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| DRAFT : OmniRAN EC SG - PAR and 5C |
| Date: 2013-10-10 |
| **Authored by: IEEE 802 OmniRAN Executive Committee Study Group** |

Abstract

This document contains the proposed text for the Project Approval Request (PAR) and Five Criteria (5C) of the OmniRAN Executive Committee Study Group.

This revision is aimed for the submission to the IEEE 802 Executive Committee for consideration in the November 2013 plenary session.

**PAR content**

**Submitter Email:** max.riegel@ieee.org

**Type of Project:** New IEEE Standard

**1.1 Assigned Project Number:** <unassigned>

**1.2 Type of Document:** Recommended Practice

**1.3 Life Cycle:** Full Use

**2.1 Project Title:** Network Reference Model and Functional Description of IEEE 802 Access Network

**3.1** **Working Group:** t.b.d., proposed IEEE 802.1
**Contact Information for Working Group Chair**
   **Name:**
   **Email Address:**
   **Phone:**
**Contact Information for Working Group Vice-Chair**
None

**3.2** **Sponsoring Society and Committee:** IEEE Computer Society/LAN/MAN Standards Committee (C/LM)
**Contact Information for Sponsor Chair**
   **Name:** Paul Nikolich
   **Email Address:** p.nikolich@ieee.org
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**Contact Information for Standards Representative**
   **Name:** James Gilb
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   **Phone:**

**4.1 Type of Ballot:** Individual

**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:** 03/2015

**4.3 Projected Completion Date for Submittal to RevCom:** 11/2015

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 40

**5.2 Scope:**

This recommended practice specifies an access network utilizing technologies based on the family of IEEE 802 Standards. It provides a Network Reference Model, including entities and reference points along with behavioral and functional descriptions of communications among those entities.

OmniRAN should specify a Reference Model enabling uniform interface to 802 Wireless access networks. The Reference Model includes …

OmniRAN should not specify an access network or a particular access technology.

**5.3 Is the completion of this standard dependent upon the completion of another standard:** No

**5.4 Purpose:**

This specification enables manufacturers and operators to more easily design and deploy access networks based on IEEE 802 technologies, guides the developers of extensions to the existing standards in support of a unified access network, and extends the applicability of IEEE 802 standards into new deployment domains by specifying the functions of the IEEE 802 technologies when deployed in access networks.

OmniRAN should specify appropriate interfaces in a normative fashion in order to guarantee interoperability.

OmniRAN should not specify the functions of IEEE 802 technologies, but rather the interfaces to the existing functions including parameter types, parameter ranges, and security requirements.

**5.5 Need for the Project:**

For heterogeneous networks, user terminals may have to support multiple network interfaces, multiple network access technologies, and multiple network subscriptions. The project will generate a recommended practice to deploy IEEE 802 technologies in an access network enabling such heterogeneity.

OmniRAN should develop a normative specification, not an application note or Best Current Practice document.

Modern heterogeneous networks, for applications such as Smart Grid, Home Automation, and Internet of Things, suffer from limitations in service control, security and provisioning. This project will help to unify the support of different interfaces, enabling shared network control and use of software defined network (SDN) principles, thereby lowering the barriers to new network technologies, to new network operators, and to new service providers.

Shared network control is good, but OmniRAN could be successful even if accomplishing the lesser goal of normative reference points for 802 technologies without additional consideration of parallel use by multiple network controllers.

**5.6 Stakeholders for the Standard:**

IEEE 802 Working Groups, network operators, service providers, network equipment manufacturers, consumer electronic (CE) device manufacturers, and other standards developing organizations (SDOs).

**Intellectual Property**
**6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?:** No

**6.1.b. Is the Sponsor aware of possible registration activity related to this project?:** No

**7.1 Are there other standards or projects with a similar scope?:** No

**7.2 Joint Development**
**Is it the intent to develop this document jointly with another organization?:** No

**7.3 International Standards Activities**

**A. Adoptions: Is there potential for this standard to be adopted by another organization?:** No

**B. Harmonization: Are you aware of another organization that may be interested in portions of this document in their standardization efforts?:** No

**7.4 Does the sponsor foresee a longer term need for testing and/or certification services to assure conformity to the standard?:** No

**Additionally, is it anticipated that testing methodologies will be specified in the standard to assure consistency in evaluating conformance to the criteria specified in the standard?:** No

**8.1 Additional Explanatory Notes:**

#1.2: Recommended Practices do not include mandatory statements, and this specification is not intended to serve as the basis of statements of conformance. However, the material provides a basis for the development of normative protocol standards that include mandatory statements and to which conformance can be stated. It is the intention of the sponsor to initiate the development of such protocol standards based on the underlying foundation established in this Recommended Practice.

It is not clear what the value will be to delay the introduction of the abovementioned protocol standards. Why not develop them as part of the OmniRAN effort?

