

How to Deliver Efficient IT to Remote and Cloud Users

Reduce Cost and Complexity at the Edge
and Simplify Cloud Deployments

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How to Deliver Efficient IT to Remote and Cloud Users

Hitachi Data Systems has introduced our newly enhanced edge-to-core solution that offers more flexibility, choice, and ease-of-use, to help you reduce the cost and complexity of delivering IT to remote and cloud users. Improve your cost and operational efficiency with this flexible, simplified, distributed IT architecture.

You'll learn how to:

- Deliver IT to remote and cloud users in the most efficient and flexible way
- Reduce IT cost and complexity
- Simplify and accelerate cloud deployments.



- Market Drivers and Customer Challenges

- Hitachi Data Ingestor Solution Overview

- Use Cases

- Summary and Benefits

Users



- Access all the time
- On-demand capacity
- Ability to restore and recover
- Faster response

Management



- Reduce costs
- Simplify infrastructure
- Faster time to market
- Minimize risk



**Simplified IT
delivery models**



- Disparate islands of information and infrastructure
- Unruly OPEX and CAPEX costs for management and backup
- Lack of content control



- Eliminate backups at remote locations
- Reduce capital costs and management overhead
- Optimize utilization, scale and operations

- Market Drivers and Customer Challenges

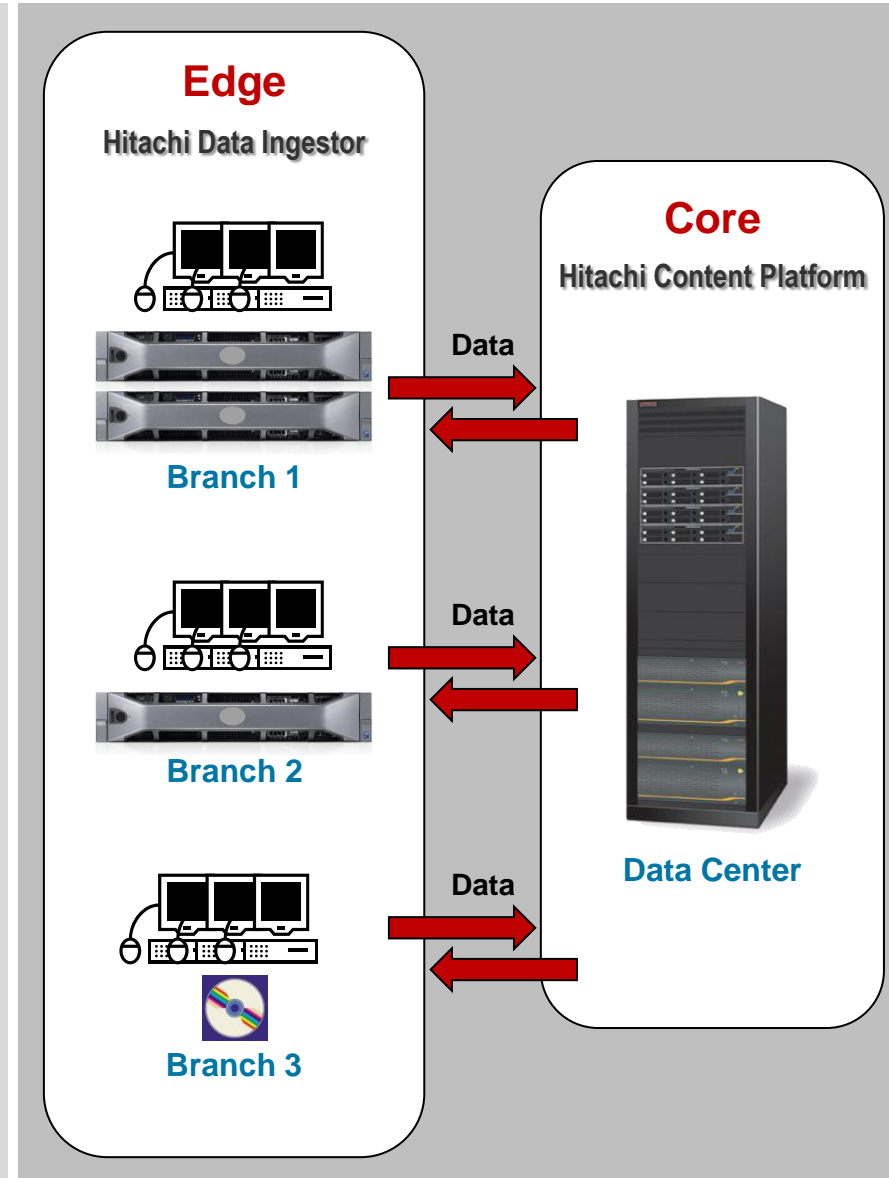


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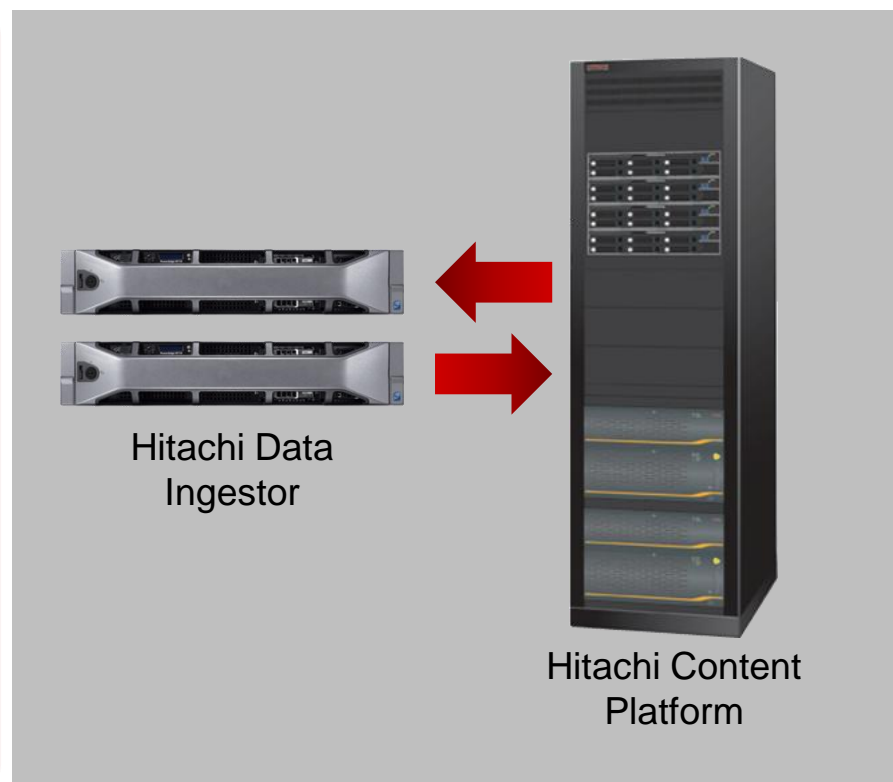
