Common TSN for Converged Networks

Open workshop hosted by IEEE 802.1 and Avnu Alliance

introduction material

János Farkas

IEEE 802.1 TSN TG Chair

Greg Schlechter

Avnu Alliance President

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Background

- Previous workshops
  - 2022-02-09
  - 2022-05-04
- Related presentations, discussion
  - Greg Schlechter, Tom Weingartner, and Henning Kaltheuner, "**TSN Across Markets – The Core Benefits of 'One TSN'**," TSN/A Conference, October 2020
  - Henning Kaltheuner, Genio Kronauer, Greg Schlechter, and Tom Weingartner, "**Insights and observations on TSN applied across ecosystems**," IEEE 802 Plenary, March 2021 (link)
  - Tom Weingartner, Henning Kaltheuner, Greg Schlechter, and Günter Steindl, "**Diffusion of TSN across markets and ecosystems: a roadmap forward**," TSN/A Conference, September 2021
  - Greg Schlechter and János Farkas, "**Common TSN for Converged Networks – next steps**," IEEE 802 Plenary, November 2021 (link)
  - Greg Schlechter, and Günter Steindl, Jordon Woods, and Henning Kaltheuner, "**Common TSN for Converging Networks**," TSN/A Conference, September 2022
  - Günter Steindl, Dietmar Brickner, Tom Burke, Peter Lutz, Xaver Schmidt, and Jordon Woods, "**Is TSN a tool to enable secure converged networks?**," panel discussion at TSN/A Conference, September 2022

Motivation and Objectives

- Motivation
  - Need for network convergence is market reality
  - Ensure that different applications can share one network / one hardware
  - Increase the visibility and understanding of commonalities from multiple markets and applications
  - Ensure that the requirements from multiple markets and applications are met

- Workshop goals
  - Sharpening problem statement (common problem statement)
  - Clarify problems, actions, and their priorities

An Example: Recent Discussions with Wide Interest related to IEEE 1588 and 802.1AS

- Announce message
  - Liaison letter from the 802.1 WG to 1588 WG
  - 802.1 and 1588 WGs discussed together on 2022-08-09
  - Analysis is ongoing, more coming, stay tuned

- Domain 0
  - See ballot comment #86 against P802.1ASdm/0.7

Converged Network?

- “definition” / common understanding of “converged network” would be beneficial for further discussions
  - Could/Should we have such definition across application areas?
  - Common network problem across profiles
- Some aspects
  - Different traffic types share the same network
  - Multiple profiles of IEEE 1588 on the same network
  - Convergence on different layers (gets more complicated higher in the stack)
  - Consistent configuration through infrastructure and operational network segments
  - IT & OT convergence (get over the boundaries)
    - Common solution with the same quality OT is used to
    - IT & OT sharing the wire, and IT acknowledging the OT reservations
    - Certified devices (insurance guarantee) (is a must in many TSN application areas, but not so common for IT)
    - non-human engineering
    - How will the IT & OT guys work together?
      - For instance, “time” / “determinism” is very different in the mindset
- How to bound the problem statement?
  - Clear user stories

Next Steps?

- Continue to define usages and requirements for converged networks
  - Avnu – IEEE 802.1 collaboration
- Educate / socialize the ecosystem, e.g., in IEEE 802.1, 1588, 1722, Avnu, IEC and beyond (IETF?)
- Drive commonality / modularity in testing and certification (Avnu)