A retail
TouchPoints
eBook

Lower your TCO and Raise your ROI with an IP-Based Open Surveillance System

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Executive Summary: *This eBook debunks the outdated notion that analog systems cost less than IP-based surveillance solutions by demonstrating how lower short-term hardware and software costs lead to higher long-term operational expenses. Learn about the advantages of an IP-based open surveillance system including multipurpose uses beyond loss prevention. Besides examining the financial benefits of IP, see how IP-based system deliver a lower Total Cost of Ownership (TCO) compared to an analog system.*

Consumers no longer use TVs with rabbit ear antennas or cameras that don't allow them to see the pictures they've taken. Digital technology has become ubiquitous in consumer electronics. The retail security industry has lagged behind but the pendulum is finally swinging in the right direction.

Analog technology has dominated the retail industry for years. Traditionally thought to be less expensive and easier to install than network video, in recent years many stores have begun to realize the extraordinary benefits of IP-based systems and are now migrating to this more advanced technology. Some of the obvious benefits of IP surveillance systems include ease of use, superior video resolution, HD cameras and future-proofed software. Forklift upgrades that are typically required with analog systems are not necessary with IP systems.

In fact, this transformation is occurring on a global level. The global market for IP video surveillance cameras was $861 million in 2009 and is expected to increase by 27% to $1.1 billion in 2010, according to IMS Research. Forecasts out to 2014 have the network video camera market reaching $2.8 billion.

Network video will be growing at a much faster rate globally than analog video, IMS reports, increasing at a rate of 27.2% through 2014, compared to 4.6% for analog video.

The Global Market for IP Video Surveillance Cameras

$2.8 Billion

$1.1 Billion

$861 Million

2009   2010   2014
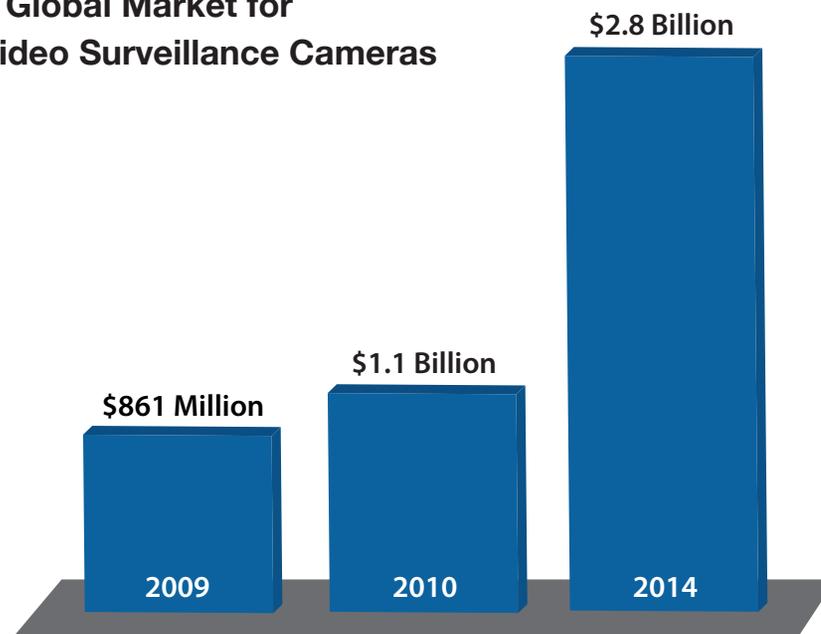
In the Americas, the market for network security cameras reached $456.3 million in 2009 and will grow at a compound annual growth rate (CAGR) of 24.9% through 2014, reaching $1.1 billion, IMS reports. Conversely, the analog camera market is projected to decline by 2.6% through 2014, from $740.9 million to $650.3 million.

Additionally, a recent survey by the Loss Prevention Research Council (LPRC) concluded that the vast majority of retail respondents who currently use analog cameras for video surveillance report that they have considered using network/IP-based surveillance systems instead. The LPRC Video Surveillance report, conducted in June of 2010, reported that 87.1% of respondents have considered the switch to IP.

The impetus for this turnabout can be traced to the inherent advantages afforded by an IP-based open system. Not only can retail organizations effectively reduce losses across the chain by analyzing video from multiple stores, but network access to surveillance video provides real-time business intelligence to improve in-store business processes, including product merchandising, marketing and employee allocation.

