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# Securely Manage Content Beyond Data Center Walls: An Integrated Solution for Workforce Mobility and Secure Hybrid Cloud

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## Executive Summary

Today's unstructured data growth, increasing workforce mobility and changing business dynamics are no doubt tomorrow's paradigm shift to an unprecedented data-driven model of commerce. Always on, always changing and growing is the realm of technologies, devices, choices and demands for connecting and collaborating. From cloud and big data to social media and mobile networks, the ways in which technology is consumed seem to be in a perpetual state of evolution.

Businesses that will win in this new mobile, global and technology dependent world require tight alignment with IT and fresh ways of working together to innovate, compete and profit. Getting there means first overcoming the persistent IT challenges that exist even in the more savvy data environments. From rampant growth of unstructured content to emergent bring-your-own-device (BYOD) work cultures and consumerization of IT, the need for pervasive access, visibility, control and efficiencies over data has never been greater. Business and IT must work together in meeting business outcomes, a relationship founded on the principles of Business-Defined IT. One of the pillars of Business-Defined IT is meeting highest levels of productivity through trusted yet flexible mobility of the workforce, the data and cloud. Another is speeding the time to value, to return on investment (ROI) and to market through acute IT economics and efficiencies.

This paper thoroughly examines the current and future pain points most businesses face, along with prescriptive guidance for building a flexible and secure future-ready data mobility strategy. Hitachi Data Systems is at the forefront of designing and delivering Business-Defined IT solutions that accelerate success in the data-driven and mobile leap forward. To help organizations triumph, Hitachi Data Systems introduces a uniquely integrated portfolio capable of supporting pervasive workforce, data and cloud mobility environments for whatever the future may hold.

Mobilizing the business is now practicable with the Hitachi Content Platform portfolio, the industry's first end-to-end, integrated, on-premises enterprise solution for secure file sharing, file synchronization and file services. Read about the benefits of agility, secure access and cost optimization here, in more detail.

# Introduction

The next evolution of IT has already begun: ubiquitous technology. The global frenzy for information, automation and anytime anywhere access means the world is “always on.” Technological phenomena such as cloud services, big data, social media and data mobility are irrevocably changing the way technology is consumed, and how IT organizations must transform to support it all.

**Ever-Increasing Workplace Mobility**

Organizations of all sizes and industries are now calling for a broader spectrum of choice in the technologies necessary to support increasing expectations of tech-savvy customers, line of business owners and employees. Prevalent within that spectrum is workplace mobility, the freedom to work beyond the desk and the desktop, from mobile devices.

Business executives are facing greater pressures to maximize productivity and efficiencies across an often decentralized and changing enterprise. Mobility and social networks present innovative ways to reach new customers and to enable staff to meet the uptick in workload demands. Employees want to easily and readily access and share work files from smart phones, tablets and laptops, regardless of where they might be at any given time. Customers expect the same pervasive levels of access to their data.

A recent study of 600 enterprise businesses cited 95% have employees who rely on personal mobile devices and apps for work. In that same survey, 92% of organizations recognize mobile apps as a way to gain competitive advantage.[1] For many companies, the following seems to be the case: If the content does not exist on the mobile screen, it does not exist at all. Proliferation of mobile devices has powered a higher expectation for work output, resource access and available technologies.

The use of mobile devices and wireless networks is nearly universal across all levels of government as well, from U.S. border patrol and infantrymen in the field to first responders, engineers and aviation and food safety inspectors. A survey of 243 U.S. federal, state and local entities revealed more than 40% of agency employees and 89% of executives rely on mobile devices to perform work-related tasks. More than half of respondents agreed with the statement that “Our agency’s employees cannot do their jobs effectively without using their mobile devices.”[2]

**The Business Dilemma for IT**

So how does all this mobility affect IT? The always-on world is also always changing and the speed of data movement and collaboration are swiftly outpacing the capabilities of most IT organizations to control it. Consumerization of IT is partially responsible, as end-users expect internal IT services to be as good as or better than the external services they receive as personal consumers. While smartphones and tablets were originally marketed to individual consumers, the business appeal of bring your own device (BYOD) strategies in the workplace has never been greater. BYOD enables employees to choose and use various mobile devices for accessing corporate apps and files.

[1] Mobile in Workplace, April 2013, http://blog.newrelic.com/2013/04/18/what-you-need-to-know-about-the-booming-enterprise-apps-industry/

[2] Research Report: Mobile and Wireless, 1105 Public Sector Media Group, October 2012 http://fcw.com/microsites/2012/download-mobile-and-wireless/index.aspx

A serious consequence of IT consumerization is increased risk to the data assets accessed through these mobile devices. CSO, an online magazine specializing in risk and security management, reported a survey citing 83% of IT respondents who listed security concerns as the greatest barrier to enabling employees to use personal devices at work, and the need for trustworthiness of both enterprise and consumer devices.[3]

The dilemma for IT is how to meet the always-on, always-changing business dynamics within budget. At the same time, they strive to maintain data visibility, corporate security and compliance requirements. And they must do so without succumbing to the perils of shadow IT, where users and business units go around IT to get the services they want. How can IT provide seamless, trusted data mobility from the data center to the cloud, across a diverse array of endpoints, ensuring control everywhere data enters, exists and exists in the IT landscape?

