Video-centric innovation is expanding the safety of smart cities

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Whether it is video analytic platforms to monitor traffic patterns or cameras deployed to help law enforcement ensure public safety, many cities are looking at advancements in video technology.

Upgrade costs and technology compatibility issues are often front-and-centre when it comes to blending new technology with existing infrastructure. For example, if the city law enforcement officials want to improve video camera image quality, which can improve the evidentiary value of footage in prosecutions, they may look at newer HD or IP-based video systems.

Upgrading to a hybrid DVR system
Applications include perimeter monitoring, public parking, city transportation, square/town safety

To stretch a tight budget, a migration plan to an IP-based camera system could be phased in over time by centering the upgrade on a new hybrid DVR system. This way, both existing analogue and newer IP-based cameras can be hooked into the system.

For example, Hikvision’s Smart City Solutions include systems for government services, transportation and traffic management, or any combinations of these. Applications include perimeter monitoring, public parking, city transportation, square/town safety and temporary surveillance.

Heart of City strategy

Dahua Technology, a video-centric smart IoT solution and service provider, has introduced its ‘Heart of City (HOC)’ strategy, which is in line with the top-level design experience from hundreds of city projects. The strategy is based on the maturity of five technologies – artificial intelligence (AI), big data, cloud computing, IoT and 5G. The combination will enable the evolution of smart city 3.0 and bring great changes to our life, according to Dahua.

A 300-plus camera city centre video surveillance scheme in the UK city of Lincoln has been installed and commissioned using cameras, monitors and switching equipment from Dahua Technology. The design of the new all-wireless encrypted system was based around delivering flexible technology, reducing the total cost of ownership, ease of installation, lower maintenance requirements, smart edge analytics and remote connectivity.

Future-proof radio network design

Environmentally friendly aspects of the project included specifying lower-energy equipment, integrating remote support and recycling hardware wherever possible. The council employed independent consultants Lever Technology Group to help them ensure they had a robust and future-
proof radio network design.

The installation of the new IP full HD system and network is part of Lincoln’s smart city strategy – Vision 2020 – which seeks to drive innovation in the city and harness new technologies to improve the lives of citizens. One of the results is the provision of free Wi-Fi in the city, working alongside the Dahua cameras using the same IP wireless network.

**Wearables for city surveillance**

Wearables are another new aspect of city surveillance system. For example, FLIR Systems, Inc. has announced [FLIR TruWITNESS, a wearable sensor platform](https://www.flir.com) designed for city-level security and public safety operations. TruWITNESS combines video, audio, location data, Internet of Things (IoT) capabilities, and cloud and management software in one solution, allowing organisations to reach a new level of situational awareness.

TruWITNESS is worn on an individual’s body or mounted inside vehicles and is designed for any public safety organisation that requires on-scene, real-time mobile surveillance.
TruWITNESS is designed for any public safety organisation that requires on-scene, real-time mobile surveillance. Worn on an individual’s body or mounted inside vehicles, TruWITNESS includes visible-video, audio, global navigation satellite system (GNSS), gyroscope, accelerometer and magnetometer sensors. These sensors combine to send alerts and stream data to a central command centre in real-time to ensure full situational awareness and global event handling.

Featuring FLIR Neighbor Aware inter-device connectivity, TruWITNESS acts as an IoT device, triggering nearby TruWITNESS devices, fixed and motorised Pan-Tilt-Zoom (PTZ) security cameras, and other connected sensors to act upon an alarm event. TruWITNESS becomes a key component of FLIR Systems’ Video Management System, United VMS, which command centres use to manage video surveillance. United VMS combines video, audio, and other related data and makes it available for real-time situation management and forensic purposes.

**Video analytics for crowd monitoring**

Crowd monitoring video analytics solutions monitor vast areas instantly alerting police of any overcrowding areas. Qognify’s crowd monitoring video analytics solution was successfully used during the Maratha Morcha in the city of Kolhapur, India, on October 15th, 2016. The system monitored approximately one million protestors through 165 cameras installed across city. Smart threshold alerts were streamed directly into the control room while the crowd was building up, so that action could be taken before the crowd density reached dangerous levels, alleviating crowd safety and stability.

At the core of the solution is Situator, Qognify’s advanced PSIM/Situation Management solution, which manages a myriad of security systems and sensors, including Qognify’s video management solution, from a newly built state-of-the-art Command and Control Center. Security operators and officials have advanced situational awareness of what is happening in their city and where.
Automated, pre-defined Standard Operating Procedures (SOPs) were designed, in the local language Marathi, for handling routine security incidents as well as disaster management, ensuring that the most effective response is initiated, and procedures are executed in a consistent manner.

**Maintaining law, order and safety**

Qognify also implemented its Safe City solution in Navi Mumbai, a planned township that was established to handle the population overflow from the overcrowded and ever-growing city of Mumbai, India. Together with CIDCO (City and Industrial Development Corporation, the agency established for managing the new city) and system integrator WIPRO, Qognify designed an integrated and holistic solution that helps Navi police to maintain law, order and safety.

**Qognify’s Video Management Solution controls hundreds of surveillance cameras**

As a planned township, Navi Mumbai officials have the benefit of operating in a modern environment, allowing them to maximise Qognify’s Safe City solution. The Qognify Situator is an advanced Situation Management platform, and Qognify’s Video Management Solution controls the hundreds of surveillance cameras throughout the city.

**Role of standards in smart cities**

“Standards can assist in successfully deploying a comprehensive [safe cities] system with multiple technologies into a single, cohesive entity,” said Per Björkdahl, Chair of the ONVIF Steering Committee.

“With the ability to integrate various sensors and data from many different devices synthesised through one interface, government officials and law enforcement are afforded a more complete picture of their city’s security.”
Deployment of facial recognition technology

Live video streaming within the smart and safe city’s infrastructure means video’s capabilities can go beyond simple evidence recording and evolve into a tool that allows operations teams to monitor and remediate against incidents as they are happening.

Facial recognition technology can be added on to any video surveillance camera that is recording at a high quality.

This can be taken one step further with the deployment of facial recognition via live streaming video. Facial recognition technology can be added on to any video surveillance camera that is recording at a high enough quality to identify faces. The technology works by capturing video, streaming the live video back to a control centre and matching faces against any watch lists that the control centre owns. Importantly, the data of people who aren’t on watch lists is not stored by the technology.

This technology can work to make the city safer in a number of ways. For example, facial recognition could spot a known drug dealer in a city centre where they weren’t supposed to be, or facial recognition could identify if a group of known terror suspects were visiting the same location at the same time, and this would send an alert to the police.

Author Profile
An experienced journalist and long-time presence in the US security industry, Larry is SourceSecurity.com's eyes and ears in the fast-changing security marketplace, attending industry and corporate events, interviewing security leaders and contributing original editorial content to the site. He leads SourceSecurity.com's team of dedicated editorial and content professionals, guiding the "editorial roadmap" to ensure the site provides the most relevant content for security professionals.
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