



## Hitachi Command Suite v7

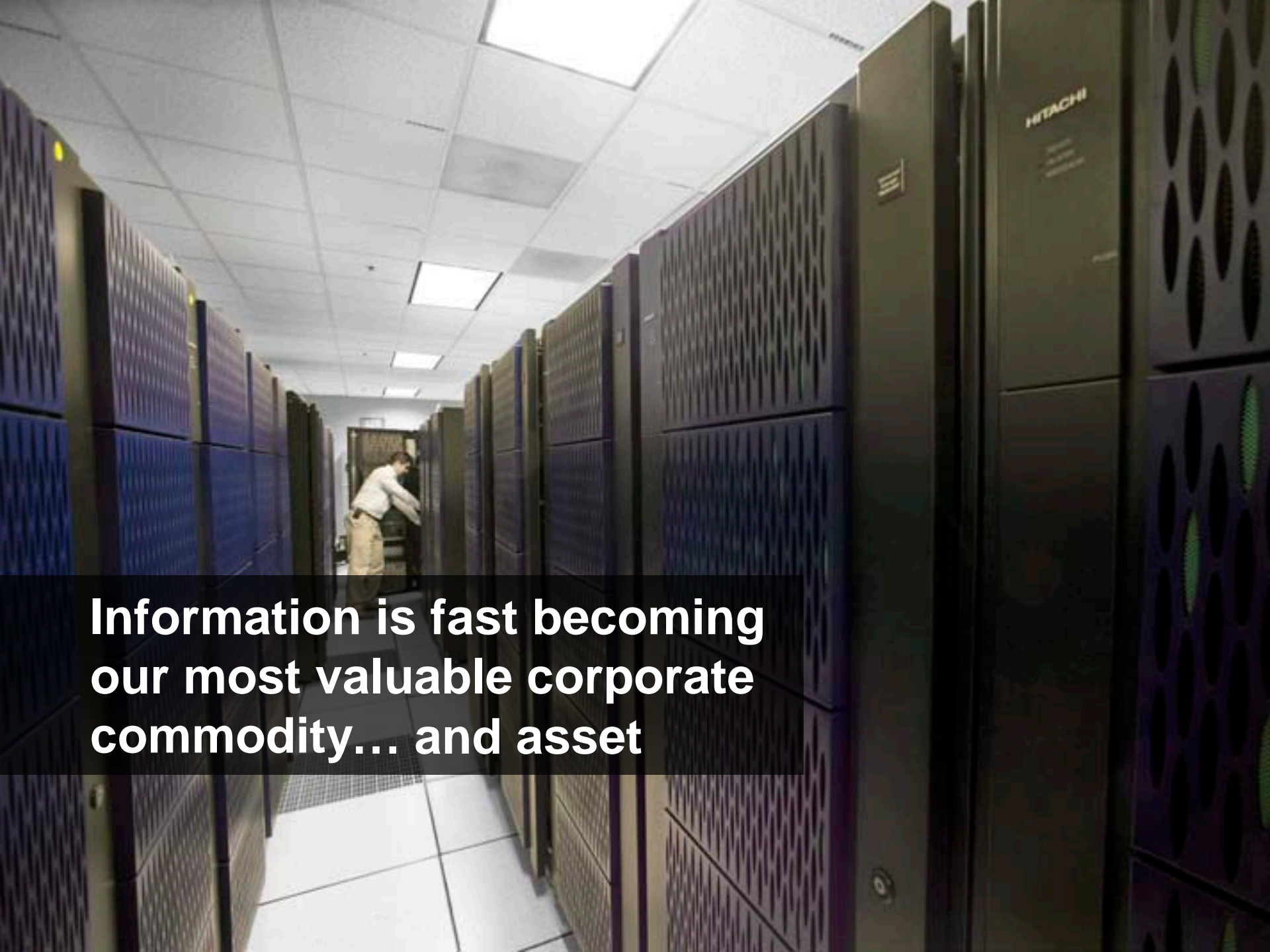
3D Management

Manage Up, Manage Out and Manage Deep

- Data Drives Our World
- Vision to reality: new data center requirements
- Hitachi Storage Command Suite v7.0 (HCS v7) overview
  - Easier to manage and maintain
  - Hitachi Command Suite integration
  - Automated tiered storage management
  - Enhanced usability and workflow
  - Improved scalability and performance
  - Private cloud enabled storage management
- 3D management
  - Manage up
  - Manage out
  - Manage deep
- Questions and answers

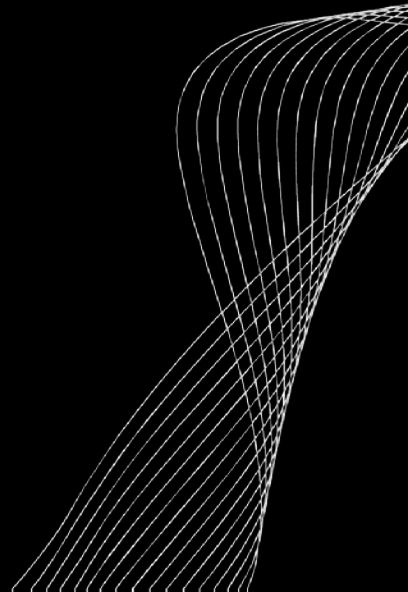
**DATA DRIVES OUR WORLD  
AND INFORMATION IS THE NEW CURRENCY**






**Information is fast becoming  
our most valuable corporate  
commodity... and asset**

**There's a big difference  
between raw data and  
information we can use**




The image shows the lower half of three people in business attire standing in a modern office. They are positioned in front of a large window with a grid pattern. The floor is highly reflective, creating clear reflections of the people and the window. The overall color palette is cool, dominated by blues and greys.

Global economic conditions force businesses to grapple with multiple challenges

- Shrinking budgets
- Organizational change
- Increased competition
- Vendor community volatility
- Cost of managing storage

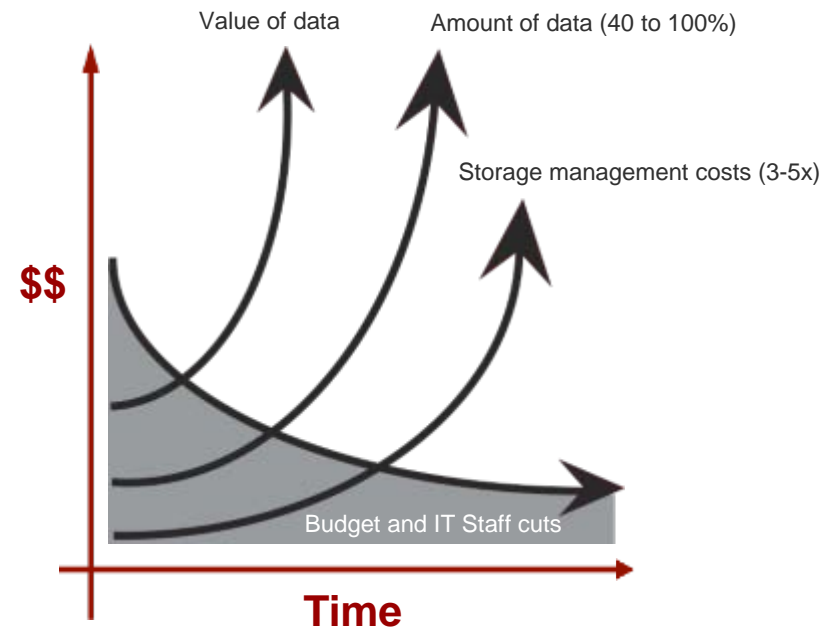
the financial crisis  
\* Crash of  
belief, and a



