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ISO/IEC/IEEE 8802-1Q

Telecommunications and exchange between information technology systems — Requirements for local and metropolitan area networks —

Part 1Q: Bridges and bridged networks

AMENDMENT 35: Congestion isolation

Télécommunications et échange entre systèmes informatiques — Exigences pour les réseaux locaux et métropolitains —

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This corrected version of ISO/IEC/IEEE 8802-1Q:2024/Amd.35 incorporates the following correction:

— the edition number on the cover page has been corrected.

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IEEE Standard for
Local and Metropolitan Area Networks—

Bridges and Bridged Networks

Amendment 35: Congestion Isolation

(This amendment is based on IEEE Std 802.1Q™-2022.)

NOTE—The editing instructions contained in this amendment define how to merge the material contained therein into the existing base standard and its amendments to form the comprehensive standard.

The editing instructions are shown in ***bold italics***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Deletions and insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editing instructions, change markings, and this note will not be carried over into future editions because the changes will be incorporated into the base standard. [6]

[6] Notes in text, tables, and figures are given for information only and do not contain requirements needed to implement the standard.

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1. Overview

1.3 Introduction

Insert new text at the end of 1.3 as follows:

This standard specifies protocols, procedures, and managed objects that support the isolation of congesting data flows within data center environments. This is achieved by enabling systems to individually identify flows creating congestion, isolate those flows to the congesting queue, and signal to neighbors. This mechanism reduces head-of-line blocking for non-congesting flows sharing the same traffic class. Congestion Isolation is used with higher layer protocols that utilize end-to-end congestion control in order to reduce packet loss and latency. To this end, it:

ct) Defines a means for VLAN-aware Bridges that support congestion isolation to identify flows that are creating congestion.

cu) Defines a means for adjusting transmission selection for frames of congesting flows.

cv) Provides a means for discovering peer VLAN-aware Bridges and stations that support congestion isolation.

cw) Defines a means for signaling congestion isolation to supporting peer Bridges and stations.

cx) Defines a means for recognizing a system’s level and port orientation within the topology relative to the edge.

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2. Normative references

Insert the following references into Clause 2 in alphanumeric order:

IEEE Std 802.1CS™, IEEE Standard for Local and Metropolitan Area Networks—Link-local Registration Protocol.[7, 8]

IETF RFC 768 (STD0006), User Datagram Protocol, August 1980.[9]

IETF RFC 791 (STD0005), Internet Protocol—DARPA Internet Program Protocol Specification, September 1981.

IETF RFC 3168, The Addition of Explicit Congestion Notification (ECN) to IP, September 2001.

IETF RFC 3232, Assigned Numbers: RFC 1700 is Replaced by an On-line Database, January 2002.

IETF RFC 6335, Internet Assigned Numbers Authority (IANA) Procedures for the Management of the Service Name and Transport Protocol Port Number Registry, August 2011.

IETF RFC 8200 (STD0086), Internet Protocol, Version 6 (IPv6) Specification, July 2017.

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