Storage management solutions
White paper

Tivoli software

# Derive substantial business benefits from IBM TotalStorage Productivity Center.

October 2006

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### Overview

IBM TotalStorage® Productivity Center provides a single management platform from which an organization can manage storage infrastructure for performance, availability and capacity. The business value of the platform includes its ability to:

- Enable end-to-end disk management with a single tool.
- Centralize management of storage.
- Help improve storage utilization, performance and service levels for applications.
- Help reduce storage complexity to make IT staff more productive.

This paper, written for those who are already familiar with the range of IBM TotalStorage Productivity Center products, provides:

- Detailed information about the value that IBM TotalStorage Productivity Center can deliver.
- Examples of real client experiences.
- Guidance that an organization can use to begin assessing the potential benefits of IBM TotalStorage Productivity Center in terms of return on investment (ROI) and total cost of ownership (TCO).

### Access a wide range of storage management capabilities from a single interface

IBM TotalStorage Productivity Center is an integrated suite that includes a single user interface to manage capacity, storage networks, storage systems and replication services. It offers both role-based administration and single sign-on capabilities. The suite includes:

- IBM TotalStorage Productivity Center for Fabric.
- IBM TotalStorage Productivity Center for Data.
- IBM TotalStorage Productivity Center for Disk.
- IBM TotalStorage Productivity Center for Replication.
- IBM TotalStorage Productivity Center for Replication Two Site BC.
- IBM TotalStorage Productivity Center Limited Edition.
- IBM TotalStorage Productivity Center Standard Edition — a reduced-price package of IBM TotalStorage Productivity Center for Disk, IBM TotalStorage Productivity Center for Data and IBM TotalStorage Productivity Center for Fabric.
- IBM TotalStorage Productivity Center with Advanced Provisioning (IBM Tivoli Provisioning Manager).

## Highlights

Manage storage environments with new efficiencies

IBM TotalStorage Productivity Center provides the foundation for storage service level management by including performance and availability management for storage systems and storage area networks (SANs). Examples include connectivity reporting between file systems and physical disk, and failure and audit logging of SAN and disk subsystems. It also helps customers achieve improved staff productivity by automating key tasks such as provisioning, either using IBM TotalStorage Productivity Center Standard Edition or IBM TotalStorage Productivity Center with Advanced Provisioning (using Tivoli Provisioning Manager).

**Understand the potential financial benefit of IBM TotalStorage Productivity Center**

IBM TotalStorage Productivity Center provides customers with new efficiencies in managing their storage environments – both at an operational level and in leveraging existing storage assets more effectively. Customers can reasonably expect it to have positive impacts on:

- Capital expenditures (CAPEX), due to more efficient utilization of storage assets. IBM TotalStorage Productivity Center helps extract more value out of existing storage by delivering better rationalization and understanding of disk space and data residing on that disk, as well as better understanding of the existing performance of SAN infrastructure. As a result, managers can defer disk and fabric purchases based on requirements.
- Operational expenditures (OPEX), due to:
  - —Centralized storage management. IBM TotalStorage Productivity Center streamlines storage processes to help increase staff productivity without increasing operational budgets.
  - —Heterogeneous device management. Helps eliminate the need for redundant skill sets and added head count.
  - —Service level maintenance. It monitors storage infrastructure to detect availability and performance issues before they become crises.

The following table provides detailed examples of the value IBM TotalStorage Productivity Center can deliver in each of these areas.

