IT Budget Strategy in a Down Economy: Stop Buying Storage!

January 2009
IT Budget Strategy in a Down Economy: Stop Buying Storage!

Contents

Current Business Scenario ................................................................. 4
Storage Management: A State of Benign Neglect ................................ 4
Using Strategic Storage Management to Gain Cost Efficiencies ............... 5
    Benchmarking: The Place to Start .............................................. 5
    Implement “Thin” Provisioning ................................................... 6
Simplifying the Transition to Thin Provisioning with SmartMove .............. 7
Deduplication: Don't Store It in the First Place .................................. 7
Data Archiving – Out with the Old .................................................. 8
Conclusion ...................................................................................... 9
Current Business Scenario
The current recessionary economic cycle has introduced a great deal of uncertainty into the business climate. Organizations are reluctant to spend any more money than absolutely necessary, which has limited or delayed the acquisition of IT equipment that otherwise might have been routine. Forecasts vary widely for the depth and length of any recession, but it is clear that 2009/2010 budgets are uncertain at best and hedged against a prolonged downturn.

If there is a silver lining, it is that IT organizations can use this opportunity to consolidate existing projects without pressure to begin new ones. This means that the immediate focus should be on optimizing existing systems and how to extend their useful life. The other bit of good news is that many organizations have 50% or more available storage capacity that may accommodate the organization's needs for the foreseeable future. Plus, many technologies currently exist that can help optimize existing systems.

Symantec is unique among storage software suppliers in its ability to deliver the breadth of product capabilities to optimize existing storage infrastructure as well as the depth to utilize the latest technology to ensure the optimization persists over time. Storage resource management (SRM) products, like Veritas CommandCentral Storage, are key to measuring and monitoring storage systems. Without such a tool, organizations will find gathering coherent enterprise-wide statistics difficult. Veritas Storage Foundation provides a server-to-storage view of the management stack (including the file system and volume manager) that other vendors simply cannot provide. Most competing products view only the server or only the storage, rendering an incomplete picture. Many organizations are turning to “thin” provisioning to make better use of their storage capacity and only Symantec Veritas Volume Manager can manage thin volumes across UNIX, Linux® and Windows®. However, the challenge is moving from “thick” volumes to thin volumes when thin storage is first deployed.

Veritas Storage Foundation and its SmartMove™ feature can do so without disruption or downtime, even in heterogeneous server/storage environments. Data deduplication can reduce required storage by 90% or more, and Veritas NetBackup™ PureDisk™ deduplication technology is the right solution for organizations wanting efficient backup to disk without buying an expensive special-purpose appliance. In total, Symantec solutions offer immediate value and return on investment as well as long-term strategic management and savings. No other company in the industry can offer such value on such a broad range of systems.

Storage Management: A State of Benign Neglect
During periods of robust economic growth, organizations may be tempted to take the “quick fix” to storage management problems. The incremental cost of adding storage is relatively small and can be absorbed by the budget. Such a short-cut may facilitate faster project roll-out, but it also leads to underutilized storage. Specifically, many organizations operate at only 30%-40% utilization. According to InfoPro, the average is 35%. Unfortunately, during periods of tight budgets, funds are not available for incremental capacity purchases.

Industry averages for “new” data growth is 10%-20% compounded annually (CAGR), yet storage capacity grows at an average of 50%-60% CAGR. The difference is explained by the “multiplier” effect caused by data replication and over-provisioning. While data replication may be a necessity for business continuity, over-provisioning is a common practice and one rarely corrected.
Accurate storage allocation is difficult because data growth rate information is incomplete or unavailable. Consequently, storage allocation often does not correlate to consumption. New applications, with no historical trend data, receive storage allocation on a “best estimate” basis. If the allocated capacity is too high, then the excess capacity may languish unused for the life of the array. During strong economic times, there is little incentive for IT managers to embark on the tedious task of reclaiming storage. While most organizations have a feel for their total capacity at a high level, only a minority of them track capacity utilization and trends at an application level. To compound the problem, allocated-but-unused space contributes to the baseline against which future purchases are made.

Needless spending is the primary consequence of benign neglect. Having an array only 50% utilized is like paying twice as much for the storage needed. Idle capacity also consumes power, increases cooling costs, and unnecessarily consumes floor space (which is often at a premium) and maintenance dollars with no return on the investment. Moreover, storage array software licenses are typically based on total (or raw) capacity, not utilized capacity, thereby needlessly driving up the cost of software. This scenario is simply not tenable during difficult economic times.

