



# DXi8500 Enterprise

Powerful, flexible disk backup solution leveraging data deduplication for enterprise-wide protection

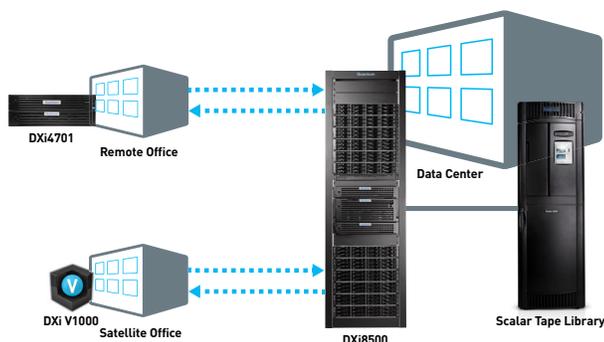
The DXi8500 is the high-performance deduplication solution with the power, scale, flexibility, and value to anchor an enterprise-wide backup, disaster recovery (DR), and data protection strategy.

Built on Quantum's DXi® software, the DXi8500 offers industry-leading inline performance of up to 14.2TB/hour, and advanced deduplication technology that reduces typical disk and bandwidth requirements by 90% or more. The results are faster backups, streamlined restores, and automated DR protection that leverages remote replication to simplify management, reduce or eliminate removable media, and lower costs.

The DXi8500 scales from 45 to 330TB of usable capacity with 3TB self-encrypting drives (SED) in a single rack, and presents the industry's widest range of presentation options, including deduplication-enabled VTL, CIFS, NFS, and OST, as well as native-mode (non-deduplicating) VTL and NAS shares. Optimized Synthetic Full Backups run with OST, resulting in significantly reduced I/O traffic for backup and full restores. All interfaces can be supported simultaneously in the same unit to provide maximum configuration options for heterogeneous environments, and all licenses are included in the base price of the appliance for maximum value.

To integrate short-term protection and long-term retention, the DXi8500 features an integrated path-to-tape for both VTL and OST presentations, providing a direct link to physical tape libraries that bypasses the backup server but is fully integrated into leading backup applications' management interface and media catalogs.

A standard feature on DXi8500 appliances is DXi Accent™ software for distributed deduplication. DXi Accent dramatically increases backup performance over low-bandwidth networks by moving part of the deduplication process to the backup server so that only unique blocks are sent to the DXi8500.



With up to 14.2TB/hour data ingest, the DXi8500 supports high-performance data center backup and anchors a multi-site, multi-tier protection strategy. Replication, VTL, OST, direct tape creation, and DXi Accent software licenses are included in the base appliance price.

## KEY BENEFITS

### Industry-leading Backup and Recovery Performance While Managing Costs

- Up to 14.2TB/hour inline performance for faster backup and restore with any backup application
- Uses patented variable-length data deduplication technology to decrease disk requirements by 90% or more
- Scales from 45 to 330TB usable capacity in a single rack with 3TB self-encrypting drives (SED)
- Supports OST Optimized Synthetic Full Backups
- DXi Accent provides dramatically higher performance in bandwidth-constrained environments

### Improve and Automate Disaster Recovery

- Reduces bandwidth requirements by 90% or more
- AES 256-bit encryption for replication and data-at-rest
- Enhanced network control with replication bandwidth scheduling
- Full support for direct tape creation with leading backup applications for end-to-end data protection across sites

### Protect all Your Sites

- Enterprise backup system with flexible interface—VTL, NFS, CIFS, OpenStorage (OST)
- Supports all leading backup software, replication compatible with all DXi appliances
- Supports unified disk and tape protection across multiple sites under common management
- DXi V1000 replication from edge sites provides DR for remote sites

### Optimized Protection for Virtual Environments

- Integrated support for vmPRO Software, providing faster, easier protection of virtual servers and optimized VM deduplication rates

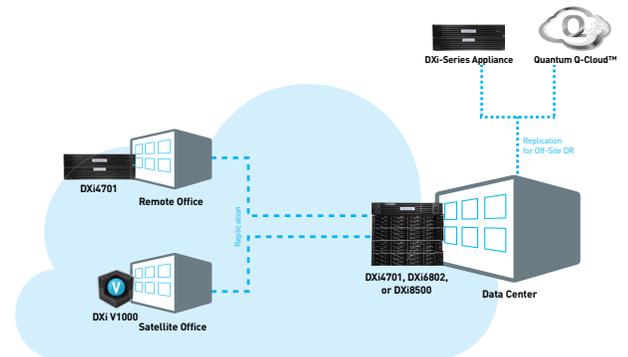
## Leading Enterprise Solution Consolidates Backup and DR while Reducing Costs

