CLOUD COVER PREDICTED

The forecast calls for computing and storage in the cloud

By Lisa Bell

Perhaps you've heard of cloud computing and thought maybe you should look into it one day—just to see what all the hype was about. Well, the cloud isn't some far-fetched figment of a science fiction writer's imagination. It's here today, settling over the security horizon, and you need to hop on.

Innovative security companies have already begun to capitalize on the cloud's potential for surveillance applications. Innovators in the field are using the cloud in conjunction with network-able cameras to provide remote IP-video hosting for a range of public and private entities, including government agencies, utility companies, law enforcement, schools, and a wide variety of business and property owners. The other rapidly growing segment in cloud-based security service provider business is the ability to offer a remote human surveillance and intervention team that can monitor and report on client video in real-time—virtual guards, if you will.

So, what is cloud computing? Simply put, rather than running an application on a local server, that same program runs on a remote server provided by a security/surveillance service provider. And what does that mean for you? A whole new world of security options will be literally at your fingertips.

Video Hosting

Before cloud computing, simultaneous users of a single camera feed were limited by the available bandwidth at the client facility. Basically, simultaneous users shared a camera's bandwidth. Unless an in-house data center with abundant upload bandwidth was available, the sheer size of a quality video file meant that if more than one person accessed a camera at the same time, the video quality and/or frame rate deteriorated.

Video security service providers who rely on the cloud have solved that problem by routing the video data through their own

secure central data server. All customer video is then hosted online, allowing multiple users simultaneous remote access via the Internet using a standard Web browser, with no degradation of quality. The video monitoring service, the client and anyone else with secure access privileges can all remotely monitor the same incident at the same time.

"Many clients simply did not have adequate bandwidth on their own; with that T1 or T3 line installed they need to monitor just three to six cameras effectively and get good quality video," said David Ly, CEO of Arizona-based cloud-based security service provider Iveda Solutions. "The pictures you see, no matter how wonderful the security camera, are only going to be as good as the connection transmitting the data. With a good video-hosting program, the expenditure to have the appropriate connection is not the client's responsibility, but the service provider's."

If it is part of the client protocol, in addition to field technicians and office supervisors, first responders, such as police officers, fire and EMTs, also can access live and or recorded events, providing actionable intelligence with visual verification. Unlike other systems that are connected to alarm triggers, the cloud-based systems provide real-time monitoring, which means you can catch perpetrators in the act and prevent or minimize property damage.

Another exciting development made possible by the cloud is the ability to monitor video on the go—from police cruisers and school buses to public transit and fleet operation. Anywhere there is a networkable camera on the road, base operations can monitor the action. Iveda Solutions offers real-time, mobile streaming video surveillance wherever there is cellular data network coverage. Since the surveillance video is stored in a central data center, there is no need to have a local recording solution onboard. The video can be transmitted in real time to any number of first responders simultaneously.

Video hosting also is ideal for customers who manage multiple cameras at multiple locations, such as national retail stores or storage facilities. Hosted video services allow the customer to view their cameras from those locations in one easy-to-use dashboard. Video data also can be archived securely off-site for 24/7 access, providing an excellent redundancy system as well as forensic evidence specifically for security and compliance applications.

The Cloud as Force Multiplier

Real-time remote surveillance packages offer end users an economical, highly reliable video surveillance solution. Trained personnel employed by the video hosting company watch specific cameras at times designated by the client—from key security risk moments up to 24/7 full coverage.

These intervention specialists provide proactive information. They are not simply responding to an alarm but can supply real-time critical information before or as a crime occurs. Real-time, off-site video surveillance allows for live visual verification, drastically reducing false alarms and drawing prompt attention to problems by responding police departments. At the end of each live video surveillance shift, a daily report can be e-mailed to each customer with time-stamped snapshots and detailed descriptions of events. Ly said cloud computing will raise the bar for traditional security integrators.

"They tend to sell products—cameras, software, DVRs and NDVRs—while cloud-computing-based security providers work with clients to leverage their existing quality equipment to do more," Ly said. "The client buys a subscription, and we work with what they have, constantly upgrading and updating service. We can provide full management capabilities, a turnkey solution for everything from traditional analog cameras to IP systems. Cloud computing offers security providers and their clients a number of advantages over traditional hardware-specific, site-bound systems."

Improved video quality and management

- Allows video to be viewed clearly from any Internet connection: home, office or business on-the-go.
- Consolidates all types of surveillance video from a wide variety of cameras, including standard visible light cameras, low-light cameras and thermal cameras.
- Displays video from disparate geographic locations or facilities in a single location that can be accessed regionally, nationally or even globally.

Ease of use

- Makes accessing video simple: Clients simply log in, customize and start using the system.
- Enables extremely fast set-up in most cases—security video can be on the cloud almost immediately.
- Makes upgrades, patches and system performance no longer a client chore, but a security company responsibility.
- Simplifies camera management since everything is secured remotely, via the Web, rather than using proprietary software that over time may become incompatible with future investments.

Price

- Provides convenient, economical coverage via a predictable monthly subscription so you only pay for what you use.
- Frees IT departments from the burden of managing a video system requiring supplemental equipment, space, power and bandwidth, which may have not been considered when pricing out cameras alone.

Room for growth and change

- Uses an open source platform that allows clients to add any camera, anywhere, anytime.
- Provides scalable, flexible infrastructure that can evolve to suit requirements over time, be it more storage and more access.

