

Virtual Disaster Recovery

White Paper | September 16, 2008

Kelly Laughton
Davenport Group Consultant

©Davenport Group 2008. All rights reserved.

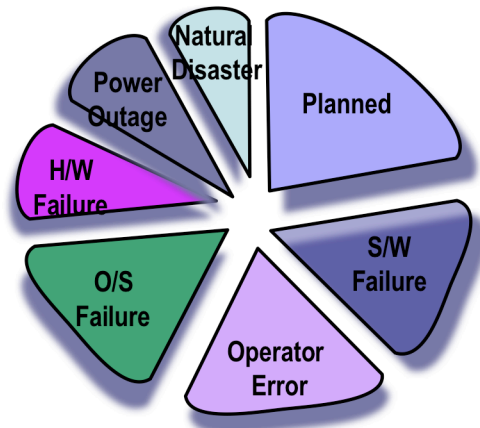


Introduction

Today's data center has evolved into a complex, inflexible IT environment that can be costly to manage and difficult to recover in the event of a disaster. "Disaster" is a relative term and can mean anything from loss of an important file to loss of an entire site. A disaster can come in many forms, including but not limited to, operator error, malicious virus, hardware failure, or act of nature; and can result from system maintenance and planned downtime. The fact is, for one reason or another systems will go down, and for many organizations this can mean lost revenue and the inability to serve customers.

The Causes of Downtime

Planned Downtime
Application Failure
Operator Error
Operating System Failure
Hardware Failure
Power Outage
Natural Disaster



Gartner Study 2005

Consequently it is not only important to plan for disasters, but to also have a methodology in place for recovery. This may mean a backup strategy that includes offsite data storage and the ability to run operations remotely from an alternate site.

Today's Complex Data Center

Data and system availability is the number one priority in today's IT department. Unfortunately data and system availability is difficult to achieve using traditional technology and even more difficult to restore when something goes wrong. The complexity of today's data center makes sustaining availability or recovering data and systems in the event of a disaster a daunting challenge and one that many data center managers find impossible to accomplish.

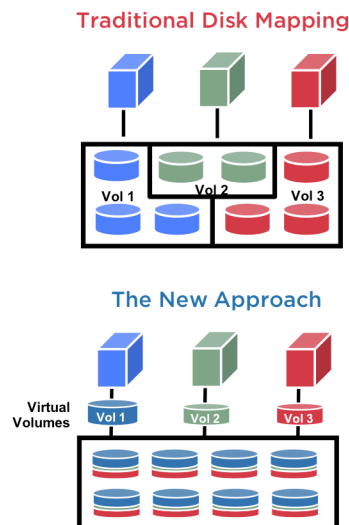
How can we gain control of our data and recover quickly? A growing number of organizations are turning to virtualization as the answer. Virtualization helps reduce capital equipment expenditures and operational costs and allows organizations to be more flexible and nimble to respond to disasters and recover operations quickly.

Step One: Storage Virtualization

Storage virtualization is the first step toward virtual disaster recovery. With advanced storage area network (SAN) technology managers can easily provision storage for multiple servers, automatically classify and migrate data to the appropriate tiers of storage, and create an unlimited number of recovery points using snapshot technology. Storage virtualization also brings the ability to boot from SAN. For organizations with more than a few servers, deploying and recovering servers can be a laborious task. Boot from SAN offers IT managers numerous advantages compared with booting to direct-attached disks. Booting from SAN reduces complexity, lowers costs and accelerates server recovery.

Virtual Storage

- **Storage Virtualization**
 - Usable volumes without allocating drives
 - Write blocks to all available drives
 - Change RAID levels on the fly
 - Intelligent volume striping with new drives
- **Benefits**
 - No complicated capacity planning
 - No performance tuning required
 - Create new volumes in seconds
 - Maximize performance



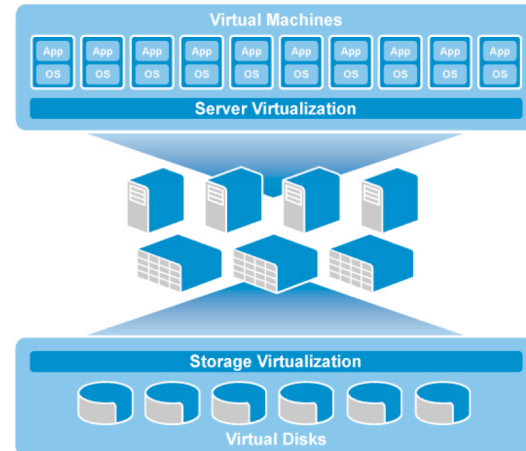
To create a truly virtual data center, IT managers need a holistic storage solution; one that allows fully shared resources and provides complete data protection. Snapshots, or point and time copies of data, protect against data loss or corruption. Your SAN solution should give you the ability to take an unlimited number of space-efficient snapshots and allow you to keep them as long as necessary. This will enable you to design a complete matrix of protection around your data. Storage virtualization using snapshot technology and boot from SAN provides continuous data protection and enables quick response and complete recovery of data and systems.

Step Two: Server Virtualization

A storage environment built on a feature-rich SAN provides the optimum platform for virtual servers. Server virtualization enables the consolidation of applications on a smaller number of physical servers. By combining storage virtualization and server virtualization you create a complete virtual disaster recovery strategy.

