



Oracle Says “Yes” to the SMB and Introduces a Scalable Tape Library

Analyst: David Reine

Management Summary

With U.S. gas and diesel pricing again reaching and even exceeding four dollars a gallon (depending on where you live), many folks are, again, feeling the pain and thinking about the total cost of owning and operating their vehicles. Ignoring the macroeconomic effects on the economy and public policy, this is a battle of wits between driver and pocketbook. While the thoughts of buying or leasing a car may give us a headache or cause us to twitch involuntarily, it tends to be a once in a long while proposition, with vehicle payments being flat for several to many years. Once the decision to procure has been made, focus turns to the cost of operation that, for many, mostly is about the varying (increasing) cost of fuel. If you stare at the clicking-higher gas pump long enough, you begin to ask yourself whether you need to reconsider what you are driving for something that is more fuel efficient. The same can be said for storing data.

At some point, you may begin to reconsider what you rejected as “unworthy” at an earlier time, whether because of the perception surrounding the technology at that time of last consideration or purchase and/or because of the economics (cost of acquisition and/or cost of operation). Some data centers had migrated away from their traditional -tape backup and recovery processes in favor of a disk-to-disk (D2D) solution. This made sense for the immediate retrieval of mission-critical data, but *what is the need for speed, especially for storing and retrieving archived files, which now seems to be what is fueling the mega-growth of data to be stored? What about the need for a lower cost of storage per terabyte?*

For one thing, as the consumption of energy went up due to the appetite of spinning media, the advantages of the tape technology have become more evident. For very large data collections, tape uses much less energy than disk-based solutions and much less floor space. Today’s tape provides all of the requirements that are needed for data protection and retention. Tape is reliable, high capacity, compact, energy efficient, portable, scalable, secure and easy to use. In addition, it is pretty fast these days. Not just these, but tape also is affordable, not just in acquisition, but especially when considering total cost of ownership (TCO). When it comes to capacity, scalability, and reliability, the old standby should now be viewed as state-of-the-art. The largest enterprises, in fact, always have used tape for long-term storage. Now, however, tape is once again becoming more attractive for the SMB and others with modest needs and limited budgets.

With their recent announcements, Oracle has seized upon the opportunity to make the life of the SMB, and others with an “under-sized” IT staff, that much easier. With Oracle’s *StorageTek SL150 Modular Tape Library* and Oracle’s *StorageTek Tape Analytics* software, Oracle is facilitating the deployment and maintenance of a high-performance and scalable tape library for the SMB. To learn more about the SL150, please read on.

IN THIS ISSUE

> SMB Long-Term Storage Issues	2
> Oracle StorageTek SL150 Modular Tape Library	3
> Oracle StorageTek Tape Analytics Software	4
> Conclusion	5

SMB Long-Term Storage Issues

Every business or agency – whether large enterprise, mid-sized organization, or SMB¹ – has been undergoing a period of rapid, and often unexpected, data storage growth. Many-to-most are doubling their storage capacity every 12 to 18 months, while some see even greater demands. This growth is stretching the already-limited IT budget, especially as the smaller business attempts to gain control of the TCO of IT assets. The IT staff, or what poses as one, not only has to acquire additional primary storage, but they also must ensure the protection and long-term preservation of important business information, whether via backup or archive.

Some businesses have adopted a D2D solution, instead of tape-based data protection and retention solutions, to facilitate the recovery process, as the urgency for retrieval is critical when a recovery is required. The TCO and data protection challenges of a D2D environment, however, can create an unacceptable burden on the IT budget² for the long-term preservation of data. In addition to acquisition costs, the additional costs for the power required to drive and cool the environment, the floor space required, and the additional technology needed to protect the data places a further strain on the budget.