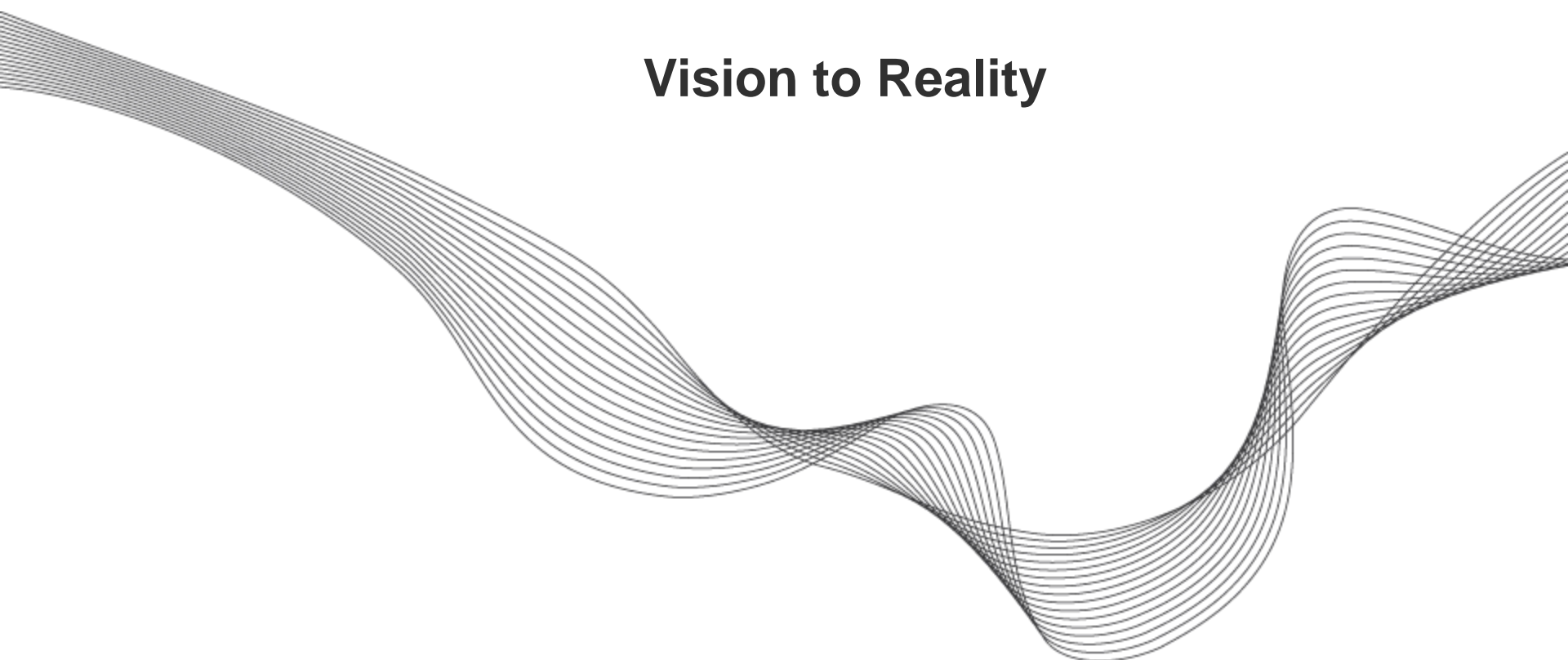
The amount of data is exploding while  
IT organizations are asked to do more with less

## Managing Storage Is 60% of Storage Related Spending

- IDC estimates the annual cost to manage storage is about 60% of all enterprise storage-related spending
- Includes: software, power, cooling, administration personnel and services



# Vision to Reality

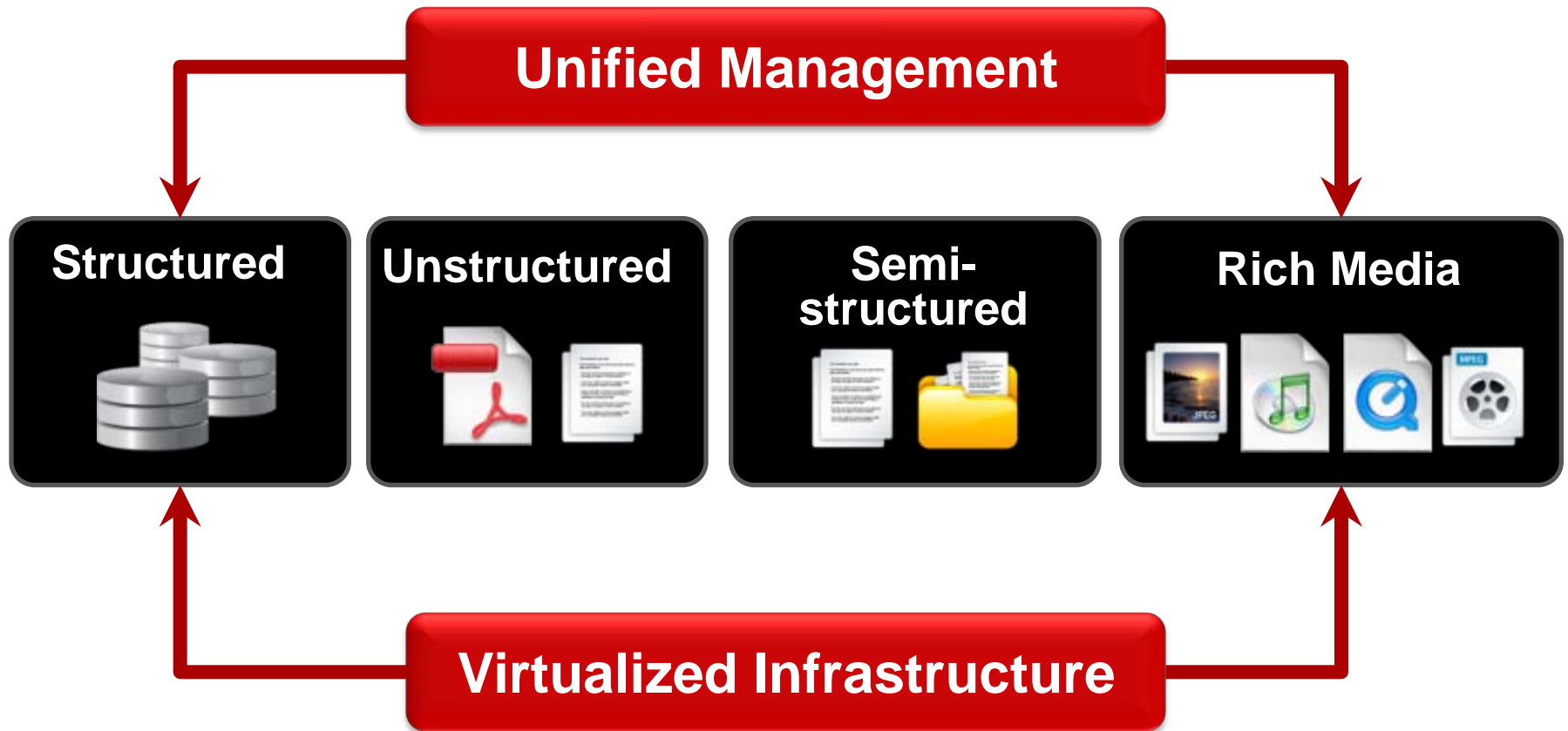


## Hitachi Pioneers the Agile Data Center

- A successful thought leader in information technologies
- The world's only vertically-integrated storage company
- Focused on delivering on a vision that IT must be:
  - Virtualized
  - Automated
  - Cloud-ready
  - Sustainable

