

SOLECTEK

Solectek Skyway 4000 and 7000 Series MP Base Stations

Video Mode feature with Videocast™: Implications, Limitations and Best Practices

Overview:

The Solectek 4000/7000 series MP Base Station operates as a Layer 2 transparent bridge in functions like forwarding, and filtering traffic. The Ethernet and RF network segments on the Base Station are connected via an internal bridge where packets are filtered against a table of learned MAC addresses.

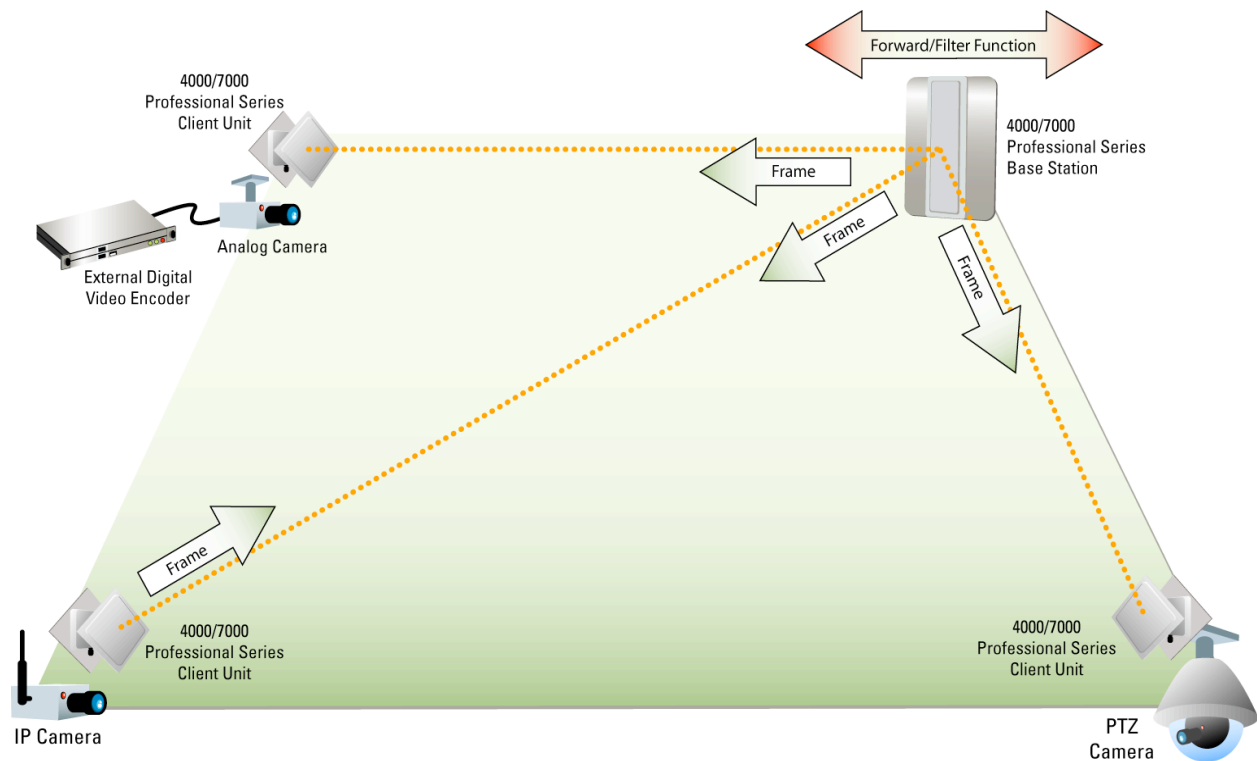


Fig.1 Standard MP Bridging

Typical of a Layer 2 Bridge, packets received from Clients at the Base Station for an address inside the wireless portion of the network, including broadcast packets are replicated and transmitted back to all Clients. These packets are filtered and not forwarded out the Ethernet port via the function of the internal bridge.

