

Proposed Draft ELLA Report on Amendment of IEEE Std 802

Rev 1: update of Slide 6 based on Nendica meeting 2021-12-23

DRAFT PROPOSED BY CONTRIBUTOR

Roger Marks
(EthAirNet Associates; Huawei)
roger@ethair.net

+1 802 capable

23 December 2021

Background

- This contribution proposes the basis of an extension to the informal “ELLA Report on Update of IEEE Std 802” [draft in 802.1-21-0076]
- The [draft] ELLA Report proposes two PARs to update IEEE Std 802
 - Maintenance Revision PAR to LMSC in March 2022
 - Amendment PAR to LMSC in July 2022
- The [draft] ELLA Report covers details of the Revision PAR
- The [draft] ELLA Report proposes a schedule of the Amendment PAR but no details
- This contribution proposes the basis of an extension to the informal “ELLA Report”
 - According to the proposed schedule, the extension should be completed in May 2022

Amendment PAR Development Schedule

- Schedule, to PAR approval
 - March 2022 – 802.1 WG tasks Nendica to expand ELLA report with proposed content of amendment PAR
 - May 2022: Technical Plenary - preview draft Nendica report
 - May 2022 802.1 interim session – produce draft PAR & CSD
 - May 2022: finalize report
 - June 2022: 802.1 Chair pre-submits PAR/CSD to EC
 - June 2022: 802.1 Chair pre-submits PAR to NesCom
 - July 2022 – Comments due within 802 on PAR/CSD
 - July 2022– 802.1 review of comments on PAR/CSD
 - July 2022 – complete 802.1 response to comments, final PAR/CSD
 - July 2022 – deadline for 802.1 response to comments within 802
 - July 2022 – 802 PAR/CSD agreement at 802 EC meeting
 - July 2022– confirm 802 agreement to forward NesCom
 - Sept 21, 2022– NesCom recommendation decision
 - Sept 22, 2022– SASB approval vote

Working Group Views

802.11 ARC comments on 802 project(s)

- *Prefer the IEEE Std 802 to not become inactive/reserved status*
- *Recommend having two parallel projects to ensure the deadline is met, while allowing technical discussion/updates*
 - *Suggest one project dedicated to only the maintenance roll-in of approved amendments. The project group/chair will need to work to limit discussions to issues that arise directly from the roll-in.*
 - *Suggest the second project can be for technical discussion of any topics of interest to commenters and members, on existing material to be updated or removed, new material to be considered/added, etc.*
 - *Recommend to include in this technical discussion the consideration of a specification of the LLC service, the LSAP, Link-layer connections, and the support of/mapping to the MSAP(s).*
- **IEEE 802.11 Architecture Standing Committee, 2021-12-13**
- <https://mentor.ieee.org/802.11/dcn/21/11-21-1993-03-0arc.pptx>

Amendment PAR: Scope

- Compared to IEEE Std 802-2014:
- This standard ~~contains descriptions of the IEEE 802(R) standards published by the IEEE for frame-based data networks as well as a reference model (RM) for protocol standards.~~ The summarizes the IEEE 802 family of networking standards and specifies the IEEE 802 architecture is defined, and a specification for the identification of public, private, and standard protocols is included., including the architecture of the logical link sublayer and the description of the IEEE 802 link layer service provided to the network layer.

Amendment PAR: Purpose

- Compared to IEEE Std 802-2014:
- This standard serves as the foundation for the family of IEEE 802 standards published by IEEE for ~~local area networks (LANs), metropolitan area networks (MANs), personal area networks (PANs), and regional area networks (RANs).~~ compatible with and supporting the common IEEE 802 link layer service.

Amendment PAR: Need

- Amendment of existing IEEE Std 802 is needed to detail the IEEE 802 architecture and the common IEEE 802 link layer service.

PAR Proposed Update: Stakeholders

- Client users of link layer services. Standards developers within IEEE 802. Manufacturers, distributors, and users of products and services that conform to the ~~LAN, MAN, and PAN~~ standards developed by IEEE 802.

PAR Proposed Update: additional

- TITLE: ~~IEEE~~ Standard for Local and Metropolitan Area Networks: Overview and Architecture
- *Approximate number of people expected to be actively involved in the development of this project: 30*
- *Is the completion of this standard dependent upon the completion of another standard? Yes, IEEE Std 802*
- *Are there other standards or projects with a similar scope? No*
- *Is it the intent to develop this document jointly with another organization? No*
- Expected Date for Initial SA Ballot: Nov 2024
- Projected Submittal to RevCom: Nov 2025

Proposed CSD: 14.1.1

- 14.1.1 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.
 - (a) Definitions include YANG Data Model for EtherTypes incorporated per P802f.

Proposed CSD: 14.1.2

- 14.1.2 Coexistence

- A Working Group proposing a wireless project shall prepare a Coexistence Assessment (CA) document unless it is not applicable.
- a) Will the Working Group create a CA document as part of the Working Group balloting process as described in Clause 13? (yes/no)
 - no
- b) If not, explain why the CA document is not applicable.
 - Per Clause 13, the CA document applies to wireless Working Groups and shall address coexistence with all relevant active IEEE 802 LMSC wireless standards specifying devices for unlicensed operation. This document is not anticipated to alter wireless coexistence behavior.

Proposed CSD: Criteria #1

- 14.2.2 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.
 - The revised standard would continue to support devices, from multiple vendors and for multiple users, that are compatible with pre-existing IEEE 802 standards and broadly applicable.

Proposed CSD: Criteria #2

- 14.2.2 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 Working Group prior to submitting a PAR to the IEEE 802 LMSC.
- a) Will the proposed standard comply with IEEE Std 802, IEEE Std 802.1AC and IEEE Std 802.1Q?
 - Yes
- b) If the answer to a) is no, supply the response from the IEEE 802.1 Working Group.
- 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.

Proposed CSD: Criteria #3

- 14.2.3 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 other standard specifies the IEEE 802 architecture. Some aspects of the IEEE 802 link layer service are specified in IEEE/ISO 802.2-1989 (Inactive-Withdrawn).

Proposed CSD: Criteria #4

- 14.2.4 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.
 - The IEEE 802 architecture will significantly draw from existing IEEE 802 standards and existing implementations.

Proposed CSD: Criteria #5

- 14.2.5 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) Known cost factors. b) Balanced costs. c) Consideration of installation costs. d) Consideration of operational costs (e.g., energy consumption). e) Other areas, as appropriate.
 - The specification of the IEEE architecture is not expected to entail new costs for implementations.

Further details on need for amendment

- Summary of aspects missing from current IEEE 802 Architecture documentation
- Potential benefits enabled by additional architectural details
- Impact of new and evolving technologies on architecture
- Architectural optimization in specific network environments
- ...