White Paper

Dell and Intel: Innovation to Maximize the Business Return from Video Surveillance

By Scott Sinclair, Analyst

October 2015

This ESG White Paper was commissioned by Dell and is distributed under license from ESG.

© 2015 by The Enterprise Strategy Group, Inc. All Rights Reserved.
Contents

Introduction ............................................................................................................................................. 3

The Challenges of Video Surveillance .................................................................................................. 3
  Challenges of a Video Surveillance Solution Provider ........................................................................... 5

Video Surveillance Solutions from Dell and Intel .................................................................................. 5
  Technology Benefits of Dell and Intel ................................................................................................. 5
  Dell’s OEM Team Is Designed to Enable Technology Partners ............................................................ 6

The Bigger Truth .................................................................................................................................... 7
Introduction

The end of analog data collection may be just over the horizon. The flexibility offered by digital content in terms of storage, retention, and accessibility has enticed organizations to shift multiple content types away from analog media. This trend, however, has created an increasing level of pressure on IT storage infrastructures. Additionally, with more devices automatically generating content, the increased rate of data creation further exacerbates the storage challenge.

With the transition to digital formats, businesses have found new methods to leverage and create value from already existing data sets in the form of business intelligence and analytics. In other words, IT solution customers are looking at the information they collect and asking how they can use this information to more efficiently and intelligently run the business. With these questions, IT organizations are seeking a solution provider to help them with the answer. As analytics-based workloads have emerged to the forefront of thinking among IT executives, solution providers must be able to deliver solutions to meet the needs of those workloads.

One area where this trend has become evident is the field of video surveillance. While the transition from analog to digital helps to improve video quality and automate the data retrieval and protection process, IT solutions customers are seeking new solutions designed to glean business intelligence from surveillance data. Information such as how their customers interact with product displays or storage layouts can help managers better optimize their businesses to achieve superior results. Businesses, and the IT organizations that serve them, often find themselves in a perpetual search for a competitive edge. Storing and protecting content, while maintaining accessibility for business intelligence workloads can be non-trivial tasks. Designing the right video surveillance infrastructure solutions, especially the storage infrastructure element, to better enable these new analytics environments is quickly becoming a highly sought after solution set and offering.

Designing the right infrastructure for video surveillance solutions, however, often requires experience. As organizations seek advice from experienced solutions partners, they often look for solutions that provide value today as well as help them succeed in the future. Video surveillance introduces design complexities in terms of which camera technology to implement, where to place the cameras, how to design the network, and finally how to design the underlying storage solution all while attempting to keep the cost of ownership under control. These complexities are only exacerbated when IT organizations demand the infrastructure solution also optimize for business intelligence.

For successful infrastructure designs, however, solution partners often leverage the support of an infrastructure partner that provides not only the underlying technology but also the support system. One such infrastructure provider, Dell, has developed a broad portfolio of products featuring innovations from Intel, along with a full complement of services capabilities designed with video surveillance solutions in mind.

The Challenges of Video Surveillance

As IT organizations continue the perpetual struggle against the rapid growth of data, video surveillance solutions can add yet another layer of complexity. In light of the renewed and increased focus on analytics initiatives and projects, video footage can no longer be managed and protected separately, but rather, the data must be accessible as part of a business intelligence framework within the larger IT data center ecosystem. These added demands often serve to increase the data growth challenges of a likely already strained storage infrastructure and staff. As such, solution providers are tasked with the challenge of delivering a solution that achieves the organization’s current and future goals, while integrating as seamlessly as possible into the existing infrastructure.

To further illustrate this point, the rapid growth of data was identified as a top storage environment challenge as part of a recent survey conducted by ESG. It is also important to note that the rest of the challenges within the top ten responses all can be considered symptoms of data growth. Challenges such as increased hardware costs, data protection costs, and staffing costs are all created by or exacerbated by data growth (see Figure 1).

---

1 Source: ESG Research Report, 2015 Data Storage Market Trends, to be published October 2015. All ESG research references and charts in this white paper have been taken from this research report.
Returning the conversation back to the realm of video surveillance, one-quarter of organizations that participated in this research study also identified video surveillance as one of the workloads likely to be most responsible for the organization's storage growth over the next 24 months. These two sets of data suggest that data growth generates a cascading set of challenges for IT environments and that video surveillance is expected to further increase those challenges.

