Case Study

MILESTONE AND SOLITON SYSTEMS Success Story for Law Enforcement and Mobile Surveillance

Law enforcement agencies across the globe are utilizing video streaming for a range of special operations and public safety operations. The technical departments within enforcement agencies have a wide range of responsibilities, one of which is sourcing live streaming solutions to enable surveillance from mobile cameras and addressing mission critical demands of live streaming from body cameras in hostile and remote areas.

This case study examines how a special police operations team, using body mounted action cameras, can direct and manage live operations in the field from a command centre at headquarters.

Challenges in daily operations

Traditional challenges faced by enforcement agents on the ground when live streaming from the field are the lack of reliability, long latency and reduced image quality. As most of their duties require them to operate in dangerous and challenging environments, much of the decision making and evidence gathering is done using body and helmet cameras to live stream, in real time, back to a commanding officer in a remote command centre.

The feedback we received from law enforcement agencies was that the live feeds were of low quality, mostly caused by pushing video over a singular cellular network connection. It was often deemed unstable due to low bandwidth availability or by congestion caused by many users in highly populated areas. What compounded the problem is the need for continuously high bandwidth, and a quality high enough to make it admissible in a court of law. Also, when using publicly available networks for surveillance and communications, it is imperative that all connections are secure.

Another factor is latency – the time it takes the video feed from the camera to reach the control centre. Anything longer than two seconds is deemed too long for making an effective operational decision. Enforcement agents will always need a separate verbal confirmation from someone with eyes on the scene which is often challenging. If a picture speaks a thousand words, then imagine the words an instant video can speak with almost zero latency in real time.

"Here in Milestone, we are seeing an increased demand for body-worn solutions integrated with our XProtect Open Platform VMS. Soliton Systems' ZAO-S is a perfect example of how advanced low-latency live streaming technologies can add tremendous value to real-world applications such as law enforcement operations, emergency services and even live streaming from moving vehicles and drones," said Lawrence Tan, Regional Head of Solution Sales, Milestone APAC.

The Soliton live streaming solution works very well with open platform systems, such as Milestone's XProtect

The mobile surveillance solution utilized to address the issues identified was the implementation of the ZAO-S from Soliton Systems. The ZAO-S is a mobile H.265 video encoder that weighs only 400 grams. It connects directly to the camera and can connect to multiple 5G/4G/3G/Private LTE networks simultaneously, sending an encrypted live stream back to the command and control centre.

The ZAO-S live streaming capabilities are regularly tested to the limits in hostile situations during operational duties and in challenging network conditions with unstable or low bandwidth internet connections, such as in a heavily built up area, remote areas or within a building.

ZAO-S is easy to use and is extremely lightweight for field operators. The ruggedized units are easily hidden inside uniforms due to its small size.

Being ONVIF compliant, the ZAO-S can seamlessly work with the existing Milestone VMS system. After seeing the successful integration, operators started using XProtect® Smart Client to manage all the operations on the platform that they were already familiar with.

The total latency performance is impressive, it could be reduced to as low as 500msec depending on the latency of the network. All connections are encrypted and live streaming over mobile networks is now more reliable.

> The ZAO-S has many features making it ideal for law enforcement. The ZAO-S is super lightweight and robust making it ideal for special operations in the field. Full integration via open standards is a major factor when considering an implementation of new technology for ease of integration and future proofing. As it ONVIF compliant, the ZAO-S can fully integrate the live video stream into Milestone's VMS Platform.

Future Applications

The integrated solution architected by Soliton and Milestone not only allows high quality live streaming from body-worn cameras but also enables remote live streaming from drones, moving vehicles, and surveillance cameras in any temporary or remote location in order to enable wider area coverage, thus giving a better field support for hostile situations and more reach to remote areas.

Live streaming to HQ helps improve operational decision making, and with the talk back feature, allows operators to verbally communicate back to the field agents for giving directions and orders, while all communications are being recorded and archived. The integrated solution also enables third party analytical platforms integrated within Milestone to use live streams to calculate a range of issues in real time allowing the access of a full database to provide efficient comparisons. This is invaluable for supporting the field side of the operations more efficiently.

> Go Ito, Managing Director at Soliton Systems adds, “Reliability and low latency are key to successful law enforcement usage. The ZAO-S, in conjunction with Milestone, has proved a very positive addition to law enforcement. By allowing the operations command team to view body-worn action camera feeds, drone feeds and fixed CCTV feeds on the same screen, it enables the commanding officer a more joined up assessment of their live operations in the field so they can make better informed decisions.”

Soliton and Milestone are joining forces to provide the next generation of mobile live streaming for special operations. By using miniature encoders, with bodycams and helmet cameras, in conjunction with the Milestone VMS, the solution will provide law enforcement with high quality, low latency and secure real-time video, ensuring commanding officers can react quickly to dynamic and volatile events as part of their mission to make the world a safer place.

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About Soliton Systems

Soliton Systems, headquartered in Japan with offices in Europe, USA and China, manufacture a range of encrypted video encoding and security products. Its flagship products, the Smart-telecaster Zao series, is in use by range of law enforcement, global broadcasters, news and sport production companies for the ultimate in encrypted live streaming over self-bonded cellular networks. The ZAO-S and the ZAO-SH is also used by public safety providers and for all remote operation applications, where ultra-low latency is required, such as for remote driving cars, heavy machinery and control of drones with full live streaming needs.

For more information visit: www.solitonsystems.com

About Milestone Systems

Milestone Systems is a leading provider of open platform video management software; technology that helps the world see how to ensure safety, protect assets and increase business efficiency. Milestone enables an open platform community that drives collaboration and innovation in the development and use of network video technology, with reliable and scalable solutions that are proven in more than 500,000 installations worldwide. Founded in 1998, Milestone is a stand-alone company in the Canon Group.

For more information visit: www.milestonesys.com.

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