

Reaping New Efficiencies With ANALYTICS



As organizations install more and more security cameras, how can all that video data be better utilized? Learn how video analytics is being leveraged across a range of markets to increase security, improve public safety, reduce shrink and power business intelligence applications.

By Marc Holtenhoff

Physical security integrators know all too well the challenges posed by massive amounts of video data generated by surveillance systems. Without an efficient means of analyzing this data — 90 percent of which is unstructured content — end users are burdened with some serious problems.

First, it becomes a nearly impossible task for security monitoring personnel to notice all the relevant or potentially threatening activity. In addition, when post-event investigation is required reviewing pertinent data may take hours, days or even months, making it an extremely time consuming and imprecise task. And with the growing use of video surveillance for nonsecurity-related business intelligence applications, customers are demanding smarter video that can provide critical information before dangerous and costly situations occur.

Hence, without the ability to dissect video data with reports, charts and graphs, it is difficult for end users to make better security and business decisions. Thanks to video analytics solutions, systems integrators are increasingly better equipped to provide newfound operational efficiencies for their end-user customers.

A Migration Path to Intelligent Video

While many installing security contractors are involved in the current transition from analog to IP-based systems, they should also be informing their custom-

ers about solutions that go beyond basic networked capabilities. Integrators can retain customers throughout their technology migration path by providing a lifecycle video software solution, all the while capturing upsell opportunities as a trusted advisor.

While the immediate need may be to transition customers from analog to an IP video surveillance infrastructure, down the road these same customers may require more sophisticated capabilities. These include a virtual fence or object-left-behind analytics with a future option for business intelligence applications.

Such factors have led to intelligent video surveillance and management — a.k.a., video analytics. Video analytics



6th Annual Police Dispatch Quality Award

Broadview Security (now ADT) accepts the 2010 PDQ award.
 Past winners include: Alarm Detection Systems, Altronic Alarms, Brink's Home Security and Vector Security.

Call for Entries

"Promoting Partnerships in Public Safety"

Security companies and law enforcement agencies work together as partners, sharing information and communicating frequently to protect public safety and serve their communities. The Security Industry Alarm Coalition (SIAC), False Alarm Reduction Association (FARA), and SECURITY SALES & INTEGRATION created the POLICE DISPATCH QUALITY (PDQ) program to promote cooperative best practices, to reduce unnecessary dispatches and give officers the most complete information when responding to alarms. We are looking for companies that exemplify an all-out effort to reduce false alarms from implementing ECV (Enhanced Call Verification, a.k.a. two-call verification) to utilizing ANSI CP01-compliant control panels, training customers and working closely with law enforcement. The best overall collaboration will be honored with the 6th Annual North American PDQ Award.

- The winning security company will receive \$1,000 for hotel and airfare to attend June's Electronic Security Expo (ESX) in Charlotte, N.C., and will participate in the award ceremony.
- Outstanding program ideas will be featured in SECURITY SALES & INTEGRATION magazine, in security association publications and their Web sites, and at ESX 2011.
- Monitoring and/or installing alarm dealers in the U.S. and Canada must mail an application postmarked by **Feb. 28, 2011.**
- Security companies and local police officials should meet now to form partnerships in public safety.

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provide the tools to change the way organizations capture and use video. Consider the following benefits to customers:

Real-time alerting — Video analytics direct the attention of monitoring personnel to relevant activity in real-time. This means events are responded to quickly and efficiently, providing significantly improved safety and security.

Video search — Users can pinpoint specific events in mere seconds. With video analytics you can select specific search parameters such as time, activity, and location, and review only the video that meets particular requirements.

Reporting — Utilizing video analytics, users are able to dissect video data with reports, charts and graphs, providing an invaluable tool for making better business decisions.

Lower labor costs — With features like real-time alerting and intelligent search, labor costs of monitoring personnel are significantly reduced, providing a significant return on investment (ROI).

Optimized operations — With the wealth of information provided in reports, organizations are able to use video to better plan staffing requirements, increase revenues, or improve customer satisfaction. All of these contribute positively to a stronger bottom line.

Standalone Vs. Integration

When evaluating video analytics, systems integrators may notice that most software products are standalone and require integration with a third-party video management software (VMS) product to be of any use in real-time. This integration exercise can be costly, both in terms of actual integration development work to ensure the products work together, as well as licensing and hardware. Often much of the intelligent information the analytics can provide is reduced to an alarm within the VMS interface.

As a response, many video surveillance software vendors are beginning to offer products that combine video



Among myriad business efficiency applications realized with video analytics, retailers can measure traffic flow by aisle, merchandise display or other areas to identify peak busy periods or alert staff when customers are at the register.

analytics and VMS into a single solution. This software platform allows users to not only leverage their existing analog cameras when transitioning to an IP surveillance system, but also easily upgrade the video management functionality with intelligent video analytics, all within the same product.

Video analytics provide the tools to change the way organizations capture and use video. Embedded video analytics software will ignore irrelevant activity, such as wind or snow, which can typically result in false alarms. The software is able to recognize only significant pixel changes in the environment, and will only provide alerts and initiate recording when relevant activity occurs. Thus, only valid alarms are being transmitted, which means those events can be responded to quickly and efficiently. And because only significant data is being recorded, there is a substantial reduction in recorded video storage.

Market Opportunity Overview

Video analytics are being used for a range of applications, such as increasing security, improving public safety, reducing shrink and providing operational intelligence across several vertical markets. Perhaps the latest use of video analytics is to create business intelligence applications for nonsurveillance purposes that drive operational efficiencies within the customer's infrastructure.

