Title: Liaison on Announce message to IEEE 1588 Working Group
From: IEEE 802.1 Working Group
For: Action
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Dear Colleagues,

The IEEE P802.1DG TSN Profile for Automotive In-Vehicle Ethernet Communications, the IEEE P802.1DP/SAE AS6675 TSN Profile for Aerospace Onboard Ethernet Communications, and the IEC/IEEE 60802 TSN Profile for Industrial Automation projects had long discussions leading up to and during the July 2022 IEEE 802 Plenary in Montreal about how best to define the time synchronization requirements for the respective use-cases. These use-cases have networks that are engineered and do not dynamically change during operation. For example, the physical topology of a particular in-vehicle network is known at design time and should only change in ways that were planned in the OEM's design; for instance, to accommodate the addition of a feature package to the vehicle.

One aspect that was brought up during the Plenary was the mandatory requirement in IEEE Std 1588-2019 (and in the IEEE Std 802.1AS Profile) to send Announce messages. It was agreed that for the specific use-case the Announce message is not needed, however, IEEE Std 1588-2019 requires that Announce messages be sent, and even if the announce interval is very large, at least one Announce message is transmitted at the critical time of vehicle start-up with a risk of overloading end stations which cannot make use of the information contained. The Avnu Alliance Automotive Specification, originally published in 2011 and used since then, specifically excludes Announce messages.

Given the restrictions stated above, these networks use external port configuration, i.e., not the BMCA, and therefore have a well-known entity acting as the Grandmaster. We understand that IEEE Std 1588 is nearing the maximum allowable number of outstanding amendments. Would it therefore be possible to consider allowing a profile to optionally use external port configuration without requiring the sending of Announce messages? This would allow a particular profile to address use-cases where the network configuration is engineered in advance such that the entity acting as Grandmaster is known by design.

We would appreciate your prompt consideration and reply in this matter and look forward to continued collaboration.

Respectfully submitted,

Glenn Parsons
Chair, IEEE 802.1 Working Group