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MAXIMIZING LTO PERFORMANCE

Maximizing LTO Performance

Concepts Covered:

- ▶ Demands for Data Storage and Retrieval
- ▶ Challenges of Back Up and Restoration
- ▶ Fujifilm's Data Center Services
 - Tape Environment Analysis
 - Library Monitoring and Alert Service
 - Archive Verification
- ▶ Fujifilm DC Analyser
- ▶ Recognize the Opportunities
- ▶ Additional Resources
- ▶ Start the Conversation

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Increasing Demands for Data Storage and Retrieval

Your customers need to keep ever increasing volumes of data, for longer periods and be able to retrieve the data successfully.

- ▶ Databases and data warehousing operations have exponentially increased the amount of data that needs to be stored.
- ▶ Regulatory requirements make it essential to keep data available, secure and in good condition, often for many years.

LTO tape is the most economical, accurate and long lasting way to store large volumes of data.

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LTO Ultrium DATA CARTRIDGE

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Tape Environment Analysis

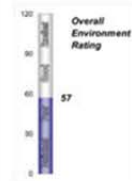
The report provides a detailed analysis of the storage environment, complete with actionable recommendations and projected cost savings.

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Executive Summary

The Arden 52,000 tape system requires a few repairs and some optimization. Improving these improvements will reduce the risk of data loss and reduce capital costs.

Outside of the most error-prone drives, most of the system has a low error rate. Much of the system is performing below its capability. Focus first on system repair, then optimize the system to maximize cost savings.



This analysis is based on data collected from an Arden 52,000 tape library from August through October 20, 2010.

The library studied in this report has a low error rate that meets most needs. Repair of some components will reduce the amount of time spent from the system and reduce the risk of data loss.

Tape drives work best when data is being written fast enough to keep the tape moving. The tape drive in this library is not moving fast enough to meet the goal, and after a week the data error rate at the library will reduce the risk of data loss.

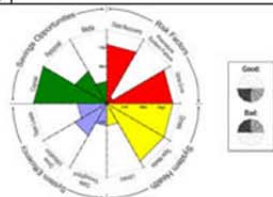
The library today is capable of moving much more data than is being requested. By making the system more efficient, fewer drives will be required. This should reduce the capital costs required to expand the library.

Some efficiency changes are simple and free, including changes in the backup software or system configuration. Others are more complex and more costly, involving new virtual tape libraries, tape systems or new software.

The library drives have some age and wear. There can be some maintenance costs for additional repairs.

Most new data is written to the system. Many of the tapes at the end of the tape are not being used. A tape certification service could be used to identify tapes that are not needed and can be recycled.

The assessment, ongoing and continuous health checks, requires a few months, comparing the library to a goal.



SAVES

The library has more drives than are required. Consider drives up for removal or replacement to save maintenance costs. Additional drives may be removed to improve performance.

EFFICIENCY

Low drive performance is increasing the number of drives required to complete the backup. Drive utilization is generally low. The library could do the work with a smaller number of drives.

RISK

The drives have excessive error rates. Most drive performance is below the acceptable rate, leaving potential error in tapes.

HEALTH

The drives are in need of repair or removal. Four most drive drive error rates are higher than others and should be investigated.

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TEA: Better than DIY

TEA offers data center managers a more effective alternative than purchasing equipment and doing the analysis themselves.

TEA is a subscription service that includes both the ongoing use of the ReadVerify™ Appliance (RVA) and the professional services to analyze and report on the data it collects.

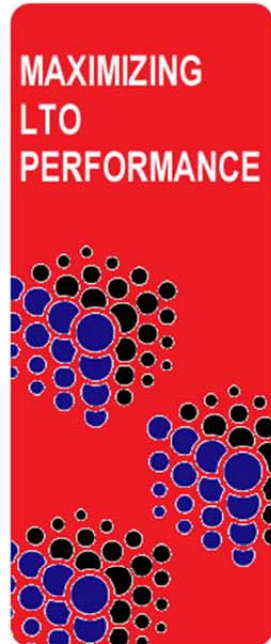
By using TEA, your customers avoid the expense of hiring people to determine the meaning and relevance of all the data collected by the RVA.

- ▶ Most data centers don't have this expertise on staff.
- ▶ Few data centers could keep staff with this expertise fully employed.



TEA provides a customized, personalized consulting service that adds tremendous value over the RVA data itself.

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Archive Verification (cont'd)

AVS provides full reports that show which tapes passed verification, pose a risk or are unreadable.

These reports document that media has been verified and data is recoverable, satisfying requirements for regulatory compliance or SLA audits. The reports include:

- ▶ Verification Review: percentage of tapes read with acceptable, elevated and very high error rates, and tapes that could not be read
- ▶ Histogram of cartridge utilization: how much of the tape has data
- ▶ Detailed status and performance tabulation on a tape-by-tape basis
- ▶ Output is a professional report which summarizes backup and restores system health, efficiency and potential cost savings, as well as diagnosing risks, trend analyses and error correlation
- ▶ Detailed analyses and actionable recommendations