# Technology Strategy

A common virtualized platform for all data, content and information



## Virtualized

Hitachi Data Systems provides the best storage and information infrastructure for virtualized environments

- Automate your most labor-intensive data management operations
- Deliver capacity and compute resources as quickly as your virtual servers
- Reduce costs while increasing asset utilization at the pace of your business

## Automated

Hitachi Data Systems solutions let your business put new applications and business systems into production faster and with less cost by automating time-consuming operations

- Run continuous operations while reducing CAPEX wasted on under-utilized storage capacity
- Increase IT staff productivity while maintaining or improving data access, security and OPEX
- Align business objectives and your IT infrastructure's ability to react to those objective – that is IT agility

## Cloud-ready

Hitachi Data Systems solutions let you adopt or evolve to cloud computing models or IT-as-a-service at your own pace with minimal risk

- Allow lines of business, customers or partners to scale and provision dynamically and cost-effectively
- Optimize operations by consolidating and aggregating storage, server, networking and middleware assets
- Enable pay-per-use, multitenancy and SLA-oriented storage services while maintaining enterprise-class security and privacy

## Sustainable

Hitachi Data Systems is a leader in building sustainable facilities and products – and we can help your business do the same

- Achieve energy efficiency without compromising reliability, availability or security of your infrastructure
- Centralize and consolidate data management and data protection to lower TCO and power consumption
- Sustainability is a series of decisions and investments, not any single product or technology

# Hitachi Storage Command Suite v7 Overview

A decorative graphic consisting of multiple thin, overlapping lines that form a wavy, ribbon-like shape across the lower half of the slide.

# Hitachi Command Suite v7: Storage Management Redefined

Hitachi Command Suite v7 delivers a **new customer experience** for storage management

## Private Cloud (Block) Enabled Storage Management

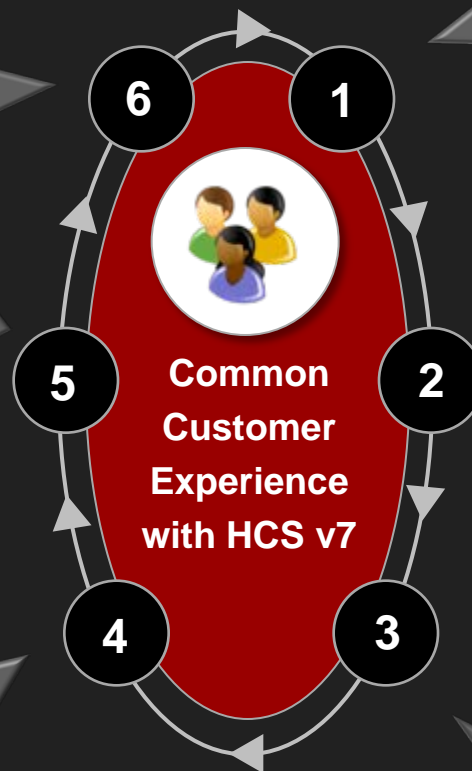
- Components for delivering block storage as a service within a private cloud

## Improved Scalability and Performance

- Significant increased number of resources under management
- Reduce time for common tasks
- Improved CLI performance

## Enhanced Usability and Workflow

- Usability enhancements for both novice and expert users
- Integrated use case wizards with best practice defaults



## Easier to Manage and Maintain

- Unified management across multiple storage systems
- Single DVD installer
- Host agent and agent-less approaches
- New software licensing models

