

Using Q-LAN with other common Networked Audio Protocols

Dante

Dante requires a different QoS configuration when compared to Q-LAN so Dante audio may only be shared on a single VLAN with Q-LAN if other metrics besides DSCP markings are used to classify both Q-LAN and Dante data. This is because Dante uses DSCP 56 and 46 for PTP and audio (respectively), whereas Q-LAN uses DSCP 46 and 34 for PTP and audio. Therefore, the DSCP 46-tagged Dante Audio traffic is likely to disrupt the DSCP 46-tagged Q-LAN PTP packet latency.

If Dante and Q-LAN are required to share a switch featuring only one QoS rule table (most lower-end switches), the only option is to keep Dante and Q-LAN ports on separate VLANs, but the QoS classification rules can be set up this way (note: no VLAN trunking allowed);

- Highest Queue: Dante PTP (DSCP 56 – CS7)
- Medium-High Queue: Q-LAN PTP & Dante Audio (DSCP 46 – EF)
- Medium-Low Queue: Q-LAN audio (DSCP 34 – AF41)
- Lowest Queue: Everything Else

If the switch has the capability of classifying packets based on Ethernet encapsulation type and/ or UDP Source port then Q-LAN and Dante can be made to function within the same VLAN.

In this case, it can be safe to assign both Q-LAN PTP and Dante PTP to the highest priority queue. Likewise, assigning Q-LAN audio and Dante audio within the same next highest priority queue can also be safe.

Audio Video Bridging (AVB)

Q-LAN and AVB cannot be made to co-exist on a single VLAN on a given switch or across shared uplinks under any circumstances (in separate VLANs or not). Bandwidth Reservation schemes required by AVB specifically request dynamic switch configurations that are contradictory and harmful to the PTP Clock and RTP Audio packet priority requirements of Q-LAN.

Typically, even with the availability of a Q-SYS AVB Bridge I/O Card, Q-LAN is rarely transported across an AVB-compliant switch that has its IEEE 802.1AS / 802.1Qat / 802.1Qav features enabled. Enabling this functionality effectively overrides the normal QoS functionality of the switch.

Some AVB-capable switches are also approved for use with Q-LAN as long as the AVB functionality is disabled.

Voice and Video over IP

VoIP and Video / VC systems are designed to tolerate network latencies between 50-150 milliseconds, while Q-LAN requires maximum network latencies measured in microseconds.

As a result, Q-LAN PTP and audio must always be placed in a higher priority queue than Voice, Video or Video Conferencing applications.