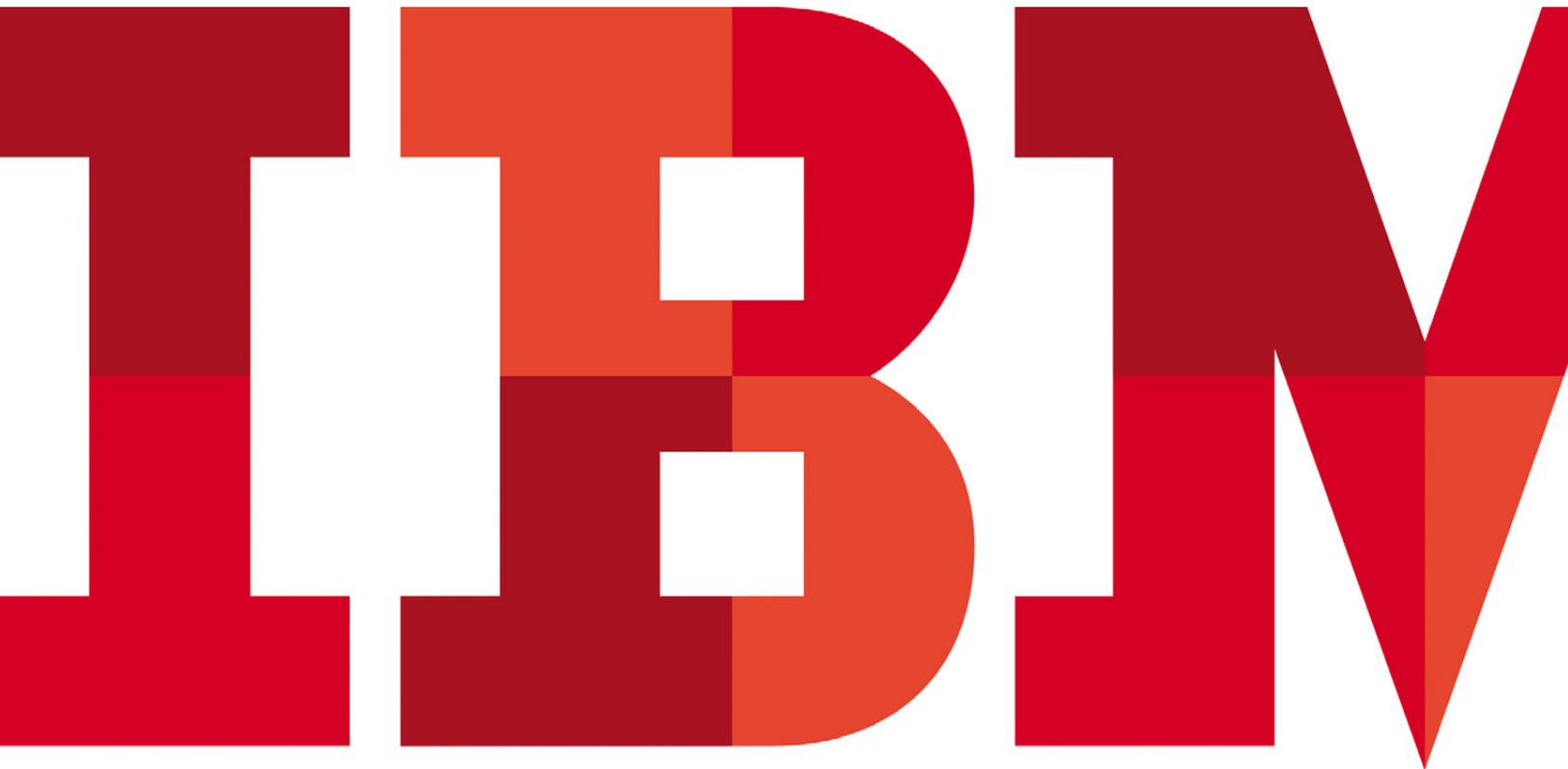


Ten ways to save money with IBM Tivoli Storage Manager

*Realize measurable cost savings and superior ROI with a
comprehensive storage management solution*



