Next-Gen Surveillance Storage

As surveillance systems grow lager in scale and become accessible via the Internet, resolution improves by leaps and bounds, and video is stored for ever-longer periods, both hardware and software developers are busy working on next-generation data storage and management. A&S International takes a closer look at recent breakthroughs.

BY TRACY TING

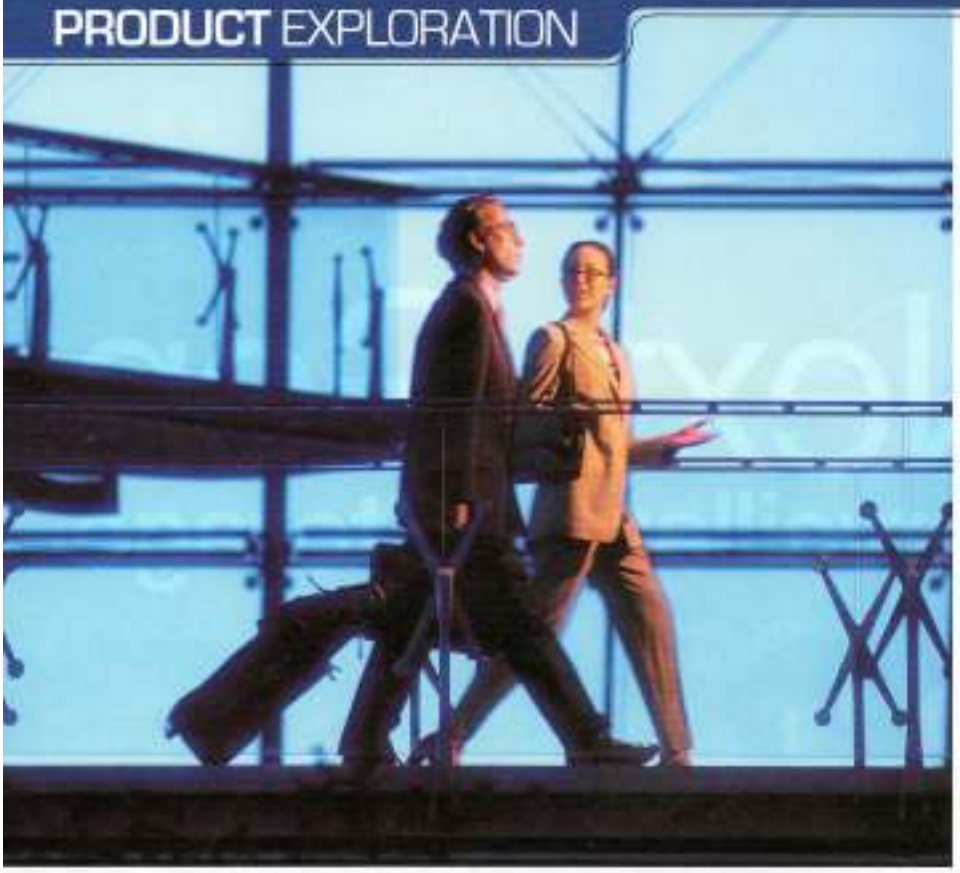
According to IMS Research, the worldwide market for NVRs (including management software) was estimated at US$220 million in 2006, and is expected to reach $1 billion by 2011. Similar research from Frost & Sullivan indicates that the overall U.S. market for IP surveillance storage will reach $2.95 billion by 2013.

In recent years, advanced technology has improved surveillance systems with powerful network cameras that cater to different user needs. With increasing adoption of network cameras, NVRs and hybrid DVRs are now on many people's shopping lists. In 2007, sales of NVRs and hybrid DVRs from the Americas, Asia and EMEA were $35 million, $20 million and $45 million, respectively.

For 2008, a report from IMS Research puts NVR sales for the Americas at $119.5 million, with an annual growth rate of 44 percent. Revenues in EMEA and APAC are $71 million and $27.9 million, growing annually at 38.1percent and 35.5 percent, respectively. For hybrid DVRs, annual sales and growth rates in the Americas, EMEA and APAC are $96.9 million (35.3 percent), $41.4 million (42.9 percent) and $41.1 million (61.6 percent), respectively.

The 2009 global market for NVR external storage is expected to reach $200 million, with an annual growth rate of 96 percent, according to Lee Caswell, CMO and cofounder of Pivot3. Revenue breakdowns for the America, EMEA and APAC are 50 percent, 35 percent and 15 percent, respectively.

