

## The City of Calgary Relies on Open Platform Video for Innovative, Smart City Integrations

With a population of nearly 1.2 million, Calgary is the largest city in the Canadian province of Alberta and is Canada's third-largest municipality. Consistently recognized for its high quality of life, *The Economist* ranked Calgary as the fourth most livable city in the world in its 2018 Global Livability Ranking.

Much of that livability can be attributed to the fact that technology plays an integral part within Calgary City management. With a large 'smart city' portfolio of tools, city managers continue to build on an innovative tech and data foundation to provide efficiency, safety and security in their services.

### Legacy Challenges and Data ROI

About five years ago, city managers decided they needed to replace and upgrade their legacy video management system (VMS). At the time, the city had about 1,800 cameras in use, with 300 network video recorders (NVRs) spread throughout the city.

"Our previous system wasn't meeting our needs in terms of connecting to centralized security operations, viewing all the video and performing investigations," said Alex Lee, City of Calgary, Security Advisor of Technical Operations. "We needed a system which would allow us to be much more proactive in dealing with incidents around the city."

With a focus on city operations, Lee explained that his team took the approach of outlining how they intend to use their video system over the next several years. Beyond needing to capture and share high-quality, reliable, live and recorded video data, the city wanted to be able to integrate with other technologies, including access control, video analytics and building management systems.

"Return on investment for a city isn't always just based on money—ROI can be data related," said Lee. "Information is key to any city, so collecting data is one of our most important missions. We needed to deploy a software solution to collect data for solving city issues."

### The Open Platform

City officials worked with Milestone Technology partner [Convergent Technologies'](#) Calgary team to plan the city's new solution. Convergent Technologies is a global systems integrator that designs, installs and services integrated security solutions for a wide range of industries. Mark Sheahan is the Convergent Account Manager for the City of Calgary project.

"Selecting the VMS was a big decision that impacts the current and future performance of the system. Having a truly open platform with the ability to deeply integrate third-party systems was a critical requirement," said Sheahan. "Calgary needed an open platform where any camera or device could be installed, and where we can integrate with other data systems. Milestone was certainly the right choice."



After a year-long test, evaluation and competitive shootout process, in 2016 the City of Calgary began deploying XProtect Corporate open platform VMS from Milestone Systems as the core of its new, citywide, enterprise-class video monitoring system.

"Our upper management did a great job of explaining how video can provide information to smart cities and how to apply that data," said Lee. "When you think about it, there isn't any better data collector than a camera. We can talk about audio detection, gunshot detection, temperature sensors, water level sensors, humidity sensors—all good data, but nothing compares to the information collected by a camera. And if you can tie all that data together, you really have an effective and usable system."

The Milestone open platform, IP video management software supports more than 8,000 security devices from more than 150 manufacturers. Alliance partners include providers of network video cameras, encoders, DVRs and NVRs, storage equipment, access control, alarm and detection systems, video analytics, GPS technology, laser scanners, emergency call boxes and much more.

With the Milestone open platform, systems integration is easy via Application Program Interfaces (APIs) to share data between systems, devices and components for an efficient, unified solution. It also scales from one to thousands of devices in increments as needed, so installations can be done in stages. As a training-certified Milestone Partner, Convergent knows how to leverage this flexible and scalable technology.

### **A Variety of Uses**

For the first phase of the new VMS deployment, Lee explained that the city has installed the system to cover public utility facilities, recreation facilities, electrical substations, parks, critical infrastructure sites, and operational work centers which include storage lots.

"We cover sites like the Transportation Infrastructure storage compounds because they're extremely large, and we often have people breaking in stealing copper, fiber, and other roads supplies such as road pickle (a rock and salt mixture for icy roads). For this location, we needed good video and perimeter detection," said Lee. "The same kind of protection is needed for our other sites such as warehouses, parks and outdoor storage compounds who have valuable equipment and supplies—tools, heavy equipment, and industrial supplies—that need to be monitored 24/7."

