

Quantum®

WHITE PAPER

WHY ORGANIZATIONS NEED LTO-7 TECHNOLOGY TODAY

New LTO-7 tape technology provides 15TB of compressed data storage per cartridge, higher throughput, enhanced security, and data management features required to do business today.

The amount of data that IT organizations are managing continues to grow. A recent research report by the Enterprise Strategy Group (ESG 2015 Data Storage Market Trends) finds that 25% of respondents at the organizations they surveyed are experiencing annual growth rates of 11%-20%, and more than 25% are experiencing growth rates in excess of 50%¹.

Traditional sources of data growth include email and enterprise resource planning systems. In recent years the growth from other data sources has accelerated even faster, as office productivity applications, images, video, and audio files are being added at unprecedented rates. And further challenging IT organizations, content owners want to retain access to their data indefinitely. As a result, there is simply much more data, larger files and more of them to store today, and these files need to be retained longer and remain readily accessible to the content owners.

For years, tape storage systems have played a key role in data backup, recovery, long-term retention for legal compliance, and archiving processes.

The challenge is how to manage, retain, and safeguard the large, growing data volumes being generated today, within the cost constraints of today's IT budget. The same ESG report reveals that over half the respondent organizations' state capital (i.e., hardware) and/or operational expenses—including both staff and power and cooling costs—as storage challenges, with nearly one in five citing cost as their primary challenge¹.

New tape technology provides a solution. With a capacity to store 15TB of compressed data* per cartridge, the recently announced latest generation of LTO Ultrium, LTO-7, offers 2.4 times the cartridge capacity of LTO-6 and five times the cartridge capacity of LTO-5. Additionally, LTO-7 offers nearly twice the performance of LTO-6 and more than twice the performance of LTO-5 with enhanced security, and data management features required to do business today, further enhancing tape's cost advantage for long-term data storage and data archiving.

MORE DATA, LONGER RETENTION

Many companies use disk-based systems for short-term backup and tape systems for long-term data retention. This approach provides the benefit of staging recently generated data on a disk backup system, providing simpler restores, while leveraging tape's lower TCO (total cost of ownership) for long-term data retention and archiving. Additionally, tape is the primary element in most disaster recovery and business contingency plans, with tapes being stored off-site in case of fire, sabotage, natural disaster, or other such calamities.

Retaining data long term has been historically driven by regulatory mandates such as Securities and Exchange Commission, IRS, and Sarbanes-Oxley regulations that require certain financial documents be retained for seven years or longer. Additionally, so-called eDiscovery laws have compelled companies to archive data longer (particularly email messages) as litigation may require the delivery of emails, documents, digital voicemail messages, and other related files.

Recently, however, companies have recognized their data has significant value to the business, and as a result they are seeking to retain data assets longer for internal reasons beyond regulatory compliance. Business intelligence applications are helping improve customer satisfaction, better target customer communications, and improve business efficiencies. Marketing and training departments, as well as product teams, are leveraging more video content and graphic-intensive documentation to market and educate internal and external customers and partners. Companies have found the content utilized and created in these business activities frequently has value well after the initial project is completed, and are holding onto this content accordingly.

Tape is the critical element in ensuring that data is preserved longer term.

TAPE KEEPS PACE

New tapes and drives based on the LTO-7 specifications offer the high capacity and performance needed to match the growing data storage challenge faced in most companies.

In all applications—backup, archiving, disaster recovery, and data retention—the ability to store more data on a single tape cartridge keeps costs down, while helping make tape management easier. To put the potential savings into perspective, consider that a single LTO-7 tape can store 15TB of data (using data compression). That's more than 2.4 times the capacity of LTO-6 tapes and five times the capacity of LTO-5 tapes. So, significantly fewer tapes are needed to store the same volume of data. This saves on the cost of the media, off-site storage, and tape management time by the IT staff.

Naturally, as data volumes grow, the time it takes to perform a backup or archiving operation grows as well. To address this issue, LTO-7 technology offers significantly higher data throughputs. Specifically, LTO-7 drives deliver 750MB/s throughput (based on 2.5:1 data compression), that's 2.7TB/hr. In contrast, LTO-6 drives offer 400MB/s (1.4TB/hr), and LTO-5 drives offer 280MB/s (1TB/hr). The higher throughput afforded by LTO-7 technology allows users to complete jobs faster, which is important as data growth increases. Deploying LTO-7 into a high-performance network, capable of supporting the drive throughput, makes it easier to stream data from high-performance storage disk systems to tape.

Additionally, LTO-7 technology is backward-read- and write-compatible with LTO-6 cartridges and backward-read compatible with LTO-5 cartridges, which protects a company's investments and simplifies data migration.

NEW PRESSURES, ADDITIONAL BENEFITS

The higher capacity and performance of LTO-7 technology clearly helps in addressing the data explosion. It also can help with the data management and protection challenges businesses face today.

As companies try to rein in operational costs, a significant component—and thus an area of focus—is electrical costs associated with power and cooling. Reducing the amount of energy used in the data center also supports corporate sustainability and green initiatives that many companies are embracing.

The ability to store more data on a single tape cartridge keeps costs down, while helping make tape management easier.

This focus on reduced power consumption inevitably leads to consideration of tape. The reason: spinning disks need electricity for power and cooling. Once data is stored on tape, no electricity is required to preserve it. In the Clipper Group's 2015 TCO analysis², they estimate average power costs to store data long term on disk to be 76 times greater than storing the same data long term on tape.

