The Business Case for IP Networked Video Surveillance

A guide for managers and executives on the business value of IP video management and surveillance systems

milestone

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Introduction

Technology in the security market today is changing. Bottom line. Look around you. Cameras, locks, doors, card readers, et al. are now part of the IT network.

Some of you already know what benefits IP-based security brings to the table because you have already implemented these very products at your organization, but a major portion of you are still learning about what IP is. And how about the rest of you — yes, you — who understand the benefits but are looking at the investment you made in an analog system, maybe only five years ago. How are you going to convince your CEO to spend money on upgrading to IP?

Tough questions, right?

Unfortunately, this is not the only challenge. The answers cannot come solely from your physical security department. See, the thing about IP-based technology is that it runs on that pesky IT network. What does your IT department think about additional products on their network? Do even you know how to ask them? Do you speak IT?

Well, to get the answers, you have to be informed.

Over the past three years, we here at Security Director News and Security Systems News have developed a conference focused on the emergence of IP-ready physical security technology — TechSec Solutions is moving into its fourth year as the premier event in the market that addresses these very questions.

Of course, our efforts wouldn't be complete without the help of our industry partners, such as Milestone Systems, to inform end users and systems integrators how to build business cases for IP-based cameras and access control, how they have successfully implemented them, how they have joined forces with IT departments, and what benefits it has brought, both short term and long term.

The following white paper is another educational tool available to you to help you build your IP expertise. It introduces managers and executives to some of the gains businesses have experienced through the implementation of IP video surveillance. It also provides a guide to the overall business value of transitioning to IP-based security and suggestions for how to seize these advantages.

You need to learn the language of IP. So come on, get informed.

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The business newspaper for Security Directors

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[1] Source: "The EMEA and World Markets for CCTV and Video Surveillance Equipment" IMS Research reports from 2004 & 2005 (published 2006).

Imagine if:

- All the video your surveillance system captured was available on a computer network, easy for security and other authorized departments to access and use.
- Software could make cameras smart, telling them when to jump into high resolution and track objects and when to issue an alert or activate equipment like sprinklers.
- Installing cameras was as easy as plugging them into network jacks (no power outlets required).
- Cameras captured sharper, clearer images, allowing you to see fine details such as license plate numbers.
- Searches for specific events could be performed fast and automatically through hours of video from thousands of cameras.

The video surveillance system of the future? Hardly. All these capabilities and actions are possible through IP (or network) video surveillance systems. You don't even need to tear out your existing analog video system to make the transition. You can start reaping the benefits of IP video surveillance simply by incrementally adding IP-based video cameras to new installations, converting existing analog feeds into digital format, and using IP video surveillance management software to centralize your video data. Once this digital video data is stored on the network, it's easy to make available to authorized personnel throughout your organization.

All over the world, thousands of businesses and organizations have already started to make the switch to IP video surveillance. In the process, they've discovered first-hand how the value of a surveillance system increases significantly when video is converted or captured as digital information and accessed through an IP-based network where it can be viewed, analyzed and managed with software.

This white paper is based on one of the panel discussions at TechSec 2007, Dallas. It introduces managers and executives to many of the gains businesses have achieved through IP video surveillance. It also provides a guide to the overall business value of IP video surveillance systems and suggestions on how to seize these advantages for your organization.

The business case for IP video surveillance

Over the years, video surveillance has demonstrated its business value as a security measure again and again in a wide range of applications. Today, many organizations are shifting to IP video surveillance systems to lower total cost of ownership (TCO), realize greater value through both established and new usages, and achieve a higher return on investment (ROI).

These benefits are delivered by four key IP video surveillance system advantages.

1. Lower installation costs through IP networking
2. Reduced TCO through IP networking advantages
3. Future-proofing through interoperable (open platform) components
4. Better video quality and other value-added features of digital video technology

1. Lower installation costs through IP networking

Analog surveillance systems are expensive to install because each camera has to have its own coax cable and access to an electrical connection. The more advanced analog camera installations today also typically include digitizers and digital video recorders (DVRs). This eliminates the need for tapes, but adds to the cost of the installation.

IP video systems are much easier and less expensive to install for all of the following reasons.

