IP Video For Law Enforcement

IndigoVision

Introduction

The security issues facing law enforcement and criminal justice systems are many and complex. A site-wide surveillance system is therefore an essential tool to monitor prisoner and staff safety, record incidents, protect property, detect criminal activity, combat terrorism and provide evidence. Police stations and courts are difficult premises to monitor, mixing high-security and public areas in the same building.

Conversely, monitoring of urban areas and traffic enforcement create a different set of problems. In all these environments it's important that different operators have access to the same security images, no matter where they are located. This demands a flexible and truly distributed video security system that delivers the very highest quality video.

Security Threats And Challenges

Law enforcement and criminal justice systems face a myriad of threats and challenges:

- **Evidence** - Video evidence of criminal activity and police interviews needs to be very high quality and tamper-proof to aid convictions.
- **Safety** - High profile events all too often seen in the media highlight the importance of safety for staff, prisoners and the public.
- **Geography** - Sites often cover large geographic areas.
- **Environment** - Buildings often include both high-security and public areas.
- **Terrorism** - Police and court buildings are prime targets for terrorists.

What Is IP Video?

IP Video is the control and recording of live digital security video over IP-based networks such as an IT Local Area Network (LAN) as found in most organisations. *IP Cameras* connect directly to the network and are available in resolutions ranging from High Definition (HD) to ultra-high resolution of 20 megapixels.

IP Encoders can be used to convert existing analog camera signals into high-quality, H.264 format digital video for transmission over the network.

High-fidelity two-way, fully synchronised audio can also be transmitted and alongside the video in both IP Cameras and Encoders. Leading IP Cameras and Encoders can also be used on existing networks, thanks to better video compression and therefore requiring less network bandwidth.

Video and audio data is recorded directly from the network using *Network Video Recorders* (NVRs), which can be distributed around the network to minimise the bandwidth usage and create a fault tolerant solution by removing the single point of failure associated with analog/DVR systems.

Operators using workstations running *Video Management Software* (VMS) applications can view live and recorded video from any camera. The VMS will also provide advanced video search and analysis tools, analytics, alarm handling features and site map overlays for easy identification of cameras and alarms. VMS workstations can be located anywhere on the IP network.

IP Video Applications In Law Enforcement

Police Stations, Detention Centres and Court Buildings

Monitoring buildings involved with law enforcement creates a challenging environment. Not only does the video security system have to monitor prisoner security and safety but also staff and public safety and building security, both interior and perimeter.

An IP Video system can deliver the highest quality video at full frame rate and provide analytics in the camera or encoder for real-time analysis of image content. The VMS adds other dimensions to the surveillance operation by providing advanced analytical search tools and features such as instant recall of recorded video. In addition, the distributed nature of IP Video technology allows any component in the system to be located any where on the network. For example, in a police station CCTV workstations could be used by :

- Booking in Desk
- Custody Sergeant
- Senior Police Officers
- Interviewing Officers and Detectives

This gives the police and the courts the flexibility to easily and cost-effectively integrate video into their operations.

Safe Rooms

Many police departments are replacing uneconomic remote police stations with unmanned 'safe rooms', which allow the public to contact the police from a safe and secure environment. An IP Video solution can implement all the necessary two-way video and audio intercom facilities entirely through the network. The advanced compression technology available on leading IP Video systems allows high-quality video and audio to be transmitted over very long distances with minimal delay.

Remote Monitoring and Wide Area Surveillance

Law enforcement agencies around the world have to increasingly monitor city centres and local communities as part of their operations. Whether this is to monitor criminal activity or manage traffic, remote monitoring creates a challenging environment for video security systems. IP Video's flexible and scalable technology is ideally suited to this type of application.

The very best IP Video solutions compression technology allows high quality video to be transmitted across standard IP networks over large distances with minimal bandwidth requirements. This ensures latency is kept to a minimum, which allows PTZ cameras to be controlled smoothly from far away, and wireless networks to be deployed easily to overcome the cabling problems associated with wide-area applications.

Mobile Applications

IP Video solutions have been deployed in a number of mobile applications including monitoring vans and command vehicles. Rugged IP Cameras with built-in infrared and white lighting, in addition to easy wireless network implementation, means that IP Video is the ideal solution for mobile and rapid deployment applications.

Multi-Agency Access

In large monitoring applications it is common for many different law enforcement agencies to want access to video footage. However, the video each agency requires may be different, and certain cameras need to be viewed only by specific agencies. A typical application would be an airport where the following agencies and departments would require access to the video security system: police, immigration, customs, airport security, airport operations and baggage handling.

In order to manage this complex environment the VMS implements sophisticated Identity Authentication Management which manages all aspects of user accounts and access permissions and creates logs to ensure a secure audit trail is produced.

Body Worn Video

On of the biggest advances in security is *body worn video*, making it possible for front line staff to have their own camera recording High Definition video as well as hi-fi audio. Research by the University of Cambridge has shown body worn video reduces aggressive behaviour, it also demonstrates staff are following correct processes and procedures, meaning false claims can be dismissed and liabilities reduced.

Benefits of IP Video For Law Enforcement

IP Video solutions are feature rich and many have been developed specifically for law enforcement applications. Key features to look out for are:

High Quality Video And Audio

The best IP Cameras and Encoders can transmit high quality, full frame rate video and hi-fi quality two-way audio with a guarantee that no video frames will be dropped. The video and audio is fully synchronised, which makes it an ideal platform for recording interviews and other evidential material. Watermarked and tamperproof evidential video/audio clips can be exported from the system, together with a standalone player for remote viewing.

Video Viewing Notification

A digital output from the IP Cameras and encoders can be triggered whenever the camera is being viewed or recorded. This can be used to drive a red light in an interview room to indicate the camera is operational.

Incident Lockout

In the event of an incident a senior operator can log into a VMS workstation with the appropriate permissions and lock down a specific camera or the entire system. The cameras can then only be viewed and controlled from that workstation.

Flexible Privacy Zones

Privacy Zones is a unique solution to the problem of implementing Hidden Zones without permanently losing the video which may be needed for evidential purposes in the future. Traditionally, Hidden Zones have been crudely implemented by applying a permanent mask to the front of the camera. The Privacy Zones feature blocks out areas of video to avoid viewing data/images that are irrelevant or intrusive .

Integration With Other Systems

Leading IP Video solutions can be fully integrated with other security systems such as access control and perimeter protection and can consolidate all alarms from these systems within the VMS. In addition their extensive integration facilities allow easy interfacing with systems such as intercom and interview recording equipment.

Video Analytics

IP Video solutions can provide a wide range of analytics features that run in real time in the camera and in the VMS for post-event analysis. Analytics can be used to detect movement or actions in a scene and then automatically generate alarms, warning the operator or triggering a system action such as start recording or pan a camera.

Analytics can include virtual tripwire, motion detection, abandoned object detection, congestion detection and counter flow. For example the 'Hooded Camera' analytics feature, which automatically alerts the system when a camera lens is obscured, is being used within many law enforcement applications.