Let's take a closer look at some of the market niches where video analytics is

being utilized to increase security and realize newfound business efficiencies:

Commercial/Retail — Shoplifting, fraud and inventory shrink have a significant effect on the profits of retailers each year. With the combination of video analytics and VMS in a single platform, retailers are better able to prevent and recover lost items, creating a measureable ROI. Using intelligent video analytics designed for specific retail environments, retailers can be alerted to suspicious shopping

behaviors and in-store/after-hours motion detection.

The safety and security of both employees and customers is of critical importance to management and is a significant factor in terms of liability and insurance. Retailers need a means to be alerted to potential safety threats without putting staff in danger. Likewise, retailers need access to advanced search tools for reviewing recorded video with an increased focus on investigative purposes. Intelligent software can provide users with the ability to specify the type of activity they would like to search for, set the time parameters and then be shown only relevant data. This reduces the risk of user error and saves hours of individual search time, resulting in a reduction of overall labor costs.

Retailers also require access to business intelligence to retrieve additional data about their business performance and ways to improve the customer experience. For example, a retailer using people counting could track the bi-directional flow of customers as they pass through user-definable lines, such as entrances and exits, to determine staffing needs.

Traffic flow patterns can also be measured by aisle, merchandise display or other areas, to identify peak busy periods or alert staff when customers are at the register. These new performance measures can help retailers enhance store layout, signage,



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product organization and reduce customer service wait times.

Educational institutions — VMS can be used to enable immediate notification when suspicious events occur, enabling rapid response for campus security, staff and other first responders. In response to set alarm activity, the software can control pan/tilt/zoom (p/t/z) cameras to record an alarming object, send alarm images to wireless mobile devices or E-mail addresses, lock doors, close gates or turn on lights.

Applications can identify potentially troublesome events such as movement in alarm zones, perimeter breaches during off-hours, loitering and suspicious bags or objects left behind without putting school staff at undue risk during the monitoring process. Additionally, security personnel can be alerted to events that may compromise emergency procedures, such as objects blocking emergency exits.

Vandalism and property damage are a common concern for schools. Utilizing analytics, video management solutions can not only provide the tools to identify suspicious events in real-time, but also to quickly pinpoint events or people from archived video data.

Transportation — Transit organizations are looking for ways to improve security and public safety, while also

increasing ridership. Safety and security threats in high density transportation settings include everything from vandalism and violence, accidental as well as staged injuries, to bombs and other terrorist activities.

Video analytics and VMS can provide necessary means of comprehensive investigation to efficiently respond to these multifaceted safety, security and liability risks. Transportation organizations can be alerted in real-time to such instances as people moving in the wrong direction, obstructions blocking emergency exits, and suspicious objects left behind on road, rail, transit platforms or other high risk areas.

Consider the benefits of using video analytics vs. simple motion detection. For example, imagine a camera on an outdoor train platform. Pixel changes will be caused by movement of people on the platform and trains on the tracks, as well as wind, rain, shadows and light reflections. Video motion detection will provide alerts on all pixel changes, creating an unmanageable number of false alarms while presenting a high likelihood that an event of interest — a person crossing the train tracks — would be missed by monitoring personnel.

Health care — Patient-care facilities, pharmaceutical plants, medicinal storage rooms, R&D labs and other

health-care areas are made more secure with the deployment of video analytics and VMS. These facilities can benefit from real-time notifications sent to roving security personnel who don't have to be tied down to control room video screens. As a result, health-care end users can expect the following advantages:

- Decreased theft and other security threats
- To be alerted to unauthorized removal of equipment
- Automatic actions, such as locked down doors or turned on lights from triggered events
- Reduced liability and insurance
- To be alerted to people entering restricted zones

These are but a few of the environments that can benefit from the deployment of intelligent video analytics. Importantly, before any solution decisions are made, systems integrators should work with customers to determine their current and future needs. Only then can a lifecycle solution be designed to achieve the greatest amount of efficiencies for the customer, while keeping the integrator engaged in a trusted advisory capacity. ■

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Algorithms Provide the Muscle Behind the Analytics

By Aluisio Figueiredo

Image analytics hold the possibility of a brave new world where video surveillance images can actually be used as a prevention tool, a momentous alternative to the limitations of post-event forensic evidence.

Truly intelligent video analytics involves a decision and reaction support system that uses and analyzes data from various processes, applications, sensors and imaging devices. Some of this software has its origins in the space industry and is now being deployed in the civilian sector.

In order to power advanced image analytics, sophisticated algo-



Advanced algorithms provide the ability for analytics software solutions to distinguish between numerals and letters on license plates.

gorithms have been developed that extend the software's intelligence so that it more readily recognizes certain rules. A basic example of

this is license plate recognition (LPR). License plates in some states and countries begin with a letter; algorithms are able to discern the letter B from the numeral 8. This is crucial when you have only milliseconds to execute the read.

Algorithms also provide the capacity to read vertically-positioned shipping container information as well as horizontally, which can prove vitally important for identification and security purposes. Moreover, the ability to clearly identify facial features of a suspect who may be in disguise can be important to providing

event and response security. Here, an alert can be sent to the proper authorities and they can respond in a timely fashion.

All of these advances in algorithms are leading to some key improvements in which highly intelligent analytics features serve as real-time security partners in crime prevention. As the world faces terrorist threats and rising crime rates, these advances in image analytics are increasingly important to our overall security and well-being.

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