WORP® Radio Differentiators for Video

Proxim's WORP® technology is equivalent to an unlicensed 4G technology with many enhancements to optimize performance for CCTV applications. 4G implies Point to Multi-Point where 1 base radio controls communication to many client side devices concurrently. Packet sizes vary on a per packet basis and uplink and downlink capacity can vary dynamically supporting applications which include data, voice, video and mobility.

WORP®

- Layer 2 scheduler with built in forward error correction and buffering plus retransmission to ensure error free video transmission

- Jitter Correction Algorithm

    Adjusts jitter timing to avoid delay fluctuation in high quality video stream

- WORP® QoS

    Enabled by default, WORP® QoS ensures delay sensitive video and voice packets arrive with priority (low latency – less than 3ms) by

    differentiating the various traffic types and also allocates bandwidth based on the type of traffic (CIR,MIR)

- Dynamic uplink vs. downlink bandwidth allocation

    WORP® is ideally suited to video applications as Proxim is the only company that can allocate 95% uplink capacity with any frame size. All other vendors have to either manually split the bandwidth or separate the capacity using time slots which reduces efficiency

- Data burst transmission

    Reduce protocol overhead by transmitting all packets of a single video frame in one data burst, thus increasing radio efficiency

- Multicast support

    Other vendors send multicast data as unicast or low rate broadcast which floods the network and reduces image quality

- High speed mobility using IBSUP

    Ensure all devices connected to the mobile radio maintain their IP connections and data stream without creating unnecessary retransmissions or link re-establishments which interrupt video streaming

- IGMP snooping

    Is the process of listening to IGMP network traffic. The feature allows WORP® to listen in on the IGMP conversation between CCTV multicast cameras and routers. By listening to these conversations the radio maintains a map of which links need which IP multicast streams. Multicasts may be filtered from the links which do not need them and thus controls which ports receive specific multicast traffic

- ATPC

    Adaptive Transmit Power Control automatically changes transmit power level to keep Signal to Noise Ratio within its optimal range to minimizes errors over the radio link

- DCS

    Dynamic Channel Selection automatically selects the best channel size and frequency to minimize errors over the radio link

- DDRS

    Dynamic Data Rate Selection automatically sets the optimal data rate with minimal errors for every radio at distances from 100' to 10+ miles

Wi-Fi Explained:

The majority of the radio vendors deploy Wi-Fi outdoors using Mesh. Wi-Fi is an indoor LAN technology designed for data only, at distances <1000' while WORP® is designed for outdoor deployments for distances from 100' to 10+ miles supporting data/voice/video and mobility. The Wi-Fi protocol is a contention protocol where the client devices make the decision to transmit by listening before transmitting. This works well in a LAN environment where every client device is within 1000 ft of every other client but outdoors at distances greater than 1000', the client devices cannot hear each other and they transmit simultaneously creating collisions which require data retransmission which reduce the effective capacity of the network. This is referred to as the hidden node problem. For small networks there is enough excessive overhead that data retransmissions do not affect image quality but as Mesh networks grow in size the data collisions caused by hidden nodes proliferate through the mesh creating more retransmissions which create more collisions and the mesh collapses creating zero effective capacity. The Wi-Fi protocol ensures that all clients receive broadcast packet by transmitting it a very low modulation. As Wi-Fi protocol considers video multicast stream as broadcast packet, the whole WiFi network performance drop significantly when used for video surveillance application. Any device that states 802.11a/b/g/n compliance, WPA, WPA2 security or WMM QoS is a Wi-Fi solution and should not be deployed outdoors for anything more than data only applications.