Reducing Noise to Cut Costs for HD Video

By Cheryl Ford, product marketing manager, Bosch Security, Booth No. 8089

Megapixel cameras deliver ultra-detailed images, but this can come at a cost. The volume of data being transported and stored rises significantly, and the bandwidth demands this puts on the network and the increase in required storage capacity adds significantly to IP system costs.

The best place to reduce these costs is at the source – the camera – and this is done by reducing noise. Some degree of noise is always present. It’s a by-product of image capture and the most detrimental factor in clogging the encoding process, leading to exaggerated bit rates.

Classic noise reduction can take two forms. Spatial noise reduction averages pixels within a frame to reduce noise, while temporal noise reduction averages pixels over several frames to cancel out noise artifacts. This is effective for static images but can cause problems when there is motion. If temporal noise reduction is applied to moving objects, they may become blurred.

Combining spatial and temporal noise reduction with the ability to dynamically adjust them based upon light levels and identification of moving objects produces images with the least amount of noise, greatest amount of detail, and lowest bit rates. In this case, the camera identifies frames in which there is movement and passes this information back to the digital signal processor. The temporal noise reduction for these frames is then adjusted to avoid ghosting. When no motion is present in a scene, bit rates are minimized.

When an important object is detected, bit rates increase to capture maximum details.

Region prioritization can also enable further bit rate reduction. An unimportant region of a scene can be set for more compression, while important regions are assigned a lower compression ratio for more details. By selecting important, unimportant and normal regions in a scene, and adapting the compression ratios accordingly, a lower average bit rate can be achieved.

Combining noise reduction and prioritizing regions of a scene can lower bit rates and therefore storage requirements by up to 50 percent without reducing video quality. Since disk space is one of the most expensive components of IP systems, this can translate into dramatic savings in video system costs.

The Reality of Real-Time Vehicle Surveillance

By Cosimo Malesci, co-founder and vice-president of sales and marketing, Fluidmesh Networks, Booth No. 22129

Over the last few years, there has been an increase in video surveillance systems deployed on mass transit vehicles. From buses to subways to ferries, it seems video surveillance has finally struck a chord in public transportation and is being implemented to improve the safety and security of the people using it. Depending on the vehicles, the trend seems to be a combination of interior and exterior cameras. The interior cameras are used mainly to monitor passengers and personnel and can provide useful information to fight crime as well as liability claims from both personnel and customers – potentially saving the transit agency from spending hundreds of thousand of dollars in lawsuits. The exterior cameras are used primarily to monitor vehicle operations and provide video evidence in the event of an accident.

From a technology standpoint, these systems usually comprise anywhere from two to 12 cameras per vehicle that are recorded on an onboard DVR. Most of the systems are capable of supporting HD or 4CIF and usually run at anywhere between 20 and 30 frames per second. The system also includes one or more wireless interfaces to offload recorded video when needed.

Video offloading seems to be one of the biggest challenges transit operators face at the moment. With fleets of up to 3,000 vehicles pulling into a depot, managing recorded video is no easy task. The main issue is caused by the fact that on-board DVRs have been traditionally equipped with standard 802.11 Wi-Fi, which is not suitable for this application and cannot handle so much traffic. The outcome is that many transit operators are forced to hire full-time crews whose only job is to pull DVRs out at the end of the day from vehicles where video evidence is needed. Clearly, this is a costly procedure that is very prone to human error. With shrinking operating budgets in the public sector, this is not a sustainable long-term approach.

Luckily, some specialized wireless solutions for video offloads are capable of supporting HD or 4CIF and can lower bit rates and therefore storage requirements by up to 50 percent without reducing video quality. Since disk space is one of the most expensive components of IP systems, this can translate into dramatic savings in video system costs.

Biometrics: the Future of Access Control

By Consuelo Banga, senior program manager, Abloy Access, Booth No. 6009

The integration of the TouchID fingerprint sensor into the iPhone 5s has the whole world talking about biometrics in a new way – when in reality, this technology has been in use by early adopters for more than 20 years. Herein lies the problem: Why is biometric technology still considered an innovation and not a standard part of everyday life?

Fingerprint technology continues to have an aura of science fiction. Its utilization is relegated to logical access to highly classified information, and more commonly physical access to restricted, secure or high-value areas. In fact, the use of biometrics is becoming more commonplace in a variety of vertical markets to reduce operating costs and risks, as well as to improve consumer convenience.

Biometrics is an effective technology to reduce operating costs while increasing security. When properly deployed, strong biometric technology ensures that identified, authorized individuals receive and deliver services and perform work for which they are paid. Time and attendance solution manufacturers are routinely integrating biometric technology into time clocks.

Biometric authentication at worker check-in and check-out eliminates the need to handle paper timecards and reduces manual data entry. For early adopters, such as government agencies and commercial companies, it also provides a real-time audit trail of when an employee accesses information on networked servers. This is particularly relevant, given the massive data breaches recently perpetrated by Edward Snowden with shared and stolen passwords.

Snowden’s fraudulent use of coworker login credentials reveals the weakness of passwords. A password alone is not sufficient to stop fraud as it only verifies credential data (password, name, email address, etc.) without physically tying that data to the credential.
Three Access Control Considerations with Big Payoffs

By François Brouillette, access control product manager, Lenel, North America, Booth No. 2307

This year at ISC West, access control is a hot topic. While it has always been a critical component of security operations, exciting advancements in door hardware and forward-thinking applications in recent years have ignited new ways to evolve and improve access control installations – and this has integrators and customers asking how.

