Project Authorization Request (PAR) Development on Traffic Engineering Extensions for Delay Uncertainties (P802.1Qee)

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Notes

- This slidedeck is to facilitate PAR development for P802.1Qee at the 2025 May Interim Session of the IEEE 802.1 WG
- Input contributions to the May Interim
  - https://www.ieee802.org/1/files/public/docs2025/ee-farkas-draft-PAR-0525-v00.pdf
  - https://www.ieee802.org/1/files/public/docs2025/ee-farkas-draft-CSD-0525-v01.pdf
  - https://www.ieee802.org/1/files/public/docs2025/ee-farkas-PAR-development-0525-v00.pdf, which includes background information too
- Result from the May Interim
  - https://www.ieee802.org/1/files/public/docs2025/ee-draft-PAR-0525-v01.pdf
  - https://www.ieee802.org/1/files/public/docs2025/ee-draft-CSD-0525-v01.pdf

2.1 Project Title

IEEE Standard for Local and Metropolitan Area Networks--Bridges and Bridged Networks Amendment: Traffic Engineering for Local Area Networks with Significant Delay Variance

5.2.b Scope of the Project

Potential variants:

a) This amendment specifies procedures and managed objects to extend bridge attributes for traffic engineering for LANs with more uncertain delays than those of point-to-point wireline MAC technologies.

b) This amendment specifies procedures and YANG data model to extend bridge attributes for traffic engineering for Local Area Networks (LANs) with significant delay variance.

c) This amendment specifies procedures and YANG data model to extend bridge attributes for traffic engineering for LANs with significant delay variance, for example, wireless LANs.

Append for all variants:

Additionally, this amendment addresses technical and editorial corrections to existing IEEE Std 802.1Q functionality.

5.5 Need for the Project

IEEE Std 802.1Q currently does not provide support for traffic engineering to take into account the characteristics of LANs with more uncertain delays than those of point-to-point wireline MAC technologies. For instance, wireless systems often appear as a logical bridge in a bridged network. However, such logical bridges have significantly different characteristics compared to wireline bridges. IEEE Std 802.1Q currently does not provide means to describe such differences for traffic engineering. Extensions to bridge attributes are needed to enable effective traffic engineering for deployments including LANs with more uncertain delays than those of point-to-point wireline MAC technologies.

5.6 Stakeholders for the Standard

Manufacturers, distributors, vendors, and users of Virtual LAN bridging equipment and components thereof.

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 IEEE Registration Authority (RA) URN tutorial and IEEE Std 802. The amendment will use the IEEE 802.1 Organizationally Unique Identifier (OUI) to create a globally unique application identifier as required. The amendment may allow an OUI or Company Identifier (CID) to be used to create code points used in managed objects and protocol fields.

8.1 Additional Explanatory Notes

#6.1.2:

- While 'YANG' (developed by the Internet Engineering Task Force) appears to be an acronym, its expansion is not meaningful. YANG is a data modeling language for the definition of data sent over network management protocols.
- IETF Request For Comments (RFC) 7950, The YANG 1.1 Data Modeling Language
- IEEE Std 802 IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture
- link to the IEEE RA URN tutorial: https://standards.ieee.org/wp-content/uploads/import/documents/tutorials/ieeeurn.pdf
- link to the IEEE RA Object Identifier (OID) tutorial: https://standards.ieee.org/wp-content/uploads/import/documents/tutorials/oid.pdf