## Challenges in the Age of Mobility

Mobility will certainly continue to transform the way all forms of content, applications and services are created, distributed, managed and consumed.[4] Many IT strategists are looking for a better way, a multifaceted yet simple solution capable of meeting business, data and budget requirements while securing the promise of workforce mobility. The idea of a more sustainable state of mobility could considerably boost productivity while lowering operating and capital expenditures (opex and capex). However, extraordinary challenges and potential barriers persist amid rising costs, complexities, risks and changes. The most pressing issues facing IT include:

**Rampant Data Growth**

Rapidly incoming volumes of mostly unstructured data create a nearly insurmountable management challenge. Vastly driven by social media, mobile content and new apps, information growth continues unabated and has no correlations to tight IT budgets. Organizations want greater efficiency and higher services levels, and corporate leaders are looking to turn information into opportunity by exploiting new data sources. IT is left to figure out how to automate and manage rampant data growth while providing accessibility, visibility and control both within and beyond data center walls.

**User Expectations**

Business personnel or end users are frequently on the go and no longer tied to specific offices. Consequently, employees need online access to files at all times. They want more services, more choice. They cannot afford to be “offline.” And they tend to keep digital files forever.

To satisfy the new work culture, data mobility solutions must safeguard data in all formats, all locations, everywhere and anywhere. Mitigating risk and optimizing costs need to balance with advanced features such as self-service portals and business policy alignment.

**Align With Business**

To readily meet the changing needs of lines of business, IT organizations are working to architect solutions that help increase employee productivity, innovation and profitability. IT infrastructure must be capable of streamlining business processes, quickly responding to market trends, and speeding time to market or value. What’s tricky is being able to align with different internal groups to provide customized menus of services for each one. Meeting these challenges means more automated, targeted and effective service delivery, and better business results.

[3] "Consumer device use is growing, but IT and security can't keep up," Joan Goodchild, CSO Online http://www.csoonline.com/article/686087

[4] IDC Mobility Research, 2014

**Need to Manage**

It's no surprise that unstructured data is growing in not only volume, but in variety and velocity. IT is obliged to address all this new data with economic sensibility while attempting to keep control and reduce complications. This puts tremendous pressure on storage purchasing budgets and the reality of preserving inherent proficiencies of primary storage, especially for organizations with thousands of sites or customers.

Applying traditional methods and thinking will not work in the always-on, always-changing and now, always-growing environment. The burden here is for content to be based and placed according to the data's value, whether on-premises or off, in private or public or hybrid clouds. Moving data with the least number of management interfaces and the widest data protection is essential to supporting legacy and modern applications and devices, avoiding security breaches, and scaling to meet demand.

**Ahead of Demand**

Changes in user behaviors and new paradigms for file sharing and collaborating can create real data security challenges. Increasingly remote and mobile workers may be using devices, apps and storage of their own choosing; and in the absence of the right corporate tools, employees and departments will become more self-sufficient in meeting their own information needs. Yet, many readily available apps and services are not necessarily secure or compliant with corporate IT standards. Maintaining visibility and control over the IT environment is paramount.

Getting ahead of demand with trusted mobility strategies and secure, enterprise-worthy file, sync and share services are critical to attaining the agility and protection required for uncompromised, uninterrupted data availability. IT must accommodate more than present-day environments, such as remote, branch or home offices and private cloud. The focus is on how to connect and integrate data centers, remote offices and mobile workers with next-gen technologies, Web 2.0, cloud apps and public cloud in a securely mobile and agile hybrid cloud environment.

**Extend Security to the Cloud**

Enterprise mobility has become one of the most transformative trends. Today, organizations want flexibility to move their data and content to cloud service providers on their own terms, without compromise. However, a general hesitation exists among many IT groups regarding the actual data security of cloud, particularly public cloud services. While public cloud storage services can offer attractive pricing options to balance capex and opex, the task is ensuring security of content that exists behind the firewall into the cloud.

Being able to manage all the elements of hybrid cloud configurations from a single point of control is highly desirable, as is ensuring robust data integrity and performance. If IT can direct and manage what data stays on-site versus off-site, there will be more opportunity to control opex, lessen capex and mitigate security perils.

## Build a Flexible Data Mobility Strategy

Despite the difficulties, organizations must continue to perform and serve customers no matter what. It means that as technology saturates every department and every device, and governs how business gets done, the enterprise as a whole will deeply depend upon the success of IT.