Another feature of LTO technology is support for a technology called the Linear Tape File System (LTFS). LTFS simplifies the management and accessibility of files stored on tape. LTFS is a file system on the tape, enabling tape to function like a NAS share, or a thumb drive, allowing users to simply search, access, and store files easily with familiar file system tools including the dragging and dropping of files. And LTFS is a common, open-standard format so tapes written in the LTFS format can be read anywhere with the open-source LTFS software. LTFS simplifies users' accessibility to their content, eliminates the need for IT involvement like restoring files from a backup/archive application, and stores the content in an open-standard format. These LTFS benefits, along with tape's inherent TCO advantages, make LTFS tape an ideal solution for content archives.

Data protection and data privacy are also a concern for many companies today. Issues related to data breaches and privacy attacks unfortunately are well-known these days. The LTO specifications, starting with LTO-4, incorporate native encryption technology to protect data stored on tape. LTO-7 technology continues this support with LTO-7 drives encrypting data using the 256-bit AES algorithm, which is recommended by the U.S. government for the highest levels of data security. With this technology, the encryption keys are, as the name suggests, 256 bits long, making them nearly impossible to guess or crack. The data is inaccessible and thus useless without the correct encryption key to unlock the data.

Additionally, encryption by LTO-7 drives is hardware based, meaning companies can reap the highest levels of security without any loss of performance during the encryption process.

Due to the rapid growth of data breaches and identity theft over the last few years, and with encryption capability built into the LTO drives as a standard feature, there is no reason not to take advantage of this important security feature.

Additionally, many regulations require special data handling procedures to ensure data is not tampered with or deleted. Similar to its encryption support, LTO-7 supports Write Once, Read Many (WORM) technology required to pass audits and meet regulatory compliance requirements.

QUANTUM AS YOUR TECHNOLOGY PARTNER

For over 30 years, Quantum has been a leader in data storage. Quantum is the market share leader in LTO automation and its Scalar® and StorNext® AEL tape systems deliver best-in-class features as part of a comprehensive, tiered storage solution.

In September 2015, Quantum announced plans to integrate LTO-7 technology into its Scalar and StorNext AEL tape automation systems with availability starting in December. LTO-7 tape drives more than double the cartridge capacity and nearly doubles the transfer rates over LTO-6 technology. As a result, Quantum's Scalar i6000 and StorNext AEL6000 enterprise tape libraries can scale to over 225PB, with Scalar i500 and StorNext AEL500 midrange systems scaling to over 6PB.

Quantum will also offer a full range of LTO-7 autoloaders, tape drives, and media available in December and early January 2016.

The higher capacities and increased performance further enhance the role of tape in providing long-term data retention, archiving, and disaster recovery as an integral component of a broader tiered storage strategy. Quantum's archive solutions help simplify and reduce costs of tiered solutions, as the Scalar LTFS appliance enables creation of a NAS tape archive for a simple, accessible, and affordable content archive. Additionally, the Quantum Artico™ intelligent NAS appliance provides local NAS disk storage with automatic data copies for data protection as well as policy-based data tiering from local disk to tape, object, and cloud storage, enabling files to remain accessible for users and stored on an appropriate storage technology based on the content type and/or value.

These new offerings complement Quantum's full range of storage solutions for preserving and sharing digital assets over the entire data lifecycle by making it accessible, retaining it indefinitely, and reducing total cost and complexity.

Moreover, the company has partnerships with leading backup, archiving, and data protection solutions providers. This ensures that organizations get a complete data storage solution that is tightly integrated into their data protection strategy and is easy to manage, enabling solid data growth management, superior user and customer service, and bottom-line growth.

For more information, visit www.quantum.com.

ABOUT LTO-7 TECHNOLOGY

Features & Benefits:

- Performance: Up to 750MB/sec compressed transfer rate*
- Capacity: Up to 15TB compressed capacity*
- Security/Ease of Use: AES 256-bit data encryption security, WORM functionality, and partitioning capability
- Compatibility: Investment protection with two generations of backward read and one generation of backward write capability
- LTFS Software: Free LTFS software can be downloaded at www.quantum.com

* Assumes 2.5:1 compression.



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.

NOTICE

This White Paper may contain proprietary information protected by copyright. Information in this White Paper is subject to change without notice and does not represent a commitment on the part of Quantum. Although using sources deemed to be reliable, Quantum assumes no liability for any inaccuracies that may be contained in this White Paper. Quantum makes no commitment to update or keep current the information in this White Paper, and reserves the right to make changes to or discontinue this White Paper and/or products without notice. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or information storage and retrieval systems, for any person other than the purchaser's personal use, without the express written permission of Quantum.

www.quantum.com • 800-677-6268

©2015 Quantum Corporation. All rights reserved. Quantum, the Quantum logo, Scalar and StorNext are registered trademarks of Quantum Corporation and its affiliates in the United States and/or other countries. Linear Tape-Open, LTO, the LTO Logo, Ultrium and the Ultrium Logo are registered trademarks of Hewlett Packard Enterprise, IBM and Quantum in the USA and other countries. All other trademarks are the property of their respective owners. All other trademarks are the property of their respective owners.

Quantum®

WP00137A-v03 Nov 2015