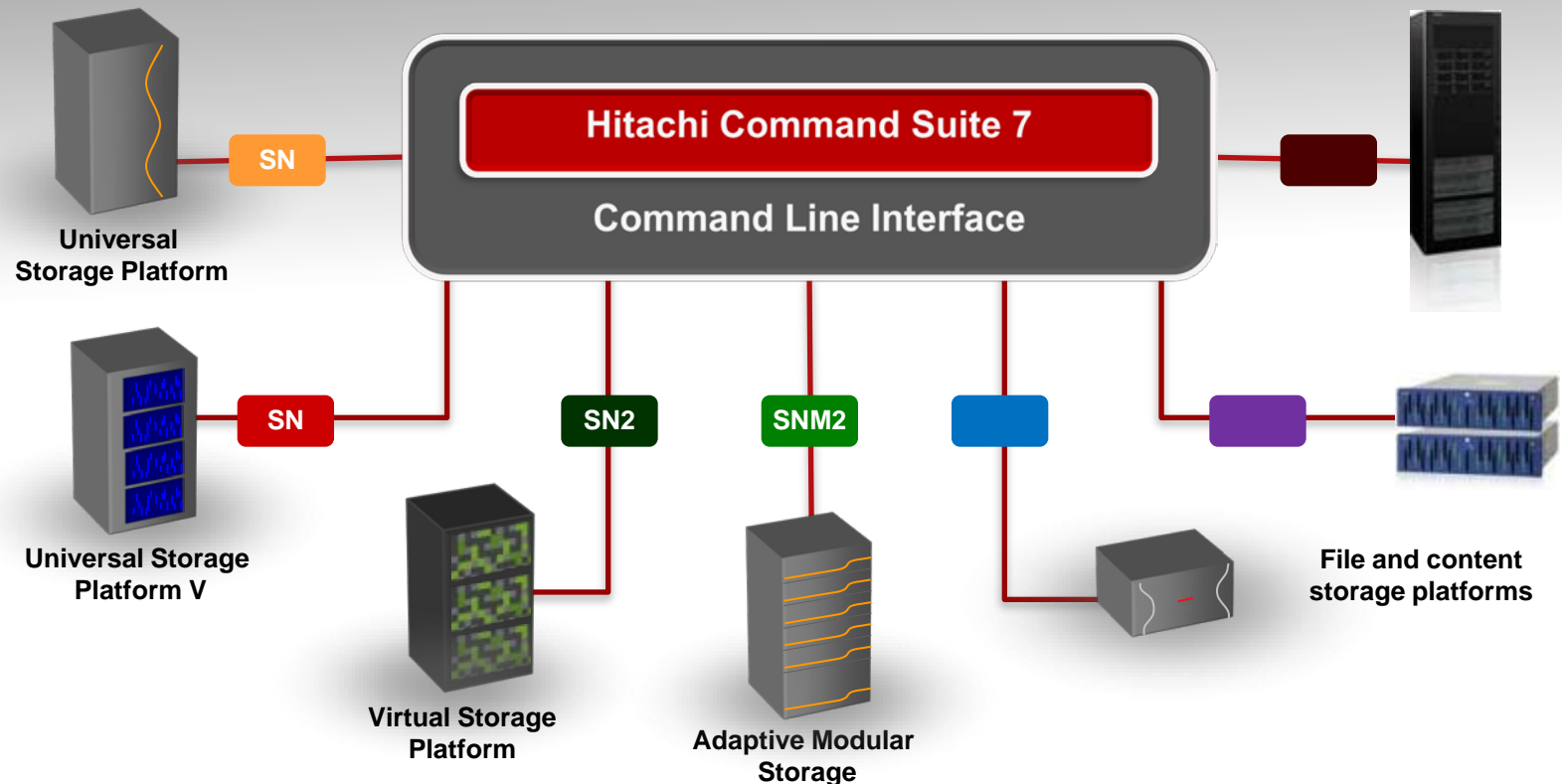
## Hitachi Command Suite Integration

- New GUIs and common interfaces
- Task management with scheduling for multi-thread operations
- More data sharing and synchronization by combining configuration and storage tier information

## Automated Tiered Storage Management

- Page based tiered storage management
- Compliments existing volume based storage tier migration capabilities

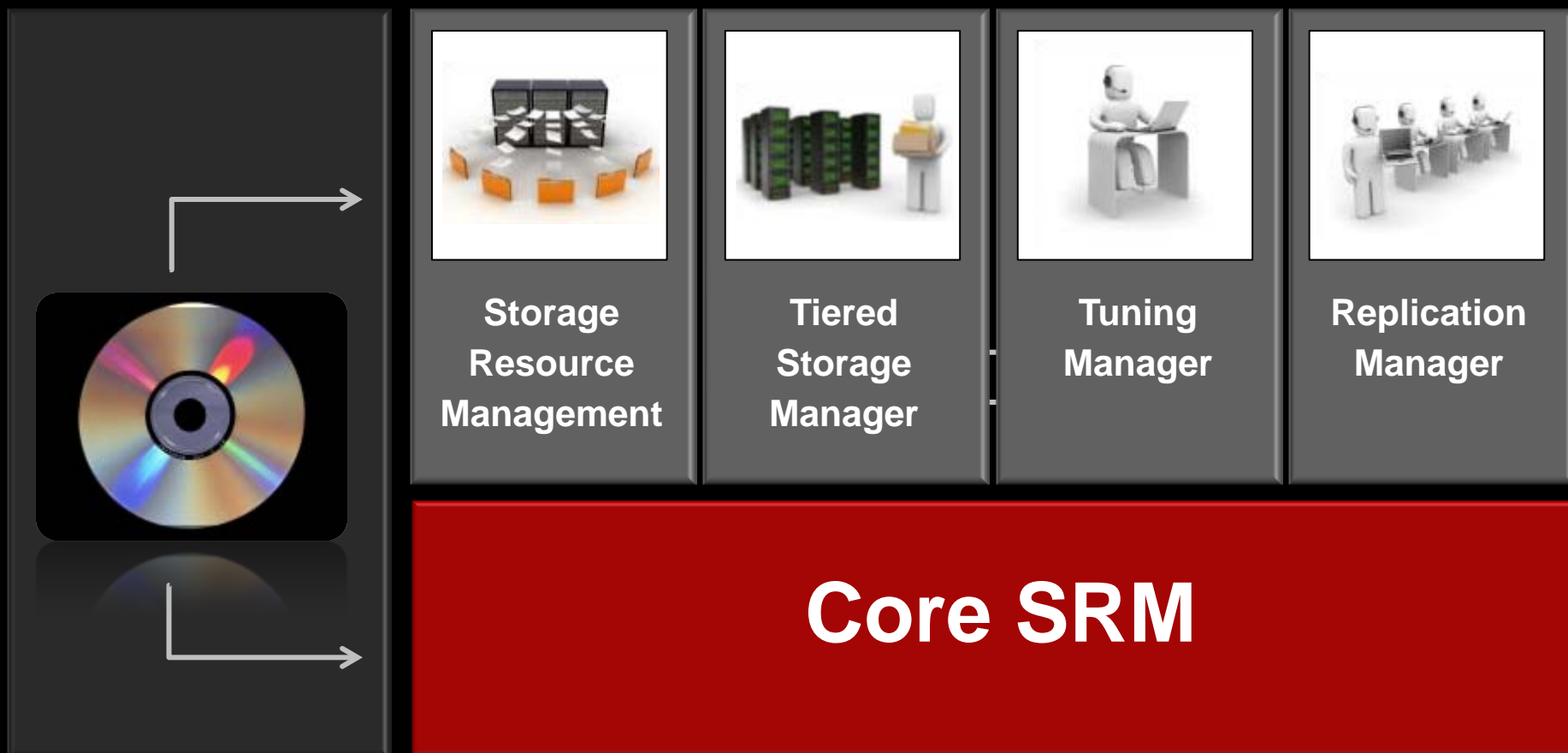
# Easier to Manage and Maintain: Unified Storage Management



- Single management tool for all Hitachi storage systems and virtualized storage environments
- Common GUI and CLI: no need to switch to element managers for everyday storage management tasks

# Easier to Manage and Maintain: Integrated HCS Installer

- No special knowledge or additional services are required to install and use
- One DVD for installing all Hitachi Command Suite software
  - One “setup.exe” to initiate the installer then choose which product to install
  - Products are enabled by installing additional license keys