**Using Strategic Storage Management to Gain Cost Efficiencies**

**Benchmarking: The Place to Start**

Managing storage without an SRM tool is like going on a journey without a map. Having a clear plan, path, and objective before taking action is the best assurance of rapid progress and success. Before embarking on any cost-cutting endeavor, storage managers should first assess their situation by answering the following questions:

1) What is the average utilization rate?
2) What is the utilization rate by application?
3) Which applications are growing fastest? Slowest?
Veritas CommandCentral Storage helps companies make this assessment and provides an enterprise-wide view of the storage environment. Storage managers can quickly identify problem areas, consolidation opportunities and to create a priority list of solutions.

Reporting on current operations accomplishes two things. First, it identifies problem areas with low utilization that can be fixed immediately at no cost to the organization. Second, periodic benchmarking empirically demonstrates tangible cost savings in ways that both technical and non-technical managers can fully appreciate. Managers can also monitor the system to be certain that it remains optimizes.

**Implement “Thin” Provisioning**

Thin provision is relatively new technology that has gained mainstream acceptance. While most major array manufacturers support thin provisioning, the management tools available from these manufacturers are usually highly vendor-specific. Moreover, some of the systems, especially Windows environments, are inefficient in a thin environment and lead to disk fragmentation.

![Figure 2 – Storage Array Vendors and the Thin Provisioning Capabilities](image)

**Thin provisioning has four major benefits:**

1. **Higher capacity utilization**
   - Applications share a pool of available storage that reduces the amount needed for any individual application. Storage is allocated to applications dynamically as needed, resulting in higher utilization.
2. **Eliminates the guesswork in new application provisioning**, because rapidly-growing applications can access space as needed while low-growth applications will not hoard empty space
3. **Reduces capital expenditures**
   - Requires less up-front storage than a “stove pipe” environment
   - Permits “just in time” resource allocation
4. **Reduces operating costs**
   - Avoid emergency allocation on evenings, weekend and holidays

While most major array manufacturers support thin provisioning, migrating to these new arrays is inefficient without leveraging intelligence on the server. Veritas Storage Foundation and its SmartMove feature automatically cleans up and reclaim space that has been vacated during the migration to thin storage.
Although hardware enables thin provisioning, Veritas Storage Foundation is necessary to effectively manage it. Veritas Storage Foundation is the only cross platform “thin aware” file system in the industry. Its Veritas Thin Reclamation API, which enables the array vendors to leverage the intelligence on the host, assures that thin volumes stay thin over time. This links the thin volume management to the file system, unlike other management tools. Storage Foundation also has the broadest platform support in the industry. Inevitably, organizations will have both thick and thin volumes to manage and Storage Foundation makes it possible to manage both from a single point.

IT managers planning to use thin provisioning in Windows environments should be aware that NTFS is not “thin” friendly. That is, it simply writes new blocks, consuming storage, without reclaiming old and unused blocks of storage. Thus, it does not actually use space efficiently and becomes fragmented and underutilized over time. Veritas Storage Foundation for Windows provides the solution for thin provisioning in Microsoft environments as it will auto-grow the volumes, reclaim empty blocks and prevent fragmentation.

**Simplifying the Transition to Thin Provisioning with SmartMove**

Organizations implementing thin provisioning soon learn that moving the data from “fat” to “thin” volumes risks system downtime and can require significant manual effort to clean up after the process and reclaim empty space. SmartMove takes all of the risk and effort out of the process. SmartMove moves data from fat to thin without downtime and does so in an any-to-any array environment. Throughout the process, SmartMove automatically cleans up and reclaims space that has been vacated during the move.

*Figure 3: Veritas Storage Foundation SmartMove efficiently moves only the necessary application data.*

SmartMove is also useful when replicating or mirroring thin volumes and in the regular task of migrating arrays at the end of a lease. SmartMove can facilitate the mirroring activity between arrays and moves only changed blocks. Such a reduction in data movement not only saves time, but also reduces the necessary bandwidth. Moving only changed blocks also reduces the multiplier effect that data replication has in bloating data growth rates.