- **An integrated edge-to-core solution:** Greatly reduces the cost and complexity of providing IT services to distributed consumers
 - Remote or branch offices
 - Cloud storage consumers
- **Hitachi Data Ingestor:** A low- footprint appliance that sends data from the edge to a core infrastructure
 - Seemingly bottomless and backup-free
- **Hitachi Content Platform:** A massively scalable, multitenant distributed object store
 - Delivers advanced storage and data management capabilities



- A dedicated on-ramp optimized for Hitachi Content Platform (HCP), an intelligent object store
 - Native file system access (CIFS and NFS) into HCP
 - Tightly integrated with HCP to provide seamless access and a wide range of advanced storage features
 - Up to 400 million files and thousands of users per Hitachi Data Ingestor
 - Up to 100 file systems across the environment
 - Support for leading WAN acceleration solutions

Features

- CIFS and NFS read/write access to a local or remote HCP system
- Migrates data to HCP and maintains a local link to the content
- Supports active directory and LDAP authentication
- Supports HCP tenant and namespace features over CIFS and NFS



- Hitachi Data Ingestor offers three configuration options:
 1. HDI cluster
 2. HDI single node
 3. HDI VMware appliance

1. HDI cluster



- Highly available cluster pair
- SAN-attached to Hitachi storage
 - Supports AMS, VSP, USP V, USP VM
- Standalone or integrated with HCP

2. HDI single node



- Non-redundant configuration
- Internal direct-attached storage
- Deploy in rack or by itself
- Simplified administration