On a more regional level, Yoshikazu



▲ IP-based solutions can effectively and efficiently ensure the safety of airports.

Hirano, General Manager of Security Solutions for Asia Pacific at Sony Corporation, estimates that the South Asia Pacific market for NVRs and hybrid DVRs is worth about $20 million, with global pegged at $450 million.

FELICITOUS BLEND OF TECHNOLOGIES

Although network video surveillance has yet to dominate the current surveillance market, it certainly has great potential. "While nearly 70 percent of all systems deployed today are DVR-based, we see an increasing number of customers opt for IP-based cameras and technology," said Jeff Whitney, Vice President of Marketing at Intransa.

More comprehensive IP-based products enable more end users to adopt IP-based solutions, suggested Toru Takahashi, Group Manager of Recorder Group at Security Business Unit, Panasonic System Solutions. "Users can see the value of this new technology, which further enhances market uptake of IP surveillance." Recent breakthroughs include megapixel cameras, intelligent analytics and management, remote surveillance, system integration and large storage capacity, making IP-based storage a must.

Functionality, Hirano said, is what truly differentiates IP-based and analog technologies. Traditional CCTV solutions require personnel to watch over monitors at all times and are not always effective. IP-based systems with powerful management software can enhance overall security, either automatically or on command. Remote surveillance, control and management via the network are some of the technologies most in demand today. Software engines such as video lifecycle management allow systems to be scalable in size and can flexibly manage stored video footage, said George Mele, Vice President of Markets and Products at TimeSight Systems. "NVRs gain high market values with these functions."

High-resolution cameras also positively affect and stimulate the uptake of NVRs and hybrid DVRs. "Since H.264 compression is the current trend in IP surveillance, manufacturers are obviously positioning themselves to support H.264 this year or early next year, particularly when camera vendors like Axis Communications, Sony and

▲ Yoshikazu Hirano, General Manager of Security Solutions Asia Pacific at Sony Corporation

▲ Lee Caswell, CMO and cofounder of Pivot3

Arecont Vision are already offering H.264 cameras," said Alastair Hayfield, Market Research Analyst at IMS Research.

Deployment of high-resolution cameras means increased needs for network surveillance systems. Bob Shinmachi, Senior Product Manager, Network Video Management Systems, Access Control and Video Systems, Tyco International, suggested that active content

▲ Alastair Hayfield, Market Research Analyst at IMS Research

▲ Toru Takahashi, Group Manager of Recorder Group at Security Business Unit, Panasonic System Solutions

compression (ACC) is another trend in compression that can save about 90 percent of storage when compared to MPEG-4 technology. To support these developments, migration to network-based systems is inevitable.

Easy integration is another bonus that facilitates adoption of IP-based storage. Some manufacturers are promoting integration with their analytics software, Hayfield said. When video surveillance is integrated with access control, alarm contacts, door locks and so forth, a facility becomes intelligent as if it had a life of its own. Hayfield also suggested that analytic add-ons such as license plate recognition, motion detection or other algorithms can add strong market value to the system. "Functions like people and vehicle counting provide secondary values for organizations doing traffic studies or for marketing research," said Tim Frederic, Director of Engineering at 3VR Security. Compatibility is crucial in this sense. "If components can't be fully compatible with one another, many capabilities might be lost," said Udi Segall, Senior Product Marketing Manager at Nice Systems. Hybrid DVRs and NVRs must deliver a very comprehensive, complete and open solution to bring about the highest security possible.

To accommodate these new functions, more storage capacity will be required. "One common phenomenon in the industry is that you don't always know exactly how much storage is actually needed by the camera until it's put to use," said Stu Taylor, International Sales at Pivot3. NVRs are scalable and allow users to start with standard storage and expand later.

External storage, such as Pivot3's databanks and Intransa's Security-

▲ Jeff Whitney, Vice President of Marketing at Intransa

Grade IP Storage, makes such expansions (often in stages) painless, as recordings from unlimited numbers of cameras with any resolution, frame rate or retention requirements are allowed. More databanks also mean more Ethernet bandwidth and network capacity, Caswell said. And with Intransa's platforms, centralized management of scalable camera channels is made easy for any deployment scale.

Protective features, such as redundant power supply, hot swap, fiber channel and RAID, are also important developments that keep recorded data secure.