For these reasons, many IT personnel are looking for an efficient, low-cost backup and archive capability, deploying tape to reduce the TCO and energy consumption for long-term storage as well as to enable manageable data protection strategies. In fact, with the improved throughput performance of the newest tape architectures, some IT departments are looking to go “Back to the Future”. In addition to the improved performance of today’s tape solutions, tape provides the smaller business with:

- Affordability
- Reliability

¹ No acronym (or phrase) carries as much ambiguity as “SMB” (for “Small/Medium Business”). Some vendors use the number of employees as the defining metric and declare that SMBs range from 100 to 1000. Rather than trying to resolve this haziness, for this paper please consider your organization to be an SMB if you see it as something smaller than a mid-sized enterprise. The key characteristic is that the IT staff almost always can be described as being “undersized”. I suspect that you already know if that applies to your IT organization.

² See the issue of *Clipper Notes* dated December 20, 2010, entitled *In Search of the Long-Term Archiving Solution – Tape Delivers Significant TCO Advantages over Disk*, and available at <http://www.clipper.com/research/TCG2010054.pdf>.

- Scalability
- High capacity in a compact format
- Energy efficiency
- Portability and
- Ease of use

The SMB must be able to cope with all of the components of the information infrastructure. Of course, the enterprise data center has the resources required to deploy and maintain the required tape library, *but can the SMB? How can an SMB with limited staff create a working solution to their data protection pains?* The SMB requires a scalable and cost-effective long-term storage solution that makes storage an easy-to-use reality for the business with a limited budget and little or no trained staff available.

While the enterprise data center may have the resources, and budget, to retain and secure the information infrastructure with high-end disk arrays, Tier-2 disk as a D2D target, tape libraries, and data deduplication and encryption appliances, the typical SMB does not. Most SMBs need an entirely different kind of solution. Small (or remote) offices with a limited budget also need simple, affordable data protection. They require a low-cost, open, turnkey solution to manage backups and archives. They need a solution like the latest *LTO*³ tape technology, to protect their investment in existing data. Implementing an *LTO-5*⁴ tape solution can replace older, unreliable standalone devices and facilitate data preservation within the existing IT budget, even enabling the data center to protect previous investments with the capability to write to *LTO-4* cartridges and read from *LTO-4* and *LTO-3* cartridges, while *LTO-4* enables the ability to write to *LTO-3* cartridges and read from *LTO-3* and *LTO-2* cartridges.

The SMB needs a flexible IT infrastructure with an entry-level, automated, scalable tape backup or archive solution, in a rack-mounted configuration, so that you are not dependent on a clerk to remember to change the cartridge. Space and power are significant issues for the SMB. The SMB needs a compact configuration with high density to make up for a lack of floor space in their data centers. Portability is mandatory for the offsite storage of information for

³ *Linear Tape Open*, also called *Ultrium*.

⁴ See *The Clipper Group Navigator* entitled *LTO Program Announces Next Gen Tape – LTO-5 Raises the Bar for Tier-3 Storage* dated January 31, 2010, available at <http://www.clipper.com/research/TCG2010002.pdf>.

data protection purposes, for archiving of data over the long term, and/or for disaster recovery. Portability, however, also implies additional requirements for data protection. The smaller business needs the ability to encrypt any data that will leave its premises to ensure the increased security of offsite data. The SMB also may need to prove that retained data has not been altered, requiring support for WORM⁵ media to ensure compliance with all industry and government required norms.

With a limited budget, flexibility is critical for the SMB. Management and administration are other important elements in the information infrastructure. The SMB requires a web-based management capability to enable the remote management and administration of library functionality for remote offices. One company that has paid particular attention to these SMB needs is Oracle.

Oracle StorageTek SL150 Modular Tape Library

The StorageTek *SL150 Modular Tape Library* is Oracle's most recent entry into the SMB arena. It is another new model in the proven collection of *StorageTek* modular libraries. It is an ideal platform for backup and recovery, archiving, and tiered storage. Specifically designed to meet the needs of SMB and



⁵ WORM=Write Once, Read Many.

possibly somewhat larger businesses, the SL150 has the features that these businesses require: simplicity, scalability, and cost efficiency.

