

Lab Validation Report

Quantum DXi-Series and Symantec NetBackup OpenStorage

Centrally Managed Edge-to-Core Data Protection

By Tony Palmer with Brian Garrett and Lauren Whitehouse

September 2009

Contents

Introduction.....	3
Background.....	3
Edge-to-Core Data Protection from Quantum and Symantec	4
ESG Lab Validation	5
Quantum DXi-Series and Symantec NetBackup OpenStorage	5
Configuring Quantum DXi-Series and Symantec OpenStorage	7
Quantum DXi-Series and Symantec OpenStorage in Action	9
Quantum Vision 3.0	11
ESG Lab Validation Highlights.....	13
Issues to Consider	13
The Bigger Truth	14
Appendix	15
ESG Lab Test Configuration	15
ESG Lab Data Deduplication Test Results.....	16

ESG Lab Reports

The goal of ESG Lab reports is to educate IT professionals about emerging technologies and products in the storage, data management and information security industries. ESG Lab reports are not meant to replace the evaluation process that should be conducted before making purchasing decisions, but rather to provide insight into these emerging technologies. Our objective is to go over some of the more valuable feature/functions of products, show how they can be used to solve real customer problems and identify any areas needing improvement. ESG Lab's expert third-party perspective is based on our own hands-on testing as well as on interviews with customers who use these products in production environments. This ESG Lab report was sponsored by Quantum.

All trademark names are property of their respective companies. Information contained in this publication has been obtained by sources The Enterprise Strategy Group (ESG) considers to be reliable but is not warranted by ESG. This publication may contain opinions of ESG, which are subject to change from time to time. This publication is copyrighted by The Enterprise Strategy Group, Inc. Any reproduction or redistribution of this publication, in whole or in part, whether in hard-copy format, electronically, or otherwise to persons not authorized to receive it, without the express consent of the Enterprise Strategy Group, Inc., is in violation of U.S. Copyright law and will be subject to an action for civil damages and, if applicable, criminal prosecution. Should you have any questions, please contact ESG Client Relations at (508) 482.0188.

Introduction

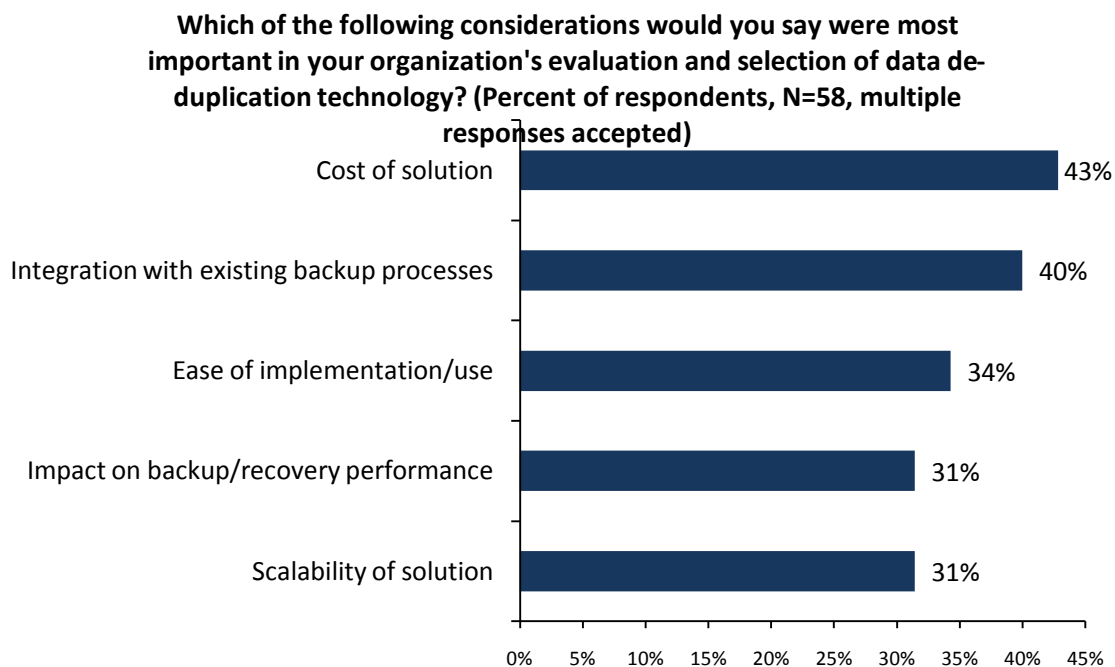
In this report, ESG Lab examines DXi-Series appliances working in concert with the Symantec NetBackup OpenStorage interface to provide consolidated management and automated data protection services across multiple sites and multiple storage technologies. Areas of focus include Quantum's new remote-office focused DXi2500-D appliances; the DXi7500 Enterprise disk backup platform; Quantum Vision 3.0, which provides end-to-end visibility and management of Quantum's growing family of data protection solutions; and Symantec OpenStorage API enabled disk to disk to tape (D2D2T) management.

Background

A growing number of organizations are turning to disk-based backup and recovery methods to improve the speed and reliability of backup and restore operations protecting ever-expanding volumes of data. Disk-based systems are inherently faster for restores and more reliable than tape, but they can be significantly more expensive.

Data deduplication can effectively reduce the expense of storing and replicating disk-based backup data. Variable block-based data deduplication reduces resource requirements by examining data at a sub-file level and ensuring that only unique data blocks are written to disk. Data deduplication eliminates the need to store multiple copies of the same data over time and to transmit multiple copies of the same data during replication. This combination dramatically reduces the resources and costs associated with introducing disk and replication into an existing backup and recovery environment.

Figure 1. Data Deduplication Evaluation Criteria



Source: Enterprise Strategy Group, 2009.

