

Proposed PAR for IEEE Std 802.1Q amendment for CQF Enhancements

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Title

IEEE Standard for Local and Metropolitan Area Networks—Bridges and Bridged Networks—
Amendment *n*: Enhancements to Cyclic Queuing
and Forwarding

Scope

This amendment specifies procedures, protocols and managed objects to enhance Cyclic Queuing and Forwarding, including: a transmission selection procedure that divides a class-of-service queue into some number of bins that are output in strict rotation at a constant frequency; a procedure for storing received frames into queue bins based on the time of reception of the frame; a procedure for storing received frames into queue bins based on per-flow byte counters; managed objects for controlling these procedures; and an informative annex to provide guidance for applying these procedures. This amendment also addresses errors in the existing IEEE Std 802.1Q functionality.

Need

Service provider networks need to provide an essentially lossless, low-latency service to very large numbers of flows. For this to be economically feasible, flows must be aggregated, and those aggregates given special treatment. As the load offered by individual streams within an aggregate vary, existing TSN techniques allow a flow to utilize other flows' unused bandwidth within the aggregate, causing excessive buffer requirements for that flow at the disaggregation point. Fixed-frequency rotating bins prevent this, making lossless service achievable in practice. In addition, aggregate flows can be provisioned with a lower computation load, and hence more quickly, using the methods defined by this amendment.

Thank you