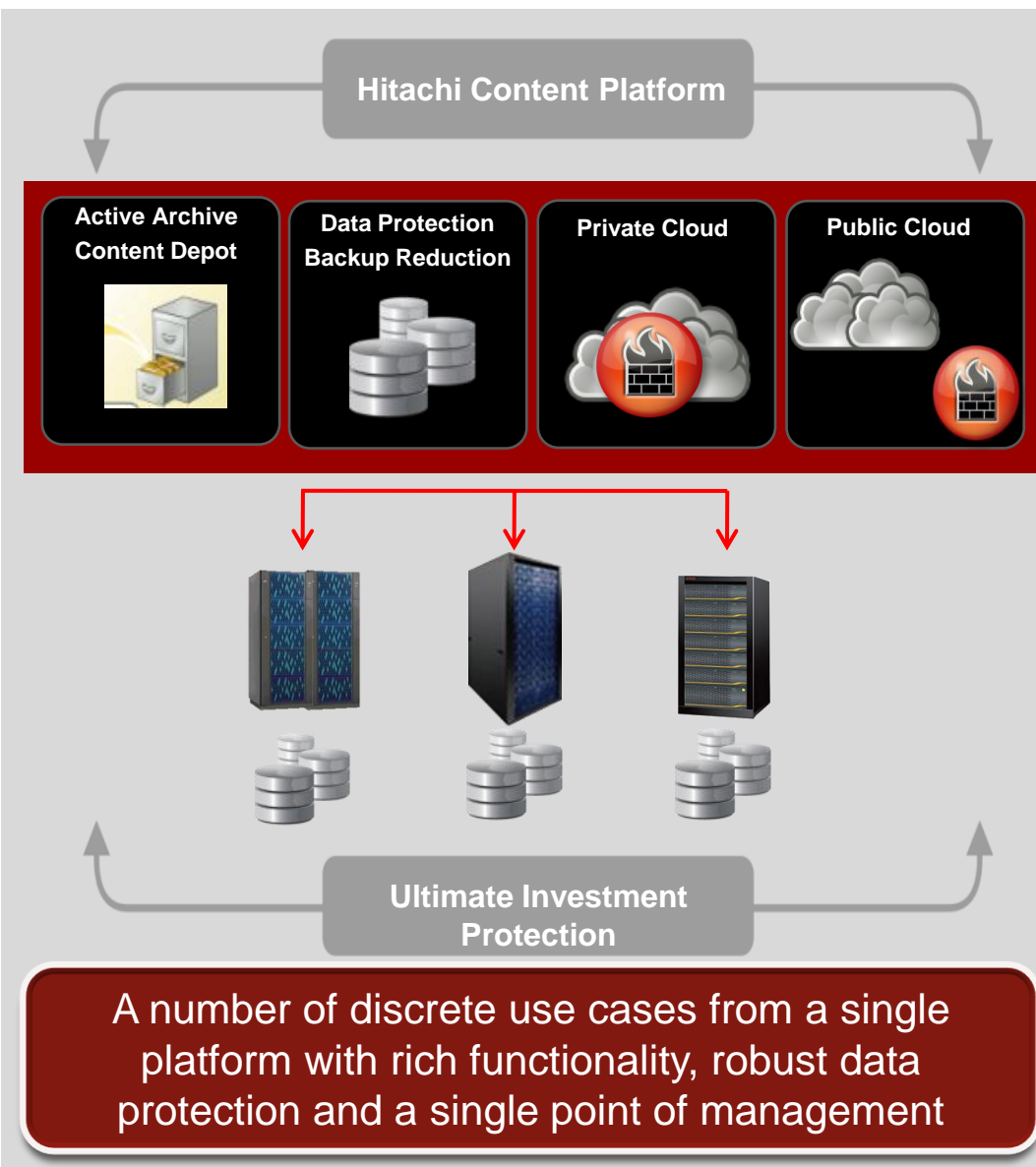
3. HDI VMware appliance



- Deploy on VMware vSphere Hypervisor (ESXi)
- Customer-defined hardware and storage configuration
- Non-redundant configuration
- Simplified administration

