Achieve Secure, Cost-Optimized Data Mobility
A Contemporary Integrated Solution

By Hitachi Data Systems

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Executive Summary

Urgency is the new normal for managing any aspect of data mobility. Organizations today are dealing with how to embrace cloud, big data, a mobilized workforce and the perpetual parade of "next big thing." Then, there is the nonstop onslaught of technologies, devices, access points, data types and business requirements. As data and its mobility grow unrestrained, IT budgets remain static, and the conundrum emerges for how to store and manage it all. Leaps and exabytes beyond that is the idea of how to make data usable, accessible and valuable to benefit the business in new ways.

Being responsible for a company’s technology decisions is one of the most critical, and often thankless, jobs. If things go smoothly, no one notices, but if problems arise, as they often do, IT gets the call. The daily dilemmas are around deciding where to place data for the right reasons at the right price, without second-guessing or expending precious resources. IT must continually reevaluate, well, everything.

Also, there is the quest for answers to persistent questions: how to modernize file servers; how to simplify and manage storage; and how to maintain visibility across the data enterprise, whether inside the firewall or out. There are challenges with bring-your-own-device (BYOD) realities and compliance mandates. Intellectual property and proprietary information must remain secure, stored and cost-effectively managed, while also being accessible in ways that leverage maximum value and productivity. And anything is subject to change. Then, of course, there is cost to consider. How can you gain control of your data in a way that isn’t cost prohibitive to the goals of the organization? Can the same technology that will enable your data to be protected, mobile and flexible also be cost optimized in such a way that it meets the needs of both the business and IT?

Is it really possible to surpass endless day-to-day problems, to halt the reactionary response to every set of unknowns while still keeping costs in line? Good news: IT has a fresh opportunity to be the conduit for garnering new business innovation, secure enterprise mobility and cost optimization.

This paper considers new IT strategies to meet the mobility mindset and support evolving business operations. It examines how the Hitachi Content Platform (HCP) fosters unprecedented levels of flexibility and federation for a mobilized enterprise. It looks at how HCP actually facilitates cost savings opportunities; and how the recently launched S-nodes can deliver a lowered total cost of ownership (TCO). The HCP ecosystem is ideal for maneuvering content wherever it needs to be and when: offsite or on premises, across hybrid cloud tiers, from core to edge and beyond, and all according to data value and policies. At last, IT can confidently champion elastic, intelligent and trusted content mobility for both existing content-rich applications and newer cloud and workload use cases.
Introduction

More. Faster. Better. Safer. Easier. Cheaper. These directives are forming a new technology "liberation movement" as organizations look for the best ways to free their data to be all it can be. Driven by ever-evolving business demands, IT is in a frenzy to stay ahead of massive data growth — and within snug budgets.

From the mass consumerization of IT, the urgency to capitalize on big data, and the proliferation of dynamic cloud and storage options, IT’s challenges are massive. They need a solution that delivers the most mobilized, leverageable data. Forward-thinking business models call for flexible data storage architecture: Simply put, data must be accessible, portable and extremely flexible to succeed at meeting customer needs.

Getting to that level of flexibility calls for the pursuit of supreme visibility and control across the data enterprise, behind firewalls and beyond. Data and storage platforms need to support legacy as well as modern business strategies and capture fresh insights from information for competitive advantage. Gaining greater cost efficiencies and data competencies is vital at every step.

Assess Contemporary Challenges

IT organizations of all sizes and across endless industries share the common challenge of capitalizing on their stored data. Every day, IT is besieged with how to address relentless data growth, how best to support applications and manage storage, and how to meet incoming and expanding business requirements. These issues often seem insurmountable.

Harness Rampant Data Growth and Costs

An obvious challenge is to harness unabated data growth cost-effectively. How to accomplish this is not always so clear. Organizations are placing intense focus on meeting expectations for anytime, anywhere access on any device. Users want this mobile ubiquity to access the organization’s IT services and collaborate easily.

There is also great momentum around all things big data. According to IDC, the churn is only just beginning: Big data of the near future will target the Internet of Things (IOT), with machine-to-machine (M2M) communications. In fact, IDC predicts that big data will grow at a nearly 30% CAGR through 2017 at a growth rate six times that of the overall information and communication technology market¹.

Because organizations are storing massive amounts of device and application data, the corresponding costs and complexities continue to rise. Even if data were consolidated and virtualized, IT departments would agree it is impractical and pricey to keep all the data on primary storage platforms.

