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P802.1Qaz

Submitter Email: pthaler@broadcom.com

Type of Project: Modify Existing Approved PAR

PAR Request Date: 14-Sep-2009

PAR Approval Date:

PAR Expiration Date:

Status: Unapproved PAR, Modification to a Previously Approved PAR for an Amendment 802.1Q-2005

Root PAR: P802.1Qaz **Approved on:** 27-Mar-2008

1.1 Project Number: P802.1Qaz

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Local and Metropolitan Area Networks---Virtual Bridged Local Area NetworksAmendment: Enhanced Transmission Selection for Bandwidth Sharing Between Traffic Classes

Old Title: IEEE Standard for Local and Metropolitan Area Networks---Virtual Bridged Local Area Networks - Amendment: Enhanced Transmission Selection for Bandwidth Sharing Between Traffic Classes

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

Contact Information for Working Group Chair

Name: Anthony Jeffree

Email Address: tony@jeffree.co.uk

Phone: +44-161-973-4278

Contact Information for Working Group Vice-Chair

Name: Paul Congdon

Email Address: paul.congdon@hp.com

Phone: 916-785-5753

3.2 Sponsoring Society and Committee: IEEE Computer Society/Local and Metropolitan Area Networks (C/LM)

Contact Information for Sponsor Chair

Name: Paul Nikolich

Email Address: p.nikolich@ieee.org

Phone: 857.205.0050

Contact Information for Standards Representative

None

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 03/2010

4.3 Projected Completion Date for Submittal to RevCom: 09/2010

5.1 Approximate number of people expected to be actively involved in the development of this project: 30

5.2 Scope: This standard specifies protocols, procedures and managed objects for enhancement of transmission selection to support allocation of bandwidth amongst traffic classes. When the offered load in a traffic class doesn't use its allocated bandwidth, enhanced transmission selection will allow other traffic classes to use the available bandwidth. The bandwidth-allocation priorities will share bandwidth between bursty traffic loads while coexisting with the strict priority mechanisms already defined in Std 802.1Q, carrying traffic requiring

Old Scope: This standard specifies enhancement of transmission selection to support allocation of bandwidth amongst traffic classes. When the offered load in a traffic class doesn't use its allocated bandwidth, enhanced transmission selection will allow other traffic classes to use the available bandwidth. The bandwidth-allocation priorities will share bandwidth between bursty traffic loads while coexisting with the strict priority mechanisms already defined in Std 802.1Q, carrying traffic requiring minimum latency. It will include managed objects to

minimum latency. It includes definition of a control protocol that controls the application of Enhanced Transmission Selection and Priority-based Flow Control.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: Networks prioritize traffic to provide different service characteristics to traffic classes. It is desirable to be able to share bandwidth between priorities carrying bursty high offered loads rather than servicing them with strict priority while allowing strict priority for time-sensitive and management traffic requiring minimum latency. Also, when traffic at a priority level doesn't use its allocation, it is desirable to allow other priorities to use that bandwidth. For example, IEEE P802.1Qav will specify congestion management. Congestion managed traffic classes can share a network with traditional best effort LAN classes. Enhanced transmission selection will provide uniform management for the sharing of bandwidth between congestion managed classes and traditional classes on a single bridged network. Priorities using enhanced transmission selection will coexist with priorities using 802.1Qav queuing for time-sensitive streams.

support bandwidth allocation.

Old Purpose: Networks prioritize traffic to provide different service characteristics to traffic classes. It is desirable to be able to share bandwidth between priorities carrying bursty high offered loads rather than servicing them with strict priority while allowing strict priority for time-sensitive and management traffic requiring minimum latency. Also, when traffic at a priority level doesn't use its allocation, it is desirable to allow other priorities to use that bandwidth. For example, IEEE P802.1Qav will specify congestion management. Congestion managed traffic classes can share a network with traditional best effort LAN classes. Enhanced transmission selection will provide uniform management for the sharing of bandwidth between congestion managed classes and traditional classes on a single bridged network. Priorities using enhanced transmission selection will coexist with priorities using 802.1Qav queuing for time-sensitive streams.

A control protocol will provide a mechanism for exchanging configuration of Enhanced Transmission Selection, Priority-based Flow Control and other data center bridging technology parameters across the link providing a means of establishing a consistent configuration across the link.

5.5 Need for the Project: There is significant customer interest and market opportunity for Ethernet as a consolidated Layer 2 solution in high-speed networks such as data centers, backplane fabrics, single and multi-chassis interconnects, computing clusters and storage networks. The differing service needs of applications supported on a consolidated Ethernet are supported by separate traffic classes. These applications often provide bursty loads for large transfers. Support of these classes on the same links requires the ability to allocate a guaranteed share of bandwidth to each class and to allow classes with offered load to fully utilize bandwidth when offered load for another class doesn't require its full share of bandwidth. Use of a consolidated network will realize operation and equipment cost benefits. This project allows a uniform management of bandwidth allocation between classes.

5.6 Stakeholders for the Standard: Developers and users of networking for data center environments including networking IC developers, switch and NIC vendors, 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?: No

7.1 Are there other standards or projects with a similar scope?: Yes

If Yes please explain: IEEE P802.1Qav is adding a transmission selection mechanism for traffic shaping of bandwidth limited streams that have a reserved bandwidth allocation. Its traffic shaping constrains the managed class to use only its allocation regardless of the bandwidth use by other classes and spaces intervals between packets in the class. The transmission selection in this PAR is intended to allow bandwidth allocation amongst traffic types while allowing traffic in one class to use bandwidth unused by the offered load in other classes without traffic shaping constraints. This is suitable for carrying bursty traffic at high data rates.

and answer the following

Sponsor Organization: IEEE C/LM

Project/Standard Number: IEEE P802.1Qav

Project/Standard Date: 27-Feb-2007

Project/Standard Title: Forwarding and Queuing Enhancements for Time-Sensitive Streams

7.2 International Activities

a. Adoption

Is there potential for this standard (in part or in whole) to be adopted by another national, regional or international organization?: No

b. Joint Development

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

c. Harmonization

Are you aware of another organization that may be interested in portions of this document in their standardization development efforts?: No

8.1 Additional Explanatory Notes (Item Number and Explanation): The PAR was updated to add the control protocol for Enhanced Transmission Selection and Priority-based Flow Control would be included in this standard. That was always the intent but the PAR text didn't clearly state it.

Also, the scope was changed slightly to use the usual formula for our PARs at the beginning "protocols, procedures and managed objects for" and a separate sentence on managed objects was deleted. The dates for sponsor ballot and RevCom submission were updated to the current expected schedule.

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