



Cost-Effective, High-Availability on Virtualized Servers for SMBs

Server virtualization is not just for large businesses anymore.

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Over the past decade, larger companies have leveraged server virtualization for server consolidation, cost-cutting, and green-computing initiatives. In doing so, they have, in essence, proven the technology and its business value. But server virtualization is not just for large businesses anymore. More small and midsize (SMB) enterprises are leveraging the benefits of virtualization in their IT infrastructure.

According to a February 2009 Forrester Research report, *The State Of Emerging SMB Hardware Trends: 2008 to 2009*, a survey of approximately 120 hardware decision makers at North American and European SMBs showed SMBs virtualize 36 percent of their server OSs today and plan to virtualize an additional 25 percent of all server OS instances by 2010 (see Note 1).

In fact, server virtualization can be used for an even more important need -- delivering high availability for mission-critical applications in an extremely cost-effective way. How can SMBs both protect applications running on virtualized servers and take advantage of the very same technology to build a cost-effective business continuity solution? Let's focus on how virtualization solutions such as VMware ESX and Microsoft Hyper-V can be protected, and how to provide business continuity and disaster recovery for data and applications in both physical and virtual environments.

The Rise of Virtualization

Virtualization technology was originally launched in the early 1970s by IBM as virtual machines operating system (VM/370 or VMF/370) for their mainframe solutions such as System/370 and System/390. In 1998, VMware, Inc. was founded and launched its own virtual machine software for workstations and servers. Since then, VMware virtualization software has proliferated in the enterprise space, helping companies achieve greater operational efficiency and supporting their efforts to cut power consumption. On the heels of VMware's success, other companies such as XenSource (acquired by Citrix Systems in 2007) and Virtual Iron brought their own server virtualization solutions to market. In 2008, Microsoft launched its own server virtualization solution, now called Hyper-V -- proof positive that the technology plays an important role in IT shops.

Server virtualization technology enables organizations to run multiple operating systems and applications (typically referred to as virtual machines or virtual guests) simultaneously on a single physical server. The benefits of server virtualization include reducing IT costs (such as server and storage hardware, floor space, utilities, etc.) as well as easing server management and maintenance (increasing IT productivity).

Extending Virtualization Benefits

Vendors are now trying to move their solutions downstream, to offer these benefits to the small and midsize enterprise market. They are also finding that server virtualization benefits extend beyond simple server consolidation efforts -- these same cost and management savings can be applied to help justify and reduce total cost of ownership (TCO) of business continuity (BC) and disaster recovery (DR) solutions. Mid-market companies, especially those with multiple data centers and remote offices, are starting to leverage replication and high availability technologies to provide their lines-of-business with high availability for critical applications and data. These technologies are imbedded in Operating Systems, ISV software and storage hardware and appliances. IDC recently reported that the fastest growing segment for this market is the host-based replication software segment (see Note 2).

According to a May 2008 Forrester report, *X86 Virtualization Drives New Buyer Behavior*, a survey of 132 SMB IT decision makers who are implementing or are interested in doing so showed that 49 percent of enterprises said that improving disaster recovery/business continuity continues to be a very important motivation for adoption. The report adds "Server virtualization facilitates a rapid -- or even automatic -- restart of applications after an IT failure, and when used in conjunction with data replication between data centers, it can restart applications at a recovery site following a primary site failure" (see Note 3).

Using Replication and Failover to Protect and Recover Critical Information

Data replication solutions typically offer real-time data synchronization of an organization's production servers with failover servers, also called replica servers, typically housed at a remote location for disaster recovery purposes. These solutions keep the production and replica servers synchronized by sending data changes across the wide area network (WAN) as users add, delete, and edit information through e-mail, database, and other business-critical applications. If there's a production server problem, the replication system will automatically failover to the replica server and redirect end users with almost no loss of service. Administrators may also deploy a manual failover process for total control and flexibility.

There are barrier to implementing these technologies to provide business continuity and disaster recovery for data and applications on virtual servers. One challenge is the cost of purchasing, managing, and maintaining failover servers at the remote DR site -- especially if the organization needs to protect multiple servers at the data center or remote offices.

Server virtualization can help significantly reduce the TCO for a replication and high-availability solution and provide IT with a way to more quickly expand or contract the DR infrastructure as they need it. For example, some businesses may need to support periodic expansion (for example, when an accounting firm needs additional processing and storage capacity during peak periods such as tax season). If the production environment is "beefed up," the DR infrastructure needs to be similarly expanded for adequate protection. Server virtualization may not only help keep infrastructure costs lower, it can allow IT to be more nimble and flexible in building out the expansion and then reducing it just as easily when it's no longer required.

Of course, the assumption is that the replication solution being evaluated supports physical to virtual (P2V) replication and vice versa (V2P) for failback -- once the production servers are repaired or replaced. For those organizations using a server virtualization solution in their production data center, the replication solution must support virtual to virtual (V2V) replication, failover, and failback.

Virtualization Supports Emerging BC/DR MSP Market

In addition to helping traditional businesses reduce their own BC/DR costs, server virtualization is enabling an entire new market of managed services providers (MSPs) building new BC/DR offerings, primarily targeted at SMBs that typically don't have the budget, resources, or knowledge to build their own solution. Server virtualization keeps costs lower for increased profitability and enables service providers to more quickly respond to changing market dynamics as they arise.

For example, CA's BC/DR MSP partners and customers who are leveraging the MSP model are doing so to lower capital expenditures and other IT costs. Server virtualization is another way for them, and for customers with in-house solutions, to keep these costs low.

It's clear to many IT organizations that server virtualization may help reduce IT costs, make IT more productive and help reduce environmental impact through green computing. Now that high-availability solutions are becoming more prevalent in the SMB market, server virtualization benefits can be expanded to new, business-critical initiatives.

Notes:

1. "The State of Emerging SMB Hardware Trends: 2008 to 2009," Forrester Research, February 27, 2009
2. IDC, "The Future of Replication Technology: A Market Segmentation and Analysis," publication #210293, February 2008
3. "X86 Virtualization Drives New Buyer Behavior," Forrester Research, May 23, 2008

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