While deduplication can reduce the cost of the raw storage required to store and replicate disk-based backup data, integration into the organization's ecosystem is crucial. As shown in Figure 1, recently completed ESG research indicates that integration with existing backup processes and ease of implementation are key concerns.¹ Robust edge-to-core management, tape integration, performance, and flexible deduplication options are important considerations as well, especially within multi-site organizations. The Quantum DXi-Series disk based backup

¹ Source: ESG Research Report, *Data Protection Market Trends*, February 2008.

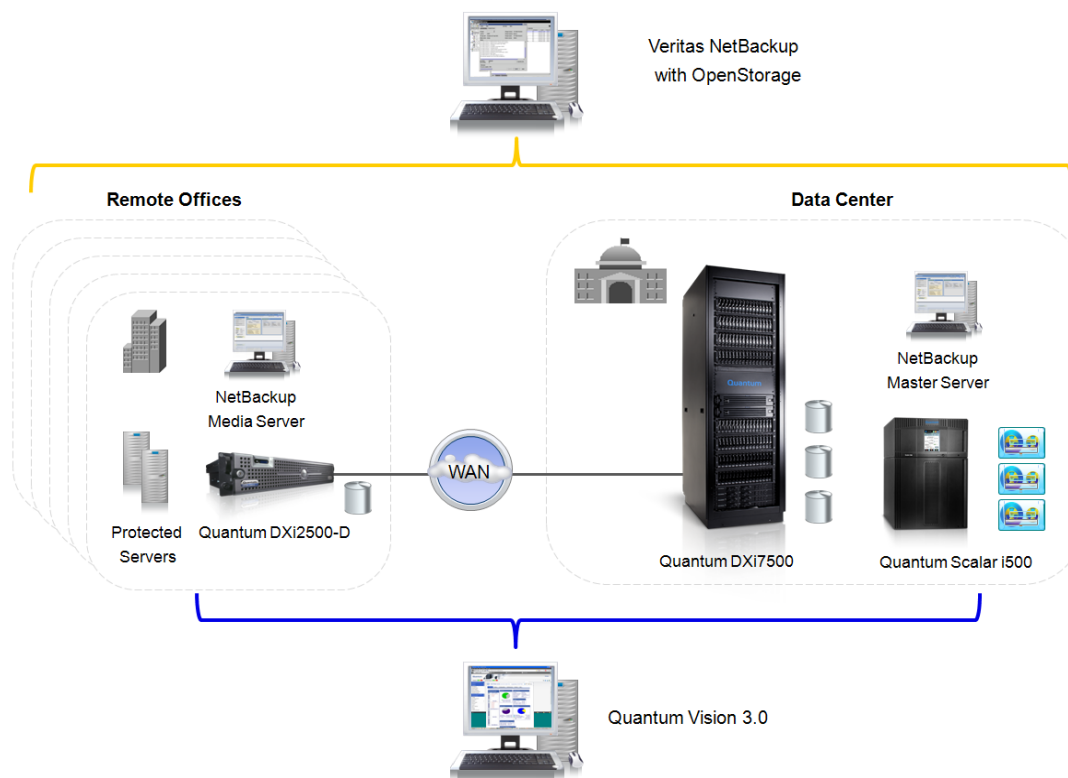
solutions, working in concert with the Symantec OpenStorage API, is ideally suited to address each of these concerns.

Edge-to-Core Data Protection from Quantum and Symantec

The growing family of Quantum disk and tape hardware solutions, combined with Symantec NetBackup software and its OpenStorage API option, can be configured to create an automated, edge-to-core data protection topology (see Figure 2) that spans multiple sites and provides disk to disk to tape (D2D2T) functionality. Quantum DXi-Series appliances, including the new remote office-optimized DXi2500-D, combined with the OpenStorage API introduced in NetBackup version 6.5.4 provide automated movement of data between sites and storage tiers and a single point of management and catalog for backup data—regardless of where it resides (remote office or corporate data center), what type of media it is stored on (disk or tape), or its age (recent backup or long term archive). Quantum DXi-Series disk-based backup and replication appliances support data deduplication, which reduces the resources required to store backup images on disk and replicate backup images over a WAN. Quantum recently released a new hardware configuration—the DXi7500-N, which is optimized for NAS and Symantec OpenStorage API architectures—with improved Ethernet connectivity and updated software supporting disk and tape backup integration for leading backup applications.

Symantec NetBackup provides a single point of backup data management, including “direct path to tape” backup images that are created without having to pass through a media server. In addition, the DXi7500 platform recently became the first deduplication system to be qualified by Symantec for its OpenStorage API direct tape creation capability. Quantum Vision software provides a single point of infrastructure management for multiple Quantum disk and tape products, offering valuable insight into usage, trends, and current health of Quantum hardware, deduplication, and replication.

Figure 2. Quantum DXi Edge-to-Core Data Protection



The balance of this report begins with a summary of the disk capacity and bandwidth savings that ESG Lab has recorded during previous hands-on testing of Quantum DXi-Series disk backup and replication appliances. This

report also presents the results of recently completed testing with a DXi2500-D appliance at a simulated remote office and a DXi7500 at a simulated central data center using Symantec NetBackup version 6.5.4 and Symantec OpenStorage to provide a central point of management for remote replication and direct tape creation.

