

Managed Video as a Service (MVaaS) for Large Enterprises

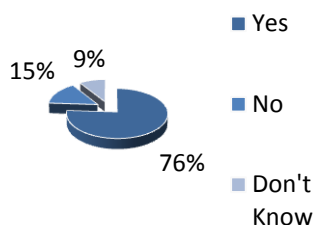
An Examination of Technology Benefits and Concerns of Large Enterprise CTOs

Robert Hagens

The logo for Envysion, featuring the word "Envysion" in a bold, black, sans-serif font. A small blue dot is positioned above the letter 'i'. A registered trademark symbol (®) is located to the upper right of the word. Below the text, there is a faint, light gray reflection of the word "Envysion".

Envysion®

Overall, has cloud computing delivered real measurable cost savings to your organization?



Source: Enterprise Management Associates, Inc., Sample Size = 104

According to a recent study from Gartner, the SaaS market for enterprise-level customers increased from \$7.9 Billion in 2009 to \$9.2 Billion in 2010. "Clearly, SaaS is heading towards a large scale enterprise adoption in the coming years... SaaS deployments are becoming larger, with deals more frequently appearing in the range of thousands to tens of thousands of users within large enterprises."

Introduction

In the security industry, Managed Video as a Service (MVaaS) has been generating plenty of media buzz as an innovative new video surveillance solution. By bringing a Software as a Service (SaaS) approach to the video surveillance market, MVaaS promises increased scalability, reduced start-up costs and simplified deployment. Furthermore, the cloud-based platform puts video into the hands of 1000s of users across departments, offering business insights that can improve profitability and operations.

Like SaaS, MVaaS is gaining traction in companies with fewer resources to devote to video surveillance IT demands. In addition to offering an excellent solution to these smaller businesses, however, MVaaS is also a service that can be quickly and easily scaled up to become an enterprise-level platform.

Due to the inarguably positive impact MVaaS can have on an enterprise's bottom line, several leading enterprises in the restaurant, retail and cinema industries have in fact already adopted MVaaS solutions over traditional ones. While not appropriate for every enterprise, the potential impact and results derived from MVaaS warrant serious consideration of the technology. For those organizations that decide to deploy a MVaaS solution, it is important to

systematically evaluate different MVaaS providers utilizing a checklist like the one described in this white paper to avoid selecting an inadequate provider.

What is MVaaS?

Managed Video as a Service (MVaaS) is video management software and intelligence that are cloud based and provided to customers across the Internet. MVaaS is an example of the Software as a Service (SaaS) model of software deployment.

Key Characteristics of MVaaS

Since MVaaS is an instance of cloud based, SaaS software deployment, many of the key components of a MVaaS solution, such as on-demand self service, broad network access, resource pooling, rapid elasticity and measured service,¹ are the same or similar as SaaS deployment on cloud computing platforms. MVaaS also follows the Software and Information Industry Association's SaaS model in which users subscribe to an application distributed from a central data center via a network, in this case the Internet.²

¹ "The NIST Definition of Cloud Computing." NIST, 10 Oct. 2009. Web. 24 Oct. 2011.
<<http://www.nist.gov/itl/cloud/upload/cloud-def-v15.pdf>>.

² "Defining Cloud Computing: Attributes." SIIA, July 2011. Web. 24 Oct. 2011.
<<http://www.sii.net/index.php?option=c>

Mark Collett, GM of Sony Security Systems explains the benefits of MVaaS: “Customers are shifting how they view video surveillance from a single purpose security tool to a multi-purpose strategic management system capable of improving productivity across the organization. We see Envysion as a leading change agent for transforming the video surveillance market, and Sony’s leading network video surveillance products are a natural fit for Envysion’s best-in-class MVaaS solution.”

