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**Unified
Storage
Redefined**



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S **TRENGTH** – Sigma has an unmatched ability to respond to customer needs due to our scale, locale and experience in the data center. We are small enough to deliver local, personalized service yet large enough to handle highly complex project requirements.

I **NNOVATION** – Our goal is to help customers leverage IT solutions to streamline business processes, drive innovation and reduce time to market. To that end, Sigma delivers technologies from industry-leading manufacturers coupled with consulting and engineering services that maximize business value.

G **UIDANCE** – Our customers turn to us for expert solution design and project governance services that accelerate the success of their IT initiatives. Sigma mitigates our customers' risks through our experience and commitment to excellence in everything we do.

M **ANAGEMENT** – Sigma is uniquely positioned to serve as a single point of contact for full lifecycle management, maintenance and support of converged and integrated technologies. Our expertise across the data center and strong relationships with industry leaders enable us to quickly resolve problems in today's complex IT environment.

A **GILITY** – Sigma's comprehensive services enable our customers to partner with one technology provider for solution design, implementation and ongoing service. Sigma serves as the focal point for initiatives incorporating diverse technologies and multiple IT disciplines.

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4 **Unified Storage Redefined**

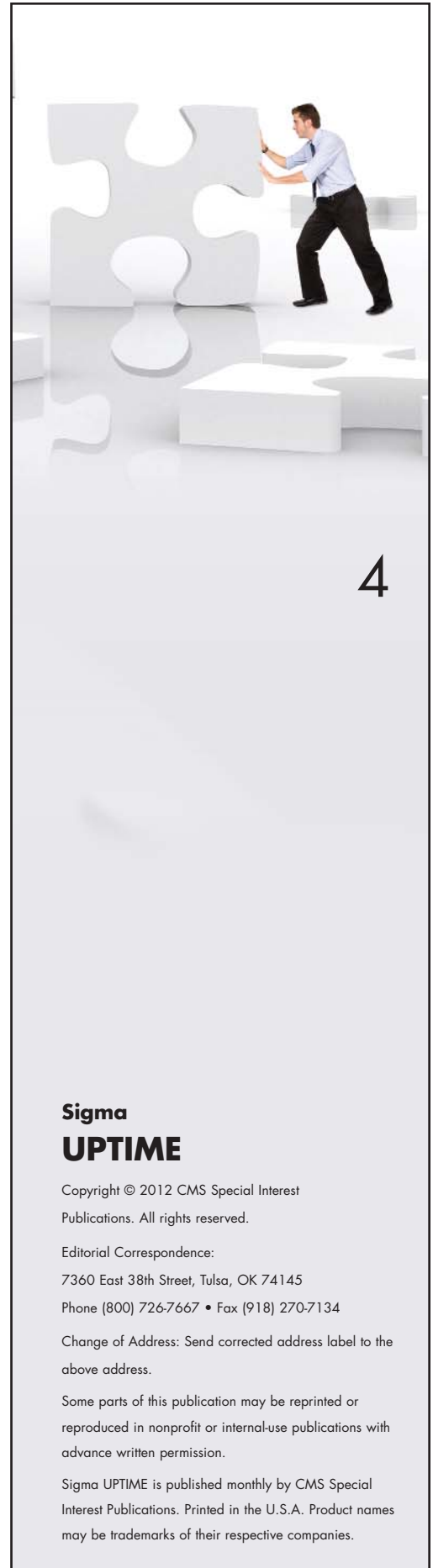
Maintaining and managing multiple storage systems can be time-consuming and difficult, especially when the systems have different interfaces and performance capabilities. Optimizing today's IT environment to ensure 24/7 availability and superior performance requires a unified storage solution that efficiently manages critical business applications and meets future growth. With the release of Hitachi Unified Storage (HUS) family and management framework, Hitachi Data Systems has effectively redefined unified storage. HUS stores multiple data types with more flexibility and more balanced scalability than any other midrange solution available today.

8 **Cyber Warfare**

According to a recent research report by Enterprise Strategy Group, a majority of midsize to large U.S.-based corporations believe they've been the targets of sophisticated cyber attacks known as Advanced Persistent Threats (APTs). What's more, a majority believe they may be attacked again.

10 **Windows Shopping**

The decade-old Windows XP remains the No. 1 operating system in use today, but the clock is ticking. Microsoft support for XP ends in April 2014, at which time security patches and other updates will no longer be available. While organizations might be tempted to skip a migration to Windows 7 and wait for the upcoming release of Windows 8, industry analysts say that could be a bad move.



