MobileViewpoint

Live streaming and mobile surveillance for Security and Law Enforcement

White paper

Military police vans

Remote fixed camera

Drone surveillance

Police vehicles

Synopsis

This free white paper describes the advantages of mobile surveillance for law enforcement, private security, first responders and civil rescue companies who are looking at real time video surveillance to enable more efficient working practices, as well as accountability and evidence gathering of people and their actions.

Mobile Viewpoint provides a range of mobile surveillance equipment for bodycams, vehicles, aircraft and drones that can utilize a mix of 4G, Wi-Fi and / or LAN internet connections to securely live-stream to a command and control room some distance away. The white paper also describes some of the solutions as well as the problems it solves.

Content

Introduction

Fixed Video Surveillance is not new and has been used in a variety of situations for security, covert police operations, traffic monitoring and crowd management for a long time. But as an industry it has evolved and quality, management and open standards has made it more cost effective and more easily deployed than ever before.

What has also evolved and is less known about is mobile surveillance. This is the ability to take the camera to where the action is rather than relying on a fixed PTZ camera which has only finite a coverage. Mobile surveillance is so much more flexible. It can use a small camera or action cam such as a Go-Pro, and basically take the camera to where the action is, without the limitation of cables, and live stream securely, quickly and in full HD quality back to a Video Management System (VMS) in a command and control room.

By utilizing Mobile Viewpoint's range of WMT mobile encoders that can fit in a backpack complete with batteries, it is possible to connect a camera and live stream securely over multiple 4G networks simultaneously back to a control room.

By inserting SIM cards into the encoder, this allows the system to bond together multiple 4G connections from different operators at the same time. It makes the system more reliable as it does not rely on a single mobile operator and can balance the video down each operator depending on how much available bandwidth is available on each network at any given time. As the camera moves, for example in a pursuit law enforcement vehicle, and network conditions change on each network, the system will adapt accordingly.

WiCam

For security situations, such as CCTV cameras on a site with no internet connections such as a construction site, it is also possible to provide a camera and SIM card combo that can be mounted and managed remotely for mobile surveillance.

What is Mobile Surveillance?

This is the ability to live stream from a remote location with a mobile camera. It allows users to live stream from cars, drones, boats, helicopters and aircraft as well as from body cams or helmet cams that are often used by special forces and law enforcement. It allows police surveillance vehicles that are monitoring crowds for security or crowd control to live stream back to a command and control center where a commander can direct operations based on the video stream.
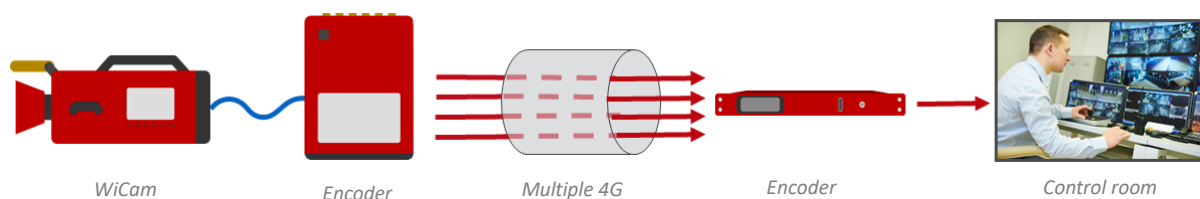
It can also include covert operations where a temporary camera needs to be installed but hidden out of sight.

Drones are a major part of mobile surveillance. Drones can give an aerial view and are much more quicker, agile and considerably less expensive than deploying a helicopter. More police organizations are utilizing drones for a variety of application from missing people to evidence gathering where in the past a helicopter may have been utilized but can now be replaced in many cases with a drone. Coast guards and civil rescue services are now also deploying more video streaming solutions. It is possible to live stream from a boat for operational purposes but also live streaming for civil rescue so a command officer can give remote instructions but also video is hugely advantageous when providing first aid and the doctor is remote.

What are the requirements for live streaming for security and law enforcement?

Naturally from a high level the following is needed:

- Camera
- Encoder for compressing video and pushing to the 4G
- Decoder at the receiving end
- Platform for viewing the video

WiCam   Encoder   Multiple 4G   Encoder   Control room

However, there are other features that should be considered:

- Encryption – for security, the web stream should be encrypted
- Ease of Management – when deploying multiple units, the ability to go live remotely and control the encoder is critical from a remote management platform
- DMZ – In Law Enforcement, they often have an extra layer of security and require all the decoding and management servers behind a DMZ (Demilitarized Zone)
- Cameras – Cameras come in two flavors and should be supported:
    - action cams use base band video and have an HDMI or SDI output
    - Security CCTV Cameras tend to be IP Cameras and have IP outputs
- Livestreaming Apps for Smartphones – it would be expensive to deploy a camera and encoder for every law enforcement officer. A live streaming app can be used on the Smartphone that can use the camera on the Smartphone to live stream to a Command and Control Center. It is important that the live streaming apps are encrypted and can be controlled under the same management platform as the main surveillance management platform. Some law enforcement agencies now use a hybrid Tetra and Smartphone device as the main communication device such as the Airbus Tactilon Dabat which can deploy the Mobile Viewpoint app.
- In event of losing all 4G, the system can record locally on the encoder.

