



Video Surveillance and Wi-Fi

Leveraging outdoor Wi-Fi technologies for carrier-scale video surveillance applications

Video surveillance applications have experienced significant change due to revolutions in both digital media and IP networking. Gone are the days of analog closed-circuit TV systems. Today, virtually all systems big and small are digital—from the cameras, throughout the network, to the back-end systems. Especially at the municipal level, video surveillance applications are being transformed through deployment of outdoor Wi-Fi mesh networks. This coupling of video surveillance and Wi-Fi is a powerful combination, resulting in easy-to-install, highly-scalable solutions.

This application note focuses on the deployment of carrier-scale video surveillance solutions over broadband Wi-Fi networks, and the benefits of creating them with GO Networks products and technologies.

Video Surveillance Applications

Well-suited for a wide variety of uses, video surveillance is most commonly deployed to monitor and control vehicular traffic, to ensure transit safety at airports and train stations, and for a growing range of homeland security applications. Today's

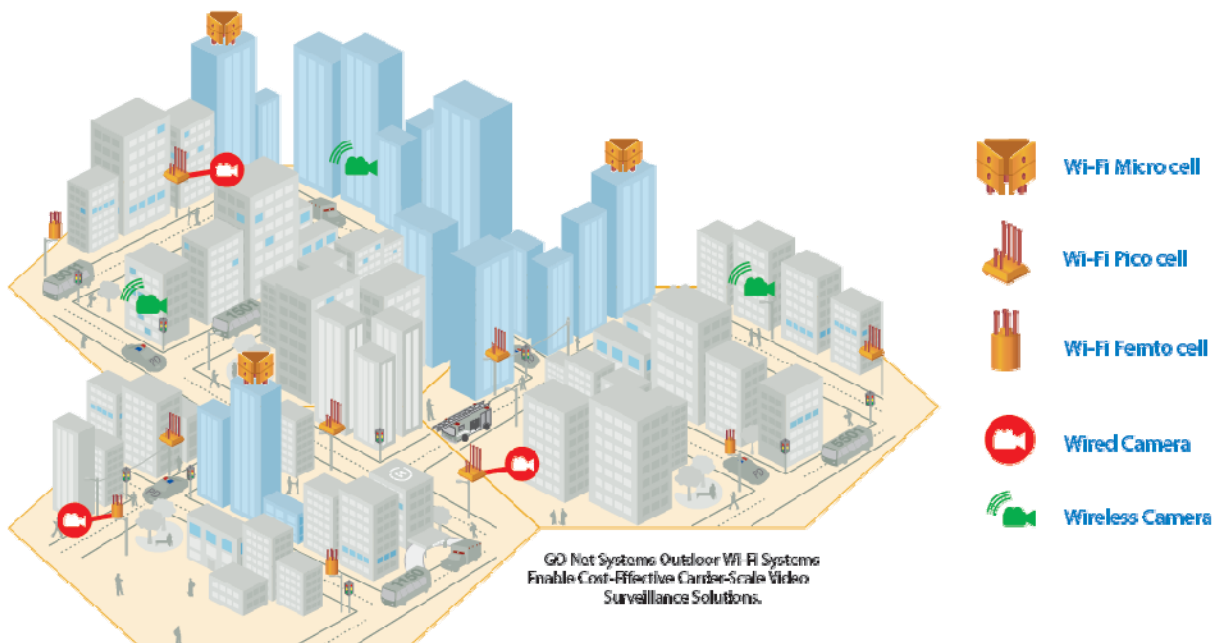
video surveillance systems typically comprise a set of digital cameras, a wired or wireless IP network, and a back-end monitoring system. Systems range from providing basic black-and-white images to high-resolution, 30 frames-per-second color video. Surveillance cameras can be hardwired into the network via Ethernet, directly connected via Ethernet to a co-located Wi-Fi base station, or deployed as Wi-Fi clients.

In order for video surveillance systems to operate at expected performance and quality levels, the network must be properly provisioned with adequate resources. Bandwidth must be allocated in the quantities needed to support the resolutions and capture rates of the cameras deployed on the network.

GO Net Systems Carrier Wi-Fi Solutions for Video Surveillance

Wi-Fi architectures deliver a robust, cost-effective solution for supporting video surveillance in municipal-scale environments. The advantages of low-cost unlicensed bandwidth, coupled with high bandwidth rates, offer an ideal foundation for deploying a video surveillance infrastructure.