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Editorial Correspondence:
7360 East 38th Street, Tulsa, OK 74145
Phone (800) 726-7667 • Fax (918) 270-7134

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unified storage

REDEFINED

*Hitachi Unified Storage
consolidates and
centrally manages
block, file and object
data on a robust,
integrated platform.*



While virtualization is transforming the way data centers are being designed, built and managed, rampant data growth continues to be a limiting factor. In order to drive down costs and reduce operational complexity, organizations virtualizing their data centers and beginning the journey to the cloud need a storage infrastructure that is both simple and efficient.

Unified storage delivers on both counts. Unified storage allows organizations to consolidate and virtualize storage across storage protocols, environments and mixed storage platforms. Combinations of block storage (Fibre Channel or iSCSI) and file storage (NAS systems with CIFS or NFS) can be managed via a common set of features from a single user interface. But there have been limitations.

“Traditionally, unified storage solutions were designed to meet the needs of smaller organizations that did not have the resources or budgets to deploy and manage separate platforms for block and file-based data. Their data volumes just did not justify that kind of investment,” said Bryan McCandless, Competency Center Manager, Sigma Solutions. “As a result, unified storage products were based upon lower-end storage platforms ill-suited to the needs of larger organizations.

“Now, Hitachi Data Systems is offering an enterprise-class unified storage solution that meets the availability and performance requirements of customers with mission-critical applications and large data volumes.”

Hitachi Unified Storage (HUS) stores multiple data types with more flexibility and more balanced scalability than any other midrange solution. It helps customers manage critical business applications and meet growth requirements without compromising performance, scalability or cost-efficiency.

“IT organizations in midsize and large enterprises are struggling with a deluge of data and increasingly diverse data management needs. They require storage solutions that meet their growth requirements while simplifying operations, reducing the total cost structure and quickly adapting to changing business needs,” said Richard Villars, vice president, Information and Cloud research, IDC. “Hitachi Unified Storage provides enterprises with a single foundation for efficiently managing block, file and object data without making trade-offs in performance, scalability or capacity utilization.”

Unified without Compromise

Hitachi Unified Storage consistently and efficiently provisions, tiers, migrates and protects all data, regardless of type, throughout its lifecycle. HUS further saves costs with data efficiency capabilities such as thin provisioning and automatic tiering. Built-in automation optimizes performance and makes it predictable to assure customers that they will get the most out of their investment. Intuitive and easy-to-use software that comes with each system has been designed to simplify even the most complex environments.

HUS supports object data through a unique object-based file system that intelligently adds metadata for each file. It also enables automated tiering and migration, fast file snapshots and clones, faster replication over WAN, and fast data searches.

Additionally, HUS supports Hitachi Content Platform (HCP) for a true object store with custom metadata and provides regulatory compliance. Unlike alternative systems, HCP can share HUS capacity with file and block applications from the same storage pool. Combined, this solution is far more space-efficient and cost-effective for customers than separate and siloed object store implementations.

“HUS has the most balanced scalability in the industry,” McCandless said. “Unlike other solutions that scale only in capacity, HUS also scales by predictable performance, replicated data, block volume size and file system size. The benefit for customers is that the HUS platform will have a longer service life than competing products and be a better investment.

“HUS is also the fastest midrange storage system available today for block and file data access, enabling organizations to achieve performance goals at the lowest possible price. High-end storage functionality, such as page-based auto-tiering, is available with HUS to facilitate automated placement of data for the highest performance at the lowest cost.”

Unified Management

The Hitachi Data Systems (HDS) strategy for unified management is to abstract the complexities of the underlying storage environment to create a service-oriented model in which organizations manage storage as a service to their consumers, regardless of the nuances of the underlying physical devices that serve up the storage. This strategy requires a fully unified approach.

Hitachi Command Suite software is a unified management framework for advanced data and storage management that improves operations, provisioning, performance and resilience for Hitachi block, file and unified storage environments. By enabling efficient management practices across all Hitachi storage systems, HDS lets organizations effectively manage their IT infrastructures with limited staff resources while building a sustainable foundation for future growth.

“HDS delivers unified management across all storage models (block, file, content and specialized appliances) and all tiers of storage in the HDS storage portfolio, including externally virtualized heterogeneous storage environments,” said McCandless. “In addition, HDS unified management encompasses all the management tools needed to configure, analyze, mobilize and protect data, and includes a unified business intelligence layer that adds the critical functions needed to become more service-centric.”

