

Optimize your VMware protection strategy

Leveraging Quantum Technology in a VMware Environment

THE REALITIES OF DATA PROTECTION IN A VIRTUAL ENVIRONMENT

As organizations increasingly utilize virtualization technologies from VMware to improve the efficiency of business operations and reduce capital equipment expenditures, they are recognizing that existing business continuance and data protection strategies need to evolve. This is due primarily to the unique structure of Virtual Machines (VMs) which cannot always leverage traditional backup and recovery methods. This issue paired with explosive growth in data creation and retention (due both to business and legal requirements) emphasize the need for a new backup and recovery strategy to prevent outages that cause delays, lost revenue, even total organizational failure.

Virtual environments introduce two major challenges that can disrupt traditional backup and recovery processes. Foremost is that using a traditional “agent” based backup strategy on virtual machines results in high levels of resource contention on a single physical server – prolonging backup windows and creating management headaches. Additionally there is a need to protect system files used to rebuild entire VM and ESX instances.

VMware’s VCB (VMware Consolidated Backup) is an excellent solution for protecting VMs and their related system files, but it is not always appropriate. For structured data sets with files that are seldom closed (e.g. email and database applications) or non-Windows systems, VCB may not be the best alternative for creating coherency checked, application specific backups. There may also be instances where SAN connectivity is not possible, preventing VCB implementation.

As a result, organizations are often challenged by the need for a “mixed” data protection strategy that includes, VCB, agent based backups of VMs, and backups of non-VMware systems (e.g. high end UNIX servers). Quantum understands these needs and provides a broad portfolio of highly scalable disk and tape solutions designed to meet the data protection needs of any VMware environment. The center point of this solution is Quantum’s DXi-Series.

THE QUANTUM DXI-SERIES ADVANTAGE

For VMware customers that want a powerful and cost-effective solution to safeguard all their content and virtual machines, Quantum’s DXi-Series is the perfect choice. Designed to meet the needs of any organization with centralized data centers or ROBO (remote office, branch office) environments, the DXi-Series includes several features that make it extremely well suited for use in new and growing VMware environments:

- **Seamless Integration** – The DXi-Series is designed to quickly integrate into your environment and existing backup procedures. With both FC and IP connectivity as well as NAS, iSCSI and VTL presentations, the DXi-Series can fit easily into any environment. The DXi-Series can also be carved into multiple devices to support VCB based backups as well as agent based backup with integration times of under 30 minutes.
- **Cost-Effective Data Protection** – DXi-Series uses Quantum’s patented de-duplication technology to maximize Return On Investment (ROI) by reducing the capacity requirements and cost for retaining large .vmdk files by up to 90% or more.
- **Simple, Secure Offsite Protection** – DXi-Series replication is encrypted and only transmits unique file elements, reducing bandwidth requirement by up to 90% or more.
- **Maximized Resource Utilization** – Every aspect of the DXi-Series is designed to enable consolidation and the most complete use of resources. Thin provisioning allows user to create devices that only use capacity as needed. The DXi-Series also supports many to one replication allowing consolidation to a single DR device.
- **Centralized Management of Distributed Environments** – DXi-Series coupled with Quantum’s StorageCare Vision enables the monitoring and management of the entire data protection environment from a single window – giving complete visibility into all the layers of your backup infrastructure.



FEATURES AND BENEFITS

- Powerful and cost effective solution to safeguard VMware environments
- Designed to meet the needs of any organization with centralized data centers and remote offices
- Leverages the power of de-duplication to maximize your ROI by reducing the capacity requirements and cost for retaining application data and large .vmdk files by up to 90% or more
- Offers encrypted, low bandwidth replication that can reduce network bandwidth requirements by over 90% for simple and secure offsite disaster recovery
- Centralized management of your distributed environment enabling the monitoring and management from a single window.
- Works with Quantum libraries to enable highly scalable, cost-effective archiving and disaster recovery – all sourced from a single vendor

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IMPLEMENTING QUANTUM'S DXI-SERIES WITH VMware

VCB Backup and Recovery

Implementing the DXi-Series with VCB is straightforward. As shown in diagram 1, the ESX Server and VCB Proxy Server are both connected via SAN to a shared storage pool. The ESX Server creates snapshot images of each VM and the Proxy Server pushes these images to the DXi-Series which is presented as a NAS device for ease of integration.

