Multicast-Unicast Conversion

When live video is being broadcasted over a LAN or WLAN network, it is possible to use two transmission methods: multicast streaming or unicast streaming. Depending on the type of network, number of client devices, and desired QoS, one method will be preferred over the other, based on the requirements.

Multicast

Multicast transmission is a one-to-many broadcast methodology in which a WLAN AP forwards all broadcast packets from a multicast server source to a client subnet where multiple client devices are listening. The multicast server sends out a single stream during the transmission, allowing multiple clients to listen in. In this fashion, multicast is a true broadcast - the process is analogous to multiple listeners tuning into a radio station. Therefore, there is no additional overhead on the multicast server if an additional client joins. The multicast source relies on multicast-enabled routers to forward the packets to all client subnets that have clients listening.

Unicast

Unicast is different from multicasting in that it utilizes session-based protocols such as UDP (User Datagram Protocol) and TCP (Transmission Control Protocol) to transmit video traffic on a one-to-one basis, establishing individual sessions between the transmission server and each client. As the unicast server has a direct relationship with each client, every additional client which joins will add additional bandwidth overhead on the unicast server.

Streaming Content

In most scenarios where media is being streamed, unicast is preferred to multicast. Multicast traffic is subject to packet loss that can cripple media quality, and unicast traffic can operate at higher data rates. Meraki APs will automatically perform a multicast-to-unicast packet conversion using the IGMP protocol, ensuring high quality video transmission to a large number of clients. This can be especially valuable in instances such as classrooms, where multiple students may be watching high-definition video as part a classroom learning experience.

Multicast-unicast conversion is enabled on all Meraki APs by default. If you would like to disable Multicast-unicast conversion, navigate to Network-wide > General > Wireless Multicast to Unicast Conversion, select Disable Multicast to Unicast Conversion and save changes.