The DXi8500 is a high-performance deduplication appliance that provides the scale, performance, flexibility and value to anchor the backup, DR, and retention needs of distributed enterprise environments. The DXi8500 leverages the latest deduplication technology—along with high-speed SAS disk, advanced connectivity options, seamless scalability, and direct tape creation—in a scalable, purpose-built appliance that includes all software licenses—deduplication, replication, path-to-tape, NAS and OST interfaces, DXi Advanced Reporting, and DXi Accent software for collaborative deduplication. The DXi8500 with DXi software provides the fastest inline deduplication in its class—up to 14.2TB/hour in conventional VTL target operation and the highest capacity—330TB usable in a single rack—of any unified-target appliance. Its range of presentations—VTL, NAS, and OST—makes it easy to deploy in any backup environment. DXi appliances protect data on both physical and virtual servers, and they work effectively with all leading backup software applications to provide rapid return on user investment. In a recent IDC study, DXi customers enjoyed returns of \$4.75 for every \$1 invested over a three-year deployment, and the deduplication systems paid for themselves in savings within an average of seven months.

BACKUP PROBLEM	DXi8500 SOLUTION
Meeting backup and recovery windows	Highest open-protocol performance in its class, up to 14.2TB/hour performance
Centralizing backups from distributed offices	NAS, VTL, OST interfaces, remote replication and DXi Accent for distributed deduplication DXi V1000, DXi Virtual Appliance provides complete replication capabilities from edge sites to DXi4701, DXi6701/02, DXi6802, or DXi8500 at the data center
High backup costs	Reduced media use, fast return on investment
Running out of capacity	Scales from 45 to 330TB usable capacity, deduplication reduces disk need by 90% or more
Rapid data growth	Systems scale simply on site
Offsite security and DR	AES 256-bit encryption for replication and data-at-rest, reduced removable media, integrated tape for low cost retention

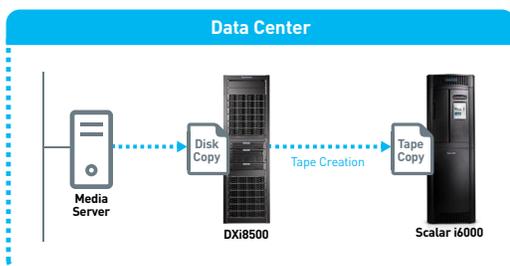
## Replication Provides Automated, LAN-based DR Protection

DR protection for distributed sites is a persistent IT problem. Managing removable media across multiple remote sites is expensive, time-consuming, and error-prone. Traditional disk-to-disk systems don't offer an effective solution since backup volumes are too large to allow replication for most users. Quantum's deduplication technology makes remote replication a practical and cost-effective tool for DR protection by dramatically reducing the bandwidth required to move backup data over networks. Offsite copies of backup sets are created automatically by DXi systems and copied to DR centers, letting users reduce or eliminate the need to manage removable media and dramatically reducing costs. Using the DXi V1000, a software virtual appliance DXi at remote sites, provides complete edge-based data protection with replication to data center sites with any resident DXi. The DXi-Series includes advanced features such as global deduplication, AES 256-bit encryption for replication and for data-at-rest using 3TB SEDs, calendar-based replication scheduling and throttling, optimized synthetic backups, replication scheduling, and file-by-file or share-by-share replication control as part of a fully automated, multi-site process.



Replication of backup data provides DR over WAN connections using calendar-based scheduling and bandwidth control, reduces use of removable media, maximizes bandwidth utilization, and lowers costs.

## Integrates Backup and Restore with Long-Term Retention



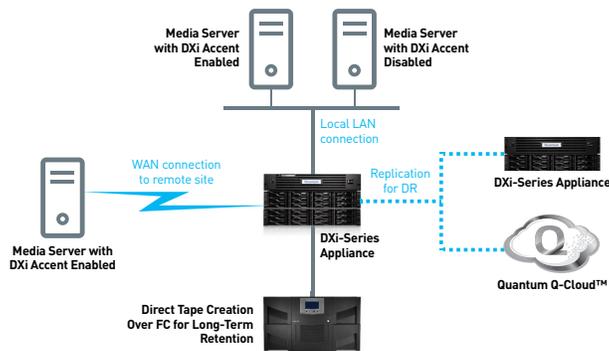
Close integration with backup applications reduces complexity and improves protection. The DXi8500 writes data directly from disk to a tape library, bypassing the media server. The process is controlled and media is cataloged by the backup application.