Flexibly scaling tiers of storage according to the business value of data can go a long way in deterring costs while meeting demands. For organizations attentive to affecting real change in and beyond data center walls, data must be managed in the most elastic and economical way. This will be the precursor for succeeding in the looming colossal data race.

Tap Overlooked Sources of Business Insight

Everyone loves the potential of unstructured content, often the largest untapped source of business insight (see Figure 1). To glean more from social media applications and new content sources for sales, marketing or development purposes is very enticing. Data once overlooked and ignored can now be repurposed for analyzing everything from consumer buying patterns to how to deliver better results in real time.

For many organizations, however, this promising hoard of data is scattered across application and storage siloes, and therefore, difficult to retrieve and coalesce. In some cases, data was stored for the sake of being stored.

Figure 1. Mobilize your business to the next level with cloud, big data, mobile, and software defined storage and derive value from yet untapped unstructured content.

Being able to break down the silos and free untapped data assets will be critical to creating better business value. IT infrastructure must be up and delivering value 24 hours a day. And, because data grows much faster than IT budgets, IT will be looking for supreme agility to manage resource allocation cost effectively.

Consider Modern Cloud Choices

The abundance of cloud solutions available today is impressive. Cloud models have matured, more providers are in the market, security measures are better, and so are pricing options. With the pressure placed on IT to save money and reduce resource requirements, many businesses have opted for varying types and amounts of third-party cloud participation.

Private cloud refers to an organization’s internal data centers managing the service delivery, whereas public cloud is made available via pay-as-you-go pricing or utility computing. Hybrid cloud allows organizations to control and manage data in their own private cloud while using public cloud-based services for rapid scale of on-demand capacity.

The trend gaining foothold is how to accommodate the right blend of cloud deployments to simplify data access and mobility while balancing potential risks. Additionally, IT must meet the sometimes competing demands of accessibility, services and security. Organizations want to take advantage of cloud in their own ways to meet unique business needs. These diverse approaches require flexibility to move data automatically, based on policy, while retaining control and visibility. For some, it means storing content among tiers of on-site storage or across private and public clouds.
Balance Different Data Protection Requirements

As they decide where to put data, organizations need to understand fully how best to protect it (see Figure 2). Not all data carries the same business value or requirements. Ensuring that data protection is appropriated correctly makes both technical and economic sense.

Protecting all of the organization’s data requires a keen sense of the importance and usage for each data subset or category. Only then will IT be equipped to choose and deploy data protection strategies based on those data types. Having a full suite of data protection measures is critical to ensure compliance, accessibility and an inherent flexibility for long-term retention.

Figure 2. It is important to understand your data protection needs.

Meet More Business and Customer Expectations

The customer is always right and always asking for more. Both internal and external customers of IT want better assurance that their data will be available, protected and quickly retrievable. IT professionals want to provide that conduit to success while retaining data governance.

Meeting service level agreements (SLAs) for performance, availability and other critical factors becomes more challenging with the continual need for faster business cycles. Providing new storage-as-a-service (STaaS) dimensions, while important to many organizations, adds to the breadth and burden of meeting a wide variety of expanding expectations.

Organizations must deliver support for new requests and higher levels of service, regardless of budget constraints. Managing more applications on a single storage infrastructure is also necessary to eliminate silos and enable delivery of meaningful services to internal customers. The new mission criticality is finding greater efficiencies, visibility and control across content ecosystems, without creating more data silos or IT complexities.

Impacts of Not Meeting These Challenges

So what is the impact if these heady IT challenges are not met? Addressing the immediate concerns while seeing the bigger pictures and preparing for what needs to be accomplished is daunting. However, dealing with traditional infrastructure and its limitations will simply no longer facilitate the desired outcomes (see Figure 3).

The impacts will be significant for those not able to manage relentless data growth and the demands for ubiquitous data mobility. Costs, complexities and risks will increase, yet the ability to scale the business will not. Additionally, if untapped data sources cannot be mined for new opportunities and insights, the business risks its competitiveness or consumer base.
Figure 3. Traditional infrastructure is limited in handling today’s growth and content mobility demands.

Not deploying the right set of cloud options for the organization’s unique characteristics may be costly. The consequences range from failure to meet data access demands and service requests to facing security breaches and unanticipated or undesirable expenditures.

