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| IEEE 802.1 REVISION REQUEST 0172 |
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DATE: August 17, 2016
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REQUESTED REVISION:
STANDARD: 802.1Q-2014
CLAUSE NUMBER: 8
CLAUSE TITLE: Principles of Bridge operation

RATIONALE FOR REVISION:

In this request, I use the term "cut-through" to refer to the capability of an 802.1Q Bridge to start egress (transmit) of a frame before the entire frame has completed ingress (receive).

Cut-through is a reality in shipping Bridge products. As a result of that reality, many 802.1Q Bridge products for TSN applications are supporting cut-through. Cut-through is required in order to meet the performance requirements of some TSN applications.

In the requester's view, it is the responsibility of the 802.1 Working Group to provide specifications that align with practical realities. Standards that ignore practical realities often become irrelevant, and 802.1's continued success has lied it its ability to adapt to changing application requirements, including TSN.

Due to this view, the 802.1Qcc draft contains managed objects to 1) report whether the Bridge supports cut-through, and 2) enable cut-through for specific port pairs and traffic classes, and 3) obtain the min/max relay delay when cut-through is applied to a frame. These 802.1Qcc managed objects are essential to using cut-through in an interoperable manner in TSN networks. The managed objects reference the externally visible behavior of cut-through, and do not refer to its implementation or internal modeling. The drafts of 802.1Qcc do not provide detail on the potential risks of using cut-through, because TSN network implementers are aware of those risks and their mitigations.

During Working Group ballot of 802.1Qcc, two comments were submitted claiming that cut-through is "not standardized", and therefore the managed objects for cut-through must be removed. The consensus of the 802.1 Working Group thus far is to retain the managed objects for cut-through in 802.1Qcc, but to submit a Maintenance Request to clarify that cut-through is conformant behavior for an 802.1Q Bridge.

This is a request to clarify that cut-through is conformant behavior for an 802.1Q Bridge. This presumably applies to 802.1Q, but may also apply to 802.1AC or other standards. This clarification will enable 802.1Qcc to proceed through Working Group balloting.

This is not necessarily a request to change the modeling of 802.1Q, or to describe the potential risks in use of cut-through.

PROPOSED REVISION TEXT:

Unfortunately, the commenters on 802.1Qcc did not provide specific subclauses to back up their claim that 802.1Q and/or 802.1AC prohibits cut-through. If such subclauses were provided, this request could have provided specific suggestions for textual changes.

This request assumes that 802.1Q-2014 clause 8 is a likely place for such clarification, but

defers to the expertise of 802.1 Maintenance participants to determine the best way to resolve this issue.

IMPACT ON EXISTING NETWORKS:

There is no impact on existing networks. In the 802.1Qcc draft, cut-through is an optional feature.

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| Please attach supporting material, if any |
| Submit to:- Glenn Parsons, Chair IEEE 802.1 |
| and copy:- John Messenger, Vice-Chair IEEE 802.1 |
| E-Mail: stds-802-1-maint-req@ieee.org |
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|           +----- For official 802.1 use -----+ |
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