How Virtualization is Key to Managing Risk

A Guide to Business Continuity and Disaster Recovery



Introduction: Managing Risk in a Risky World

Losses from unplanned downtime are tens of billions of dollars every year

When Hurricane Sandy hit, businesses of all sizes suffered greatly. The insured losses are estimated at more than \$20 billion, and the total economic damage at more than \$50 billion.

The aftermath of the deadly 2011 earthquake and tsunami in Japan was even more devastating, impacting 312,000 employees in 715 industries, according to a Dun & Bradstreet report.¹

¹ "2011 Impact Report of Japan Earthquake and Tsunami: Preliminary Business Impact Analysts for High Impact Areas of Japan." Dun and Bradstreet 2012.



Introduction (continued)

Manmade disasters can be just as serious. Distributed denial of service (DDOS) attacks increased almost 20 percent in 2012 over 2011. Deliberate hacker attacks or malicious code that can bring down your systems also accelerated. Human errors such as construction projects that knock out power or network lines due to careless digging also increased over that same time period.

Did you know:²

- 90 percent of businesses surveyed say they've been hacked over the past 12 months
- 72 percent of known hacker incidents targeted companies with less than 100 employees
- 40 percent of corporate cyberattacks hit companies with less than 500 employees

IT outages have, in aggregate, caused businesses to lose billions worldwide. However, the impact of unplanned down time can also have indirect financial consequences. For example, customers will seek out your competitors when they can't get through to your business. The average cost to enterprises globally who incurred a major data loss in 2012 was \$182,242. Of businesses that had experienced a major data loss, 60 percent closed their doors permanently within six months.

Internally, businesses lose millions of hours in personal productivity due to unplanned downtime. Project deadlines slip, resulting in increased project costs.

Overall, the average hourly cost of IT downtime has increased almost 65 percent between 2010 and 2012, peaking at \$161,000 per hour in 2012.

² "Perceptions About Network Security' The Ponemon Institute. 2012. http://www.juniper.net/us/en/local/pdf/additional-resources/ponemon-perceptions-network-security.pdf.

Technology Adopters and the Cost of Downtime



Source: Aberdeen Group, February 2012

Virtualization: A Strategy for Managing Risk

A virtualization primer

With virtualization, the physical machine is simply a host that provides resources on which the virtual machine (VM) runs. Each virtual machine runs as a complete system, with its own dedicated share of the host machine's CPU, memory, and hard drives.

Virtualizing allows you to easily replicate, move, and automate the process of backing up these VMs—including all the operating systems, applications, and data that reside on them—to ensure that you experience no downtime.

Almost three-fourths of businesses that virtualized saw an improvement in their disaster recovery abilities.



Source: Symantec 2012 Disaster Preparedness Survey

How Virtualization Solutions Support Disaster Recovery

Simplifying disaster recovery through encapsulation. Because

virtualization captures everything about a virtual machine (VM) into just a few files on a disk, you can move your VMs to a different server. You can back them up in the same way you currently protect your other files. You can move them around from one physical server to another to avoid hardware faults. You can also replicate them to your disaster recovery site, so that they will be available when you need to recover from an outage.

Creating a streamlined, cost-effective disaster recovery plan through consolidation. Server consolidation means doing more with less, like running more operating systems on more virtual machines (VMs) on fewer servers. You're reducing your physical footprint, which also means you can streamline your disaster recovery plans and standardize your recovery process. You also have a smaller footprint of infrastructure hardware to manage and protect.

Enabling a flexible disaster recovery process through hardware independence. This means being able to move a VM or recover a VM to any x86-based hardware platform. So, you have the flexibility to buy different servers for your recovery site, or even fewer servers. Continuing to virtualize your production site will free up additional physical machines that can then be moved over to your recovery site and used there for your DR plan.



Business Continuity: Ensuring Your IT Systems are Interruption Free

The difference between business continuity and disaster recovery

Business continuity and disaster recovery are often discussed in the same sentence. In fact, many people use the term BCDR (business continuity disaster recovery) to describe both concepts as one.