Projected Growth of IP Video Cameras vs. Analog Video Cameras

IP Video Cameras
Analog Video Cameras

2009
$456.3 Million
$740.9 Million

2014
$1.1 Billion
$650.3 Million
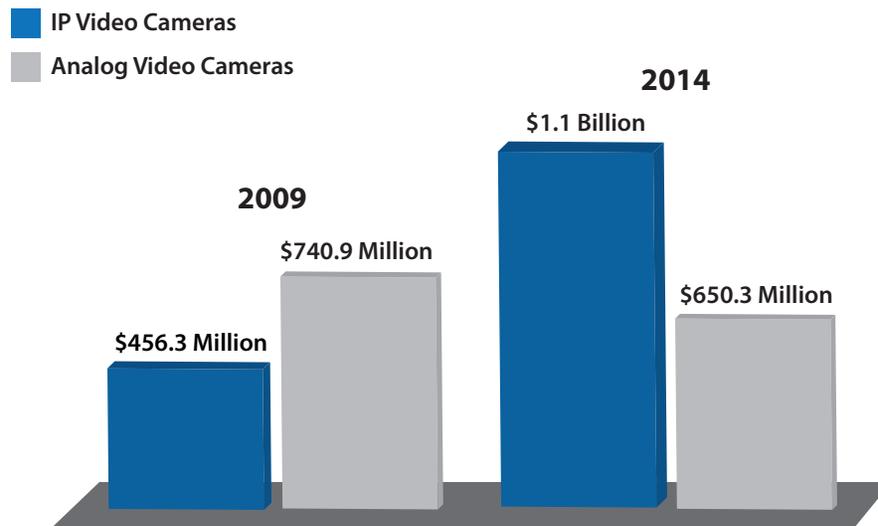
Open-IP vs. Analog: More Bang for the Buck

IP-based systems offer more advanced technology and better image quality than their analog predecessors as well as the convenience of remote access to live streams and video archives. Because they support features like Power over Ethernet (PoE), installation is as simple as plugging an additional peripheral into the network. IP-based systems also have a lower overall Total Cost of Ownership (TCO) than their analog counterparts. As early as 2007, independent research confirmed this. Following a survey of systems integrators, industry analysts and VARs, the study reported that the total cost for an IP system had a **3.4% lower TCO** than analog

systems — based on the average value of all quotes, including the cost to acquire and install the equipment.

Equally significant, retailers are now realizing that video surveillance can be applied to other areas of the business beyond loss prevention. By leveraging one solution for cross-functional purposes, the costs can be spread across a number of company divisions. For instance, the information captured by a single camera can provide useful business intelligence for marketing, merchandizing, operations, POS and other retail-focused analytics.

The very nature of IP-based open systems makes it possible to merge and analyze data collected from multiple sources, thereby eliminating stand-alone organizational silos and giving management a more comprehensive view of activity across the organization.

According to the LPRC report, the most common "other" uses for video surveillance are **People Counting** (27.1%), identifying **Hot/Cold Zones** (12.5%) and measuring customer **Dwell Time** (12.5%). More than half (54.2%) of total respondents said they may use each of these applications in the future.

IP vs. Analog Surveillance: Lower TCO, Higher ROI

With an IP-based open system, retailers will find hardware and software costs more manageable than they were with their legacy analog systems. Implementation will be easier as well. Analog systems carry higher installation costs for cabling and moves/adds/changes. IP systems allow merchants to place cameras in any location without the need to run long cables resulting in a quicker ROI and a lower TCO.

By using network-based technology, retailers can now coordinate business intelligence chain-wide, bridging the gap between corporate intention and store execution.

The difference in hardware costs. A closed analog system is limited by its inability to facilitate cross-department sharing of video intelligence. But some retailers shy away from moving toward an IP open system out of fear of the cost to change. While a system comprised solely of network IP cameras is the most technologically advanced and effective, retailers with analog cameras currently installed can migrate to an IP-based surveillance system while continuing to use their legacy analog cameras. These hybrid systems minimize costs by using video encoders to network-enable existing analog cameras. With the encoder installed, the analog cameras can send digital video as well as perform

IP-based tasks such as motion detection, audio detection and digital pan/tilt/zoom.

If retailers choose to use an all-IP system, they can minimize installation costs by leveraging existing Cat5/6 infrastructure and using PoE (Power over Ethernet) support. PoE uses one cable to transmit power and video, which saves the cost and time of pulling additional cabling throughout the facility.

