Global Storage Virtualization Management: Integrated Management Suite for Automating Your Data Infrastructure

Key challenges to today’s IT organizations include the cost and effort to support growing volumes of data combined with flat IT budgets. IT organizations must simplify their infrastructure management to accelerate application deployments and ensure service levels for their mission-critical business applications are being met. Most IT organizations struggle to manage diverse storage assets across multiple platforms and locations requiring 24/7 operations, which could place critical data at risk.

Hitachi Command Suite simplifies administrative complexities and increases operational efficiencies for growing storage infrastructures. Command Suite delivers unified management for global storage virtualization environments. It performs across all Hitachi storage platforms, including Hitachi Virtual Storage Platform family, Hitachi Unified Storage VM, Hitachi Unified Storage 100 series and Hitachi NAS Platform. It manages block, file and object data, and covers key aspects of storage configuration, service level management, storage analytics, data mobility and data protection.
Hitachi Command Suite solutions help to simplify the challenges of managing, optimizing and automating storage environments to control both capital and operational costs. By enabling efficient management practices for software-defined storage, IT organizations can dynamically align storage resources to changing business needs. At the same time, they must ensure continuous operations and a high return on their storage investments.

By providing a single set of management tools for administrators, Command Suite establishes a common management framework for Hitachi virtualized storage and server environments. This framework enables IT organizations to build a Continuous Cloud Infrastructure, powered by Hitachi, for managing their growing storage needs and delivering on application service levels.

Common Management Framework
Hitachi Command Suite simplifies management, allowing you to take full control of your data infrastructure, optimizing availability, capacity utilization and service levels. Command Suite consolidates management across all Hitachi storage systems to easily align storage resources to business application needs. At the same time, it centralizes administration for device configuration, performance optimization, data mobility and replication management.

Hitachi Command Suite provides an integrated management framework that encompasses 5 strategic management pillars:

- **Control**: Unifies management across all Hitachi storage systems and data types, whether block, file or object based, and facilitates rapid storage provisioning to support new business application deployments.
- **Analyze**: Evaluates key metrics, enabling critical insight into application usage to improve storage performance and capacity utilization, and avoid problems.
- **Optimize**: Increases tiered storage efficiency and performance by aligning business application data with the right storage tier.
- **Intelligence**: Enables application-based storage service level management to ensure that application and file server service levels are being met.
- **Protect**: Improves business continuity and high availability while reducing risks.

Hitachi Command Suite Management Benefits

**Improved Application Performance and Availability**
Optimal storage and server configurations improve the performance and availability of mission-critical business applications while ensuring adherence to application-specific service level agreements. Global storage virtualization provides always-on operations with application users experiencing faster response times and fewer outages, resulting in improved business productivity.

- **Easily match virtualized storage resources to application availability and performance requirements.**
- **Monitor and enforce application and file-server specific storage service level objectives.**

**Reduced Infrastructure Costs**
Structured management practices can lower total cost of ownership by improving storage and IT resource utilization and deferring additional capital purchases. By properly aligning IT costs with application data value, shared IT resources can be correctly matched to business application requirements.

- **Efficiently use flash storage, ensuring premium storage investments are fully utilized.**
- **Automatically move less critical application data to lower-cost storage tiers.**

**Reduced Administrative Costs**
A sustainable administrative foundation allows greater volumes of data to be managed effectively, enabling the rapid deployment of new business applications and technology advances.

- **Manage more data and resources with a common set of tools, including virtualized heterogeneous storage assets.**
- **Use a consolidated element manager approach for all basic storage management tasks and shared logical group constructs to effectively scale for larger deployments.**

Hitachi Command Suite
Hitachi Command Suite comprises the following software products:

- **Hitachi Device Manager** forms the base of Hitachi Command Suite. It is included with Hitachi Storage Virtualization Operating System and Hitachi Base Operating System to provide the common management and administration for multiple Hitachi storage systems, on which advanced management capabilities are built.

- **Hitachi Dynamic Link Manager Advanced** offers robust SAN path management capabilities, including load balancing, path failover, and integrated path management, to improve an application’s access to its data.

