MOTOROLA *SOLUTIONS*

COMMAND CENTRAL STREAMING

REAL-TIME VIDEO STREAMING FROM ANY DEVICE

In public safety, what you don't know can hurt you. The more information public safety personnel have about a situation, the more effective they can be. That's why harnessing video in real-time response is more important than ever to ensure the safety of first responders, citizens and your community. CommandCentral Streaming helps to maximize the crime-fighting potential of video. When used in conjunction with high-speed mobile broadband technology, such as Public Safety LTE, CommandCentral Streaming allows mobile video to flow freely from camera to command center, out to mobile devices and everywhere in between. With Command Central Streaming, public safety officials can share information:

From Mobile Units in the Field to a Command Center or Real-Time Crime Center
CommandCentral Streaming enables instant sharing of in-vehicle video. It allows an analyst to observe a traffic stop of a suspect in real time; a commander to monitor and train a rookie officer on patrol; or an intelligence operator to proactively monitor a community for potential incidents.

From Fixed Cameras to Mobile Units in the Field
A detective can view video from a nearby street camera on his handheld device. A patrol car traveling to the scene of a crime can access video and monitor a suspect as he flees. Or Command Staff can view video during an incident response from cameras in schools, banks or other businesses. The end result: better situational awareness. Commanders can make tactical decisions without being on the scene. And officers are better informed as they enter a scene.

Between Mobile Units
An officer in a patrol car can share his in-car video with a gang force detective across town to see if the detective recognizes anyone in the video. Teams of officers in the field can share video to coordinate the pursuit and apprehension of suspects. Investigators can pull video from a street camera, zoom in and recognize a suspect in a group. That same investigator can then push the video feed to other team members for follow-up – or connect to a remote database for more information.

REAL-TIME VIDEO DELIVERY DESIGNED FOR LAW ENFORCEMENT

When it comes to fighting crime, the loss of a video – or even a few seconds delay – can cost lives. That's why any real-time mobile video solution for public safety must meet a strict set of features and standards. Rely on Motorola to deliver:

UNPARALLELED ADAPTABILITY

In a mobile environment, bandwidth is constantly changing. It can be affected by a variety of factors such as: distance to the transmitting antenna; weather; topography; or the number of applications running on the network.

For instance, a police officer may normally experience data speeds of 3 Mbps or more. With these data speeds, he gets high-quality video. But as conditions change, that throughput could drop considerably.

Many commercial video streaming systems are designed assuming a constant amount of bandwidth. If the available bandwidth drops below that level, these systems will simply stop delivering video. Or the video quality will become so degraded that the video becomes useless.

WHEN THE VIDEO MUST GET THROUGH

CommandCentral Streaming dynamically adapts to the variances in bandwidth that are regularly experienced by mobile broadband networks. If the bandwidth falls, the video transmission can be adjusted based on how law enforcement is using that video.

For example, if a camera is set up to read license plates or to identify suspects, CommandCentral Streaming can be programmed to reduce the video's frame rate when bandwidth drops but keep the resolution intact. This keeps the picture sharp so that license plate letters and numbers can be seen clearly.

Conversely, if the video camera is set up to monitor unusual crowd activity or to monitor a high-speed chase, it is more important to capture movement than specific details. In this case, the resolution might be reduced to keep the frame rate high so that an object thrown from a vehicle would still be easily detected on the video.

CommandCentral Streaming allows officers to easily configure the system to meet unique quality requirements. We also use aggressive compression techniques when the available bandwidth is limited.

CommandCentral Streaming uses H.264 compression, which fully utilizes the bandwidth to deliver the highest quality real-time video possible.

No matter what method is used to solve bandwidth challenges, CommandCentral Streaming assures that quality video gets through without any delay.

LOW DELAY PAN-TILT-ZOOM

The ability to prioritize communications is particularly critical in the use of pan-tilt-zoom controls on video cameras. Any delay at all can make the operation of these cameras very difficult and result in the operator not being able to position the camera to view a precise location. WIth pan-tilt-zoom commands, operators can easily position cameras where needed.

