

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

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~~**Disclaimer:** This document contains the results of the January 18, 2022 meeting of the IEEE 802.1 TSN TG for developing PAR&CSD for P802.1DU.~~

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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

Email Address: glenn.parsons@ericsson.com

3.1.2 Contact Information for Working Group Vice Chair:

Name: Jessy Rouyer

Email Address: jessy.rouyer@nokia.com

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

Email Address: p.nikolich@ieee.org

3.2.2 Contact Information for Standards Committee Vice Chair:

Name: James Gilb

Email Address: gilb@ieee.org

3.2.3 Contact Information for Standards Representative:

Name: James Gilb

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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-Jul 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, including protocols, procedures, and managed objects. 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 in bridged networks by store-and-forward bridges without CTF, while allowing interoperable interconnection of individual LANs with and without support for CTF.

5.5 Need for the Project: The low latency achievable in bridged networks of store-and-forward bridges with CTF inhibits enables the applicability of bridging in certain applications, including applications-use cases in industrial automation, professional audio-video and data centers. Standardized CTF This project 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 Yes.

The YANG Data Model will be assigned a Uniform Resource Name (URN) based on the IEEE Registration

| [Authority \(RA\) URN tutorial and IEEE Std 802d.](#)

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"~~

~~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.~~

~~Modification of IEEE 802 MAC Standards and specification of new IEEE 802 MAC Standards is beyond scope.~~

~~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>.~~

#6.1.2:#5.5:

~~2) While 'YANG' (developed by the Internet Engineering Task Force (IETF)) appears to be an acronym its expansion 'Yet Another Next Generation' is not meaningful.~~

~~3) IEEE Std 802d IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture
Amendment 1: Allocation of Uniform Resource Name (URN) Values in IEEE 802 Standards
IEEE RA URN tutorial: <http://standards.ieee.org/develop/regauth/tut/ieeearn.pdf>~~

~~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>~~