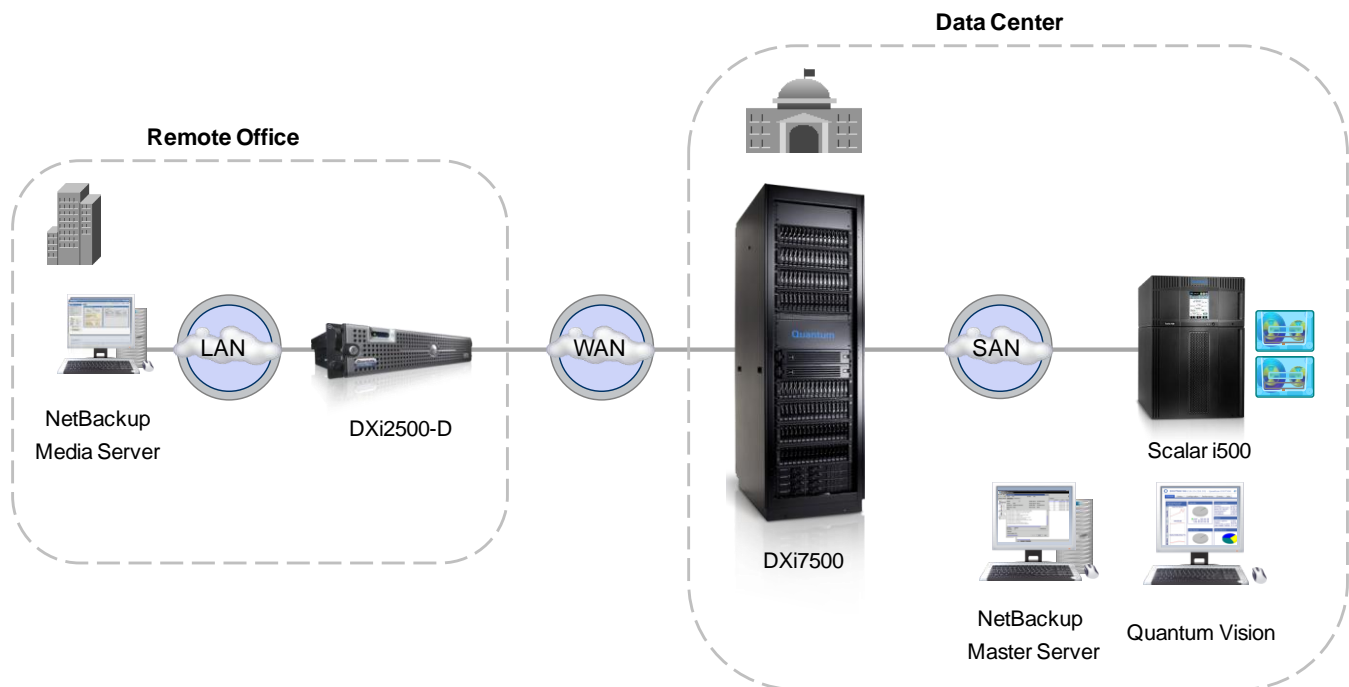
ESG Lab Validation

ESG Lab has had the unique opportunity to follow the continued evolution of Quantum's disk-based backup systems since first testing the DX100 in 2004. In 2007, ESG Lab tested Quantum's DXi3500 and DXi5500 midrange disk-based backup appliances with deduplication and replication.² In 2008, ESG Lab examined the DXi7500 as the cornerstone of a comprehensive edge-to-core data protection strategy.³ This report describes the results of ESG Lab's latest testing of a Quantum DXi2500-D and Symantec OpenStorage-enabled edge-to-core data protection solution.

Quantum DXi-Series and Symantec NetBackup OpenStorage

ESG Lab used the Symantec OpenStorage API in Symantec NetBackup version 6.5.4 to configure, automate, and track the migration of backup data residing on Quantum disk and tape products as shown in Figure 3. An edge-to-core D2D2T data protection strategy was implemented using a Quantum DXi2500-D appliance located in a simulated remote office. Remote office backup data was replicated over a simulated WAN to a DXi7500 in a corporate data center with data movement carried out by the DXi systems. The direct path to tape capabilities of the DXi7500 and the Symantec OpenStorage API were used to automatically write a copy of the data to removable media in a Fibre Channel SAN attached Quantum Scalar i500 tape library.

Figure 3. ESG Lab Test Bed



In our system, the DXi systems moved all data directly, while the Symantec NetBackup master server in the corporate data center was used to create a single point of control and catalog for all the versions of the backup data residing anywhere within the D2D2T infrastructure. Quantum Vision software was used as a single point of infrastructure management for the Quantum disk and tape devices. In other words, Symantec NetBackup provided

² ESG Lab Validation Report: *Quantum Dxi-Series with Data De-duplication*, May 2007

³ ESG Lab Validation Report: *Quantum DXi7500 - Deduplicated backup for the Enterprise*, December 2008

a single point of management for backup *data* and Quantum Vision provided a single point of management for backup *devices*.

Why This Matters

A growing number of organizations are struggling to protect information assets residing in remote and branch offices. Most are alarmed at the rate of data growth in remote offices. Many lack the IT staff and expertise needed to manage traditional tape-based protection methods. Many more are frustrated with the cost and complexity of managing tape media at remote offices. Disk-based backup and replication to a corporate data center reduces the complexity and risk, but until recently, it's been too expensive to justify due to the cost of remote office disk capacity and the WAN connectivity required.

With a list price of \$12,500—which includes deduplication, replication, and Symantec OpenStorage support—the recently released Quantum DXi2500-D is an affordable, simple, and effective solution for the protection of valuable information assets residing in remote and branch offices.