OPTIMIZED VIDEO DELIVERY

CommandCentral Streaming is designed to optimize video based on the available bandwidth and on the end client/mobile device. In many cases, multiple users – such as a supervisor in the command center as well as a fellow officer – may request to see video from the same patrol car. Bandwidth is conserved by streaming video only once to the central server.

The central server then transcodes the video stream and optimizes it for the type of field device being used. If it's a handheld, the server will automatically encode the data so that it will not exceed the device's screen resolution. Because the handheld receives the video at the right resolution, it doesn't need to scale it down. This process also reduces CPU load and preserves battery life.

In contrast, if the video is being sent to a supervisor at the command center to be viewed on a desktop computer, the server will send the highest quality video available.

WHEN SECONDS COUNT... BUFFERING IS UNACCEPTABLE

Making life-saving decisions requires seeing what is happening now – not 60 seconds ago. Just imagine if your "shoot, no shoot" order was based on a video that was delayed even a few seconds.

That's why buffering is simply not acceptable in the world of public safety. Buffering involves storing a few seconds or minutes of streamed video before playing it from the beginning for the viewer.

CommandCentral Streaming uses sophisticated techniques that include video adaptation, prioritization and advanced data recovery algorithms to avoid delaying the video stream. This ensures that real-time video always gets through. With no delay. And no buffering required.

ACCESS ALL YOUR VIDEO

Leverage the all of your video investments with pre-built connectors for a wide variety of video sources. Motorola has partnered with all of the leading Video Management Systems (VMS) and Network Video Recorders (NVRs) providers so you can stream real-time video from any number of public and private camera sources. Motorola's

STREAMINGsupported network of VMS and NVR connectors is constantly growing and can be expanded to add support for new camera sources based on your needs. You save money by eliminating the need to swap out existing cameras. Plus, it makes it much easier and more cost-effective to expand your department's video footprint because you don't have to build out your entire infrastructure from scratch. Our complete list of supported connectors in available on our video partner page at motorolasolutions.com/spsspartners.
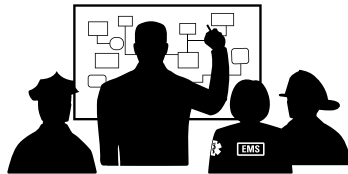
A CLEAR VIEW THROUGHOUT YOUR OPERATIONS

CommandCentral Streaming can be used on a variety of devices and applications to help you better fight crime, save money and save lives.

FIELD PERSONNEL

Improve situational awareness, efficiency and safety with instant access to real-time video in the field. Video streams of an incident can be pushed out to a responder from a PremierOne CAD dispatcher or a CommandCentral Aware operator. While en route to an incident, EMS personnel can view video streams from within their Premier MDC, PremierOne Mobile or PremierOne Handheld workflows. Or personnel can access live video streams from any internet-connected device via web browser.

COMMAND STAFF

Gain a better understanding of developing situations and improve strategic decision making with real-time video streams from fixed and mobile sources. Incident commanders, using CommandCentral Inform, can view the mapped location of video sources layered with additional intelligence and stream them from their tablet. Or supervisors can use their smartphone to remotely monitor and coach rookie personnel.

SUPPORT POSITIONS

Make better decisions in your command center, real-time crime center and other operational environments to enhance responder safety with real-time video that can be easily shared to the field. Dispatchers can send video streams near a 9-1-1 call to officers using PremierOne CAD. And intelligence operators can use CommandCentral Aware to see an aggregated view of multiple video streams to proactively monitor the community and support responders when incidents develop.

SMART PUBLIC SAFETY SOLUTIONS

Transform your ever-growing data sources into a force multiplier enabling fast, accurate emergency response and crime prevention. Realize new ways to keep workflows simple and intuitive while improving situational awareness and officer safety. From answering thousands of emergency calls and text messages to processing video, disparate evidence and records, Smart Public Safety Solutions integrate your command center, field personnel and citizens for streamlined operations at an affordable cost.

Rely on the public safety expert to help you unlock the full potential of your data to serve, protect and empower your community today and tomorrow. Learn more at **motorolasolutions.com/spss.**

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