What about the effects of not meeting data protection challenges or expanding business requirements? Applying one-size-fits-all data protection to the multitude of data subsets and mixed workloads is risky. The impact of not being able to apply complete and precise safeguards across different data types strips the organization of its ability to protect data according to its value. Moreover, if IT cannot support new demands from internal and external customers rapidly and adeptly, how can the business move forward with innovative services and faster cycles?

Managing data today, and for many tomorrows, means more than closing the gap between next-generation technologies and legacy platforms. It requires a steady balance between effectively orchestrating the different modes of IT and the limitations of available budget. There must be a better way.

Go Mobile or Go Home

A popular mantra for many athletes is the idea of “go big or go home.” Succeeding in business, as in sports, requires the ability to compete and stay competitive year after year. What you achieve one year will not be good enough the following year.

For organizations motivated to achieve competitive goals and solve difficult business problems, there is no need to go home. Instead, going mobile while optimizing costs is entirely possible. By leveraging the right mix of cloud services, virtualized solutions, remote system configurations and enhanced content distribution, IT can boost efficiencies without compromising control or security across the data enterprise.

The mobile workforce demands access to essential files, information and collaborative efforts. Cloud and mobility implementations can deliver data cost efficiencies, wherever and whenever, and in a way that securely adheres to IT policy-based criteria. Ensuring a wide array of intelligent technology choices will better prepare IT and the business to align and prosper.
The Economist Intelligence Unit surveyed 232 global IT executives in early 2015\(^2\) to explore challenges in implementing cloud technologies. Over half of the companies included in the survey report global annual revenues exceeding US$500 million and use cloud computing services or infrastructure. Figure 4 delineates the top business objectives that survey takers listed for their cloud deployments.

**Figure 4. Why do organizations choose cloud deployments?\(^3\)**

![Figure 4: Why do organizations choose cloud deployments?](image)

**Catalysts to New Value and Better IT**

The catalysts for solving today’s IT angst are not explicitly the must-have capabilities but rather modern architectures that exude flexibilities and efficiencies. Accommodating mobility, big data, analytics and the cloud starts with evolving to agile IT infrastructure that will bridge legacy, provide continuity through transition, and deliver on cost-efficiency goals.

**Software-Defined Storage**

Automation, access and abstraction are the buzzwords for software-defined storage (SDS). In SDS, capabilities of physical elements are delivered via intelligent, policy-driven software to alleviate reliance on specialized hardware while facilitating mobility and reducing costs.

According to IDC, software-defined storage will become the de facto mechanism for designing, delivering and consuming data\(^4\). Providing enterprise-class storage with specialized software and commodity hardware is compelling when it

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delivers storage services, advanced features and management capabilities. Flexibility increases, security remains intact and operations simplify.

Using SDS, IT can leverage servers from any vendor while using existing infrastructure to create an enterprise storage solution. Data centers can scale capacity and performance on demand up or down, incrementally, massively and without interruption. SDS provides the ability to run on any x86 server or server-attached storage device. This means vendor lock-in gives way to the flexibility of choice, plus significant savings of capital and operating expenditures.

SDS surpasses storage virtualization with:
- Automation that reduces the cost of maintaining storage infrastructure.
- Standard interfaces or APIs to manage, provision and maintain storage devices and services.
- Virtualized data paths for block, file and object data to support applications written to these interfaces.
- Scalability to scale storage infrastructure seamlessly without disrupting availability or performance specifications.
- Transparency to monitor and manage storage consumption against available resources and costs.

Bottom line? SDS represents an industry evolution by changing how storage will be managed and deployed moving forward.

Hybrid Cloud

Essential to mobility is making sure that the right data is in the right place at the right time and at the right price. Many organizations are looking at hybrid cloud functionality in their overall mobility approach for this very reason (see Figure 5). Hybrid cloud allows IT to adapt readily to immediate needs by tiering, or bursting, data to the location of choice with the elasticity and frugality of public cloud.

Figure 5. Organizations find data mobility and other benefits they are looking for in hybrid cloud.

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5 [http://www.snia.org/sds](http://www.snia.org/sds)
The appeal of public cloud is being able to manage more storage with fewer resources and lower entry costs. Likewise, public cloud provides an easy way to scale on demand for capacity. But, public cloud has its share of risks. According to a recent survey of firms using cloud services6, technical failures were more likely for those using public cloud than private cloud. Among respondents who experienced failure by their public cloud service, the biggest issues were significant outages, failure to integrate with existing systems and data breaches. While robust SLAs and reputable providers can go a long way in minimizing these concerns, some organizations are reticent to let sensitive data reside in public cloud.