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Introduction

Today's data storage managers are being asked to work miracles: back up massive amounts of data without impacting operations, restore lost data almost instantaneously, protect different sets of data in accordance with different security and retention policies, and do it all on a shrinking budget. And the challenge doesn't get easier with time. According to a recent study by IDC, businesses across all industries are experiencing data growth of 40 to 60 percent per year.¹

For every dollar the organization spends on additional storage capacity, it may spend five times that amount—or more—on data management. These dollars are required for power, cooling, floor space, hardware maintenance, software licenses and administrative labor. It is a costly undertaking, not only in terms of operating expenses, but also in terms of potential business impact. More data means longer backup and restore times, which means more downtime, which means less profit. Inadequate backup processes can put crucial data at risk, which can have an even more costly impact to the business.

Increasingly complex IT environments further complicate data protection efforts and drive up operating costs. "Point solutions" are deployed to help administrators cover all the bases—supporting different hardware and operating system platforms, addressing different applications and data types, meeting different data protection and recovery requirements, and protecting against the many different things that can go wrong with data storage—in all of its different locations. But these point solutions require administrative staff, specialized training, maintenance, and license management, and they increase risk by introducing more potential points of failure.

The bottom line is that legacy backup solutions are not adequate to meet today's data storage challenges, much less meeting tomorrow's. According to a recent report by Gartner, "By 2014, at least 30% of organizations will have changed backup vendors due to frustration over cost, complexity and/or capability."²

However, replacing a backup infrastructure can be a painful and disruptive process. The best replacement solution will be one that not only addresses these issues, but also demonstrates significant cost savings, enables a rapid return on investment and ensures a seamless transition.

This white paper describes 10 ways that IBM® Tivoli® Storage Manager solutions can help organizations save money while addressing their data storage challenges, including those associated with exponential data growth.

1: Data reduction

Data reduction technologies are the first line of defense against rapidly expanding data volumes—and costs. Tivoli Storage Manager provides built-in data reduction technologies such as progressive-incremental backup, data deduplication and data compression, enabling organizations to reduce backup storage capacity by as much as 95 percent.³ Tivoli Storage Manager also provides advanced tape management and efficient tape utilization capabilities, which can further reduce data storage capacity requirements.

While competing solutions create massive amounts of duplicate data through repetitive full backups, necessitating expensive data deduplication solutions, Tivoli Storage Manager provides progressive-incremental backup technology that avoids the duplicate data in the first place by creating only an initial full backup and

then capturing only new and changed data. Built-in data compression and data deduplication operate at multiple storage layers to minimize the amount of data being retained for operational and disaster recovery.

Reducing backup storage requirements so dramatically not only helps reduce capital expenses, it can also reduce network bandwidth requirements and shrink backup windows, reducing the operational impact of backups and helping to ensure high levels of application uptime.

2: Unified recovery management

Unified recovery management (URM) brings under one user interface the ability to manage data protection throughout the enterprise, supporting different applications and types of data, on different operating systems, in different locations, with different policies and backup requirements. From a single point, administrators can manage multiple data protection and recovery tools—including diverse solutions that are dedicated to different tasks. It helps eliminate the costs and complexity associated with deploying and managing multiple point solutions.

IBM Tivoli Storage Manager Suite for Unified Recovery simplifies and streamlines storage management, helping organizations control both the risks and costs of data protection and recovery. With fewer "moving parts" for managing the various solutions in operation, administrators can ensure faster, more reliable backup and recovery processes. The solution also provides built-in replication for highly available disaster recovery, helping to reduce downtime and the business costs that can result. These process improvements contribute to higher levels of service, making it easier for organizations to meet service level agreements.