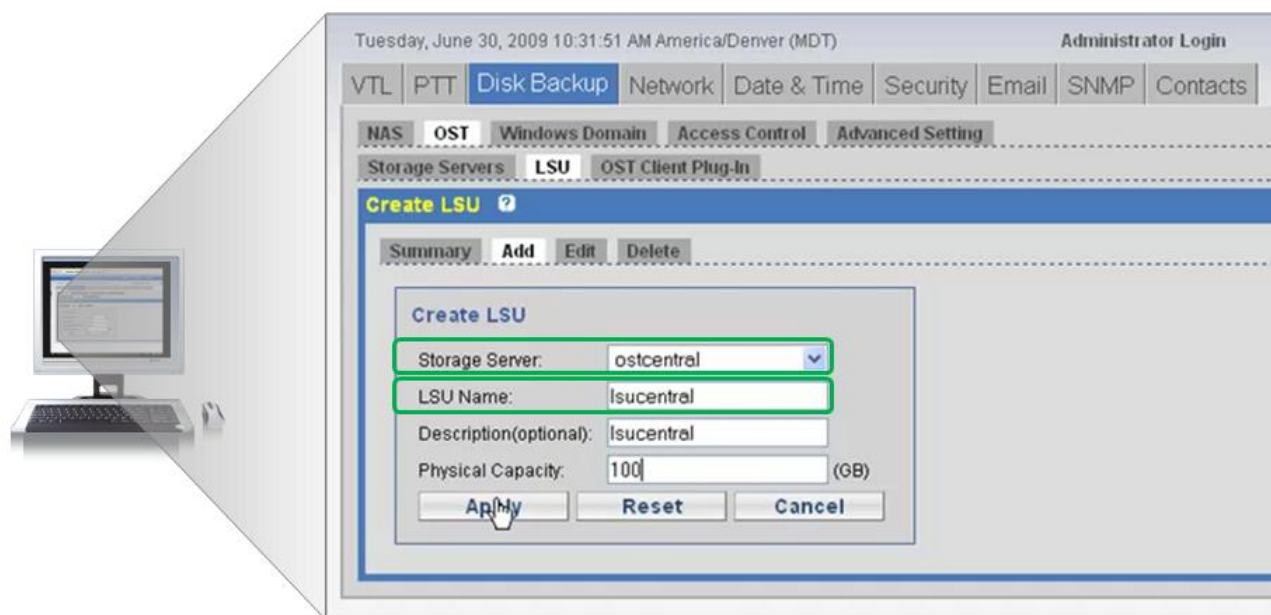
Configuring Quantum DXi-Series and Symantec OpenStorage

At a high level, configuring Symantec NetBackup software and DXi-Series hardware to take advantage of OpenStorage-enabled replication and tape creation was a four-step process:

1. Configure Quantum DXi appliances to take advantage of the OpenStorage API
2. Install the Quantum OpenStorage plug-in on NetBackup servers
3. Configure NetBackup to use Quantum OpenStorage-enabled disk pools
4. Create NetBackup storage lifecycle policies for backup, replication, and tape creation

Step 1: The process began with the configuration of an OpenStorage Storage Server and a Logical Storage Unit on the DXi7500. A screen shot of the DXi7500 management console during the creation of the LSU is shown in Figure 4. Note that the LSU named *lsucentral* has been defined to use the *ostcentral* storage server. This process was repeated on the DXi2500-D in the remote office (*ostremote*/*lsuremote*).

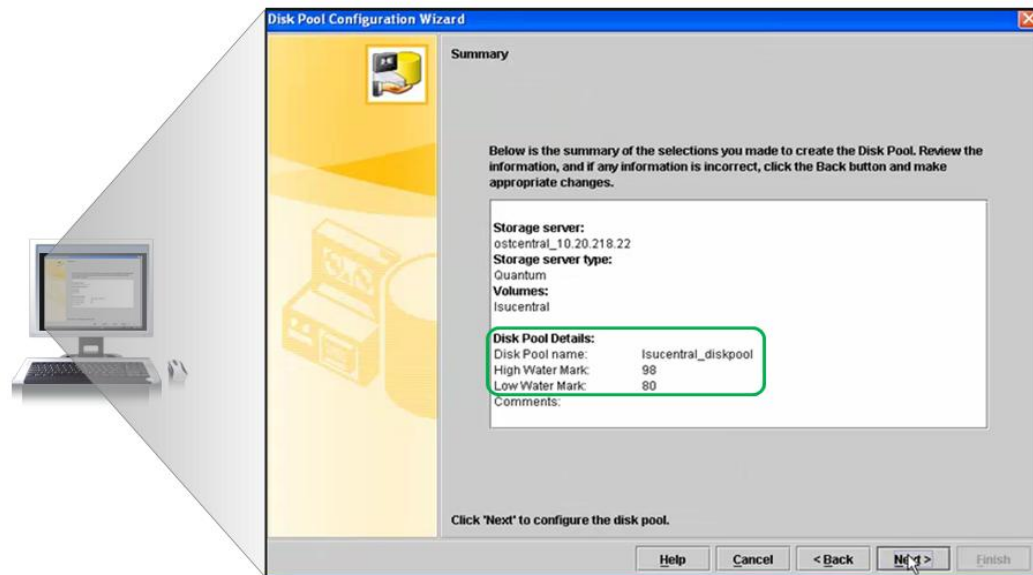
Figure 4. Configuring Quantum DXi for OpenStorage



Step 2: Next, the OpenStorage plug-in was downloaded from Quantum and installed on the NetBackup servers in the corporate data center and the remote site. A Quantum configuration file was copied to the */usr/quantum* directory on each of the Linux NetBackup servers. This phase of the installation ended with a restart of the NetBackup daemon on each of the Linux NetBackup servers.

