

WHITE PAPER

Providing Tape Automation to the SMB and Departmental Markets

Sponsored by: Exabyte

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Executive Summary

Today, small and medium-sized businesses (SMBs) and workgroups in distributed environments require data protection products that are cost-effective, easy to use, and scalable. Currently, SMBs and departmental customers use a variety of storage products, including standalone tape drives, internal server storage, optical drives, as well as external disk drives, for data protection. Most of these solutions, however, fail to address the need for easy scalability, posing costly challenges for customers with increasing amounts of critical data that must be backed up and archived. IDC believes there is a growing opportunity for new data protection products targeted specifically at SMB customers. We believe SMB data protection requirements are increasingly commensurate with today's increasing regulatory requirements and represent a largely untapped market for tape automation products.

Exabyte now offers SMBs and departmental customers easy-to-use and affordable alternatives to existing data storage products. In fact, many existing and installed tape products have not kept pace with the growing data storage requirements for today's SMBs. Exabyte's new line of VXA and LTO autoloaders addresses the need for high-capacity, reliable tape solutions for about the same cost as a single tape drive. With the introduction of these low-cost solutions, SMBs and departmental customers can enjoy the benefits of tape automation. The use of tape autoloaders and libraries frees up critical IT personnel resources, making the backup process more reliable and automatic. In addition, tape automation allows customers to manage and safeguard their ever-increasing data storage needs much more easily. Exabyte, with a long history as an innovative tape automation supplier, is targeting a new group of customers that could not afford to buy or manage tape automation systems in the past. This dynamic has the potential to change with Exabyte's new cost-effective tape automation solution.

Overview of the Tape Storage Market: VXA and LTO Make Gains in 2004

At the close of 2004, the tape drive market experienced declines in both shipment volume and market value. The declines primarily occurred in the entry and low-end tape drive market segments and were largely a result of aggressive reductions in the price of host systems and servers. In addition, more servers are now deployed in standard rack and blade form factors that make it physically difficult to integrate tape drives directly attached to the host servers. Total worldwide shipments in the low-end tape drive market contracted by 7% in 2004, while total midrange tape drive shipments increased by 2%. However, not all of the tape drive formats were adversely impacted by the trends in the server market.

In the low end, which includes VXA, AIT-1/2, DDS/DAT, DLT VS, and SLR tape formats, VXA shipments outpaced the overall market on a year-over-year comparison. DDS/DAT experienced a sharper decline than the overall market, decreasing by 10%. Although absolute shipments of VXA tape drives were smaller than those of DDS/DAT drives — VXA shipments increased by 86%. In the midrange market, which includes LTO, AIT-3/4, SAIT, and DLT/SDLT, LTO increased its shipment volume by 35% on an annualized basis compared with an overall 2% market growth (see Table 1).

TABLE 1

Percentage Change of Worldwide Tape Drive Shipments by Format, 2004 Over 2003

Tape Format	Percentage Change 2004 over 2003
DDS/DAT	-10%
VXA	86%
Total Low-End Market	-7%
SDLT	-17%
LTO	35%
Total Midrange Market	2%

