Avnu Industrial's Use of Cut-through and Request for Guidance

IEEE 802.1 Plenary
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Avnu Industrial Group

RELIABLE SYNCHRONIZED NETWORKING

Background

- Industrial applications, such as machine control, are typically built in long line configurations. For these installations, to minimize wiring cost and complexity, typical installation uses “daisy chain” where each node has (2) external switched ports and an internal port that goes to the end-node.
- A common application is motion control where fast loop times are required. 100 µs cycle rate is common. To support this, low latency for messages through the network is a high priority.
- Theses systems often also have high EMC and there is a desire in some applications to support brown-field wiring. For these applications 100Mb/s rates are desired.

Background

- For long daisy-chain applications the industry today uses cut-through.
- When using TSN, the market is planning to support daisy-chain as well as store and forward. These features are relatively standard in silicon designed to support “bridged end-nodes” and are a common requirement from device vendors.
- Avnu members are requesting a standard mechanism for configuration of these nodes so interoperability is possible.
- Avnu understands that the inclusion of the these parameters for configuration in 802.1Qcc is under discussion.

Request

- Avnu, to meet the needs of the market, desires standard parameters that are used by bridges when configuring cut-through for specific TSN messages between ports. This would be included in appropriate conformance test plans for devices that support cut-through.
- We would prefer that IEEE document these parameters.
- If IEEE decides not to document them, we request guidance if there is a recommendation of where to document these parameters.