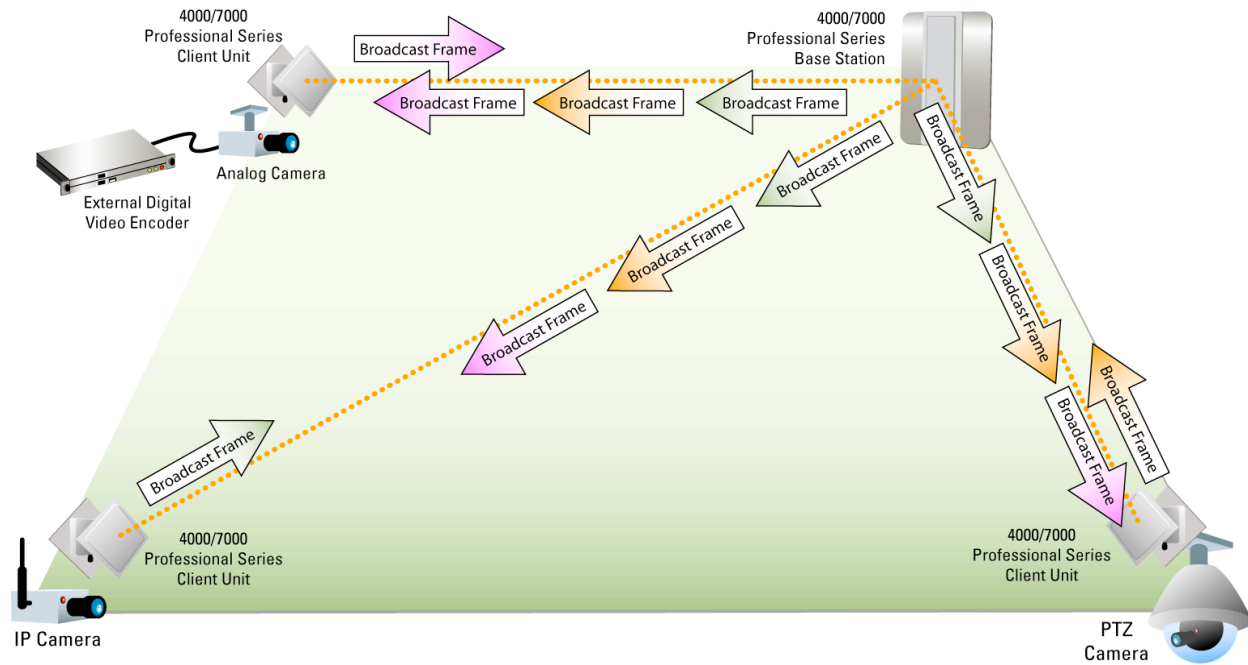


Fig. 2 Default Broadcast Behavior

If the destination address is outside the Wireless Network, the packet is forwarded across the internal bridge and out the Ethernet port of the Base.