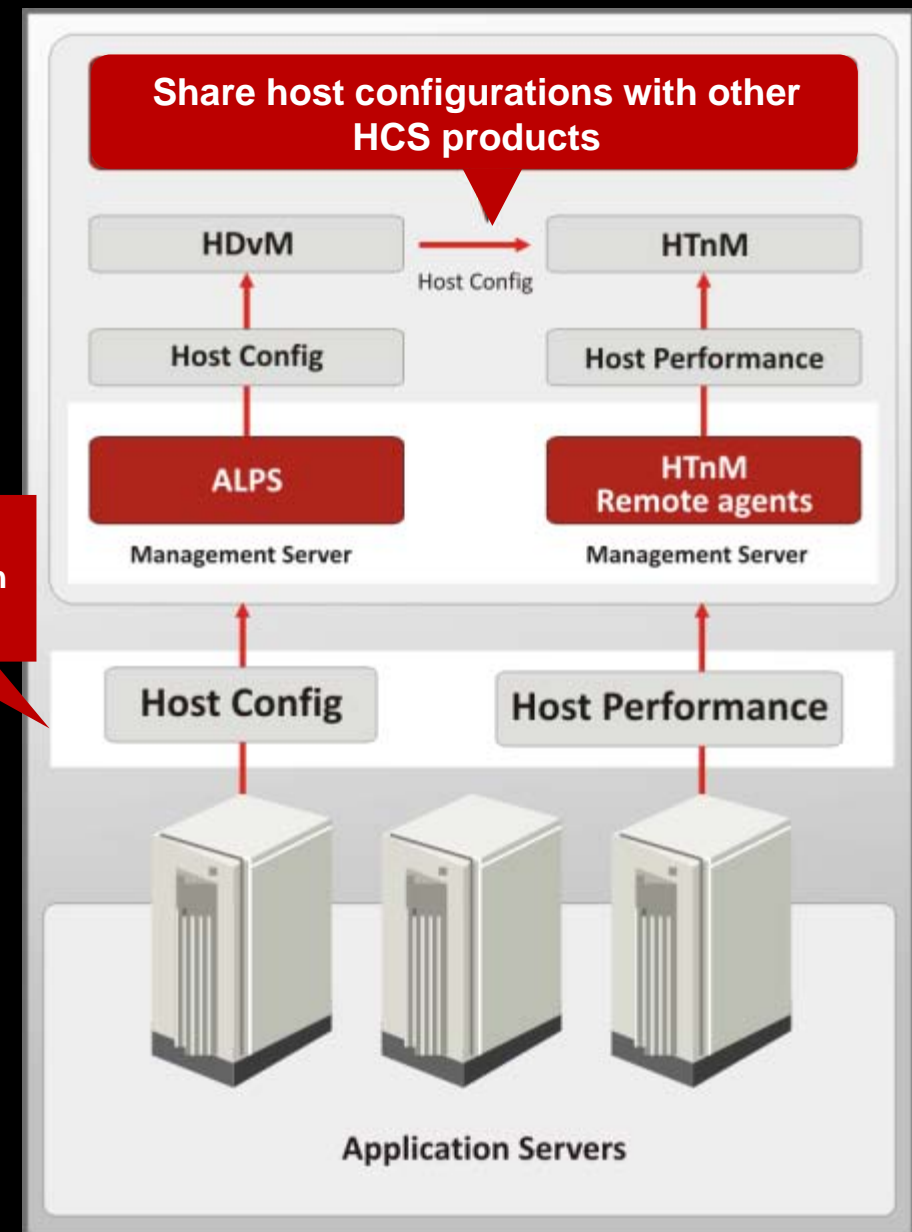
## Discovers hosts, virtual machines and applications without deploying host agents

- Uses public interfaces provided by managed objects, e.g. WMI for Microsoft Windows

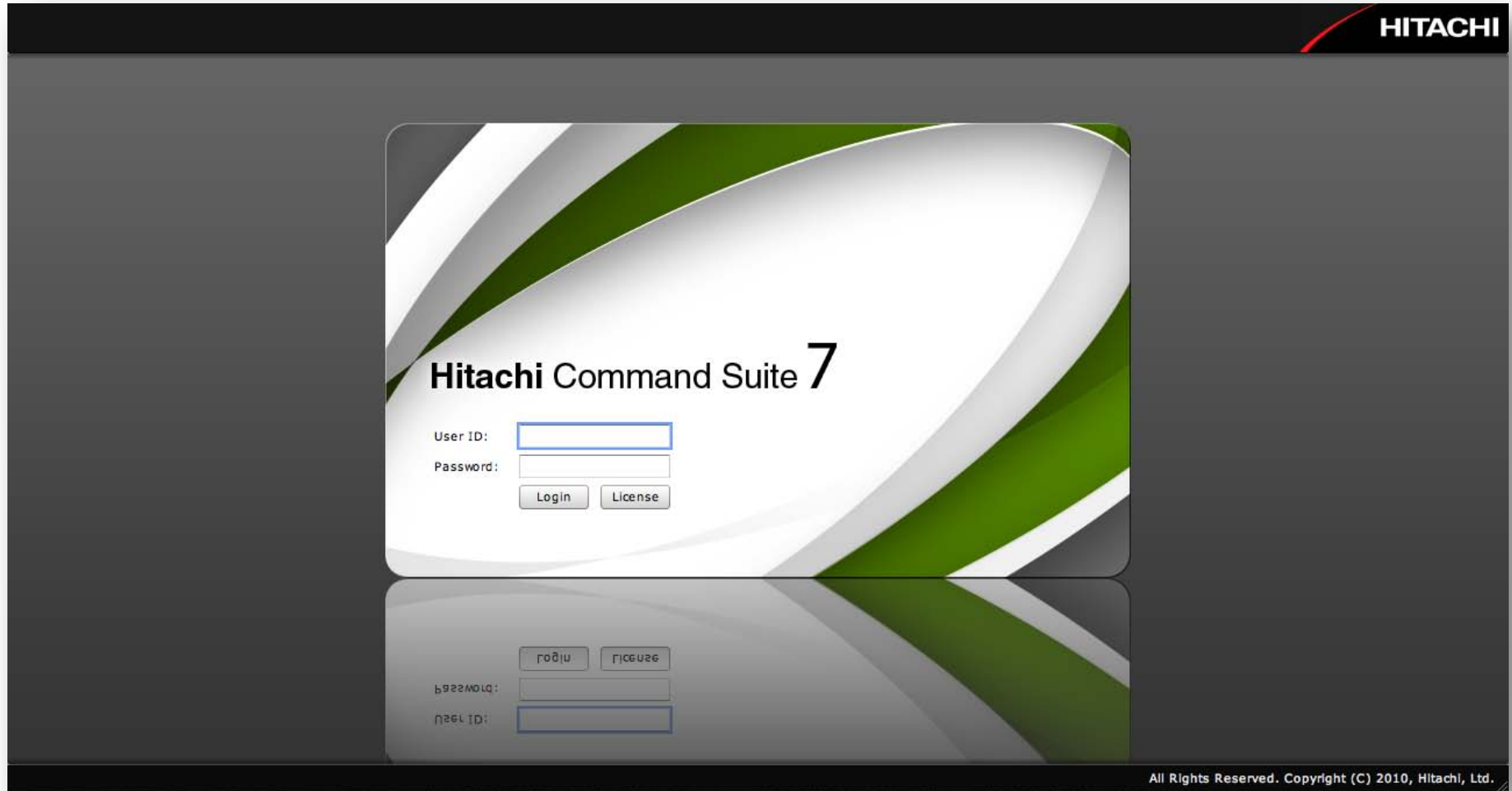
## Agent deployment (core agent)

- Optionally required to do certain tasks that the public interface does not support, i.e. host provisioning

Collect data remotely with WMI or SSH



# Hitachi Command Suite Integration: New Hitachi Command Suite v7 Graphical User Interface



**Hitachi Command Suite 7**
**HITACHI**

File View Configure Help
Logged in as: system [Log Out](#)

Dashboard Resources Tasks/Alerts Search Administration
Quick Find

**Resources**

**Storage**

- Storage
  - AMS2300@192.168.101.1
  - USP\_V@172.16.110.99
  - USP\_VM@192.168.11.1
    - Pools**
    - Parity Groups
    - LDEVs
    - External Storages

Storage > USP\_VM@192.168.11.1 > Pools [Help](#)

**HDP Pools Summary** Action ▾

Number Of DP Pools	21	Total Capacity	1.26 TB
Virtual Volume Capacity	19.39 TB	Used Capacity	215.17 GB
Usage Rate	16 %	Number Of DP Pools At Risk	0