**Deduplication: Don’t Store It in the First Place**

Data deduplication is another recent technology that has gained wide acceptance for backup and recovery. Deduplication is a process that eliminates duplicate data even when such data is unrelated. Deduplication greatly reduces the data multiplier effect on data. Most data deduplication is directed toward backup and recovery, since the nature of that process is to backup the same data over and over. For example, if a Microsoft PowerPoint presentation is stored on different file servers multiple times, deduplication ensures that only one copy is stored no matter how many full or incremental backups occur. Organizations may consider specialized appliances to provide backup-to-disk and deduplication functions. However, these appliances add complexity to the data center with more devices to manage and actually add capacity to the environment rather than using what already exists more efficiently.
Veritas NetBackup PureDisk facilitates backup-to-disk using any disk in the data center, saving tens or hundreds of thousands of dollars in appliance acquisition costs. Its built-in deduplication technology reduces data backup volumes by as much as 90% and reduces bandwidth needed by 97%. Microsoft Exchange backups can be reduced by as much as 98%. Deduplication is entirely transparent to the application.

The integration of PureDisk with NetBackup operations permits backup set on disk to be managed like any other backup, including individualized retention policies. At the time of expiration, space is automatically reclaimed for reuse.

Data Archiving – Out with the Old

Thin provisioning and data deduplication are strategies for reducing the growth rate and space consumption of new data or finding more efficient ways of storing it. These strategies must be combined with addressing unnecessary data storage in order to fully utilize existing assets. The largest container of unnecessary and obsolete data is unstructured data.

E-mail, the biggest unstructured information pain point today, is the top target for data reduction via archiving. The Radicatti Group estimates that the volume of email will increase by 50% from 2006-2010. Although storage costs continues to fall on a per-unit basis, email is often stored many times: in the email server, on the user’s PC, in a Microsoft Exchange PST or IBM Lotus Notes NSF file, on file servers, saved in SharePoint and in backups. Because of the excessive storage consumed, the cost of power and cooling is also commensurately higher.

Across all business industries and public sector organizations, IT professionals are being called on to address the common management concerns around email and unstructured information, which is resource management. With sprawling file servers, SharePoint sites, email message stores, longer backup windows, and out-of-control "rogue" archives (such as Microsoft PST files), IT is struggling to manage unstructured information without breaking the budget.

Symantec Enterprise Vault acts as an online archive for older items that are moved from primary application storage (for example, Microsoft Exchange) according to company-defined policies. It also leverages optimized single instance storage and compression technologies to further reduce the data footprint. By controlling the size of the message store, the applications and servers hosting them remain focused on real-time transactions. The online archive also enables organizations to rationalize their storage resources and dedicate primary storage to dynamic and transactional data. Older, less frequently accessed content can be moved to a secondary or tertiary storage device, saving money for more strategic purposes.

Enterprise Vault utilizes intelligent classification and retention technologies to capture, categorize, index, and store target data to enforce policies and protect corporate assets while helping to reduce storage costs and simplifying management. It also provides specialized applications, such as Discovery Accelerator and Compliance Accelerator that mine archived data to support legal discovery, content compliance, knowledge management, and information security initiatives.
**Conclusion**

During the current economic downturn, IT organizations must take steps to optimize existing assets. Storage managers no longer have the luxury of cutting management corners. However, the situation presents an opportunity to complete existing projects while implementing processes, procedures, and simple technologies to significantly improve the storage cost profile.

To begin the effort, CommandCentral Storage will benchmark existing operations and provide a clear path to operational efficiency. Then, with the judicious application of thin provisioning and data deduplication, IT organizations can significantly reduce the capacity needs of their infrastructure as well as the growth rate of stored data. And, with Enterprise Vault, efficient email and file system archiving can dramatically reduce primary storage costs and prevent unnecessary capacity growth. But to effectively utilize that technology, administrators need effective tools that have the breadth and depth to provide automation and flexibility. Symantec is uniquely able to deliver these products that provide the immediate return on investment that the current financial situation demands.
About Symantec
Symantec is a global leader in infrastructure software, enabling businesses and consumers to have confidence in a connected world. The company helps customers protect their infrastructure, information, and interactions by delivering software and services that address risks to security, availability, compliance, and performance. Headquartered in Cupertino, Calif., Symantec has operations in 40 countries. More information is available at www.symantec.com.

For specific country offices and contact numbers, please visit our Web site. For product information in the U.S., call toll-free 1 (800) 745 6054.