The Hitachi Application Protector is an application-



Unified Features

Hitachi Unified Storage provides organizations with a reliable, dynamic and open architecture that lets them meet their service-level objectives more efficiently, save costs and protect their long-term investments. Features and benefits include:

Manage Data Growth

- o Scale system capacity to nearly 3PB without affecting performance.
- o Automatically correct performance issues and provision more quickly with dynamic virtual controllers.
- o Use Hitachi Dynamic Provisioning to pool and grow file and block storage for maximum flexibility without capacity limitations.
- o Leverage 256TB file systems and a single namespace to reduce administrative effort.

Meet Service Level Agreements (SLAs)

- o Meet SLAs with 99.999 percent data availability and advanced management tools.
- o Manage storage from an application management portal.
- o Perform system maintenance without interrupting host I/Os.

Reduce Downtime and Business Risk

- o Dynamically manage replication and backup.
- o Remotely replicate all capacity across systems and locations.
- o Utilize crash consistent snapshots for application-aware backup and recovery.

aware, snapshot-based data protection, backup and recovery software suite for Microsoft Exchange, SQL Server and SharePoint environments. Integrated with Hitachi Unified Storage, Hitachi Application Protector lets application administrators protect their data sets using familiar interfaces such as Microsoft Management Console. Application administrators can initiate backup and recovery jobs, and more easily meet service level objectives for critical business applications.

“HDS has redefined unified storage with HUS and Hitachi Command Suite,” McCandless said. “Now midsize and larger enterprises have a robust, flexible and manageable storage platform that reduces costs, increases efficiencies and supports cloud environments.”

Unified Storage With New Capabilities:

Attain Value with Hitachi Unified Storage

With the release of Hitachi Unified Storage (HUS) 100 family and management framework, Hitachi Data Systems has effectively redefined unified storage. HUS stores multiple data types with more flexibility and more balanced scalability than any other midrange solution available today. What's more, Hitachi's entire hardware portfolio, including HUS, is supported by Hitachi Command Suite management software. Hitachi is the first enterprise-class vendor to provide a single software management platform for all its products.



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Cyber Warfare



More than 90 percent of security professionals are concerned that Advanced Persistent Threats pose a unique, major threat to U.S. vital interests.

It's a wonder that IT security professionals get any sleep. According to a recent research report by Enterprise Strategy Group, a majority of midsize to large U.S.-based corporations believe they've been the targets of sophisticated cyber attacks known as Advanced Persistent Threats (APTs). What's more, a majority believe they may be attacked again.

APTs are a type of sophisticated cyber attack used by hackers to steal sensitive data. The term "APT" originated in the U.S. Air Force but came into the cyber security lexicon through its association with a cyber attack known as "Titan Rain." In that 2003 attack, hackers gained access to and stole data from organizations such as Lockheed Martin, NASA and Sandia National Labs. APTs have gained notoriety recently because of well-publicized cyber attacks in public and private-sector organizations such as Google (2010 compromise of Gmail) and the Oak Ridge National Laboratory (2011 attempted compromise of systems containing nuclear energy research).

Unfortunately, APTs are not limited to military, intelligence and high-technology targets. On the contrary, APTs are occurring within nearly every industry.

'Most Prepared' Are Vulnerable

The Enterprise Strategy Group research report, titled "U.S. Advanced Persistent Threat Analysis," is based upon data gathered from a survey of 244 security professionals working at enterprise organizations (i.e., more than 1,000 employees) in the U.S. According to the report, 59 percent of the survey respondents are "certain" or "fairly certain" that their organizations have been the target of a previous APT attack. Furthermore, 72 percent of organizations believe they are a "highly likely" or "somewhat likely" target of future APT attacks.

The research also indicates that many organizations are not adequately protected against future attacks: Nearly one-third of the large organizations surveyed believe that they are vulnerable to future APTs. Even the 46 percent of large organizations that ESG categorized as "most prepared for APTs" (based upon their existing security policies, procedures and technical safeguards) say they are vulnerable to future sophisticated attacks.

Respondents said they believed the following groups (in order of significance) posed the greatest security threat to

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Security professionals who understand the threat landscape best readily admit that their organizations are not only under attack but also vulnerable.

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their organizations: Political “hacktivists” (i.e., organizations that use computer hacking as a form of protest or civil disobedience), organized criminals, competitors conducting industrial espionage, foreign governments and terrorists.