Other defining characteristics include:

- The application is delivered model (single instance, multi-tenant architecture)
- Feature updates are done in the network and are transparent to the users, which eliminates the need for downloadable patches and upgrades
- Edge devices (cameras and recorders) are plug-and-play, meaning all customer premise equipment connects to the video service without requiring configuration by the customer
- All application functionality is available via the Internet using a web interface without requiring an application installed on a desktop
- Application can be integrated to related Enterprise business systems such as POS
- MVaaS provides centrally controlled/administered access that is mandatory for proper security and allows centralized administration of users and video, making it easy to add or remove users
- MVaaS is scalable to hundreds or thousands of locations
- MVaaS provides the ability to view live video and also

to search and review recorded video.

- MVaaS works through firewalls and NAT devices without configuration and will run over low speed, high speed and satellite connections

Benefits of MVaaS

MVaaS is used to address the challenges of managing distributed video systems across multiple locations to reduce the user’s burden of software maintenance, ongoing operation and support. It has several distinct benefits:

- **Accessible**
- **Scalable**
- **Business Insight**
- **Data to Video**
- **Remote and Multiple Access**
- **Security**
- **Reduced Startup Costs**
- **Low Demand on IT Resources**
- **Simplified Deployment**
- **Return on Investment**

Accessible

Because MVaaS applications are hosted in the cloud, users can access the application from virtually anywhere to view live or recorded video surveillance at remote locations. The accessibility of the MVaaS model typically drives increases in users/usage by orders of magnitude vs. traditional video systems. MVaaS creates a collaborative environment for this larger user base to further create business insight and value-add.

[om_content&view=article&id=794:definining-cloud-computing-attributes-and-benefits&catid=163:public-policy-articles>.](#)

Marc Benioff of Salesforce.com on the power of SaaS and cloud computing: *“A new era of enterprise agility is opening up as clouds mature and cloud platforms become more widely used. There's no longer a need to fire up a server, worry about where it was going to sit in the data center, or fret over incremental real estate or infrastructure costs. We are looking at a very real potential for mass innovation.”*

Scalable

One of MVaaS's greatest strengths is scalability. A scalable service provides the same easy access and operation whether an enterprise has 10 or 10,000 locations. An MVaaS application can grow with a business providing a cost-effective way to support each site.

Business Insight

Advanced MVaaS applications enable customers to easily integrate business systems/data with video surveillance, giving users the video context behind data so they can understand exactly what happened during a particular event. This combination creates actionable business insight that can translate to immediate bottom line impact. Any business system can be integrated with video including sales, operations, marketing, manufacturing, security and support systems.

Security

As a SaaS solution, MVaaS inherently delivers many of the same security advantages as traditional cloud computing, including simpler security auditing and testing, automated security management, redundancy and disaster recovery.³ An MVaaS solution provider is able to rapidly update their platform with the latest

³ Mell, Peter, and Tim Grance. Proc. of NIST, Information Technology Laboratory. 7 Oct. 2009. Web. 24 Oct. 2011. <<http://csrc.nist.gov/groups/SNS/cloud-computing/cloud-computing-v26.ppt>>.

security patches and updates, which relieves the enterprise's IT staff from this task.

Reduced Startup Costs

“[Scalability] could bring to the IT infrastructure what Henry Ford brought to the automotive industry with the assembly lines and mass production: affordability and substantial improvements on time to market.”⁴ Because MVaaS is hosted on the Internet, it creates a lower cost value proposition when scaled across multiple locations. MVaaS leverages economies of scale across a wide range of customers to provide lower cost than traditional video surveillance software.⁵ In addition to offering lower initial costs than traditional software solutions, MVaaS offers lower risk. Several chief technology experts agree that enterprises can significantly reduce the risk of implementing a new technology and limit capital expenditure replacement costs by using cloud base applications.⁶

Low Demand on IT Resources

With a MVaaS application there are no patches or upgrades to install. New features and

⁴ Owens, Dustin. “Securing elasticity in the cloud.” *Communications of the ACM* 53.6 (2010): 46-51.

⁵ Jacobs, Dean. “Enterprise Software as Service.” *ACM Queue*, 1 July 2005. Web. 24 Oct. 2011. <<http://queue.acm.org/detail.cfm?id=1080875>>.