Data Center Virtualization

- **Dynamic IT infrastructure**
 - Create single virtualized pool of resources
 - Easily move applications from test to production
- **Reduce upfront purchases**
 - Consolidate both servers and storage
 - Ensure ability to grow without hardware constraints
- **Reduce operational expenses**
 - Simplify management
 - Minimize space, power and cooling
- **Ensure availability**
 - Quickly move or restore storage or server volumes
 - Replicate entire servers off site

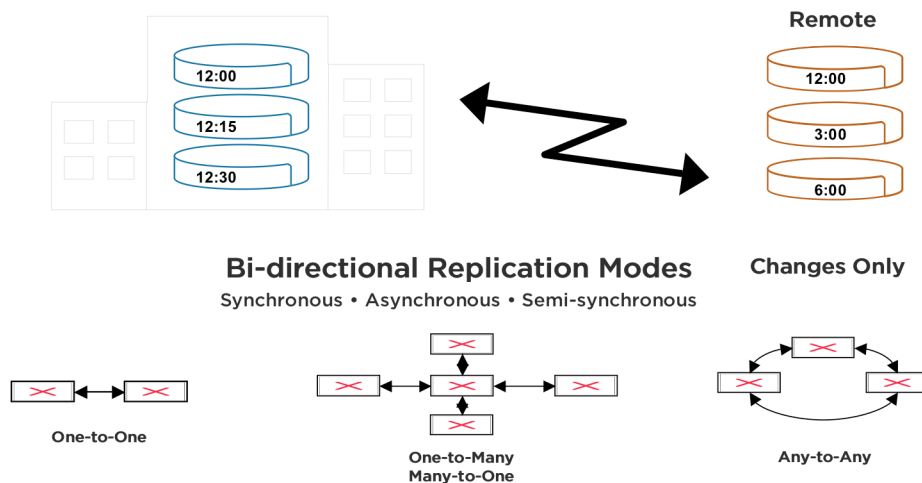


Traditional SAN technology may not offer the flexibility needed to optimize a virtual server environment and the limitations make disaster recovery not only complex but also expensive to implement. Consequently most data center managers lack a comprehensive data recovery strategy. With traditional SANs the overhead required for snapshots increases storage cost and complexity. Traditional snapshots require full volume clones during the creation and recovery process and pre-allocated space for storage. Consequently you are limited to the number of snapshots you can take and store on traditional SANs and much of your storage expenditure goes to allocated but unused space. This becomes even more costly when want to replicate data for disaster recovery because that same storage configuration has to be duplicated at the replication site.

Replication

Backup and recovery when a data center is intact is one thing, but what if you lose access to the data center, or the entire site? Real DR must provide a method for recovery in the event of site loss. Some assume the answer is storing a copy of data offsite using backup to tape or similar media. But how current is that data and how quickly can it be recovered? What about the systems and the applications necessary to access the data? How long will you be down while you put everything back together? Remote replication may be the answer.

Remote Data Replication



Replication technology provides protection against site loss, yet replication is one of the most frequently required but least implemented technologies today. With many operations running 24x7 IT managers understand more than ever before the importance of DR in the data center. But when it comes to implementing a solution, the cost and complexity of traditional remote replication offerings have prevented widespread use. In planning for DR most organizations want the ability to replicate data to a remote site but find the available options expensive and complex to implement and manage. It is also very difficult to test a DR plan that involves remote replication.

The key is finding a remote replication solution that leverages the power of virtualization to speed recovery. Such solutions are available today and able reduce the cost and complexity associated with traditional replication. With the right replication technology snapshots can be replicated continuously between sites, synchronously or asynchronously, to ensure data is current. The right solution should be reasonably simple to deploy, manage and test.

Testing Your DR Strategy is Key

With today's more advanced SAN technologies the data center can be recovered quickly and efficiently. IT Managers are able to virtually eliminate the backup windows on production systems by taking advantage of features that allow physical and virtual servers to boot from SAN and by using unlimited snapshot capability to recover servers within seconds. Remote replication technology provides protection against site loss. Snapshots can be replicated continuously between sites, synchronously or asynchronously. Choose a replication technology that can be tested with all users connected and the system up and running, allowing IT managers to easily verify that their volumes are being replicated successfully. The ability to test your disaster recovery strategy on an ongoing basis will ensure you success in the event you have to put your plan into action.

Conclusion

Sustaining data and system availability in today's complex data center is a real challenge for most IT managers. Virtualization may be the key to simplifying the data center and recovering data and systems in the event of a disaster. The first step is storage virtualization. By virtualizing both storage and processing power IT managers can build resilient data centers and recover from data hazards quickly.

The result is an affordable disaster recovery solution, one that leverages the full capabilities of today's virtualization technologies. IT managers can create a complete data center virtualization solution by combining server virtualization with a feature-rich SAN that offers storage virtualization capabilities.

Server and storage virtualization used together provides real DR for today's IT.



About Davenport Group

St. Paul-based Davenport Group helps organizations get ahead of the technology curve by creating flexible, feature-rich strategies for storage management and data recovery. Leveraging 30 years of industry experience and best-in-class technology systems, it designs cost-effective storage solutions that build on existing infrastructure to help organizations get control of their data. The company works with businesses ranging from the public to private sector, including a growing network of Fortune 1000 companies and County and State Governments, and is a woman-owned business.

www.davenportgroup.com