Proposed Draft CSD

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IEEE 802.3 Criteria for Standards Development (CSD)

The IEEE 802 Criteria for Standards Development (CSD) are defined in Clause 14 of the IEEE 802 LAN/MAN Standards Committee (LMSC) Operations Manual. The criteria include project process requirements ("Managed Objects") and 5 Criteria (5C) requirements. The 5C are supplemented by subclause 7.2 'Five Criteria' of the 'Operating Rules of IEEE Project 802 Working Group 802.3, CSMA/CD LANs'.

The following are the CSD Responses in relation to the IEEE P802.3**xx** PAR

Items required by the IEEE 802 CSD are shown in Black text and supplementary items required by IEEE 802.3 are shown in **blue** text.

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.

- The definition of protocol independent managed objects, to be included in Clause 30 of IEEE Std 802.3, will be part of this project.

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?

b) If not, explain why the CA document is not applicable

- A CA document is not applicable because the proposed project is not a wireless project.

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.

- Broad application base
  - Accurate time synchronization is required in order to use Ethernet in the 5G radio access network (RAN) infrastructure, which is expected to be a very large global market. 5G RAN requires extremely high-precision timestamping in order to coordinate signals among multiple radio sites (e.g., carrier aggregation, coordinated multi-point radios, and vehicle-to-vehicle communication)
  - It is expected that other applications (e.g., industrial and SmartGrid) would also utilize high-precision time synchronization as they move to higher-rate interfaces
- Multiple vendors, multiple users
  - High-precision time synchronization capability has been available from many vendors on a proprietary basis for some years. Having an interoperable standard will help to expand the market and number of vendors

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.

c) Compatibility with IEEE Std 802.3

d) Conformance with the IEEE Std 802.3 MAC

- As an amendment to IEEE 802.3, the proposed project shall comply with IEEE Std 802, IEEE Std 802.1AC, and IEEE Std 802.1Q.
- Time synchronization capable interface DTEs will interoperate with legacy interfaces DTEs, though the improved time synchronization accuracy capability will not be active.
- Support for the time synchronization will be limited to the full-duplex operation mode of the IEEE Std 802.3 MAC.

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.

Substantially different from other IEEE 802.3 specifications / solutions.

- Improved accuracy time synchronization will be defined as an optional extension to existing interfaces and management clauses. There is no other definition of such an enhanced time synchronization interface and management in IEEE Std 802.3.
- The current Ethernet standard provides support for time synchronization, defined in Clause 90, but does not include support for the high-precision time synchronization for its more recent complex PHYs.
- This project does not overlap with IEEE Std 1588 or IEEE Std 802.1AS, but in fact complements them.

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.
c) Confidence in reliability.

- High-precision time synchronization has been successfully implemented, demonstrated and deployed by numerous parties for a few years in a proprietary manner. This amendment will enable the same capability in multi-vendor systems.

- This project will maintain the reliability of Ethernet.

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.

- The balance of costs will not be significantly affected by this amendment
- The cost, reliability and performance are well understood. This amendment is anticipated to have minimal impact on implementation complexity, and therefore is not expected to significantly influence the cost.
- This amendment will not change the installation cost of devices.
- This amendment is not expected to significantly impact operational costs