Getting The Most From Emerging IP Video Technology

without losing your existing investment

VICON

White Paper

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For several years, the convergence of security and information technology (IT) departments has been an ongoing trend in the industry. While the transition has not always been smooth, it has led to significant advancements in security technology.

One of the technologies that has benefited most from this trend is video. IP video takes advantage of the IT network relationship to bring video directly into the PC without the need for a recorder.

However, for most end users, the investment in video equipment is ongoing, and the ability to chuck the "old" technology and replace it with new is virtually nonexistent. In addition, the technology that would be replaced is often still valid and useful. This paper examines the new IP technology, as well as explains how it can be used **in addition** to your existing investment. It shows there is no need to wait for the new technology to mature, or for the old technology to become obsolete. The two can work together in harmony to provide a better, more useful overall package!

1. Industry Snapshot

According to the *2005 U.S. & Worldwide Network and IP Video Market report by industry analyst J.P. Freeman and Company, the U.S. market for this technology is predicted to rise 20 percent per year to over $5.4 billion in 2009. The report states:

"All levels of the security industry agree that the integration of network video with IT departments is inevitable, and that IP-based systems (cameras, NVRs and servers) and DVRs will dominate video surveillance recording. Analog recorders are declining rapidly while large video storage systems are on the verge of sharp demand as NVRs and video servers rise to accommodate IP camera demand."

The Freeman report also says that IP systems and networks are expected to replace DVR networks and grow rapidly from 2005 on:

"User buying plans for video networks are strong. A large number of analog video systems remain to be replaced. DVR systems are added and will steadily be replaced by IP systems as the trend towards IT convergence strengthens."

Freeman suggests that IP camera sales will exceed analog sales by 2008.

What does this mean? First let's define what IP technology means and discuss the advantages of IP technology.

a. What are IP Cameras and Servers?

Unlike analog cameras, IP (internet protocol) cameras have powerful processing capabilities that allow them to act just like a computer on the network. Because of that, they can be viewed on a PC or laptop using the proper software.

IP video uses the network infrastructure to transmit video to central recording stations. There is no need to pull coax cable, and the information goes directly from camera to computer. That computer can be a DVR (digital video recorder) or NVR (network video recorder).

IP video is also versatile. Whether you want to add one camera or 100 cameras, it is possible with IP, all through the network.

b. IP Advantages

There are many advantages to moving to an IP video system. Here are a few of the most important ones:

1. **Functionality.** You can view the video from any location in the world where you can communicate to the network. This means that anyone with the proper access can view the video from their PC, or remotely, if they are traveling - much as you would check your e-mail. It also allows for multiple people to view the video.

2. **Scalability.** There is no limit to the number of devices that can be placed on the network. Depending on your needs, you can add a full DVR or a single camera.

3. **Operating Costs.** While the IP cameras are more expensive than analog cameras, the operating costs can be lower, resulting in a reduced overall cost of ownership. Often a facility will already have a network that can support the needs of the video, so installation cost is lowered. The expense of running coax cable is also avoided by using the network. Operating costs are lower, too. According to Freeman, within a 3-5 year period, IP systems are less expensive than DVRs due to IP efficiencies. For example, the use of standard PCs means that they can be supported by internal IT departments rather than by the manufacturer. And the use of the IT networks allows for shared systems (and cost) with other departments, such as human resources, legal, audit and corporate IT communications.

2. Transitioning to IP

Perhaps the biggest “hurdle” to converting to IP cameras and servers in many users’ minds is that the digital video recorder – itself a relatively new and still very beneficial technology – is so prevalent. Many users have DVR systems currently, or are even planning to purchase them soon.

In the future, these DVR systems will age and IP video systems will become more popular, making the transition inevitable. The question facing users, then, is when and how to make that transition?

a. The Challenges

*According to the Freeman report, IP video systems have undeniable advantages, but their hold on the market is being delayed somewhat. Some of the reasons for this include:

1. The relatively recent appearance of DVR systems. DVR networks have grown considerably over the past five years.
2. The realization that these DVRs will likely last for a 7-8 year life span.
3. The investment already made in DVR systems. As the reallocation of funds to terrorism protection produced strong growth in the video surveillance market, many of the DVR systems were installed over the past 3-4 years.

For many users, this translates into a dilemma. The adoption of new technology is often not simple, and concern about current investment (particularly when it is a good technology in and of itself) means that many might have cold feet about jumping into the IP waters just now.

b. Moving Forward

There is no need to be afraid, however. The power is in having the ability to mix and match DVRs and IP cameras within a company's infrastructure. The best solution would be a system that offers products that can work with the current DVR video set-up, allowing users to augment their current investment with the newer technology, while taking advantage of the best that both have to offer.