Winning in the market and getting to the next level of enterprise mobility will require the business and IT to determine how best to balance challenges and what the data center of tomorrow will look like. Decision-makers and lines of business heads want support for new applications, consumption models and workplace mobility. And IT is looking for a data environment where everything is possible, infinite, affordable and yet focused. It is at this juncture that Business-Defined IT offers a tangible starting point.

**Business-Defined IT**

Higher service, more touch points and faster results are the goals across commerce and within organizations that want to use data to mobilize the business. As a result, lines of business leaders are rapidly gaining influence over technology purchases to address continually shifting customer and competitive dynamics. A symbiotic relationship between IT and business stakeholders is central to achieving a single, integrated, aligned set of business outcomes.

Shared goals drive IT strategies and technology for the needs of a future-ready business. Business now depends on IT to be a partner and a profit center. IT now aligns technology capabilities to corporate objectives. Business-Defined IT fosters mobility for extreme productivity and demands acute IT efficiency. Business-Defined IT puts an emphasis on achieving a substantially lower total cost of ownership (TCO) with hyper-aligned value. And Business-Defined IT relies on infrastructure that provides continuous services, automated policy-driven service levels, and unprecedented agility, adaptability and access.

Business leaders know the value of turning company data into meaningful information. Business-Defined IT means organizations can diversify and collaborate, exploit new data sources and opportunities, and generate leaner economics and better business insight for competitive advantage. Business-Defined IT applies to corporate IT groups and external IT-as-a-service providers, as well as lines of business.

**Business-Defined Data Mobility**

Building out this foundation is business-defined data mobility, which promotes IT capabilities that accelerate workplace productivity and new ways to grow the business. Business-defined data mobility enables seamless, whenever wherever access to data, applications and resources. Employees and customers who are continuously connected can now collaborate better, faster and easier. They gain productivity without limits.


The key is getting to a higher state of mobility, one that not only improves business output but also lowers costs and risks for convenient on-the-go collaboration. Business-defined data mobility enables trusted dexterity of information for applications, workloads, content — within and between sites, devices and cloud types — all in the name of superior business agility, access and economics. The security of data movement becomes a non-issue as all the safeguards, policies, automation and protections are clarified, initiated and enforced. Data effortlessly moves in and out of the data center with comprehensive IT visibility and control, spanning the life of data from workload to user.

**Understand the Data**

Organizations are looking to crystalize the right data mobility strategy in the best interests of business flexibility, cost efficiency and data security. The next step in this journey is gaining a true understanding of the data.

A flexible mobility framework that will grow with the business requires answers to some difficult questions about the data. Does IT know where all the data is all the time? What data might be putting the organization at risk? How much duplicate data might be getting stored and protected?

Determine what types of data should reside where and how to optimize resources for maximum benefit and minimal disruption to operations. By basing data placement on business value, IT is better equipped to design strategies for distribution and storage. Abstracting data from apps, categorizing and automating with policies, and being able to apply intelligent search factors will all contribute to faster, cleaner access, analysis and insight.

**Hybrid Cloud Choices**

With a clearer picture of its organic data, businesses gain a compelling awareness for what cloud options might be right for their unique work cultures. Designing an open and flexible approach to cloud facilitates more choice in how best to accomplish business goals and promote data mobility.

Whether converting from traditional IT to private cloud or from private to hybrid cloud solutions, each organization wants to protect and scale investments to meet future mobility requirements. Establishing shared security policies, or trust zones, to mitigate cloud service security vulnerabilities will help IT extend control, access and flexibility for data mobility lifecycles. Data stored on-site, for example, can be consolidated and moved based on the value or type, between public cloud services, such as those from Amazon, Google and Microsoft, or tiered elsewhere as access frequency declines or business value changes.

This sort of cloud mobility also means that storage attributes and service level agreements (SLAs) are customizable for each user group or line of business. Evaluating technologies that can best amplify cloud services will be important to ensuring the flexibility in any data mobility strategy.

**Object Storage Relevancy**

The unparalleled data-driven business paradigm means companies will seek more data sources, collect more data, and look to capitalize on data for new insights. Data will likely be stored in a decentralized manner, yet users will want to analyze the data, perhaps even as it is generated. The requisite then will be an on-demand, opex-friendly cloud environment.

Object storage is fast becoming one of the most dynamic technologies capable of supporting ubiquitous technology phenomena. For machine-generated and unstructured data, for mobile and social media, and for cloud, today's object storage platforms have become very relevant in fluid, data-driven environments trying to balance scale, complexity and costs.

