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## Storage Trend Predictions for 2008

By Jack Domme  
Chief Operating Officer,  
Hitachi Data Systems

Data growth continues its exponential expansion, fueled by increased capabilities and expanding regulatory mandates.

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## Hitachi Data Systems Meets the Needs of 2008

### How Hitachi Data Systems Meets the Challenges of '08

Click the links below to learn how products, services and solutions from Hitachi Data Systems align with the needs of the IT industry.

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## Storage Growth to Continue in 2008, with Increased Eco-friendly Focus

By Jack Domme  
Chief Operating Officer, Hitachi Data Systems

Data growth continues its exponential expansion, fueled by increased capabilities and expanding regulatory mandates.

Concerns about the impact of increasing data center sizes and the energy they use, coupled with the ongoing uncertainty about the stability of the global economy are now significant factors in purchasing decisions. Those decisions favor vendors with advanced technology that is eco-friendly, scalable to meet increasing demand and capable of consolidating multi-vendor solutions to deliver a lower total cost of system ownership.

My top ten predictions for storage in 2008:

### Reduced Carbon Emissions:

With increasing concern about global warming, we will see more governments impose guidelines and legislation around carbon emissions. Major corporations will set targets for the reduction of carbon emissions, and the IT sector will have to play an important role. The US government estimates that IT accounted for about 1.5 percent of energy consumption in 2006.

### Increased Use of Archiving:

From databases to corporate email, from heart monitors to airplane black boxes, data is growing. All these pressures will drive the need to archive data in order to reduce the working set of production data. This will call for new types of archiving systems that



## InspireLife London — The Future of Data Storage

Inspire Life — London brings together the Hitachi, Ltd. family of businesses under one roof to offer insight into the future of Hitachi technology.

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## Views from Industry Analysts

### What the Industry Analysts Think

Virtualization was a hot topic in 2007, and it shows no sign of cooling in the year ahead. Here's what two leading analysts think the (near) future holds for the storage community.

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## Get the Facts

### ► In the Blogs:

Stove Pipes or Services for Dynamic Data Centers

Hu Yoshida, CTO of Hitachi Data Systems [More...](#)

Busting Moves and Busting Myths

Michael Hay, Senior Director of Product Strategy for Hitachi Data Systems [More...](#)

### ► Briefing Paper:

Five Cost-effective Steps to Building a More Eco-friendly Data Center [More...](#)

### ► Analyst Report:

Active Archiving: Hitachi Content Archive Platform (by IDC) [More...](#)

### ► Data Sheet:

Hitachi Simple Modular Storage 100 [More...](#)

## Events

► **SNIA 2008 Winter Symposium, January 28 - February 1, 2008, Wyndham San Jose, San Jose, California**

An opportunity for all Storage Networking Industry Association members (and invited guests) to participate in various Committee, Forum, Technical Work Group, and Birds of a Feather Sessions. [More...](#)

► **SSIF Storage Security Summit, January 30 - February 1, 2008, Sun Microsystems Santa Clara Campus Auditorium, Santa Clara, CA**

Interact with storage and security professionals and the audit and academic communities at a must attend event - the sixth Storage Security Summit sponsored by the SNIA's Storage Security Industry Forum (SSIF). [More...](#)

can scale to petabytes and provide the ability to search for content across different modalities of data.

### **Convergence of Content, File and Block-based Storage Services:**

We will see the convergence of disparate storage types to a common virtualization platform. High availability clusters of content servers and file servers will use a common block virtualization services platform, under one common set of management tools. This will enable content servers or file servers to leverage common block services like distance replication, thin provisioning, or virtualization of heterogeneous storage systems.

### **Awareness of Storage Deficiencies:**

Data storage has become highly inefficient. Continuing to buy more of the same old storage architectures or increasing capacity on the same 20—year-old architectures will no longer be viable. New storage architectures will be required to meet these changing demands that can scale performance, connectivity and capacity, nondisruptively to multiple petabytes.

### **Data Mobility without Disruption:**

With the need for continuous application availability, IT will need the ability to move data without disruption to the application. Software data movers have become too disruptive; what is needed is a storage system that can move data over high speed Fibre Channel links without consuming the applications processor cycles.

### **Control Unit Virtualization of Storage:**

Analyst Kevin McIsaac of Intelligent Business Research Services suggests that The idea of being able to layer [network-based] virtualization over existing storage arrays is seriously flawed. A control-based approach to virtualization leverages all the rich functionality of the control unit to enhance the functionality of lower cost or legacy tiers of storage and enables less capable storage systems to utilize the value added services in that control unit, like data mobility functions or thin provisioning capabilities.

### **Thin Provisioning:**

This will provide the biggest benefit in increasing the utilization of storage by eliminating the waste of allocated but unused storage capacity. The implementation of thin provisioning should be provided as a service on a storage virtualization platform so that it can benefit existing storage systems through virtualization. This ability to increase utilization will be embraced by Green advocates and will also be seen as a way to contain costs.

### **Deduplication:**

All the major backup vendors will implement deduplication, which is especially effective in eliminating duplicated data in backups. The ability to reduce a stream of data by 20 to 30 times will be extremely valuable in reducing the cost of storing data to the point that it will be feasible to store backup data to disk rather than to tape where the operational, availability, and reliability characteristics are better.

### **Services Oriented Storage Solutions:**

In order to achieve the dynamic data center of the future, Services Oriented Storage Solutions will become a requisite complement to Services Oriented Architecture in the application space and to Services Oriented Infrastructure in the infrastructure space. Services Oriented Architecture depends on a virtualization layer provided by XML which enables applications to share information and utilize common services like billing. Services Oriented Infrastructure depends on a virtualization layer provided by products like VMware, which enables operating systems to share the resources of a processor platform. Services Oriented Storage requires a virtualization layer in the storage control unit which enables other storage systems to leverage its services like a high-performance global cache, distance replication, tiered storage and thin provisioning.