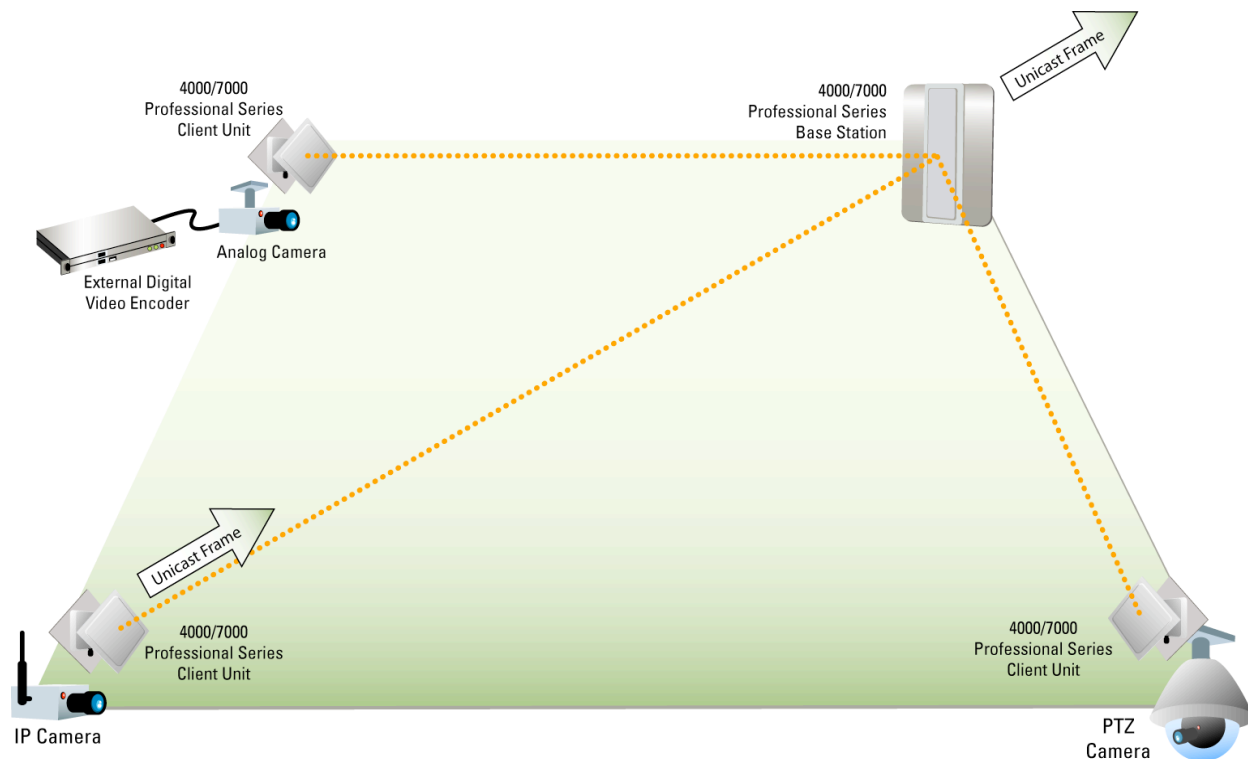


Fig. 3 Default Unicast Behavior

This replication function of the Base Station is also performed for Multicast packets, even if the Multicast destination is on the remote side of the Base Station internal bridge. The figure below illustrates this behavior, and the associated overhead.

