

# HP Storage Essentials: A business justification



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## Executive summary

Today's enterprise IT organization is responsible for delivering and maintaining the infrastructure and services that enable businesses to compete effectively and respond quickly to changing market requirements. Keeping business services operating smoothly requires in-depth knowledge of the IT environment. It requires an understanding of how IT operations impact the availability and performance of business processes. An effective set of well-integrated management tools is required to keep operational costs down and get the most out of IT investments.

In recent years most enterprises have experienced fast-paced growth of storage capacity. The range of storage area network (SAN) and network attached storage (NAS) products offered by multiple vendors has increased the complexity. Management of data storage infrastructure has emerged as a major area of challenge.

Today's heterogeneous storage environment has created a clear business case for a comprehensive, integrated solution that enables IT organizations to meet service levels, control costs, and maximize IT staff and employee productivity.

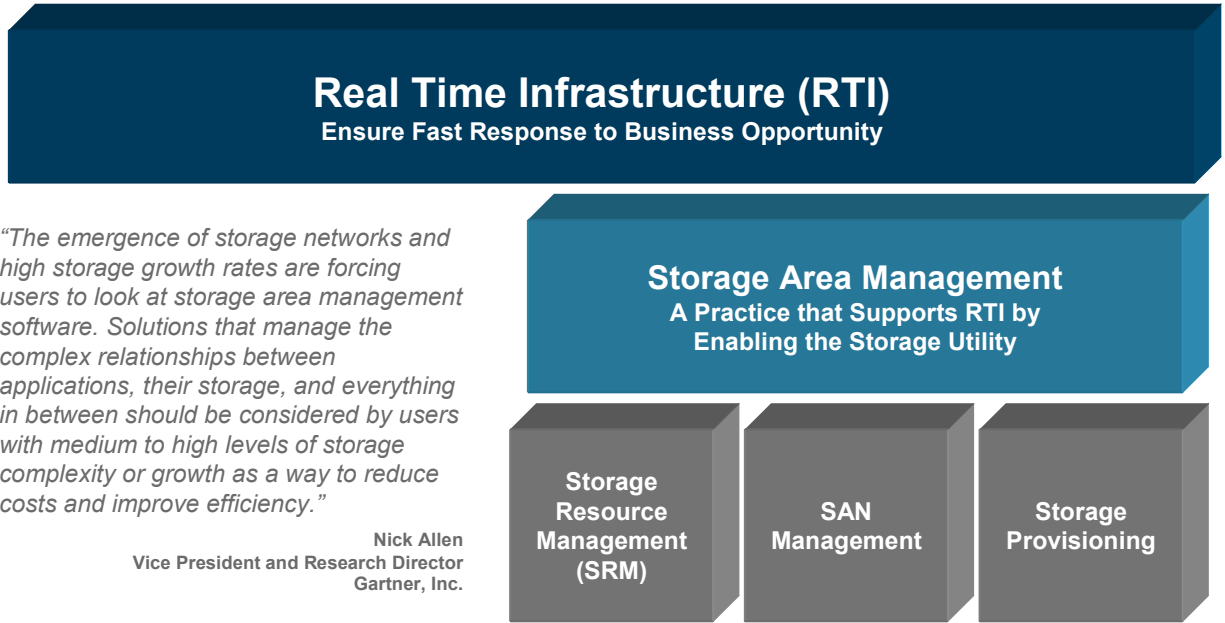
This document examines the business drivers that have led enterprise IT organizations from different industries to select HP Storage Essentials storage area management software solutions.

## Storage area management: A foundation for the real-time enterprise

Today's real-time enterprise must synchronize IT with business needs to ensure the availability of critical IT services, and enable the business to better manage change. Simultaneously, the costs and complexity associated with maintaining these IT services must be held in check to remain competitive. Balancing these seemingly conflicting requirements requires management solutions that ensure the availability and performance of critical business applications and their dependent IT resources.

Growth of capacity and complexity of SAN and NAS products has made management of data storage infrastructure a major area of weakness in most enterprises. Storage area management software has emerged as the solution for IT organizations that need to simplify the management of heterogeneous storage infrastructure in an effort to reduce costs, maintain service levels, and maximize information availability.

**Figure 1.** Storage area management solutions are an essential building block of the real-time enterprise



## Business cases

The following business cases outline the challenge of managing data storage growth in today’s enterprise data center, and describe the business drivers that are compelling customers to select HP Storage Essentials storage area management software solutions. A cross-section of industry verticals is represented and the customers’ own words are used to describe the business and technical challenges they are facing. While each of these leading enterprises have varying business requirements, all share the same challenges and a common need for an open, integrated, storage area management platform.

