



IT/Networking: Storage Wars!

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Here's our update on DVRs, NVRs, clouds and virtual storage

DVRs, NVRs, the clouds and virtual storage are the prevailing options today and each has its features and challenges. There is talk that eventually all storage will go to the clouds. Some technologies offer a hybrid approach. Others feature analytics for smart recording. What is the best approach for your surveillance customers? We asked several leading industry experts for their input on this timely topic.

Q .What are the hot trends in storage?

Lee Caswell, founder and chief strategy officer, Pivot3: “Customers are excited about the convergence of storage with servers to minimize power, cooling, rack space and cost. The latest industry name for this trend is hyper-converged infrastructure, where we lead the application of this to the unique requirements of the surveillance market.”

Frank DeFina, senior vice president of Sales and Marketing, Samsung: “At the higher end, we are being asked for a more secure storage with no point of failure. Features of Raid 5e and Raid 6e are becoming more standard for large project opportunities. The ability to have a full backup on complete servers instead of one or two hard drives allows customers a fail-safe method of keeping IP solutions intact 24/7. On the other end we see demand for storage built into the edge of camera products. With the new intro of the XC format for SD cards the maximum storage capacity has gone from 32GB to 2TB. This technology now allows camera manufacturers to put more features and capabilities at the edge and in the future eliminate NVRs completely.”

Larry Folsom, president and co-founder of I-View Now and American Video and Security Ltd.: “We are seeing the commodization of analog. From the end-use perspective, devices just show up as cameras. On the IP side, remote storage in the cloud is becoming more affordable. Edge devices have more intelligence.”

Martin Renkis, founder and CEO of Smartvue Corp.: “I believe hybrid solutions will own a big piece of the market for quite a long time.”

Ryan Strange, president, ControlByNet: “Certainly cloud and on-camera storage continue to see market growth. The ability to secure data by removing it from a central computer or DVR is becoming more of an attractive option for businesses.”

Shahar Ze’evi, senior product manager for Tyco Security Products: “Storage has become bigger—more capacity—and cheaper. That allows customers to record more video with higher resolution. Meantime, the units themselves have a smaller footprint so you can have more storage inside the box.”

Q. What kinds of expertise/installation tips, do integrators need to have to effectively specify these devices today?

Caswell: “The beauty of converged infrastructure is that it does not require surveillance integrators to become experts on proprietary storage technologies used in IT, such as Fibre Channel, InfiniBand, Host Bus Adapters and LUN zoning. These technologies require intensive training and are routinely managed in large enterprises by storage administrators who make more than a director of surveillance. Converged infrastructure leverages familiarity with servers, Ethernet networking and Microsoft so that the high performance and high availability can be deployed and managed by server administrators.”

DeFina: “IP integrators need to rely on companies that have supporting tools available for bandwidth calculations and storage solutions readily available locally and on their site. Relying on formidable companies allows the integrator to feel comfortable in the accuracy of their project. Utilizing products that have key features like auto-focus can minimize time on site and keep installation costs down dramatically.”

Folsom: “Do a speed test at every single demo—an upload\download analysis. We will not take a contract if there is not a site sketch and a speed test. Go to a free site like speedtest.com. That’s when your client finds his DSL link is too slow. But it prevents the customer from being let down later when you discover his site is not a viable cloud location.”

Strange: “Integrators simply need to learn basic networking. Once the basics are covered (simple IP) then the rest falls into place. All of these new models still just revolve around networking. No matter the model or brand of the device, most of the configuration is getting it on the network and making sure it’s accessible.”

Q. Are camera analytics becoming more commonplace?

DeFina: “Analytics are and will be more prevalent and stronger in cameras. The reliance on DVRs and NVRs will diminish in the future.”

Folsom: “We think analytics is becoming part of any security system. Adding analytics is a force multiplier; a camera on the side of a building becomes a trespass system. Analytics has the intelligence to tell if it sees a cat or a person before sending an alarm. Even a 2,000-square-foot business with a camera and DVR can make an

analytics device part of their system and, when there is a violation of their analytics, can set off an alarm or annunciator.”

Renkis: “I believe in analytics. But there is a lot of marketing fluff in the whole cloud area. I believe the ultimate solution for the next three years is cameras that record locally into a NVR and can be remotely managed from the cloud.”

Strange: “Most of your analytics boil down to motion detection. It’s setting areas where the customer isn’t concerned, blocking those out and then looking for a trigger in the other areas. The motion detection algorithm is very important to limit false alarms. It isn’t like CSI; most motion detection is just looking for a change in pixels over a certain region of the image. The analytics intelligence becomes capturing a person, but not a bird or cat.”

Ze’evi: “Analytics is not the holy grail. But it has become better with more refined engines. And there are more applications associated with analytics. So customers are figuring how to use it.”

