



New PAR for Resource Allocation Protocol - an amendment to 802.1Q

Feng Chen
Siemens AG

IEEE 802.1 Plenary Meeting
March 2018, Rosemont, IL USA

Introduction

- q Previous contributions to RAP
 - § requirements: [new-chen-RAP-proposal-and-requirements-0517-v02.pdf](#)
 - § feature proposals: [new-kiessling-RAP-proposal-and-features-0517-v01.pdf](#)
 - § white paper: [tsn-chen-RAP-whitepaper-1117-v02.pdf](#)

- q The new document for RAP will be an amendment to 802.1Q, as a result of discussion at the Geneva interim.

- q This presentation shows the draft PAR.

PAR Header

Type of Project: Amendment to IEEE Standard 802.1Q-2018

PAR Request Date: xx-July-2018

PAR Approval Date:

PAR Expiration Date:

Status: Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

1.1 Project Number: P802.1Qxx

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Local and metropolitan area networks--Bridges and Bridged Networks

Amendment: Resource Allocation Protocol (RAP)

PAR Lifecycle

4.1 Type of Ballot:

Individual

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

04/2022

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.:

12/2022

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

40

PAR Scope

5.2.a. Scope of the complete standard:

This standard specifies Bridges that interconnect individual LANs, each supporting the IEEE 802 MAC Service using a different or identical media access control method, to provide Bridged Networks and VLANs.

5.2.b. Scope of the project:

This amendment specifies protocols, procedures and managed objects for a Resource Allocation Protocol (RAP), which is an application for and running over the Link-local Registration Protocol (LRP) specified by IEEE Std 802.1CS. RAP provides distributed stream reservation by including:

- support for existing capabilities of Multiple Stream Reservation Protocol (MSRP) and provision for backwards compatibility
- efficient propagation of reservations by leveraging LRP
- support for all stream reservation classes of IEEE Std 802.1Q
- support for an accurate method of calculating and reporting latency for queuing algorithms suitable for time sensitive networking
- support for streams using redundant paths
- use of IEEE Std 802.1Q clause 46.2 User/network configuration information

PAR Dependency and Purpose

5.3 Is the completion of this standard dependent upon the completion of another standard: Yes

If yes please explain: This standard will make normative references to IEEE P802.1CS, IEEE P802.1Qcc and IEEE P802.1Qcp.

5.4 Purpose:

Bridges, as specified by this standard, allow the compatible interconnection of information technology equipment attached to separate individual LANs.

PAR Need and Stakeholders

5.5 Need for the Project:

A signaling protocol that performs distributed and dynamic resource management and admission control is an essential component for automatic configuration in bridged LANs requiring latency and bandwidth guarantees. Current “Multiple Stream Reservation Protocol (MSRP)” is constrained by the capability of its underlying “Multiple Registration Protocol (MRP)” and does not efficiently support a large reservation database.

For use in distributed stream reservation, MSRP, including its enhancements being specified by IEEE P802.1Qcc, does not enable the use of SR classes other than the default settings tied to the Credit-based Shaping (CBS) and does not support reservation for the streams in need of high availability by use of the technologies specified in IEEE 802.1CB.

The proposed amendment will address these issues.

5.6 Stakeholders for the Standard:

Developers, providers, and users of networking services and equipment for Industrial, Professional Audio-Video (AV), Consumer electronics and other systems requiring distributed stream reservation services for streaming of time-sensitive data.

PAR 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?: Yes

If yes please explain:

The YANG Data Model will be assigned a Uniform Resource Name (URN) based on the Registration Authority URN tutorial and IEEE Std 802d. The Simple Network Management Protocol (SNMP) MIB will be assigned an Object Identifier (OID) based on the RA OID tutorial and IEEE Std 802. The amendment may allow an Organizationally Unique Identifier (OUI) or Company Identifier (CID) to be used to create a globally unique application identifier as required by LRP for each of its applications.

PAR Others

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

7.2 Joint Development

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

8.1 Additional Explanatory Notes:

#5.2.b IEEE 802.1Q Standard for Local and Metropolitan Area Networks - Bridges and Bridged Networks

#5.3 IEEE P802.1Qcc Draft Standard for Local and Metropolitan Area Networks - Bridges and Bridged Networks
Amendment: Stream Reservation Protocol (SRP) Enhancements and Performance Improvements.

IEEE P802.1CS Draft Standard for Local and Metropolitan Area Networks: Link-local Registration Protocol

IEEE P802.1Qcp Draft Standard for Local and Metropolitan Area Networks - Bridges and Bridged Networks Amendment:
YANG Data Model

#6.1.b 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.

Thank You!