“Security professionals who understand the threat landscape best readily admit that their organizations are not only under attack but also vulnerable,” said Jon Oltsik, senior principal analyst at ESG and the primary author of the report. “Even more frightening, the companies that have already taken proper steps to secure their assets still believe they are vulnerable to APTs. If those organizations with strong cybersecurity policies are vulnerable to APT attacks, it’s safe to conclude that nearly all organizations are vulnerable.”

Sound the Alarm

The report presents other alarming data. For example, 93 percent of security professionals working at enterprise organizations are either “extremely concerned” or “concerned” about APTs and the impact that APT attacks could have on vital U.S. interests such as national security and the economy. Overall, the data presented in the ESG research report indicates that large U.S.-based organizations may not be adequately prepared for an APT onslaught. Given this situation, the report offers a number of recommendations.

IT professionals are advised to educate executive managers about APT risks, assess their existing security defenses, and bolster security analysis and forensic skills. Technology vendors should create comprehensive security architectures offering centralized management and distributed enforcement. Finally, the U.S. Congress must aggregate cyber security bills and extend federal programs and resources to a wider audience.

“Security professionals have the most knowledge about and experience with APTs,” Oltsik added. “This group believes that APTs are real, unique and extremely dangerous. It is imperative that business executives, IT managers, law enforcement officials and legislators recognize the risks, accept this warning, understand what’s at stake and begin to address cyber security weaknesses as soon as possible. The longer we delay, the more damage we will likely incur.”



Redefining Mobile Protection

Symantec Endpoint Protection, Mobile Edition ensures that today’s mobile devices receive the same protection technologies that organizations require on other corporate endpoints such as desktops and laptops. Symantec Endpoint Protection Mobile Edition provides protection for mobile devices against malicious threats and unauthorized access to sensitive corporate information by utilizing award-winning antivirus technology, an advanced firewall, and SMS anti-spam protection. It also integrates with the Symantec Mobile Management solution to enable enterprise to secure and manage their mobile devices from a single management console.

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Windows Shopping

Don't skip Windows 7 migration while waiting for Windows 8, analysts say.

The decade-old Windows XP remains the No. 1 operating system in use today as organizations have dragged their feet on upgrading to Windows 7. With the release of Windows 8 just around the corner, many are wondering if they can just skip the Windows 7 migration altogether.

That would be a bad move, industry analysts say.

“Windows 8 is an ambitious product, and organizations running late with Windows 7 may be considering it,” Gartner analysts wrote in a recent research note. “However, enterprises running XP should stick with Windows 7 migration plans to avoid the risk of a gap in support.”

XP currently accounts for 47.19 percent of the global OS market, compared to 36.4 percent for Windows 7, according to research firm Net Applications. The clock is ticking on XP, however. Microsoft support for XP ends in April 2014, at which time security patches and other updates will no longer be available.

Don't Wait for 8

Windows 8, meanwhile, should be ready to ship in late 2013. That might give individuals plenty of time to upgrade their home computers before XP support runs out, but enterprise organizations with hundreds or thousands of workstations still running on XP would almost certainly face a gap in support before Windows 8 could be fully deployed.

Enterprise organizations require significant preparation for a major OS migration. The typical organization requires 12 to 18 months of testing and planning before it can start deploying a new client OS. Organizations must be sure older PCs have enough memory, disk space and graphics power to

accommodate the new OS. There can also be driver compatibility issues, particularly for those migrating from XP. A key upfront step is creating a working backup of all data, programs and files. Those migrating from XP will have to do a “clean install” of the new OS, wiping out everything on the hard drive.

Waiting for Windows 8 could also expose an organization to unnecessary risk. Unlike Windows 7, which was released nearly three years ago, Windows 8 has no track record. Windows 7 has been generally very well received, with marked improvements in usability, security and networking. A migration to Windows 7 now will give organizations more time to evaluate Windows 8. In fact, businesses would have the luxury to wait until the first service pack emerges some six to nine months after the Windows 8 release to ensure that any potential glitches are fixed.

Phased Approach

The general consensus among industry experts is that the sooner organizations can transition to Windows 7, the better their chances of avoiding potentially significant problems. To ensure the migration goes as smoothly as possible, Symantec offers the following seven-step path to deployment.

Asses your environment and plan your deployment. Discover devices across the network and capture inventory. Determine hardware readiness through reports. Prioritize applications to test and migrate. Evaluate costs and SLAs, and identify potential risks

Build standard Windows 7 images. Create standard images with settings and configuration for multiple users. Include applications that are required on all computers in the

base image. Create a generic image that can be deployed onto any PC regardless of its hardware.

