TSN Domain definition

IEEE P802.1Qdj

Stephan Kehrer, Hirschmann Automation and Control GmbH

March 2022

TSN Domain definition – Current Status

- The term “TSN Domain” is used in several places in IEC/IEEE 60802 (26 occurrences) and in an informative annex of IEEE Std 802.1Qcc-2018 (11 occurrences)
- Based on discussions in the IEEE 802.1 TSN TG and IEC/IEEE 60802 it was decided to include the definition of a “TSN Domain” in IEEE P802.1Qdj because it was considered to be useful in a broader context than just that of Industrial Automation
- IEEE P802.1Qdj
  - included an initial definition for “TSN Domain” in Clause 3 in D0.0
  - added more details explaining the “TSN Domain” in 46.1.7 as a starting point for discussion in D0.1
  - based on comment resolution against D0.1, added additional explanatory text, as well as a section on “TSN Domain boundary information” in 46.1.7.1, based on an individual contribution, in D0.2

TSN Domain definition – Open Question and Discussion

- During comment resolution on D0.2 it was decided by the group to remove most of 46.1.7.1, only keeping information on the TSN Domain ID to allow a station to identify the TSN Domain it belongs to
- In addition, the following questions were raised:
  - Is a new domain definition required at all in IEEE P802.1Qdj or should such a definition be located in a profile document?
  - If the definition belongs in IEEE P802.1Qdj:
    - What is the intended scope of the definition?
    - What are the aspects the definition should cover (e.g., should it be specific to the configuration aspect, to TSN features, etc.?
- There was an offline discussion amongst interested individuals, to provide a first suggestion for a rewording of the domain definition.
  - This suggestion, presented on the next slide, is intended to serve as starting point for the discussion.

TSN Domain definition – suggested wording

- TSN Domain:
  A set of stations that are under a common configuration and management scheme and responsibility, e.g., common CNC. The stations support multiple traffic types including loss and/or time-sensitive streams, whose requirements are addressed via common QoS mechanisms supported by the given set of stations, e.g., common transmission selection (e.g., CBS), or common reliability mechanism (e.g., FRER, 802.1CB), or common time synchronization mechanism (e.g., gPTP, 802.1AS).
- The Domain is called “TSN Domain” in this slide set only because that is the name already present in IEEE P802.1Qdj and used in IEC/IEEE 60802 and IEEE Std 802.1Qcc-2018.
  - The name can be changed if another name seems more appropriate
  - If it is changed, the places in IEC/IEEE 60802 and IEEE Std 802.1Qcc-2018 that make used of the term should be checked and updated, if required.

Thank you

Thank you!