There are a couple of dominant factors driving this predicted data growth related to video surveillance solutions. Both of these trends, however, introduce the additional challenge of increasing complexity for the IT organization and the solution provider. A couple of examples include:

- **The initial transition from analog to digital**: While digital video has been available for some time, a number of firms across a variety of industries still leverage tape-based media. As the transition to digital video content continues, more IT organizations and solution providers will have to incorporate the added content into their network, storage, and backup processes. For any one of these infrastructure areas, the added load can create design challenges. If not architected correctly, issues with collecting, transmitting, and storing video data can negatively impact other workloads and systems in the data center.

- **Improvement in camera resolution**: As camera technology becomes more advanced and introduces higher resolutions, such as 4K and then eventually 8K, the amount of capacity required to store and protect that data increases dramatically. In some cases, the capacity required for 4K video data can be as much as ten times the capacity required for standard resolutions. This extra capacity places more pressure on storage, backup, and network infrastructure.

These examples only highlight how the increased load from video surveillance content can impact data center solution design. In addition to the added content, there are a number of factors related to the new way in which video surveillance data is managed and perceived that can also spawn incremental complexities, including:

<table>
<thead>
<tr>
<th>Factor</th>
<th>Primary storage challenge</th>
<th>All storage challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware costs</td>
<td>7%</td>
<td>27%</td>
</tr>
<tr>
<td>Rapid data growth rate</td>
<td>8%</td>
<td>26%</td>
</tr>
<tr>
<td>Data protection (e.g. backup/recovery, etc.)</td>
<td>8%</td>
<td>26%</td>
</tr>
<tr>
<td>Staff costs</td>
<td>6%</td>
<td>23%</td>
</tr>
<tr>
<td>Data migration</td>
<td>4%</td>
<td>23%</td>
</tr>
<tr>
<td>Management, optimization and automation of data placement</td>
<td>4%</td>
<td>20%</td>
</tr>
<tr>
<td>Running out of physical space</td>
<td>6%</td>
<td>20%</td>
</tr>
<tr>
<td>Need to support growing virtual server environments</td>
<td>5%</td>
<td>20%</td>
</tr>
<tr>
<td>Power and cooling costs</td>
<td>6%</td>
<td>18%</td>
</tr>
<tr>
<td>Device management</td>
<td>5%</td>
<td>18%</td>
</tr>
</tbody>
</table>

**Source:** Enterprise Strategy Group, 2015.
• **Data security responsibility shifts to the IT team:** When storing surveillance data as digital content, the data becomes more susceptible to security threats. The task of defending against those threats can increase the scope of the IT department’s responsibility. For many environments, this can introduce requirements for encryption in flight and at rest. For the solutions provider, this adds complexity to architecture and process design.

• **Digital content creates questions around long-term retention:** For many IT environments, storage capacity and backup infrastructure are not limitless resources. Solution designs are often forced to make choices about which data to keep and how long to keep it. Business decisions about retention requirements can significantly impact the infrastructure architecture and consequentially, the overall cost of the solution.

• **Accessibility for analytics:** In ESG’s storage trends research study, IT decision makers were asked to identify the applications or workloads that they believe will drive the most storage growth at their organizations over the next two years. The most popular selection was business intelligence and data analytics (41%). Storing and protecting video surveillance data is not enough—solution designs need to ensure that the storage provides access to the data with the performance required for business intelligence workloads to deliver insights in a timely fashion. This can create challenges since higher performance storage technologies, such as solid-state, are often associated with higher costs per capacity. Ultimately, the resulting balancing act can create a design challenge, as cost-effective cold archive storage solutions often do not provide the necessary performance, and high-performance storage solutions often do not provide cost-effective storage capacity.

These design complexities simply serve to reiterate the importance of working with a partner that has both expertise and experience in video surveillance solutions. Additionally, while the camera technology and placement can be critical, it is the underlying storage and IT infrastructure that may in fact have the largest impact on the total cost of ownership and return on investment. Meeting these demands, however, is not easy and can create challenges for solution providers.

**Challenges of a Video Surveillance Solution Provider**

With continuous ongoing innovation in the information technology industry, the right infrastructure solution can be a moving target. Additionally, with the storage architecture serving as potentially the largest determinant regarding the long-term cost and benefit for the entire solution, solution providers are in a perpetual struggle to stay current with a myriad of technical nuances across a broad industry landscape. As such, Dell endeavors to not only provide a rich technology portfolio, but also offer a robust team of engineering and support personnel to provide expertise to solution partners when necessary.

**Video Surveillance Solutions from Dell and Intel**

To ensure that solution partners have the right level of technology experience and support, Dell created its OEM solutions team. The purpose of this group is to support solution providers, such as those with video surveillance solutions, with technology, branding assistance, engineering expertise, and custom support queues for end-customers. For video surveillance, Dell has teamed with Intel to augment its technology portfolio of infrastructure solutions that offer the optimum blend of performance and cost-effective capacity.