# Financial services Case #1

## Profile

As one of the United States' largest financial services firms, this enterprise provides securities brokerage, banking, wealth management, and related financial services for over 7 million active accounts with more than \$1 trillion in assets. Clients include domestic and international individual investors, independent investment advisors, and corporate retirement and investing plan sponsors. With over 14,000 employees, this company provides a complete range of investment services and products, including an extensive selection of mutual funds; financial planning and investment advice; retirement plans; referrals to independent fee-based investment advisors; and custodial, operational and trading support for independent fee-based investment advisors. Revenues for 2004 exceeded \$4 billion.

## Business driver for storage area management

"We are currently using point management tools provided by the hardware vendors. Many of these tools do not provide for the mechanisms for Capacity Trending, Asset Management, Performance Analysis as well as Automated Provisioning for the SAN. Tracking and documenting the complexities of the environment involve creating spreadsheets and a large amount of manual intensive efforts. Some of the issues that we are experiencing and would like to resolve:

- The size and complexity of our environment has grown by 109% over the last 12 months. Manual maintenance of spreadsheets for keeping track of port allocations, LUN allocations, and LUN layouts has become unwieldy and the data can be inaccurate.
- The increase in the number of technicians needing access to the spreadsheets has made keeping them up-to-date and accurate very difficult. Speed to market is decreased by inaccurate data and the inability to "see" our current capacity and inventory.
- The large number of tools required to manage the storage and switching infrastructure makes training new employees and support staff difficult.
- Current tools are unreliable and poor performing which reduce the productivity of the technical staff.
- Troubleshooting problems in the environment is time consuming because of the need to utilize multiple tools and spreadsheets
- Unable to accurately report current performance, inventory, capacity, and growth trends
- Unable to identify underutilized storage that can be reallocated vs. buying new storage
- Unable to accurately identify how much storage a business unit has allocated
- Unable to accurately identify candidates for direct attached storage to SAN migration
- Operations Support is unable to provide adequate first and second level support/troubleshooting due to the lack of a unified tool being made available to monitor the environment and provide configuration information. This leaves us vulnerable to extended outages.

"We need a solution that delivers the abilities to discover and manage DAS, SAN and NAS environments. The tool should provide capacity and performance reporting from the server view as well as the array view down to the file system and LUN level. Most importantly, this tool needs to be able to monitor and manage a heterogeneous environment consisting of Solaris, AIX, Linux, Windows®, VMWare operating systems with QLogic, Emulex, JNI HBAs as well as McDATA, Brocade, SAN Switches and HDS, IBM, EMC Storage arrays and Network Appliance NAS Filers."

## Financial services Case #2

### Profile

This company is one of the world's leading international financial service providers. With roughly 65,000 employees, the bank serves customers in 74 countries worldwide. It holds a strong position in Europe—especially in the German market—and this provides the basis of the bank's global activities. As a modern universal bank, it offers its customers a broad range of first-class banking services. It provides private clients with an all-round service extending from account-keeping and cash and securities investment advisory to asset management. It also offers corporate and institutional clients the full product assortment of an international corporate and investment bank—from payments processing and corporate finance to support with IPOs and mergers and acquisition advisory. In addition, the bank has a leading position in international foreign exchange, fixed-income, and equities trading.

### Business driver for storage area management

"We are currently managing an Open Systems (UNIX® and Intel) storage estate valued in excess of one hundred million dollars using a mix of specific vendor tools, generalist tools, Microsoft® Office, scripts and manual processes. The storage infrastructures deployed in each location vary in size and complexity; however, they are all based on the same storage vendor platforms (EMC Symmetrix DMX, EMC Symmetrix, EMC CLARiON and HP [StorageWorks Enterprise Virtual Array] EVA) and four principal OS solutions (Solaris, AIX, Windows, SuSE Linux). The global storage management operation is currently meeting the business needs: the estate is relatively stable, performing well and costs are under control. The US and UK teams, who run the bulk of our global storage, have transformed their service into an internal (zero-profit) utility service provider, branding and marketing a variety of DB storage "products" and selling them on a price/GB/month basis.

"However, we are seeing compound annual growth in storage capacity of over 75% and similar growth in the number of servers. This growth rate is placing significant strains on the currently implemented storage management disciplines and threatening the overall manageability of the environment. We are now looking to take the next step in the improvement of our service capability. To do this, we recognize the need to establish a much more formal global foundation for controlling the disposition of the assets and managing the workflow processes. In doing this, we expect to be able to run a more integrated operation, with better MIS and more tightly managed processes.

"We want to transform our storage management capability through a process of consolidation, standardization and automation and need to replace the existing mix of disparate tools, processes and practices in use today with a consolidated storage management solution."

## Financial services Case #3

### Profile

This leading North American financial institution provides financial services to more than 9 million clients, including retail and small business banking clients as well as corporate and investment banking clients.