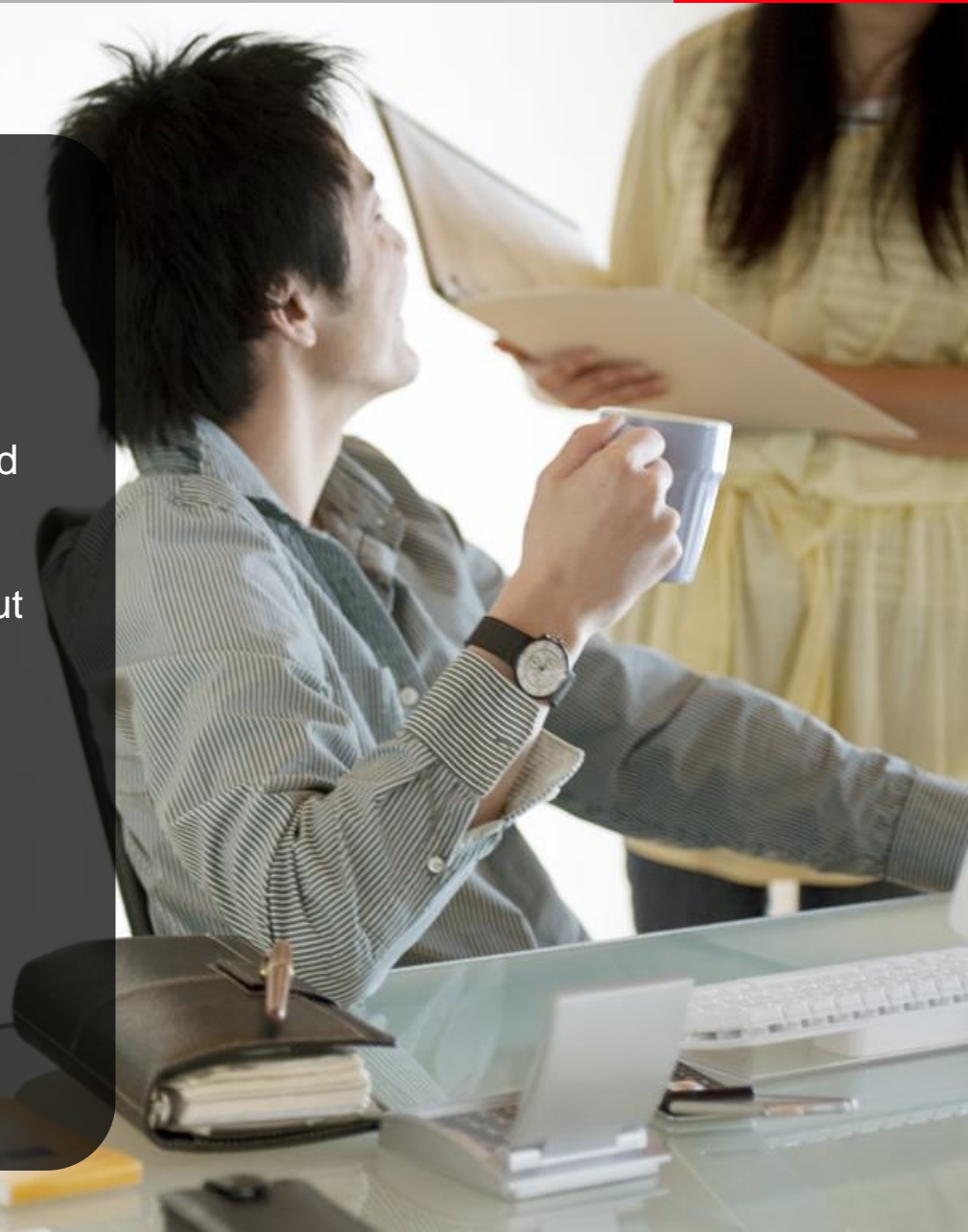
Features

- Up to 40PB of usable capacity in a single physical cluster
 - Multitenant
 - Intelligent objects
 - Chargeback
 - Compression and deduplication
- Security and compliance
 - Encryption of data at rest
 - Authentication
 - WORM
 - Compliance and retention
- Built-in protection, preservation and replication
 - HA architecture
 - Continuous data integrity checking
 - Advanced replication and DR capabilities

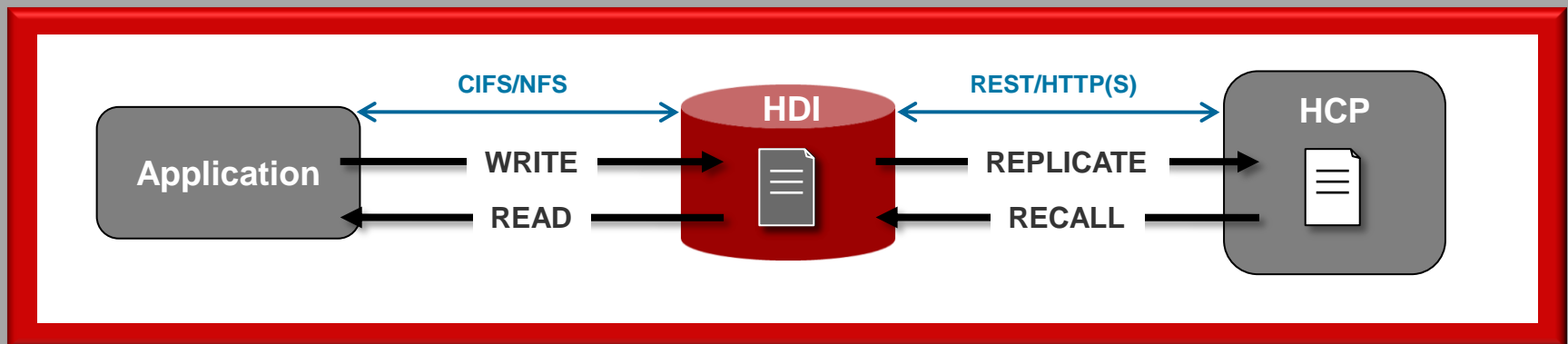


Business Benefits

- Evolve at your own pace with one platform for enterprise and cloud
- Supports a wide range of workloads and adapts to legacy applications
- Share a common pool of storage without compromising security, control or protection
- Measure storage use for chargeback, quota management and accountability
- No need for tape backup
- Readily adapts to changes in the environment