Simplicity

The StorageTek SL150 (see photo in Exhibit 1, below) is a single product that spans multiple tiers of previous generations of StorageTek tape libraries, as well as those of Oracle's competitors. According to Oracle, it is a tape library that can be deployed in the smallest business easily and more effectively than competitive offerings, and at a lower cost. Simplicity is essential for the smaller organization that does not have the staff of the larger enterprise or the time to focus on demanding technology and infrastructure. As a result of its simplicity of design for both hardware and software, the StorageTek SL150 can keep pace with expanding data protection requirements and the management needs of business archives, as data growth accelerates.

The StorageTek SL150 comes with an installation wizard to ensure a rapid deployment, usually in less than 30 minutes (according to Oracle), and is easy of use. It comes with a modern, color, touch-screen operator panel to facilitate deployment and on-going administration, accessing information with a minimum number of steps (typically one or two) via a local or remote browser GUI interface. This GUI was designed to facilitate library management using Oracle *Fusion* middleware and does not require highly-trained IT personnel to perform library operations, manage library settings, or actively monitor library health.

Scalability

Managing a rapidly-growing volume of data, along with the unpredictability of many workloads, can be a chore for the most experienced data center administrators. For an SMB or even a mid-sized enterprise, it requires an innovative scaling methodology to enable an easy to use, uncomplicated expansion. With the StorageTek SL150, the buyer gets exactly that, and can continue to expand without the necessity to replace the library or manage multiple libraries.

An entry-level StorageTek SL150 base unit is only 3U high and has 30 slots for LTO cartridges, supporting up to 45TB of uncompressed data storage. This can be upgraded, using up to nine 2U expansion modules, to 300 slots in upgrades of 30 slots at a time, in order to meet demand without absorbing an unnecessary



acquisition hit. The StorageTek SL150 base unit (shown at the top of the cabinet in Exhibit 1, on the previous page) has a four-cartridge mail slot for the import and export of LTO media. Each drawer type, both base and expansion, supports two half-height LTO-5 drives at 6Gbps using FC or 8Gbps with SAS, for a maximum throughput of 10TB/hour. (See cartridge drawer photo in Exhibit 2, to the right.) That equates to 450TB and 20 drives in only 21 rack units of height.

It should be noted here that the LTO Program has announced the availability of specifications for LTO-6⁶, which will more than double the capacity of LTO-5 at a higher throughput. We expect to see LTO-6 also in SL150, when it is generally available, late this year or early next year.

With this configurability, the StorageTek SL150 has greater density and a smaller footprint than its competition and StorageTek SL150 upgrades for either new features or capacity can be deployed without new licensing. The StorageTek SL150 has automatic discovery for self-configuring of cells, drives, and cartridge access ports and intuitive software for installation and management. This helps to eliminate the need for dedicated storage administrators while saving time and simplifying expansion. In addition, with LTO-5, the StorageTek SL150

can deliver the type of security required to protect the SMB from unauthorized access. The SL150's tape encryption helps minimize the SMB's exposure to potential legal action in case any of the media is lost or stolen, while supporting regulatory and compliance policies. The StorageTek SL150 can also utilize the *Oracle Key Manager* to authorize and manage all encryption keys, from a central location, to ensure reliability and security.

Other vendors can provide an entry product that supports up to 40 slots, but in order to expand to the next level, 80 slots, you would need to swap out the entire unit. When the data center reaches that level, it would have to make another fork-lift upgrade to achieve a capacity of 400 slots. You could install the 400-slot library initially, but at a much higher acquisition price and with various licensing charges. With the StorageTek SL150, all functions and slots are licensed with the initial deployment.

