

P802.1Qcz

Submitter Email: j.l.messenger@ieee.org

Type of Project: Amendment to IEEE Standard 802.1Q-2018

PAR Request Date: 18-Jul-2018

PAR Approval Date: 27-Sep-2018

PAR Expiration Date: 31-Dec-2022

Status: PAR for an Amendment to an existing IEEE Standard

Root Project: 802.1Q-2018

1.1 Project Number: P802.1Qcz

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Local and Metropolitan Area Networks--Bridges and Bridged Networks

Amendment: Congestion Isolation

3.1 Working Group: Higher Layer LAN Protocols Working Group (C/LM/WG802.1)

Contact Information for Working Group Chair

Name: John Messenger

Email Address: j.l.messenger@ieee.org

Phone: +441904699309

Contact Information for Working Group Vice-Chair

Name: Jessy Rouyer

Email Address: jessy.rouyer@nokia.com

Phone: +1 469 661 2093

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

Contact Information for Sponsor Chair

Name: Paul Nikolich

Email Address: p.nikolich@ieee.org

Phone: 8572050050

Contact Information for Standards Representative

Name: James Gilb

Email Address: gilb@ieee.org

Phone: 858-229-4822

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 07/2021

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 10/2022

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: This amendment specifies protocols, procedures and managed objects that support the isolation of congested data flows within data center environments. This is achieved by enabling systems to individually identify flows creating congestion, adjust transmission selection for packets of those flows, and signal to neighbors. This mechanism reduces head-of-line blocking for uncongested flows sharing a traffic class in lossless networks. Congestion Isolation is intended to be used with higher layer protocols that utilize end-to-end congestion control in order to reduce packet loss and latency. This amendment also addresses errors and omissions in the description of existing functionality.

5.3 Is the completion of this standard dependent upon the completion of another standard: Yes

If yes please explain: This amendment will specify a new Link Layer Discovery Protocol (LLDP) Type-Length-Value (TLV) and its associated YANG model. IEEE P802.1ABcu is currently specifying the YANG model for IEEE Std 802.1AB which must be completed in order for this amendment to specify its extension.

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: There is significant customer interest and market opportunity for large scale, low-latency, lossless Ethernet data centers to support high-performance computing and distributed storage applications. Congestion is the primary cause of loss and delay. These environments currently use higher layer end-to-end congestion control coupled with priority-based flow control at Layer 2 to avoid performance degradation from packet loss due to congestion. As the Ethernet data center network scales in size, speed and number of concurrent flows, the current environment creates head-of-line blocking for flows sharing the same traffic class. Isolating flows that cause congestion reduces latency for flows not causing congestion and improves the scale and performance of the Ethernet data center network. This amendment will support the identification and isolation of the higher layer protocol flows that are creating congestion. The amendment will interoperate with existing congestion management. Use of a consolidated Ethernet data center network will realize operational and equipment cost benefits.

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.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: Yes

If yes please explain: The YANG Data Model will be assigned a Uniform Resource Name (URN) based on the Registration Authority (RA) URN tutorial and IEEE Std 802d.

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

7.2 Joint Development

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

8.1 Additional Explanatory Notes: #5.3: While 'YANG' (developed by the Internet Engineering Task Force) appears to be an acronym its expansion 'Yet Another Next Generation' is not meaningful.

IEEE 802.1AB - IEEE Standard for Local and metropolitan area networks - Station and Media Access Control Connectivity Discovery

IEEE P802.1AB - Draft Standard for Local and Metropolitan Area Networks - Station and Media Access Control Connectivity Discovery
Amendment: YANG Data Model

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

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

RA URN tutorial: <http://standards.ieee.org/develop/regauth/tut/ieeeeurn.pdf>