APPLICATIONS AT A GLANCE

Applications of NVRs and hybrid DVRs vary; large-scale verticals such as homeland security, city surveillance, transportation and gaming are currently on many vendors' radars. "Sites with large numbers of cameras — such as casinos, prisons, airports — are very good candidates for external storage," said Caswell. Smaller sectors like retail

▲ IP-based solutions make video surveillance more cost effective for seaports.

can reap benefits from value-added functions such as point-of-sales (PoS) integration. "Not only is it a surveillance application tool, but it's also an employee management tool, customer service tool and marketing tool," said Thomas Carnevale, CEO of Sentry 360 Security, as more and more take advantage of remote (sometimes wireless) control. The idea was seconded by Jacky Cheng, Product Manager at Qnap Systems. "Remote and wireless capabilities are key features in NVRs. Regardless of cost, NVRs will be the better choice for many applications," said Cheng.

Sectors such as education, commercial, airports and seaports are also interested in IP surveillance because they consider the migration to IP-based systems an investment for the future, suggested Shinmachi. Not everyone is on the same wavelength, though. Some small to medium businesses might view network surveillance as an expensive and not necessary investment. Hayfield observes that the retail vertical is among the most competitive in terms of pricing, with many smaller, independent retailers still choosing cheap DVRs and analog cameras.

As to whether it is better to choose analog or IP-based systems, Takahashi thinks that it completely depends on users' needs. "Some DVRs also have network ports for offsite surveillance; however, NVRs that allow each device to be accessed and configured individually via the network would be a better fit for heavy-duty remote surveillance," said Takahashi. "We provide both analog and IP-based alternatives for users, and we don't think that a system must always be IP-based. We hope to meet users' demands through analog DVRs or NVRs."

SELECTION CRITERIA

When selecting NVRs, one should make sure that the system is scalable, flexible, reliable and open, with high return on investment. Alex Swanson, Product Manager at IndigoVision, also suggested that failsafe features and redundancy strategies are important considerations for choosing NVRs. Users should also be clear in their own minds as to

▲ Udi Segall, Sr. Product Marketing Manager at Nice Systems

▲ Thomas Carnevale, CEO of Sentry 360 Security

▲ Jacky Cheng, Product Manager at Qnap Systems

what real operational problems (like incident investigation and provision of evidence) they expect to be solved before making final selection and deployment decisions.

When it comes to storage selection, Caswell said, it is all about reliability and performance. "Things that spin tend to fail. So you need stable components to keep the system running in all conditions at all times," said Caswell.

Hidden cost is another issue. "As the number of NVR requirements increases," said Shinmachi, "customers need to make sure they are protected from hidden incremental costs associated with licenses for operating systems, security software and IT management resources for each and every server." NVRs are capable of many things, but not everyone needs all of them, Cheng cautioned. Finding an experienced installer with a strong IP background is vital; choosing the right installer also helps make system maintenance easier.

FUTURE OUTLOOK

Migration to IP-based systems is already reality. According to Shinmachi, there will be growing demand for larger numbers of cameras on individual servers, advances in megapixel technology, more efficient video codecs, intelligent video technologies and integrated solutions. Systems may also have higher bit rates, larger storage options directly attached to cameras, and larger distributed network-attached storage (NAS) systems for NVR recordings.

Swanson predicts that all video in the future will be IP-based, and high-definition (HD) video will

▲ Alex Swanson, Product Manager at IndigoVision

be the next must-have. Intelligent video surveillance features will be ubiquitous as surveillance moves closer to IT. More user-friendly interfaces and systems with easy configurations will undoubtedly increase the adoption of NVRs and hybrid DVRs. Systems with open architecture or software, added Hayfield, will be demanded by a larger and more varied base of end users.

These advances, however, come with some challenges. Hirano noted that having an open and flexible platform to accommodate all kinds of network cameras is one challenge for NVRs. Shinmachi suggested that developing software-based solutions usable by all is another challenge. "Prioritizing design concepts is critical in simplifying the development cycle and expediting the ready-to-market process," said Shinmachi. User education is another concern, and power struggle within organizations (between security and IT personnel) can be tedious.

Since security is a long-term investment, Segall reminded, the market for future-proof NVRs will eventually grow bigger. "We are like the IT industry 12 years ago — small, but is the biggest industry out there that still keeps on growing," Carnevale said. "See what the IT industry has become now? It has grown into a multibillion-dollar industry." Many believe that is the way video surveillance is going, and hybrid DVRs and NVRs will definitely play a key role. AS

▲ Scalability and reliability of IP solutions benefit the gaming sector hugely.