

ARCHIVAL STORAGE TCO ANALYSIS SUMMARY

Introduction

This datasheet provides a summary of a detailed "Archival Storage Total Cost of Ownership (TCO) Analysis" that compares a range of common archival storage technologies. The report quantifies the primary costs to establish, and maintain a data archive over an extended period of time. The purpose of the analysis is to provide a balanced assessment of actual costs so that companies implementing archive strategies can use the results as a framework for their own appraisals. The full version of Archival Storage TCO Analysis can be downloaded from the Plasmon website: www.plasmon.com or www.plasmon.co.uk.

Archive Case Scenario

In order to provide a realistic TCO assessment, the report is based on the actual requirements from the London branch of a global financial institution. This organization required a data archive strategy for stock trading transaction and customer financial records. The need to archive these records is driven by both internal guidelines and governmental regulations that mandate a 7 to 10 year retention period for financial information.

The total size of the required archive is 12TB with an initial daily accumulation rate of 8GB, as records over 30 days old are transferred from high performance magnetic disks to the long-term archive. Access to the archived records is frequent, but random. In a typical eight-hour working day, 2,500 records are retrieved by thousands of users located throughout the world.

Selected Archive Configurations

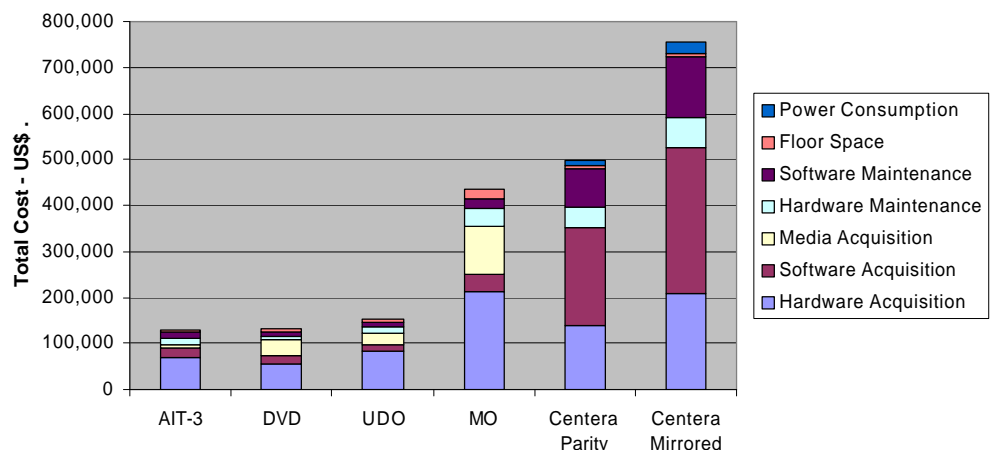
The TCO analysis compares tape, magnetic disk and optical solutions that have been configured to meet the total archive capacity and the daily access requirements of the London institution. The hardware configurations selected for the analysis are listed below. The full report provides a justification for their selection and a detailed description of each configuration.

Magnetic	Vendor	Product	Drive Count	Media/Drive Capacity	Media Count	Usable System Capacity
Tape	ADIC	Scalar 100 (AIT-3)	8	100GB	96	9.6TB
Disk	EMC	Centera Parity	96	320GB	-	14.4TB
Disk	EMC	Centera Mirrored	96	320GB	-	9.6TB
Optical						
DVD	Plasmon	D1525	6	9.4GB	1,475	13.8TB
MO	Plasmon	G638 x 2	4 x2	9.1GB	1,276	11.6TB
UDO	Plasmon	G438	4	30GB	438	13.1TB

TCO Analysis Results

The chart below summarises the financial findings of the report by breaking down the most significant components of cost over a three year operating period.

**Archival Storage TCO
12TB - 3 Years**



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AIT-3 tape, DVD and UDO demonstrate similar profiles with a 12TB TCO ranging from \$10.8/TB to \$12.8/GB. Due primarily to lower media density, MO has a significantly higher cost at \$36.3/GB. The Centera magnetic disk configurations are the most expensive of all the options at \$41.5/GB and \$62.9/GB. The Centera mirrored configuration is almost 6 times the cost of the least expensive configuration.

TCO Components

The table below gives a breakdown of the primary components of cost considered in this scenario and their relative cost percentage within each configuration.

	Hardware Acquisition	Software Acquisition	Media Acquisition	Hardware Maintenance	Software Maintenance	Floor Space	Power Consumption
AIT-3 library	53.1%	16.9%	5.1%	11.3%	9.2%	3.3%	1.2%
DVD library	43.2%	13.2%	24.3%	6.6%	7.1%	5.0%	0.4%
UDO library	54.3%	10.0%	15.7%	9.4%	5.4%	4.6%	0.5%
MO library	48.9%	8.6%	24.3%	8.9%	4.6%	4.4%	0.4%
Centera Parity	28.1%	42.2%	0%	9.1%	17.4%	0.9%	2.4%
Centera Mirrored	27.8%	41.7%	0%	8.9%	17.2%	0.9%	3.5%

Financial Methodology

All prices used in the analysis are standard manufacturer list prices (US\$) and on-going maintenance costs are calculated for the first three years of operation (taking into account warranty periods). Only these components that can be firmly documented and are not subject to interpretation have been included in the analysis.

Since none of the configurations provide exactly 12TB of storage, the financial model calculated the actual system costs on a \$/TB basis and adjusted each configuration up or down to match the 12TB target using the percentages listed in the table above. The full report provides detailed cost figures and explanations of all calculations.

Additional Considerations

The analysis is designed to highlight the quantifiable costs associated with establishing and operating a professional archive. However, there are also a number of additional considerations that can have a significant financial impact on the operation of an archive. These considerations are listed below and are discussed in detail in the full report.

- System Administration
- Data Migration and Hardware Upgrades
- Tape Media Maintenance
- DVD Media Handling
- Data Authenticity and Audit Trails
- Off-line Secondary Media Copies
- Installation Considerations

TCO Analysis Summary

The figures provided in the Archival Storage TCO Analysis do not attempt to take into account all possible costs of a professional archive environment since many expenses are application or site specific. However, the analysis does address the most significant costs and seeks to provide a valid and representative ranking for each selected configuration.

The primary cost differences have less to do with magnetic vs. optical technology and more from their specific implementations. Indeed, the AIT-3 tape and the Centera solutions, both based on a magnetic storage, stand at extreme ends of the TCO spectrum. There is also a significant cost difference between the two optical configurations of DVD and MO. Overall, the AIT tape, DVD and UDO configurations offer a dramatically lower TCO proposition than MO and Centera and require much lower on-going operating expenses.

This report provides quantifiable insight into archive acquisition and maintenance costs, but it is also important to balance the financial analysis against other considerations. Business and technical issues such as regulatory compliance, data authenticity, media longevity and performance are equally valuable metrics and must be considered when evaluating archival storage strategies. Readers are encouraged to use the results of the report as a starting point for their own archival storage TCO evaluations.

Visit the Plasmon website to download a copy of the complete Archival Storage TCO Analysis: www.plasmon.com or www.plasmon.co.uk.

