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**Information technology —
Telecommunications and information
exchange between systems — Local
and metropolitan area networks —
Specific requirements —**

**Part 1Q:
Bridges and bridged networks**

**AMENDMENT 6: Per-stream filtering and
policing**

*Technologies de l'information — Télécommunications et échange
d'information entre systèmes — Réseaux locaux et métropolitains —
Exigences spécifiques —*

Partie 1Q: Ponts et réseaux pontés

AMENDEMENT 6: Régulation & filtrage par flux



Reference number
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IEEE Std 802.1Qci™-2017

(Amendment to
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IEEE Std 802.1Q-2014/Cor 1-2015,
IEEE Std 802.1Qbv™-2015,
IEEE Std 802.1Qbu™-2016, and
IEEE Std 802.1Qbz™-2016)

**IEEE Standard for
Local and metropolitan area networks—**

Bridges and Bridged Networks—

Amendment 28: Per-Stream Filtering and Policing

Sponsor

**LAN/MAN Standards Committee
of the
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Approved 14 February 2017

IEEE-SA Standards Board

Abstract: Enhancements to the forwarding process that support per-stream filtering and policing are provided in this amendment to IEEE Std 802.1Q-2014.

Keywords: Bridged Local Area Networks, IEEE 802[®], IEEE 802.1Q[™], IEEE Std 802.1Qbu[™], IEEE 802.1Qbv[™], IEEE Std 802.1Qbz[™], IEEE 802.1Qca[™], IEEE 802.1Qcd[™], IEEE 802.1Qci[™], local area networks (LANs), MAC Bridges, metropolitan area networks, per-stream filtering and policing, PSFP, scheduled traffic, Time-Sensitive Networking, Virtual Bridged Local Area Networks (virtual LANs)

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Introduction

This introduction is not part of IEEE Std 802.1Qci-2017, IEEE Standard for Local and metropolitan area networks—Bridges and Bridged Networks—Amendment 28: Per-Stream Filtering and Policing.

This amendment to IEEE Std 802.1Q-2014 provides enhancements to the forwarding process that support per-stream filtering and policing.

This standard contains state-of-the-art material. The area covered by this standard is undergoing evolution. Revisions are anticipated within the next few years to clarify existing material, to correct possible errors, and to incorporate new related material. Information on the current revision state of this and other IEEE 802[®] standards may be obtained from

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**IEEE Standard for
Local and metropolitan area networks—**

Bridges and Bridged Networks—

Amendment 28: Per-Stream Filtering and Policing

(This amendment is based on IEEE Std 802.1Q™-2014 as amended by IEEE Std 802.1Qca™-2015, IEEE Std 802.1Qcd™-2015, IEEE Std 802.1Q-2014/Cor 1-2015, IEEE Std 802.1Qbv™-2015, IEEE Std 802.1Qbu™-2016, and IEEE Std 802.1Qbz™-2016.)

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 italic***. 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 ~~strike through~~ (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.¹

¹Notes in text, tables, and figures are given for information only, and do not contain requirements needed to implement the standard.

1. Overview

1.3 Introduction

Insert the following item at the end of lettered list, renumbering as necessary:

- ch) This standard specifies protocols, procedures, and managed objects that allow for the filtering and policing of individual traffic streams.

2. Normative references

Insert the following references in alphanumeric order:

IEEE Std 802.1CB™, IEEE Standard for Local and Metropolitan Area Networks—Frame Replication and Elimination for Reliability.

MEF Technical Specification 10.3 (MEF 10.3), Ethernet Service Attributes Phase 3.²

Delete the reference to MEF 10.3 from the Bibliography [B45] and amend references to it in the text accordingly.

²MEF technical specifications are available from the MEF website (<http://www.mef.net>).

4. Abbreviations

Insert the following abbreviations in alphanumeric order:

IPV	internal priority value specification
PSFP	per-stream filtering and policing

5. Conformance

5.4 VLAN Bridge component requirements

5.4.1 VLAN Bridge component options

Insert new subclause 5.4.1.8 as shown, renumbering as necessary:

5.4.1.8 Per-stream filtering and policing (PSFP) requirements

A VLAN Bridge component implementation that conforms to the provisions of this standard for PSFP shall:

- a) Support PSFP as specified in 8.6.5.1 and 8.6.6.1.
- b) Support the state machines for stream gate control as specified in 8.6.10.
- c) Support the management entities for PSFP as specified in 12.31.