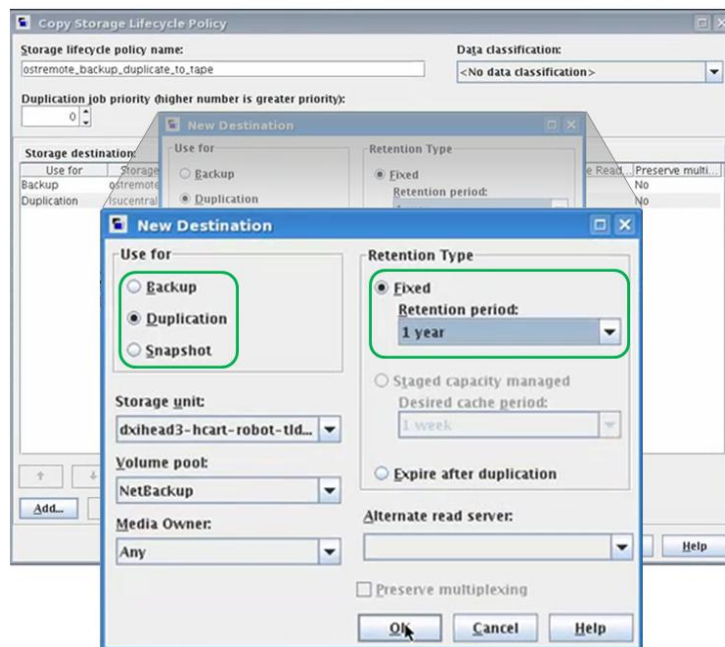
Step 3: Symantec NetBackup commands were used to create two storage servers: one for the central site and another for the remote site. The names of the DXi-Series storage servers created earlier (*ostcentral* and *ostremote*) and the IP addresses of each of the DXi systems was provided. The NetBackup GUI was used to start a NetBackup path to tape wizard which scanned and discovered each of the DXi-Series systems. The NetBackup wizard shown in Figure 5 was used to define OpenStorage enabled disk pools. In this example, the disk pool for the disk pool on the DXi7500 in the corporate data center has been defined (*lsucentral*). The process was repeated for the DXi2500-D in the remote office (*lsuremote*).

Figure 5. Configuring a Disk Pool in NetBackup



Step 4: As shown in Figure 6, a NetBackup storage lifecycle policy was configured to automatically perform remote replication and direct path to tape duplication.

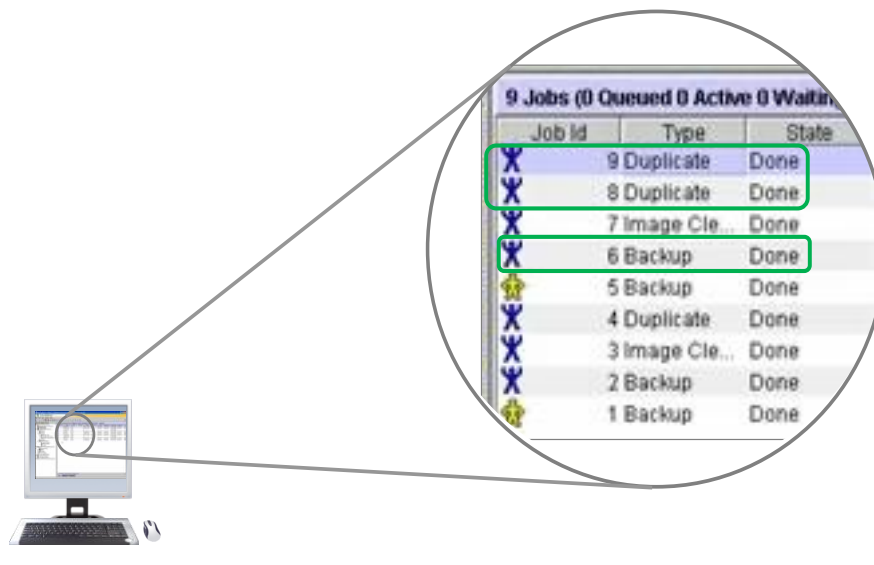
Figure 6. Configuring a Storage Lifecycle Policy



After completing the four step configuration process, an existing backup policy was modified to take advantage of the new storage lifecycle policy. Twenty minutes after getting started with the configuration on a pre-wired test bed, ESG Lab was monitoring the automated execution of backup, replication, and tape creation. A backup was started manually and monitored from the NetBackup console. As shown in Figure 7, NetBackup automatically

started the DXi enabled replication after the backup job finished. After that job finished, a third job was started automatically to create a removable copy of the remote office backup data in the corporate data center.

Figure 7. The NetBackup Activity Monitor – After D2D2T



ESG Lab finished the evaluation with a quick tour of the NetBackup catalog. As expected, all three copies of the remote office backup job were found and could be used for recovery from a single console:

1. A disk-based copy on the DXi2500-D in the remote site, which is ideally suited for quick and reliable recovery of lost or corrupt files
2. A disk-based copy on the DXi7500 in the corporate data center, which is ideally suited for recovery after a disaster in a remote office (e.g., server failure, fire, flood).
3. A removable tape-based copy in the Scalar i500, which is ideally suited for legal discovery, compliance, and disaster recovery at corporate headquarters.

Quantum DXi-Series and Symantec OpenStorage in Action

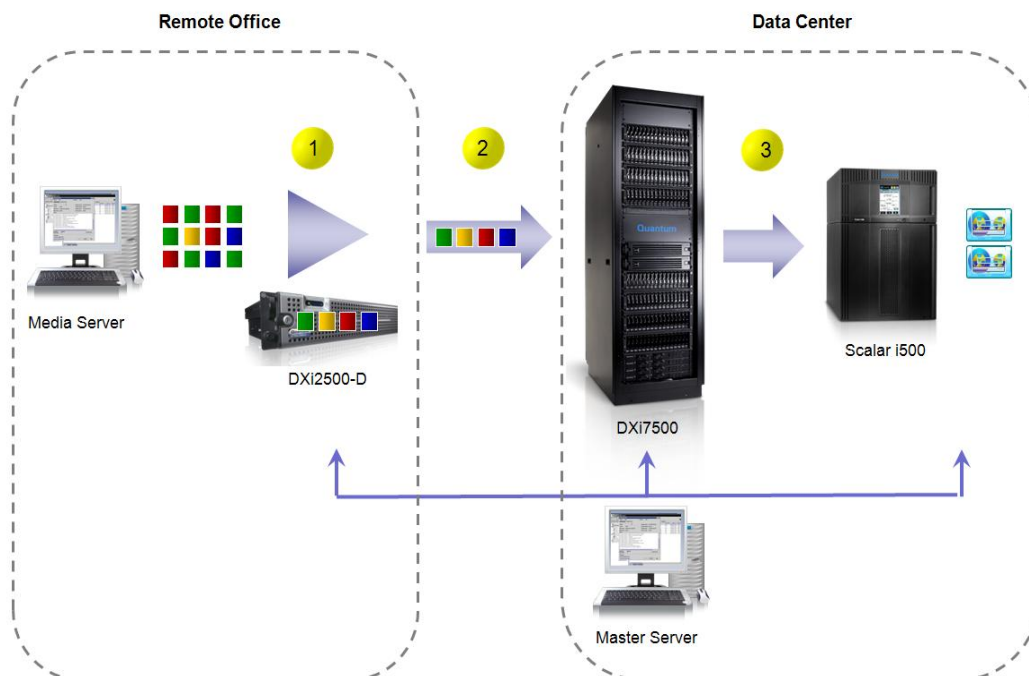
Now that we've taken a look at what it takes to configure OpenStorage enabled lifecycle policies from an administrator's standpoint, let's take a look at what was happening inside as backup, replication, and tape creation was handled automatically.

