IEEE 802 LAN/MAN STANDARDS COMMITTEE (LMSC)

CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 17 March 2022
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P802.1Qek Standard for Local and Metropolitan Area Networks – Bridges and Bridged Networks Amendment: Additions for Robustness in Engineered Networks

1. IEEE 802 criteria for standards development (CSD)

The CSD documents an agreement between the WG and the LMSC that provides a description of the project and the LMSC's requirements more detailed than required in the PAR. The CSD consists of the project process requirements, 1.1, and the 5C requirements, 1.2.

1.1 Project process requirements

1.1.1 Managed objects

Describe the plan for developing a definition of managed objects. The plan shall specify one of the following:

a) The definitions will be part of this project.
b) The definitions will be part of a different project and provide the plan for that project or anticipated future project.
c) The definitions will not be developed and explain why such definitions are not needed.

This project will use method a). The managed objects definitions will be part of this project.

1.1.2 Coexistence

A WG proposing a wireless project shall prepare a Coexistence Assessment (CA) document unless it is not applicable.

d) Will the WG create a CA document as part of the WG balloting process as described in Clause 13? (yes/no)
e) If not, explain why the CA document is not applicable.

d) No.
e) This project is not a wireless project; therefore, the CA document is not applicable.

1.2 5C requirements

1.2.1 Broad market potential

Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:

f) Broad sets of applicability.
g) Multiple vendors and numerous users.

f) Engineered traffic environments can take advantage of additional mechanisms for robustness due to the need for certification. These robustness mechanisms allow correctness of network operation to be validated without depending on correct behavior of all potentially connected systems/stations. Such environments include but are not limited to aerospace, automotive, and industrial automation applications.

g) The proposed amendment is applicable to multiple vendors and users of aerospace, ground vehicles, automotive, industrial automation, and other application areas.

1.2.2 Compatibility

Each proposed IEEE 802 LMSC standard should be in conformance with IEEE Std 802, IEEE 802.1AC, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG prior to submitting a PAR to the Sponsor.

h) Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?
i) If the answer to a) is no, supply the response from the IEEE 802.1 WG.

The review and response is not required if the proposed standard is an amendment or revision to an existing standard for which it has been previously determined that compliance with the above IEEE 802 standards is not possible. In this case, the CSD statement shall state that this is the case.

The amendment will be in conformance with IEEE Std 802, IEEE Std 802.1AC, and the existing provisions of IEEE Std 802.1Q.

1.2.3 Distinct Identity

Each proposed IEEE 802 LMSC standard shall provide evidence of a distinct identity. Identify standards and standards projects with similar scopes and for each one describe why the proposed project is substantially different.

IEEE 802.1Q is already a recognized and established standard. This project adds further robustness mechanisms to IEEE 802.1Q to meet expressed customer needs; it does not duplicate existing capabilities. There is no other IEEE 802 standard or approved project that overlaps with the scope of this project.

1.2.4 Technical Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence that the project is technically feasible within the time frame of the project. At a minimum, address the following items to demonstrate technical feasibility:

j) Demonstrated system feasibility.
k) Proven similar technology via testing, modeling, simulation, etc.

j) The proposed project takes advantage of Per-Stream Filtering and Policing (PSFP), which is already an implemented, deployed, and tested feature of IEEE 802.1Q. PSFP includes maximum service data unit size filtering, which is similar to minimum service data unit size filtering. Furthermore, ARINC 664P7 already has minimum service data unit size filtering deployed in aerospace Ethernet networks.

k) Basic features, including maximum service data unit filtering, have been implemented and tested. Thus, similar technology has been proven via implementations and testing.

1.2.5 Economic Feasibility

Each proposed IEEE 802 LMSC standard shall provide evidence of economic feasibility. Demonstrate, as far as can reasonably be estimated, the economic feasibility of the proposed project for its intended applications. Among the areas that may be addressed in the cost for performance analysis are the following:

l) Known cost factors.
m) Balanced costs.
n) Consideration of installation costs.
o) Consideration of operational costs (e.g., energy consumption).
p) Other areas, as appropriate.

l) Implementation cost factors are known from already standardized IEEE 802.1Q maximum service data unit size filtering and the minimum service data unit size filtering in ARINC 664P7.
m) The well-established balance between infrastructure and attached stations is not expected to be changed by the proposed amendment.
n) The installation cost factors of bridged networks are well known, and the proposed amendment is not expected to change them.
o) The proposed amendment supports robustness and higher-bandwidth utilization, which in turn reduces the size, weight, and power of the network infrastructure (e.g., number of switches, wiring, etc.) and therefore reduces the installation and operational costs.
p) The proposed amendment reduces the costs of verification, validation, and regulatory approval for certified system.