3: Capacity-based licensing

IBM offers pricing options that allow companies to pay for Tivoli Storage Manager solutions in the manner that makes the most financial sense for them. Traditional licensing models, which are based on the number and power of processor cores in the servers being protected, have cost advantages for organizations that have a relatively large amount of data and a relatively small number of servers, or for organizations that have other IBM software products licensed this way. But IBM also offers a capacity-based licensing option that allows organizations to pay for the software based on the amount of data being protected. This model has cost advantages for organizations that have a relatively large number of servers. It also helps eliminate licensing cost surprises when servers are added or cores are upgraded. The software includes tools that can help the organization make accurate budget forecasts.

The capacity-based model has particular value in infrastructures with multiple applications that require Tivoli Storage Manager connector solutions. Under the capacity-based model, these solutions are included at no additional cost. In addition, using the data deduplication feature that's built into Tivoli Storage Manager reduces the amount of data being protected, which reduces the amount of data being measured against the license cost.

4: Scalability

Keeping pace with growing data is a major concern for IT organizations, both in terms of storage and data protection. As shown in Figure 1, Tivoli Storage Manager has grown its capacity by 100 percent in each of the past three years, and it now supports four billion data objects in a single Tivoli Storage Manager server. This doubling of capacity has greatly outpaced the 40 to 60 percent average data growth cited above, helping to ensure scalability well into the future.

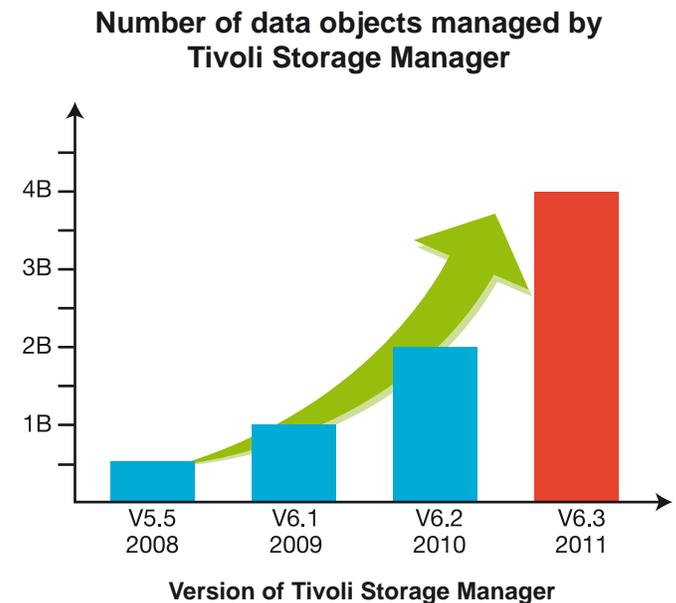


Figure 1: Tivoli Storage Manager has doubled its capacity every year for the past three years.

Data objects can be files and blocks of deduplicated files, databases, images, or other objects with a filename, and the size of the objects is irrelevant. While competing products require customers to add “media servers” in order to provide scalability, adding further cost and complexity, Tivoli Storage Manager reduces costs both by managing more data capacity and by requiring fewer servers. What took eight Tivoli Storage Manager servers in 2008 now takes only one.

5: High performance

High-performance data protection improves the bottom line by reducing the costs associated with application downtime. Faster backups, for example, mean shorter backup windows and more application uptime, which in turn drive business availability and employee productivity. High-performance data protection also enables more frequent backups, which helps reduce the amount of critical data at risk and helps ensure faster and more complete data restores in the event of data loss.

The Tivoli Storage Manager family of solutions provides high-performance backup and recovery technologies that minimize impact to business operations and therefore to revenue, reducing the potential for business downtime as a result of routine backup and recovery processes. IBM Tivoli Storage Manager FastBack®, for example, can get applications and users back up and running within minutes following any data loss, whether in the data center or in remote or branch offices, while full data recovery is performed in the background.