- Digital cameras can be connected and powered by Power over Ethernet (PoE), a technology that enables power to be provided to a network camera using the same cable as that used for network connection. PoE eliminates the need for power outlets at the camera locations and enables easier application of uninterruptible power supplies (UPS) to ensure operation 24 hours a day, 7 days a week.
- Multiple cameras can use the same cable, attaching to the network just like you would any other network device.
- Changing camera placement is simple – just remove and plug into another network jack somewhere else.
- Cameras can be placed almost anywhere using cost-efficient standard wireless technologies such as IEEE 802.11b and then accessed via desktop computer, laptop, PDA and even cellular phone.
- IP video surveillance systems scale easily from one to thousands of cameras in increments of a single camera (no mandatory 16-channel jumps like in the DVR world).
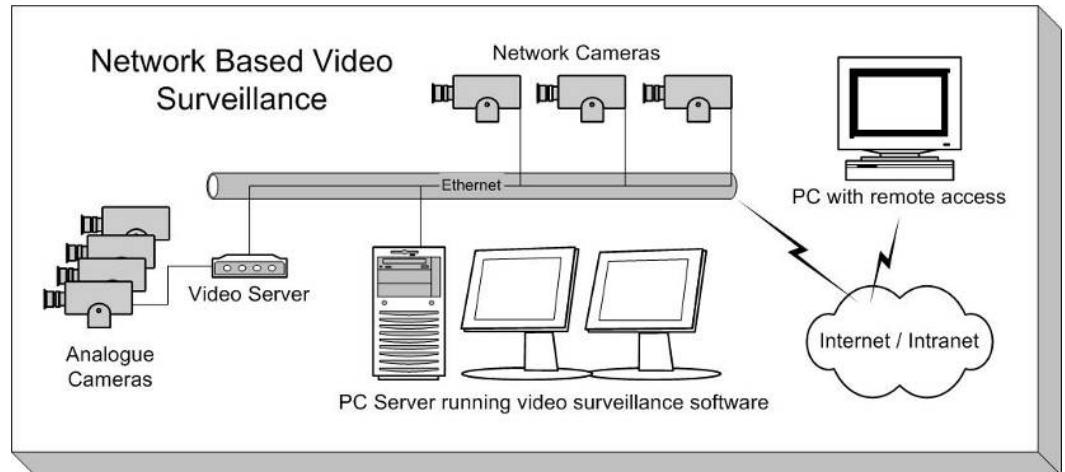
Network-based video surveillance installations can make use of old analog cameras by running their images through a video server, or encoder, that converts the data to digital for archiving in the central server.

2. Reduced TCO through IP networking advantages

In most organizations, nearly all important processes and operations are connected through a local area network (LAN). The exception is security. Legacy CCTV systems are proprietary and typically have separate support and maintenance contracts. This prevents security from being able to leverage the lower infrastructural costs of the existing network and all the advantages of IP networking for video.

IP networking opens up a new world of cost savings for video surveillance systems. Here's why:

- Your company already has the necessary IT expertise. Cameras have IP addresses just like any other network device and can be plugged in anywhere in the network and controlled centrally via software.
- IP networking enables you to leverage existing infrastructure such as servers, switches and cabling.
- There's no need for complicated proprietary hardware and dedicated monitors. You can increase frame rates and storage any time by adding "off-the-shelf" hard drives and PC servers.
- IP networking eliminates the need for a control room at each location. That means you can centralize monitoring functions for many locations to a single control room if you want.
- Live camera feeds can be accessed over the Internet from any location, making it easy to check out an alert or event from any computer, laptop or other device with a wired or wireless Internet connection. (Management software enables you to control access to surveillance video to authorized personnel only.)
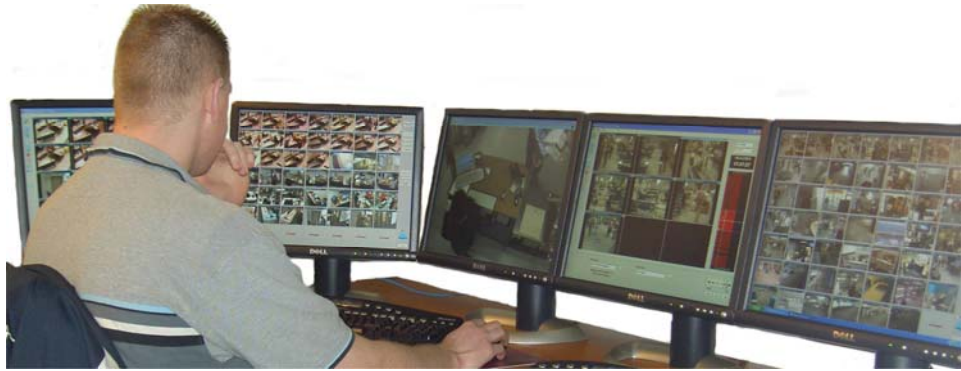
IP video setups are streamlined, elegant and efficient because they use standard computer hardware and infrastructure.