Future expansion, including moves/adds/changes, is easy to accommodate with an IP open system, whether an organization is using a fully networked system or a hybrid system with encoded analog cameras. Because the IP network uses open industry standards, the system can easily be expanded to include additional cameras or storage capacity, as well as technology upgrades. Wireless technology — the same that many people use at home or in the office — can also be used to add cameras to the network in areas where wires cannot go. It would be cost prohibitive, for example, to run cable in a large parking lot at a retail store location or a distribution center.

Additionally, unlike traditional analog surveillance systems that force the addition of new cameras in fixed increments, IP-based systems allow companies to add cameras in any increment. Traditional analog appliance-based DVRs come with 16 ports so when those are maxed out the 17th camera can end up costing thousands of dollars for a new appliance, camera, cabling and related expenses.

The difference in software costs. The right software combined with the right hardware creates an IP system that is easy to upgrade and scale. While, compared to the overall system cost, the software segment is likely to be approximately 10% to 15% of the total, it is vital to choose a best-of-breed solution so the value-add is realized on day one of the implementation.

First, be sure the software pricing is competitive and comparative to DVR pricing associated with an analog system. This is another area where retailers may believe the analog system is less expensive, but in fact it is not. There is a misconception that when a company purchases a DVR, it does not have to pay for software licenses; but, in fact that cost is bundled into the cost of the box. There is no longer a valid financial reason to stick with the old analog technology.

Software purchasers also should ensure that the software is open, non-proprietary and based on common/standard programming protocols.

Additionally, with the software, the provider should include a fully documented Software Development Kit (SDK) enabling rapid integration with other retail system data such as Point Of Sale, Automatic Teller Machines, Access Control, Gates, Lighting, HVAC, Fire Alarms, Analytics, and Biometrics; and the "hooks" for these various solutions should exist already via input/output events.

The difference in ease of Installation. No system worth its camera weight should be complicated when it comes to installation and implementation. One way to bypass a complicated and convoluted process is to find hardware and software partners with a proven success story.

Axis Communications hardware combined with **Milestone Systems** software has been a successful
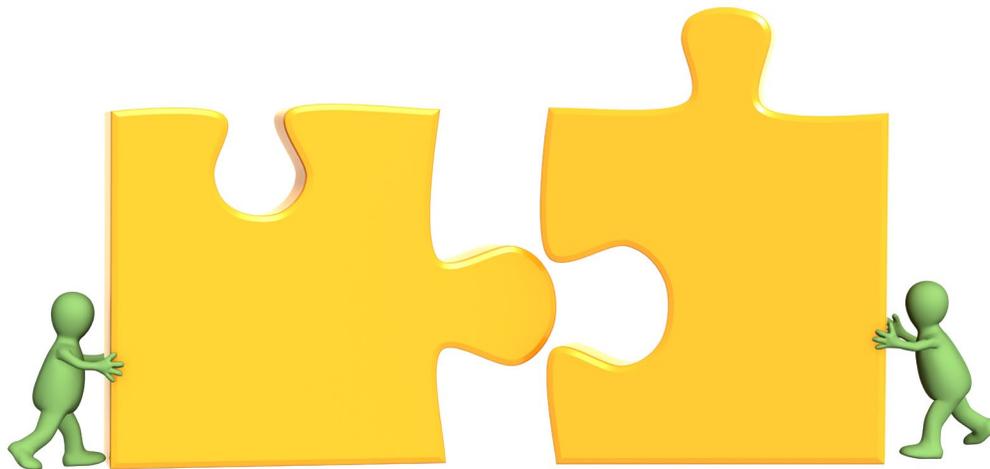
combination of open platform solutions for Land of Lincoln Goodwill Industries. "With the Milestone system being Windows-based, it has helped immensely to make it easy to work with. Most of our users are not your traditional security folks, but are familiar with your common Windows interfaces," said Rick Levine, VP of Loss Prevention & Safety. "Most of the installation and training was easy because the software is user friendly. We got help when necessary, but the Milestone Smart Client allowed for rapid understanding of the system and, with some basic training from our Milestone contact, we were off and running." In addition, Levine added that the mobiDEOS MobileCamViewer gives access to video from the security cameras in just three simple clicks — as easy as making a phone call.

Axis is a first-choice partner for network cameras and encoders in a successful IP system relationship, according to Niall Jenkins, market analyst at IMS Research. "The open application platform from Axis Communications will be one of the key factors driving faster growth, creating new opportunities for video content analysis software in the network camera and video encoder markets."

Eliminating Barriers to Adoption. There may be a couple of hurdles to overcome before a retail organization is fully on board with the switch to an IP-based system — especially if it will be used for more than loss prevention. Knowing the basic benefits

of IP is a good start, but some companies may need to educate other departments to obtain organizational buy-in to proceed.

