



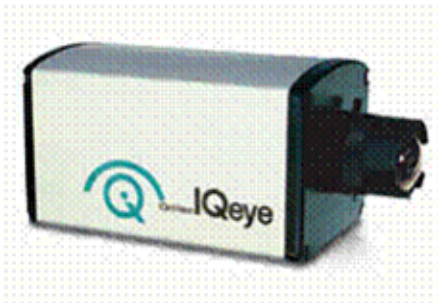
GOVERNMENT SECURITY NEWS

Two trends reshape video surveillance landscape

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Two trends emerging within the video surveillance industry are likely to alter dramatically the way software and hardware are used to capture, process, display and store video images.

The first trend involves "analytic software" which is being used more frequently to detect motion, spot an intruder in a predetermined area, distinguish between a person and an animal, or identify a bag left under a bench in an airport.

Slowly but steadily, that analytic software is being relocated from the personal computer (PC) or a specialized digital video recorder (DVR), which have traditionally received and processed the image, to the camera, which captures the video image in the first place. The migration of computer processing power from DVR to camera is occurring mainly due to a growing shortage of bandwidth.

With the dramatic increase in the number of video cameras being installed on a single surveillance system, and the increased demand for video images of higher and higher quality, the volume of video data being sent continuously to processors is simply overwhelming some surveillance systems.

For example, if a nuclear power plant mounts 200 video cameras along its perimeter fence and throughout its entire facility – and expects high resolution images to be shown on a wall of monitors in the command and control room – the resulting flood of data can easily over-burden the power plant's bandwidth.

"We are flooding our networks," says Stuart English, vice president of marketing at CoVi Inc., of Austin, TX. "There is definitely a problem."

In part, the problem arises because all of the cameras in a particular surveillance system – or, at least, the vast majority of the cameras – are set up to keep running continuously, and deliver a high-quality images, even when nothing is happening on a particular screen for hours, or days, at a time.

However, if enough processing power could be moved onto the camera itself, the camera could determine when it is "seeing" any interesting motion or when a specific activity warrants a closer inspection. In those circumstances, the camera would click into action and begin transmitting images to the command center's recording device. Alternatively, the camera could kick up the quality of the image it was transmitting from low resolution to high resolution.

Either action would, of course, begin to gobble up more bandwidth, but at least the camera would have made an initial determination that the image was worth scrutinizing. "Intelligent management of the bandwidth allocation to specific cameras is an issue that the industry will have to resolve," says CoVi's English.

Several companies have already undertaken initiatives in this area.

ActivEye Inc., a software company based in Briarcliff Manor, NY, that has developed a well-regarded image analytics package, is collaborating with IQinVision, of San Clemente, CA, to install a pared down version of its software package on one of IQinVision's video cameras. This abbreviated package won't have the ability to perform all of the different tasks that ActivEye's normal package offers, but it will push enough intelligence to the camera so that it can determine when – and how – to stream video images back to the control center.

This trend would – and should – be occurring at a faster clip if the cameras themselves had the capability to accommodate the analytic software, ActivEye believes. "In three years, these cameras [with built-in software] will be dominant in the market," says Tomas Brodsky, ActivEye's chief technology officer. "The reason it will take three years is that cameras are not designed to handle the software," he adds.

IQinVision, which is moving aggressively in this direction, believes it makes perfect sense to put the brains in the camera. "Data is money," says Rick Davitt, vice president of marketing at IQinVision. "The more data you transport, the bigger your bandwidth must be, and all that costs money," he says.

A second team of companies is also attempting to add video content analysis algorithms to the camera. Texas Instruments Inc., of Dallas, TX, a leading designer and manufacturer of computer processors, is working with ObjectVideo, Inc., of Reston, VA, one of the leading software companies in the burgeoning field of image analytics, to embed the analytics on its DM64x digital media processor.

"Porting ObjectVideo's video surveillance algorithms to TI's high-performance,

DM64x digital media processor will enable analytical capabilities to reside directly on devices, such as video cameras, digital video recorders, network encoders or other video management platform," said Texas Instruments in a Sept. 27 announcement.

A second trend also emerging in the video industry – perhaps a little less clearly – might also reshape this sector's business landscape.

Several software companies have taken aim at the customary configuration in the video industry, in which video cameras feed images to dedicated digital video recording devices, which in turn send images to an array of monitors, out over the Internet, or into storage. Such digital recording devices traditionally have been free-standing pieces of hardware produced by manufacturers, such as Dedicated Micros USA, of Chantilly, VA, and Interlogix and Matrix, now part of GE.

A movement seems underway to move the software that handles the processing, directing and storage functions from the standalone DVR to the standard PC as yet another application.

Such a move, advocates say, would not only reduce the cost of the hardware required for a video system (off-the-shelf PCs are cheaper than dedicated DVRs) but would also lay the groundwork for the collected video images to be used in many different ways, by many different departments, within a large organization. In this way, video images could become an integral component within senior management's enterprise-wide "toolkit."

Software companies, such as Verint Systems Inc., of Melville, NY; Lenel Systems International, Inc., of Pittsfield, NY; Broadware Technologies, of Cupertino, CA; JDS Uniphase Corp., of Santa Rosa, CA; and Integral Technologies, of Indianapolis, IN, are attempting to elbow their way into this space, particularly for the larger and more complex video surveillance applications being installed by the largest organizations.

Not everyone agrees that this trend to move video management software from DVRs to PCs makes much sense. A spokesman for Dedicated Micros notes that the trend is gaining steam and says his employer is paying close attention, but believes that standalone DVRs will maintain their place in most video configurations for several more years.

First, many existing video surveillance systems, which were originally installed several years ago, operate on analog, rather than digital, video signals. These analog signals are compatible with DVRs, but might not perform as efficiently with a PC-based approach. Second, precisely because the traditional configuration uses a standalone piece of hardware, it might be less likely to crash, and lose valuable video files than if those files were stored in a vulnerable Windows-based PC. Third, Dedicated Micros argues that its free-standing DVRs, in which high-capacity storage media can be popped in and out, offers highly desirable flexibility to some users.

Other industry observers feel the whole debate between the "software-on-the-PC" advocates and the DVR advocates is something of a shell game because, in fact, there is very little difference between a DVR and a PC. Both devices are essentially PCs, says CoVi's Stuart English. The DVR may pretend that it is not a PC, he notes, but it performs essentially the same functions.

And IQinVision goes a step further, suggesting that the processing power should not be moved from the standalone DVR to the PC, but that it should be moved all the way from the standalone DVR right onto the camera itself. IQinVision's Davitt says it makes most sense to have a company's file server interact directly with the camera. "Why not put the smarts in the camera?" he suggests.