- Application writes a file to HDI
- HDI replicates the file to HCP
- When the system capacity reaches 90%, HDI deletes the files in excess of the threshold and creates 4KB links “stubs” to replace them
 - Users access the files as they always had since links are transparent to clients
- Reading a link recalls the file back into HDI
 - Recalled files are deleted from HDI later and replaced by another link, based on HDI’s system capacity



Features

- Intelligent cache management
 - Identifies and retains newer and most frequently accessed files
 - Cache tuned to edge deployments with WAN connectivity
- Advanced capacity management and high performance

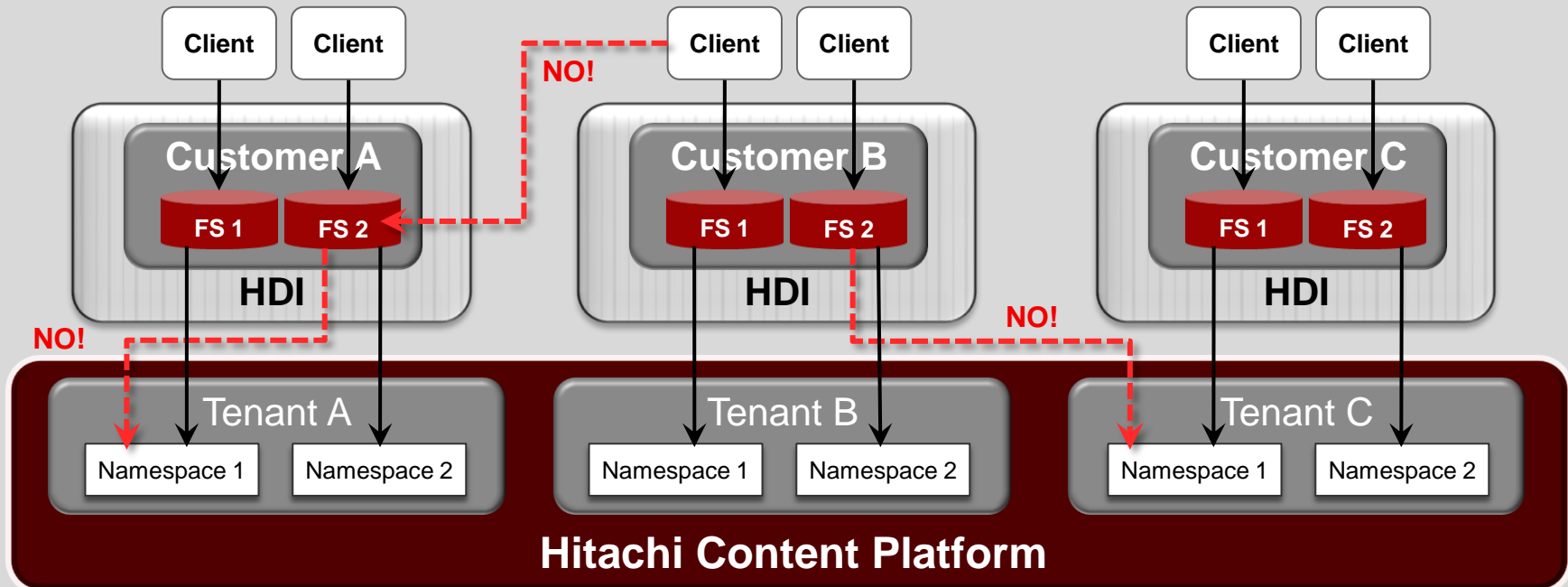
Benefits

- Faster access to frequently used files – active files likely stay on HDI *all the time!*
- Enhanced replication performance
- Maximum capacity utility
- Free up the bandwidth over the WAN

Capability	Method
Stubbing frequency	Files are stubbed every hour
LRU algorithm	Oldest files are purged first, based on atime, ctime, mtime attributes – newer files stay in cache longer
Read cache	Recalled files stay in cache until the next capacity management process

Client Write as Single Namespace

- Enforces end-to-end access control rules and policies



Benefits

- Satisfy multiple applications, varying SLAs, workload types or organizations
- Determine utilization and chargeback per customer
- Enable advanced features at a customer or more granular level
 - Examples: Replication, encryption, DPL levels (how many copies to keep), compliance and retention, compression and versioning

Flexible retention support and WORM functionality using an industry standard a time-based interface and automated settings

- Retention is an optional setting
- Allows you to specify a file's retention date, the file is then protected by strict WORM restrictions
 - While under retention, WORM files cannot be deleted
 - WORM files are immutable, even after retention expires
 - WORM files cannot be renamed.
 - Directories containing WORM files cannot be renamed
- Retention settings are transferred to HCP as the files are migrated.
- Retention can be tunable per file system.
- Support for backup and restore of retention properties

