Update on IEEE 1588 Projects and IEEE P802.1ASdn

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Agenda

- Summary of new projects (PARs) in IEEE 1588 Working Group

- Update on IEEE P802.1ASdn Amendment
  - YANG for 802.1AS

New projects in IEEE 1588

New projects in IEEE 1588

- IEEE 1588 is using Amendment process
  - More focused than previous Revision process
- Next slides summarize 1588 amendments
  - All are optional from the perspective of IEEE 802.1AS

- Public website for more info on IEEE 1588 Working Group: https://sagroups.ieee.org/1588/

P1588a: Enhancements for Best Master Clock Algorithm (BMCA) Mechanisms

- Project scope from <u>approved PAR</u>:

    This amendment:

    a) Enhances existing mechanisms and creates new ones that contain information about the time accuracy to support execution of BMCAs, while maintaining backward compatibility, or assist in the development of alternate BMCAs;

    b) Provides informative text to explain the execution of the BMCA;
    c) Provides informative text to guide the creation of alternate BMCAs;
    d) Provides an optional mechanism for managing Announce timeout; and
    e) Corrects errors in the text and clarifies passages that are unclear.

P1588b: Addition of Precision Time Protocol (PTP) mapping for transport over Optical Transport Network (OTN)

- Project scope from <u>approved PAR</u>:

   This amendment:

   a) Adds a normative annex that specifies the mapping of PTP to OTN;

   b) Adds an enumeration value to the network Protocol table (Table 3, in 7.4.1);

   c) Corrects errors in the text and clarifies unclear passages.

P1588c: Clarification of Terminology

• Project scope from <u>approved PAR</u>:

> This amendment will improve the terminology in the standard, and more completely specify the behavior of the protocol, in the following ways:
>
> • Clarification of the term "retransmit"
>
> • Elaboration of how type-length-value (TLV) message extensions are handled by Boundary Clocks and Transparent Clocks
>
> • Fix editorial errors and clarify unclear statements.

P1588d: Guidelines for selecting and operating a Key Management System

- Project scope from <u>approved PAR</u>:

    This amendment will enhance the security option of the IEEE Std 1588-2019 standard in the following ways:

    • Add guidelines on the selection and operation of specific key management technologies to Annex S. This involves the currently considered key management options and may also leverage additional key management approaches like Network Time Security (NTS).

    • Fix editorial errors and clarify unclear statements in Annex S and Subclause 16.14.

P1588e: MIB and YANG Data Models

- Project scope from <u>approved PAR</u>:

  This amendment specifies MIB data models and YANG data models for all data sets of IEEE Std 1588-2019, and other possible amendments to IEEE Std 1588-2019. The amendment uses the MIB and YANG standards as specified by the Internet Engineering Task Force (IETF). The amendment does not specify notifications, only configuration and state for data sets. In addition to introductory text and other normative text, the amendment produces module files that specify the MIB and YANG data models. The module files produced by the amendment are located on a public repository, and the content of each module file is not listed in the IEEE Std 1588 amendment document. The amendment will include the references to each module file. This amendment corrects errors in the text and clarifies unclear passages.

P1588f: Enhancements for latency and/or asymmetry calibration

- Project scope from <u>approved PAR</u>:

    This amendment enhances support for latency and asymmetry calibration, and also provides informative text related to these enhancements. It corrects errors in the text and clarifies unclear passages.

P1588g: Master-slave optional alternative terminology

- <u>Not</u> yet approved as IEEE SA project
  - Approved in IEEE 1588 Working Group
  - Submitted to NesCom and SASB (December agenda)
- Project scope from proposed PAR:

  This amendment adds an optional alternative suitable and inclusive terminology to the terms "master" and "slave" but it does not replace the terms "master" and "slave".

- Background
  - Proposal to replace terms in 1588: Insufficient approval votes
  - P1588g is intended to provide consistency for profiles and/or products that replace the terms in their documents

IEEE P802.1ASdn Update

P802.1ASdn: YANG Data Model

- From <u>approved PAR</u>:

    5.2.b Scope of the project:
    This amendment specifies a YANG data model that allows configuring and state reporting for all managed objects of the base standard. This amendment specifies a Unified Modeling Language (UML)-based figure to explain the managed objects and the associated YANG data model.

    5.3 Is the completion of this standard dependent upon the completion of another standard? Yes

    > 5.3.1 Explanation: Since many of the managed objects of IEEE Std 802.1AS originate from IEEE Std 1588, the YANG data model in this amendment augments the YANG for IEEE Std 1588, contained in amendment IEEE P1588e.

My Planned Contributions for P802.1ASdn

1. Update <u>experimental 1588 YANG</u> to 1588-2019 data sets, and create initial draft for P1588e
   - Including YANG draft module in GitHub for public review
   - Roughly half of P802.1ASdn nodes will exist here

2. Update <u>experimental 802.1AS YANG</u> to 802.1AS-2020 managed objects, and create initial draft for P802.1ASdn
   - Including YANG draft module in GitHub for public review
   - Motion forthcoming during closing 802.1 plenary

3. Ballot comments, comment resolution, new draft, ...
   - (usual process in each group)

Three Ways to Comment on P1588e

A. Formal: Become 1588 Working Group voter

- 1588's process is similar to 802.1

B. Formal: Wait to vote on IEEE SA ballot

- 1588 membership is not needed for this

C. Informal: Submit comments through Rodney C

1. Enter your comments using 802.1 Excel spreadsheet
   - Reference P1588e draft num, using line number on GitHub
   - Preface each comment with "Submitted on behalf of <your name>"
2. Forward spreadsheet to Rodney C for submission
3. Rodney C will try to notify you about 1588 call for resolution

Thank You