| Business benefit | Examples |
|---|---|
| **More efficient utilization of storage assets (CAPEX)** | • Highlights where allocated capacity exceeds service need, enabling redistribution of capacity to help reduce costs.<br>• Helps optimize storage asset utilization and, consequently, total cost of ownership.<br>• Helps improve configuration management by integrating with the IBM Tivoli® Change and Configuration Management Database (CCMDB).<br>• Helps reduce hardware investment by more effectively monitoring performance of SAN switches and storage arrays, delaying hardware acquisitions until utilization and performance have peaked. |
| **Centralized storage management (OPEX)** | • Can provide faster response to business demands by helping reduce administrator effort required to provision storage capacity and manage SANs and storage devices.<br>• Automates the gathering of management information and reporting on capacity and storage assets, helping minimize the need to increase staffing when the environment grows.<br>• Integrates with IBM System Storage SAN Volume Controller for infrastructure management.<br>• Integrates with IBM Tivoli Storage Manager for automating backups and archives.<br>• Integrates with IBM Tivoli Storage Process Manager to automate key storage processes, including data cleanup and provisioning of storage based on service level requirements.<br>• Helps improve provisioning process through IBM TotalStorage Productivity Center with Advanced Provisioning, leveraging Tivoli Provisioning Manager. |
| **Heterogeneous device management (OPEX)** | • Provides the information required to plan for a tiered storage environment and thereby helps reduce expenditures on premium disk systems.<br>• Helps prepare for virtualization of tiered storage by visualizing files and databases — using IBM TotalStorage Productivity Center for Data — in the storage environment at capacity levels.<br>• Enables the reduction of the number of storage management products needed to manage storage from different vendors. |
| **Service level maintenance (OPEX)** | • Helps establish direct links between business processes, applications and back-end storage by collecting and sharing configuration data with Tivoli CCMDB.<br>• Can reduce problem diagnosis time to help improve availability of servers and applications.<br>• Speeds identification of failures by automatically alerting about "out of line" conditions and overlaying a single view of the entire storage environment with health and performance indicators.<br>• Helps simplify root cause analysis by presenting all alert, configuration and status information at a single point.<br>• Helps assure defined services for storage using performance reporting, alert thresholds and trending to enable adherence to tracked service levels and "out of line" situations that should be addressed before service level breaches occur.<br>• Automates monitoring of SAN fabric and port availability to enable data path failures to be addressed prior to service outages.<br>• Highlights potential service level issues in threshold-based capacity alerts to help reduce outages and management overhead. |

The rest of this section examines the metrics that can be used to measure CAPEX and OPEX benefits. First, it lists benchmarks for estimated cost savings. Subsequently, it highlights key results that current IBM TotalStorage Productivity Center customers have achieved.

### Estimated cost savings

Companies that deploy IBM TotalStorage Productivity Center can potentially achieve cost savings in a number of areas. The following chart details IBM TotalStorage Productivity Center overall and its four key products to estimate the impact on savings when compared with business as usual (BAU). These numbers are derived from data gathered by Alinean Inc. and validated by IDC.[1]

| Savings type | Description | Estimated impact vs. BAU |
|---|---|---|
| *IBM TotalStorage Productivity Center Standard Edition overall* | | |
| **OPEX** | Can reduce call volumes and improve diagnosis for help-desk staff due to one or more of the following:<br>• Advanced monitoring, reporting and automation from IBM TotalStorage Productivity Center<br>• Systems availability improvements from IBM TotalStorage Productivity Center for Disk<br>• Quicker resolution of critical SAN issues by integration with system management tools from IBM and other vendors from IBM TotalStorage Productivity Center for Fabric | 2–6% |
| **Other** | Can increase application and/or system availability through:<br>• Proactive monitoring of storage use and available free space, and disk and SAN devices<br>• Triggering corrective actions to reduce downtime | 2–8% |
| *IBM TotalStorage Productivity Center for Data* | | |
| **OPEX** | Can improve capacity management and planning by proactively monitoring and enforcing storage use policies | 35% |
| **OPEX** | Can simplify storage asset management through extensive reporting | 30% |
| **CAPEX** | Can reclaim wasted space and reduce need to purchase additional storage by identifying unused data that can be archived or deleted | 10% (archiving) – 18% (deletion) |
| *IBM TotalStorage Productivity Center for Disk* | | |
| **OPEX** | Can improve administrator ability to monitor metrics such as I/O rates and cache utilization, plus optimization of storage by identifying "best logical unit numbers (LUNs)" | 20% |
| **OPEX** | Can ease administration through use of a central user interface for configuring and managing all supported devices on the SAN | 25% |
| *IBM TotalStorage Productivity Center for Fabric* | | |
| **OPEX** | Can improve capacity and performance management of the SAN environment by gathering key configuration, network statistics and other status information | 10% |
| **OPEX** | Allows better inventory control and recording by:<br>• Automatically discovering SAN resources and topology<br>• Monitoring and alerting<br>• Zone control and SAN error prediction | 10% |
| **OPEX** | Can ease management of complex SAN environments from a central console, including automatic device discovery and SAN event management | 25% |
| *IBM TotalStorage Productivity Center for Replication* | | |
| **OPEX** | Can provide productivity benefits and reduce potential errors by:<br>• Automating the source-to-target pairing setup<br>• Monitoring consistency groups<br>• Tracking replication operations | 15% |