3. Future proofing your investment through interoperable (open platform) components

Proprietary CCTV systems are a risky investment. They lock you into a single source, preventing competitive pricing. They're limited in what you can connect to them. And they use analog cameras, a "sunset" technology. What's darkening their future? The much more versatile digital video cameras. Manufacturers are focusing all their innovation and competitive pricing on digital cameras, letting analog choices wither and their feature sets shrink.

Choosing an open platform like IP networking gets you out of this proprietary "jail," allowing you to choose freely from a wide selection of digital cameras and interoperable components from many manufacturers – not just one. Such freedom of choice reduces initial investment, ensures better pricing and greater value, and makes additions and replacements easier and less expensive down the line.

Open platform advantages for IP video surveillance systems include:

- Freedom of choice in hardware, software, and other components. IP networking opens up an enormous marketplace of choices in COTS (commercial off the shelf) servers, storage, switches, IP cameras, video servers, and other devices that can be connected via open platform software. You're assured of getting the best products and pricing, being able to select equipment from different suppliers based on your needs.
- The ability to integrate with other security equipment like lighting, gates and doors. IP network cameras have digital inputs and outputs (I/O). Through the inputs, alarm devices or sensors can trigger cameras to transmit images to a select destination for recording, or request that e-mail alerts be sent, for example, to a mobile phone. Digital outputs can be used to enable cameras, upon alarm or other cue, to activate switches to close or open doors, turn lights on or off, or other actions.
- The ability to integrate through the network with other business systems, such as ATMs, emergency response plans (ERPs), and point-of-sale (POS) systems, etc. This enables you to

synchronize with these other systems and perform searches to view specific surveillance images combined with their data to confirm actions and analyze patterns.

- Greater archiving capabilities and storage reliability through easier transfer to off-site storage and the ability to inexpensively set up redundant infrastructure, server and storage architecture. In general, the use of standard server and network equipment makes redundant systems and replacement considerably less expensive and time-consuming than proprietary solutions.

- Greater potential for incorporating new applications as they become available - either hardware or software solutions. Putting IP video surveillance on your network opens the door for all kinds of synergy with the rest of your organization's data, video and voice systems. A marketing department could use retail store video to study consumer behavior at POS displays. Store managers could use video to monitor fast-moving items and make sure shelves are restocked promptly. Video streams from toll booths could be put on the Web to enable commuters to check for traffic jams.

- Greater availability of powerful software management tools for monitoring, accessing and storing video. Software makes it easy to add additional powerful capabilities such as combining video evidence with timelined POS or ATM transaction data or integrating video with cash register transaction data for advanced, flexible searching and analysis. Advanced capabilities like these can add considerably to your ROI.

4. Better video quality and other value-added features of digital video technology

Analog recordings lose quality over time. They are expensive to store and reference. They require staff to change tapes, date, categorize, and archive them. Many organizations have already moved to "hybrid digital-analog" systems that use digitizers and Digital Video Recorders (DVRs) to eliminate tapes and simplify storage. This is a good intermediate step, but cannot compare to true IP digital video surveillance systems.

Switching to digital video is simply common sense. If you were going out to buy a camera right now for personal use, what would you buy: analog or digital? You would buy a digital camera. It offers the greatest return on your investment and opens the door to all kinds of value-added features through connection to the rest of today's digital world.

Here are some of the top advantages of today's digital video cameras for IP networking.

- Digital cameras provide up to 16 times the resolution of traditional analog cameras. Digital cameras can also cover a larger area and provide superior digital zoom capabilities,

providing real detail (such as the numbers on a license plate) rather than blurry, hard-to-read images.

- Camera manufacturers are focusing on innovative and advanced digital camera features while interest in analog cameras wanes. Buyers of digital technology can look forward to even greater quality and capabilities in the future.
- Fast search and retrieval capabilities enable you to get better pictures faster – and do it remotely.
- Intelligence at the camera level can include detection of motion, directional motion, abandoned objects, object removal, human presence, camera tampering, identification (such as reading a person's access badge), and pan/tilt/zoom (PTZ) controls.
- Digital cameras can be equipped with image buffers to save and send the images collected before an alarm occurred and the alarm put the camera in record mode.
- Network software makes it easier to monitor, manage and update cameras just like any network device.
- Images can be stored on a disk connected to a PC or server, or streamed to a dedicated storage server on the network.

