughts on preamble insertion at data rates < 50 Gb/s), it became clear

- Just how many PMDs we may potentially need to support
- That many don't use FEC, so error handling is more complex

Half/Full Duplex

Our current scope limits us to full duplex PMDs

This prunes many of the oldest PMDs from consideration

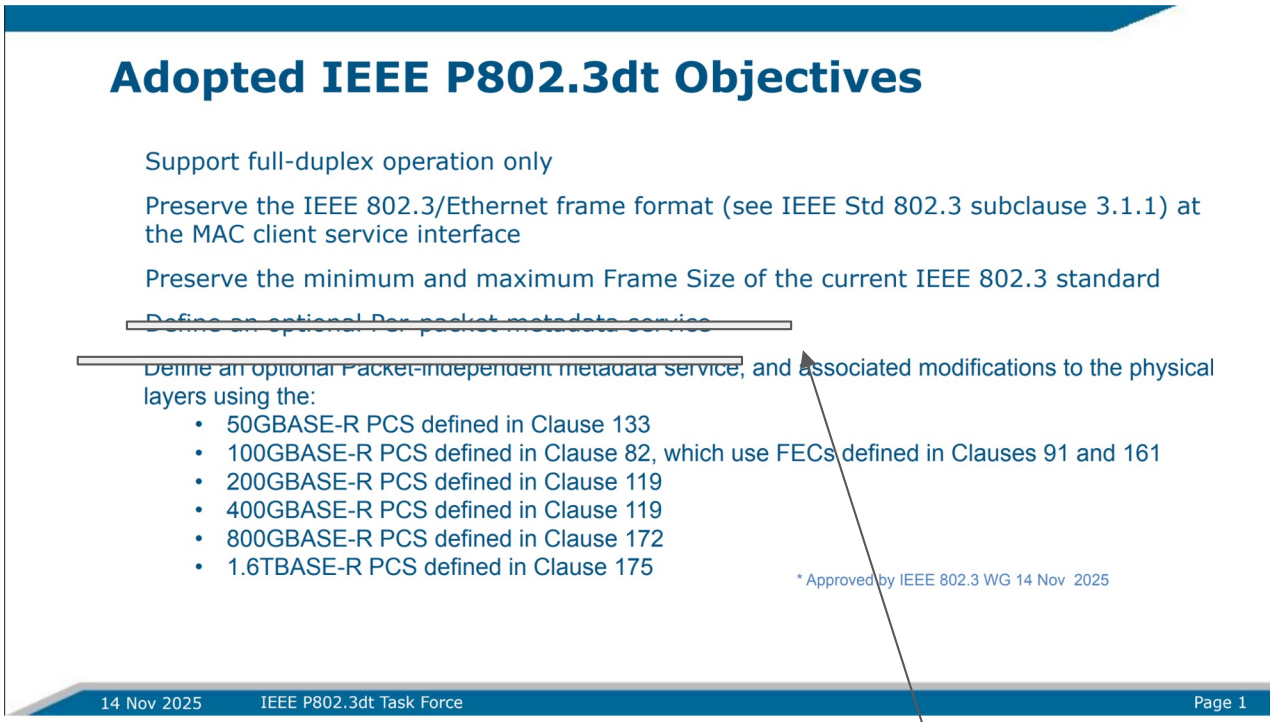
Proposal

In order to focus our effort on the interfaces that are currently most important and make the project effort more deterministic-

We could limit the scope of the per-packet metadata to the same list of PCSs that we have for the packet-independent metadata

For all other PMDs, we provide the metadata services interface which abstracts the details and provides future projects a way of cleanly adding the metadata features to their interfaces.

New Objectives



Define optional packet-independent and packet-dependent metadata services…

Objective Change

Delete existing objective “Define an optional per-packet metadata service

Change objective:

“Define an optional packet-independent metadata service and associated modifications to the physical layers using the:”

To

“Define optional per-packet and packet-independent metadata services and associated modifications to the physical layers using the:”

(note the list of PCS clauses doesn’t change)

Straw Poll

I am in favor of updating the objectives to read as they do in slide 9 of ofelt-3dt-01-2605.

Y:

N:

A:

Thanks!