### Scenarios demonstrate CAPEX and OPEX benefits

***Help improve CAPEX with better capacity, configuration and asset management***

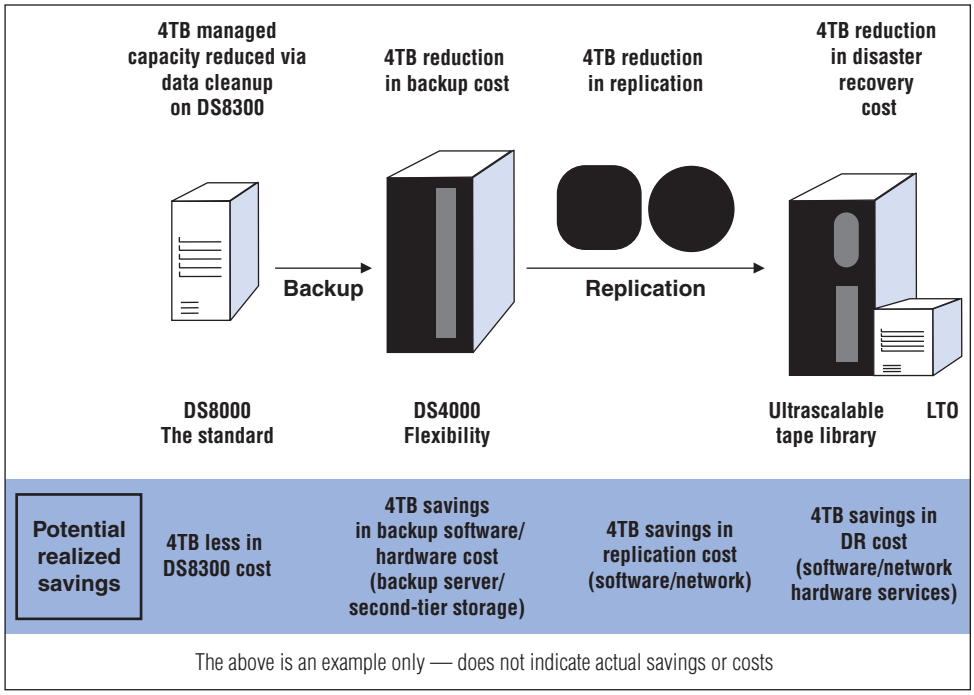
Industry analysts point to the use of storage resource management as a leading way to control the cost of storage.[2] Storage resource management can provide businesses a deeper understanding of not only how business units are using their storage environment, but also how the storage infrastructure is performing. Both of these elements deliver substantial business value.

First, when storage infrastructure management tools classify data, over time they can use that information to help enforce optimal utilization by business units. IBM TotalStorage Productivity Center for Data provides a rich set of in-depth analysis, reporting and forecasting mechanisms to look at an enterprise's current environment and help forecast storage growth. With it, customers can:

- Reclaim remaining storage capacity and file systems.
- Delete non-business files and duplicate data.
- Clean frequently redundant application data, log files, dump files, temporary files, and stale and orphan data.
- Invest wisely in storing, accessing, managing and protecting valid data.

Second, storage infrastructure management can tell an organization a great deal about the storage environment, including availability, performance and capacity use. The following example shows how capacity management can have an impact on costs across the storage environment.