What are the Solutions from Mobile Viewpoint for surveillance and security?

The Mobile Viewpoint solutions for security and surveillance consist of the following components.

In field:
- Camera's (Mobile Viewpoint can supply PTZ cameras or customers can use their own)
- Mobile or fixed encoders connected to a mobile camera device
- Smatrphone Apps that can securely live stream

Within the receiving station:
- Back-end content receiving servers
- Mobile Viewpoints' LinkMatrix management and monitoring web portal (normally a managed service but it can be installed behind a DMZ)

Monitoring and management via Mobile Viewpoint LinkMatrix

User cases

Mobile Viewpoint solutions have been deployed in the following situations:

Military Police vans

Military Police surveillance vans are equipped with a fixed camera and a fixed Mobile Viewpoint encoder with a number of mobile network connections. The fixed camera is attached to a special, extendable pole and transmits secure live video over to the control center via multiple 4G connections. All incoming live footage from the camera can be viewed in both them military vehicle and in real-time at the national control center of the police. This solution is used in, among other projects, for crowd control such as football matches and for facial recognition.

Police vehicles

Police cars of regional police forces are equipped with in-car cameras and encoder to securely stream live video of cameras placed with in the cars. Also, several police cars have mobile camera units available which enables police personnel to be more flexible and to view specific locations away from the vehicle. All incoming live footage from the camera can be viewed in both the police car and in real-time at the national control center of the police.

Drone surveillance

Video is downlinked to the ground base station of the drone using the drones normal streaming functionality, and then via an HDMI port of the ground base station, it is sent in real-time to the police or fire department control center. All incoming live footage from the camera can be viewed on both locally and simultaneously in the national control center of the police or fire department.

Remote Fixed Camera

Mobile Viewpoint manufactures the WiCam that is a combination of a high-quality video encoder, WMT-Multiplex software and industrial hardware that encapsulates a camera. The camera can be located at many different locations, for example close to a highway, a construction location or other location requiring surveillance that has limited network and power facilities.

Available products

Mobile encoders In car or in field mobile encoder such as the WMT BaseLink or Agile AirLink for baseband cameras, action cams and helmet cams.	*Agile AirLInk* *WMT BaseLink*
Fixed Encoder In-vehicle rack encoder with multiple video inputs such as the TerraLink-xC.	*TerraLink-xCM*
Datalink IP bonded solution for IP Cameras providing up to 200MB/sec.	*DataLink*
Fixed Camera Combo Live surveillance from fixed location with integrated PTZ camera such as the WiCam.	*WiCam*
Mobile App Streamur for iPhone and Android.	*Streamur App*
Command Center Receiving server and decoder such as the 2Kx0.	*Playout 2KX*
Central Management Platform With the web-based LinkMatrix platform, it is possible to control, manage and administer all devices and connections via a standard browser from anywhere.	*LinkMatrix*

What about Antennas?

The equipment is delivered by default with SMA connectors and swivel antennas.

Swivel antenna

SMA connector

Optional and especially for use in vehicle (car, van, motorcycle or helicopter) Mobile Viewpoint can deliver a dome antenna with SMA connectors. The dome antenna can be located outside/ on top of the vehicle for better coverage and reception of the signal.

External dome antenna on a motorcycle or under a helicopter

Instead of the SMA connectors for the dome antenna, Mobile Viewpoint can also deliver the dome antenna with a special designed multiconnector. The multiconnector enables the customer to remove the antenna with one click.

Agile unit with multiconnector

Mobile Viewpoint

Advantages of Mobile Viewpoint Solutions

Mobile Viewpoint has since 2008 been innovators in providing secure live streaming video solutions for the police, law enforcement and security companies as well as providing live streaming solutions for global broadcasters and sport production companies utilizing end-to-end Mobile Viewpoint technology.

Benefits of using such equipment:
- Send and receive live streams using cellular, satellite and WIFI connectivity
- Supports both H.264 and more recently H.265 HEVC solutions for maximum video compression
- Easy set up
- Encrypted using AES 128 technology
- Remotely manageable via the Linkmatrix web portal that is provided as a managed service
- Integrated back end solution into a Video Management Solution (VMS) such as Milestone or Genetec
- Cost-efficient
- Low latency
- Scalable platform
- Ruggedized casings of the hardware
- Can be operational in harsh environments
- Full 24x7 Support availability

About Mobile Viewpoint

Mobile Viewpoint is a global player, focusing on the development and implementation of video transmission solutions for both the broadcast and security industries. Its H.264 and now H.265 HEVC codec implementations, combined with patented technology, allow for HD video to be transmitted over bonded IP connections including 4G, Wi-Fi and Satellite. Mobile Viewpoint also has a range of artificial intelligence-driven (AI) production and storage solutions, supporting broadcasters and content owners in the end-to-end delivery of video content.

Customers include major broadcasters such as BBC News, Al-Arabiya, Sky Sports News, NBC Sports; sports clubs such as Ajax FC, Leicester City FC, and FC Porto, and government & emergency services sector organisations like New York Fire Department, Malaysian Highway Patrol, Dutch Federal and Military Police, Traffic Control the Netherlands (VID).

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