An overview of the process is shown in Figure 8. Reading from left to right, the process begins with a backup job at the remote site. Orchestrated by the NetBackup master server in the data center, the Quantum DXi-Series appliances perform three operations:

1. The DXi2500-D in the remote site receives the backup from the local media server and reduces the amount of data stored on disk using its data deduplication technology.
2. NetBackup initiates, via policy, a replication action in which the DXi2500-D replicates the reduced data over a WAN to the DXi7500 in the data center. At this point, the NetBackup Master Server catalog shows both instances and users can recover from either one.
3. NetBackup manages the robotics in the Quantum iScalar tape library and tells the Quantum DXi7500 in the data center to start a high speed transfer of the full backup image over a FC network directly from the disk system to tape using the NDMP protocol. At the end of this operation, the copy of the data on tape is added to the Master Server's catalog—all 3 copies of the data are now accessible directly.

The NetBackup master server provides a single pane of glass to initiate all the data movement and a single catalogue to track and manage all the copies. This includes the ability to define separate retention policies for the space efficient disk-based backups in multiple locations and exportable backups on tape. As an example, an organization with a central data center and many remote sites may set a 60-day retention period at the edge, considering that the majority of restore requests occur within this timeframe. A 30-day retention policy for disk-based backups centrally will provide a secondary copy and enable tape creation, but will contain capacity, footprint and power costs, with a monthly tape copy for long-term retention and offsite requirements.

Figure 8. Quantum and Symantec OpenStorage in Action



Why This Matters

Until recently, extending the benefits of a D2D2T protection strategy to remote and branch offices has been expensive and hard to manage. If disk-based storage systems were used for replication, the backup software couldn't keep track of where the copies reside. If the backup software was making tape copies, media servers got bogged down. If full copies of data were stored on disk and replicated, disk capacity and WAN bandwidth was cost prohibitive.

ESG Lab has confirmed that the Quantum-Symantec combination solves these problems and provides the benefits of a centrally managed D2D2T approach that can be extended across sites and across storage technologies. In this system, the Quantum DXi-Series appliances reduce the cost of disk capacity and WAN bandwidth and provide direct tape creation that reduces the load on backup servers. NetBackup initiates all the data movement, provides the ability to define separate retention policies for disk and tape copies in multiple locations, and maintains a single catalogue to manage it all. For users with multiple sites and the need for multiple tiers of backup data, the combination provides a significant set of benefits.

Quantum Vision 3.0

A major advantage of Quantum's disk based backup solutions is that users can link multiple sites together in an edge-to-core strategy using remote replication, deduplication technology, and tightly integrated tape in a consolidated backup architecture using Symantec OpenStorage to manage the data transparently. As backup systems become more interconnected and integrated, management becomes a critical element of any solution set. This section will examine the management features of Quantum Vision, a management software tool that allows users to manage disk, tape, and replication in multiple sites from a single console.

ESG Lab examined Quantum Vision software in 2008 to confirm its ability to provide a complete view of all of the Quantum tape and disk systems deployed within an organization. We returned in 2009 to take a look at the enhanced reporting capabilities provided in the recently release Vision 3.0 software. Quantum Vision 3.0 offers enhanced reporting on deduplication, replication and tape libraries.

When ESG Lab logged into the Quantum Vision web console, the Quantum Storage Monitor presented a list of all systems under management. This global view provided a snapshot of the status and health of every backup device in this petabyte-plus environment with the ability to filter by status and quickly drill down into any system that required attention, as shown in Figure 9.

Figure 9. Quantum Vision 3.0

Status	System	Device IP Address	Product	Model	Status Description	Serial Number	Software Revision
Good	i2000 XML	20.32.163.102	Quantum Scalar i2000(XML)	Scalar i2000	Good	203100018	595A-GS01401
Good	Scalar i500	20.32.163.16	Quantum Scalar i500(XML)	Scalar i500	Good	A0C0815915	571G.GS002
Good	DXi7500 lab	20.32.226.32	Quantum DXi7500	DXi7500	Normal	CX0745BVA00006	05.02.2017
Good	i2000 XML	20.32.163.102	Quantum Scalar i2000(XML)	Scalar i2000	Good	203100018	595A-GS01401
Good	Scalar i500	20.32.163.16	Quantum Scalar i500(XML)	Scalar i500	Good	A0C0815915	571G.GS002
Good	DXi7500 lab	20.32.226.32	Quantum DXi7500	DXi7500	Normal	CX0745BVA00006	05.02.2017
Good	DXi7500 PPO IT	20.32.34.36	Quantum DXi7500	DXi7500	Normal	CX0808BVA00020	05.02.2017
Good	DXi7500 OCS	20.32.166.229	Quantum DXi7500	DXi7500	Normal	SV0941BVA26539	5.3.076
Good	DXi7500 K-System	20.32.163.184	Quantum DXi7500	DXi7500	Normal	4GWPQJ1	5.3.076
Attention	DXi7500 ATS20	20.32.218.22	Quantum DXi7500	DXi7500	Attention	CX0931BVA00465	05.02.5008_5
Good	DXi2500-D	20.32.163.184	Quantum DXi2500	DXi2500-D	Normal	4GWPQJ1	11.2.007
Good	ATS10	20.32.218.10	Quantum DXi7500	DXi7500	Normal	CX0941BVA00002	5.3.076