ROI with IP video surveillance

ROI has not typically been part of the traditional planning process in surveillance systems. Security has had more of a risk management orientation, like buying an insurance policy. With IP technology, any business process can be video-enabled and organizations can realize increased efficiency in the form of reduced costs, as well as better and speedier decisions using fewer numbers of personnel. The scalability of networked security systems gives a clear return on investment: the larger your installation and the more remote sites you have to monitor from a central facility, the more efficiency you gain and the greater your ROI.

Having video surveillance available on an IP network quickly leads to many other beneficial uses in the business environment. Monitoring production lines, shipping and delivery bays, employee procedures, traffic or customer flow, environmentally hazardous areas or other safety matters, for example, can significantly aid in optimizations or resolution of problems. It can also help fend off false insurance claims or potential lawsuits that could cost a lot of money to conduct, such as a staged slip-and-fall accident. Having surveillance video available to other departments to search and retrieve can make it easier to assemble training videos or do customer behavior studies, too.

The truth is, with IP video surveillance, the sky is the limit in determining all the potential uses and applications for it. And once you have IP video surveillance installed, you're ready to leverage any applications that come along and offer you even more ROI in the future.

Staged implementations

Any company using video surveillance today can look forward to reduced cost of ownership and greater efficiencies from IP video surveillance - and the best part is you don't have to do it all at once. You can do it in stages. You can try pilots at one or more locations. You can install IP video surveillance systems in new installations and run hybrid digital-analog systems while you wait for your analog systems to reach their natural "end of life." IP video surveillance systems can integrate digitized video from analog cameras, enabling you to manage all your video with a single IP surveillance software platform like Milestone Systems' XProtect™. This makes it easy to phase in your transition.

Many organizations are already taking advantage of the savings of IP video surveillance. A market study published by IMS Research in January 2007 found that the trend from analog CCTV to network video surveillance is in full swing. The world market for network video surveillance products increased by an impressive 41.9% in 2006 and is forecast to continue growing strongly for many years to come. By 2010, the combined market is forecast to exceed $2.6 billion.

Now is the time to get on the bandwagon. Based on current growth rates of IP video, Eric Fullerton (one of this paper's authors) sees that "between 2010 and 2015, the volume of video traffic will overtake voice and other data running over the Internet". From this and other digital trends, it is obvious that IP technology is the driver of the next cycle of innovation for the entire computing and communications industry, from processors through infrastructure to storage and software. The new capabilities this transition will bring to the market are only just beginning to be discovered. There will be lots more to take advantage of in the days to come.

IP video surveillance business case examples

Milestone Systems was one of the very first companies to develop pure networked-based surveillance solutions back in the 1990s. Our XProtect™ products are the culmination of years of expertise in the IT industry and have opened the world's eyes to how IP video surveillance can be used for much more than just security, providing business value throughout a company. There are many case studies available to prospective customers through their website at www.milestonesys.com. The following are just a few excerpts.

IKEA Pilot Store in The Netherlands

"We are really pleased with our IP video surveillance from Milestone that lets us tailor the solution for an integrated approach. It helps us improve our bottom line via reduction of fraud, prevention of theft, and increased service levels. In addition to better general surveillance monitoring of the store locations, the software gives us a solution that is integrated with our transaction system to resolve and reduce errors at checkout. The system gives us real added value and we appreciate the ability to choose our own combination of hardware. We also want to ensure that we've got the right amount of employees at checkout to avoid people having to wait in long queues. We are cost-effectively re-using existing equipment while adding a mix of new hardware controlled by the software. Milestone is a perfect choice being independent and supporting just that kind of flexibility."

– Remco Hempenius, Project Manager

Mallory Distribution Center in Memphis

"The surveillance works both as a preventive measure and as a management tool to resolve any incidents when they occur. The advantage is that I always know what's going on: I can access it remotely from home if there are second-shift issues to resolve. Management and the security manager can also use it to monitor the business from headquarters. At night I can see exactly what time shipments are

going out, and how they are proceeding. I really like the system because it keeps my operation running more efficiently."

– Elesa Hayden, Operations Manager

Lentex in Poland
"The implementation of the Milestone system provided us with an efficient tool that enables us to monitor downtimes and failures in production response times. The implementation has already brought benefits from improved work organization. The system enables us to remotely monitor the operation of the new manufacturing site from our main office and this has enabled improvements in our production quality and productivity."

– Jerzy Kusina, CFO and member of the Management Board

Transus Intermodal in Atlanta, Georgia
"We used to have security guards at every facility all night long, which cost a lot – about $500,000 a year or more because we had to have them on weekends and holidays, round-the-clock, in addition to the weekdays. We save that money and have much better control over our security now. We started out using the surveillance just for the theft issues, but there are all these extra benefits like scanning the yards, fixing vehicles, checking if drivers have arrived."