**Pools**

Filter:  ON  OFF Select all Show/Hide Columns Rows/Page: 30 Page: 1 / 1

Pool ID ▲	Pool Name	Pool Capacity	Used Capacity	% Used	Current Subscription Capacity	% Subscribed	No. of DP/THP VOLs	Status
<a href="#">OP_1</a>	SAP HR-10/20/70	112.30 GB	112.30 GB	100 %	782.37 GB	696	10	Blocked
<a href="#">OP_2</a>	SAP Finance-20/30/50	116.52 GB	1.03 GB	0 %	105.25 GB	90	7	Normal
<a href="#">OP_3</a>	SAP Operations-10/20/70	58.26 GB	1.03 GB	1 %	15.22 GB	26	7	Normal
<a href="#">OP_4</a>	Legal NY-//30/70	54.14 GB	0 MB	0 %	5.13 GB	9	5	Normal
<a href="#">OP_5</a>	Legal SC-//30/70	295.89 GB	91.59 GB	30 %	12.00 TB	4153	8	Normal
<a href="#">OP_8</a>	NAS High-20/30/50	5.87 GB	42.00 MB	1 %	2.00 TB	34939	5	Normal
<a href="#">OP_9</a>	NAS Low-//20/80	5.87 GB	126.00 MB	2 %	2.00 TB	34939	5	Normal
<a href="#">OP_11</a>	HCP-//20/80	5.87 GB	126.00 MB	2 %	3.28 GB	55	5	Normal
<a href="#">OP_12</a>	MailServer-//30/70	5.87 GB	126.00 MB	2 %	2.26 GB	38	4	Normal
<a href="#">OP_31</a>	VTL-//30/70	5.66 GB	84.00 MB	1 %	336.00 MB	5	4	Normal

Selected: 0 of 10

Allocate Storage
Create Volumes
Create Pool
Expand Pool
Edit Pool
Delete Pools

**Hosts**

**Logical Groups**

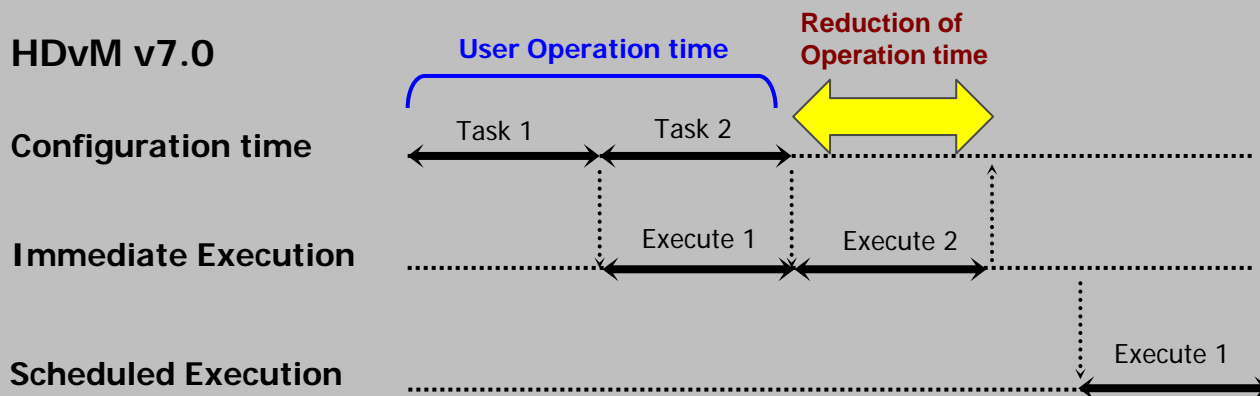
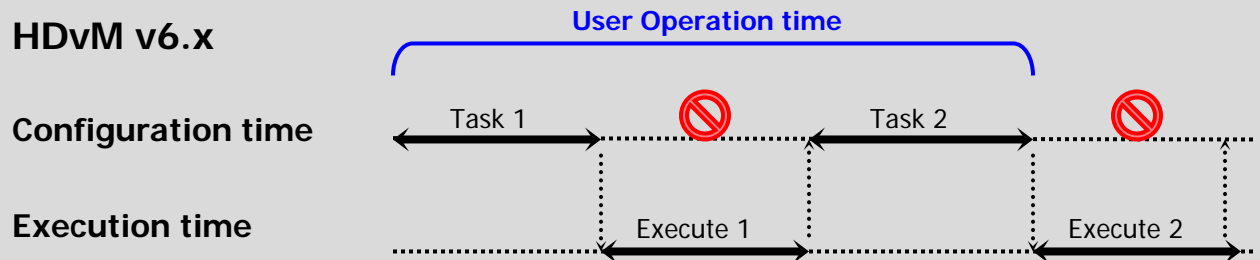
**Tiers**

**General Tasks**

- Manage Replication
- Migrate Volumes
- Allocate Storage
- Unallocate Storage
- Virtualize Volumes
- Create Volumes
- Create Pool

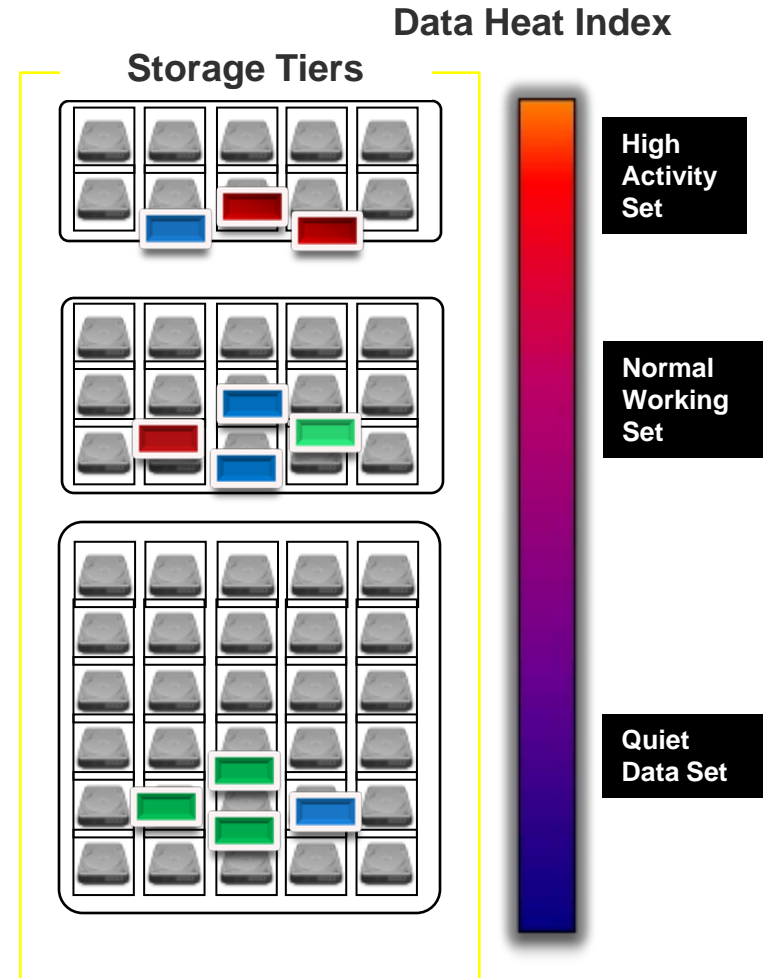
Waiting: 0
Running: 0
Completed: 2
Uncompleted: 0