Hybrid cloud can provide that elusive balance of nimbleness and protection while equipping IT to make better business-defined decisions about where data should reside. If the answer is on-site, hybrid cloud can deliver a software-defined, deep storage tier with cloud-comparable pricing and all of the security and control of a storage solution residing behind the firewall. Data movement remains encrypted and policy-adherent while providing organizations with more choices for cost-optimized tiering.

Flexible Content Mobility

Another catalyst for change is planning for content mobility. Before orchestrating a strategy, IT must know where the data resides, who has touched it, and how it is being used. Next, it is critical to understand business requirements and future goals. This helps IT determine what content stays on-site versus off-site, and when, according to policies and data value.

A flexible content mobility blueprint should define how data would travel securely and seamlessly across the diverse array of end points without compromising visibility or control (see Figure 6). The blueprint will need to scale to the volume and diversity of applications and users, and beyond. Its technologies and architectures should ensure relevancy and efficiency over time.

Figure 6. Create a flexible content mobility blueprint that considers performance, risk and profitability.

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Agility is paramount to meeting these varied and continually morphing demands. It means first finding the right combination of hybrid cloud usage, and, then, being able to rebalance the mixture as business conditions change. By tiering to a well-thought-out composite of storage options, IT can reduce the total cost of ownership (TCO) while maximizing data security. Choosing technologies that unify management across all data types and virtualized or software-defined ecosystems empowers workers to be more productive without the security issues of random public sync-and-share tools. Providing broad protocol support makes it easier for all data to reside in a single integrated environment and to add new applications or services over time.

For more prescriptive ways to build your mobility model, Hitachi offers a checklist for content mobility readiness and a list of questions to ask potential vendors. See more at Readiness Checklist and Vendor Checklist.

Hitachi Data Systems Is at the Forefront

In the global business environment, data growth and subsequent IT complexity are relentless. Organizations want technology partners who understand how to streamline and solve barriers to nimble data mobility for competitive advantage. Hitachi Data Systems is proven as a trusted technology partner, actively engaged in connecting what works today with what comes next.

Unique and unlike other storage or technology vendors, Hitachi Data Systems collaborates with sister companies under the Hitachi Limited umbrella to understand how their systems work and how they use information. Across healthcare, transportation, logistics and other industries, Hitachi Data Systems works to sculpt holistic business-defined mobility solutions that meet the needs of consumers everywhere.

“Hitachi Data Systems is rapidly evolving to become more than just a storage company. They’re smartly driving better business and societal outcomes for their customers through the expansion of expertise and offerings that integrate the Internet of Things, operational technology, and machine-to-machine and data analytics.”

—Vernon Turner, SVP, Enterprise Systems, and IDC Fellow for the Internet of Things

The Vehicles of Change for Trusted Content Mobility

The Hitachi Content Platform (HCP) portfolio exemplifies enterprise content mobility at its best (see Figure 7). As IT becomes more aligned with and driven by business goals, so do the architectures and technologies in the data center. The HCP portfolio quickly simplifies the leap to mobilizing content across devices, locations, apps and storage resources for dedicated, shared or on premises environments, while maintaining a single point of control and visibility.
Figure 7. Hitachi Content Platform simplifies content mobilization.

Primed for future requirements and new data patterns, this unique and tightly integrated combination of Hitachi technologies includes powerful REST-based and S3-compatible interfaces, and support for NFS, CIFS, HTTP, SMTP and WebDAV protocols. Advanced metadata query and discovery functionality is built in and ready for enterprising organizations seeking more insight from their data.

Hitachi Content Platform

Ideally suited for private, public and hybrid cloud environments, HCP is at the core of this powerful integrated portfolio. HCP can transform for the future while protecting existing investments by accelerating productivity, delivering business insights and maintaining governance. Peerless in the industry, HCP provides the most tightly integrated and secure architecture for supporting data and cloud mobility goals. It helps to flexibly connect employees, partners and customers to their content from any cloud, device or location.


The modern workforce does not want to be hindered by trying to figure out where their files reside: Workers want to collaborate in the moment, on the fly. HCP allows organizations better visibility and control across devices, clouds and storage tiers for a win-win:

With HCP, IT can champion the desire of users to freely access and move data anywhere, at any time, while simultaneously tampering unbridled data growth and costs.