It offers a full range of products and services through its comprehensive electronic banking network and at branches and offices across Canada, the United States, and around the world. The bank has approximately 37,000 employees worldwide, 1,073 branches, and more than 4,100 ABMs in branch and non-branch locations. The company has assets exceeding \$278 billion and a market capitalization of \$25.7 billion.

### **Business driver for storage area management**

"We have SAN, NAS, and DAS storage from numerous vendors, and the environment has become almost unmanageable, resulting in our inability to service our business customers.

"Our strategic goals:

- Reduce costs of data storage and management
- Support business processes with agility and excellence, helping to ensure operational simplicity and add value to our business as an adaptive, real-time enterprise
- Optimize service levels, including availability, performance, and time to market
- Reduce risks and ensure compliance with legal, regulatory and business policy requirements in all geographies where the bank does business

"Our strategic interest:

- Under-utilized and under-reported storage assets are a major consumer of available storage assets and a major reason for wasted storage costs. We would like to incorporate automatic storage asset provisioning as part of our long term storage strategy. Automatic storage provisioning based on management policies would defer new storage purchases, reduce errors, increase system uptime and reduce the total cost of ownership of our storage system. Additionally, would like to incorporate a recommendation engine for trend analysis and future procurement based on usage consumption.

"Our solution is to find a comprehensive software solution that will enable us to meet our strategic interests and goals. We define Storage Management Software to include packages or suites that provide storage reporting, monitoring & configuration, and/or automated provisioning. Storage Reporting software is defined as a software system that allows the enterprise wide collection of storage relevant meta data (e.g., from database to file system to disk) across several geographic locations. This includes the storing of meta data for trending purposes on utilization, growth, aging, device discovery, device metadata (LUNs, ports, Raid level etc.). The enterprise wide reporting functionality might be provided through a MOM (Master of masters) hierarchy.

Storage monitoring and configuration software is defined as a software system that allows the configuration and monitoring of all devices inside the I/O path in heterogeneous storage environments on an enterprise wide scale. Storage Automation software is defined as a software system that allows the automated provisioning and configuration of storage and storage devices based on custom policies.

"We require the following of our Storage Management Software:

- Support for all storage environments (DAS, SAN, NAS, CAS, Backup/Restore, etc.).
- There must be a single administrative/management point for all storage elements—i.e. SAN management, storage sub-system management, a single entry point to manage/administer all aspects of storage management i.e. capacity (provisioning/utilization), asset (configuration/inventory), availability (reporting/business continuity), event (notification/analysis), performance (meet SLA/optimization of storage resources/resource throughput trending), and billing (charge-back) management
- Universal vendor support
- Easily formatted and readable reporting from single point of entry
- Unified reporting from all data sources
- Centralized control over storage management processes over the enterprise.
- End-to-end (file system/database instance to disk) reporting capabilities."

## Government and military

### **Profile**

Approximately 8,000 military and civilian employees work in this agency, which is responsible for providing consolidated computing services and managed data centers for a military branch of the U.S. federal government.

### **Business driver for storage area management**

"We currently employ three fundamental storage topologies. These are unshared direct attached storage subsystems (UDAS), shared direct attached storage subsystems (SDAS) and storage area networks (SAN) fabric attached storage subsystems. Currently, our system administration personnel manually perform storage resource management tasks using a variety of tools that accompany the individual storage platforms. Each Data Center is required to monitor, report, and provide continuous availability of its storage resources. These tasks are all performed locally with administration personnel having direct physical access to the components. Agency reorganization plans and the ever-increasing IT (Information technology) growth dictate that these storage management functions be performed remotely in a standardized and automated manner.

"An Enterprise Storage Resource Management (ESRM) solution will provide a single point of management that includes continuous storage topology mapping for configuration and inventory management; storage monitoring for utilization, performance measurement and trending; integration with existing storage media management architectures; and alerts to administration personnel at specified thresholds with the ability to automate standard responses in specific situations, freeing technical resources.

"The solution will provide a common set of storage management tools across the enterprise to make data easily transferable, and eliminate duplication of software products doing overlapping functions. The solution will provide an enterprise solution that optimizes the utilization of storage resources, improves the productivity of technical personnel responsible for the management of agency storage resources and operates across the heterogeneous operating environment that exists within our data centers. Storage resource management must be made as efficient as possible within the individual environments while driving costs down for our customers.

"The solution is expected to allow us to optimally utilize managed resources for the agency and the customers it supports regardless of physical location; improve the productivity of system administration personnel involved in storage related activities; and provide a high degree of automation of storage related activities that integrate with our other automated operations initiatives."

## Energy Case #1

### **Profile**

One of the largest energy producers in the world, this company operates in over 145 countries, and employs more than 119,000 people. Best known to the public for its service stations and for exploring and producing oil and gas on land and at sea, this company also engages in a broad range of related energy and petrochemical activities, including transporting and trading oil and gas, marketing natural gas, producing and selling fuel for ships and planes, generating electricity, and providing energy efficiency advice. The company also produces and sells petrochemical building blocks to industrial customers globally and is investing in making renewable and lower-carbon energy sources competitive for large-scale use.