The DXi8500 offers an application-specific direct path-to-tape as a standard feature on all models to provide optimal integration of short-term backup/restore with economical long-term retention. This feature writes backup data directly from the DXi appliance to an attached tape library over 8Gb FC links, without sending the data back through a media server. Direct tape creation reduces loading on media servers, and it makes tape creation an automated process that takes place outside the backup window. Quantum's application-specific path-to-tape is integrated with leading backup applications, giving users a single point of control and media catalogs that automatically track data across disk and tape layers. The direct path-to-tape is fully compatible with DXi Accent, providing practical integration of low-cost, long-term retention with the industry's most advanced distributed deduplication.

# DXi8500 Enterprise

## DXi Accent Accelerates Backup over Networks

DXi Accent is software that unlocks the power of collaborative deduplication to increase backup speeds in bandwidth-constrained environments while maintaining integrated support for DR and long-term retention. In situations where the network from the backup server to the appliance has limited bandwidth or high latency, overall performance can be too slow to support users' backup window requirements. DXi Accent provides the solution by allowing the backup server to collaborate in the deduplication process, off-loading part of the dedupe activity so that only unique blocks are sent over the LAN or WAN to the DXi appliance. The result of this hybrid operation is faster backup in network-constrained environments and a software alternative to disk appliances for remote locations. With DXi Accent, this backup acceleration does not introduce compromises—there is still one, central deduplication index and data pool for maximum data reduction, simplicity, and data integrity. For maximum flexibility, a single DXi appliance can support DXi Accent's hybrid operation and conventional target mode operation at the same time, and the backup server can be either local (LAN connection) or remote (WAN).

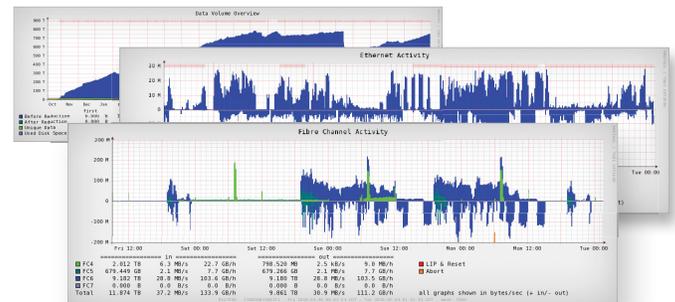


When DXi Accent is enabled, all other DXi features—including replication and direct tape creation—are still supported, providing a unique level of integration with automated DR protection and cost-effective long-term retention. DXi Accent supports NetBackup using the OST API.

*DXi Accent software accelerates backup over networks with limited bandwidth by moving part of the deduplication process to the media server in a collaborative, hybrid operation. When DXi Accent is enabled, only unique blocks are moved over the network to the appliance. Replication and direct tape creation integrate automated DR protection and low-cost long-term data retention.*

## Management Tools Maximize Value in Deduplication Environments

Effective management is critical for obtaining full value from deduplication deployments. Quantum provides the industry's most advanced set of management tools for disk appliances and the entire backup infrastructure. DXi Advanced Reporting, included on all DXi appliances, sets new standards for onboard intelligence by giving users a detailed view of internal operations and providing them with years of backup and replication data for extended trend analysis. DXi Advanced Reporting reduces administration time, streamlines performance tuning, and helps users maximize the value of their DXi appliances. Quantum Vision® management software provides industry-unique capabilities, giving IT departments global management of all their Quantum disk (both physical and virtual appliances) and tape systems from a single console. Quantum Vision also provides storage administrators mobile access to their Vision data anywhere, anytime—through the Vision Mobile for iPhone/iPad and Vision Mobile for Android apps.



