IEEE 802.3 PLCA Enhancements Study Group
Closing Report

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Bangkok, Thailand

November 11, 2026

IEEE 802.3 PLCA Enhancements Study Group
Study Group information

Study Group Organization

Natalie Wienckowski, IEEE 802.3 PLCA Enhancements Study Group Chair

Yue (Dolly) Zhu, IEEE 802.3 PLCA Enhancements Study Group Secretary

Study Group charter

Move that the IEEE 802.3 Working Group request the formation of a Study Group to develop a Project Authorization Request (PAR) and Criteria for Standards Development (CSD) for Physical Layer Collision Avoidance (PLCA) Multidrop Latency, Jitter, and Scalability Enhancements.

Study Group web and reflector information

Reflector information: http://www.ieee802.org/3/EPLCA/reflector.html

Home page: http://ieee802.org/3/EPLCA/index.html

(No private area)

IEEE 802.3 PLCA Enhancements Study Group
Activities during November 2026 plenary

- Held meeting November 11, 2026
  - Major items discussed, decisions made and actions
    - Considered comments on PAR/CSDs from Nescom, 802.1 and 802.15
    - Created responses to all comments and updated the Draft PAR and Draft CSD Responses to reflect these changes.
    - Saw presentations on potential objectives
    - Approved a set of objectives

  - Current status
    - Draft PAR
      - https://www.ieee802.org/3/EPLCA/PAR-draft_eplca_1126_clean.pdf
    - Draft CSD Responses
      - https://www.ieee802.org/3/EPLCA/CSD-draft_eplca_1126_clean.pdf

Comments

Comments - Nescom

In Section 5.2, it appears that the plural term “PLCA sublayers” may create ambiguity regarding the intended technical scope. IEEE Std 802.3 currently defines the PLCA Reconciliation Sublayer, and it is not clear whether the proposed project is intended to modify only this sublayer or additional Physical Layer sublayers.

Could you please consider revising the wording to:

“...make additions and modifications to the IEEE Std 802.3 Physical Layer Collision Avoidance (PLCA) Reconciliation Sublayer...”

If modifications to other Physical Layer sublayers are also intended to be within the scope of the project, it would be helpful to identify them more explicitly in the Scope.

Comments

Comments - Nescom

Suggested Response:
5.2b, CHANGE: The scope of the project is to make additions and modifications to the IEEE Std 802.3 PLCA sublayers …
TO: The scope of the project is to make additions and modifications to the IEEE Std 802.3 Physical Layer Collision Avoidance (PLCA) Reconciliation ~~s~~Sublayer~~s~~ …

In CSDs make similar changes.

In Broad Market Potential,
CHANGE: Enhancements to PLCA and associated sublayers …
TO: Enhancements to the PLCA ~~and associated~~ Reconciliation ~~s~~Sublayer~~s~~ …

In Compatibility, c)
CHANGE: … and PLCA sublayers may be updated.
TO: … and the PLCA Reconciliation ~~s~~Sublayer~~s~~ may be updated.

All NesCom responses approved by Study Group without objection 11/11/2022 (44 on the call)

Comments

Comments – 802.1

PAR
5.2.b Scope of the project
The scope of the project seems to be open ended. It sounds like additions and modifications to enhance the control of PLCA packet transmission. Nonetheless, 5.2.b does not give any hint on the nature of enhancements that are planned to be added. You might consider having a limited scope for progressing the work quickly.

Proposed Response: The scope is being modified to the following: The scope of the project is to make additions and modifications to the IEEE Std 802.3 Physical Layer Collision Avoidance (PLCA) Reconciliation ~~s~~Sublayer~~s~~ to enhance the control of PLCA packet transmission, including management parameters and physical layer service access points.

It might be good to clarify in 5.2.b what kind of enhancements will be added to the base standard by the proposed project. Perhaps at least give an example enhancement.
Proposed Response: This is stated in the Broad Market Potential CSD: Enhancements to the PLCA ~~and associated~~ Reconciliation ~~s~~Sublayer~~s~~ to reduce maximum latency, differentiated by station and/or by frame priority, e.g. Priority Code Point (PCP), and improve determinism to allow broader application of 10BASE-T1S/M technology to existing and emerging market segments such as automotive, aerospace, controls, automation, and robotics.

Comments

Comments – 802.1

Where does the information for differentiating latency come from? What is the information for differentiating latency (e.g. priority)?
Note that answers to these questions may go into the CSD rather than the scope.
Are there 802.1 specifications (e.g. 802.1AC, 802.1Q, 802.1DC) that you'd like to leverage as you define your solution? If so, we'd like to help.