Source: IDC, 2005

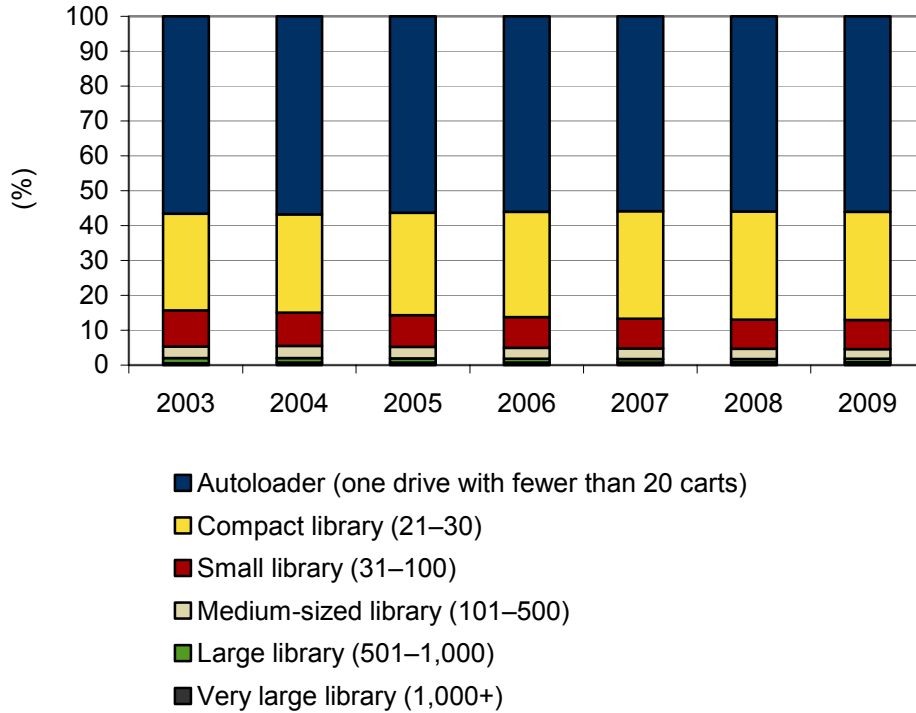
Despite declines and slow growth in the tape drive market, there has been growth in the tape automation market — particularly in autoloaders. Autoloaders are single-drive libraries that typically hold 20 tape cartridges or less. Many customers' storage needs have outpaced the capacities offered by a single tape drive and a single tape cartridge. While customers can add more capacity with more tape cartridges, it increases the cost and complexity of managing the backup process as well as the need for physical intervention in the backup process, which increases the possibility that a backup is delayed or missed entirely. Furthermore, a single tape drive cannot be easily shared between host systems.

IDC believes these factors are driving a trend away from single-drive, direct-attached, local tape backup to consolidated, low-cost tape autoloaders and libraries. Increasingly, tape autoloaders are a viable option for small customers that may otherwise purchase a single tape drive. In the past, small customers, such as SMBs, did not have the resources to purchase or the expertise to deploy a tape automation system. This dynamic has the potential to change, however, with the introduction of lower-cost, easy-to-use tape autoloaders such as Exabyte's.

As seen in Figure 1, IDC expects total shipments for both the tape automation and autoloader markets to increase year over year, 3% and 4%, respectively.

FIGURE 1

Percentage of Total Worldwide Tape Automation Shipments by Library Size, 2003–2009



Source: IDC, 2005

IDC views autoloaders, compact libraries, and small libraries as viable and growing segments. Autoloaders (all segments, all technologies) worldwide accounted for 57% of all tape automation shipments in 2004 and will account for 56% of all shipments through 2009.

Case Study 1 — Municipal Government

Critical Requirements:

- ☒ Cost-effective backup solution for backup and data protection
- ☒ Reduce time and manpower associated with the backup of site offices and remote servers
- ☒ Increase performance and reliability of backups

Customer profile: A city municipality, serving a population of approximately 100,000, wanted to deploy a cost-effective, tape-based backup and recovery product to safeguard its client data at six site offices. An IT staff of five supports over 300 PC clients as well as 12 Linux servers. The IT staff is charged with developing, testing, and deploying all applications except PC desktop thin clients. The IT staff supports all administrative offices except for police and fire departments. The site backups were done with single tape drives attached to each Linux server. While a more centralized approach was attempted, by backing up the remote sites with one Linux server used as a backup server, it produced lackluster performance.

Business case for new tape solution: The IT team decided to deploy a new tape solution after evaluating the use of single tape drives for each remote server for daily backup of user and application data as well as relegating a single unit as a backup server. Each scheme posed challenges for the IT staff in terms of cost and management time. The municipality decided to deploy Exabyte VXA-2 PacketLoaders at each remote site. The additional VXA-2 PacketLoaders augmented the 3 PacketLoaders already deployed at City Hall. The VXA-2 PacketLoader is a single drive, 1U rackmounted autoloader that can accommodate 10 tape cartridges with the ability to back up 800GB of native or uncompressed data. The deployment of PacketLoaders at the remote sites alleviated the need to dispatch an IT staff member to physically perform the daily backups and provided ample additional capacity for each site. The PacketLoaders allowed the five-person IT staff to spend much less time devoted to backup of site offices and remote servers. In addition, the VXA-2 PacketLoader provides much more capacity than a single tape drive and can accommodate the ever-increasing data storage needs of both development environments and thin-server clients. Furthermore, automating the backup process makes it more reliable by limiting human intervention and possible user error.