⁶ Creeger, Mache. “CTO Roundtable: cloud computing.” *Communications of the ACM* 52.8 (2009): 50-56

"SaaS providers use secure data centers that have met rigorous standards and regulations. The buildings the servers reside in are designed with roofs to ensure proper drainage of floodwater, withstand a Category 5 hurricane, consist of steel reinforced concrete walls, and contain precise power and cooling infrastructures. Plus, there are around the clock security personnel and cameras monitoring the premises."-SaaS blog

functionality are performed in the cloud and immediately available to users upon logging into the application, meaning reduced IT support costs. MVaaS frees up IT resources for strategic projects, or in the words of one CIO, "You can get your smartest guys to work on what matters most rather than having them work on mundane stuff."⁷

Simplified Deployment

Like other SaaS applications, MVaaS eliminates the need to install and run software on the customer's own network (client or server). The plug-and-play solution eliminates the need to configure edge devices such as cameras or video recorders.

Replace Upfront Costs with a Return on Investment

As with SaaS, the upfront costs of MVaaS are low because of the pay-as-you-go pricing model.⁸ MVaaS applications are generally priced on a per user, per camera or per site subscription basis, eliminating the upfront expense typically required for video software and equipment and lowering the cost of entry for a value adding service. The combination of actionable insight together with its

low cost per consumer gives MVaaS a rapid payback. Unlike many traditional surveillance systems, MVaaS is not a total cost of ownership (TCO) question; rather it provides a return on investment (ROI). Financial returns are further improved by the limited ongoing IT support.

Traditional Enterprise Concerns of MVaaS

Switching from traditional video surveillance software to a cloud-based MVaaS application requires the users to reconfigure working practices and technologies to realize the full benefits of the application.⁹ Enterprises must fully understand MVaaS to be able to evaluate the validity of concerns in order to truly evaluate MVaaS's potential on a given business.

Issue: Availability and Reliability

"If the cloud goes down, does everything just stop?"¹⁰ This question, posed by researchers from two Computer Science colleges in the United Kingdom, sums up a major concern for enterprises. An enterprise must overcome concerns of cloud computing – physical resource

⁷ Creeger, Mache. "CTO Roundtable: cloud computing." *Communications of the ACM* 52.8 (2009): 50-56

⁸ Jacobs, Dean. "Enterprise Software as Service." *ACM Queue*, 1 July 2005. Web. 24 Oct. 2011.
<<http://queue.acm.org/detail.cfm?id=1080875>>.

⁹ Khajeh-Hosseini, Ali et al. "The Cloud Adoption Toolkit: Addressing the Challenges of Cloud Adoption in Enterprise." (2010) : n. pag.

¹⁰ Khajeh-Hosseini, Ali, Ian Sommerville, and Ilango Sriram. "Research Challenges for Enterprise Cloud Computing." *Information Security* [http.1960 \(2010\) : //arxiv.org/abs/10013257](http://arxiv.org/abs/10013257).

What to Look for in an MVaaS Provider:

Ensure your MVaaS provider allows duplication of video in the cloud while also recording the video locally on the DVR. In addition, understand if the provider facilitates permanent video clip storing in the cloud. Storage in the cloud not only ensures you can keep surveillance video for the length of time needed for litigation, but also helps to relieve stress on bandwidth at a particular location, as multiple reviewers access video in the cloud rather than streaming video from the site.

sharing between virtual machines, potential issues to do with communication over the internet and insufficient guarantees regarding the up-time and reliability of processing and data storage, as well as increased reliability on third parties¹¹ – before adopting a MVaaS solution.

Issue Debunked

Ten years ago, enterprises were asking the same reliability and availability questions about the Internet.¹² In fact, according to Tarkan Maner, CEO of Wyse Technology, “In reality, it’s a bigger risk to carry all your data in a PC than in the cloud because you can lose the PC. The concept “the secure PC” has been an oxymoron for years. In a cloud environment, at least there’s a third party that has some kind of service level agreement, licensing, and contract with you. If it’s managed well, cloud computing can be much more reliable, more secure, and much more private than any PC. The right cloud solution can be as secure, or more secure, than typical client-server implementations in house.” He goes on to cite examples of businesses that lost enterprise data that was stored in house

following natural disasters such as Hurricane Katrina and the tsunami in Japan.