Prepare and verify applications. Identify the applications supported on Windows 7. Test applications on Windows 7 and with each other to ensure compatibility in your environment. Remediate issues through policies, packaging, virtualization or—if absolutely necessary—debugging and code changes.

Capture user settings and personality. If there's one thing that makes or breaks an OS migration, it's the successful transfer of each computer and end-user's unique network, operating system, application and data settings, along with other customizations. In this step, identify global settings to migrate (printer and network drive mappings, favorites, security settings, etc.); determine application settings to migrate, including custom applications; include data to be moved or require end-users to transfer; and communicate with end-users about things that won't be migrated (e.g. MP3 files).

Assemble and automate. Now that the pieces are in place, you need to hook them together and encapsulate the templates and files into an automated job or a workflow sequence. This ensures that when one task completes, the next is triggered automatically. Create a process flow that includes the following steps: Deploy the image; install prepared applications; capture personality settings; restore personality settings.

Migrate systems. Position any additional servers purchased as part of the deployment plan. Make any required network adjustments, such as enabling multicasting. Identify test candidates. Document test cases. Create a phased pilot. Perform the migration.

Measure and report. Post-migration reporting and analysis will enable your executive team to track the migration from a distance and help you analyze key aspects of the migration. In this step, identify the total number of migrated systems; report problems encountered during migration; provide overall migration status; verify licenses.

Many organizations will likely find that the migration process is too complex and requires far more labor and time than they can commit using only internal resources. Given the increasingly tight time frame, Gartner says organizations should move quickly to line up outside resources for qualified Windows 7 migration IT personnel.

“We estimate that large and midsize organizations worldwide will migrate approximately 250 million PCs to Windows 7 during the migration timeline, so it makes sense for organizations that plan to leverage external services to line up service providers early,” said Charles Smulders, managing vice president at Gartner. “Begin talks with suppliers now about putting in place contracts that can deliver flexible levels of resources at a fixed rate over the migration period.”

Windows 8 Preview Available

Microsoft's upcoming Windows 8 will be a radical departure from its operating system legacy, featuring a new interface designed for touch-screen, mouse, keyboard and pen input. Although Windows 8 devices may not be ready to ship until 2013, a “consumer preview” version can be downloaded for free at <http://preview.windows.com>.

These are some of the more prominent new features in Windows 8:

The new “Metro” interface features big, colorful tiles that the user can swipe and touch — similar to the way one would on a Windows Phone device. The tiles differ from traditional desktop icons by letting users view live information from Windows 8 Metro-style applications without actually accessing the apps. For instance, a tile for Windows Live Mail will show the latest message, while a tile for a social networking app will show notifications.

Windows 8 will be closely linked with the cloud. Users can log in through the cloud using a Windows Live ID, which makes their email, calendar, contacts and anything they've stored on SkyDrive available to them on any machine they sign into and also automatically syncs all of that stuff across all of their devices.

The OS will include a redesigned version of the Internet Explorer web browser. There are actually two versions of IE 10. One is a Metro-style app and more locked down and constrained while providing a unique, full-screen browsing experience that will be useful on tablets and other highly mobile devices. The other is a traditional desktop application that looks and works much like its predecessor and is fully extensible with third-party add-ons.

For people who are increasingly mobile, Windows 8 includes Windows To Go — the ability to provide users with a full corporate copy of Windows 8 (along with users' business apps, data and settings) on a USB storage device. Windows 8 also includes improvements to DirectAccess and built-in mobile broadband features that natively support 3G and 4G telecommunication. And Windows 8 can stay always connected with Metro style apps.

Windows 8 will also feature advances in virtualization designed to make it easier for IT departments to implement virtual desktop infrastructures in a more cost-effective way. In addition, Windows 8 includes Microsoft Hyper-V, a high-performing client virtualization technology that enables enterprise developers to develop, debug and test multiple configurations of apps and operating systems on a single PC instead of each configuration requiring its own PC.

Enabling

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Sigma has been providing industry-leading data center solutions since 1992. Our consultative approach amplifies our engineering and integration skills, helping you to reduce costs and risks while maximizing the business benefits of your technology investments.

Sigma delivers value through an agile IT environment that responds to changing business objectives and market conditions. We help can help you meet all of today's business technology challenges, including:

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- Consumerization / BYOD
- Collaboration
- Big Data
- Mobile Device Management

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