P802.1EJ

Type of Project: New IEEE Standard
Project Request Type: Initiation / New
PAR Request Date:
PAR Approval Date:
PAR Expiration Date:
PAR Status: Draft

1.1 Project Number: P802.1EJ
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: Backward Notification

3.1 Working Group: Higher Layer LAN Protocols Working Group(C/LAN/MAN/802.1 WG)
3.1.1 Contact Information for Working Group Chair:
Name: Glenn Parsons
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Name: Jessy Rouyer
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3.2 Society and Committee: IEEE Computer Society/LAN/MAN Standards Committee(C/LAN/MAN)
3.2.1 Contact Information for Standards Committee Chair:
Name: James Gilb
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3.2.2 Contact Information for Standards Committee Vice Chair:
Name: David Halasz
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: Jul 2028
4.3 Projected Completion Date for Submittal to RevCom: Jul 2029

5.1 Approximate number of people expected to be actively involved in the development of this project: 20
5.2 Scope of proposed standard: This standard specifies procedures and managed objects, including a YANG data model, for signaling network conditions backward toward the source end station in data center networks. The notification mechanism conveys information to higher layer entities to enable rapid response for congestion management, path rebalancing, and failure recovery. This standard defines how notifications are triggered, constructed, and sent through bridges, as well as defining a service interface for exposing notifications above the link layer.

5.3 Is the completion of this standard contingent upon the completion of another standard? No
5.4 Purpose: This document will not include a purpose clause.
5.5 Need for the Project: Network congestion has a severe impact on loss-sensitive and latency-sensitive workloads, such as those leveraging Remote Direct Memory Access, in data centers for Artificial Intelligence and High-Performance Computing. While PFC provides hop-by-hop flow control and higher-layer end-to-end congestion control mechanisms are also employed, there remains a need for a standardized backward notification mechanism by which network elements can signal congestion and other network conditions towards the source end-station, enabling timely and informed decisions for congestion management, path re-balancing, and failure recovery. Backward notification is particularly valuable for links with long round trip time or when the forward path is unavailable. Backward notification complements existing congestion management techniques and improves the overall robustness and efficiency of data center networks.
5.6 Stakeholders for the Standard: Developers and users of networking for data center environments including integrated circuit developers, bridge and end station vendors, network operators and users.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project? No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project? Yes

Explanation: The YANG Data Model will be assigned a Uniform Resource Name (URN) based on the Registration Authority (RA) URN tutorial and IEEE Std 802d.

7.1 Are there other standards or projects with a similar scope? No

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

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8.1 Additional Explanatory Notes: #5.2:
While 'YANG' (developed by the Internet Engineering Task Force) appears to be an acronym its expansion 'Yet Another Next Generation' is not meaningful. YANG is a widely-used standard that is relevant to the Registration Authority.
IEEE Std 802.1Q: IEEE Standard for Local and Metropolitan Area Networks—Bridges and Bridged Networks.

#5.5:
RoCE is specified by the Infiniband Trade Association. Supplement to Infiniband Architecture Specification Volume 1 Release 1.2.1 Annex A17: RoCEv2. September 2014: pages 1-23

#6.1.2:
IEEE Std 802 IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture
IEEE Std 802d IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture Amendment 1: Allocation of Uniform Resource Name (URN) Values in IEEE 802 Standards
RA URN tutorial: http://standards.ieee.org/develop/regauth/tut/ieeeurn.pdf