Along with the additional security of the cloud, according to Kamesh Pemmaraju, head of cloud research at Sand Hill Group, the ultimate force behind the Internet’s adoption was business value, and cloud computing is poised to deliver even greater value to companies.¹³ In fact, a study completed by Sand Hill Group concludes that the business value of cloud computing is real and that companies are achieving significant bottom-line benefits from innovative cloud computing initiatives.¹⁴

In addition to providing tremendous value to enterprises, MVaaS bypasses installation and configuration problems that cause non-SaaS solutions to fail. With MVaaS’s plug and play, web-based platform, there is no software to download, meaning MVaaS will work seamlessly on any enterprise computer regardless of varying operating systems, configurations or security settings.

¹¹ Khajeh-Hosseini, Ali et al. “The Cloud Adoption Toolkit: Addressing the Challenges of Cloud Adoption in Enterprise.” (2010) : n. pag.

¹² Pemmaraju, Kamesh. “Cloud Leaders: Act Now.” Web blog post. SandHill Group, 15 Dec. 2010. Web. 24 Oct. 2011. <<http://sandhill.com/article/cloud-leaders-act-now/>>.

¹³ Pemmaraju, Kamesh. “Cloud Leaders: Act Now.” Web blog post. SandHill Group, 15 Dec. 2010. Web. 24 Oct. 2011. <<http://sandhill.com/article/cloud-leaders-act-now/>>.

¹⁴ “Leaders in the Cloud: Identifying the Business Value of Cloud computing for Customers and Vendors.” *SandHill Group*. Mar. 2010. Research/Analyst Report. <<http://sandhill.com/reports/leaders-in-the-cloud-base-report/>>.

What to Look for in an MVaaS Provider:

A MVaaS provider should be able to demonstrate that its solution meets any relevant compliance standards for your industry and be candid in explaining the security measures it takes to protect sensitive data. To protect against unintended video sharing within or outside of the organization, select a MVaaS provider that offers permanent, secure video storage within the cloud.

Issue: Data Load Times

As with any new technology, the enterprise will question the speed of access to vital video surveillance and its impact on other operations. With traditional video surveillance, the video tape can be rewound on site immediately after an incident occurs. Can the MVaaS application match the traditional access ability? Will streaming video interfere with the bandwidth necessary to run other applications?

Issue Debunked

With MVaaS, users have access to live and recorded video at their fingertips from anywhere while also having the peace of mind that video is always recording locally at the DVR.

Perhaps the better question regarding load time is how is video shared between users? Do users have to copy video to a CD in order to share it with someone? With MVaaS important video can be saved and shared securely via the cloud.

Issue: Security

Security and privacy rank high among enterprises' concerns when implementing cloud-based applications.¹⁵ A MVaaS solution must meet or exceed the security of traditional video surveillance solutions both in terms of data security and physical security of the data warehouse if it is to be a

viable solution for enterprises. Security concerns are heightened when the data being stored on the MVaaS platform is sensitive information such as financial records or credit card transactions. For this reason, MVaaS providers must be PCI compliant.

Security concerns also extend into how users will access the MVaaS application. With many different organizations utilizing the application, the MVaaS provider must ensure that data is appropriately segregated. The scalability of MVaaS application presents a challenge in providing "fine-grained access and predefined security controls across the entirety of a virtual customer environment."¹⁶

Issue Debunked

Because MVaaS is a cloud application, sharing surveillance video is actually more secure than traditional solutions. In the traditional model, users had to download video clips onto a computer than e-mail it or burn it to a DVD to share it with colleagues or police enforcement. Once downloaded the enterprise loses control over video sharing. With MVaaS, users can create groups of colleagues and share video clips within the cloud. The video is stored and accessed on the cloud by a designated group of users completely removing the threat of

¹⁵ "Secure, Private and Trustworthy: Enterprise cloud computing with Force.com" *Salesforce.com*. White Paper.

¹⁶ Owens, Dustin. "Securing elasticity in the cloud." *Communications of the ACM* 53.6 (2010): 46-51.