Bottom line: While the initial cost of deploying each Exabyte VXA-2 PacketLoader was higher than that of using a single drive for each server or site location, the benefits were tangible. The use of the VXA-2 PacketLoader freed up limited IT staff time to work on critical operational projects rather than managing backups — especially at site offices. The backup process is more reliable and robust with much less physical intervention needed. The IT director chose the Exabyte solution based on its history and track record of providing reliable tape-based data protection products.

Exabyte: A Tape Automation Supplier Focused on SMBs and Departmental Customers

Exabyte draws upon a long history as a tape drive and library supplier for both first-tier OEM customers and channel partners. In 2005, Exabyte celebrated its 20th year in the tape storage industry. Today, Exabyte is focused on providing affordable, easy-to-use, and feature-rich tape-based storage solutions for SMBs, workgroups, and distributed computing environments.

Exabyte designs, manufactures, and sells its VXA tape drives and libraries, with patented VXA Packet Technology, through OEMs and channel partners. In addition, Exabyte integrates LTO tape technology inside its Magnum line of autoloaders and libraries. Exabyte continues to invest and innovate in reliable, low-cost designs for its LTO autoloaders and tape libraries with its own patented design called ExaBotics™. Recently, Exabyte won a significant OEM agreement with IBM's eServer divisions for its VXA drives. The OEM agreement with IBM adds to Exabyte's list of OEM customers, such as Fujitsu Siemens, Apple, Toshiba, Bull, and Acer. Exabyte's channel customers include CDW, Tech Data, and Ingram Micro. While Exabyte's heritage has been as a midrange tape solution supplier, its primary focus is now on SMBs, workgroups, and departmental customers that need low-cost, automated tape solutions for data protection, backup, and archiving.

VXA Packet Technology

VXA Packet Technology is designed to provide a digital solution to the long-standing mechanical problem of head-to-tape alignment — a common issue with conventional tape storage products that causes data restore operations to fail. VXA Packet Drives write and read data in individually addressed "packets" by sweeping the entire face of the tape rather than the conventional method of sequentially tracing every tiny track embedded on the tape. During the read duty cycle, discrete data packets are dynamically gathered and reassembled in the VXA buffer, similar to the manner in which data is reassembled after transit across the Internet. Because of this capability, the technology eliminates the need for costly machined components to maintain tight tolerances within traditional drives. The result is dramatically increased data reliability, greater capacity, and speed — all at a lower cost.

Exabyte has built upon its core competencies as a midrange tape automation supplier to bring easy-to-use, low-cost, reliable tape autoloaders and libraries to a new set of customers. Many SMB customers could benefit from using an autoloader instead of a single tape drive. However, in the past, the cost of an autoloader largely put it out of reach for most SMBs. Exabyte's new SMB-Class Automation lineup of VXA and LTO autoloaders costs less and provides the capacity requirements to meet the growing data protection needs of this market. Exabyte's VXA PacketLoader and the Magnum 1x7 autoloader are its primary tape automation products for these customers. Both products offer customers field-replaceable drives, remote management, and a barcode reader at no additional cost. Exabyte's VXA PacketLoader 1x10, with a street price less than \$2,000, provides 800GB of uncompressed capacity in a 1U rackmountable configuration. Exabyte's Magnum 1x7 LTO autoloader provides 700GB–2.8TB of uncompressed data with LTO-1, LTO-2, or LTO-3 drives and media. The Magnum 1x7 LTO-1, LTO-2, and LTO-3 autoloaders are packaged in 2U rackmountable configurations with current street pricing well below \$5,000 and \$7,000 for LTO-2 and LTO-3, respectively (see Table 2).