Q. Will DVRs and NVRs be “dead” in the near future?

Caswell: “The evolution of recording servers depends most heavily on user security needs and bandwidth availability. For high-availability environments, such as critical infrastructure, large education, transportation and gaming, secure recording with a secondary disaster recovery site dictates a central application of recording servers and cost pressure is forcing those servers to be deployed as virtual servers to eliminate the cost and single point of failure inherent in physical servers. For less secure environments with lower bandwidth needs, we may see recording move to the cameras or to the cloud. The recording requirement is no less and, in fact, the NVR market will continue to grow as the overall market demand increases.”

DeFina: “Because analog products are still much simpler to install, the DVR life cycle will outlive the NVR. The NVR will fall away in the market due to the capability and power that will be built in the digital IP camera.”

Folsom: “It is going that way. At some point in the future it will be true. But, as an alarm guy, I have to understand the strengths and weaknesses of each technology and where each technology fits. But, as a dealer, if it is about cost and low light, analog is a strong product.

Renkis: “Most cameras have short-time storage on an SD card. For business surveillance where just five HD cameras requiring 2 Mbps are involved, you need 10 Mbps for real-time upload of HD video. That’s a lot on today’s network.”

Strange: “They’ll never, nor they should ever, be ‘dead.’ They will just get more intelligent and then it’ll be DVRs with no coaxial ports; they’ll just be a computer for the IP cameras. I see it becoming more of a single

box where the NVR and the DVR is basically the same thing. At some point it'll just be a discussion of whether the DVR/NVR 'box' is lying over or sitting up. It'll be the same guts."

Ze'evi: "10 years ago, I was very vocal as NVRs came into the market that the DVR was dead. Today, DVRs are still a larger share than NVRs. A few lower-end applications will take video to the cloud. Over the next five years, however, we will see further moves to NVRs and hybrid systems."

Q. Are there pitfalls to virtual storage?

Caswell: "Let's be careful not to confuse virtual storage and servers with cloud-based storage and servers. Virtual storage is applicable to all but the smallest installations today. Cloud has the highest appeal for the consumer market where there are few cameras, small retention times and frankly, less at stake from a loss or security standpoint. Virtual servers and storage are here today. They do not change the security controls of a video installation but simply reduce the cost and complexity of the infrastructure required to store video. Cloud is completely different in the sense that this requires matching the security profile of the user and the bandwidth needs of the installation to the use of a wide area network (WAN) pipe. The Internet WAN is many times slower than is required for full-motion video capture as any YouTube user knows. So while the prospect of recording in the cloud sounds appealing, it introduces performance and security concerns about unauthorized access and distribution. A virtual server is simply the idea that recording can happen in the storage that is already being purchased for the video environment. Why buy an NVR server when the function is already available in the storage appliance? Similarly, a virtual SAN is simply the prospect that high availability and high performance can be delivered through software using cost-effective appliances that don't rely on proprietary storage networks and hardware like Fibre Channel."

DeFina: "With virtual storage there is an expense above and beyond on-site storage. Virtual storage is a more complicated configuration. As with any new technology, knowledge is power in getting ahead. Partnering with a company that is ahead of the trend or on that wave is a great resource to building the base you will need to infiltrate the market. Ask if the storage is really unlimited. Storage can be unlimited but it comes down to how much you willing to pay not just on the storage but the price of outside management, online power consumption, bandwidth and support."

Folsom: "Renting rack space in a central office is going the way of the Dodo bird. It's about connectivity. Here in Las Vegas we are awash in bandwidth. But I realize different areas of the country have different levels of connectivity. In addition, we are seeing a reduction in the cost of remotely stored video."

Renkis: "I do not see the camera going straight to the cloud today. Some day that will be the case as the pipelines get bigger. Then we can do more storage in the cloud."

Strange: “Virtual storage is still storage, just in a different physical location. Our email, banking info, stock trading accounts, pictures—all of it is stored in a virtual environment. Integrators need to be able to explain cloud/hosted video versus cloud backup with the difference that one is always uploaded and available on the cloud where the other keeps video locally until convenient to upload to a storage device. At ControlByNet, we want to make sure the integrator knows what the customer is really getting. Storage is unlimited and still one of the cheaper parts of the model. Bandwidth will always be the determining factor in price.”

Ze’evi: “Very few operations, except at the lower end, can take video to the cloud. The cost of bandwidth to send good video to the cloud, the cost of the link, and the cost of storage in the cloud all are high.”

Q. What’s the best scenario/application to install a DVR versus NVR?

DeFina: “Many vertical markets are investigating a migration to IP/NVR solutions but due to price constraints overall, many continue to standardize on analog DVR products. We see vertical markets such as retail, financial and correctional are well behind in converting over to digital NVR type systems. New construction has predominantly moved over to a full digital solution when specifying and developing their system.”