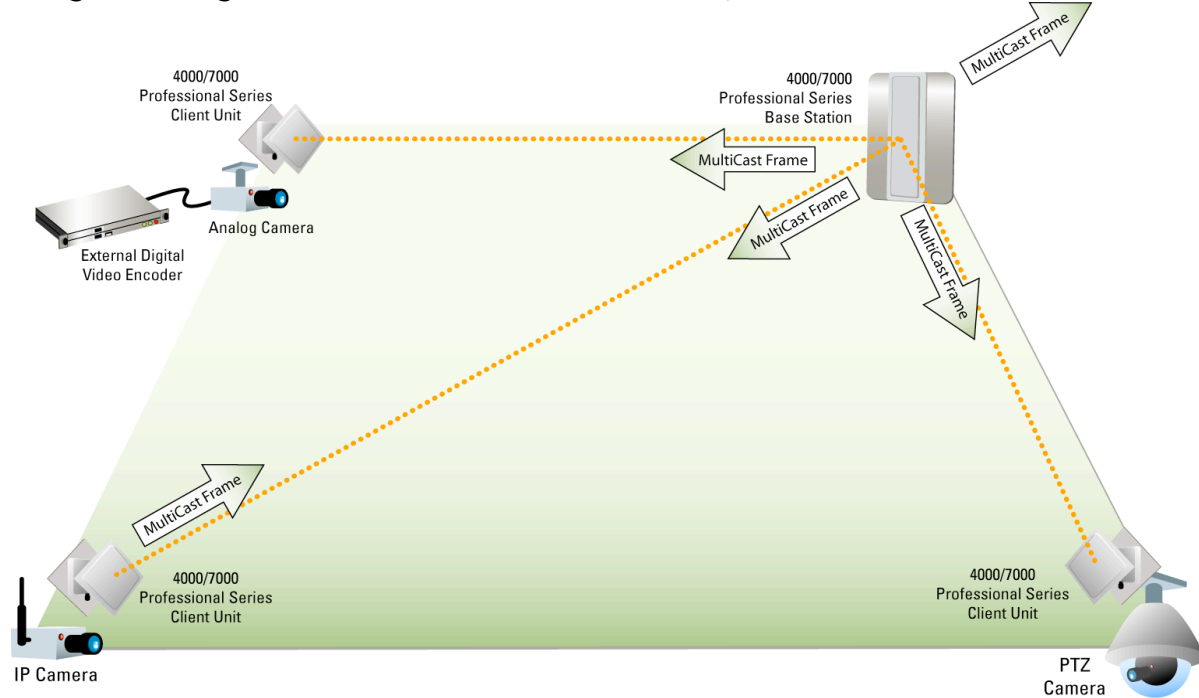


Fig. 4 Default Multicast Behavior

MP Wireless Networks carrying video traffic are subject to significant performance degradation when Client radios send Multicast traffic. When multiple Clients or multiple cameras generating multicast traffic are present, the overhead becomes significant and can degrade video performance to unacceptable levels.

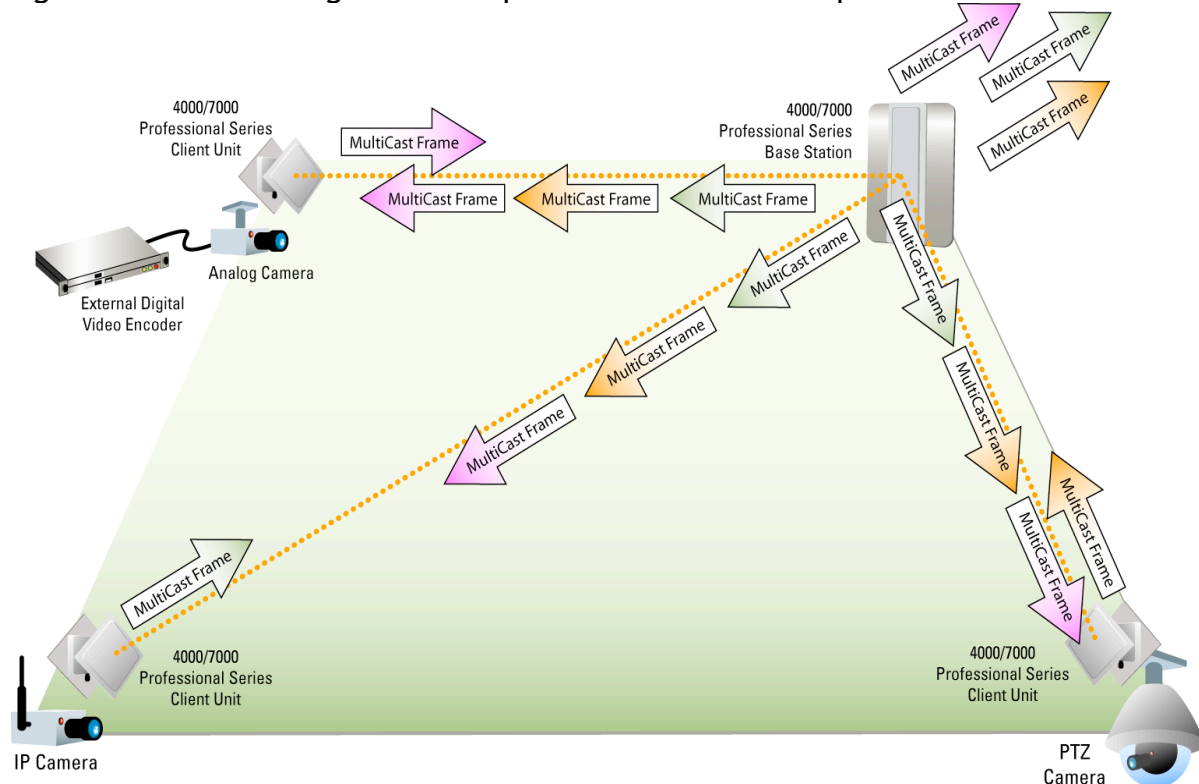


Fig. 5 Multicast Overhead

Solectek's new Video Mode feature with Videocast™ support for MP Base Stations significantly reduces overhead on the network and improves performance for video traffic. This is achieved primarily by changing the Base Station replication behavior.