*Quantum management tools provide details of internal appliance operations and single-console views across all of a user's disk and tape systems. They reduce management time, streamline performance tuning, accelerate troubleshooting, and provide trend analysis information for proactive decision-making that maximizes system value.*

## Enabled by Quantum's vmPRO Software for VMware Protection

Quantum's vmPRO software is the VM data protection solution that works with DXi appliances to simplify and accelerate backup, restore, and DR protection in virtual environments while reducing IT costs. The vmPRO software utilities present a file system view of VM files, automatically create native-format VM copies on secondary disk, reduce VM backup data by up to 75%, and boost deduplication rates. All vmPRO utilities operate inside the virtual environment, eliminating the need for external servers, and they support third-party backup applications, providing optimized results in consolidated environments. Quantum's vmPRO software provides optimized support for DXi appliances, providing the most effective deduplication rates and the fastest VM recovery in the industry.

# TECHNICAL SPECIFICATIONS

## INTERFACES

### Multiple interfaces supported in single unit simultaneously

<b>NAS Backup Target:</b>	NFS or CIFS mount point; supports up to 128 deduplicating and non-deduplicating shares
<b>VTL (Fibre Channel):</b>	Supports both deduplicating and non-deduplicating operation
<b>Partitions (max):</b>	64
<b>Drives (max):</b>	512
<b>Virtual Cartridges (max):</b>	40,000
<b>Emulations Libraries:</b>	Scalar® 24, Scalar 100, Scalar i500, Scalar i2000, Scalar i6000, ATL P7000, Quantum M2500 and PX500 Series
<b>Emulations Drives:</b>	DLT7000, SDLT 320, SDLT 600, DLT-S4, LTO-1, LTO-2, LTO-3, LTO-4, LTO-5
<b>OpenStorage (OST) API:</b>	Symantec NetBackup and BackupExec (see details in Symantec OpenStorage API Support Section below)

## INLINE PERFORMANCE

<b>NAS Interface:</b>	9.0TB/hour
<b>OST Interface:</b>	11.8TB/hour*
<b>VTL Interface:</b>	14.2TB/hour
<b>DXi Accent:</b>	10.4TB/hour**

## SYSTEM REDUNDANCY

RAID 6 with hot spares, redundant power, redundant cooling. Hot-swap drives, power supplies, and fans.

## HOST TO APPLIANCE H/W INTERFACE

Up to four 8Gbps FC, two 10GbE Optical (SFP+) or Copper, and four 1GbE ports.

## SOFTWARE LICENSES INCLUDED

The base price of the DXi8500 includes licenses for NAS, VTL, OST, deduplication, replication, path-to-tape (PTT) and DXi Accent software for hybrid deduplication.

## CAPACITY AND SCALABILITY

<b>Usable capacity:</b>	45 to 330TB
<b>Scaling increment:</b>	30TB
<b>Logical capacity:</b>	900 to 6600TB***
<b>Hard disk drives:</b>	3TB

## PHYSICAL CHARACTERISTICS

<b>DXi8500 Rack Dimensions:</b>	78in x 23.75in x 40.75in (198.1cm x 60.3cm x 103.5cm)
<b>Rack units required:</b>	1 rack maximum (40U)
<b>WEIGHTS</b>	
<b>Rack min config:</b>	330 lbs (149.7 kg)
<b>Rack max config:</b>	1402 lbs (636 kg)

## POWER SPECIFICATIONS

<b>Input Voltages:</b>	200 to 240VAC
<b>Rated Frequency:</b>	50 to 60Hz
<b>Rated Current:</b>	37.7A @ 220VAC

## ENVIRONMENTAL SPECIFICATIONS

<b>TEMPERATURE</b>	
<b>Operating:</b>	50° to 86°F (10° to 30°C)
<b>Shipping &amp; Storage:</b>	-4° to 140°F (-20° to 60°C)
<b>RELATIVE HUMIDITY</b>	
<b>Operating:</b>	20 to 80% non-condensing
<b>Shipping &amp; Storage:</b>	15 to 95% non-condensing
<b>ALTITUDE</b>	
<b>Operating:</b>	0 to 10,000ft (0 to 3,048m)
<b>Shipping &amp; Storage:</b>	0 to 39,370ft (0 to 12,000m)
<b>HEAT</b>	
<b>Operating:</b>	14,175 BTUs (maximum configuration - 1 rack)

\*Performance in target mode—does not require use of DXi Accent software.  
\*\*DXi Accent improves throughput in bandwidth-constrained environments.  
\*\*\*Assumes a deduplication ratio of 20:1. Actual deduplication ratios will vary depending upon data types, retention, and compressibility of your data.