HCP allows IT to deliver differentiated private, public and hybrid cloud services while lowering costs by as much as 60%. Within this single platform, data can be stored, shared, synchronized, protected, preserved, analyzed and retrieved (see Figure 8. Tiering content to public clouds or on-site storage is transparent, automatic and based on policy, and the metadata remains securely on premises.
HCP orchestrates day-to-day IT operations and promptly evolves with changes in scale, scope, applications and technologies over the life of the data. HCP offers intelligent structure for unstructured data. With high-density, high-efficiency multitenancy storage with boundless backup and scalability, HCP brings together progressive tools for optimizing massive amounts of content.

**Dynamic, Top-to-Bottom, End-to-End Security**

Once a file is saved to HCP, it is protected, compressed, single-instanced, encrypted, and replicated to another HCP repository, thereby eliminating the need to back up the file. If a file is accessed and modified, the file is versioned and both versions of the file are retained by HCP.

HCP makes sensitive data tamper-proof with advanced built-in encryption protocols. In addition, REST audit logs and data protection (DPL) configurations help to ensure the accuracy and integrity of data, objects and metadata. HCP retains data in accordance with retention and disposal policies in a revision-safe, unalterable manner to guarantee authenticity and compliance obligations. A unique digital “fingerprint” of each content object stored prevents alterations to records or overwriting by a new version. This fingerprinting technology is aligned with legal evidentiary requirements.

To satisfy current compliance demands and adapt for the future, HCP leverages robust, automated data retention, destruction, authenticity, access controls, logging, auditing, and discovery. For content that must be preserved for lengthy periods of time, perhaps permanently, HCP mitigates digital obsolescence so records can be accessible and readable in the future. Once disposal is required, the HCP shred function eliminates all traces of a record as well as the recoverability of the record. Every action within HCP is also fully auditable.

**Adaptively Aligned to Business Value**

With its ability to smartly align data to business value, HCP grants the IT team another opportunity to shine. By brokering the best hybrid cloud options for the organization, IT can retain ownership and visibility of what data goes and what data stays, in order to build a scalable, supple solution for multiple goals (see Figure 9).
Figure 9. With HCP, IT easily selects and seamlessly moves data to the appropriate on-site or off-premises storage target.

HCP addresses this requirement with its adaptive cloud tiering functionality. This automated process tiers data to the most appropriate public cloud service or on-premises storage via changes in file metadata. Any changes in file metadata are immediately communicated, before data is tiered to the appropriate cloud or storage. Applications can then store data, create and view directories, view and retrieve objects or files and their metadata, modify metadata and delete objects. In these ways, IT is able to manage the data intelligently, in an automated way, and according to business value and policies.

The Nodes of Operation

HCP provides IT with an exciting opportunity to uniquely customize object storage according to what matters: customer workloads, costs, capacity demands and other critical attributes. Transforming the organization to new IT paradigms, technologies and access models is not possible without a flexible architecture that supports the multitude of applications and fluctuating business requirements. HCP architecture can be mixed and matched for the best service levels that address these requirements.

The building blocks used to construct an HCP cloud are access storage nodes, called G nodes, and economy storage nodes, called S nodes.

G Series Nodes

The HCP G series nodes are access nodes through which all user data passes. G nodes are dedicated servers that run HCP software. Previous HCP model names reflected particular attributes. Loaded with HCP cloud storage software, the G nodes virtualize back-end capacity sourced from block, file or object devices, either public or private. The HCP software then federates capacity from various storage types to create a massive singular pool, which scales to hundreds of petabytes while providing all the replication, protection, compliance and data integrity services.

Without delving into the speeds and feeds, the valuable takeaways regarding G nodes are outstanding performance, scalability and flexibility. The latest model, HCP G10, provides the same capabilities to HCP clusters, whether built with local storage or SAN storage and start above the entry configuration level.
Local storage G nodes offer twice the CPU and DRAM, twice the local storage and a buy-only-what-you-need capacity license. The G10 node with SAN storage is designed to save significant dollars with exclusive optimization features and extensively scalable configurations. The G10 node also includes a solid-state drive (SSD) acceleration option to boost performance when nodes are operating at maximum levels for high-density workloads.

**S Series Nodes**

Massive scale requirements can be met with the HCP S Series nodes (see Figure 10). The S nodes are plug-and-play economy storage nodes that augment hybrid cloud environments with cost-optimized, high-density storage tiers on premises. The HCP S nodes combine enterprise HCP software with commodity hardware to deliver more scale, more data protection and less expense than any other available options.

