IEEE 802 Amendment for Local Address Usage

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 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.\\

A CA document is not applicable because this 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.

Today, every physical bridgeable port (e.g. IEEE 802.3 and 802.11) shipped consumes a Globally Unique MAC address. MAC address usage increased dramatically with the emergence of network ports on phones, tablets, set top boxes, etc.

Virtual ports need addresses assigned as they are created. Global addresses are not appropriate as consumption of global address space by such ephemeral devices could exhaust the address space. Proprietary protocols have been created to distribute addresses for virtual ports. Some protocols have used Global MAC address blocks for these assignments because there was no mechanism for obtaining a Local MAC address block. Some have used a fixed or default block in the local address space. Fibre Channel over Ethernet (FCoE) has standardized a protocol for distributing FCoE virtual port MAC addresses from blocks in the Local MAC address space..

Emerging usage for the Internet of Things (IoT) ports on sensors, j actuators, lights, appliances, etc. could vastly increase address usage by physical ports. Most such devices wouldn't need Globally Unique MAC addresses if there were protocols available to obtain a Local MAC address.

A first step in enabling protocols for claiming or assignment of Local MAC addresses is to organize the MAC address space so that organizations can "own" a block of the Local Address space as a default and another part of the space is defined for local administration.

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.

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.

Yes, it will comply with IEEE Std 802.1AC and IEEE Std 802.1Q. It will modify IEEE Std 802 by providing a guideline for use of the existing Local Address space.

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.

There is no other standard that defines a guideline for use of the Local Address space.

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.

Existing protocols including orchestration protocols for virtualization and the T11 FC-BB-6 standard on FCoE demonstrate that protocols to distribute or claim addresses in the Local Address space are feasible. This standard will better enable compatibility between such protocols and between the protocols and local administrated addresses by defining a guideline for usage of the Local Address space.

The IEEE Registration Authority now provides Company IDs (CIDs), 24-bit identifiers with values in a portion of the Local Address space. Organizations will be able to use a CID address block as a default address space for their protocol without conflicting with other protocols following the guideline. Another part of the space will be defined as the preferred area for local address administration.

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.

Existing protocols demonstrate that protocols for local address distribution or claiming have economic feasibility and costs are known. CIDs are available from the RAC for a known cost.

Such protocols reduce installation cost by eliminating the need to configure addresses for virtual ports. Not needing a unique Global Address may slightly reduce the cost of ports on IoT devices.

There should be no significant impact on operational costs.