6: Data life-cycle management

IT organizations can drive up the cost of storage unnecessarily by treating all data the same and storing it all on the same media. Hierarchical storage management (HSM) allows organizations to store data on different tiers based on specific policies,

enabling administrators to migrate and store data on the most appropriate tier. For example, older and less-frequently accessed data can be moved to a slower, less-expensive storage platform such as tape, leaving more expensive disk storage available for more high-value data.

The Tivoli Storage Manager family of solutions helps organizations reduce costs by providing automated, policy-based data life-cycle management, moving data to the most cost-effective tier of storage while still meeting service level requirements, ensuring recovery objectives and enabling transparent data access. Automated data archiving also helps organizations ensure compliance with data retention policies and helps reduce the costs associated with compliance.

7: Support for virtualized environments

Virtualization technology has helped IT organizations of all sizes reduce costs by improving server utilization and reducing application provisioning times. But the cost savings offered by virtualization can disappear quickly in the face of virtual machine sprawl. Data protection can become a unique challenge in these environments; for example, backing up and restoring data for a dozen or more virtual machines residing on one physical server can bring all other operations on that server to a complete halt.

IBM Tivoli Storage Manager for Virtual Environments provides an effective solution to this challenge by eliminating the burden of running backups on a virtual machine and instead offloading backup workloads from a VMware ESX or ESXi-based server to a centralized vStorage backup server, as shown in Figure 2. The solution improves the frequency of backups and enables faster recovery of data, helping increase the business value of virtualization. The solution also helps organizations reduce their license management costs by removing Tivoli Storage Manager agents from the individual virtual machines.

