

Draft PAR Proposal for an IEEE 802.1 standard on Cut-Through Forwarding (CTF)

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Type of Project: New IEEE Standard
Project Request Type: Initiation / New
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft

1.1 Project Number: P802.1DU
1.2 Type of Document: Standard
1.3 Life Cycle:

2.1 Project Title: Standard for Cut-Through Forwarding Bridges and Bridged Networks

3.1 Working Group: Higher Layer LAN Protocols Working Group (C/LM/802.1 WG)

3.1.1 Contact Information for Working Group Chair:

Name: Glenn Parsons

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3.1.2 Contact Information for Working Group Vice Chair:

Name: Jessy Rouyer

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3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LM)

3.2.1 Contact Information for Standards Committee Chair:

Name: Paul Nikolich

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3.2.2 Contact Information for Standards Committee Vice Chair:

Name: James Gilb

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3.2.3 Contact Information for Standards Representative:

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4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:
Nov 2026

4.3 Projected Completion Date for Submittal to RevCom: Dec 2027

5.1 Approximate number of people expected to be actively involved in the development of this project: 30

5.2 Scope of proposed standard: This standard specifies Cut-Through Forwarding (CTF) bridges based on the IEEE 802.1Q bridge architecture. CTF bridges interconnect individual local area networks (LANs) using different or identical media access control (MAC) methods, including interconnection via MAC methods with and without support for CTF. This standard also details the usage of CTF bridges.

5.3 Is the completion of this standard contingent upon the completion of another standard?
No

5.4 Purpose: This standard enables lower latency communication than is achievable by store-and-forward bridges, while allowing interoperable interconnection of individual LANs with and without support for CTF.

5.5 Need for the Project: The latency of store-and-forward bridges inhibits the applicability of bridging in certain applications, ~~including applications such as those~~ in industrial automation, professional audio-video and data centers. Standardized CTF addresses the unmet needs of these applications for interoperable equipment.

5.6 Stakeholders for the Standard: Manufacturers, distributors, vendors, developers, providers and users of bridging equipment for industrial automation, professional audio-video, data centers and other systems requiring communication delays lower than achievable by store-and-forward bridging operations.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project?

No

7.1 Are there other standards or projects with a similar scope? No

7.2 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes:

#5.2:

- 1) IEEE 802.1Q refers to "IEEE Std 802.1Q: IEEE Standard for Local and Metropolitan Area Networks—Bridges and Bridged Networks"
- 2) IEEE 802.1AC refers to "IEEE Std 802.1AC: IEEE Standard for Local and Metropolitan Area Networks—Media Access Control (MAC) Service Definition"
- 3) IEEE 802.1CB refers to "IEEE Std 802.1CB: IEEE Standard for Local and Metropolitan Area Networks—Frame Replication and Elimination for Reliability"
- 4) See slide 9 of <https://mentor.ieee.org/802.1/dcn/21/1-21-0037-00-ICne-ieee-802-tutorial-cut-through-forwarding-ctf-among-ethernet-networks.pdf> for the basic operation of a CTF Bridge.
- 5) Modification of IEEE 802 MAC Standards and specification of new IEEE 802 MAC Standards is beyond scope.
- 6) By definition, changing existing IEEE 802.1 Standards is beyond scope.

#5.4:

Quantitative delay considerations are provided on slides 9-15 and the associated annex of <https://mentor.ieee.org/802.1/dcn/21/1-21-0037-00-ICne-ieee-802-tutorial-cut-through-forwarding-ctf-among-ethernet-networks.pdf>.

#5.5:

Applications **with a need for CTF are provided on slides 16-40** of <https://mentor.ieee.org/802.1/dcn/21/1-21-0037-00-ICne-ieee-802-tutorial-cut-through-forwarding-ctf-among-ethernet-networks.pdf>