PAR and Criteria for Standards Development for P802.1Qxx

IEEE 802.1 YANG Data Model
802.1WG
March 2015

PAR

1.1 Project Number:

P802.1Qxx

1.2 Type of Document:

Standards Amendment

1.3 Life Cycle:

Full Use

2.1 Title:

IEEE Standard for Local and metropolitan area networks — Bridge and Bridge Networks. Amendment: YANG Model

PAR

4.2 Expected Date of Submission for Initial Sponsor Ballot:

March 2017.

4.3 Projected Completion Date for Submittal to RevCom:

October 2017.

PAR

5.1 Approximate number of people expected to work on the project:

20 (??)

5.2 Scope of the project:

This amendment will specify the YANG data models that provide configuration management for the IEEE 802.1-Q-Bridge and functions found in IEEE Std 802.1Q™-2014. This initial scope of YANG Modules will provide the foundation for subsequent YANG data model specifications within IEEE 802.1Q.

5.3 Is the completion of this standard dependent upon the completion of another standard:

No.

PAR

5.5 Need for the Project:

YANG Modules are expected to be used to model configuration, operational status and any notifications.

As early as 2002, Internet Architecture Board (IAB) of IETF recommended that IETF/IRTF should spend resources on the development and standardization of XML-based device configuration and management technologies (RFC 3535, Section 6. Recommendation 5). Subsequently RFC 6241 was written and uses an Extensible Markup Language (XML)-based data encoding for the configuration data as well as the protocol messages.

As stated in abstract of RFC 6020, YANG is a data modeling language used to model configuration and state data manipulated by the Network Configuration Protocol (NETCONF), NETCONF remote procedure calls, and NETCONF notifications.

Furthermore, industry efforts such as OpenDaylight are using YANG modules to manage various network services.

5.6 Stakeholders for the Standard:

Developers, providers, and users of networking services and equipment such as software developers, bridge and NIC vendors, network operators and users.

PAR

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. However, SDOs such as IETF and MEF should be aware of the YANG data modeling project in IEEE.

5 Criteria

1. Broad Market Potential

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

a) Broad sets of applicability. The proposed amendment would apply to all 802 networks that implement IEEE 802.1Q.

b) Multiple vendors and numerous users. Service Providers are moving towards a NETCONF/YANG configuration management paradigm. As such vendors that provide IEEE 802.1 bridges and supporting functionality would be interested in this amendment.

5 Criteria

2. Compatibility

IEEE 802 LMSC defines a family of standards. All standards shall be in conformance: IEEE Std 802 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 Sponsor.

a) Does the PAR mandate that the standard shall comply with IEEE Std 802 and IEEE Std 802.1Q? Yes

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

5 Criteria

3. Distinct Identity

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

a) Substantially different from other IEEE 802 standards. There is no other 802 standard or approved project that provides the YANG data model specifications specified in the Scope of this project.

b) One unique solution per problem (not two solutions to a problem). The proposed amendment will consist of a single set of YANG data model specifications.

c) Easy for the document reader to select the relevant specification. The proposed project will be formatted as an amendment to IEEE 802.1Q-2011.

5 Criteria

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. YANG data model have already been defined by other SDOs (e.g., MEF and IETF). For example, MEF have defined YANG models for Service OAM Fault Management & Performance Monitoring, and IETF have defined YANG data models for Interface Management.

b) Proven technology, reasonable testing. This amendment utilizes the mature NETCONF protocol (i.e., ~2006) and YANG language definitions (i.e., ~2008)

c) Confidence in reliability. YANG data models are in use today.

5 Criteria

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. This enhancement would add no hardware costs beyond the minimal and well-known resources consumed by an enhanced software protocol whose requirements are firmly bounded.

b) Reasonable cost for performance. Adding the enhancements will have a negligible impact on the cost of 802 networks.

c) Consideration of installation costs. There should be no incremental installation cost relative to the existing costs associated with IEEE 802.1Q bridges.