However, there is a difference. Business continuity suggests creating a proactive and comprehensive program for making sure you remain in business in the face of threats or risks, natural or manmade. Disaster recovery refers to quickly getting back up and running after an event occurs.

One of the key aspects of business continuity is to understand the most pressing risks you face, and putting a plan in place that mitigates those risks. Are you in a flood plain? In earthquake country? Does your business experience bursts of website traffic that can bring your site down? You must consider all these things when formulating your business continuity plan.



Business Continuity and Virtualization: A Perfect Match

Virtualization makes business continuity a reality by leveraging inherent virtual-machine characteristics such as partitioning, isolation, and hardware independence. These capabilities help ensure that failure of a service in one virtual machine does not affect other services or virtual machines on the same hardware. Moreover, they support virtual-machine provisioning onto one physical server and then moving that virtual machine to another physical server in a pool to avoid or recover from hardware fault situations. They also help scale virtual machines and services, providing better resource utilization across a pool.

Small wonder that a Gartner study in 2012 found that the No.1 reason for virtualizing was business continuity.

Your virtualization-based business continuity plan should include:

- Automated capabilities to remove dependence on specific information from IT employees
- Ability to test solution without business disruption
- Support for heterogeneous infrastructure



Disaster Recovery: When the Worst Happens

How virtualization helps you minimize the damage

If business continuity is the proactive stance you take to avoid the myriad costs of downtime, disaster recovery is the process by which you resume business after a disruptive event. The goal of a disaster recovery plan is to get back online as quickly as possible.

With traditional tape systems it can take one to two days to completely restore a system. Server virtualization can reduce full restoration to four hours or less because you don't have to separately rebuild servers, applications, and operating systems. Each server exists as a complete container, and can easily be brought back online. VMware has a collection of tools that can convert physical to virtual machines and orchestrate these VMs to step in for downed servers.





Listen to the Virtualization for Disaster Recovery FAQ

Data Protection: A Critical Aspect of Business Continuity

Data is increasingly your organization's most precious asset. Protect it as such.

Data protection is just what it sounds: protecting your data from loss and destruction, and allowing for quick recovery in case of disaster.

Data is king. Machines can be rebuilt, applications can be reinstalled, but the data is the by far most important. The ability to quickly recover can not only impact the bottom line, but also ultimately the survival of your organization.

The cost of downtime can range from hundreds to millions of dollars per hour. Compliance mandates such as the Health Insurance Portability and Accountability Act (HIPAA) frequently require data protection to be part of a business continuity plan.

- Every week, 140,000 hard drives crash in the United States
- Thirty-one percent of PC users have lost all of their files due to events beyond their control
- Thirty-four percent of companies fail to test their tape backups
- Of those that do test, 77 percent have experienced tape backup failures

Source: Mozy



Cases in Point

Real-world case studies on how virtualization enables business continuity, disaster recovery, and data protection

Facilicom

- Facilicom achieved greater business continuity by deploying VMware virtualization
- Facilicom Services Group is a facility management services vendor based in Schiedam, the Netherlands
- Facilicom wanted to consolidate its server environment to reduce the number of servers. The goal: to reduce costs while improving business continuity
- With VMware vSphere, Facilicom virtualized almost all its servers, including the company-critical SAP systems
- Alongside the extra flexibility, the continuity of the IT environment has been improved because systems can be recovered quickly in emergencies, at a different location or on other machines

"Within a virtual environment, it's easier to boot the systems again at a different location. Moreover vCenter Site Recovery Manager supports the ongoing synchronization of the crucial systems, so all it needs then is a click of the mouse to activate systems again." Anton Harder, IT Architect Technology and Innovation, Facilicom

Cases in Point

QIC

- QIC is a financial services firm with 500 employees and 88 clients based in Brisbane, Australia, that manages more than \$60.2 billion in funds
- Ninety-five percent of test and development environment virtualized to ensure critical systems are made available during crises and maintain timeframes for recovery outlined in plans for BC/DR
- Deployed vCenter Site Recovery Manager to migrate business-critical applications and servers from a primary site to backup locations, quickly and error-free
- Enabled continued management of client portfolios during 2011 flood
- Reduced number of people required to complete a disaster recovery task from 3 to 1
- Accelerated recovery times for key systems
- Decreased time to perform failovers from a few days to 2 hours on 100 servers

"Ensuring our systems can be recovered within the timeframes set out in our disaster recovery and business continuity plans—and organizing testing of those plans—is now much simpler and less time-consuming. I don't have to organize a full weekend to test our systems—we can just do it when we need to."

