



**Tivoli.** software



## Maximizing the effectiveness of IBM Linear Tape Open with IBM Tivoli Storage Manager

***Save tape resources and space—  
simply and efficiently.***

With the rise of e-commerce, data repositories and other data-intensive applications, more data must be backed up and stored more quickly than ever. To achieve the efficiency necessary to make this possible, many customers are seeking to centralize and automate their e-business application backups. Yet day-to-day backup and storage aren't the only concerns; you also need to be able to restore systems quickly and completely should a disaster occur.

IBM® Linear Tape Open (LTO) is a proven storage solution for many businesses, and now you can save tape resources and space with the tape reclamation and progressive incremental backup functionality offered by IBM Tivoli® Storage Manager. LTO and Tivoli Storage Manager work together to form a centrally controlled storage solution that is simple, efficient, automated and scalable.

Using LTO and Tivoli Storage Manager together can help provide a decrease in backup time. Over time it may be possible to achieve a sizable reduction in management costs as you consolidate distributed backup islands, use tape resources efficiently and centrally manage backup processes from one location.



## What is LTO?

LTO, short for Ultrium Linear Tape Open, is an industry-standard approach to tape format specifications designed to bring open standards and new levels of scalability, reliability and automation to the open-systems tape backup market.

The open technology of LTO is ideal for a wide range of open-systems streaming-data environments, such as backup or archive.

Advantages of the time-tested, market-proven LTO format include:

- *Efficient data interchange and high levels of scalability, reliability and performance*
- *Multivendor compatibility*
- *Mechanical simplicity that creates a durable product with manageable maintenance costs*
- *Enhancements in the areas of timing-based servo, hardware data compression, optimized track layouts and high-efficiency error-correction code that maximize capacity and performance*
- *Data transfer rates of up to 30MB per second that can reduce backup and restore windows*
- *High-capacity cartridges that can store up to 200GB of compressed data with a four-generation growth path that increases storage capacity significantly*

## Tivoli Storage Manager

Tivoli Storage Manager promotes the availability of business applications and drives improved return on your storage-management investment by providing superb data protection and intelligent policy-based resource utilization. Plus, Tivoli Storage Manager is easy to administer through Web administration and client interfaces that let you administer the server or help with a client backup or restore from almost anywhere. The system scales with your business needs across multiple hardware and software platforms.

Tivoli Storage Manager allows you to:

- *Customize and automate backup and restore activities to meet your specific needs, leveraging resources to serve multiple systems or even transferring backups and restores from one server to another as needed*
- *Incrementally back up only files that are new or have been updated since the previous backup*
- *Maximize the effectiveness of your backup and storage and minimize the time spent managing them*

## ***Advanced features can help you manage LTO systems more efficiently.***

### *Database functionality*

Tivoli Storage Manager uses an intelligent database to empower your backups and restores by tracking information about data being backed up at the file level. The database allows for the implementation of collocation, progressive incremental backups, file-level policies, managed archive, integrated mobile backup and reclamation. The database works with a recovery log, which enables the “two-phase commit” function of Tivoli Storage Manager and lets you restart interrupted restores or backups without having to re-back up or re-restore information already processed.

### *Progressive incremental backup*

Progressive incremental backup is the smart way to perform backups. Progressive incremental backups only back up new or used files—doing away with the outdated and wasteful full-plus-incremental backup method. They reduce traffic on the local area network (LAN) and the amount of data needing to be stored and managed, and they make restores faster by only needing to restore the version of the file you need.

### *Managed archive*

Tivoli Storage Manager goes beyond just data backups to include archive. Archive allows you to retain a copy of a file for a specified period of time and then optionally automatically erase the original copy of the item archived from its originating location.



An example of a file that would be archived is financial reporting data that needs to be retained for future use but does not need to consume valuable disk space where live data should reside. Instead it is archived for quick, easy retrieval by using Tivoli Storage Manager. You can archive virtually anything you wish—all policy-managed and tracked by Tivoli Storage Manager.

### *Mobile backup capability*

Tivoli Storage Manager includes the capability for backing up laptops or remote desktops that are doing their backups over a wide area network (WAN) or telephone line. Adaptive subfile differencing allows just the portion of the file that has changed to be backed up. This function, combined with progressive incremental backup, protects the data of your remote users

while sending the smallest amount of data possible across their low-bandwidth connection. While giving remote users fast backups to the Tivoli Storage Manager server and easy restores should they lose a file or volume, Tivoli Storage Manager also provides the ability to encrypt data that is being sent to Tivoli Storage Manager servers.

#### *Tape reclamation*

Tivoli Storage Manager can perform reclamation, a process in which the database automatically deletes expired files on tapes and consolidates the remaining unexpired files to other tape volumes. The resulting empty tapes are then reused for new data. For companies with large amounts of data with frequent expirations, this process can bring substantial annual savings on tape media.

#### *Policy-based management*

Coupled to the relational database inside Tivoli Storage Manager is an extremely granular policy engine that automates all the capabilities of Tivoli Storage Manager. Like the database, this policy engine is configurable down to the individual file level to govern everything Tivoli Storage Manager can do. Policies can be set as simple defaults or

highly tuned and customized to help keep costs low and still meet specific service-level agreements. The resulting ease of implementation makes Tivoli Storage Manager highly suited for “lights-off” implementations. Once configured, Tivoli Storage Manager can manage the data protection for thousands of computers with minimal administrator assistance.

#### *Restore*

Tivoli Storage Manager uses intelligent restore functionality. It can restore exactly the version of the file you want without having to restore the latest full backup and then the latest incremental backup. This intelligent restore process can save you valuable time and bandwidth.

#### *Collocation*

With the collocation function you can choose to have all the files of a particular client reside on one tape (or set of tapes). This means that if you need to perform a restore, fewer volumes will have to be mounted, and less tape positioning will have to occur—potentially resulting in a faster restore.

*“The IBM LTO and IBM Tivoli Storage Manager combination offered the best solution for us in terms of speed and capacity. We can now store twice as much data at an incredible transfer speed.”*

–WonKeun Ahn, IT Manager and ERP Team Leader  
Taein Shany Group

View the complete Taein Shany Group case at  
[www.tivoli.com/inside/clients/pdfs/taeinshany\\_storage.pdf](http://www.tivoli.com/inside/clients/pdfs/taeinshany_storage.pdf)

## **Additional information about IBM Tivoli**

### **IBM software integrated solutions**

Tivoli Storage Manager supports a wealth of other offerings from IBM software. IBM software solutions can give you the power to achieve your priority business and IT goals.

- *DB2® software helps you leverage information with solutions for data enablement, data management and data distribution.*
- *Lotus® software helps your staff be productive with solutions for authoring, managing, communicating and sharing knowledge.*
- *Tivoli software helps you manage the technology that runs your e-business infrastructure.*
- *WebSphere® software helps you extend your existing business-critical processes to the Web.*

### **To learn more**

For information on adding IBM Tivoli Storage Manager to your LTO system and integrated solutions from IBM, contact your IBM sales representative or visit **[info.tivoli.com/storageforsuccess](http://info.tivoli.com/storageforsuccess)**

### **Tivoli software from IBM**

An integral part of the comprehensive IBM e-business infrastructure solution, Tivoli technology management software helps traditional enterprises, emerging e-businesses and Internet businesses worldwide maximize their existing and future technology investments. Backed by world-class IBM services, support and research, Tivoli software provides a seamlessly integrated and flexible e-business infrastructure management solution that uses robust security to connect employees, business partners and customers.





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