Best Practices:

Cybernetics Disaster Recovery and VMware Data Recovery for Total Protection

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Virtualization of servers, storage, and backup is transforming information technology for businesses of all sizes. In recent years, Cybernetics has seen incredible growth of server virtualization among our miSAN and iSAN customers. Cybernetics miSAN / iSAN D Series is virtualized storage, and has always been exceptionally well-suited to the virtual server environment as primary storage plus data protection. With the recent release of VMware’s new vSphere 4, users will have a new native implementation of backup software for virtual machines and data stores, along with new backup storage functionality in Cybernetics D Series. VMware Data Recovery (VDR) and the miSAN / iSAN D Series disaster recovery combine to make a powerful team for total data protection and recovery, and can actually squeeze significant costs out of IT operations.

VDR is a backup software application designed to work with VMware’s own vStorage API for Data Protection (formerly VMware Consolidated Backup). VDR is tightly integrated with virtual machine discovery and a backup policy wizard for extremely convenient implementation. With capability for snapshot backup and restore at the virtual machine level, VDR has excellent granularity for day-to-day recovery operations. Virtual machines can be powered on though the snapshot backup, and there is even a “Rehearsal Restore” feature for exploring the virtual machine state within the snapshot prior to committing a permanent restore. VDR deduplicates backup data before it ever reaches the destination miSAN D Series system, keeping backup data capacity requirements to a bare minimum. With its solid operational recovery capabilities, VDR can replace the traditional backup software, backup server, and deduplication software. VDR retails for just $695 with vSphere Standard, and is included at no additional charge with Advanced, Enterprise and Enterprise Plus versions, potentially saving thousands of dollars in backup software costs.
VDR is however limited to operational recovery – it has no native defense against chronic, hidden corruption and it has no defense against a serious site catastrophe. Fortunately, Cybernetics miSAN / iSAN D Series picks up where VDR leaves off. SANDR, the D Series storage virtualization engine has native features for long-term and off-site backup, as well as disaster recovery:

1) **Portable disk backup to USB or eSATA disks**
2) **Removable tape backup to tape drives or libraries**
3) **WAN replication pairs in remote facilities**

As a backup storage device for primary SAN storage, the miSAN D Series simply presents iSCSI SAN disk storage to VDR as a repository virtual disk for deduplicated VDR snapshot backup data. This backup data is readily accessible to VDR for quick restore, and can then also be secured for long term and off-site protection through SANDR. Long-term tape archives protect against events such as hidden corruption or deletion of infrequently accessed files. In such cases, a problem may lie undiscovered for weeks or months. With point in time backup on removable media, files can still be recovered long after the VDR disk-based snapshot has been overwritten. With WAN replication, even site catastrophe doesn’t spell disaster for data. The backup data is securely stored in a live, spinning volume at a remote location – always synchronized to the last snapshot mount point.

The ultimate full coverage backup and disaster recovery protection is surprisingly simple and affordable. Cybernetics recommends a replication pair of miSAN units, sized to accommodate double the capacity of the total virtual disk live storage capacity, a tape drive or library, and portable USB or eSATA disk drives.
Backup Storage Capacity Example:

<table>
<thead>
<tr>
<th>10 Virtual Machines</th>
<th>50 GB of Live Storage Capacity</th>
<th>50 GB Each</th>
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</thead>
<tbody>
<tr>
<td>x</td>
<td>500 GB of Live Storage Capacity</td>
<td>x</td>
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<tr>
<td></td>
<td>2 for Snapshot space</td>
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<tr>
<td></td>
<td>1 TB of usable miSAN Capacity</td>
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Backup Hardware Requirements:
- 2 miSAN-D8/T2 models
- eSATA or USB disk drive
- LTO tape drive or library

Backup Software Requirements: VMware Data Recovery

miSAN D Series models range from 1TB to 32TB raw capacity, and the iSAN D Series models start at 8TB raw capacity. Cybernetics can attach a SCSI or SAS tape drive or library to any miSAN or iSAN model for long-term, point in time archives. Additionally, front panel USB and eSATA ports support industry standard portable disk drives to create mountable backup volumes.

miSAN / iSAN D Series models are widely deployed as primary storage for VMware environments, and now the introduction of VMware’s VDR lends yet another functionality - backup storage SAN. By protecting VDR snapshots with disk and tape backup for long-term archival copies, and off-site WAN replication for disaster recovery copies, the miSAN D Series works with VDR to provide a complete strategy covering every type of threat.

Cybernetics has been a leading innovator in storage and backup since 1978, with an impressive history of technology advances. Cybernetics developed the original implementations of hardware data compression and encryption for backup, and was first to develop disk-disk-tape VTL backup solutions in the early 1990’s. Today, Cybernetics is a pioneer in iSCSI SAN storage and backup solutions with unique product features and support. Every Cybernetics solution is backed with free telephone support to the original owner for as long as the product is in service.