Tony Hilton, Team Leader - Servers, Storage, and Internet

Cases in Point

Intermedia

- Intermedia is a business services firm that manages more than 115,000 Microsoft Exchange 2010 mailboxes with 99.999% availability
- It also oversees 3,000 SQL databases, 14 terabytes memory
- Serves thousands of small and midsize business customers
- Wanted to simplify data center management
- Needed to ensure customer uptime, gain business agility to scale and deploy new services rapidly
- Virtualized deployment of Microsoft Exchange 2010 on the VMware platform
- Improved agility for scalable business growth and fast response to business opportunities
- Reduced risk through increased availability of 99.999%
- Eliminated time and costs associated with remote datacenter management at five global locations
- Increased deployment efficiency by 50%

"We virtualized for the management benefit of being able to rapidly deploy servers to scale the infrastructure in alignment with business needs."

Brent Rich, VP of Operations

VMware Solutions for Business Continuity and Disaster Recovery

Capabilities and benefits of deploying VMware for disaster recovery

VMware virtualization allows you to set up a recovery plan in minutes, automate disaster recovery, and gives you a choice of multisite disaster recovery or doing disaster recovery to the cloud.

VMware Capabilities

- Server consolidation
- Integrated backup and recovery
- Automatic failure detection and restart of services
- Move running VMs between hosts
- Replication of VMs across the LAN or WAN

VMware Benefits

- Reduce CAPEX, improve resource utilization, reduce IT management complexity
- Simplify backup and recovery infrastructure and processes
- Improve service-level agreements (SLAs) for virtualized applications
- Enable maintenance with zero downtime



Before VMware virtualization > After VMware virtualization

VMware Solutions for Business Continuity and Disaster Recovery

VMware vSphere[®] with Operations Management[™]

vSphere with Operations Management simplifies business continuity and disaster recovery by separating applications and operating systems from the underlying hardware. Your existing applications see dedicated resources, but your servers can be managed as a pool of resources, and replicated and protected accordingly. vSphere with Operations Management ensures business continuity with automatic detection and recovery from server failures by restarting applications automatically on working servers.

VMware vSphere® High Availability (HA), as part of vSphere, provides easy-to-use, cost-effective high availability for applications running in virtual machines. In the event of physical server failure, affected virtual machines are automatically restarted on other production servers with spare capacity. In the case of operating system failure, vSphere HA restarts the affected virtual machine on the same physical server.

Another major component of vSphere, VMware vSphere® Replication, replicates powered-on virtual machines over the network from one vSphere host to another without needing storage array-based native replication. vSphere Replication provides a number of unique advantages, including reducing your bandwidth needs; eliminating storage lock in; and building flexible disaster recovery configurations.



VMware Solutions for Business Continuity and Disaster Recovery

VMware vCenter[™] Site Recovery Manager[™]

vCenter Site Recovery Manager leverages cost-efficient vSphere Replication or storage-based replication to provide simple management of recovery and migration plans; non-disruptive testing of business continuity and disaster recovery plans; and fully automated site recovery and migration.



Conclusion: The Time for Business Continuity-Disaster Recovery is Now

Why VMware?

- More than 80 percent of all virtual machines in the world run on VMware
- VMware offers lower capital and operational costs than competitors due to VMware's higher scalability and greater levels of administrative automation.
- VMware delivers and enables solutions that provide extensive application insight, to enable IT to deliver on business-level SLAs.
- VMware VMotion performs five times faster than comparable products from competitors
- VMware High Availability (HA) works even when half or more hosts in a cluster go down

For more information about VMware solutions for BCDR, go to **www.vmware.com/go/smb.**

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