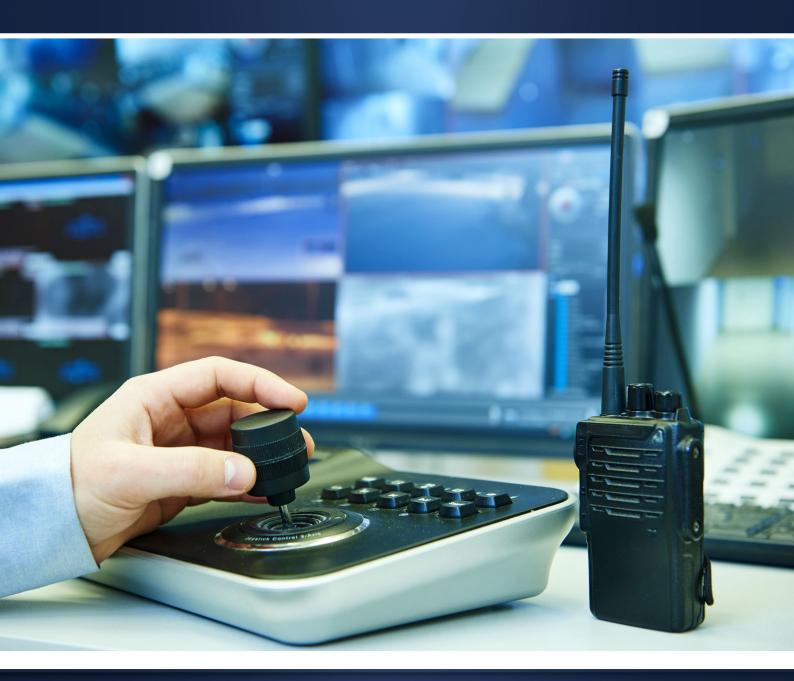# Proxim's Tsunami® Portfolio and Video

Video Over Wireless with Wire Line Performance

Introduction

Proxim Wireless develops outdoor Telecom infrastructure products that are designed for the most challenging applications. From Cellular backhaul, to Traffic (ITS) applications to Wireless ISPs the Tsunami® product line delivers all the key features and performance to ensure success.   In addition to these applications, the Tsunami® Product line is also ideal for what is perhaps the most challenging wireless application of all – Video Security.

In video security applications, typically the bit rate per device/camera is high and constant, with data rates anywhere from 5Mbps to 20Mbps. In addition this application demands precision control over not only latency, but even more importantly jitter. Coupled with a requirement that there be zero packet losses, this application pushes wireless systems at all levels of the communications stack, from RF to the MAC layer.

Proxim ensures success in this mission critical application with a combination of our Proprietary MAC protocol, WORP®, our interference robustness methods contained in our Proxim ClearConnect™ and the system approach to security.

WORP® and Video

Layer 2 HARQ: With built in forward error correction and buffering plus retransmission at the Lower MAC to ensure error free video transmission i.e. no corrupted or dropped packets.

WORP® QoS: – With WORP®, customers can program the exact jitter, latency, packet loss rates and bandwidth needs on a per application basis. This means in a mixed traffic network, WORP® will ensure the video traffic always gets the QoS support the data stream needs, while never dropping a packet.

Dynamic uplink and downlink bandwidth allocation: WORP® is ideally suited to video applications as Tsunami®'s have the ability to allocate up to 95% uplink capacity with any frame size. This is ideal for video security as most of the traffic is upstream.

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: Typical wireless systems such as WiFi or other proprietary MAC implementations send multicast data as unicast or low rate broadcast which floods the network consuming bandwidth and reducing image quality. Proxim's WORP® protocol addresses multicast by using the WORP® broadcast feature. Rather then sending multicast traffic as a set of individual unicast steams, multicast is delivered via the WORP® broadcast , thereby reducing overhead and enhancing multicast performance: more data in less time.

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.

High speed mobility: WORP® supports full mobility. The protocol ensures all devices connected to the mobile Tsunami® radio maintain their IP connections and data stream without creating unnecessary retransmissions or link re-establishments which interrupt video streaming.

Proxim ClearConnect™

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 feet to over 10 miles.

Small Channel Size Support: Channel bandwidths of as low as 5 MHz and 10 MHz are available to maximize the usage of available spectrum.

Satellite Density: The Satellite Density setting helps to achieve maximum bandwidth in a wireless network with interference. It influences the receive sensitivity of the radio interface and improves operation in environments with high noise level. Reducing the sensitivity of the device enables unwanted "noise" to be filtered out.

For more information on Proxim ClearConnect™ please click here.

Tsunami® and Video – A Systemic Approach

In addition to WORP® and Proxim's ClearConnect™ detailed above, there are several features of the Tsunami® system that address the needs of a video security application:

- Comprehensive portfolio comprising of point to point backhaul links and point to multipoint solutions that can deliver over 600 Mbps data rates. Microwave backhaul products are available for gigabit plus data rates.

- Provides flexible channel planning with support for unlicensed 5GHz, as well as public safety 4.9 GHz channels.

- High speed mobility - seamless video roaming up to 295 km/h (185 mph) ensures all devices connected to the mobile radio maintain their IP connections and data stream with zero packet loss.

- Long range and extended coverage with high power up to 29 dBm transmission power and integrated antennas as high as 28dBi.

- Comprehensive ultra-secure solutions with AES-128 for encryption, highly-secure remote management via SSL, SSH and SNMPv3 and Proxim's Wireless Outdoor Routing Protocol (WORP®), which prevents snooping.

- Features dual gigabit Ethernet ports with PoE in/out to power other devices like surveillance cameras and wireless access points.

- With operating temperatures from -40 °C to 60 °C along with IP67 grade enclosures, Proxim solutions work in the harshest of environmental conditions.

- Complete FCAPS solution - easy network management with Proxim Vision Advanced, our hybrid Het Net Controller offers a plethora of features ranging from fault management with email alert, maps and color coded link status, inventory management, customizable graphics to device level statistics and diagnostics reports.

- 2 year warranty, advanced technical support with 7x24x365 availability & additional warranties for investment protection.

Company Profile

Proxim Wireless: Performance Matters. Proxim Delivers.

Proxim Wireless is a pioneer and global leader in advanced WiFi, point to point, and point to multipoint outdoor wireless systems that are purpose built for mission critical and high availability communications. With over 30 years of wireless experience, Proxim is recognized for its unparalleled reliability, superior performance and drive for innovation.

Products and Markets

Marketed under the ORiNOCO® and Tsunami® brands, Proxim provides a comprehensive product line for a wide variety of market segments including enterprises, service providers, carriers, governments and municipalities, WiFi Operators/Hot spot Operators and other organizations that need high performance, secure scalable wireless solutions.