Protection

- Can provide clients with liability protection from malicious or criminal acts against their property or personnel, as a result of failure of products or services that were installed with the intent to prevent such an occurrence under the Department of Homeland Security SAFETY Act. Currently, Iveda Solutions is the only real-time IP video hosting and remote surveillance service company that has received the SAFETY Act designation, meaning that Iveda's products and services are Qualified Anti-Terrorism Technology with proven effectiveness.

Protecting Critical Infrastructure

From providing a safe water supply to electricity or gas we rely on in our homes and business, the nation's critical infrastructure is

paramount in the life we all take for granted. A single malicious attack could be devastating.

Cloud-based security is uniquely suited to providing critical infrastructure protection that is continuous, precise and evaluated by trained personnel. Using Internet-accessible cameras, likely already in place or easily augmented, intervention specialists can monitor critical infrastructure, detect suspicious activities and immediately report to proper authorities, all in real time. The human element behind the technology makes this security solution very effective but inexpensive compared to traditional guard services.

Iveda Solutions and FLIR Systems recently collaborated to conduct tests at a critical substation in Mesa, Ariz., that clearly demonstrates the cloud's potential in this area.

Mesa's Energy Resources Department provides electric utility service to approximately 15,000 residential and commercial customers located within 5.5 square miles near Mesa's downtown area. They also provide natural gas service to more than 52,000 homes and businesses within a 365-square-mile area in both the city of Mesa and portions of Pinal County.

Obviously, the city wants to avoid any disruption of service that could impact the lives and businesses in the city and its suburbs. However, in the current economy, city budgets are extremely lean. Surveillance of more remote areas is particularly difficult.

"Hit-and-run accidents can take out light poles, and vandalism is common—including thieves who made off with an entire solar voltaic panel," said Frank McRae, the director of the energy resource department.

Previously, remote access to cameras, if available, proved challenging for Mesa's undermanned, over-extended city services. Mesa needs a feasible, affordable solution to prevent theft, vandals and intrusion at critical infrastructure.

The Test

On April 7, Iveda Solutions installed a FLIR SR-35 thermal security camera at a remote critical substation on the outskirts of the city. This particular gate station receives natural gas deliveries and regulates pressure changes. Although remote, the station is on a cut-through road that connects two major highways. During rush hour, there is perhaps a car every 10 to 20 minutes but very little traffic otherwise. Lighting at the site is extremely minimal.

Unlike other night-vision systems that require low amounts of light to generate an image, thermal cameras provide clear images in absolute darkness. Since this gate station is just one of a number of poorly lit, remote facilities in the Mesa system, Iveda Solutions wanted to give the city an opportunity to see what advantages this type of asset, even if used sparingly, could provide. The SR-35 camera features a focal length of 35 millimeters, providing an excellent short to medium field of view for detection, which is ideal for this particular location.

The day after the installation was complete, an Iveda Solutions' intervention specialist, who was remotely monitoring the video in real-time for Mesa Energy Resources, successfully captured suspicious activity in the early morning hours. The event appeared to be a drug deal. Non-emergency law enforcement was immediately notified so they could increase patrol activity. McRae was notified of the incident the next day. During the four-week installation test, a subsequent security/fence breach was identified and recorded on the night of April 17. The Transportation Department has subsequently taken action to minimize the gap in the gate.

Results

McRae is now committed to installing between 10 and 20 portable cameras with real-time video surveillance, coupled with FLIR technology and self-contained wireless surveillance units, which are equipped with always-on network connection capability using an integrated cellular router. The cameras in these units are pre-configured and ready for deployment on leading broadband cellular networks. All that is needed is a cellular data card.

The units are portable and remotely accessible, which makes them well-suited for applications that require temporary high-quality video surveillance. This strategy will allow Mesa Energy Resources to leverage equipment and perform spot checks at an increased number of critical sites and high-need areas.

McRae said operators at the Energy Resource Department are extremely busy running critical systems and monitoring existing alarms. They simply do not have the manpower to effectively monitor any more equipment, much less a constant live video feed. Mesa would use the intervention service not only to notify their employees of actionable incidents, but also to set up protocols with local law enforcement, allowing them to access the video in order to best determine the appropriate response.

McRae said he would like to install FLIR thermal security cameras in the more remote locations, as well as few other areas where lighting is inadequate. He was impressed by the thermal footage of the incidents and sees great potential down the road in adding thermal cameras to the security line-up. Since he will be able to rotate a fixed number of thermal security cameras through his poorly lit remote gate stations, he can economize, still gain valuable information and provide an effective deterrent.

Other critical infrastructure entities are already beginning to jump on the cloud. Railroad and port security departments are leveraging their existing thermal cameras with cloud-based computing and video hosting, centralizing operation and viewing of all remotely-located cameras. Operators, sometimes in other states, are able to cooperate and share information effectively with local law enforcement, providing assessment of potentially dangerous situations by more than one party.

What Can the Cloud Do for You?

Obviously, the benefits of cloud computing are numerous and will continue to evolve as it is widely adopted in the security industry.

Clients have the option to outsource video surveillance without giving up control or access. Video management, access and storage are centralized and simplified, without the burden of buying and maintaining software and equipment.

The system is infinitely scalable and flexible, accommodating growth and unforeseen developments. Clients can reduce expenditures through efficiencies of scale as they integrate and leverage their existing security assets. False alarms can be virtually eliminated. Problems can be proactively identified, monitored and addressed as they occur. Criminals can be caught in the act rather than after the fact, if at all, and damage is prevented or mitigated. The cloud is here to stay.

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