The Quantum DXi-Series then de-duplicates VM images to minimize capacity requirements. The .vmdk files which make up VM images are highly reducible and, as multiple copies of a VM are stored, capacity requirements can be reduced by up to 90% or more. Once images have been stored they can be replicated to a remote location for disaster recovery. The DXi-Series replication engine encrypts transmissions and only replicates unique file components limiting bandwidth to a fraction of what other replication technologies would require. In addition to replication for offsite disaster recovery, files can also be copied to physical tape on a Quantum library. Tape is often used to supplement the Quantum DXi-Series when customers need the most cost-effective, long term storage – both from a media and power consumption standpoint.

Benefits of Backing Up using the Quantum DXi-Series and VCB.

- **Eliminate Overhead:** VCB proxy server handles backup tasks, eliminating the overhead of doing individual VM backups which can monopolize physical server resources.
- **Minimize Costs:** DXi-Series provides de-duplication to reduce the capacity required to store .vmdk files.
- **Get Greater Control:** VCB allows for full, incremental, and differential backups of Windows VMs. DXi-Series supplements control by offering the simplicity of NAS and iSCSI or the power of FC depending on the need.
- **Optimize Business Continuance:** DXi-Series replication enables simple, secure offsite storage of images for disaster recovery. Quantum Tape libraries can be used to supplement the DXi-Series for long term, extremely low cost storage of data.

Agent Based Backup and Recovery

For customers in the process of migrating to VCB or for applications that require more traditional backup technologies (email, database, non-VMware systems), agent based backups can be used. Using a standard agent configuration, backups are pushed either over the LAN to a media server or via SAN directly to the Quantum DXi-Series as shown in diagram 2 or directly to the DXi-Series using the high speed FC interface.

As with the VCB method, data is de-duplicated at the DXi-Series to minimize capacity requirements and cost. Once data has been stored to the DXi-Series it can be replicated to a remote facility and copied to tape for long term archiving and disaster recovery.

Benefits of Backing Up using Quantum DXi-Series and Agent Backups

- **Handle application and system specific needs:** Agent based backups are useful for protecting database and email servers. They are also critical for incremental backups of non-Windows systems.
- **Increases Performance:** DXi-Series provides FC connectivity to avoid LAN contention and increase the speed of backup and restore operations.
- **Simplify Management:** When a mix of VCB and agent based backups is required, the DXi-Series can be segmented into multiple devices allowing all needs to be handled from a single system, minimize management complexity.
- **Optimize Business Continuance:** DXi-Series replication enables simple offsite storage of images for disaster recovery. Quantum Tape libraries can be used to complement the DXi-Series for long term, extremely low cost storage of data.

THE QUANTUM VALUE

Quantum solutions are utilized across the world in every type of site from remote offices to data centers of the Fortune 500. Quantum offers a broad range of disk, tape, and software solutions so that customers have the simplicity of working with a single provider - no matter what their backup, recovery, and archive storage needs. When combined with VMware's offerings, customers are able to create highly flexible solutions that allow them to rapidly respond and adapt to changing business needs. And because of their highly scalable architectures Quantum products grow with evolving business needs without resulting in the device proliferation that plagues many companies today.

Diagram 1

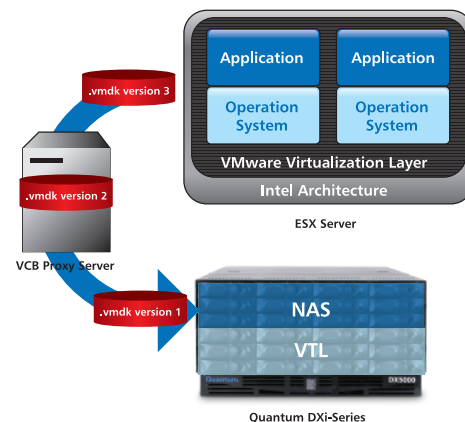
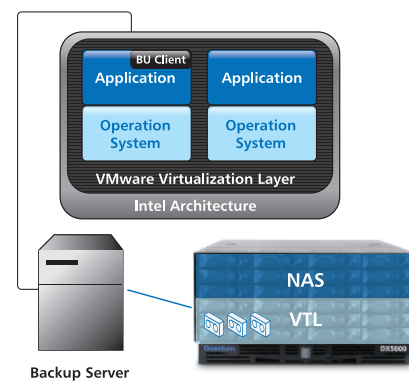


Diagram 2



Quantum

Backup. Recovery. Archive. It's What We Do.

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