Small Footprint, Secure, Reliable and Affordable Wireless Backhaul For Video Surveillance Networks

A growing number of cities, communities and facilities around the world are enforcing public safety by implementing video surveillance networks.

Among the benefits of extensive video surveillance:

- Efficient protection citizens and property
- Crime reduction
- Reduction in vandalism costs
- Reduction of investigation times
- Enhanced city/facility image

EtherHaul-1200 installation for video surveillance backhaul

These benefits are achieved by installing cameras in public spaces, video monitoring of cars, parking lot monitoring, license plate recognition, as well as many other applications. All the data collected through the cameras need to be securely transmitted to the monitoring centers in real-time. For this, an effective backhaul network needs to be built. Typical requirements of the backhaul equipment:

- Equipment should blend into the urban environment with minimum disruption to the landscape.
- High capacity traffic over the network, allowing large amount of cameras to be connected.
- Traffic is mostly unidirectional, requiring asymmetric traffic transport capabilities.
- Guaranteed secure data transfers.
- Support for differentiated services, if the backhaul network needs to service voice or data in addition to video.
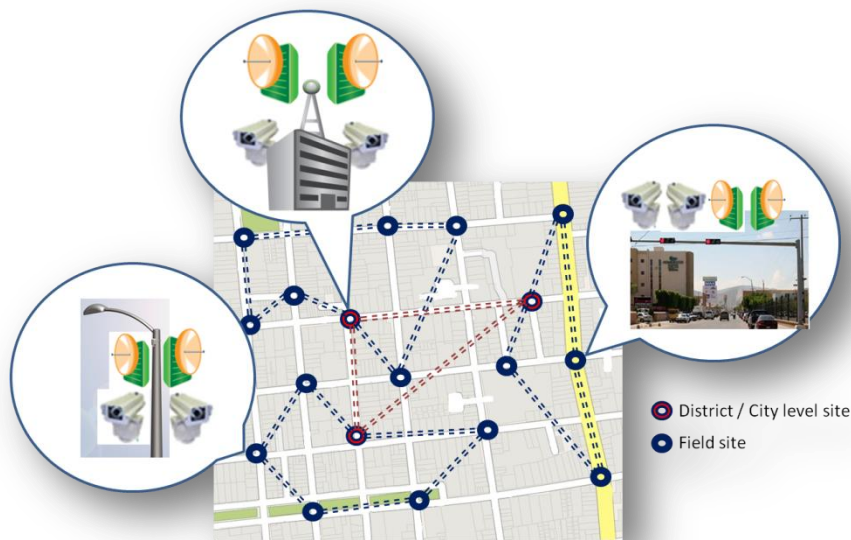
Video Surveillance Backhaul Networks with Siklu's EtherHaul-1200

Siklu's EtherHaul-1200 millimeter-wave backhaul system is ideal for building low cost wireless backhaul networks for video surveillance. The EtherHaul-1200 delivers Gigabit capacity in an extremely small form factor, with advanced features that support the reliable transport of real-time video and data.

In typical applications, video surveillance cameras are installed near the field sites, and depending on the size of the city, there may be district monitoring centers and a city-wide central site.

In the field sites, cameras can be deployed anywhere, with no need for long wiring, as they connect directly to Siklu's EtherHaul-1200 through a standard Ethernet interface. Video is then transported securely through the EtherHaul-1200 system to a district or central location, where scenes can be monitored in real-time and recorded on specialized video servers.

A common network topology for video surveillance backhaul is multi-layer rings. At the lowest ring level, the surveillance cameras are connected to the district monitoring center (blue rings in the figure), and at the upper ring level, district centers are connected together and to the central monitoring site (red ring in the figure).

A ring topology has the advantage of providing inherent physical redundancy. If one of the links is temporarily down, data is directed through other units without losing information. The EtherHaul-1200 uses the standard ITU-T G.8032 Ethernet Ring Protection protocol to provide this network ressielency allowing seamless connection to other network elements.

Due to the high capacity of the EtherHaul-1200 solution it can easily accommodate additional applications, such as field communications for first responders and other public safety personnel, public Wi-Fi HotZones, broadband Internet access, and other remote monitoring or metering applications.

Built-in security features, including access controls, authentication and data encryption; protect both the privacy and integrity of all video, voice and data traffic traversing the EtherHaul-1200 systems. The EtherHaul-1200 systems allow additional levels of security to separate each application by the use of Virtual LANs (VLANs), as well as the ability to manage traffic with a deterministic quality of service (QoS). Features like traffic filtering, shaping and prioritization combine to ensure that each application is assigned an appropriate quality of service. Real-time video feeds, for example, demand a consistently high level of throughput. By contrast, voice traffic consumes much less bandwidth, but requires very low latency (delay) and jitter (variations in latency). With its comprehensive and centralized traffic management capabilities, the EtherHaul-1200 adapts easily and quickly to changing needs and priorities.

Benefits of the EtherHaul-1200

Operating in the regulated E-band spectrum, the EtherHaul-1200 offers a cost-efficient wireless backhaul solution for video surveillance networks including:

- **Green Design**
    - o **Small Footprint:** The E-band spectrum allows for robust system design and higher antenna gains and results in solutions with a particularly small footprint. The small footprint allows the EtherHaul-1200 to gently and naturally blend in the urban.

    - o **Low Power Consumption**: The EtherHaul-1200 reduces the power consumption by up to 80%.

    - o **Light Weight**: A low weight radio of under 3kg (6.6 lb) enables quick, single person installations.

    - o **Low Transmitting Power**: The nominal transmitting power of the EtherHaul-1200 solutions is considerably lower than that of "traditional" microwave systems reducing health related concerns and risks.

- **Up to 1 Gigabit Capacity:** Scalable future-proof backhaul supports system capacities of up to 1Gbps per link for reliable transmission of real-time video, voice and data, with no degradation of image quality. Start small and expand the capacity on a "pay-as-you-grow" basis.

- **Standards Based**: Utilizes standard Ethernet Interfaces for ease of connection to end equipment like IP cameras.

- **Asymmetric Traffic Capabilities:** Divide the capacity asymmetrically, even as high as 90%-10% between downstream and upstream.

- **Advanced Networking Capabilities:** Implementation of advanced network topologies such as ring, mesh or daisy chain without the need for an external demarcation unit. Differentiate traffic to support several secure applications in the same network, as well as monitor real time video and data in more than one site at the same time

- **Reliable and Secure Data Transmission:**

    - o Advanced Encryption Standard (AES) data encryption
    - o In-band or out-of-band network management
    - o Management access user name and password, with different levels of access privileges
    - o SNMP Version 3 (SNMPv3) support for secure access to the device (message integrity, authentication and encryption)
    - o Narrow beam antennas prevent interference and interception

- **Ethernet Operations and Administration Management (OAM):** Built-in standards-based Ethernet fault detection and correction mechanisms.

About Siklu

Siklu has been committed to reducing the cost of high capacity wireless backhaul solutions since 2008. The company's success centers on an innovative silicon-based design of the millimetric wave radio system and components that has resulted in the lowest cost millimeter wave systems available. The EtherHaul radios deliver Gigabit speeds over the millimetric wave spectrum and are ideal for urban wireless backhaul of macro, micro and picocells. Serving providers around the world, Siklu Communication is based near Tel Aviv, Israel.

Siklu Communication Ltd.
43 HaSivim St.
Petach Tikva 49517, Israel
Tel: +972 3 921 4015
Fax: +972 3 921 4162
info@siklu.com

www.siklu.com