### **► Inspire Life — London, February 20-21, 2008, QEII Conference Centre, London**

A major technology exhibition bringing the entire group of Hitachi businesses under one roof. [More...](#)

### **► HIMSS, February 24-28, 2008, Orange County Convention Center, Orlando, FL**

The annual conference of the Healthcare Information Management and Systems Society, with keynote speakers Dr. Eric Schmidt, chairman and CEO of Google, and Steven Levitt, bestselling author of *Freakonomics*. [More...](#)

### **► SHARE, February 24-29, 2008, Disneys Coronado Springs Resort, Orlando, FL**

SHARE provides the most up-to-date information on major issues taking place in enterprise technology. There are numerous sessions that cover virtualization and provide sound advice for the proactive, informed IT professional. [More...](#)

### **Economic Uncertainty:**

The collapse of the housing market in the US, high oil prices and the falling value of the US dollar will create economic uncertainty. Budgets will be tight and IT will once again have to do more with less. Doing more with less will drive IT organizations to find ways to consolidate IT resources, increase resource utilization, eliminate redundancies, and reduce the working set of production data through the aggressive use of archive products.

In conclusion, the convergence of application processes such as data mining, integrated data discovery and data searching, data protection and repurposing will require unprecedented scalability and integration that will be provided in the storage infrastructure. Increased mobile network bandwidth will put greater pressure on core storage and data services to satisfy the consumption of mobile information on demand.



### **Meet Hitachi Data Systems Executives and Learn About the Future of Data Storage at Inspire Life - London**

Inspire Life — London brings together the Hitachi, Ltd. family of businesses under one roof to offer insight into the future of Hitachi technology. As part of this exhibition, Hitachi Data Systems will be presenting a pan EMEA partner and customer event called Inspire Storage.

At Inspire Storage, you can learn about:

- ▶ Hitachi Data Systems business direction and channel strategy for 2008
- ▶ How Hitachi Data Systems technology platforms are enabling businesses to benefit from storage virtualization, data protection, green IT and high performance IT infrastructure solutions and services

You can also meet Hitachi Data Systems executives and Inspire Storage partners in seminars and in the Inspire Storage exhibition zone.

Inspire Life — London takes place February 20 and 21, 2008, at the QEII Conference Centre in London. Customer Day is February 20; Partner Day is February 21. For more information, visit [www.inspirestorage.com](http://www.inspirestorage.com)

### **How Hitachi Data Systems Meets the Challenges of '08**

Click the links below to learn how products, services and solutions from Hitachi Data Systems align with the needs of the IT industry.

- ▶ [Services Oriented Storage Solutions](#)
- ▶ Control unit virtualization: [The Hitachi approach to storage virtualization](#)
- ▶ Thin provisioning: [Hitachi Dynamic Provisioning Software](#)
- ▶ Reduced carbon emissions: [Eco-friendly Storage Strategies](#)
- ▶ Archiving: [Hitachi Content Archive Platform](#)
- ▶ Convergence of storage to a common virtualization platform: [Control unit virtualization with Hitachi Universal Storage Platform V](#)
- ▶ Awareness of storage deficiencies: [Storage growth management](#) and [Services Oriented Storage Solutions](#)
- ▶ Nondisruptive data mobility: [Hitachi Adaptable Modular Storage](#) and [Hitachi Workgroup Modular Storage](#)

- ▶ Deduplication: [Virtual Tape Library Solutions](#)
- ▶ Doing more with less: [Hitachi Data Systems Professional Services and solutions](#)

## What the Industry Analysts Think

Virtualization was a hot topic in 2007, and it shows no sign of cooling in the year ahead. Heres what two leading analysts think the (near) future holds for the storage community:



"The primary storage related imperatives for 2008 are focused on providing heterogeneous storage services enabled through virtualization and include: expanded intelligent tiered storage with transparent movement and heterogeneous replication; thin provisioning and logical pool wide striping; data de-duplication (initially for backup and archive); policy based heterogeneous storage management; and data encryption and key

management." — Carl Greiner, Ovum



"Virtualization in all of its incarnations will make a steady advance in 2008. IT administrators will continue to see the value that platforms like VMware deliver and will apply virtualization technologies to other domains. In the case of storage, virtualization will be seen more clearly as a way to integrate incompatible systems, platforms, and storage networks so as to deliver a common set of storage-based

services (Services Oriented Storage) to applications and other more generalized IT services. However, as more multicore processors dominate the landscape, and VMware continues to assert control over data and storage management services (Consolidated Backup, VMotion for Storage, thin provisioning, etc.), IT administrators will be challenged to decide where to implement these services — server, network, storage, or in some combination. The decision will be unusually difficult as it will cross both technological and IT organizational boundaries.

As I write this watching snow pile up outside this early in the season, I sense that this will be an unusual winter here in New Hampshire. I think that in 2008 we will also see some unusual things happen within the storage industry. General purpose storage — storage for the majority of production applications — has dominated the marketplace since the birth of the disk drive. In 2008 however, we will see a greater emphasis on purpose built storage for applications like multimedia web hosting, digital video surveillance, and healthcare imaging. This will be driven by an emphasis on lower-cost storage performance — two concepts that do not usually go hand in hand. Continuing on the lower-cost performance theme, I also think we will see more wide-spread adoption of solid state disk as the price of SSD comes down to more affordable levels." — John Webster, Illuminata

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