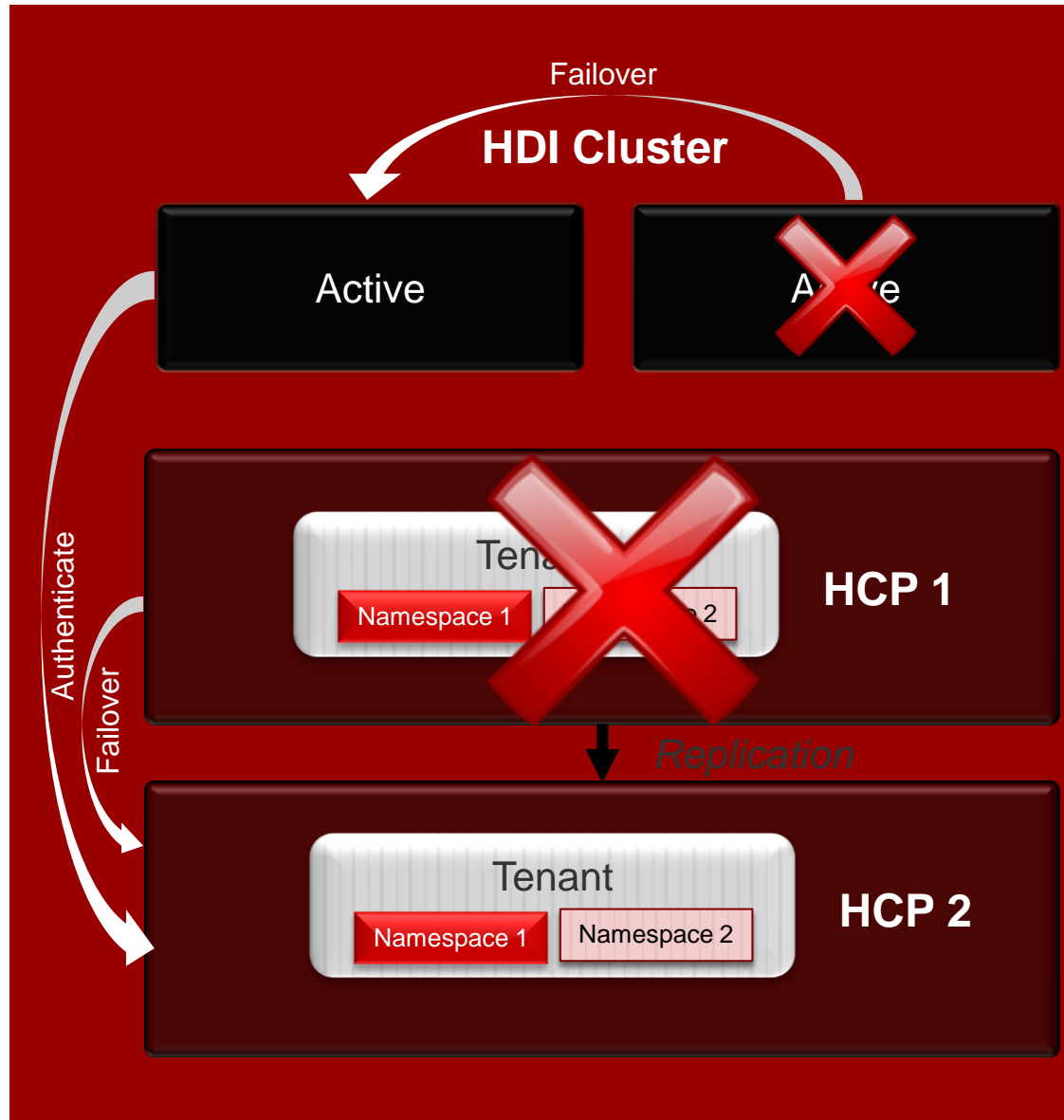


Features

- Both HDI and HCP have high-availability architectures.
 - No single point of failure
 - Active data protection, data integrity monitoring and self-healing
- Disaster Recovery
 - Both have replication and failover capabilities
 - HDI can rebuild its entire view from either a local or remote HCP.

Benefits

- Backups are no longer required.
- Data is protected on multiple levels.



