AMX Jumbo Frame Q&A

This document details inquiries concerning jumbo frames and their interoperability within a properly configured network.

Q: What are jumbo frames?

A: A jumbo frame is an Ethernet frame, or data packet, that is larger than the normal maximum transmission unit (MTU) of 1,500 bytes established in the Ethernet specification. In some circumstances, using jumbo frames can result in better performance, especially when using Gigabit or faster connection. The most common jumbo frame size is 9,000 bytes for the MTU.

Q: What are the advantages of jumbo frames?

A:

Less Protocol Overhead. Each data packet requires header information to describe the packet source and destination. In a standard frame size, up to 5% of the total transmission is header data. When using a 9,000-byte jumbo frame, the total relative header size is only about 1% of the transmission, resulting in more useful data transmitted.

Less CPU Processing. Each packet and its header must be inspected by each device in the network path. With jumbo packets there are fewer total packets, resulting in fewer packets overall. This means that each device doesn't need to spend as long to inspect the packets.

Q: What are the disadvantages of jumbo frames?

A: Configuration Mismatches. Most devices default to the standard MTU and packet sizes. Enabling jumbo packets needs to be configured manually on the Ethernet switch in most cases. This can lead to cases where it is not uniformly configured across a network. This could lead to packet fragmentation when jumbo frames pass through a network not configured to support jumbo frames which can ultimately result in more overhead.

Q: When should jumbo frames be used?

A: Jumbo frames are best used in controlled network(s) where the hardware is designed to use jumbo frames. The benefits would only be seen in high-speed (1 Gbps or greater) networks that have high utilization. For example, Network AV (NAV) or high-performance computing (HPC) networks. Jumbo frames are required for the N2300 Series and N2600 Series product.

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Q: Will jumbo frames work on a Q-SYS Netgear AV network switch?

A: Yes, the Q-SYS Netgear switch includes a profile settings to support video using jumbo frames with the AMX N2600 Series. The "Video" profile puts all video on a separate VLAN, which prevents any impact to existing Q-SYS traffic.

Q: Can AMX N2600 and Q-SYS exist on the same network switch?

A: Yes, the AMX N2600 video endpoints should be placed into their own VLAN because Q-SYS hardware does not support the use of jumbo frames. HARMAN encourages the seperation of traffic for security, management, and troubleshooting.