

# BETTER BUSINESS PROTECTION THROUGH VIRTUALIZATION

Virtualization can help make your business protection strategy comprehensive and affordable.

Downtime is not an inconvenience: It's a revenue killer.

A recent Infonetics Research study, *The Costs of Downtime: North American Medium Businesses 2006*, found that mid-market enterprises (101 to 1,000 employees) lose an average of 1 percent of their annual revenues to downtime. Even more startling, another study has found that up to 40-50 percent of businesses that have suffered major service interruptions never recover completely, and fail within two to five years.

Clearly, most enterprises can't survive without viable business continuity strategies, which must include means by which to provide both high system availability as well as disaster recovery mechanisms.

High availability keeps services running and continuously usable in the event of component or software failure. Disaster recovery helps ensure that all data and applications can be restored quickly in the event of a catastrophe—such as a virus, natural disaster, or user error—that destroys part or all of an organization's IT resources.

## BUSINESS CONTINUITY CHALLENGES

Unfortunately, the cost of implementing such strategies via traditional means oftentimes was expensive and complex.

■ **Expense.** Technologies such as replication and mirroring, which maintain and update copies of an organization's data and applications at a second remote site, are critical elements to comprehensive DR planning. These and other DR technologies require companies to make major investments in additional hardware and software.

■ **Complexity.** These same solutions require new, specialized processes as well as considerable management and testing resources to ensure that they operate effectively. Many enterprises that implemented complex business continuity processes found that the latter ultimately were flawed, and failed when they were desperately needed.

■ **Downtime.** Other organizations were simply forced to lower their expectations, accepting strategies with longer recovery time objectives even though the downtime they caused could cost the companies huge sums in lost productivity and revenue.

The good news is that, while business continuity strategies like replication, mirroring, and remote DC are still good ideas, complementary virtualization solutions can help address issues of expense, complexity, and downtime.

## AFFORDABLE BUSINESS CONTINUITY

Virtualization is an enabling technology that not only may be used to help lower costs and simplify the IT infrastructure, but may also be used to extend business continuity planning to services that previously may not have justified the expense of a continuity plan.

In fact, according to a May 2006 Dell-sponsored survey conducted on behalf of Ziff Davis Media by The Strategy Group, more than 80 percent of 205 polled decision makers stated that they either have implemented or plan to implement virtualization in their IT environments. When asked to cite the top reasons for these decisions, 20 percent indicated downtime reduction, while 17 percent cited backup

and recovery process simplification.

Virtualization solutions, such as those based on VMware Infrastructure 3 software, virtualize and aggregate industry-standard servers and their attached network and storage into unified resource pools. Complete environments including operating systems and applications are encapsulated in virtual machines that are independent from hardware. A set of virtualization-based distributed infrastructure services for virtual machines bring vastly improved levels of availability and capabilities for disaster recovery and system restarts. VMware solutions are fully compatible with and enhance traditional business continuity solutions like backup and server clustering, as well as redundant network and storage interface adapters.

## LOWERED EXPENSES

Servers in today's enterprises are often underutilized, resulting in overinvestment in server hardware. By aggregating servers and attached network storage into unified resource pools, virtualization can help lower the cost of redundant equipment by hosting multiple back-up virtual machines on spare equipment, thereby providing business continuity for less-critical applications.

There also are other ways to improve business continuity via virtualization.

The first is to divide a few existing physical servers into multiple virtual machines. This strategy was employed by Houston-based financial services broker/dealer NEXT Financial Group, which lowered its hardware investment significantly by dividing just four physical servers at its remote site—a secondary disaster recovery center—into mul-

multiple virtual machines that mirrored the contents of all 22 Dell PowerEdge servers at its primary site. The remote site includes a Dell/EMC storage array (which mirrors the Dell/EMC storage area network at the primary data center to enable fast recovery in the event of failure) and Dell PowerEdge servers running VMware ESX Server virtualization software. This strategy saved thousands of dollars that NEXTE otherwise would have had to spend on the purchase of 18 additional servers.

The second option is to operate the data center as a single pool of processing, storage, and networking power to be allocated and de-allocated on the fly to various software services. In a virtual infrastructure, users see resources as if they were dedicated to them, while the administrator manages and optimizes resources globally across the enterprise. Through a virtualization strategy, organizations have realized faster, more flexible, and more reliable disaster recovery, along with increased service levels, at lower costs, with little or no investment in additional servers.

The third option is to implement new technologies available in VMware Infrastructure 3 technology that helps ensure rapid, reliable failover, maximizes systems availability, and streamlines backup processes. Each of these components comprises a feature-rich suite that empowers data center administrators to realize a unique set of capabilities that enable a virtualized environment to be more dynamically responsive, highly available, and rapidly recoverable than traditional physical IT environments.

#### DECREASED COMPLEXITY

Ensuring reliable recovery typically involves locating appropriate hardware, installing an operating system, installing backup agents, modifying system configurations, and starting a recovery process. Testing is complex and can take several hours to several days. Complexity and time can directly im-

## VIRTUALIZATION INFRASTRUCTURES AND SHARED STORAGE: PERFECT TOGETHER

Business continuity solutions rely on robust, fault-tolerant storage devices in addition to equally fault-tolerant virtualized servers. Most enterprises utilize shared storage in the form of a storage area network (SAN) or network attached storage (NAS).

Shared storage provides economies of scale for the virtual infrastructure by allowing scalable access to common storage arrays without constant hardware upgrades. Shared storage helps simplify backup preparations and expedite systems re-deployment times for disaster recovery.

Shared storage also helps make high availability functions like server clustering and workload balancing practical and less complex to implement. Virtual infrastructures and shared storage work together to deliver robust business continuity. Dell/EMC shared storage devices are tested and certified with VMware Infrastructure 3 software. Ease of creating, provisioning, and managing storage resources is a tremendous benefit to systems administrators. Additionally, shared storage can be matched to business needs via resource pools in a virtual infrastructure, thereby increasing IT resources to meet the needs of workloads for all parts of the organization.

Dell/EMC shared storage devices provide full support for features such as Distributed Resource Scheduler, High Availability, VMware VMFS, and VMware Consolidated Backup. Each of these features provides enhanced efficiencies in storage and data backup administration, and are building blocks for building the dynamic, automated, and self-optimizing data center.

perfect business and organizational productivity. A virtual infrastructure significantly reduces complexity, enables rapid recovery times, and facilitates high availability.

#### LESS DOWNTIME

Solutions such as VMware's cutting-edge VMware High Availability and VMware VMotion technology empower IT staff to perform maintenance functions without any service shutdowns. They also help reduce unplanned downtime by proactively moving running applications away from servers that generate alerts or cross certain defined management thresholds.

#### THE DELL SOLUTION

Thanks to its close relationships with Intel, VMware, Altiris, and EMC, Dell offers comprehensive virtualization solutions that can help corporations bolster

business continuity efforts while lowering IT costs.

These solutions include powerful, scalable, and reliable Dell PowerEdge servers based on Dual-Core Intel® Xeon® processors featuring silicon-level support for virtualization through Intel® Virtualization Technology; VMware's market-leading virtual infrastructure software; Altiris' acclaimed enterprise systems deployment and management tools; and top-rated Dell/EMC storage systems. And global Dell Assessment, Design, and Implementation Services can help companies realize the full benefits of virtualization, and meet tomorrow's business challenges more effectively.

By offering a single source for proven, integrated, market-leading virtualization solutions, Dell helps make business protection feasible for virtually all organizations today. For more information, visit [www.virtualization.ziffdavis.com](http://www.virtualization.ziffdavis.com). ■