### **Business driver for storage area management**

“We intend to deploy systems and storage management tools to accomplish the following objectives.

- Reduce the overall TCO for our internal IT team. The primary expected impact of tool deployment is improvement in the efficiency of support staff, and a reduction in the amount of staff time required to perform storage-management tasks. However, the savings (value of time reductions) achieved must significantly exceed the acquisition and implementation cost of the tools.
- To improve and maintain the availability of storage services.
- To reduce the provisioning response time for storage capacity.
- To improve our ability to monitor and manage how and what data is created, distributed and retained.
- To assure the security and integrity of our IT environment and the data stored therein.

“Storage management success factors are centered on reducing the cost of storage administration. In a general sense, storage administration consists of performing a certain small set of tasks repeatedly over a large set of storage devices. We believe that such administration costs can be significantly reduced by using storage management tools to do the following to administrative tasks:

1. Eliminate the requirement to perform the task altogether.
2. Simplify the task so it can be performed repeatedly with accuracy and reliability by personnel with lesser skill levels.
3. Standardize the task and the management interface involved so it is performed the same way regardless of the equipment involved.
4. Automate the task so it can be executed with little or no human involvement.”

## **Energy Case #2**

### **Profile**

This U.S.-based company is one of the world’s largest providers of products and services to the oil and gas industries, adding value through the entire lifecycle of oil and gas reservoirs. The company employs 85,000 people in more than 100 countries with a global presence and extensive, proven capabilities.

### **Business driver for storage area management**

“We have begun work on a project that includes consolidating servers and storage to reduce costs and simplify management. The sheer number of resources in the company’s data centers has made it difficult to get the information needed to accurately plan and implement the consolidation initiative.

- There are 800 to 1,000 servers at one data center—about 20 UNIX-, 50 Linux-, and 700 to 900 Windows-based servers.
- There are 12TB of NetApps storage (FAS960) and about 8TB of SAN-based storage (three HP StorageWorks Enterprise Virtual Array 3000) dedicated to a data warehouse project
- The remaining 15–20TB are direct-attached.
- We are in the process of moving and re-architecting an Oracle® data warehouse system. At the current location, Sun servers and HDS storage are used with standard Oracle. At the new location, it will use Oracle 9iRAC, Xeon app and Itanium DB servers (all using Linux), and three HP EVA3000 storage units. This system will have three SAN islands that will not be shared. This application is targeted for production use later this year.

“The company is seeking a storage resource management solution to support this strategic IT initiative, and develop a comprehensive storage strategy and architecture that will enable us to migrate from our current operations to our new operations with minimal impact upon the lines of business we are supporting. The solution should then enable us to manage our new consolidated environment with greater efficiency and less cost.”

## Media and communications

### Profile

As the owner of one of the most advanced, best-clustered cable television operations in the United States, this cable company brings the digital age into America's communities, transforming the way Americans receive information and entertainment. The company employs nearly 30,000 people across the United States, and has nearly 11 million customers.

### Business driver for storage area management

"Our operating environment has grown nearly 300% in the last year, as it migrates from a mainframe-centric approach to a distributed environment comprising UNIX, Windows, and Storage Area Networks. The number of servers has increased to about 900 (including network devices), and continues to grow on a daily basis.

Storage requirements have grown similarly, from an initial 2 Terabytes, two years ago, to 50 Terabytes last year, to the current 150 Terabyte installation. Incremental storage allocations have largely been driven by security requirements for maintaining access and transaction logs as well as Sarbanes-Oxley data requirements.

The management of this environment has become a challenge due to its rapid growth and diverse technologies. In response, our Technology Services Group (TSG) has begun implementing full enterprise systems management (ESM) including alert, asset, change, security, backup/restore, and incident management. An enterprise-wide storage management solution that integrates into the ESM is a critical area of the operating environment."

## Retail

### Profile

One of the largest and fastest growing employee-owned supermarket chains in the United States, this company had 2004 retail sales of over \$18.6 billion. The company currently employs 127,500 associates and supports a wide network of distribution centers and manufacturing facilities.

### Business driver for storage area management

"Currently one of our management challenges consists of managing the environment using over 20 spreadsheets and more than 15 tools to manage all of the entities in our SAN. This is labor intensive and error prone.

"We need to implement a solution that will:

- Reduce misallocated storage capacity
- Reduce labor hours required to perform storage allocation
- Reduce amount of time for problem determination
- More accurately trend and predict upcoming capacity needs."

## For more information

[www.hp.com/go/storageessentials](http://www.hp.com/go/storageessentials)

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