

Asigra's VMware-Optimized Backup

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Abstract: Asigra's next-generation backup software stands apart from traditional backup solutions and has compelling capabilities to support VMware environments.

Overview

Reducing capital and operational costs, better utilizing resources and creating cost-effective disaster recovery strategies are just a few of the reasons why companies—both small and large—are deploying server virtualization. ESG defines server virtualization as running multiple virtual machines on one physical server, enabling organizations to consolidate physical assets and deploy applications in a highly optimized environment. VMware's server virtualization technology is the dominant choice for many organizations, as ESG Research found that over 80% of end-users polled have adopted VMware as their primary virtual server solution.¹

Virtual server deployments have triggered changes in many areas of IT infrastructure and processes, actually causing many IT organizations to refresh their data centers—adopting multi-processor, 64-bit servers, newly implementing or augmenting networked storage, as well as re-examining business continuity and disaster recovery strategies, solutions and processes. The shift has also increased storage capacity requirements and created new challenges for data protection.

While some data protection solutions have adapted to the virtual world, only a few have created solutions built and optimized for the VMware platform. The distinction is whether the technology delivers the desired level of protection without disrupting the virtual servers (or the physical one running them). Some of the pro-virtualization considerations for data protection solutions include:

- Performing backup and recovery without overburdening shared physical resources, such as the CPU and memory
- Providing “granular” (file level, etc.) online backup and recovery of applications running in virtual machines
- Reducing or eliminating the unnecessary transmission and storage of unchanged data
- Providing centralized administration of local and remote physical and virtual server environments
- Supporting 64-bit environments that may be adopted in the data center refresh or required by certain applications, such as Microsoft Exchange 2007
- Offering virtual-server-friendly licensing

Asigra, a 20-year member of the backup vendor community, took a distinctive approach when developing its Televaulting solution, specifically addressing the distributed backup challenge of remote and branch offices (ROBO). After establishing its customer base by offering its technology to IT managed service providers (MSPs)—who in turn offered Televaulting as a managed service—Asigra has branched out over the last few years to also offer its product to enterprises. With its Televaulting solution, Asigra has been able to capitalize on the shift from tape- to disk-based backup and is now uniquely positioned to increase its market presence with the latest shift from physical to virtual servers.

Unobtrusive Virtual Server Data Protection

The shift to virtual servers has caused a re-architecture of all or part of a data center's infrastructure, as well as an opportunity to look at business continuity and disaster recovery with a new perspective. With a pro-virtualization

¹ ESG Research: iSCSI Enters to the Mainstream, December 2006

point-of-view, many IT organizations are reviewing newer-better-different technologies with a focus on cost and productivity improvements and savings.

Asigra Televaulting stands apart from other backup and recovery solutions due to its agent-less architecture. The Asigra backup solution is a client/server solution, but doesn't require the agent software to be installed on every server (or desktop) being managed. One instance of the client—Asigra DS-Client—resides on one server on the LAN, monitoring the systems targeted for protection. If continuous data protection (CDP) is selected, when the DS-Client detects changes to file or application data via APIs, it is continuously and automatically backed up to the centralized Asigra DS-System. Otherwise, backups run on an administrator-defined schedule. CDP can be CPU-intensive; however, Asigra's agent-less approach doesn't consume resources on the target server/application. The DS-Client and DS-System can communicate over a WAN, enabling backup consolidation for distributed environments. Agent-less backup in a VMware environment still supports file-level and application-specific backup for granular recovery of data, without putting a strain on shared resources.

Asigra's approach to protecting virtual server environments offers several advantages when compared to traditional backup solutions. For organizations who have deployed server virtualization in production environments, the majority are placing a backup client agent in the host or guest OS. While these approaches most closely reflect how backup was performed in the physical world (and therefore is simple to understand and configure), they place unnecessary strain on the host's resources compared with an agent-less approach. Agent-less backup also eliminates the need to configure agent technology in every virtual machine, as with traditional approaches.