What to Look for in an MVaaS Provider:

A legitimate MVaaS provider will be able to document compliance with any relevant regulations and best practices, including PCI-DSS compliance for credit card security. For added protection, look for a MVaaS provider that offers specific administrative controls for managing video access by location and restricting viewing and downloading video surveillance downloading, POS access, sharing surveillance video and running exception reports.

local downloads getting into the wrong hands.

Issue: Legal Concerns

Non-compliant data migration from the organization to the MVaaS platform could open the enterprise to unnecessary legal exposure. Furthermore what if the data is lost or destroyed in the transition? Or what if the wrong person accesses the video? Ensuring compliance can be especially difficult when dealing with sensitive data.¹⁷ The MVaaS provider must ensure compliance with any government regulations such as audio recording standards, as well as industry best practices.

Issue Debunked

Due to the scalable nature of MVaaS, managing the data from thousands of individual users and thousands of locations is extremely simple. This scalability allows the MVaaS provider to assign a unique login to each user within an enterprise. The MVaaS provider then assigns a unique domain to each enterprise and employs proprietary software with built in access control to ensure users only access video on their domain. Furthermore, many MVaaS providers offer central administrative controls to allow corporate users to designate what video an individual can view and

control how the user can use the video, adding another layer of protection. In addition, reputable MVaaS providers will comply with all standards and regulations governing the industries within which its customers operate.

Issue: Budgeting

The MVaaS subscription based pricing model translates to lower startup cost; however this “utility billing model is a shift away from capital to operational budgeting, and many enterprises are less savvy about operational budgeting for IT than they are for capital budgeting.”¹⁸ The MVaaS provider must be cognizant of this culture shift and work with an enterprise to facilitate the shift from capital expenditure to utility billing.

Issue Debunked

Perhaps the largest benefit of MVaaS is that it not only has the potential to decrease the total cost of ownership of video surveillance, but it can also provide compelling ROI. According to the “Leaders in the Cloud” study, companies are achieving significant bottom-line business benefits from cloud computing solutions. Executives and IT professionals interviewed in the study cited cloud computing’s ability to increase ROI, decrease TCO, speed development, improve reliability and renovate the perception of IT in their companies

¹⁷ Khajeh-Hosseini, Ali, Ian Sommerville, and Ilango Sriram. “Research Challenges for Enterprise Cloud Computing.” *Information Security* http://arxiv.org/abs/10013257. (2010) :

¹⁸ Khajeh-Hosseini, Ali et al. “The Cloud Adoption Toolkit: Addressing the Challenges of Cloud Adoption in Enterprise.” (2010) : n. pag.

What to Look for in an MVaaS Provider:

When assessing MVaaS providers, evaluate the solution like any other capital expenditure. It is critical to understand the initial investment, the payback period and the return on investment. Reputable MVaaS providers will have a demonstrated solution, with a proven average ROI. Going a step further, an enterprise should ask for a pilot such as the one that Envysion offers to measure the financial impact and ROI on its sites given the organization's unique operational factors.

as factors in achieving a more agile competitive business.¹⁹ In addition, IBM's CTO for cloud computing, Kristof Kloeckner, estimates that cloud computing reduces IT labor costs by up to 50 percent, improves capital utilization by 75 percent and reduces provisioning from weeks to minutes.²⁰

Is MVaaS Right for You?

The potential business impact and cost savings warrant further investigation into MVaaS, and a quality MVaaS provider will work with the enterprise to satisfactorily address any concerns. For instance, MVaaS providers should be willing to undergo any compliance training or certification required to work with the enterprise. In the restaurant, retail and hospitality industries this means demanding that the MVaaS provider be PCI compliant. The MVaaS provider should also be able to explain the security measures taken to protect information within the application and measure the financial impact on its sites.

Consider how some of the benefits of MVaaS such as accessibility, scalability, business insight, security, reduced startup costs and simplified deployment may meet the needs of your organization.