**Figure 10. HCP S series nodes meet massive scale requirements.**

The S series nodes are cost-optimized storage for HCP.

- **HCP Portfolio Product**
  - Highly scalable

- **Configuration Flexibility**
  - Node options map to scalability needs
  - Adaptive cloud tiering enabled

- **Erasure Coding**
  - Data protection for large data sets
  - Fast rebuilds

- **Commodity Disk**
  - Cost-optimized storage
  - Software-defined value

S nodes deliver erasure coding (EC) data protection, which means fast rebuilds and rapid recovery for large data sets at lowest costs. Using HCP adaptive cloud tiering, content can be automatically moved to S nodes as easily as to public or other cloud tiers. S nodes allow IT to maintain full visibility and control into on-site tiers. The newly available S30 node is highly scalable, supports SSD drives, and provides extensive networking flexibility. The important takeaway here is the enormous and cost-efficient expansion potential of S nodes for cloud.

**HCP Line Card**

For more details on HCP and node specifications, refer to the line card included in the [Hitachi Content Platform datasheet](https://example.com/datasheet).
“For us to truly unlock the value of software-defined storage, the chosen technology must simplify operations through automation, drive insight for more flexible and robust access to data and create agility through abstraction by making fixed resources flexible. Hitachi offers a portfolio to take our goal of a software-defined infrastructure a reality.”
— Darius Harris, Senior IT Manager, Nedbank, South Africa

Hitachi Content Platform Anywhere

Mobility is the new normal. With approximately 30% of corporate data residing on laptops and mobile devices, it is no wonder that IT is continually in risk-abatement mode, trying to mitigate the unintended consequences of BYOD, third-party devices and ad hoc mobility. This anything-goes approach to data access quickly spirals into inefficient capital expenses and not enough oversight.

Hitachi Content Platform Anywhere (HCP Anywhere) is all about freeing data to move where it needs to be and when. Unlike competitors such as Dropbox, Box and Citrix, HCP Anywhere is a fully integrated content mobility solution designed for enterprise IT. The difference here is that access to business data is continuous, but it is also right-sized, simplified and optimized: Capital and operating expenses are more balanced for lower TCO. Helping to optimize savings for the long term, HCP Anywhere is infused with smart self-service features and effective ways to manage and store data, plus monthly subscription costs in line with consumer-grade services pricing. (See Figure 11.) IT regains investment protection while alleviating barriers between legacy NAS environments and next-gen file services.

Figure 11. HCP Anywhere allows continuous access to data and lowers TCO.
To mobilize the workforce with secure collaboration while simultaneously minimizing risks, IT must be equipped with the right tools. HCP Anywhere helps diminish the risks of shadow IT and unsanctioned application use with a secure, protected private cloud solution at a cost comparable to public cloud services. The organization’s information is securely and readily available from any device, while files remain inside HCP. Employees are now empowered with intuitive mobility tools and secure unified access to both cloud and enterprise data. In turn, productivity and competitiveness flourish. Instead of creating and sending new copies of content, hyperlinks are used to share files. This greatly reduces the amount of duplicate data in storage, email and content management systems. Rather than clogging the network with file transfers, HCP Anywhere streamlines sync-and-share collaboration across personal computers, mobile phones and any web-enabled device through the HCP Anywhere user portal.

**Hitachi Data Ingestor**

At this juncture, what could be better than bottomless, backup-free storage from the cloud? Hitachi Data Ingestor (HDI) offers a secure file-based gateway to the cloud (see Figure 12). It operates as a caching device to provide remote users and applications with seemingly endless storage. Using HCP connections across on-site storage and off-site cloud services, HDS is able to deliver nimble end-to-end scalability of file storage.

**Figure 12. Hitachi Data Ingestor provides a secure, file-based gateway to the cloud.**

Whether moving data to the cloud or meeting file requests at remote office locations, HDI can be configured, provisioned and managed from a single interface and remotely by HCP Anywhere. IT can support users without recoding or disruptive changes. HDI replaces over- or under-provisioned file servers and inefficiencies with right-sized, simplified and optimized gateways. Files written to HDI are replicated over HTTPS to HCP. When files stored locally exceed a certain capacity threshold, they are stubbed out to HCP and the result is a bottomless filer that does not require backup. Considering that the annual spend on traditional file backup has been tallied at an average of US$1.34 million per petabyte per year (US$1.34M/PB/Year), HDI offers an expedient, savvy way to save money.
Tomorrow’s NAS ecosystem forecasts a typical balance of 30% traditional NAS and 70% object NAS. Using the HDI and HCP environment to benefit from bottomless, self-protecting, deduping and highly efficient characteristics, the overall economic improvement can be significant long into the future.

