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**Using Video Surveillance
To Improve Retail
Operations**

A Guest Series Presented By Aimetis.



IS IT TIME TO MOVE FROM ANALOG TO NETWORK VIDEO?

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Perhaps your DVR manufacturer has discontinued production of the DVR model you are using. Or you've written off the asset and are open to upgrading your video surveillance system. Should you purchase another analog based DVR or is it time to upgrade to a network video system?

Regardless of whether you are ready for advanced video analytics, network video systems offer retailers compelling advantages over analog in the areas of IT/architecture, functionality and total cost of ownership.

IT ARCHITECTURE

Higher Uptime/Availability

No system, whether analog or digital, has 100% availability. But most networks deliver more than 99.99% uptime, which means less than one hour per year of downtime. Beyond that, you can buy network cameras with memory card slots. So even if a network fails temporarily, you can maintain backup video on these cards for 100% reliability.

Network video systems that use power over ethernet offer the additional advantage that the complete surveillance system, including the network cameras, will remain operational for some time in a power outage. Since most power failures are of short duration, this will go a long way in ensuring uptime.

Meanwhile, from a server perspective, you can choose from any reliable major provider, such as Dell and HP, as opposed to DVRs purchased from smaller foreign providers with less well known track records.

In addition, many video management systems (VMS) have built in failover server capability or server clusters, sometimes called server farms. If the primary server detects a failure in one server, another identically configured server automatically takes over all the recordings of the cameras originally assigned to the failed server. It generally takes only seconds to switch servers and requires no operator/administrator intervention.

Like servers, system storage can benefit from a redundant array of independent drives (RAID), enabling you to easily replace drives in case of failure. Arranging standard, off the shelf hard drives so that the operating system sees them as one large logical hard disk increases storage throughput as well as reliability.

Better Access To Video/Ease Of Administration

Standard ease of use functions of network video systems include being able to auto locate all cameras on a network and update

ing firmware/software for network devices. Likewise, software bug fixes can be applied remotely over a network, as opposed to the time and expense of scheduling DVR service people onsite to repair problems.

In addition, network systems enable you to manage user privileges for restricted access. This is particularly valuable for retailers with hundreds of store locations. Doing so merely requires the use of a VMS that has integrated Microsoft Access Directory, an enterprise wide access directory database that most IT departments already have in place.

Some VMS have also adopted an Internet standard protocol for managing devices on IP networks call Simple Network Management Protocol (SNMP). With these VMS products, system administrators can easily monitor the health of the networked servers and cameras through common IT platforms such as HP OpenView and Microsoft Office Manager, and thus be alerted to conditions that warrant administrative attention.

Longer Lifecycle

When new features or software patches become available, network video users don't replace the hardware, they simply update the software automatically via the network or Internet. This process streamlines the deployment of the new features, significantly reducing service time. In addition, this approach means that should your needs expand to, say, include the use of intelligent video analytics, you have the flexibility to simply add functions without replacing their existing equipment, thus extending the return of the hardware investments.

FUNCTIONAL PERSPECTIVE

Enable Virtual Visits

With analog systems, if someone at corporate wants to see how inventory is displayed on shelves or ensure that end cap designs are being enforced, it generally means travelling to individual stores, which may be hundreds or thousands of miles away. With network systems, corporate can perform virtual visits and save both travel time and costs. Likewise, when corporate needs to see forensics on recent shoplifting incidents, instead of receiving mailed tapes days or weeks later, staff can immediately review incidents online from a central location.

Better Quality Images

Analog cameras rely on interlaced scanning technology developed in the 1940s. Alternatively, network cameras use pro-

gressive scan technology, which provides images similar to what you obtain with today's DVDs. The highest quality image available with analog systems is the .4 megapixels (4 CIF) resolution specified by NTSC/PAL standards. Meanwhile, some network cameras offer megapixel, high definition images that can enable you to better identify shoplifting suspects.

Increased Storage Flexibility

Although higher resolution images and the use of analytics result in greater network traffic and storage needs, video compression standards such as H.264 ensure that they are manageable. Retailers using network video systems have far more flexibility in being able to store video for 30 days, six months or even longer.

Better Integration

There are many occasions where it's beneficial to integrate network cameras with other applications, such as access control or point of sale systems. Ensuring they can be integrated with your VMS will effectively create one system and database as well as improve the effectiveness of the overall solution. Point of sale system integration allows you to match the video of the checkout clerk scanning items with the information shown on the register to ensure all items are being charged and that no sweethearting occurs. Some DVRs provide limited integration, while open architecture VMS products use application programming interfaces (API) to make integration with third party systems easy, available and extremely flexible.

TOTAL COST OF OWNERSHIP

Less Expensive In The Long Run

When comparing costs of network and analog systems, consider what needs to be purchased for each of the respective systems: Typically, analog surveillance systems are comprised of analog cameras, coax cabling and DVR based recording systems, while IP based video surveillance systems include network cameras, Ethernet cabling, servers, software and storage.

Overall, installation, configuration and training costs for analog systems are almost 50% more than for IP systems. For example, cabling is almost three times as expensive in analog systems compared to network based systems. The primary reason is that coax cabling is more expensive than Ethernet cabling. Also, analog typically requires separate power cabling, while PoE eliminates the need for electrical connections in the IP system, and separate cabling is needed to control analog PTZ cameras. Because network cameras do video compression and analytics like motion detection at the edge, the need for a



DVR is eliminated. This allows end users to incorporate open PC systems and open storage with video management systems, which typically costs 20% less than DVRs. And while one server may be able to handle as many as 300 network cameras, that same number of analog cameras might require as many as 20 DVRs.

In addition, network systems are easier to trouble shoot, maintain, and obtain service. For example, analog coax cable is much harder to troubleshoot than IP, and network systems can be remotely serviced over the network. Network systems also offer increased flexibility, when moving a camera means

only moving a network drop if PoE is used versus hiring an electrician and adding a power outlet in the new location. The bottom line is that even though network cameras cost more than analog ones, in most cases, an all IP digital solution will be less expensive than an analog solution.

Given all of these factors, even if you aren't ready for advanced capabilities such as video analytics (to be discussed in upcoming columns), network video systems offer retailers several compelling advantages over analog systems, including a superior IT/architecture, more functionality and a lower total cost of ownership.



ABOUT THE AUTHOR

Marc Holtenhoff is CEO and director at Aimetis. Holtenhoff has close to 20 years of leadership experience at successful, growth oriented technology companies. At Aimetis, Mr. Holtenhoff is responsible for the organization's corporate strategy, financial performance and overall growth. Prior to Aimetis, Mr. Holtenhoff was the CEO of California based 1GlobalPlace, Inc.,

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