MVaaS Checklist

In terms of reliability and uptime, the enterprise and MVaaS provider can agree to SLA terms to alleviate the enterprise's concerns. For added peace of mind, the organization can request a demo or a low cost trial period to see exactly how the MVaaS application will work with its existing systems.

Once an enterprise decides that a MVaaS application makes sense for its business, selecting between the various options offered by different MVaaS providers can be daunting. The following checklist provides some basic and advance capabilities to consider when selecting a MVaaS solution and yields a quick assessment of a MVaaS solution's suitability for a proposed enterprise.

¹⁹ "Leaders in the Cloud: Identifying the Business Value of Cloud computing for Customers and Vendors." SandHill Group. Mar. 2010. Research/Analyst Report. <<http://sandhill.com/reports/leaders-in-the-cloud-base-report/>>.

²⁰ Garrett. Owen, "Keeping Cloud Costs Grounded." *Forbes*. 4 June 2010. Web. 24 Oct. 2011. <<http://www.forbes.com/2010/06/02/internet-software-zeus-technology-cloud-computing-10-garrett.html?boxes=Homepagechannels>>.

Checklist for MVaaS Providers

Capability	Questions	Capability Included
Basic		
PCI Compliance	Does the MVaaS provider undergo yearly PCI compliance audits?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Accessible	Is the MVaaS platform accessible via the internet? Can multiple users access video surveillance through the MVaaS platform? Can users view live and recorded video surveillance from remote locations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Physically secure	Does the MVaaS provider meet your security requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Data security	Does the MVaaS provider meet your security requirements?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Scalable	Is the MVaaS platform scalable to the number of users and future users in your organization who will use the video surveillance? Can the MVaaS platform accommodate hundreds or thousands of locations?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Automated and transparent updates	Are updates to this MVaaS platform transparent to users? Are new features and functionality automatically available to users without patches?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Efficient design	Is the MVaaS application designed for efficiency?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Low IT strain	Will the MVaaS solution reduce strain on IT staff and network?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Advanced		
Capability to integrate with other business systems	Can the MVaaS provider integrate with point of sale, alarm monitoring, key pad access or environmental systems?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Exception Reporting	Does the MVaaS solution use exception-based reporting to quickly filter video?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Video Sharing	Can users securely save video surveillance clips in the MVaaS application? Can users securely share video surveillance clips without the use of email or DVDs?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Financial Impact	Does the MVaaS application provide an acceptable ROI and payback period?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Customization	Can the MVaaS application be customized to existing hardware and systems?	<input type="checkbox"/> Yes <input type="checkbox"/> No

About the Author

As CTO of Envysion, Rob Hagens is responsible for the company's technical direction and for the development of Envysion's video service. Prior to Envysion, Rob was SVP of Network Engineering at Level 3 Communications, where he was instrumental in designing and building one of the largest Internet and VoIP networks in the world. Before that, Rob was Director of Internet Engineering and the founding engineer responsible for MCI's Internet backbone. He was also a Senior Engineer at Advanced Network and Services (ANS) before most people knew what the Internet was. Rob received a BA in Biology from Carleton College and an MS in Computer Sciences from the University of Wisconsin/Madison.

About Envysion

Envysion enables businesses to increase profitability 10-15% by putting easy-to-use, video-based business intelligence into the hands of the entire organization. Envysion's Managed Video as a Service (MVaaS) solutions transform traditional video surveillance and enterprise business intelligence from niche applications used by a handful of users into a strategic management tool that provides instant and unfiltered business insights to users across operations, loss prevention, marketing and human resources. Envysion created the MVaaS model, which brings the Software as a Service (SaaS) approach to video and disrupts the traditional video market. The MVaaS model enables Envysion to accelerate development and innovation cycles by making new capabilities immediately available to all users and eliminates the technology obsolescence that comes with the model year development cycles of traditional video providers. Envysion's highly scalable and easy-to-manage MVaaS platform reaches across departments to 1000s of users and trusted third party partners without straining the IT department or network. Today, Envysion's solutions are driving bottom line profitability improvements for large, national retail, restaurant, cinema, hospitality and convenience store operators. For more information, visit www.envysion.com or call 877.258.9441.