Virtual server backup architecture

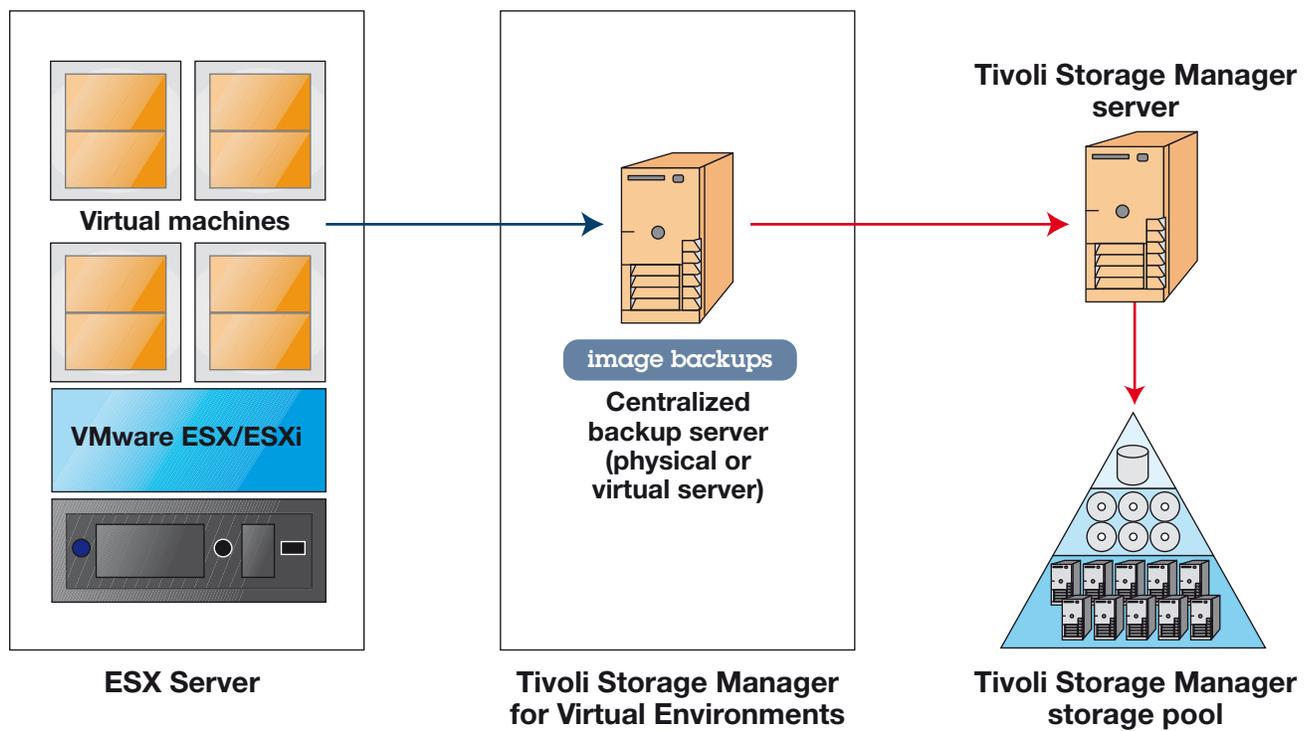


Figure 2: The Tivoli Storage Manager for Virtual Environments agent on a centralized vStorage backup server takes snapshots directly from the VMware server and transfers data to a server running Tivoli Storage Manager for placement and management in the storage pool.

8: Ease of use

IBM has made a number of significant improvements to Tivoli Storage Manager in recent years, including integrating reporting and monitoring capabilities, and integrating Tivoli Storage Manager FastBack and FastBack for Workstations into the administrative console. With Tivoli Storage Manager V6.1, IBM replaced the internal database with a self-tuning and self-maintaining IBM DB2® database, a change that reduced administrative time at one large utility company by 40 percent. More recent updates include the integration of a custom report generator based on IBM Cognos® reporting technology, a feature that reduces report creation time from a few hours to less than 30 minutes.

The single-server footprint of Tivoli Storage Manager also makes the solution easier to manage, and automatic client software updates keep IT administrators from spending their valuable time making manual updates to systems across the infrastructure. With enterprise-wide administration, monitoring and reporting, plus the flexibility enabled by automation, Tivoli Storage Manager creates administrative time savings that can measurably reduce the cost of operations.

9: Reliability

At the end of the day, the real value of a data protection system lies in its ability to restore data when and where it is needed. If data fails to restore successfully, some part of the business is going to suffer, possibly with expensive consequences. As a result, reliability is a key measure of a solution's ROI. Tivoli Storage Manager represents more than 18 years of experience in the data protection market—years spent protecting the business-critical data of some of the largest organizations in the world.

With the built-in DB2 database, Tivoli Storage Manager is a leader in reliability as well as scalability, performance and data reduction. Its longstanding viability and the ability to migrate between storage devices as needed helps ensure that organizations enjoy longevity on the platform, protecting their investments and saving on costs over the long term.

10: Subscription and support

IBM offers peace of mind through world-class customer support for its products, and through subscription and support (maintenance) contracts, which provide enormous financial value to customers. For example, all of the improvements made to Tivoli Storage Manager in the past three years—including source and target data deduplication, the eight-fold increase in scalability, and substantial improvements in reliability, performance and ease of use—have been provided to existing customers at no additional charge through their subscription and support contracts. These customers enjoy all the benefits of new versions as they are released, without incurring additional costs. As a result, subscription and support has significantly enhanced the return on the investment these organizations have made in Tivoli Storage Manager.

Best practices to extend cost savings

Organizations that are using Tivoli Storage Manager to reduce data protection costs can extend their existing capabilities to achieve even more cost savings. The IBM sales team and IBM Global Technology Services consultants have extensive experience helping organizations across all industries save IT dollars by implementing advanced data protection solutions and best practices such as data archives and storage clouds.

Migrating data to IBM Information Archive

Organizations that have archivable data stored in Tivoli Storage Manager backup and archives can benefit by offloading that data to an independent archive such as IBM Information Archive, a flexible, scalable and cost-effective archiving solution. IBM offers a utility that facilitates the identification and migration of data from the archive environment in Tivoli Storage Manager to the archive environment provided by IBM Information Archive.