How .1 can help: This project would like 802.1 to consider defining an "EPLCA" client. Please see this presentation for more details: https://www.ieee802.org/3/EPLCA/public/1126/kim_eplca_02b_1126.pdf.

Proposed Response: Modify the CSD Broad Market Potential statement as follows:

CHANGE: Enhancements to PLCA and associated sublayers to reduce maximum latency and improve determinism allow broader application of 10BASE-T1S/M technology to existing and emerging market segments such as automotive, aerospace, controls, automation, and robotics.

TO: Enhancements to the PLCA ~~and associated~~ Reconciliation ~~s~~Sublayer~~s~~ to reduce maximum latency, differentiated by station and/or by frame priority, e.g. Priority Code Point (PCP), and improve determinism to allow broader application of 10BASE-T1S/M technology to existing and emerging market segments such as automotive, aerospace, controls, automation, and robotics.

Comments

Comments – 802.1

PAR continued
5.5 Need for project:
The distinction of the term “control” in 5.2.b and in 5.5 may be not that clear. Consider expanding it in 5.5, e.g., replace “control application” with “control loop” or “control loop, e.g., in industrial automation and in-vehicle networks”.

Proposed Response: In 5.2.b, make no change. This in not talking about a control loop or application it is intended to mean limit, restrict, etc.

Proposed Response: In 5.5

CHANGE: The current maximum latency properties of PLCA are insufficient to serve some control applications. Reduced maximum latency and enhanced determinism for some control applications are needed on some multidrop shared networks.

TO: The current maximum latency properties of PLCA are insufficient to serve some closed-loop control applications (e.g., in industrial automation and in-vehicle networks). Reduced maximum latency and enhanced determinism for some closed-loop control applications are needed on some multidrop shared networks.

Comments

Comments – 802.1

CSD

Slide 4 paragraph 1 • Suggest changing: "10BASE-T1S/M (single pair multidrop) network is widely adopted Ethernet PHY" to "10BASE-T1S/M (single pair multidrop) network is a widely adopted Ethernet PHY"

Proposed Response:

REPLACE: 10BASE-T1S/M (single pair multidrop) network is widely adopted Ethernet PHY in automotive and industrial networks.

WITH: 10BASE-T1S or 10BASE-T1M single-pair multidrop PHYs with Physical Layer Collision Avoidance (PLCA) are widely adopted in automotive and industrial networks.

Approved by Study Group without objection 11/11/2026 (44 on the call)

Comments

Comments – 802.15

Please add additional explanation (8.1) in PAR about the need for the project – e.g. a summary of the CSD: Broad Market Potential.

Proposed Response: The following change to 5.5, the project need, is being made based on a comment by 802.1 to further expand on the project need.

CHANGE: The current maximum latency properties of PLCA are insufficient to serve some control applications. Reduced maximum latency and enhanced determinism for some control applications are needed on some multidrop shared networks.

TO: The current maximum latency properties of PLCA are insufficient to serve some closed-loop control applications (e.g., in industrial automation and in-vehicle networks). Reduced maximum latency and enhanced determinism for some closed-loop control applications are needed on some multidrop shared networks.

Approved by Study Group without objection 11/11/2026 (45 on the call)

Motion

Move that the IEEE 802.3 Working Group approve the IEEE 802.3dx EPLCA PAR as in https://www.ieee802.org/3/EPLCA/PAR-draft_eplca_1126_clean.pdf.

M: Natalie Wienckowski

S: Valerie Maguire

Motion

Move that the IEEE 802.3 Working Group approve the IEEE P802.3dx EPLCA CSD “Managed Objects”, “Coexistence”, “Broad Market Potential”, “Compatibility”, “Distinct Identity”, “Technical Feasibility”, and “Economic Feasibility” responses, as in https://www.ieee802.org/3/EPLCA/CSD-draft_eplca_1126_clean.pdf

M: Natalie Wienckowski

S: Tim Baggett

Motion

Move that the IEEE 802.3 Working Group approve the IEEE 802.3dx EPLCA Objectives as in https://www.ieee802.org/3/EPLCA/public/1126/SG_eplca_objectives_11_26.pdf

M: Natalie Wienckowski

S: Yong Kim

Motion

Move that the IEEE 802.3 Working Group requests the rechartering of the IEEE 802.3 PLCA Enhancements study group

M: Natalie Wienckowski

S: George Zimmerman

Rationale for extension request: Approval has been sought to forward the IEEE P802.3dx PAR to NesCom, which was developed by this Study Group. This request for extension is only to address any issues during the approval process for the IEEE P802.3dx PAR.

Questions?

Thank you!