There is no reason to throw out a perfectly good and expensive security investment! In fact, in some cases it makes more sense to buy a new DVR, as long as it will support future IP cameras.

Look for a migration plan and path. For example, some product lines can use existing analog cameras along with the new IP cameras, allowing both to "speak the same language." Using a video server, analog video can be converted into a digital signal that transmits over the same network as the IP cameras. This essentially converts any analog camera into one that can be used on the network – just like the IP cameras.

Products designed to perform first as a security product, with the ability to work in an IP environment - rather than being designed only for IP video - will allow you more flexibility as you migrate forward.

The best solutions for today incorporate tomorrow's technology as well. The best scenario is when each DVR, IP camera and NVR can be used in the same system. They can work side-by-side.

4. Conclusion

Gone are the days when a “web camera” was a just a convenient way to view video for “fun” on the Internet. Now this technology has matured to a point where it can truly be considered a viable and desirable option for true video security systems. What’s more, the best of these systems work together with their DVR counterparts to speak the same language and work as one harmonious system.

*According to the Freeman report, “The future of IP-based systems is the strongest trend in the video surveillance industry.” IP is definitely coming, and bringing with it a significant set of advantages to the video user.

CCTV technology is evolving rapidly, as product designs go from analog to digital formats. *The Freeman report states:

“Most video recorder systems were analog in 2000, while most now are now digital. Thus, system designs are migrating from the traditional analog systems with closed dedicated cable circuits to digital signal processing and image recording in networked configurations using wired, fiber and wireless media. IP cameras, NVRs, and industry standard servers represent the last stages of this migration to complete digital video managed over IP networks such as Ethernet LANs, Internet WANs, and even cell phone networks.”

So while IP camera sales in 2004 represented only about 15 percent of all camera sales in the U.S., the report predicts that over the next five years, that level could rise to 87 percent of the analog/IP mix. The actual future growth in sales is expected to be almost 15 times the current level by 2009 as IP camera sales rise from $44 million in 2004 to $649 million by the end of 2009.

For users, the time to get in on this trend is now. The best solution is the ability to mix and match DVRs and IP cameras and get the best from both worlds. And some manufacturers are making that possible, without having to give up your current investment in DVRs.

5. Vicon’s ViconNet Digital Video Solutions

Vicon offers a full family of solutions that speak the same language. Both IP cameras and DVRs are part of one system, communicating together. Everything works in the same way. It doesn’t matter whether you want 10 DVRs and one IP camera or vice versa. The system will work the same, and feel the same. The system is easily expandable. The ViconNet platform has been designed from the outset to support the transition from analog to IP video. Their product line can use existing analog cameras along with the new IP cameras, allowing users to keep their existing security investment in place.

Here is a brief look at the Vicon family of IP products and their features:

SurveyorVFT

Vicon's high-performance pan-tilt-zoom dome is an IP video version that produces superior image quality with scalable frame rates up to 30 frames per second (fps). This unit was not designed for IP video first; it was designed to perform as a security product with the ability to work in an IP environment.

VN-755IP

More than just a camera, the VN-755IP includes three analog inputs and acts as a combination camera and video server delivering high-quality images across the network. It is both a conventional CS-mount camera with direct IP connection and a server that will accept up to three analog cameras plugging into the back or converting them to digital camera inputs that can be viewed over the network.

Roughneck V910

A tough, vandal-resistant camera that is now offered in an IP version. IP video options are available in all the same styles as analog, including surface and in-ceiling mount.

VN-301T Single-Channel IP Video Server

Designed to convert an existing analog camera to digital, the compact design fits into most camera housings and saves on the cost of converting to digital.

Kollector Network Server

Hybrid units that incorporate a PC-based digital recorder and a multi-channel server, offering the best of both. It comes in versions up to 120 fps with 800 GB of internal storage.

Kollector Elite

A line of digital recorders that offers a combination of DVR and NVR capability. These units utilize the full ViconNet software suite and accept analog video through a rear panel connection. They also support the need to view, record and configure other recorders and IP video sources across the network.

Kollector Pro

The Pro series is an aggressively priced DVR that includes a number of optional models that cover every frame rate from 30 fps to 240 fps. Internal storage can be expanded with the use of external RAID devices.

VN1000/VN5000

The VN1000/VN5000 is a Network Video Recorder Software that stores digital video from all ViconNet IP video devices. It can be purchased as a pre-configured PC (VN5000), or as software (VN1000), and includes a full ViconNet software suite for viewing and recording any IP device or DVR on the network.

For further information on Vicon, visit our website at www.vicon-cctv.com.