***Help control cost of storage: capacity management example***



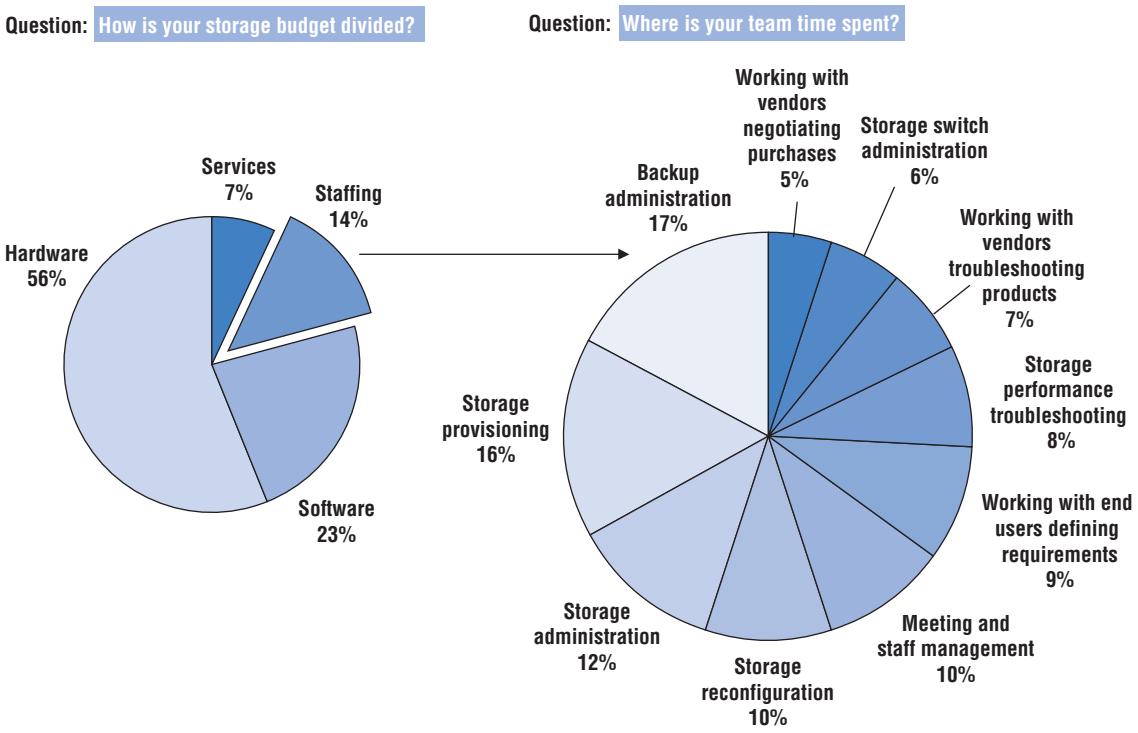

In this example, the organization determines that there is 4TB of stranded or wasted capacity on a high-performance IBM TotalStorage DS8000. By freeing up 4TB, the organization also sees a 4TB savings in the backup and capacity costs needed to back up the IBM TotalStorage DS8000 to an IBM TotalStorage DS4000 platform. Furthermore, there is a 4TB reduction in the costs of replication to a disaster recovery site.

On top of that, the organization experiences labor savings for these tasks. And indirect cost savings potentially include the following:

- Deferred tape procurement
- Disaster management capabilities
- Improved overall availability
- Improved application development and testing
- Reduced number of backup servers
- Impact on new and migrating applications
- Simplified storage consolidation

***Help improve OPEX by centralizing storage infrastructure management***

To help reduce overall labor costs, IBM TotalStorage Productivity Center helps customers simplify the management of storage infrastructure. As storage needs grow and storage technologies become more diverse and more complex, the challenges of containing storage-related IT labor costs also increase. According to industry analyst TheInfoPro, repetitive storage management represents more than 50 percent of staff time invested in storage.[3]




While corporate initiatives strive to align IT operational management with business processes, storage managers are stuck grappling with basic and frequently manual tasks. IBM TotalStorage Productivity Center helps customers consolidate management by providing a platform with a number of broad capabilities that can automate key tasks and helps reduce time spent doing certain storage tasks, such as to:

- Provision storage.
- Administer storage capacity and device management.
- Reconfigure storage.
- Diagnose storage performance problems.
- Administer storage switches.
- Monitor replication services.
- Monitor backups and archives.

### Customer example shows sample ROI

The following is an example of the return on investment customers potentially can achieve using IBM TotalStorage Productivity Center. It is important to note that ROI, TCO and other measures of financial benefit are personalized based on individual customer requirements, and results will vary depending on specific customer considerations and environments.

The analysis below provides a high-level view of an ROI analysis. All numbers are estimates based on specific scenarios and projected benefits.