TABLE 2**Exabyte VXA and LTO Autoloaders**

Product	Number of Drives	Number of Cartridges	Capacity	Form Factor
VXA PacketLoader 1x10				
with VXA-2	1	10	800GB	1U
with VXA-320	1	10	1.6TB	1U
Magnum 1x7 LTO Autoloader				
with LTO-2	1	7	1.4TB	2U
with LTO-3	1	7	2.8TB	2U

Source: Exabyte, 2005

Case Study 2 — Industrial and Commercial Real Estate Company**Critical Requirements:**

- The company needed new backup strategy that would do away with the need to physically change tape cartridges and make the process automatic.
- Cost was a primary consideration for a new data protection solution, as it would be deployed in more than a dozen site offices.
- A reliable, robust, and scalable tape solution was needed to replace existing tape technology.

Customer profile: A growing industrial and commercial real estate services company with 11 locations in the western United States needed a new, more reliable data protection strategy that would reduce the need for employees at site offices to manually change tape cartridges and automate the process. For this company, an IT staff of three supports an independent sales organization with over 200 PC clients, including laptops, and 13 Windows and Unix servers. The IT staff administers all applications and manages PC clients in-house. The current backup scheme was done by using a single tape drive attached to each server in each site office. The company's current backup and data protection scheme proved to be cumbersome and difficult to manage.

Business case for new tape solution: After evaluating a number of different tape solutions, the IT staff decided to deploy 10 VXA-2 PacketLoaders to replace the direct-attached tape drives. Each VXA-2 PacketLoader provided the needed additional capacity at an affordable price. In fact, the IT staffers were unaware that an automated tape solution with the ability to store 800GB uncompressed data could be acquired for about the same amount of money as a single tape drive. Furthermore, the VXA-2 PacketLoaders allowed the company to automate the backup process and reduce the need for someone at each site to physically change tape cartridges. The company does plan to deploy two additional VXA-2 PacketLoaders in each new site office.

Bottom line: The decision to deploy Exabyte VXA-2 PacketLoaders in each site office alleviated the capacity constraints of single tape drives and allowed the company to more reliably automate the backup process. More important, Exabyte helped the company make more efficient use of its staff time devoted to managing tapes for backup and offsite storage.

Challenges

Exabyte has emerged as a tape automation supplier primarily focused on products for SMBs, workgroups, and distributed computing environments. However, it is not alone. Larger competitors in the storage industry are targeting similar customers. While Exabyte does bring a singular focus on low-cost, high-value tape storage products, it must vie with server and storage system suppliers that have strong brand awareness, an extensive group of distribution partners, and the ability to package together bundled solutions consisting of PCs, storage, servers, and tape.

Furthermore, Exabyte needs to balance its OEM commitments as well as its own channel partners to develop and grow the market for cost-effective data protection products. A company of Exabyte's size must be very judicious in targeting new opportunities either through OEM partners or its channel partners. Exabyte must continue to pursue partners that will help it target new customers that would not have considered purchasing tape automation products.

Finally, although competitive backup and archive solutions (e.g., external disk drives, optical, and servers) may not offer the scalability inherent in tape autoloaders, these other solutions remain attractive for certain segments and very small businesses. It is critical that Exabyte home in on companies of the right size and within the right segments of the industry, especially those with rapidly increasing storage and backup and archive requirements.

Conclusion

Tape has a legacy of being the preferred medium for backing up and archiving data. New solutions are emerging that offer quick and efficient backup, but fall short in other areas where tape automation solutions excel, namely scalability. Compliance regulations are bound to migrate into smaller businesses. This migration will increase the storage and backup and archive requirements rapidly, which in turn will advance scalability as an important requirement.

Given Exabyte's experience, reputation, and focus on providing affordable, easy-to-use tape automation products, its increased attention to lower-cost solutions targeted at smaller companies and workgroups makes good sense. Many of its customers will come from those companies that could not afford to purchase an autoloader or tape automation product in the past. SMBs and small customers can benefit from tape autoloaders by freeing up staff time and resources previously devoted to the tedium of managing manual and disparate data protection, backup, and archive solutions.

Finally, Exabyte has won significant OEM agreements with top-tier storage system and server customers and has existing relationships with some of the world's top distributors and resellers, which will provide a conduit to grow its business.

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