Cost Efficiency

When you deploy a StorageTek SL150, you may never have to replace it – upgrade: *yes*; fork-lift upgrade: *no!* There is no need for a rip and replace strategy as the business' storage needs expand. In fact, the SMB can consolidate multiple smaller libraries onto the single StorageTek SL150 platform, which is customer installable and upgradable, to minimize service costs. The StorageTek SL150 will save time and expense, as there is no need to shut down operations for a protracted period of downtime while the tape libraries are swapped out. The SMB will experience a lower TCO through a simplified library management, easy serviceability, and lower power consumption, with fewer parts to power and maintain.

Using a modular architecture approach, adding additional expansion modules when they are required, minimizes the initial acquisition investment to just over \$6,000 for a single-drive LTO 5 configuration with 30 slots, as there is no underutilized capacity wasting scarce resources. In addition, with a single library to manage, it is less of a burden on the undersized and already overwhelmed IT staff, minimizing that impact. Also, the single library model uses less power and less floor space than comparable solutions, keeping the TCO as low as possible. The more you scale, the greater the savings.

Oracle StorageTek Tape Analytics

Oracle provides the StorageTek SL150 with

⁶ LTO-6 is the newest generation of LTO technology. See the issue of [The Clipper Group Navigator](#) dated July 12, 2012, entitled *Magnetic Tape Turns 60 – The IT Industry Receives Another Gift*, and available at <http://www.clipper.com/research/TCG2012015.pdf>.

the same proactive software to simplify the monitoring of tape libraries, drives and media that it does for the largest *SL8500 Modular Tape Library*. It enables a business of any size to monitor and optimize widely-dispersed systems easily from a single-pane-of-glass. In addition, Oracle offers **StorageTek Tape Analytics, which** is feature-rich and has the scalability needed for the SMB to grow while maintaining ease of management, thus enabling less-experienced personnel to monitor and manage the tape environment.

StorageTek Tape Analytics provides supplementary information on the health of the library, drives, and media by closely tracking over 100 variables, connecting to each library via a single, standard Ethernet connection, using SNMP protocol to pass information from the libraries to the analytics application. It proactively diagnoses potential failures, prior to the failure, and alerts the staff as appropriate with recommended actions to maintain a healthy tape environment. This approach enables staff to improve the performance and reliability of the storage environment.

Oracle StorageTek Tape Analytics is deployed on a customer-provided standard x86 engine that connects directly to each library being monitored and does not require connectivity via the live data path. The worry-free deployment model provides an out-of-band architecture a safe and secure approach for managing the health of the tape environment. StorageTek Tape Analytic will be available for the SL150 by the end of 2012 and will be separately priced.

Conclusion

What is causing pain in your data protection and retention plans? Is it budget? Is it storage capacity? Is it performance? Is it floor space? Is it ease of use? It is not often that the SMB can get all of their pains resolved by a single data protection and retention platform, with a modest cost, as well.

The Oracle StorageTek SL150 is just that platform. It provides the one thing that SMBs require for their data protection and retention needs – peace of mind. Oracle has continued with the long-running StorageTek tradition and commitment to provide a proven solution that has been rigorously tested in Oracle's labs and data centers around the world. The SL150 Modular Tape Library is the ideal backup and archive solution for growing businesses,

especially those that value ease-of-use, seamless scalability, and low-cost.

If tape is a critical component in your overall IT environment, Oracle's StorageTek SL150 is one solution that you need to investigate for your entry-level to mid-sized business' data protection and retention needs. Check it out!



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About the Author

David Reine is a Senior Contributing Analyst for The Clipper Group. Mr. Reine specializes in enterprise servers, storage, and software, strategic business solutions, and trends in open systems architectures. In 2002, he joined The Clipper Group after three decades in server and storage product marketing and program management for Groupe Bull, Zenith Data Systems, and Honeywell Information Systems. Mr. Reine earned a Bachelor of Arts degree from Tufts University, and an MBA from Northeastern University.

- **Reach David Reine via e-mail at dave.reine@clipper.com or at 781-235-0085 Ext. 123. (Please dial “123” when you hear the automated attendant.)**

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