Enabling Video Mode simply forwards Multicast traffic across the internal bridge *without* replicating and transmitting the traffic back into the wireless portion of the network. This provides more efficient bandwidth usage and greater Client/Video Camera densities than previously possible.

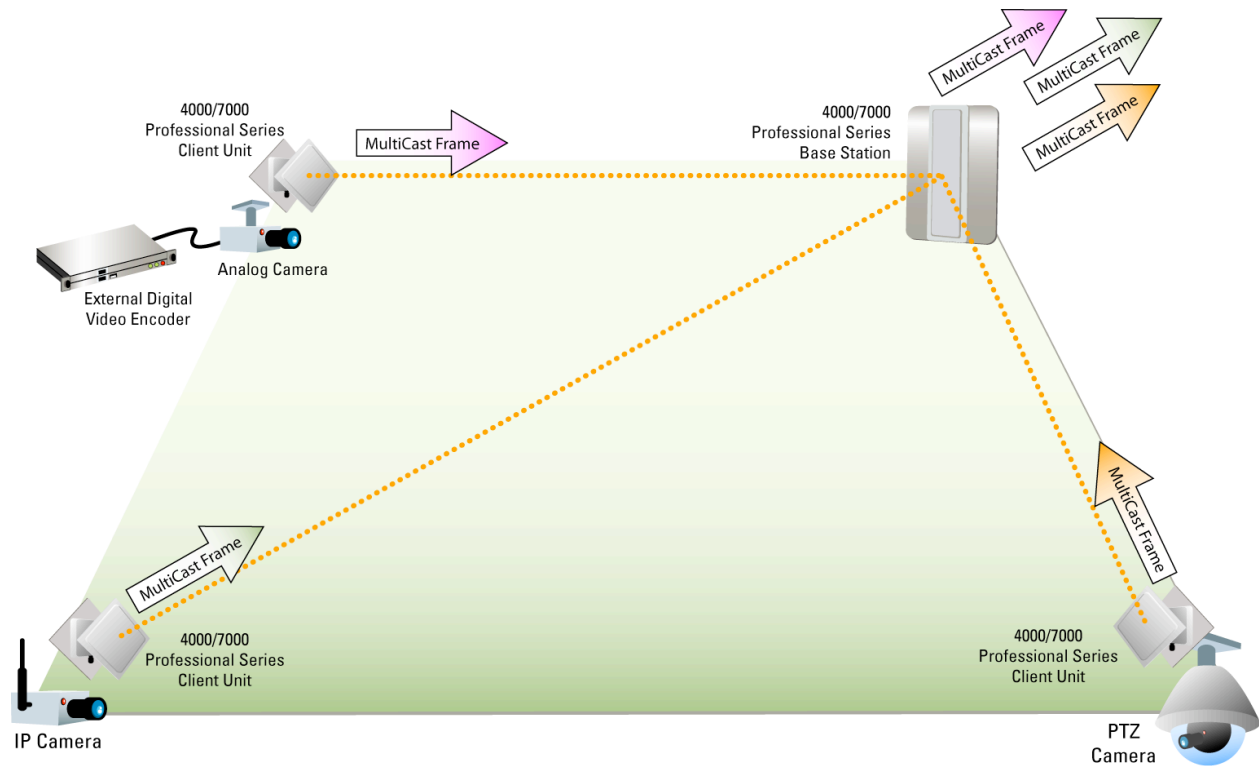


Fig. 6 SkyWay Video Mode with Videocast™ Behavior

Before enabling Video Mode on a Skyway Base Station it is important to note and understand the limitations that are present. Because the Base Station is no longer replicating packets out to all Clients, communication between Clients will *not* function normally. Network services such as DHCP, LAN browsing, NETBIOS and other broadcast dependent protocols like ARP will not function correctly on the wireless portion of the network when using Video Mode on the Base Station. Video Mode does not affect communication between any device on the wireless segment and devices located on the remote side of the Base Station's internal bridge.