- **Hitachi Dynamic Provisioning** provides virtual storage capacity to simplify the administration of adding new storage capacity while improving performance and capacity utilization.

- **Hitachi Dynamic Tiering** simplifies tiered storage management with page-based movement of data to the most appropriate storage media according to workload and usage patterns. It simplifies storage management, maximizes service levels, improves performance and minimizes storage costs.

- **Hitachi Compute Systems Manager** manages, configures and monitors Hitachi server hardware as well as the physical and virtual hosts that compose it.

- **Hitachi Command Director** provides collective and comprehensive reporting of Hitachi storage environments based on business applications and functions to ensure service level objectives are being met.
Centralized Management:
Regarding availability.
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tions, advanced-level management can
start with essential management func
ments to storage tier characteristics
enables non-disruptive data volume
 Hitachi Tiered Storage Manager
matches application quality of service (QoS) require
ments to storage tier characteristics
and enables non-disruptive data volume
movement.

Hitachi Tuning Manager
provides end-
to-end performance management by
monitoring performance metrics, from
the application to the logical storage device,
then enabling storage performance reporting,
analysis and optimization.

Simplified Management
Hitachi Command Suite provides key
management practices and competencies
required to support growing storage infra-
structures. Providing a better understanding
of your particular environment, Hitachi
Command Suite empowers end users to
efficiently configure and optimize Hitachi
storage systems. It manages not only from
a storage view, but also from a business
application view, for application-centric
visibility of your storage environment. This
visibility helps to ensure return on your
storage investments today, while improving
effectiveness for the future.

Administrators can establish common
management processes for use across shared
storage resources. Quickly configure and
provision storage with intelligent workflows
that facilitate advanced management func-
tions, such as data mobility, replication and
service level management. With shared
logical group constructs used throughout
Hitachi Command Suite, end users can
scale their management practices across
the data center. They can organize, manage
and report on storage resources based on
storage classes, business applications or
business entities.

High-growth data environments require flexi-
bility to quickly scale infrastructure to support
new business application deployments. With
a building-block approach to management
that starts with essential management func-
tions, advanced-level management can be
added rapidly, according to your specific busi-
ness requirements. Get immediate benefits in
administrative efficiency and cost reductions
while building a sustainable management
solution for long-term growth.

Hitachi Command Suite offers a broad
range of management applications. It helps
organizations to take full advantage of the
virtualization and provisioning capabilities
of Hitachi storage platforms and improves
their ability to manage ever-increasing pools
of storage. As demands increase and infra-
structure becomes more complex, Hitachi
Command Suite can expand to manage
these data-intensive environments and help
to increase the amount of storage managed
per administrator.

By establishing optimal storage tiers and
policies, Hitachi Tiered Storage Manager
can properly align business application
requirements to the right storage tier and
costs. As changes occur over time, data
volumes can be moved between storage
tiers, nondisruptively, to the application. Use
Hitachi Dynamic Tiering to automatically
move data across storage tiers, placing the
right data in the right place at the right time.

Comprehensive analytics continuously
monitors the environment to help you to
optimize and maintain the health of infra-
structure. Hitachi Command Director arms
end users with storage service level man-
agement for their mission-critical business
applications to assure their unique service
level requirements for performance and
capacity are met. If application availability
or performance problems do arise, end-to-
end performance monitoring and storage
system health monitoring provided by
Hitachi Tuning Manager can help. Tuning
Manager quickly identifies whether an appli-
cation performance issue is storage-related
to speed its resolution.

Hitachi Command Suite
enables new software
defined storage by con-
figuring, provisioning and
monitoring virtual storage
machines within a Hitachi
global storage virtualization
environment. Virtual storage machines provide a virtual
abstraction of physical storage system
resources within a single Hitachi Virtual
Storage Platform G1000 system or a global-
active device across multiple systems that
may be located up to 100km apart. This
abstraction is seen and managed by attached
servers and hosts as a single device. It
creates an always-on infrastructure that
effectively eliminates availability and workload
limitations associated with single physical
storage system.