**Technology Benefits of Dell and Intel**

Dell and Intel, two firms that claim multiple decades of leadership in the IT industry, have designed a technology portfolio specifically for solutions such as video surveillance.

For example, Dell’s server portfolio offers a wide variety of compute offerings including a number of flexible or modular server systems, such as the PowerEdge R730xd, that offer multiple storage options optimizing for storage performance with solid-state or for capacity with high-density drive configurations. For solutions that require centralized storage, Dell’s storage portfolio offers multi-protocol support along with a variety of solid-state, hybrid, and disk-based solutions. For example, Dell’s SCv2000 series storage array offers Fibre Channel or iSCSI support in
addition to support for multiple solid-state and capacity-optimized drive configurations. As mentioned previously, solid-state can be beneficial for analytics-based workload environments, but solid-state may also be necessary to provide the performance needed to ingest the required video data streams.

Additionally, Dell’s portfolio offers multiple hardware options to support custom IT solution deployments. The PowerEdge 730XD offers the flexibility to provide multiple drive configuration options allowing the same architecture to specialize in either performance or capacity density. As another example, Dell’s FX2 is designed with specifically converged environments in mind. Dell’s flexible infrastructure technology can enable greater hardware customization to meet the specific requirements of the solution, helping to keep infrastructure costs under control. A complete end-to-end solution requires more than just technology. As such, Dell’s OEM solutions team offers a broad services portfolio as well.

Intel’s strategy of leveraging a standard processing architecture instead of a custom ASIC design has helped enable faster application development and greater workload stability across manufacturers and hardware generations. This improving stability translates into lower costs for development. Additionally, Intel offers a well-documented and stable roadmap, enabling partners to plan for technology transitions. The value of this stability extends to video surveillance solutions, especially those that seek to integrate into business intelligence and analytics environments, and for the service providers that seek to assist those organizations with the design. With multiple general and industry-specific analytics applications available and in development, allowing those solutions to leverage the same hardware architecture can speed up deployment and ease management and support.

Dell’s OEM Team Is Designed to Enable Technology Partners

As the needs of solutions partners often extend well past simply finding the right technology, Dell has created its OEM solutions team to offer a variety of support services including:

- **Design**: In addition to its broad technology portfolio, Dell also allows for custom branding of its technology to align with the brand of the end solution. For technical support, Dell maintains a staff of dedicated engineers and project managers to serve the needs of solution providers, as well as dedicated customer service and support queues.

- **Supply**: Historically well known for its supply chain, Dell extends worldwide configuration and fulfillment services to solution partners. This enables providers to expand their businesses into the countries they wish, without having to worry about whether the technology, the support, the supply, and their partners can expand with them. Dell’s worldwide service includes the ability to support the specific regulatory demands of almost all countries in which providers wish to do business.

- **Lifecycle Management**: Predictability in planning can be fundamental to delivering profitable solutions. As such, Dell provides a stable product roadmap with managed product transitions, ensuring that each product line offers enough overlap to support the needs of its solution partners. These capabilities also include the ability to offer extended warranties for longer lifecycle solutions as well.

Dell’s OEM systems group endeavors to provide a solid foundation to solution partners so that they may focus their attention on solving the challenges of the IT organizations that they service. As a leader in the IT industry, Dell continually invests in developing and delivering new technology across a broad portfolio of products. Technical prowess, however, is only one aspect of delivering capable IT solutions. It is also important to ensure that any technology partner selected can provide the necessary support and services. Trusted support among partners can be, in many cases, even more rare than technical competency. When delivering end solutions to the customer, it is critical for solution providers to have confidence that their partners can support them and evolve with their needs.
The Bigger Truth

Video surveillance is one of a handful of critical workloads expected to drive storage capacity growth over the next several years. As IT organizations seek new solutions or update their existing infrastructures to support higher resolution cameras or integrate analytics workloads, solution partners are a critical aspect of the advisory process. But those providers need partners as well, partners that can not only develop but also deliver the infrastructure technology and support required, as well as the regulatory and logistical needs. Dell, leveraging technology from Intel, is delivering a broad range of solutions, which include server, storage, and networking, targeted directly at the video surveillance infrastructure space. The product or technology is, however, only one part of the full solution. In many cases, it is the support or delivery that impacts the end-user experience far more than the technology. As such, solution providers are often better served if they demand more from their technology providers. Dell understands this and, in response, has dedicated an entire team to deliver.