The data migration utility can run periodically to move data out of Tivoli Storage Manager repositories, freeing up storage capacity within the Tivoli Storage Manager server for more backups. This migration can improve backup and recovery performance, facilitate compliance efforts, and significantly reduce backup storage capacity requirements and costs. It can also reduce the costs of Tivoli Storage Manager capacity-based licensing.

Extending Tivoli Storage Manager to the cloud

Many innovative enterprises are turning to cloud storage to meet increasing capacity demands. Cloud storage can offer a flexible, pay-as-you-go storage pool for backups and archives, reducing disk and tape costs and eliminating the need to maintain secondary sites for off-site storage. The Riverbed® Whitewater™ appliance allows organizations to extend Tivoli Storage Manager to the cloud by providing a cloud storage gateway that optimizes backup and recovery to private and public clouds.

With Whitewater appliances, Riverbed accelerates access and migration to the cloud for streamlined cloud archive, cloud backup, cloud storage and cloud data protection. File transfers that once took hours can take minutes or seconds. Employees can access files faster and from virtually anywhere, increasing productivity and efficiency. The addition of the Riverbed Whitewater solution into a Tivoli Storage Manager environment allows organizations to take full advantage of the flexibility and cost savings offered by storage cloud services, making the cloud a new tier of storage.

URM: The next generation of storage management

As described above, IBM Tivoli Storage Manager Suite for Unified Recovery is a comprehensive offering that allows organizations to manage multiple IBM Tivoli Storage Manager products through a single interface. With its ability to provide advanced data protection across a broad range of types of systems and applications, the IBM Tivoli Storage Manager family of products is already recognized as a leader in unified recovery management. The new suite builds on this strength with a simplified, centralized approach to acquiring and deploying data protection and recovery solutions, as shown in Figure 3. It makes it possible to quickly and easily acquire, deploy and manage any of 10 Tivoli Storage Manager components, in any location and in any quantity, through one central point of control.