5.13 MAC Bridge component requirements

5.13.1 MAC Bridge component options

Insert new subclause 5.13.1.1 as shown, renumbering as necessary:

5.13.1.1 Per-stream filtering and policing (PSFP) requirements

A MAC Bridge component implementation that conforms to the provisions of this standard for PSFP shall:

- a) Support PSFP as specified in 8.6.5.1 and 8.6.6.1.
- b) Support the state machines for stream gate control as specified in 8.6.10.
- c) Support the management entities for PSFP as specified in 12.31.

Insert the following new subclause at the end of Clause 5, renumbering as necessary:

5.27 End-station requirements—PSFP

An end-station implementation that conforms to the provisions of this standard for PSFP shall:

- a) Support PSFP as specified in 8.6.5.1 and 8.6.6.1.
- b) Support the state machines for stream gate control as specified in 8.6.10.
- c) Support the management entities for PSFP as specified in 12.31.

8. Principles of bridge operation

8.6 The Forwarding Process

Replace Figure 8-11 with the following figure. The effect of this replacement is to change “Ingress (8.6.2)” to “Ingress filtering (8.6.2)” and “Egress (8.6.4)” to “Egress filtering (8.6.4)” to match the subclause headings.

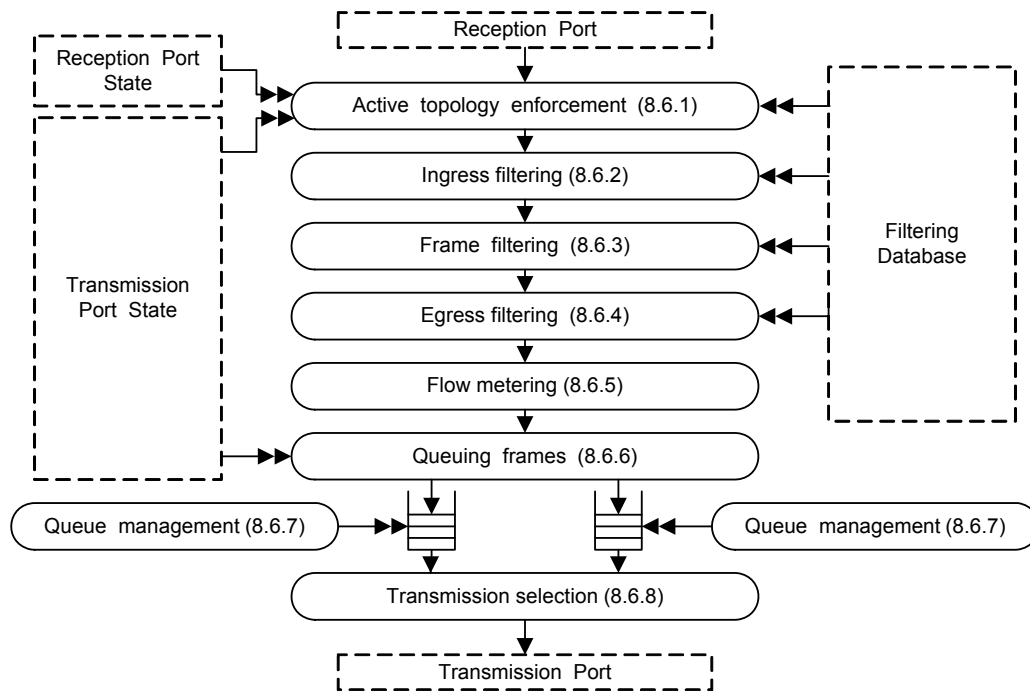


Figure 8-11—Forwarding process functions

8.6.5 Flow classification and metering

Insert new list item e) immediately following list item d), and change the sentence immediately following new item e), renumbering following list items, as shown:

- e) connection_identifier

Item c), specifying a VID value, is not applicable to VLAN-unaware MAC Relays. Item e), specifying a connection_identifier, is only applicable to bridges that support PSFP.

Insert new subclause 8.6.5.1, Figure 8-12, and Table 8-5 as shown, renumbering subsequent figures and tables as necessary:

8.6.5.1 Per-stream filtering and policing

A Bridge or an end station may support PSFP capabilities that allow filtering and policing decisions, and subsequent frame queuing decisions (8.6.6.1), to be made on a per-stream basis for received frames.

Support of PSFP requires implementation of the Stream identification function specified in Clause 6 of IEEE Std 802.1CB, as the stream_handle provided by this function is used in the policing and queuing decisions taken by PSFP.