So while you browse the show floor and evaluate new solutions, looking for the best and most economical ways to enhance the performance of your access control system, here are three noteworthy considerations to prioritize.

1. Place interoperability and time-saving features at the top of your IP system checklist.

Upgrading to an IP access control system does not automatically suggest that you are getting interoperable hardware and software or enterprise features that can save you valuable time. While IP connectivity helps you leverage an existing corporate network, it is equally important to choose a system that can easily integrate devices and software from other vendors to avoid the unnecessary restraints of a proprietary, closed-architecture model. Also, look for features like import tools that will save you hours or days when adding credentials and cardholder databases to a new IP system. Health-monitoring features can also streamline regular system maintenance and alert you to device failures or other system vulnerabilities.

2. Know the difference between integration and unification.

Video surveillance and access control go hand-in-hand in security operations, so integrating the two would offer great upside, right? Not necessarily. Straightforward integration limits cross-system functionality to a few very basic capabilities such as receiving access control alarms in your video system or linking access control events to video. Integration could also cause incompatibilities during version upgrades where enhancements might not be supported by the other system. Unification goes much deeper. A unified system is specifically engineered to manage video and access control in one platform from a single vendor, meaning version upgrades are fluid and fault-free. Unification also allows operators to streamline workflows within a single platform that syncs full video and access control management capabilities. This leads to less training, more efficient day-to-day operations, and easier investigations.

3. Look for flexible options to keep legacy equipment and grow over time.

Upgrading to a new open-architecture IP access control system can sometimes be costly, especially if it requires tearing out your investment and start from scratch – what we call rip-and-replace. Thankfully, there are options on the market, such as intelligent controllers, that allow you to preserve existing investments in older serial-connected door hardware. With a controller sitting between the access control devices and your IP access control management software, you can also incorporate new IP-enabled hardware like PoE or wireless lock devices to get better control and security at doors in critical and hard-to-reach locations. This controller can also facilitate a phased upgrade plan so portions of the budget can be allocated to swap out older technology year after year.

With an abundance of access control buzz at ISC West this year, customers and integrators will surely see some exciting new innovations and advancements. But remember, if you are looking to get more from an existing access control system without going over budget, consider an open-architecture access control platform that offers a unified and cost-effective growth strategy.

Securing Your Business: What’s the Future?

By Dan Schneider, vice president of sales, Tyco Integrated Security, Booth No. 3541A

The cloud has taken the security industry by storm and is changing the way companies operate as they work to determine how to best utilize it. Cloud-based security services are in high demand for companies that have enterprise-level needs without an enterprise-level budget, and they’re helping companies reduce complexity and costs, while boosting security. These hosted services can improve physical security by providing a comprehensive system across multiple buildings and locations, offer anytime/anywhere access to site locations and can provide tremendous business intelligence benefits.

We’re seeing solutions like video as a service (VaaS) and hosted access becoming increasingly popular for companies large or small that can’t afford to dedicate time and resources on monitoring, or have facilities worldwide and need to monitor several locations simultaneously. For example, well-designed video systems let businesses capture, save and export video segments that offer key insights into issues that need to be addressed, like what time of day or common occurrences occur, whether employees are complying with corporate policies, or whether certain times of the day require more staff. Real-time reporting can offer business owners immediate feedback on any incident that happened, and a number of solutions can deliver email or text alerts to provide instant notification when a potential issue arises.

The business intelligence companies that gather from these cloud services is priceless and can help improve day-to-day operations. For instance, one Tyco Integrated Security customer uses remote video to ensure that the coffee they are serving is fresh to the standards of the business, which helps retain customers due to the quality of service. To help better drive these specific business goals, businesses should also seek a security provider that can work as a business partner to implement solutions that will fit their unique needs and requirements. From a security systems integrator perspective, guiding customers and potential customers to see the tremendous business value of hosted services can help enhance the value of their security solutions and overall business operations.

It’s the role of a good integrator to ensure they fully understand their customer’s business and security needs and requirements, and to guide them in the right direction when it comes to technology integrated into their security system. With companies giving increased scrutiny to their budgets, cloud-based security services are very appealing to those wanting to stretch their physical security dollars without compromising the level of security. The cloud approach can help reduce the total cost of managing physical security and free up resources to focus on issues outside of managing and supporting security technology.

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are now starting to hit the market. These new systems use smarter wireless protocols designed specifically to handle vehicle fleets with massive amounts of data to be offloaded in a short period of time. In addition, they offer the capability of creating multiple download points across a given route to provide a wider window of communication between vehicles and the head end. This translates into more up-to-date information and less congestions in the depot. Some transit agencies are even going for full real-time connectivity, which is becoming a reality. Thanks to newly developed MPLS-based wireless technologies, it is now possible to achieve up to 100 Mbps at speeds up to 220 MPH. This will strongly improve the situation and allow agencies to be more efficient in accessing recorded video. It will also provide agencies substantial savings on cellular/3G/4G-based plans, as they will partially be replaced by these new technologies. Real-time vehicle video surveillance is a reality. Exciting times lie ahead!

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