Tivoli Storage Manager Suite for Unified Recovery

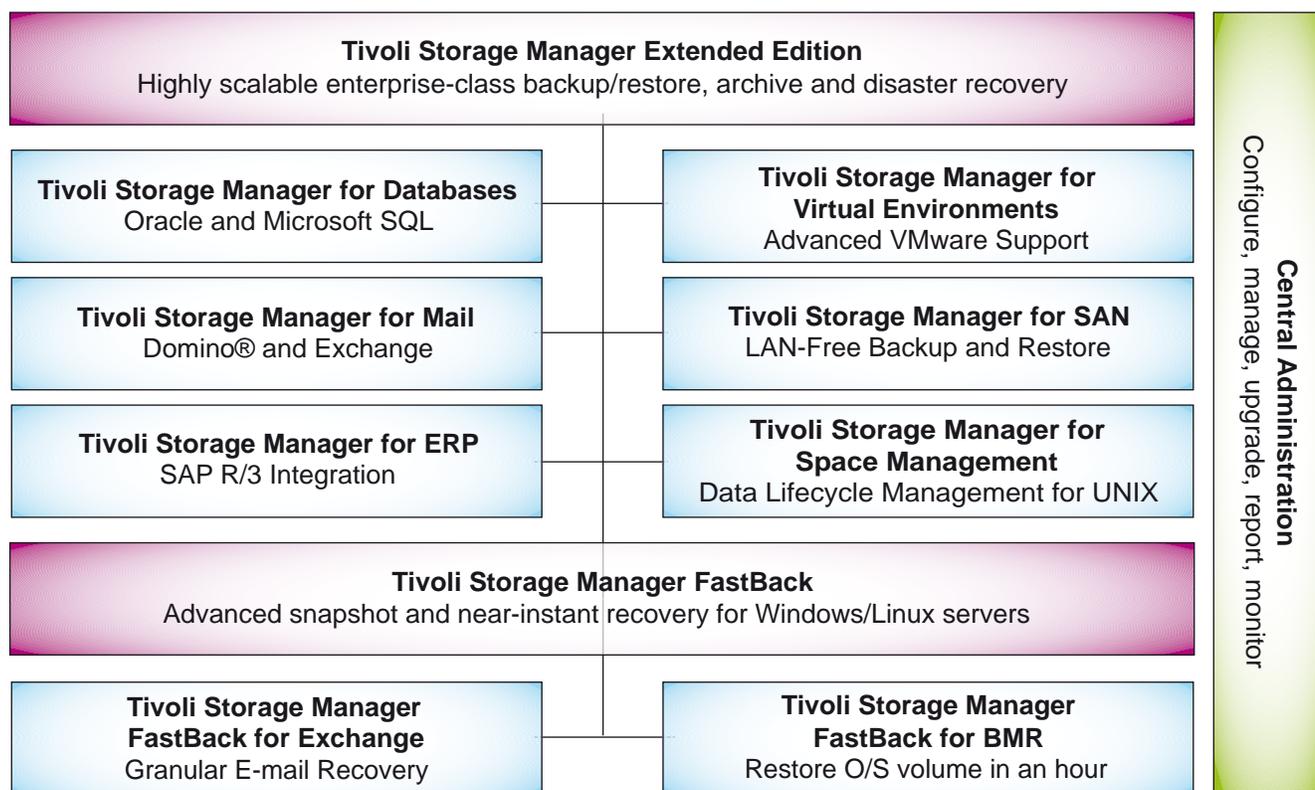


Figure 3: Tivoli Storage Manager Suite for Unified Recovery provides a complete suite of capabilities with one central point of management and control.

Tivoli Storage Manager Suite for Unified Recovery addresses the challenge of providing complete visibility into and centralized control over data protection and recovery operations, no matter how many solutions an organization is using to meet

different needs. The back-end capacity licensing model also provides clear visibility into future budgeting requirements, and encourages sound data life-cycle management using the tools already present in the solution.

Taking the next step

To learn more about how the IBM Tivoli Storage Manager family of solutions can help you reduce costs in your storage environment, you can request a Business Value Assessment from your IBM representative or IBM Business Partner. This assessment begins with a survey and results in an ROI report based on the specific details of your environment.

You may also qualify for a free Butterfly Analysis Engine Report, which is an automated ROI assessment. Rather than relying on a questionnaire, the Butterfly Analysis Engine automatically discovers and analyzes your storage infrastructure, collecting the empirical data necessary to produce an accurate and unbiased report, as shown in Figure 4. This comprehensive report from Butterfly Software allows you to compare the cost and risk implications of continuing on the same path or migrating to a Tivoli Storage Manager platform.