#3.2, #5.6: Development of this standard will recognize the essential stakeholder role of the IEEE 802 Working Groups in the results. Prior to Sponsor agreement to forward a draft to Sponsor Ballot, each IEEE 802 Working Group will be invited to delegate a participant to serve as a member of any ballot group responsible for consideration of any internal draft.

IEEE 802.21, and in particular 802.21m and 802.21.1 which have been approved and are already moving forward, have goals which might significantly overlap the goals of OmniRAN. For this reason, strong coordination will be required throughout the lifespan of OmniRAN. It is recommended to have a joint meeting between OmniRAN and 802.21 as soon as possible in order to insure compatible developments.

#5.2: The standard shall comply with IEEE Std 802, IEEE Std 802.1D and IEEE Std 802.1Q.

**10.5 Criteria for standards development (five criteria)**

Source: <http://www.ieee802.org/PNP/approved/IEEE_802_OM_v12.pdf>

**10.5.1 Broad market potential**

A standards project authorized by IEEE 802 LMSC shall have a broad market potential. Specifically, it shall have the potential for:

a) Broad sets of applicability.

The proposed ‘Recommended Practice for Network Reference Model and Functional Description of IEEE 802 Access Network’ is applicable to IEEE 802 technologies for a broad set of deployment cases and should guide new users of IEEE 802 technologies in the appropriate arrangement of IEEE 802 standards for access networks.

b) Multiple vendors and numerous users.

Due to the applicability based on the use of the existing IEEE 802 access technologies, the standard is relevant to the vendors of IEEE 802 conformant equipment and will find usage for a variety of applications requiring communication infrastructures.

**10.5.2 Compatibility**

IEEE 802 LMSC defines a family of standards. All standards should be in conformance: IEEE Std 802, IEEE 802.1D, and IEEE 802.1Q. If any variances in conformance emerge, they shall be thoroughly disclosed and reviewed with IEEE 802.1 WG. In order to demonstrate compatibility with this criterion, the Five Criteria statement must answer the following questions.

a) Does the PAR mandate that the standard shall comply with IEEE Std 802,

 IEEE Std 802.1D and IEEE Std 802.1Q?

 Yes

b) If not, how will the WG ensure that the resulting draft standard is compliant, or if not, receives appropriate review from the IEEE 802.1 WG?

**10.5.3 Distinct identity**

Each IEEE 802 LMSC standard shall have a distinct identity. To achieve this, each authorized project shall be:

c) Substantially different from other IEEE 802 LMSC standards.

The standard is substantially different from all other IEEE 802 standards because no current standard specifies the network reference model and functional interactions for an IEEE 802 access network.

This is why the document should be normative.

d) One unique solution per problem (not two solutions to a problem).

The standard provides a generic model and a functional description of access networks based on IEEE 802 technologies. As the functional description is derived from the existing IEEE 802 protocols, the uniqueness of the IEEE 802 standards provides uniqueness for the described solutions as well.

e) Easy for the document reader to select the relevant specification.

The specification will explain the use and combination of the existing IEEE 802 specifications for creating access networks guiding the reader in the selection of the appropriate specifications.

**10.5.4 Technical feasibility**

For a project to be authorized, it shall be able to show its technical feasibility. At a minimum, the proposed project shall show:

a) Demonstrated system feasibility.

The recommended practice will document a reference model comprising widely used IEEE 802 protocols and procedures for access networks building the base for further deployments and functional enhancements of the IEEE 802 protocol suite. Therefore system feasibility of a document describing the functional behavior of access networks based on IEEE 802 standards is given.

This does not demonstrate system feasibility, for instance if two IEEE 802 technologies are found to be inherently incompatible.

b) Proven technology, reasonable testing.

As the project is based on the existing IEEE 802 specifications, proven technologies and reasonable testing can be assumed. Recommended Practices do not include mandatory statements, and this specification is not intended to serve as the basis of statements of conformance.

As mentioned above, this should be reconsidered in order to provide some measureable improvement in interoperable utilization of IEEE 802 technologies.

c) Confidence in reliability.

As the project is based on the existing IEEE 802 protocols and will not add new protocol specifications, the reliability of the IEEE 802 protocols will not be impacted.

***10.5.4.1 Coexistence of IEEE 802 LMSC wireless standards specifying devices for unlicensed operation***

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

 The WG will create a CA document as part of the WG balloting process.

 If the WG elects not to create a CA document, it will explain to the Sponsor the reason the CA document is not applicable.

Not applicable to the project, as it will not address any changes to the IEEE 802 wireless standards.

**10.5.5 Economic feasibility**

For a project to be authorized, it shall be able to show economic feasibility (so far as can reasonably be estimated) for its intended applications. At a minimum, the proposed project shall show:

a) Known cost factors, reliable data.

b) Reasonable cost for performance.

c) Consideration of installation costs.

This specification will not increase cost since it is providing a reference for how to use existing protocols and for creating a model.

The words in this sentence after “reference” are not well structured… could perhaps instead say “… a Reference Model for the use of existing protocols”.