Advanced IPTV Testing Using the JDSU SmartClass™ TPS
RTP Testing Using Loss Distance/Loss Period Measurements

The JDSU SmartClass TPS Tester is the ideal tool for technicians who install, troubleshoot, and maintain Triple-Play services
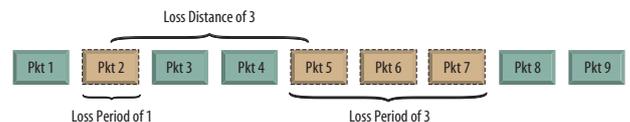
Test Challenge

To ensure reliable picture quality, second-generation Internet Protocol television (IPTV) ecosystems typically provide forward error correction (FEC) or error recovery mechanisms that include retrans-mission of lost packets. These networks promise excellent quality of experience (QoE) to users who assume IPTV to be an error-free service.

Addressing the Challenge with SmartClass TPS

To help address packet loss and maintain tolerable IPTV packet loss thresholds, the SmartClass TPS tester deploys a key performance indicator, measuring the shape of a Real-Time Protocol (RTP) packet loss event. In the event, the loss period defines the length of a single loss event and loss distance defines packet increments between two loss periods (events). New retransmission error recovery mechanisms can tolerate very aggressive loss period limits of up to 30 consecutive lost packets, but the distance between the loss events should be at least three times the length of the error: a loss period limit of 30 would require a loss distance limit of 90 to 120 packets.

The example below shows two loss events, Pkt2 and Pkt5 through Pkt7. The first event is a loss period of 1 packet, and the second event is a loss period is 3 packets. The distance between the two events is loss distance of 3 packets.

Offering RTP analysis makes the SmartClass TPS capable of truly measuring network quality of service (QoS) and QoE.

Two loss events

Conclusion

Traditional QoS parameters, such as packet loss, diverge from QoE; this means that the network experiences a decrease in quality due to packet loss while the user still views excellent video. The amount of tolerable packet loss before impacting consumer QoE is yet to be determined (not standardized) for this dynamic IPTV industry environment. Introducing key performance indicators, such as measuring the shape of an RTP packet loss event, further ensures QoE. In addition to QoS test capabilities, the JDSU SmartClass TPS offers many QoE test functions, including RTP packet loss analysis that provides industry-leading depth of analysis, including the previously described distance-loss period—parameters that help qualify a packet loss event by setting a threshold for maximum period and minimum distance and determine if the lost packets are crucial to IPTV performance.

SmartClass TPS Packet Loss screen

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