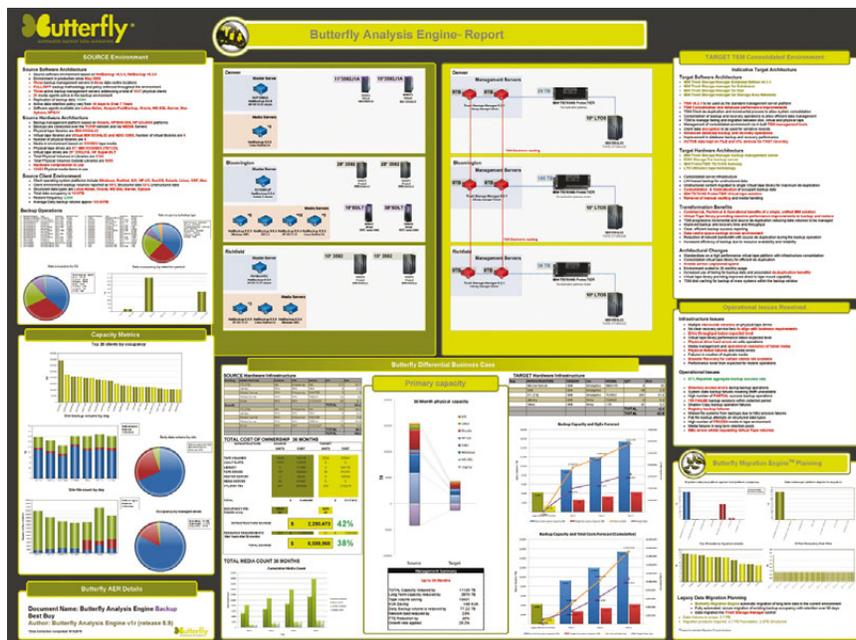


Figure 4: Butterfly Software provides a comprehensive storage analysis based on the empirical data collected during an automated storage assessment.

When you are ready to upgrade your infrastructure, you can also engage Butterfly Software to perform a seamless migration from your old storage platform to Tivoli Storage Manager. Ask your IBM representative or IBM Business Partner for more information on options for migrating your data without disrupting business operations.

Real customers achieving real results

Organizations around the globe have realized measurable cost savings by implementing Tivoli Storage Manager solutions.

A strategic move toward visibility and control

A major multinational insurance company based in the U.K. was faced with managing a number of disparate backup and recovery systems that housed multiple stores of vital claims information—a natural result of growth and acquisition. The company was facing increasing costs for software licensing, hardware maintenance, and administrative staff with specialty skills. Due to the disparate infrastructure, the company historically had a difficult time getting visibility into all facets of the storage environment. The company engaged IBM and Butterfly Software to get a complete snapshot of the environment and to determine the safest and most efficient approach to consolidating the data stores and refreshing the infrastructure.

Based on the assessment performed by Butterfly Software, the company implemented Tivoli Storage Manager, a strategic move that dramatically reduced the number of managed servers and

storage devices, and that gave administrators control via a single management console. As a result, the company was able to realize savings on both capital costs and operating expenses. By implementing progressive-incremental backup and data deduplication, the company was also able to reduce the volume of data in the backup environment.

Significant savings, immediate benefits

A large utility company in the U.S. was in the process of upgrading and consolidating its storage environment, but was concerned about providing support for their diverse array of backup devices, platforms and software. The existing infrastructure was beset with hardware and operational issues, including backup jobs overrunning during the business day, limited scalability and a backup success rate of less than 80 percent. The company turned to IBM and Butterfly Software for a storage evaluation and an ROI assessment of Tivoli Storage Manager.

The assessment revealed that the company could save 35 percent on infrastructure and resource costs as a direct result of data reductions, power savings, space savings and administrative efficiencies. Based on the results of the assessment, the utility company implemented Tivoli Storage Manager and observed immediate operational benefits, including improved backup and recovery throughput, reduced network load and reduced impact on production systems.

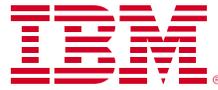
For more information

To learn more about the IBM Tivoli Storage Manager family of solutions, contact your IBM representative or visit ibm.com/tivoli/products/storage-mgr

About Tivoli software from IBM

Tivoli software from IBM helps organizations efficiently and effectively manage IT resources, tasks and processes to meet ever-shifting business requirements and deliver flexible and responsive IT service management, while helping to reduce cost. The Tivoli portfolio spans software for security, compliance, storage, performance, availability, configuration, operations and IT life-cycle management, and is backed by world-class IBM services, support and research. For more information on Tivoli software from IBM, visit ibm.com/tivoli

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¹ Amatruda, Robert and Laura DuBois, "Market Analysis: Worldwide Data Protection and Recovery Software 2011 – 2015 Forecast," IDC, July 2011.

² Russell, Dave, Sheila Childs, and Alan Dayley, "Gartner Magic Quadrant for Enterprise Disk-Based Backup/Recovery," Gartner Research, January 28, 2011.

³ Palmer, Tony, "Lab Validation Report: IBM TSM 6.1 Unified Data Protection and Recovery Management," Enterprise Strategy Group, April 2009.



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