

Case Study:

Tier 2 Citywide Overt Surveillance Network





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Overview

In August 2007, a Tier 2 municipal police department in Upstate New York (City) issued a Request for Proposal (RFP) for a citywide overt surveillance network. TechNet Global Services (TechNet), in conjunction with its partner, was one of 20+ companies to respond to the RFP with a complete turnkey proposal. In November 2007, TechNet was selected as one of only two companies to be placed on a short list and was then asked to deliver a final presentation.

At the request of the City, TechNet provided a citywide comprehensive site survey, which included identifying city facilities, available dark fiber, line of sight to privately owned buildings and facilities, wireless spectrum analysis, power availability at buildings and telephone poles, and also evaluated floor space for network equipment. In addition, TechNet conducted a wireless site survey for 75 proposed camera locations throughout a 35 square mile area with additional repeater or hub locations. TechNet was proactive in creating an end-to-end design, which was presented to the City as the final presentation in November 2007.

As a result of a complete and comprehensive proposal and final presentation, TechNet along with its partner, was awarded the \$2 Million City contract in December 2007 and immediately began work on the project in January 2008.

Project Requirements

The City was seeking a portable wireless camera system for use by the police department and other designated public safety security agencies. The RFP required that the camera system provide universal, robust and secure portable wireless surveillance video that could be made available throughout the City to support public safety and other government use, allowing the City to monitor and gather information in the event of a criminal incident or other public safety concern, as well as act as a crime deterrent. The system was required to allow the City to observe and collect visual evidence in the event of an incident related to public safety with portable capabilities in order to allow relocation as areas of incidents/crime migrate. The City desired to utilize wireless RF as its transmission mode to reduce recurring costs and assist in the security of the system.

The proposed solution required the following major components:

1. Portable Wireless Surveillance Video Camera Units
2. Wireless Access to Live and Recorded Video
3. Video Capture, Storage and Retrieval with a Command and Control Center
4. System Support, Training and Maintenance

In addition, the initial RFP required the following specifications:

- Use of 4.9GHz (public safety frequency)
- Local storage (at the camera)
- Conditioned and backup power (UPS)
- Day/night capability
- 35x PTZ
- City Network Connectivity
- Mobile user connectivity

Project Components

The focus of the TechNet solution was to build out a robust wireless/fiber hybrid WAN. The project consisted of three main components including the Head End (Command and Control), the Network and the Camera Enclosure. Each component included an additional set of subsequent requirements:

HEAD END (COMMAND AND CONTROL)

- 30 days of storage
- 4 CIF resolution
- 30 frames per second
- Web access
- Integration with 911 center
- Integration with gunshot detection system
- Integration with automatic license plate recognition technology

NETWORK

- 5.0GHz (unlicensed frequency)
- Point-to-point wireless bridges
- Point-to-multipoint wireless mesh
- Point-to-point fiber interconnects (utilized existing)
- Multi-cast Cisco network
- Use of municipal buildings
- Use of high-rise buildings

CAMERA ENCLOSURE

- 4.9GHz (public safety frequency)
- Local storage (at the camera)
- Condition and backup power (UPS)
- Day/night capability
- 35x PTZ
- Web access
- Secure 802.11 connectivity for mobile users

Project Rollout

After completing the initial site survey to gather the vital information needed to begin the project, TechNet immediately began Phase One (Planning and Coordination) of the project rollout in January 2008. By February 2008, Phase Two (Network Deployment) was started and by June 2008, Phase Three (Camera Enclosure Deployment) was in place. The project was completed in August 2008.

Phase One: Planning and Coordination

January 2008 – February 2008

Intensive planning and coordination were critical, not only to Phase One of the project, but to the entire project rollout. It was essential for TechNet to coordinate with the City and local companies in order to coordinate the deployment phases of the project.

In order to plan accordingly, TechNet coordinated with: the City to gain access and permission for the deployment of equipment into private and publicly owned buildings and facilities; the local phone company, power company and City utility for mounting rights and power; the City IT department to finalize the network addressing plan as well as a VPN connection to the public safety camera network; the City police department to finalize project plans and scheduling, as well as reconcile the details of on-site police escorts.

Phase Two: Network Deployment

February 2008 – June 2008

Phase Two entailed much of the labor and installation of the project, including:

- Lighting up the fiber.
- Installing network enclosures.
- Installing wired network components.
- Installing the power supply and circuits.
- Installing/testing the point-to-point wireless backhaul.
- Installing the wireless sectors.
- Testing wireless sectors for throughput and video connectivity back to command and control.

Phase Three: Camera Enclosure Deployments

June 2008 – August 2008

The final phase of the project required all final details to be in place and ready for active deployment. TechNet worked tirelessly to ensure that each component of the project was properly installed and tested. A total of 50 camera installations were completed by August 2008.

In this final phase, TechNet:

- Coordinated the electrical service installation by the local utility.
- Assembled and staged the camera enclosures, which included several sub-systems (electrical, video storage, and network components).
- Installed and tested the camera enclosures, which included the UPS, wireless backhaul radio, access radio, antennas and mast, POE box (Power over Ethernet) and camera enclosure.
- Deployed Command and Control, which included the deployment of five uniquely configured work stations used for 24/7 multi-video stream monitoring, and recording video to optical media.

Summary

TechNet, along with its partner, was able to provide the City with a complete, turnkey solution for a citywide overt surveillance network. With an initial installation of 50 camera enclosures now complete, TechNet has proven its ability to provide a state-of-the-art, robust solution with the potential for easily deployed expansion.

After only eight months of planning, coordination and deployment, the City was equipped with a complete, citywide overt surveillance network in an effort to suppress and reduce criminal activity. This network has expandability to support hundreds of cameras in the future. TechNet's expertise in security/surveillance and ability to build out a robust wireless/fiber hybrid WAN has proven to be the solution needed to allow the City to further its focus on public safety and the reduction of crime.