GO Net Systems builds on this foundation by providing unique advantages in performance, coverage, and economics. By leveraging innovative xRF™ adaptive beamforming smart antenna technology,





Video Surveillance

GO Net Systems outdoor Wi-Fi base stations offer several significant benefits:

- **Lower Cost of Ownership.** xRF-enhanced signal strength translates to deployments with fewer access points, less backhaul equipment, and lower ongoing operating expenses.
- **Superior Interference Mitigation.** GO Networks base stations reduce interference by using focused, dynamically- beamformed transmissions instead of omni directional broadcasts. This sharply reduces the effects of interference during signal transmission, reception, and at the cell edge.
- **Intelligent Traffic Management.** GO Net Systems base stations use sophisticated proprietary algorithms and performance metrics to identify, classify, and prioritize video flows and other multimedia services.

The ability to dynamically adjust traffic prioritization in real time ensures consistent, high quality service delivery.



In addition to industry-standard prioritization techniques (DiffServ, Layer 2 queuing, and TOS bit flagging), GO Net Systems provides powerful classification and prioritization capabilities to enhance video performance. Even if video traffic is unmarked by the sending device, dynamic flow classification can be used to identify and prioritize video traffic. Identification is based on packet size, inter-packet gap (IPG), and variable bit rate (VBR) patterns. A flow classifier can be used to identify VBR flows in two ways: 1) to identify and prioritize desirable video traffic in real-time, and 2) to identify undesirable video traffic and downgrade its priority to best-effort transport to preserve network resources. Offered only by GO Networks, this approach delivers a competitive advantage by providing granular control over network resources.

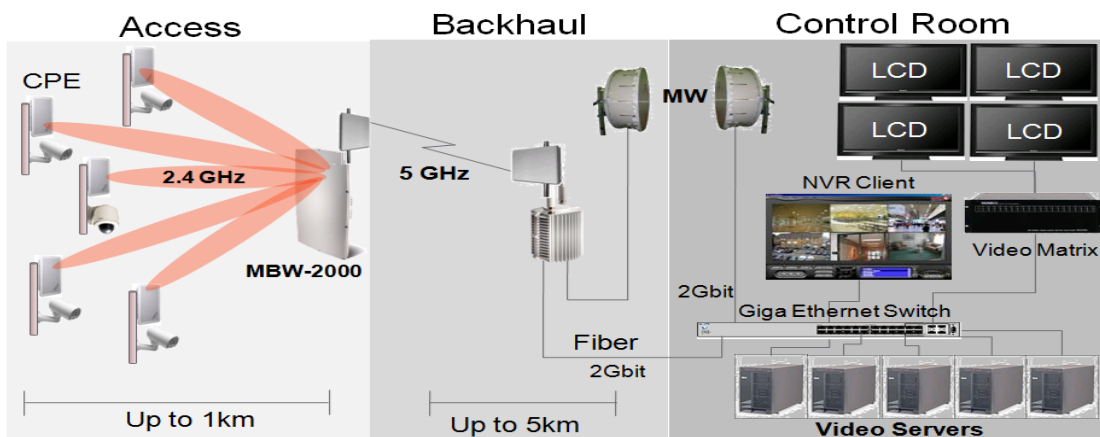
Another unique approach to ensure prioritization of video traffic is to deploy an infrastructure built with GO Net Systems MBW 2000 Micro Cellular-Mesh Wi-Fi Base Stations. Equipped with two xRF-enabled 802.11 b/g access radios for high-performance coverage, this base station design enables network operators to dedicate one b/g channel to video surveillance. By segmenting the wireless network into two separate and discrete infrastructures, bandwidth can be easily reserved for video surveillance applications. The GO Net Systems EMS/NMS Management platform can be used to dynamically assign and adjust network resources between the two networks, enabling IT engineers to precisely allocate bandwidth in real-time.

For information on how your business can benefit from the innovative approaches being developed by GO Networks, please contact us via email at

info@gonetworks.com.

Intelligent Traffic Management

When optimizing Wi-Fi environments for video surveillance, ensuring that video traffic receives the required prioritization is an essential aspect of provisioning the network. Simply adding extra capacity to the network is not enough. A variety of standard and proprietary mechanisms are available to ensure support for deterministic video surveillance applications.



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