P802.1Qdv

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: P802.1Qdv
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
 Enhancements to Cyclic Queuing and Forwarding   Amendment: Enhancements to Cyclic Queuing and Forwarding

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:
   Name: Paul Nikolich
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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: Aug 2024
4.3 Projected Completion Date for Submittal to RevCom: May 2025

5.1 Approximate number of people expected to be actively involved in the development of this project: 25
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: This amendment specifies procedures, protocols and managed objects to enhance Cyclic Queuing and Forwarding, comprising: a transmission selection procedure that organizes frames in a traffic class output queue into logical bins that are output in strict rotation at a constant frequency; a procedure for storing received frames into bins based on the time of reception of the frame; a procedure for storing received frames into bins based on per-flow octet counters; a protocol for determining the phase relationship between a transmitter's and a receiver's bin boundaries in time; managed objects, MIB, and YANG modules for controlling these procedures; and an informative annex to provide guidance for applying these procedures. This amendment 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: The existing CQF functionality in IEEE Std 802.1Q provides bounded end-to-end

delays, allows simple delay analysis methods, and does not depend on per-flow state. These properties are critical for scaling up Time-Sensitive Networking to larger networks with a high number of simultaneous flows, such as service provider networks. This amendment extends the existing CQF functionality to support long physical links with high delay, processing delay variations in Bridges, ingress flow conditioning, and flows with a wider range of latency requirements. These properties are often needed in larger networks in addition to those of the existing CQF functionality.

5.6 Stakeholders for the Standard: Manufacturers, distributors, vendors, and users of Virtual LAN bridging equipment and components thereof.

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?
Yes

Explanation: The Simple Network Management Protocol (SNMP) MIB will be assigned an Object Identifier (OID) based on the Registration Authority (RA) OID tutorial and IEEE Std 802.

The YANG Data Model will be assigned a Uniform Resource Name (URN) based on the RA URN tutorial and IEEE Std 802d.

An EtherType for a protocol will be requested from the Registration Authority based on the RA EtherType tutorial.

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.b: "Cyclic Queuing and Forwarding" is a technique for pacing the transmission of frames from a bridge or an end station described in Annex T of the base document IEEE Std 802.1Q-2018.

#5.2.b: "MIB" is a Management Information Base.

#5.2.b, #6.1.2: While 'YANG' (developed by the Internet Engineering Task Force) appears to be an acronym its expansion 'Yet Another Next Generation' is not meaningful. YANG is a widely-used standard that is relevant to the Registration Authority.

#6.1.2: IEEE Std 802 IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture.

#6.1.2: The Simple Network Management Protocol (SNMP) MIB will be assigned an Object Identifier (OID) based on the RA OID tutorial and IEEE Std 802.

#6.1.2: 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.

#6.1.2: RA URN tutorial: http://standards.ieee.org/develop/regauth/tut/ieeeurn.pdf.

#6.1.2: RA EtherType tutorial: http://standards.ieee.org/wp-content/uploads/import/documents/tutorials/ethertype.pdf.