

IEEE 802 LAN/MAN STANDARDS COMMITTEE (LMSC)

CRITERIA FOR STANDARDS DEVELOPMENT (CSD)

Based on IEEE 802 LMSC Operations Manuals approved 15 November 2013

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1. IEEE 802 criteria for standards development (CSD)

The CSD documents an agreement between the WG and the Sponsor that provides a description of the project and the Sponsor'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)

1.1.2 Coexistence

A WG proposing a wireless project shall demonstrate coexistence through the preparation of a Coexistence Assurance (CA) document unless it is not applicable.

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

This project is not a wireless project.

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:

- a) Broad sets of applicability.
 - b) Multiple vendors and numerous users.
- a. **Redundant topologies are common in many industrial networks such as Industrial Automation, Energy Automation, Rail Systems. Growth rate of redundant systems is much higher than the growth of communication in general. Redundant topologies are also used in automotive in-vehicle networks for safety critical control applications and ring topologies are proposed for automotive backbone applications. These applications would significantly benefit from frame replication and duplicate frame elimination in order to support seamless**

availability with network segment protection.

Professional AV requires error protection as well. This is accomplished today by duplicating the complete network infrastructure which is costly and sometimes not as robust as required. Additionally every AV application which needs audio/video transmissions with seamless availability benefits from the proposed amendment.

- b. 60 million in 2010 (56~70 million per annum from 1960's till now) cars and light-trucks/SUVs sold per year. In-vehicle networking is expected to reach >15% in 2011 and grow. With an assumption of @ 5 Ethernet nodes/vehicle, Assuming 60 million vehicles/year, potential vehicle market served at 15% adoption would yield 45+ million nodes (plus 45+ million Switch ports). The number of existing Ethernet Switch ports is ~400 million/yr, split 35%:60%:5% FE/GE/10+GE in 2011.

Thus, a potential for 15% Ethernet market expansion as adoption occurs in automotive.

Industrial Automation – The number of industrial communication ports sold worldwide is 24 million per year in 2010. This is expected to grow to 40 million per year in 2014. Additional market served with this standards are Energy (e.g. Power substation power controllers) and Avionics.

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.

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

- a. This standard will be defined in 802.1, which defines bridging, and will be consistent with the bridging standards.

- b. Not applicable.

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.

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.

No similar IEEE 802 standard capabilities are known to IEEE 802.1.

This project fills in well-known deficiencies in the current standard..

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:

- a) Demonstrated system feasibility.
 - b) Proven similar technology via testing, modeling, simulation, etc.
- a. The function is similar in complexity to existing functions in IEEE 802.1Q which have been successfully implemented. This document will extend the capabilities and mechanisms of IEEE 802.1CB.
 - b. This standard is based on mature virtual LAN bridging.
 - c. The technology re-use, and other augmented methods are deemed proven for their reliability.

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:

- a) Balanced costs (infrastructure versus attached stations).
- b) Known cost factors.
- c) Consideration of installation costs.
- d) Consideration of operational costs (e.g., energy consumption).
- e) Other areas, as appropriate.

- a. The standard would add small and contained incremental cost to bridge and end station implementations.
- b. Reasonable cost for performance, widely accepted today in IT segment, will be consistent in this standard. In addition, this standard would help to use time sensitive traffic in applications which require high availability, thereby helping to replace a) parallel networks, b) multiple dedicated point-to-point wires. The extra performance gain of this enhancement adds new markets that otherwise could not be addressed.
- c. The installation cost of enhanced VLAN bridges and end stations is expected to be similar to existing implementations