To cover these expansive, multi-acre areas, the team has standardized on a mix of IP cameras from [Axis Communications](#), including high-resolution cameras, multi-sensor cameras, pan/tilt/zoom (PTZ) systems and thermal imaging cameras, including the bispectral network cameras that combine visual and thermal video streams in a single PTZ camera for a powerful combination of short- and long-distance surveillance, day and night.

Integrating AXIS network radar detectors and AXIS Perimeter Defender video analytics with the Milestone VMS allows the city to create a virtual "fence" around designated areas. Working together, the solution automatically detects and alerts when people or vehicles are intruding on a property. The system reinforces physical access controls and is suitable for efficient responses in high-security sites such as power plants and prisons.



"At our Highfield compound, we're installing eight thermal cameras to cover the perimeter and using AXIS Perimeter Defender video analytics integrated into Milestone for reliable detection," said Lee. "We're very happy with how the system is performing, and we're looking to extend it to other such areas."

### **Interactive Map Integration with Multiple Data Sources**

With the goal of best leveraging the strengths of the open platform, the city just completed a proof-of-concept evaluation with Milestone Technology Partner Live Earth. Live Earth is an Internet of Things (IoT) visualization platform that allows users to seamlessly synchronize data from multiple sources and combine live data feeds into an interactive map. The Live Earth solution contains a variety of real-time, Graphic Information System overlays that update automatically, empowering managers to understand scenarios quickly.

Mark Sheahan learned about and met with representatives from Live Earth at the 2018 Milestone MIPS event in Las Vegas.

"We are extremely impressed with the [Live Earth-Milestone integration](#) and its capabilities," said Sheehan. "It has a great user interface, amazing data, and if you show it to any mayor or city council member, or anyone in such positions, they immediately understand what Live Earth does and how it can be used in a smart city situation."

The team is beginning to map out most areas of the city, including all roadways and transportation systems, as well as operational concerns such as sewer and electrical systems. Lee added that his team is working to include other city business units in how they could use Live Earth, not just from a security standpoint but from an operational perspective as well.

Lee and his team plan on using the Rules Engine within XProtect to further integrate a range of data systems and sensors with Live Earth, including data from IoT devices.

"We want to get to a point where when a fire alarm goes off, we receive a [notification](#) and can instantly see the alarm location on the map as well as responders within the area," said Lee. "The Live Earth system can then automatically bring up surrounding cameras for [visual verification](#) of the incident, and begin an appropriate response."

A deeper integration with the city's Lenel OnGuard Access Control system — covering some 3,600 readers throughout the city — is also in the works.

"We need our team to concentrate on monitoring a single piece of software, not a dozen different platforms: this is a crucial end-point goal for us right now," said Lee. "We have custom alarms for pretty much every Lenel reader. Milestone's support within this entire process has been great."

### **The High Watermark for Training and Support**

The City of Calgary currently has about 90 people who access and use the video software regularly, and many of the users—especially those from other city business units—have never used a surveillance



system. Lee explained that Milestone's online library of e-Learning content has been critical to their success.

"In 2013, we had a massive flood that caused \$5.4 billion worth of damage, so we take water level monitoring very seriously. We now use video to monitor river levels in real time," said Lee. "We've installed a network of cameras for use by Calgary water engineers, so instead of sending one of my Security or Systems Administrators to teach them how to use the software, I just forward them a link to the Milestone e-Learning web page, and they can learn at their own pace. It's a great training system."

Cities like Calgary face many different security and operational challenges. City assets include thousands to millions of people, government buildings, parks, roads, maintenance equipment, utilities and other infrastructure. There is no downtime for a city. The systems used must be designed to handle and prevent vandalism, burglary and all other forms of crime around the clock, 365 days a year. Only a flexible, scalable video monitoring system based on an open platform can help a city manage all of these concerns efficiently and effectively.

"All our partners at Milestone and Convergent have been great to work with," said Lee. "We've done so much together already, but we still have a long list of things we want to accomplish. We look forward to continuing to deepen our system's capabilities to provide better services for the City of Calgary for many years to come."

#### **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 150,000 sites worldwide. Founded in 1998, Milestone is a stand-alone company in the Canon Group.

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