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

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Introduction

q Previous contributions to RAP

§ requirements: new-chen-RAP-proposal-and-requirements-0517-v02.pdf

§ feature proposals: new-kiessling-RAP-poposal-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.

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PAR Header

Type of Project: Amendment to IEEE Standard 802.1Q-2014

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

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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) being specified by IEEE P802.1CS. RAP provides enhanced performance and extended capability than Multiple Stream Reservation Protocol (MSRP) in application to distributed stream reservation by including:

- efficient propagation of attributes by leveraging LRP mechanisms

- mechanisms to enable reservation for Stream Reservation classes (SR class) beyond the default SR class configuration

- an abstract resource checking and latency reporting function inheritable by the deployment of various queuing and transmission mechanisms that define different methods for resource allocation and latency calculation

- support for streams requiring high availability with redundancy

A facility is also provided to address interoperability with the existing MSRP for distributed stream reservation.

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PAR Dependency and Purpose

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

If yes please explain: IEEE P802.1CS, IEEE P802.1Qcc, (if doing YANG, IEEE P802.1Q-Rev, IEEE P802.1Qcp as well)

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 for data streams requiring latency and bandwidth guarantees is an essential component for automatic configuration in bridged area network. Current "Multiple Stream Reservation Protocol (MSRP)" is constrained by the capability of its underlying "Multiple Registration Protocol (MRP)" and is not sufficiently efficient in support of a large amount of 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 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.

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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:

#5.3 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

#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!