To get the most out of the IP-based surveillance system, companies should put together a cross-functional team that can work together to share information and analytics to break down the organizational silos that currently exist. "You have a better chance of achieving the desired ROI more quickly when you are using the system to enhance employee efficiency, customer service, merchandise display effectiveness, safety and so forth in addition to loss prevention," noted Dr. Read Hayes, PhD, Research Scientist, University of Florida, and Director, Loss Prevention Research Council (LPRC).

"The first thing that would come to most people's minds when you talk about video is security, but that's not all there is," said Orla Lannin, Operations Director of the Shipton Group, which operates the Douglas Village Shopping Center in Cork County, Ireland. "I would call it **management by cameras.** You can see at a glance what's happening and send staff to alleviate a problem before it gets bigger."

This quest for a cohesive cross-functional team may be a challenge for some organizations, according to Hayes. First the CEO should be fully supportive. "Some get it right away, but others may need to see proof of ROI before they are on board," said Hayes. "They want to know they will make money with the system now."

Additionally, some company divisions may not play nicely together. The LP team, merchandising and others must work closely with IT and vice versa. But the IT department might be reluctant to cooperate, according to King Rogers, Founder and Principal of King Rogers Group consultancy. This is confirmed in the LPRC study, which concluded that one-fifth (20.8%) of respondents cited "Information Technology Department collaboration" as the biggest obstacle to adopting network/IP systems.

"IT departments are reluctant because in their minds video hogs the bandwidth," noted Rogers, who previously served for 17 years as the Vice President of Assets Protection for the Target Corporation. "It can be true, and this is one reason why Axis and Milestone are so successful. They manage the video on the network to enable the video to have less of an impact on the bandwidth."

IP vs. Analog Cameras: Improving Usability

Compared to analog cameras, IP cameras provide a wider range of options that greatly improve the success of a company's surveillance operation, such as:

■ **Ability to develop downloadable applications.** Compatible third-party applications can be downloaded to add functionality such as intelligent video and analytics.

■ **Higher quality images and greater resolution.** With progressive scan, HDTV and megapixel technologies, a network camera can deliver better image quality and higher resolution than an analog CCTV camera. Other features include the latest in video compression standards including H.264, auto zoom and focus, and image enhancements to compensate for harsh lighting or "noise." This is one of the most important advantages of IP cameras. Most have an image resolution that is a minimum of four times greater than that offered by analog cameras. This often allows one IP camera to take the place of several analog cameras and can have the effect of delivering a far superior product at a reduced cost.

■ **Ability to utilize existing wiring and better wireless reception.** Most facilities are already wired with network cables, thus an IP-surveillance solution requires no additional wiring for video, audio and remote PTZ (pan, tilt, zoom) control. Wireless connectivity also is possible. This means cameras can be installed without trenching cable, and also easily moved to different locations as needed.

■ **Remote access.** Network cameras and video encoders can be configured and accessed remotely, enabling multiple, authorized users to view live and recorded video at any time and from virtually any networked location in the world. In a traditional analog CCTV system, users would need to be at a specific, on-site monitoring location to view and manage video, and off-site video access would not be possible without such equipment as a video encoder or a network digital video recorder (DVR).

■ **No costly cabling.** PoE technology, which cannot be applied in an analog video system, can be used in a network video system. PoE enables networked devices to receive power from a PoE-enabled switch or midspan through the same Ethernet cable that transports data (video). PoE provides substantial savings in installation costs and can increase the reliability of the system. The single-cable infrastructure supports current IT use, image, audio, I/O, PTZ Control, PoE delivering a digital signal during the entire transmission.

■ **No electrical outlet constraints.** At Douglas Village Shopping Center in Cork County, Ireland, Axis camera images are rotationally displayed by Milestone's open platform software like a patrol of the entire center every 30 minutes. "It's like having virtual eyes," said Manager Bartosz Mieszala. "It's about time management and getting the most out of your staff."

"So many people in LP and asset protection grew up with analog systems and now realize with an IP open system they can look at multiple locations remotely and within a given site," said Hayes. "The IP system provides quicker transmission of images and better-quality video — images are clearer."

Hayes added: "And because the transmission is now digital across networks, the retailer can put together sequences and look for patterns more efficiently. This can save a tremendous amount of time previously spent manually scanning through tapes. Retailers can pinpoint targeted times and locations, and view clips that can be put together for legal prosecution. Finally, patterns can be analyzed to enhance LP information for research and future planning."