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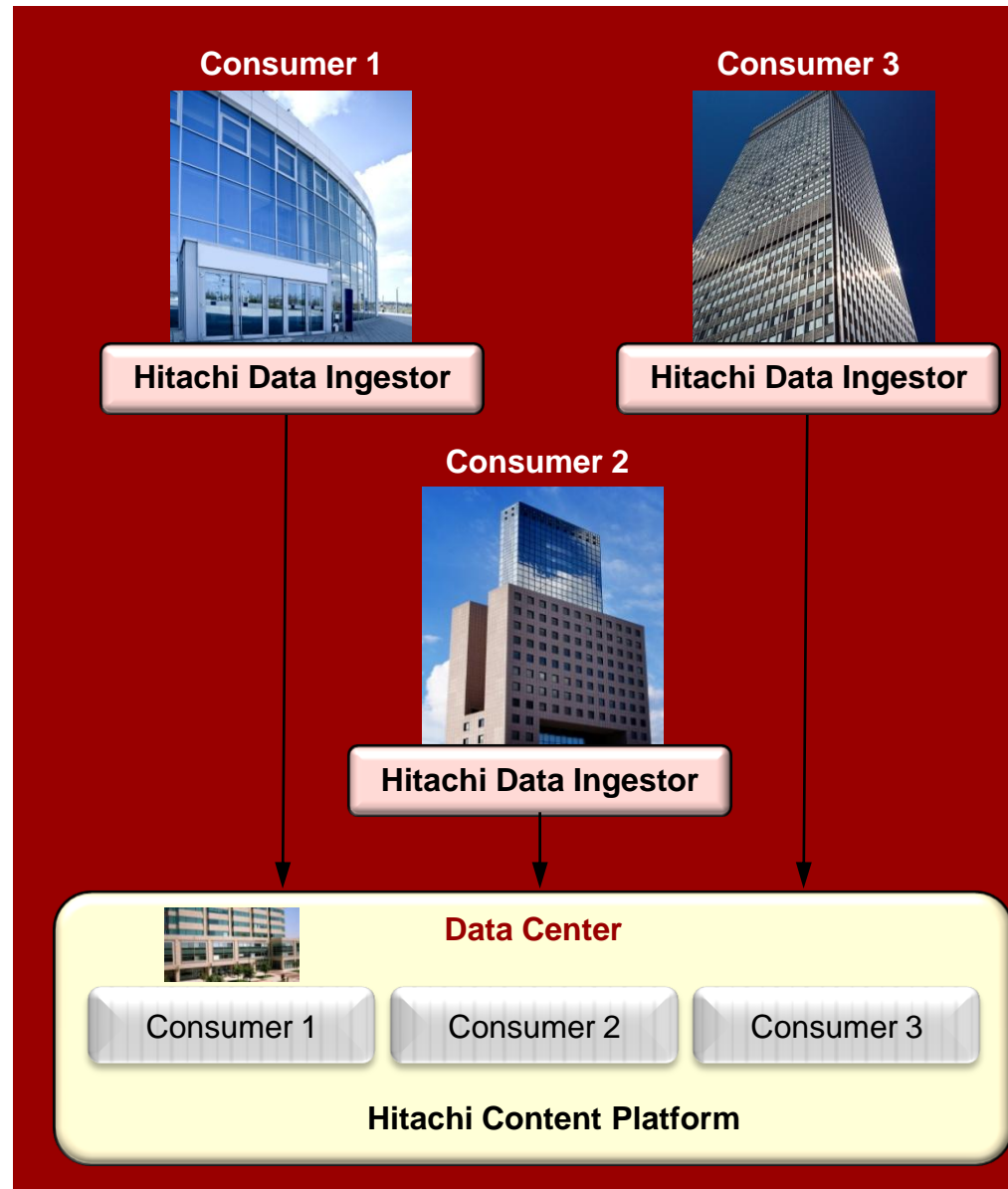
Use Cases: Private Cloud, Distributed Enterprise or Cloud Provider

Features

- Local cache for fast retrieval of frequently accessed content
- Standard on-ramp connecting into a HCP-based cloud
- Supports multiple tenants and namespaces
- AD and LDAP support
- Seemingly bottomless storage

Benefits

- Reduce costs
 - Improved efficiency and utilization
 - Eliminate backups
- Reduce risk
 - Improve content control
 - Compliance and retention
- Improve agility
 - Fast time to value
 - Support on-demand capacity requests
 - Chargeback business units based on consumption or utilization