Examine Economic Benefits

The Hitachi Content Platform portfolio allows organizations to work smarter, not harder, to provide sweeping mobility, flexibility, security and cost optimization across an enterprise framework. Let’s take a closer look at the economic benefits of these Hitachi Content Platform solutions.

Cost Efficiency Gains

The HCP portfolio helps the business better understand its data, move it to the right tiers for the right reasons, and perform analysis, search and queries, all from a single management point. The efficiency factor seems obvious: pooled resources, centralized management and plug-and-play options.

Tally TCO

Digging deeper, the efficiency gains include lower TCO and improved profitability. Consolidated, organized and virtualized content, plus fewer siloed environments, quickly dwindle cost inefficiencies, improving both capital and operating expenditures (capex and opex) (see Figure 13). In fact, 90% of surveyed IT organizations responded that they are satisfied with the TCO provided by HCP7.

Figure 13. Hitachi Content Platform portfolio helps to lower TCO and improve profitability.

ROBO = remote office and back office

HCP also facilitates cost-deferment opportunities. Companies using HCP were polled with regard to the amount of capex on higher tiered storage upgrades, expansion or net new platforms they were able to defer with HCP. The average

7 TechValidate ID F08-497-FF9, survey of 42 users of HCP.
response by large enterprises was US$467K in deferment costs. Medium enterprises estimated an average of US$417K. Small businesses realized US$100K in deferment savings⁸.

The adaptive cloud tiering feature works according to data value and policies. It allows HCP to assign what content will sit on primary storage and what is directed to more storage tiers, while keeping performance in balance. Cost-optimized S nodes also help lower TCO for local data storage or as an alternative to public cloud storage.

Nearly 73% of respondents to a recent survey of HCP customers reported “cost reduction” as the key reason for choosing HCP for large data sets. More than 50% of those same respondents listed simplified data management as another key reason⁹.

Why HCP Matters

Using a hybrid architecture based on the HCP portfolio helps align technologies and services to business value. Delivering cost-optimized, software-defined storage, cloud and mobility allows organizations to extend investments, capitalize on smart commodity hardware, and leverage inherent efficiencies. Now organizations can shift their focus from cost reduction to strategically preparing for business growth.

Modern Security and Compliancy

The HCP portfolio delivers a complete and cohesive suite for cost-effectively meeting regulatory mandates and adhering to data retention policies. Organizations must be able to holistically mitigate information and compliance risks around disclosure, security, retention and disposal across all data formats (see Figure 14). Cloud compliance is also critical, whether located off premises or on-site.

Figure 14. HCP portfolio delivers modern security and compliancy that organizations need.

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⁸ Tech Validate ID EA2-130-9D4, survey of users of HCP.
⁹ TechValidate ID BBF-649-2A5, survey sample of IT organizations with between approximately 1PB to over 5PB.
Meet Mandates

HCP provides the security requirements for all industries to meet compliance obligations, and protect documents that are private, confidential, secret, critical or otherwise privileged. HCP was also independently tested and evaluated for compliance of Security and Exchange Commission’s (SEC) Rule 17a-4(f) and of the Financial Industry Regulatory Authority (FINRA) Rule 4511. These rules govern storage-related requirements for the retention of electronic records, books, format and media for SEC and FINRA members, brokers and dealers.

The integrity and authenticity of data stored on HCP is guaranteed. A recent survey of IT organizations using HCP revealed 93% of respondents were satisfied with its security measures for regulatory compliance.

What are the cost benefits of HCP’s highly flexible architecture capable with regard to meeting rigorous regulations?

- Avoidance of hefty fines, lawsuits and damage to the business reputation.
- Mitigation of cyber risks in the event of attack.
- Acquisition of new capabilities to use content for insight, research, business intelligence and investigation.

Why HCP Matters

Sophisticated, proven and comprehensive security policies and data protection protocols are working at each layer and across the entire HCP portfolio to defend data access internally and externally without sacrificing control, visibility or mobility. This approach helps to ensure that valuable information is safeguarded wherever it resides, whether in public or private clouds, on devices or across multiple tenants, and always with full data integrity and compliance.