Solectek *does not* recommend using or enabling Video Mode to improve multicast video performance on an existing mixed data/video network where other services and functions can potentially be impacted negatively. Locating servers and other resources on the wireless segment is also strongly discouraged. Migrating existing resources to the Base Station LAN segment is considered best practice for anyone choosing to enable the Video Mode Feature on a Solectek Skyway 4000 or 7000 series Base Station.

In General, Solectek recommends enabling Video Mode only for MP Base Stations where video multicast traffic is the exclusive or at least primary purpose of the wireless network.

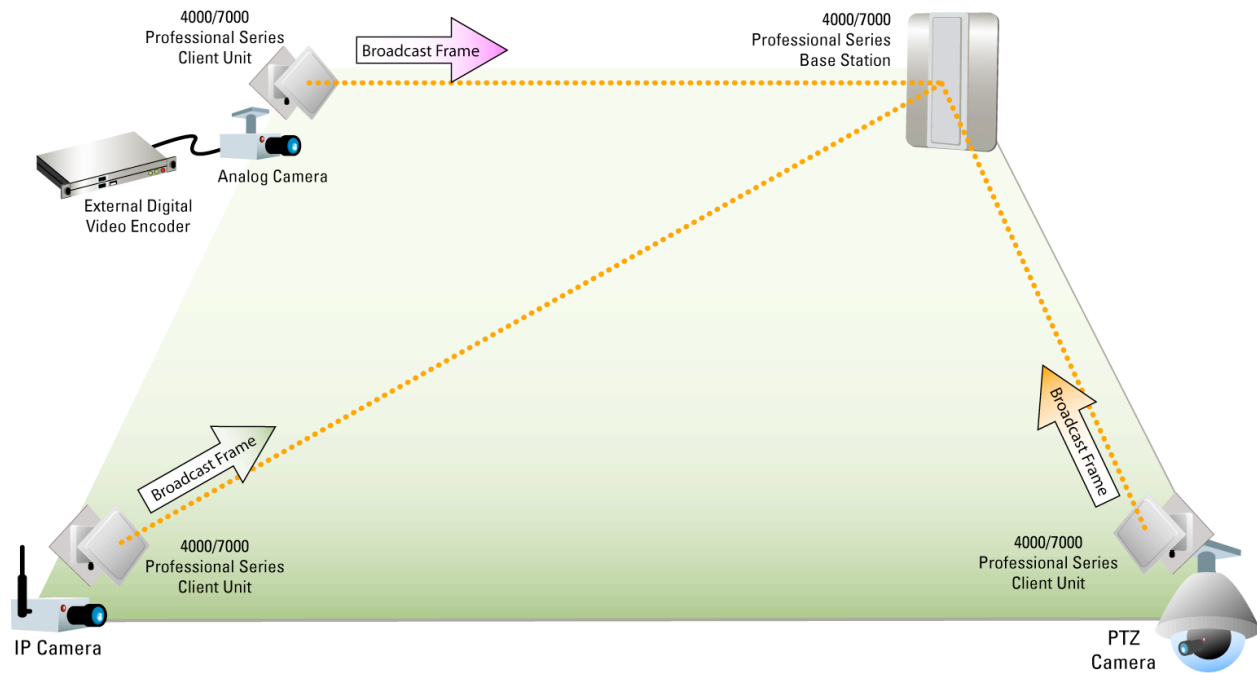


Fig.7 Important Limitations