P802.1Qdt

Type of Project: Amendment to IEEE Standard 802.1Q-2018
Project Request Type: Initiation / Amendment
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft
Root Project: 802.1Q-2018

1.1 Project Number: P802.1Qdt
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: IEEE Standard for Local and Metropolitan Area Networks--Bridges and Bridged Networks
Amendment: Priority-based Flow Control Enhancements

3.1 Working Group: Higher Layer LAN Protocols Working Group(C/LM/802.1 WG)
3.1.1 Contact Information for Working Group Chair:
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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:
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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: Jul 2025
4.3 Projected Completion Date for Submittal to RevCom: Nov 2025

5.1 Approximate number of people expected to be actively involved in the development of this project: 20
5.2.a Scope of the complete standard: This standard specifies Bridges that interconnect individual LANs, each supporting the IEEE 802 MAC Service using a different or identical media access control method, to provide Bridged Networks and VLANs.
5.2.b Scope of the project: Use of the existing Precision Time Protocol (PTP) and enhancements to the Data Center Bridging Capability Exchange protocol (DCBX) with procedures and managed objects to support automated Priority-based Flow Control (PFC) headroom calculation and Media Access Control security (MACsec) protection of PFC frames , with a particular emphasis on the low latency and lossless requirements of large-scale and geographically dispersed data centers.
Support of the existing MAC Control interface, with addition of an option to transmit PFC frames and other MAC control frames using the Internal Sublayer Service interface (IEEE Std 802.1AC) supported by MACsec (IEEE Std 802.1AE).
This project also addresses errors and omissions in the description of existing IEEE Std 802.1Q functionality.

5.3 Is the completion of this standard contingent upon the completion of another standard? No
5.4 Purpose: Bridges, as specified by this standard, allow the compatible interconnection of information technology equipment attached to separate individual LANs.
5.5 Need for the Project: PFC is used to avoid packet loss in low latency, high reliability Ethernet data

centers and data center interconnects. For PFC to function properly and without wasting memory, the amount of headroom buffer must be calculated. Deployment in large scale data center networks and longdistance interconnects is currently problematic requires manual configuration. Separately, there are customer requirements for the integrity and confidentiality protection of all frames transmitted between geographically distributed data centers. The current specification is inconsistent and incomplete regarding the operation of PFC and MACSec together.

5.6 Stakeholders for the Standard: Developers and users of networking for data center environments including integrated circuit developers, switch and end-node adaptor vendors, network operators and users.

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

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8.1 Additional Explanatory Notes: The resued and enhanced technologies mentioned in 5.2.b can refer to the following standards.

1) PFC is specified in IEEE Std 802.1Qbb: IEEE Standard for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks – Amendment 17: Priority-based Flow Control

2) PTP is specified in IEEE Std 1588: IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems

2) DCBX is specified in IEEE Std 802.1Qaz: IEEE Standard for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks – Amendment 18: Enhanced Transmission Selection

Other related standards mentioned in 5.2.b are,

IEEE Std 802.1AC: IEEE Standard for Local and metropolitan area networks -- Media Access Control (MAC) Service Definition

IEEE Std 802.1AE: IEEE Standard for Local and metropolitan area networks-Media Access Control (MAC) Security