Virtual storage machines can be moved
nondisruptively between storage tiers within
or across Virtual Storage Platform G1000
systems as workload demands change.
A nondisruptive data migration1 workflow,
available within Hitachi Command Suite,
empowers users to perform self-service
data migrations that are transparent to the
application. These new levels of availability,
agility and automation help to quickly adapt
your storage infrastructure to rapidly chang-
ing business needs.

Key Hitachi Command Suite
Use Cases
The following are the key use cases Hitachi
Command Suite delivers in establishing
efficient management practices for your
environment.

- Centralized Management: Simplifies
global storage virtualization management
with a common framework for config-
uration, mobility, performance, service
level and replication. By consolidating

1Self-service, nondisruptive data migration is a separately licensed software feature available after initial release. Contact your HDS representative or HDS reseller partner for details regarding availability.
management operations, you can reduce the complexity, costs and risks for your storage investments.

- **Inventory Management:** Combines asset discovery and management across virtualized storage resources to properly administer and deploy growing storage infrastructures.

- **Efficient Storage Provisioning:** Unifies management to consolidate storage provisioning and configuration across all Hitachi storage systems and data types. By simplifying storage provisioning, you can accelerate the deployment of new business applications while reducing the risks associated with manual storage management processes.

- **Business-Aligned Data Mobility:** Maximizes business application performance and return on investment by aligning business applications with defined storage tiers and policies. Define storage tier policies by application workload and move application data to the optimal storage tier.

- **Optimized Tiered Storage:** Automates tiered storage management with self-managed and self-healing storage pools. Based on usage patterns, Hitachi Dynamic Tiering automatically moves active data nondisruptively to the highest performing storage tier while moving less active data to a lower-cost tier.

- **Service Level Management:** Allows centralized management and monitoring of service level requirements for business applications to ensure that mission-critical applications are meeting their required storage service levels.

- **Maximize Storage Performance:** Monitors and analyzes application and storage system performance with wide-ranging performance metrics, ensuring optimal storage system utilization.

### HITACHI COMMAND SUITE SUMMARY

**Benefits**

- **Eliminates management complexity** to accelerate the deployment of new business applications.
- **Reduces storage capital costs** by deploying efficient tiered storage and increases utilization for existing storage assets.
- **Reduces operational costs** by simplifying administration using a common management framework. Unifies and centralizes management across all Hitachi storage systems and data types.
- **Ensures that storage is properly aligned** to business application requirements.
- **Improves business application data access**, availability and performance.
- **Provides comprehensive management** of virtual storage machines for rapid deployment of Hitachi global storage virtualization infrastructures.
- **Accelerates storage provisioning** for new applications while reducing overprovisioning.
- **Ensures customized storage service level requirements** for critical business applications are being met.
- **Allows proper planning** for future capacity needs by analyzing actual storage usage with historical trends.
- **Analyzes all storage-related resources** on the application’s data path to improve utilization and performance while helping to quickly troubleshoot performance bottlenecks.

- **Shared Resource Optimization:** Employs health monitoring and troubleshooting with best practices to quickly resolve storage resource contention, eliminate bottlenecks and efficiently optimize utilization of shared storage resources.

Hitachi Command Suite offers a complete management framework to lower costs and unify management of all data types. With simplified, end-to-end views of your software-defined storage environment, you can maximize the utilization of IT assets and build a Continuous Cloud Infrastructure that is always available, agile and automated. Hitachi Command Suite helps you with the right management practices today and helps you plan for future growth.

**Hitachi Data Systems Global Solution Services**

Hitachi Data Systems Global Solution Services offers market-leading storage consultants, proven methodologies and a comprehensive portfolio of services to help you optimize alignment of storage to your business requirements. Our assessment, planning and design, installation, management and support services leverage Hitachi Command Suite software to help you manage and simplify your management practices.

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**Hitachi Data Systems**

Corporate Headquarters
2845 Lafayette Street
Santa Clara, CA 95050-2639 USA
www.HDS.com community.HDS.com

Regional Contact Information

- **Americas:** +1 408 970 1000 or info@hds.com
- **Europe**, **Middle East and Africa:** +44 (0) 1753 618000 or info.emea@hds.com
- **Asia Pacific:** +65 8319 7900 or hds.marketing.apac@hds.com

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