- Improved task completion performance
- Allows immediate task execution or scheduling for a later time



- Adjust to dynamic workloads through data heat index
- Manage all storage tiers as a single entity
- Self optimizing: gives SSD class performance to information stored largely on cheaper or legacy tiers
- Optimized for high performance and space efficiency
- Granular data movement for highest efficiency and throughput

**Able to put the right data  
in the right place at the right time**



- Common storage administrator's tasks are supported with use case oriented GUI steps and intuitive wizards
  - Create or expand pools
  - Configure external storage
  - Provision new volumes
- Built-in intelligence and task execution options
  - Appropriate LDEV that satisfies specified requirements and attributes is automatically selected
  - Tasks can be executed as background processes, either executed immediately or scheduled for a future time
  - Automatically selects appropriate LDEV that satisfies specified requirements and attributes
  - Can execute tasks as background processes, either immediately or scheduled later

- Hitachi Command Suite v7 delivers significantly improved scalability to efficiently manage larger datacenters
  - Ability to manage up to the following environment with a single Hitachi Command Suite v7 management server\*

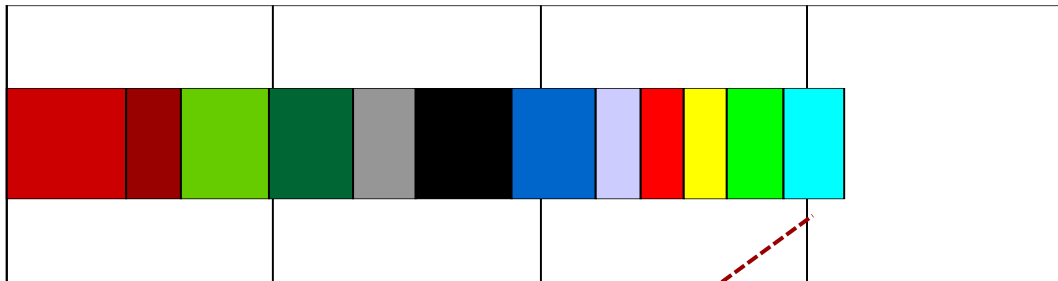
- LDEVs	5,000,000
- Subsystems	100
- AG per subsystem	1,000
- Hosts	1,000-10,000
- Device files and hosts	10-100 (open)
- Device files and hosts	2,000 (mainframe)
- Redundant paths	2 to 4
- FS or device file	1
- Ports used per array	64
  - Improved CLI performance
    - Shorten duration time of CLI provisioning tasks in large scale environment
    - Offer backward compatibility
      - Performance improvements do not require changes to existing developed scripts
    - Effective for all Hitachi storage systems

\* *Estimated values*

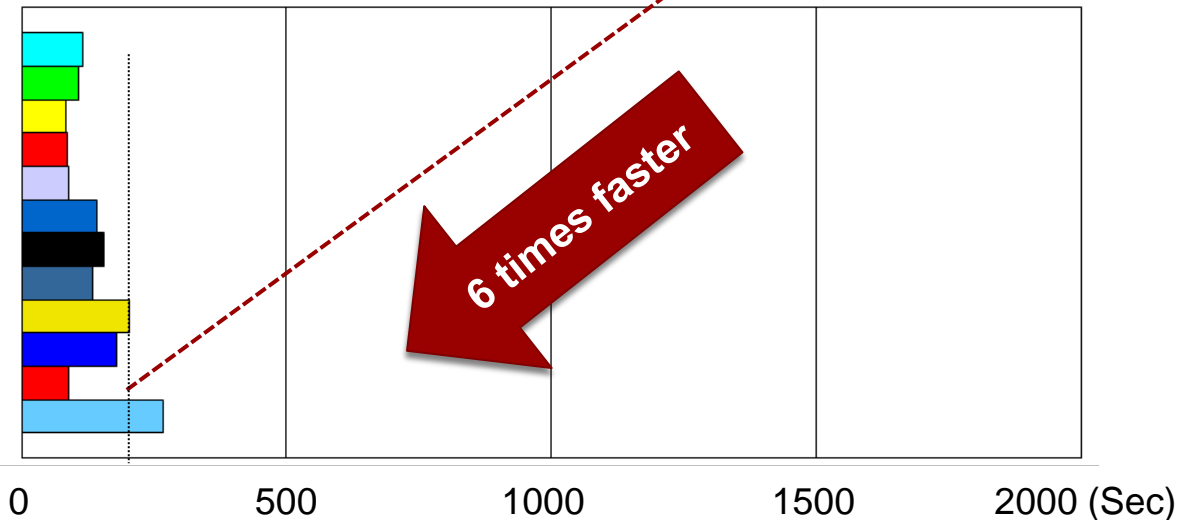
## Improved management performance with parallel refreshes of managed subsystems

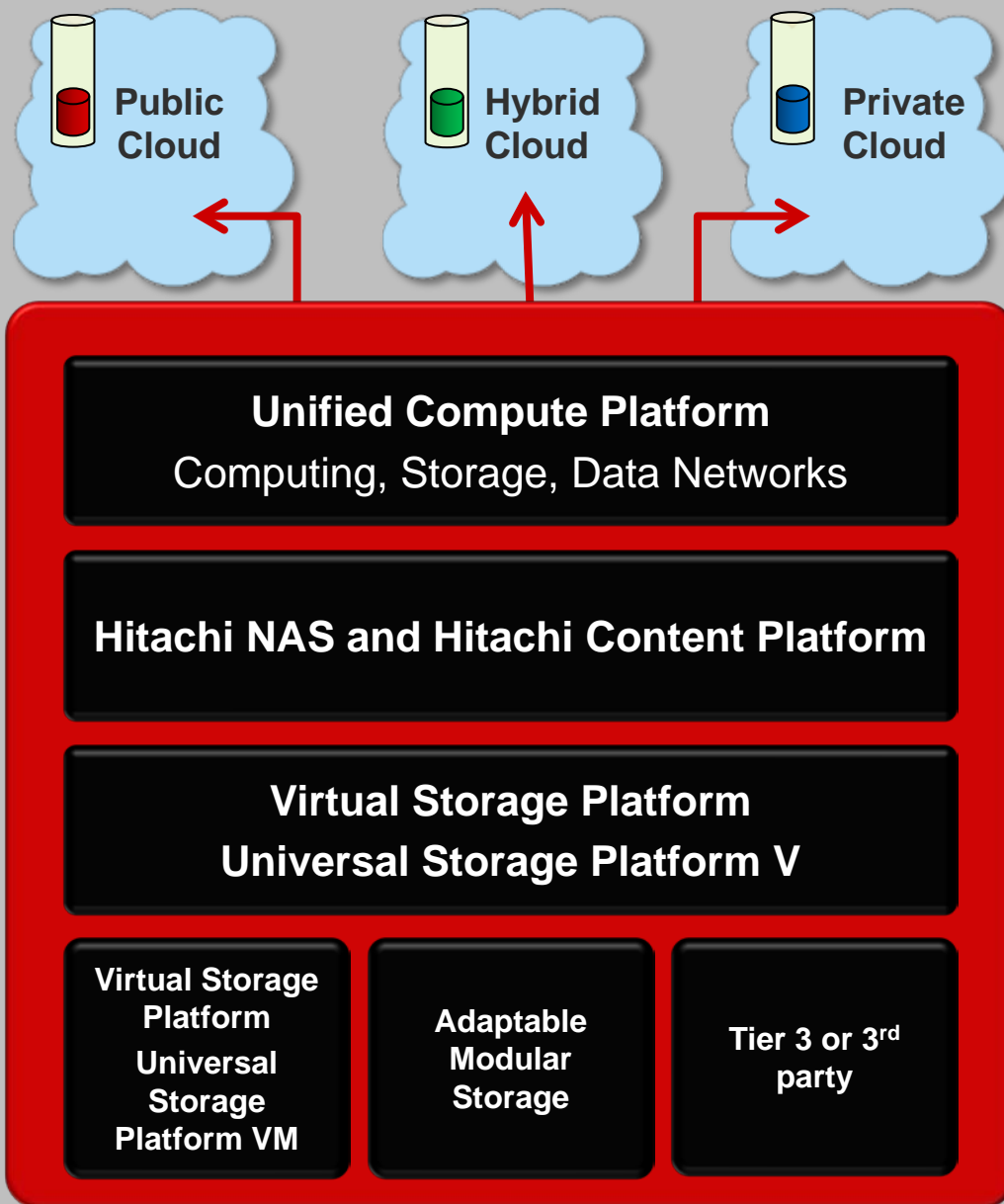
- Test results show parallel refreshes improves refresh speeds by 6 times
- HDS lab tests with 12 subsystems refreshed in parallel versus sequential