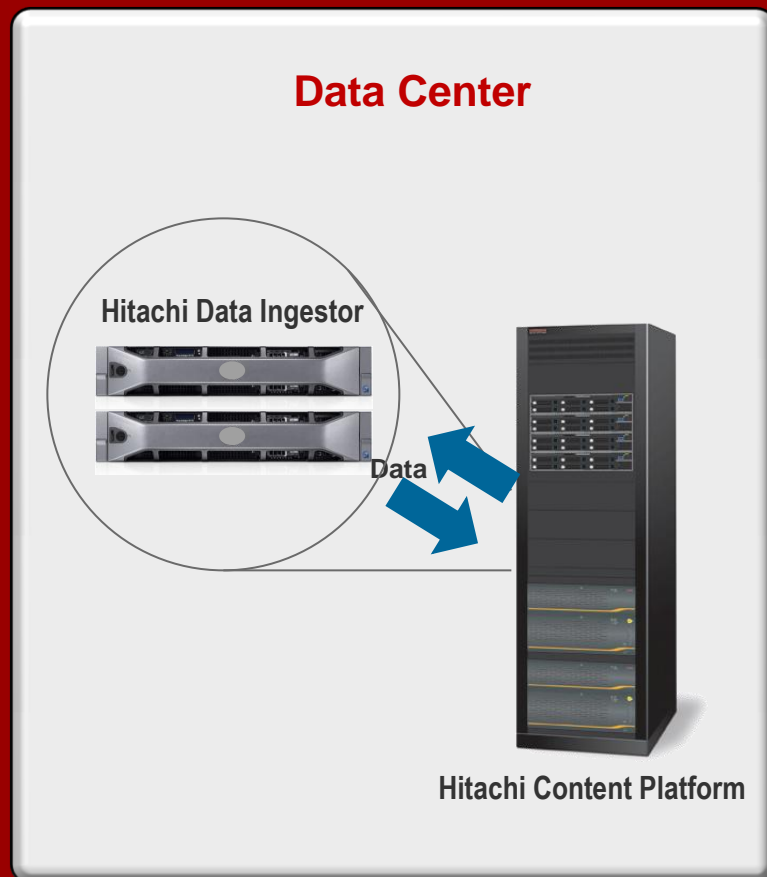


Features

- Provides read/write access to HCP for applications using CIFS/NFS
- Supports full HCP features set
 - Multitenancy and namespace
 - Compliance and retention
 - Data protection and disaster recovery
- Provides native CIFS/NFS access speed

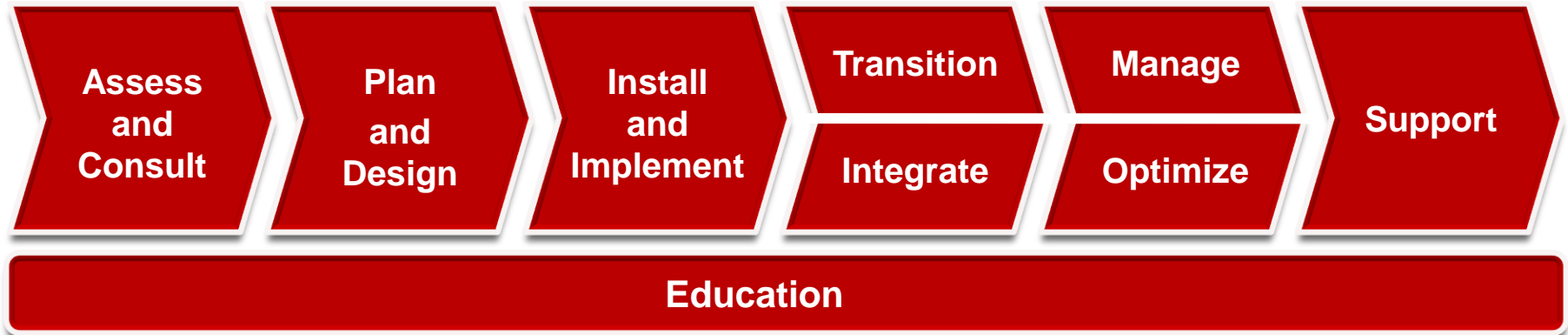
Benefits

- Accelerate application on ramp to HCP for legacy apps not yet integrated with REST/HTTPS
- Extend usefulness of existing applications by providing access to new features
 - Without application rewrites



Services helping with private cloud deployment

- Transformation Services
- Implementation and Integration
- Managed Services



Implementation services for Hitachi Data Ingestor

- Proven methodologies to implement hardware and software according to requirements
- Installs, configures and makes Hitachi Data Ingestor operational with minimal disruption to the customer's environment

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Reduce Costs

- Eliminate backups with a seemingly bottomless edge device
- Improve efficiency and utilization

Simplify IT

- Reduce islands of storage and infrastructure
- Standard connection into the Hitachi Content Platform

Reduce Risk

- Supports compliance and governance capabilities
- Security with AD and LDAP

Streamline Cloud

- Multitenant, multiple namespaces
- Seamless connection into a central core HCP



Questions and Discussion

March

- ***The Six Points of VMware Integration***, March 23, 2011 at 9am PT, 12pm ET
- ***Snapshot-based Backup and Data Protection***, March 30, 2011 at 9am PT, 12pm ET

April

- ***Enterprise Vault adapter for Hitachi Content Platform***, April 13, 2011 at 9am PT, 12pm ET
- ***Data Center Transformation***, April 27, 2011 at 9am PT, 12pm ET

Please check www.hds.com/webtech for:

- Link to the recording, the presentation and Q&A (available next week)
- Schedule and registration for upcoming WebTech sessions

Thank you!