Folsom: “Your average salesperson understands the IT environment. All techs know networking. So, for a small business customer, the tech has to go in and open router ports. A mid-sized company will have IT staff and can open ports and allow devices on the network. On the high end, they don’t want you on their network so you might have to establish a secondary network.”

Strange: “The DVR model is still a great sell at four, eight or 16 cameras. That is attractive to small businesses in that the camera counts are decided and the DVR supports just that number of cameras. Beyond those numbers it may make sense to move to a software-based solution that can grow as needed through licensing and can increase capacity without adding another piece of hardware.”

Ze’evi: “Put it where it works for the customer and their IT department. It will be different if it is a single guy or a group. If their corporate network can support a VLAN, do it. If it requires a dedicated network, do that.”

Q. What kinds of innovation will we see in the near future?

Caswell: “I’m very excited about the application of solid state to video surveillance. Spinning disks will be important for years to come because of the inherent cost advantage but we will see solid state applied to storage systems for performance and into edge cameras for local recording.”

DeFina: “We believe the next step in DVR/NVR technology is upgradable apps similar to the cellular phone market. These apps would include incremental features that can be introduced after the sale of the unit which will be able to increase the feature of the product without having to buy a new unit.”

Folsom: “You’ll be able to run analytics against stored video. You will be able to take disparate videos into a common interface. That is what I-View Now is all about. You no longer need a passport to cross technologies. We’ll also see reductions in the cost of stored video.”

Renkis: “Cameras are not going down in bit rate. We sell more five megapixel cameras than ever. Even if you are 128 GB cards, they are not going to hold that much. The faster the connection, the better everything will be for everybody. We will announce our S9i5at ISC West 2013. It has intelligence communicate with hundreds of models of cameras and allows storage in the cloud or NAS or USB 3.0. It’s a third the price of any NVR.”

Strange: “As long as customers become educated and continue to learn they will drive DVRs to compete with software-based solutions. Better motion detection, management tools and multi-site features should be at the top of the list.”

Ze’evi: “There will be more solid-state storage as the cost comes down. That will mean a return to storage at the edge with smaller, more reliable recorders than the mechanical spinning-disk hard drives we use today.”

Q. What are your thoughts on the security of the cloud?

Caswell: “Pivot3 supplies highly available systems that eliminate any single point of failure locally and where security-conscious customers simply dual-stream cameras to a second location if an offsite disaster recovery point is required. However, this is expensive and is generally deployed only by sensitive government and transportation customers. The Venn diagram intersection of customers who want to use the cloud to save money and who, at the same time, are willing to pay for a second copy of their video data is extremely small. This is not like Dropbox where a second copy of data is basically free to provide. Video is expensive to back up and customers who care about disaster recovery will stick with dedicated equipment they own either on site or in a private cloud.”

DeFina: “We believe that the technology is still in its infancy stage and market opportunities have yet to be considered a mainstream product. Redundancy is always available but most businesses cannot afford a full redundancy in this market place. Companies have the ability to do full backup redundancy for cloud capability but the market that is utilizing cloud type systems are looking at a low cost solution that is attainable.”

Folsom: “We all bank in the cloud. The credit card industry has set the standard. It is universally viewed as a secure technology. Of course, it depends on the customer’s requirements.”

Renkis: “Anyone who says their network is secure—wherever it is—is kidding themselves. But the U.S. government is using cloud applications. A small business is almost better having its video on the cloud where there are full-time professionals working on security rather than relying on their own IT guy (who is worrying about POS and desktops) to do it.”

Strange: “Cloud security is still a numbers game with cost-to-benefit analysis. We see more value in our cloud solution not only for offsite storage but as better management of the surveillance solution. We know instantly when a camera goes offline, where in many cases our integrators replace DVR systems that have been repeatedly off for a week or more with no knowledge. Since it’s a monthly cost to our customers we want to provide them more than the old ‘set and forget it’ model. We want to keep that recurring revenue for years so following up on an outage with an email isn’t a big deal. Since it is also a service we have added value to the cloud-hosting. We host cameras from one per customer up to 500 with multiple sites around the country. The larger enterprises even do a mix of onsite and offsite with all sites viewed as one as far as the login is concerned. The value is the additional services. A true cloud-provider is going to have secure log in as well as data redundancy for the customer video so the customer has one less thing to worry about....which ties back to the benefits of using a cloud solution. It’s all to make the customer’s life have a little less stressful!”

Ze’evi: “The cloud will be an important component. But it will be more for archiving important video for small businesses with low-resolution cameras. The cloud is affordable today up to about 256 kbps. Over that, it is cheaper to buy a real system.”

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