Sequential Refresh



Parallel Refresh





- **One platform for all data**
  - Block, file and object
  - Controller based storage virtualization for heterogeneous mobility
- **Private cloud consumer: multitenant segregation support**
  - Virtual partitioning
  - Business views for provisioning, migration, replication and reporting
- **Service level management and reporting**
  - Policy based service level management
  - Hypervisor discovery and reporting
  - Chargeback (future enhancement)
- **Orchestration management with Hitachi Unified Compute Platform**

A decorative graphic consisting of multiple thin, overlapping lines that form a wavy, ribbon-like shape across the middle of the slide.

# **3D Management**

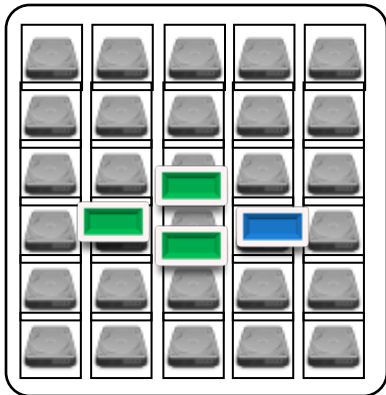
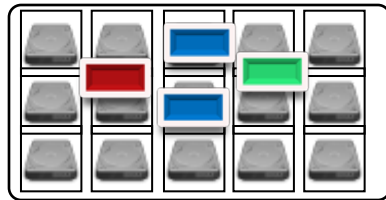
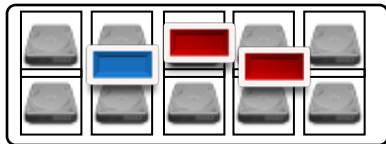
## **Manage Up, Manage Out, Manage Deep**

Hitachi Command Suite v7 delivers a 3D management platform to lower CAPEX and OPEX costs and efficiently manage all data types for the agile data center

***Manage Up, Manage Out, Manage Deep***

## Unified management *scales* for the largest infrastructure and application deployments

### Storage Tiers



### Data Heat Index



High  
Activity  
Set

Normal  
Working  
Set

Quiet  
Data Set

### Solution Capabilities

- Automate data placement for higher performance and lower costs
- Ability to manage up to 5M logical objects and 247PBs of virtualized capacity
- Manage large storage resource management deployments with agent-less technologies
- Scale up virtual server deployments by eliminating shared resource contention

### Business Value

- Significant CAPEX and OPEX savings by moving data to lower cost tiers
- Increase storage utilization up to 50%
- Easily align business application needs to the right cost infrastructure

## Single management framework with the breadth to manage storage, servers and the IT infrastructure



## Solution Capabilities

- Unified management for block, file, and content across all Hitachi storage
- Common management of virtualized heterogeneous storage assets
- End-to-end visibility and correlation of applications, virtual machines, virtual servers, and logical storage devices for traditional and VMware environments
- Roadmap to comprehensive IT management system starting with orchestration layer

## Business Value

- Properly monitor and plan resource needs for virtual server farms
- Consolidate multivendor storage management
- Tightly integrated, open solution with orchestrated management lowers complexity and costs

Deep integration within the Hitachi Command Suite for the highest level of operational efficiency to manage the complexities of today's data centers

The screenshot displays the Hitachi Command Suite 7 interface. The main window shows the 'HDP Pools Summary' for the storage 'USP\_VM@192.168.11.1'. The summary includes:

- Number Of DP Pools: 21
- Virtual Volume Capacity: 19.39 TB
- Usage Rate: 16 %
- Total Capacity: 1.24 TB
- Used Capacity: 215.17 GB
- Number Of DP Pools At Risk: 0

Below the summary is a table of pools:

Pool ID	Pool Name	Pool Capacity	Used Capacity	% Used	Current Subscription Capacity	% Subscribed	No. of DP/THP VOLS	Status
DP_1	SAP HR-10/20/70	112.30 GB	112.30 GB	100 %	782.37 GB	696	10	Blocked
DP_2	SAP Finance-20/30/50	116.32 GB	1.03 GB	0 %	105.25 GB	90	7	Normal
DP_3	SAP Operations-10/20/70	56.26 GB	1.03 GB	1 %	15.22 GB	26	7	Normal
DP_4	Legal NY-1/30/70	54.14 GB	0 MB	0 %	5.13 GB	9	5	Normal
DP_5	Legal SC-1/30/70	295.89 GB	91.59 GB	30 %	12.00 TB	4153	9	Normal
DP_6	NAB High-20/30/50	5.87 GB	42.00 MB	1 %	2.00 TB	34939	5	Normal
DP_7	NAB Low-1/30/80	5.87 GB	126.00 MB	2 %	2.00 TB	34939	5	Normal
DP_11	HCP-1/20/80	5.87 GB	126.00 MB	2 %	1.25 GB	55	5	Normal
DP_12	MailServer-1/30/70	5.87 GB	126.00 MB	2 %	2.24 GB	98	4	Normal
DP_21	VTL-1/30/70	5.66 GB	84.00 MB	1 %	336.00 MB	5	4	Normal

## Solution Capabilities

- Consistent implementation of management operations to reduce human errors
- Persistent logical grouping for efficient management practices
- Service level management incorporating both capacity and performance
- Common GUI, usability, data repositories, and task workflows

## Business Value

- Simplify operations with up to 50% fewer management operation steps
- Reduce manual provisioning and reporting processes
- Reduce IT deployment times and risks significantly and gain business agility



## Questions / Discussion

Thank you!