When compared with VMware Consolidated Backup (VCB), Asigra's approach also has advantages. VCB enables a full image backup of a running virtual machine, which provides bare metal recovery. Backup applications can have VCB initiate a snapshot of a virtual machine which is then mounted to a backup proxy server (where a client agent would be installed with traditional backup). The backup application can then perform a disk-image level backup or file-level backup of the virtual machine copy, eliminating the backup window for the virtual machine. The drawbacks are that VCB operates on a separate 32-bit physical Windows host, entails multiple steps (usually managed through pre- and post-scripts to quiesce/restart applications), file-level and incremental/differential backup of non-Windows virtual machines isn't supported, it involves a two-step restore process and it requires a license for VCB, as well as networked storage.

Optimizing Backup Operations and Management

The Asigra Televaulting disk-based backup solution stands out because it employs capacity reduction techniques. First, Televaulting requires only one full backup, and thereafter it performs incremental backups (only the block-level changes made since the last full or incremental backup are transmitted and stored). These changes are collected at the DS-Client, where the data is additionally de-duplicated across all physical and virtual locations, compressed and encrypted before transfer to the DS-System.

Organizations that want to take advantage of the performance and scalability improvements with 64-bit computing will utilize beefier servers with more powerful processors. In virtual server environments, hosts with a more powerful processor can deliver higher consolidation ratios for end-users. If 32-bit hosts are in use, VMware still allows for 64-bit guest operating systems and vice-versa. This makes it possible for IT organizations to take advantage of 64-bit operating systems and applications in a mixed (32- and 64-bit) environment. Operating systems and applications supporting 64-bit are more pervasive. In fact, Microsoft Exchange 2007 has to run in a 64-bit environment. The Asigra DS-Client supports 64-bit computing, allowing organizations who have adopted 64-bit CPUs to have a high performance and scalable backup and recovery solution in place. A 64-bit DS-Client supports the backup and restore of both 64- and 32-bit operating systems and applications.

Centralized administration of backup and recovery policies are available through a Windows or Java-based remote interface. Asigra has a robust service-oriented architecture to support both its enterprise customers and Managed Service Providers. Administration of policies for retention, service level agreements, billing and more are available through Televaulting management console, as are multiple types of reports. Further, Televaulting backup implemented for physical or virtual systems—local or remote—can be managed from a single interface.

Televaulting allows for backups of data from—and recovery of data to—different locations. This concept could be applied to backup of one physical machine and recovery to a different physical machine (P2P), backup of one physical machine and recovery to a virtual machine (P2V), backup of a virtual machine and recovery to a physical machine (V2P) or backup of a virtual machine and recovery to a different virtual machine (V2V). For V2V, it's also possible to back up/recover to virtual machines from different vendors.

Asigra is very VMware-friendly. Unlike backup solutions that have per-server and/or per-client licensing, Asigra's solution is capacity-based—licensed based on the amount of de-duplicated, compressed data stored. Asigra can also take advantage of VMware's virtual appliance distribution model, as Asigra has been running its DS-Client in a VMware virtual machine for years now.

Asigra brings a great deal to the table supporting VMware environments and much of what the company provides is unique. However, every backup vendor in the world wants to make sure they are successfully integrating with VMware environments, so the pace of innovation will be accelerated throughout the market. Asigra needs to be aggressive in educating its partners, customers and potential customers on its valuable capabilities supporting VMware.

The Bottom Line

Asigra has made a name for itself by addressing the challenges associated with ROBO backup, as well as capitalizing on an MSP model. With the widespread adoption of virtual machine technology, and more specifically VMware, Asigra has an opportunity to address one of the biggest concerns that organizations have with the "virtual world"—backup and recovery.

In a recent study², ESG Research found that backup and recovery within the virtual server environment was the most important management consideration to organizations. Asigra's highly differentiated capabilities offer significant advantages over the traditional solutions being applied to protect VMware environments. Even without its specific VMware support, Asigra is a compelling next-generation backup and recovery solution with its agent-less architecture, data de-duplication capability, intelligent and easy-to-use management tools. Asigra's tenacity and proven model for building and supporting its large base of customers and partners will facilitate its execution in the burgeoning virtual server space.

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² ESG Research: Virtual Server Impact on Storage Networking, October 2007