## DIRECT TAPE CREATION

Direct tape creation—physical tape can be written in background over a dedicated Fibre Channel connection without using media server or backup SAN. DXi8500 units also support direct to tape operation under Symantec's OST initiative—creating tape copies directly from OST LSU data without using a media server to move data but under NBU control (NetBackup 6.5.4 and later). OST direct tape creation is also compatible with application-aware replication and with DXi Accent. Up to two 8Gbps FC ports are dedicated for Direct Tape Creation.

## SYMANTEC OPENSTORAGE (OST) API SUPPORT

Support for OST is a standard feature for all DXi8500 units, allowing users to write data to OST logical storage units (LSUs) and enabling application-aware replication in NetBackup and Backup Exec environments. Support includes Optimized Duplication, Auto Image Replication (AIR), Granular Restore Technology (GRT), and OST direct path-to-tape introduced in NetBackup 6.5.4. OST Optimized Synthetic Full Backups is supported to reduce network I/O and shorten time to perform full backup restore from incremental backups.

## DXi ACCENT

DXi Accent software, a standard feature on DXi8500 appliances, allows the backup server to collaborate in the deduplication process, off-loading part of the data reduction activity so that only unique blocks are sent over the network to the DXi appliance. This hybrid approach provides faster backups over bandwidth-constrained LANs or WANs. DXi Accent can be enabled or disabled on a per-media server basis. Initial support for DXi Accent is provided through the NetBackup OpenStorage (OST) API.

## DATA-AT-REST ENCRYPTION

Data-at-Rest Encryption uses Self Encrypting Drive (SED) technology to secure all data stored on the DXi8500. This includes file data and metadata, configuration files, and the DXi software and operating system. When Data-at-Rest Encryption is enabled, all hard drives in the DXi are paired with the disk controllers using encryption keys. After this, accessing data on the drives requires the same encryption keys and controllers that were used to write the data. This ensures that a drive that is physically removed from the DXi cannot be read using another system or device.

## DXi ADVANCED REPORTING

DXi Advanced Reporting, which is included on all DXi appliances, sets new standards for onboard intelligence by giving users a detailed view of internal appliance operations and provides them with years of backup and replication data for extended trend analysis. DXi Advanced Reporting reduces administration time, improves operations, streamlines performance tuning, and helps users maximize the value of their DXi appliances.

## vmPRO

Quantum vmPRO™ software is a complete data protection solution for virtual environments. Combining simplified management, optimized protection and future flexibility, vmPRO brings unique value to virtual data protection. Protecting virtual data in native VMDK allows customers to easily restore virtual data in seconds, instantly boot VMs from the DR site or the cloud, and integrate simply with their existing backup infrastructure. Combined with DXi appliances, vmPRO can reduce resource utilization by as much as 95% and deliver best-of-breed cloud-based data protection.

## Q-CLOUD READY

Quantum Q-Cloud™ provides a new, innovative Cloud backup and DR strategy designed specifically for virtual and physical environments. Q-Cloud is a subscription-based solution that allows customers of all sizes to keep more data onsite for a longer period of time by efficiently replicating data to the Cloud with a simple, cost-effective approach. Q-Cloud is a secure cloud data protection solution that integrates with your existing backup software and reduces risk for IT Departments with a convenient option to efficiently replicate your data to the cloud.

## POWER INPUT

Power Cord NEMA L6-30P or IEC 60309, 2-8 connectors

## REPLICATION

Replication compatible with all DXi-Series products, schedules and bandwidth use set in DXi8500 scheduler. Replication is asynchronous, one-to-one or multiple-to-one configurations; partitions in same unit act as replication source or target; units with partitions acting as replication targets can also support local backup; data is deduplicated and encrypted (AES 256-bit) prior to transmission; cartridge-by-cartridge and file-by-file replication provides automated access to data at the target; CLI support scripting/scheduling. Provides application-aware replication with NetBackup and Backup Exec OST interface.

## ABOUT QUANTUM

Quantum is a leading expert in scale-out storage, archive and data protection, providing solutions for sharing, preserving and accessing digital assets over the entire data lifecycle. From small businesses to major enterprises, more than 100,000 customers have trusted Quantum to address their most demanding data workflow challenges. With Quantum, customers can Be Certain™ they have the end-to-end storage foundation to maximize the value of their data by making it accessible whenever and wherever needed, retaining it indefinitely and reducing total cost and complexity. See how at [www.quantum.com/customerstories](http://www.quantum.com/customerstories).

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