Time Sensitive Networking General Assumptions

IEEE 802.1 TSN Meeting

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Green Text = Agreed to at a Plenary (was Red)
Black Text = Not Decided (was Red)
Changes Marked with Red from last version

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Revision History

- tsn-pannell-general-assumptions-0914-v1: Restart done in Ottawa

Overview

This document is a collection of concepts and ideas for *possible* inclusion in the TSN standards. It also separates out short term goals/work vs. deferred work.

It should not be considered as a Work Item list until the entries are Green. Non-Green items generally need contributions (i.e., presentations) before they can be agreed to and considered an item to be added to a standard.

AS Direction

- Multipath Topology Discovery will NOT be part of AS
- Instead AS will receive all required “path” directives from an interface – i.e., Top down flow of information
- A proposed method is to add in a “Port Priority” parameter to the AS path selection
  - This supports one “defined” path w/automatic “old” AS backup path selection
  - This also supports more than one “defined” path priorities (highest = 1st, 2nd highest = 2nd, etc.) with the “old” AS backup path selection after that
- Need to improve AS’s hop count method to take into account the highest accuracy path – even if its more hops
  - And the port’s accuracy needs to be “accessible”

AS Direction

- Don’t want “hard” definitions (like a bit mask) between Redundant AS Trees & Domains
  - This limits how many of each can be supported in a given application
  - Let the higher layers define the “association” between two different Domains, i.e., 0x13 & 0x47 are from the same GM but different paths
- How multiple copies of a given clock are “merged” together or “processed” is application dependent and will not be covered in AS
- There is a desire to define an example of how to “merge” clocks for IEEE 802.1 Qbv
  - This should not be part of Qbv but it should be part of the TSN “BA equivalent” document that ties multiple TSN standards together
  - Or is can be an Annex in AS Rev – pending a contribution ASAP

AS Direction

- Different clocks, including different copies of the same clock, need to be identified
  - Domain numbers is the way IEEE 1588 supports different clocks
  - AS Rev is adding support for Domains
  - Therefore it make sense to use Domains in AS Rev for different clocks

- General to all protocols: Each protocol needs to “know” its own boundary as some applications require different boundaries per protocol

New Stuff Goes Here

- Need to define our levels of Redundancy!!!

- Need the a few agreed applications diagrams / use case
  - For AS redundant clocks: Large Ring, Automotive