Business Innovation and Productivity

We are in the age of instant innovation. One of the most important benefits of having a flexible architecture is to readily adapt to business changes and innovate as an organization. When raw data is pooled and accessible, it becomes more worthwhile to the business. By grooming the data into usable information, the organization can make better decisions and speed time to value.

Flex for Change

Over 80% of Fortune Global 100 companies are using Hitachi solutions and services to develop data into information for use in innovations. The HCP portfolio amplifies the company’s opportunities to quickly transform to whatever needs to happen for the business. Using a common platform supports superior cost optimization across multiple use cases, eliminates silos and improves manageability and security from a single point of control. With all the choices and flexibility

“Hitachi Content Platform gives us the ability to offer new services to our clients that have rigorous compliance needs.”

—IT Director, Fortune 500 Professional Services Company

Source: Tech Validate ID 99C-7AE-8C6

11 TechValidate ID 0E7-3EC-618, survey of 42 users of Hitachi Content Platform
12 Innovate With Information —The Role of IT in Social and Business Innovation, Mary Ann Gallo and Douglas Howatt
HCP enables, organizations are driving down costs while providing new capabilities. The European Commission (EC) recently conducted a study on disruptive innovation. The findings included information technology as a key enabler of innovation and responsible for trends in new services, new competitors and new alliances13.

Regarding workplace productivity, the HCP portfolio empowers users to innovate with secure enterprise mobility tools for accessing their data anywhere, anytime, from any device. From an economic perspective, HCP promotes workplace productivity in myriad ways. When employees can more readily find, access and share files using self-service features, they help maximize their own time while reducing the workload of IT staff. In turn, HCP allows IT to create a secure hybrid cloud to control what data is kept in house and what goes to public clouds, including Google, Amazon and Microsoft, based on changes in demand and policy. For example, when staff is not spending time looking for a lost file or driving to a desktop in order to send or receive stored files, customers can be satisfied sooner, sales transactions can be confirmed instantly, and pertinent information can be shared on the fly.

**Why HCP Matters**

The HCP portfolio fosters mobilization of content across multiple HCPs, devices, locations, clouds, applications and storage resources. This agility enables organizations to customize how and where data resides for a highly flexible business model capable of supporting changing requirements, data values, budgets and goals. By mobilizing content across all IP-enabled devices, the HCP portfolio helps businesses extend workforce mobility so employees can accomplish and collaborate with less effort and greater results.

**Case Study: Global Company Saves Big and Bolsters Security**

A global insurance company had an urgent need for on-premises data storage to support a newly created fraud detection service forecasted to identify US$3 million in fraud per month. With an immediate requirement for 60TB and projected storage growth of 2TB per month, the company went in search of a cost-effective solution that would be manageable from its data center, and would integrated with Amazon Web Services Simple Storage Service (AWS S3) to avoid costly recoding and changes to existing storage architecture. Also needed was control of the encryption keys and simplified data management to help mobilize data in the future for long-term storage beyond the firewall. The pricing structure needed to be pay-as-you-go so that the insurance provider could charge individual business units for the fraud detection service and avoid a large upfront capital investment. Hitachi Content Platform provided the tools and capabilities the company needed (see Figure 15).

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13 A study by the European Commission (EC) on disruptive innovation in the European Union (EU) transportation and logistics industry, cited in Innovate With Information —The Role of IT in Social and Business Innovation, Mary Ann Gallo and Douglas Howatt
Figure 15. Hitachi Content Platform helps global company save and supports on-site fraud detection security.

Solution
- On-site Hitachi Content Platform solution.
- Built-in encryption.
- AWS S3 interface to support custom application.
- Leasing option for opex budget.
- Integrated file sync and share.

Results
HCP provided 20% cost savings based on the insurance company’s TCO analysis, along with:
- Efficient application development.
- Full control and visibility.
- Flexible management of data across clouds.

Final Notes
Rather than dealing with do-it-yourself private and hybrid cloud or the sluggish complexities of data and application silos, organizations can choose from the cohesive Hitachi Content Platform portfolio of cloud-enabled, progressive technologies. The HCP portfolio is designed to do the job right, the first time and every time.

Next-generation mobility is essential to achieving longevity in the market, across technologies, and into the unknown. By leveraging a common platform from which to orchestrate data mobility, IT can achieve superior cost optimization across numerous use cases, locations and mobility factors. IT regains its mojo as well as appropriate control and visibility across the morphing enterprise data landscape. And the organization as a whole is able to promote the lasting business values of mobilizing data and people.