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## Utilities Turn to Real-time Intelligent Video Solution

*Steve Birkmeier*

Mitigation is the practice of preventing hazards from developing or reducing the effects of threats when they occur. Preventative efforts can be taken in every aspect of daily life from emergency preparedness to purchasing insurance to installing home security systems. On a larger scale, utility executives use mitigation programs to avoid hazards that could affect employee safety or service to customers.

One mitigation technique for utilities is the supervision and protection of facilities and resources. Security personnel and surveillance systems are often put in place to monitor restricted property and central facilities. A typical CCTV surveillance system may record a theft or break-in, but by the time it is viewed, the intruder has gotten away. Fortunately, some security products can deliver the right combination of real-time detection and verified response required to address the situation proactively.

Intelligent video systems use a proprietary algorithm to identify abnormalities within a digital image such as movement within a controlled space. They detect size, speed and direction. This allows the system to count and recognize objects, people and situations. Intelligent video uses video analytics technology to provide true object orientation and recognition and alert security personnel to changes within the space.

### Verification Speeds Response, Reduces False Alarms

False alarms represent a serious problem in the security industry. As more municipalities mandate that police will not dispatch on an alarm without verification, intelligent video is being recognized as a key tool in reducing false alarms through real-time video verification.

As a mobilized threat validation, the system allows security personnel to do more with less through visual verification. Intelligent video systems will alert security personnel to take action and pre-empt potential situations in real-time, based on user-defined rules.

Some of the best Intelligent Video Solutions (IVS) utilize software designed for pocket PCs and "smart phones," allowing instant access to real-time video from a network-enabled system. When the IVS detects an event, it sends a real-time e-mail to personnel with event details and a JPEG snapshot of the event taking place. This further extends the use of video analytics as a force multiplier and essential tool in reducing false alarms.

For example, in a patrol setting, guards in the field can not only be notified via e-mail or text message of security events, but can use the same mobile phone to access live video and assess the situation. In a non-patrol setting, users who receive e-mailed details of the event taking place can quickly verify the alarm's authenticity through live mobile video before acknowledging dispatch. Thus, response rates to threats are faster, while false alarms are drastically reduced for facilities.

But false alarms are not the only security threat companies face. Each type of utility protects against different security threats, and intelligent video offers a proactive, real-time solution for a variety of problems.

### **Copper Theft: A Growing Problem**

The demand for copper, especially with the industrialization of China, is driving up the price for scrap. More than quadrupling in the past five years, the return for copper—nearing \$4 a pound—is enticing many criminals into construction sites, churches, residential air conditioning systems, cemeteries and dangerous restricted areas. For a quick buck, thieves literally rip off any copper fixture.

Since copper is the major form of metal fueling the \$65 billion U.S. scrap-recycling industry, states have begun passing “tag-and-hold” statutes, which force scrap yards to record personal information and hold all purchases for a period of time to give police the chance to investigate reports of missing metal before it leaves a yard. Some companies are even implanting microscopic tags in the wires. This micro-tagging sprays an adhesive onto copper wiring with the utility company information for identification by law enforcement.

Both of these actions, however, are inefficient and reactive measures that do nothing to stop the problem as it happens. The damage is already done. Recognizing its metal is an asset to protect, power companies have been focusing efforts on successfully combating this problem.

### **Electric Companies Fight Back**

Among the hardest hit victims of copper theft are electric utility substations because of the large amounts of copper wire they use for electrical grounding and transmission, and because these facilities are often located remotely where theft is difficult to monitor. In addition to the cost of replacing the copper, utilities must contend with the possible loss of power to customers and damage to transformers, which can cost millions of dollars to repair or replace. In some cases the thieves are brazen enough to steal copper from working power lines and stations.

It is not uncommon for thieves to knock out power to thousands of customers in the process of stealing a few hundred dollars of scrap copper. More frequently, thieves are electrocuting themselves in the process and creating a hazardous environment for workers sent in to fix the problem after the fact.

While many security measures are being used to reduce the problem, intelligent video delivers the right combination of real-time detection and verified response required to provide a practical, efficient resolution to these dangerous thefts. That is why Artec saw the need to educate utility executives about the problem and lead the campaign to prevent it.

An innovator in using video analytics within the power industry, Artec recently addressed Security Industry Association’s State and Local Policy Working Group concerning the alarming increase in copper thefts nationwide and its impact on the security industry.

Artec also recently worked with The Columbus Division of Electricity, part of the Division of Power and Water for the City of Columbus, Ohio, to solve this problem. This utility provides more than 1 million residents and contracting communities with water treatment and electric power distribution through various water plants and utility substations. It cannot afford for infrastructure to be compromised or services curtailed due to copper theft. But its new IVS system offers the Columbus Division of Electricity security and peace of mind.

IVS and its analytic technology enable the Columbus utility to set-up “virtual” perimeters around and within a substation. Depending on bandwidth, any number of locations can be monitored without having to dedicate operator attention to all areas simultaneously.

Should a dog wander into this perimeter or trash be blown in it, the system holds steady. If a man approaches, however, the system detects the size and orientation immediately, and triggers an event. If alerted personnel deem the threat credible, text messages and/or digital snapshots can be distributed with event details. Notification can be

sent via cell phones and other handheld devices.

All indications point to the fact that copper theft is likely to be a continuing problem but there are options for preventing it. Video analytics, which provide a proactive, efficient resolution to this problem, is something that electric utility facility managers should consider.

## **Adaptable Applications**

More and more, government agencies are turning to video analytics, with its real-time alerts and added efficiency, for protection of their critical resources. Intelligent video and its video analytics technology truly offer comprehensive security for everything from kids pulling pranks to the possibility of a terrorist act.

The beauty of intelligent video is that it is so adaptable and can be customized and integrated into virtually any application to provide solutions for security in a variety of industries and their facilities. Artec's long list of clients—including parking lots, city transportation departments, nuclear power plants, police departments, and healthcare facilities—proves intelligent video's value and practicality.

As the need for products to fight many security problems grows, more and more utility professionals should be educating themselves about the benefits of using video analytics in their mitigation programs.

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