Next, ESG Lab examined the DXi7500 Console within Quantum Vision. Several graphic representations of performance, capacity, and data reduction are offered to administrators, as seen in Figure 10. If replication is enabled, users can also look at status of replication jobs and monitor replication performance trends.

Figure 10. Quantum Vision DXi Console



In addition to the expected configuration and management functionality, ESG Lab found Quantum Vision's reporting and alerting functionality to be extensive and robust. Administrators can custom-design reports showing history and trending for capacity, performance, and deduplication and have those reports e-mailed to multiple addresses. The reports are clear, concise, and easy to read. They provide both point in time views and trend analysis reporting for any combination of units, anywhere in the world. This report shows the overall deduplication ratio climbing as each successive full backup was completed.

Why This Matters

Ease of implementation and management was reported to ESG as one of the top concerns when choosing a data deduplication backup solution. This will become more important as users leverage the technology to create integrated enterprise-wide backup environments that link systems via replication and integrated tape creation. ESG Lab has confirmed that Quantum Vision 3.0, as part of an enterprise-class edge-to-core data protection solution, provides deeper tape support, enhanced reporting on trended deduplication savings over time, and backup and replication performance over time, as well as a single point for Quantum disk and tape infrastructure management with point and click console launching for troubleshooting.

ESG Lab Validation Highlights

- ☑ ESG Lab found the DXi family of disk backup systems, including the remote office optimized DXi2500-D, integrated tightly with Symantec OpenStorage and offered a robust, comprehensive, edge-to-core data protection solution for large enterprises.
- ☑ Integration with Symantec's NetBackup OpenStorage was seamless. ESG Lab was able use NetBackup to manage backup data through its entire lifecycle: From a remote office (edge), to a data center (core), then offsite (tape).
- ☑ Replication of backup sets was completely managed by NetBackup; as data was copied from a remote site to a data center, then off to tape, ESG Lab was able to browse the various copies in the NetBackup catalog and select the location to restore from.
- ☑ Path-to-tape integrated smoothly with NetBackup media management and offloaded resource intensive copy functions from the media server while using familiar NetBackup commands.
- ☑ Quantum Vision 3.0 was visually appealing and provided excellent management, monitoring, and capacity and performance trending.

Issues to Consider

- ☑ As with all disk-based backup systems today, when a retained backup image is deleted or expired by the backup application, space on the DXi is not reclaimed until the image is deleted, expired, or overwritten via the DXi management application and the reclamation process is run. Tighter integration with backup applications to automatically trigger a policy-based reclamation on the DXi when images have been expired by the backup application would be a useful enhancement.
- ☑ The DXi has clearly moved squarely into the enterprise with the capacities supported in the DXi7500, leveraging the StorNext file system for improved high availability. Using a multi-node, clustered design would enable even larger centrally managed pools of deduplicated capacity.
- ☑ Active Directory integration for Vision would simplify role-based administration and management for a global storage and backup environment leveraging an infrastructure already present in most enterprises.

The Bigger Truth

ESG Lab has been tracking the progress of Quantum's disk-based backup and recovery solutions for several years, conducting its first hands-on testing of the company's initial enterprise VTL system in 2005 and validating DXi-Series appliances in 2007 and 2008, including the DXi7500 enterprise platform. The DXi2500-D, aimed at enabling smaller, remote offices to leverage the features and functionality demonstrated by the DXi7500, completes a comprehensive, enterprise wide edge-to-core data protection architecture that goes beyond disk-based backup.

During this latest independent lab validation, ESG Lab confirmed Quantum's edge-to-core capabilities in support of large enterprises, including the DXi2500-D as well as OpenStorage support across disk, replication, and tape throughout the product line. Quantum's single, scalable architecture across the DXi-Series provides flexible policy-based data deduplication technology, delivering dramatic disk capacity savings while offering scalable, predictable performance that is optimized for both the type and value of data.

Quantum's integration with Symantec OpenStorage enabled ESG Lab to manage backups for a remote office from creation, through replication, and finally to tape—all using NetBackup storage policies and native tools, enabling an edge-to-core data protection strategy covering remote and branch offices as well as multiple data centers. Path-to-tape integration with backup software enables enterprises to meet offsite and deep archive requirements using the familiar tools and techniques of their backup application without burdening media servers or consuming SAN bandwidth with the task of tape creation.

Quantum's Vision 3.0 software exemplifies the company's depth and breadth of end-to-end solutions for backup, recovery, and archive encompassing disk and tape. It should bring significant value to customers grappling with the challenges associated with effective management of their data protection resources. ESG Lab found tools such as the deduplication trend analysis to be an excellent example of the deep, yet intuitive value of Vision's rich set of capabilities.

ESG Lab believes that the combination of policy-based data deduplication, enterprise class performance, and scalability—along with comprehensive storage management software and services—provides a unique approach for optimizing data protection and recovery strategy in the enterprise. Quantum customers can now retain more data for fast and reliable restores and longer retention periods while minimizing impact on backups with policy-based deduplication. Combined with the consolidated data management realized through the OpenStorage API integration, customers have a wide choice of configurations in a single solution, which can be used to dramatically increase the role of disk in the protection of critical data.