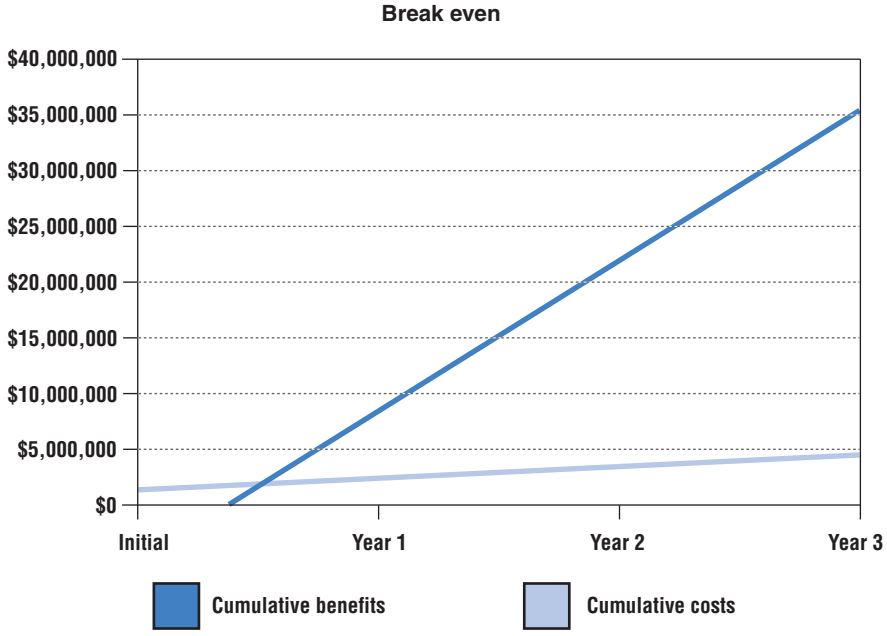
In this example, a financial services firm has 12 IT personnel who manage a 250TB deployment of storage that is growing at 40 percent annually with 70 percent average storage use. The largest potential benefits of IBM TotalStorage Productivity Center are in two key areas:

- IT cost reductions (CAPEX) — decreases in hardware investment, based on better use of existing high-performance, near-line and archival storage.
- Annual labor cost reductions (OPEX) — declines in staff time spent managing various aspects of the storage infrastructure.

***Estimated ROI analysis results***

The following ROI analysis summarizes the cost and benefit cash flows for storage management. The calculation of key financials includes ROI, net present value (NPV), internal rate of return (IRR) and payback period.

| | Initial | Year 1 | Year 2 | Year 3 | Year 4 |
|---|---|---|---|---|---|
| Benefits | $0 | $4,366,277 | $5,426,364 | $5,203,485 | $5,876,864 |
| Cumulative benefits | | $4,366,277 | $9,792,641 | $14,996,126 | $20,872,991 |
| Costs | $1,623,616 | $1,155,511 | $937,065 | $951,416 | $163,837 |
| Cumulative costs | $1,623,616 | $2,779,127 | $3,716,192 | $4,667,608 | $4,831,445 |
| Cash flow | ($1,623,616) | $3,210,766 | $4,489,299 | $4,252,069 | $5,713,027 |
| Cumulative cash flow | ($1,623,616) | $1,587,150 | $6,076,449 | $10,328,518 | $16,041,546 |
| ROI | 332% | | | | |
| Risk-adjusted ROI | 268% | | | | |
| NPV savings | $11,040,818 | | | | |
| IRR | 220% | | | | |
| Payback period (including deployment period) | 9 months | | | | |
| Risk-adjusted discount rate | 13.5% | | | | |




Note: Benefits will vary depending on customer environment.

**For more information**

IBM TotalStorage Productivity Center is designed to deliver significant business benefits. Its end-to-end disk management and centralization of storage infrastructure management helps optimize storage utilization, performance and service levels, and reduce storage complexity to make your team more efficient.

To learn more about deploying IBM TotalStorage Productivity Center today, talk to an IBM representative or IBM Business Partner. They can help define the best solution and measure the business value of the software based on your individual environment.

More information about IBM TotalStorage Productivity Center is also available at **ibm.com**/servers/storage/software/center



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[1] Data can be accessed using the IBM Business Value Analyst Tool, available from an IBM sales representative.

[2] Gartner, "PlanetStorage Summit 2005," June 2005.

[3] TheInfoPro, "Storage Study Wave 7" (survey of Fortune 1000 companies), April 2006.

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