– Mike Malikowski, VP Transportation & Logistics

Coastal Sunbelt Produce
An internal fraud situation cost this company over $100,000, justifying installation of a new IP video surveillance solution. Coastal Sunbelt quickly discovered other uses for the surveillance than just protecting against external and internal theft security, however. Employee accountability is now heightened in every aspect of their work. Shipping and receiving activities are monitored for better handling of supplier issues and higher quality of products delivered. Adherence to proper hygiene procedures in food handling is monitored and enforced, which reduces the number of required USDA inspections, boosts quality ratings, and maintains the certification that creates more value in Coastal Sunbelt's product line.

"We're getting great ROI for our Milestone video surveillance system by using it to also manage our Good Manufacturing Practices, meet the top USDA inspection ratings, and maintain our HACCP Certification that allows us to charge a premium for our products."

– Phil Muth, President, Coastal Sunbelt Produce

Milestone Systems

Market leader. Milestone Systems is the global market leader in open platform IP video management software. Milestone's XProtect™ products operate as the core of your surveillance systems: connecting, sharing and managing all devices through a single interface that is easy to learn and operate.

Easy to use. The XProtect platform is easy to use, proven in operation and scales to support unlimited devices. XProtect products support the widest choice of network video hardware and are designed with an Application Programming Interface (API) that integrates seamlessly with other manufacturers' systems.

Best-of-breed. Using XProtect, you can build scalable, "best of breed" solutions to video enable your business, reduce cost, optimize processes, protect assets and ultimately increase value in your company's products and services.
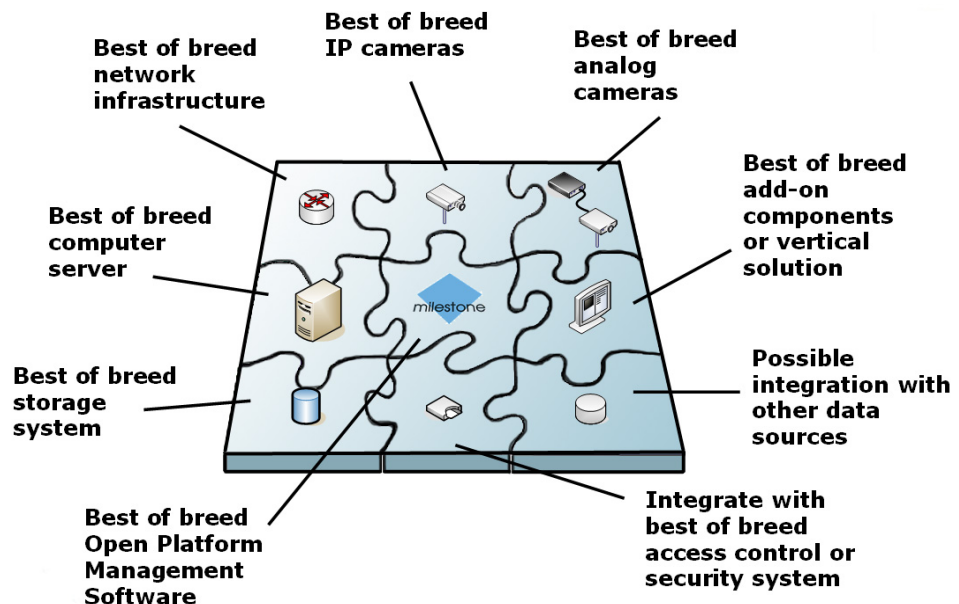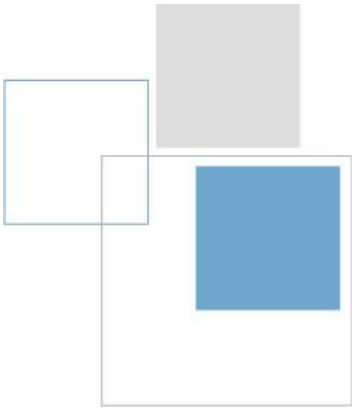
Milestone Systems is the industry leader in developing true open platform IP video management software. The XProtect™ platform gives users a powerful surveillance solution that is easy to manage, reliable and proven in more than 35,000 customer installations worldwide.

With support for the industry's widest choice in network hardware and integration with other systems, XProtect provides best-of-breed solutions to "video enable" organizations – reducing costs, optimizing processes, and protecting assets.

Milestone software is sold through authorized partners in approximately 90 countries.

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