Appendix

ESG Lab Test Configuration

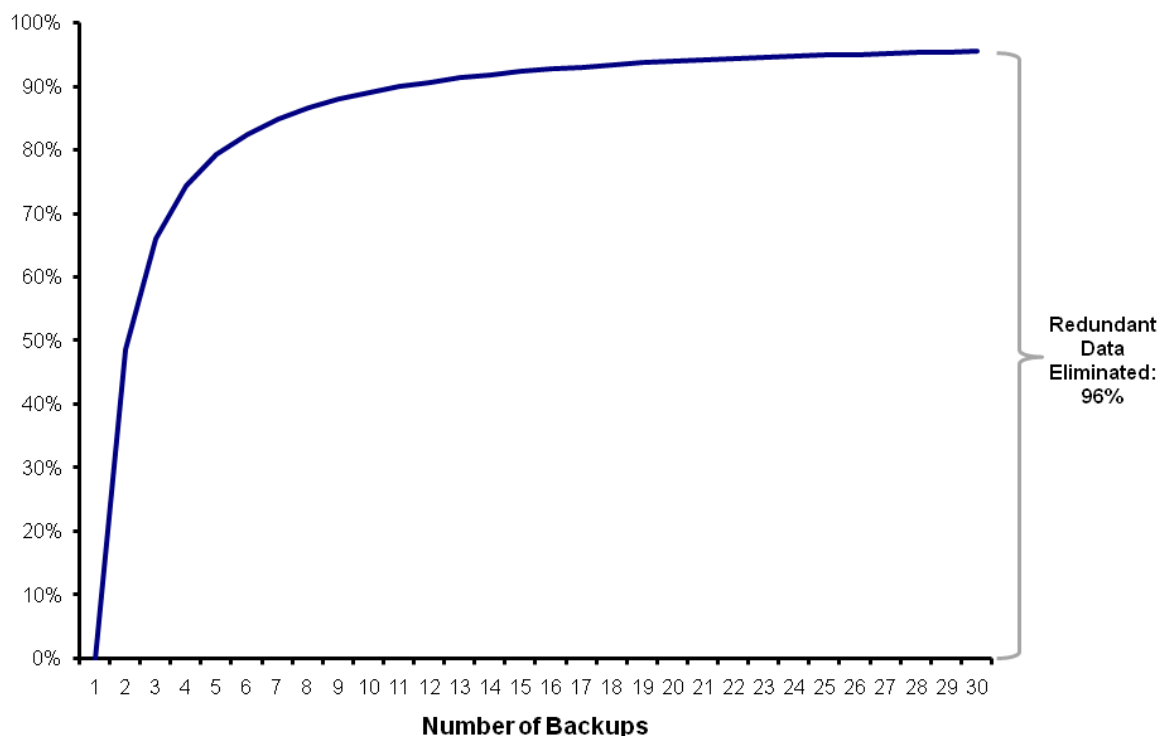
The configuration used during 2009 ESG Lab testing of an edge-to-core data protection solution from Quantum and Symantec is summarized in the following table.

DXi 2500-D disk backup system	1.8 TB usable, firmware 5.1.329 FC VTL emulation
DXi7500 disk backup system	18 TB usable, firmware 5.1.329 FC VTL emulation
Two Dell 1950 servers: Dual Xeon 3 GHz CPUs, 4 GB RAM, QLogic QLE2462 FC HBAs Driver 9.1.7.16	Windows 2003 Server, SP 2 NetBackup 6.5
One Dell 1950 server: Dual Xeon 3 GHz CPUs, 4 GB RAM, QLogic QLE2462 FC HBAs, Driver 8.01.04-d8	RedHat Linux 2.6 kernel
SAN Connectivity	Brocade Silkworm 4 Gb/sec FC switch
LAN Connectivity	Dell D-link DGS-3024 Ethernet switch
Exchange Data	18 full backups, 112 GB each
Server Storage	FC attached JBOD with StorNext v3.1, Adaptec arrays, EMC arrays
Tape	Quantum Scalar i500 LTO-4 drives

ESG Lab Data Deduplication Test Results

The capacity savings achieved with Quantum DXi-Series data deduplication during ESG Lab testing in 2007 is summarized in Figure 11.⁴ Multiple full backups were run and the projected data reduction over thirty days was calculated. The savings are represented as a percentage of the total volume of protected data sent to the system by Symantec NetBackup compared to the actual capacity stored to disk. In this example, the amount of data stored on disk after 30 simulated days was 115 GB—about 4% of the total 2,699 GB of data backed up. This represents a 96% reduction in disk capacity requirements.

Figure 11. Effect of Data Deduplication Over Time



Data deduplication changes the economics of backup to disk by reducing the cost of data storage on disk. Quantum DXi-Series data deduplication also reduces the WAN bandwidth required for remote replication. The field-proven deduplication engine tested by ESG Lab in 2007 is built into every DXi-Series appliance—including the recently released DXi2500-D, which is ideally suited for deployment in remote and branch offices at the edge of an enterprise data protection topology.

There are two basic approaches to deduplication: processing data as backups are running and deduplicating data after a backup job has completed. Quantum was the first vendor to provide users with a choice; Quantum's policy-based deduplication can be configured to deduplicate as backups arrive (adaptive mode), at a scheduled time after backup jobs complete (deferred mode), or not at all (native mode).

⁴ Figure 11 depicts the actual and projected savings after four full backups of real-world backup sets harvested from a corporate data center including Microsoft Exchange e-mail and home directory file application data. For a full description of the test methodology and results used in the 2007 Quantum DXi-Series ESG Lab Validation report, download the full report at www.enterprisestrategygroup.com.



Enterprise Strategy Group | **Getting to the bigger truth.**