Open Software v. Proprietary Programs: Removing Barriers

Compared with proprietary analog systems, open IP software can integrate surveillance with other company operations to provide a wealth of benefits:

■ **Different levels of support for small vs. large systems.** The software should be able to accommodate different numbers of cameras and concurrent users.

■ **Seamless upgrades** via a flexible licensing model.

■ **Programmable data storage and archiving policies.** With a fully automated archive, data can be stored to permanent, long-term, high-capacity, compliant and industry-standard optical media. Archived video data can be viewed transparently simply by browsing back in time.

> *"Without an open platform in place, we would never be able to cost effectively migrate into the other solutions that are coming to market. Now that we have a platform on which to build, we can implement a number of different applications and even be ready for those that are not off the drawing boards yet."*
>
> **—Rick Levine,** Goodwill

■ **Commodity pricing through Common Off The Shelf Components (C.O.T.S.).** The software should have the ability to use common servers/PCs to manage and store the video instead of proprietary, expensive-to-repair and maintain, closed systems such as DVRs/NVRs.

■ **Ability to link video with POS.** Combining video with transaction data directly from the point-of-sale (POS) provides a strong tool for analyzing and catching fraud. Milestone's XProtect Transact or XProtect Retail can search and find any transaction—and provide an instant video recording of the transaction. This helps reduce fraud and provides the tools to quickly and accurately solve incidents.

■ **Ease of integration with other systems and emerging technologies** such as Video Content Analytics, remote monitoring and VoIP.

■ **Sequence Explorer.** The Sequence Explorer is a powerful new investigative tool to browse through recorded video sequences to find incidents and locate evidence fast.

"The key point is what this system is allowing us in the way of future initiatives," said Goodwill's Levine. "Without an open platform in place, we would never be able to cost effectively migrate into the other solutions that are coming to market. Now that we have a platform on which to build, we can implement a number of different applications and even be ready for those that are not off the drawing boards yet. Whether it is people counting today or some 'auto theft detection' that may be developed tomorrow, we have the ability to adopt it."

"Additionally, by unbundling the software from the hardware compared to the traditional DVR-type of video, we have put ourselves in a great position of a much better TCO over time," Levine stated. "In the long run, we can replace or add cameras one at a time, increase our storage if there is some new PCI requirement, etc. In effect, we have custom-built a solution, but in a manner that is easily replicated moving forward."

Conclusion

IP-based open video surveillance systems are the clear choice for retailers moving forward because TCO is lower and ROI is better for the bottom line.

The path to a networked IP-based system is different for every companies depending on their current system configuration. Those currently using working analog cameras in their stores can migrate in increments to IP as budgets allow, while continuing to utilize their analog cameras via encoders. Retailers ready to make the jump to an all-IP system will realize bigger benefits immediately.

IP-based surveillance can help companies resolve internal organizational struggles by providing a cross-functional tool that supports inter-department cooperation to glean the most out of the video, data and analytics.

When choosing the best video surveillance system, retailers should conduct due diligence and find the best partnerships with both hardware and software vendors. Partners with a true open system will be able to work with any manufacturer's products — even those of a competitor. Once retailers review the many features, functions and services provided by these partners, they should make sure these partners' offerings meet the company's current and future needs.

About Milestone Systems

Founded in 1998, Milestone Systems is the worldwide industry leader in open platform IP video management software five years in a row, according to IMS Research. Milestone XProtect™ products have been installed in thousands of customer locations, sold through authorized and certified partners in more than 100 countries. With support for the widest choice in network hardware and integration with other systems, XProtect provides best-of-breed solutions to "video enable" organizations—reducing costs, optimizing processes, protecting people and assets. For more information please visit www.milestonesys.com.

About Axis Communications

Axis is an IT company offering network video solutions for professional installations. The company is working to drive the ongoing shift from analog to digital video surveillance. Axis introduced the benefits of network video technology to applications throughout the retail sector. Retailers receive ready-made applications that enable them to minimize loss, improve merchandising, increase staff security and improve bottom line result. Axis and its many retail partners offer integrated solutions that bring unique possibilities to detect POS fraud, analyze EAS incidents, measure customer traffic and much more. A Sweden-based company, Axis operates worldwide with offices in more than 20 countries and cooperating with partners in more than 70 countries. Founded in 1984, Axis is listed on the NASDAQ OMX Stockholm under the ticker AXIS. For more information, please visit www.axis.com/retail.

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