The right object storage attributes will empower IT to architect and create best-fit cloud solutions. Important characteristics of object storage solutions to consider include platform capacity and scalability, intelligent data management, broad protocol support, outstanding storage efficiencies and data resilience, and native security features. The potential benefits from object storage are greater business agility and more attractive economics. The keys being dangled are simplicity and integration. The reality is that not all object storage solutions can deliver as they are pure technology plays without complementary solutions that are tightly integrated with the core object store.

## Mobilize the Business With Hitachi Data Systems

At the precipice of data-driven change, organizations want solutions that accelerate success. To help them triumph, Hitachi Data Systems introduces a uniquely integrated portfolio capable of supporting pervasive workforce, data and cloud mobility environments for whatever the future may hold. The Hitachi Content Platform portfolio is the industry's first end-to-end, integrated, enterprise-ready content mobility solution for secure hybrid cloud, file sharing, file synchronization and next generation file services.

**A Glance at the Technologies Involved**

Hitachi technologies come together in a potent combination of enterprise-grade cloud storage, file sync and share, cloud onramp and boundless remote backup. This single-vendor, tightly integrated trifecta supports the requirements of yesterday, today and the future with powerful REST-based and S3-compatible interfaces as well as support for the NFS, SMB, SMTP and WebDAV protocols. The Hitachi Content Platform portfolio quickly simplifies the transition to next-gen file sync and share by cohesively bridging traditional IT and new data patterns. Organizations will be empowered to mobilize

content across multiple devices, locations, apps and storage resources for dedicated, shared or on-premises environments, while maintaining a single point of control and visibility. IT will be able to support diverse use cases without creating silos, and simplify administration by centralizing data management. Users will have advanced, built-in, metadata query and discover capabilities at their fingertips to more quickly and thoroughly glean insight from content.

***Hitachi Content Platform***

Hitachi Content Platform (HCP) is a proven single object storage platform for mobile computing, corporate archiving and cloud enablement. Capable of transparently moving data from and to wherever it needs to be, HCP adeptly orchestrates all levels of service and day-to-day IT operations for content throughout the data life cycle. The latest HCP releases come with highly progressive features, including:

- *OpenStack support.* Adds mature, valuable new features to existing OpenStack deployments.
- *Support for any class of media*. Media types range from flash to enterprise disk, commodity disk, tape, optical and cloud storage services.
- *Global access topology*. Synchronizes content across multiple distributed HCP sites, allowing users and applications to access data from the HCP nearest in proximity for improved collaboration, continuity, performance and availability.
- *Adaptive cloud tiering*. Adapts to changes in file metadata, then automatically tiers corresponding content to the appropriate cloud storage tier for enhancing TCO and security.
- *Customization and mobility*. Supports greater cloud choice and the creation of trust zones via customizable service plans that govern access to data and services.
- *Dual stack support for the IPv4 and IPv6 protocols*. Allows seamless migrations when convenient from today's IPv4 in order to accommodate new devices and virtual private clouds with dedicated address space.

***Hitachi Content Platform Anywhere***

HCP Anywhere software is enterprise-class file sync and share software for use on clients and mobile devices. Here, it teams with Hitachi Content Platform object store to coordinate the storing, sharing, syncing, protection, analytics and retrieval of file data. Fully integrated and on-premises, HCP Anywhere is hardened for the uncontrolled Internet and IT-friendly for easy deployment and device registering, data encryption and passcode enforcement. Users have file sync and share tools that simplify collaboration, such as emailing file links rather than bothering with attachments and erroneous versions. The latest release includes:

- *Access to enterprise data.* Allows data in NAS devices to be accessed from users' mobile devices.
- *Expanded device support*. Provides support for Android, iOS and Microsoft® Windows Phone® in a variety of languages.
- *Expanded platform support.* Enables VMware deployments, Mobile Device Management (MDM) interoperability and, virus scanning.
- *Advanced features.* These include event log, single sign-on, passcodes on shared links, enhanced data protection, link management, deregistration, and selective sync for data in shared folders.
- *Deploy and manage outside the data center.* Integrates with Hitachi Data Ingestor remote server to enable configuration, provision management and monitoring of elastic backup-free file services at remote locations.

## Customer Spotlight: Education Consulting

**CHALLENGE**
Support vast business and data growth with greater mobility, data efficiencies and customer wins.

**HDS SOLUTION**
Hitachi Content Platform Anywhere.
Hitachi Data Ingestor (testing for use at 48-50 remote sites).

**RESULTS**
Standardized file-sync-share mobility for BYOD environment.
Cloud services with granular chargeback and forecasting capabilities.
Effective data storage growth management (70% new growth annually).

"IT needs to be out front, looking at technology, embracing it, and making it available to the users before they figure out unsanctioned ways to get their jobs done with whatever tools they can find. By empowering our users via HCP Anywhere, we've made their lives — and ours — so much easier and productive."
— Perry Larson, Principal Technical Advisor

**Hitachi Data Ingestor**

Hitachi Data Ingestor (HDI) is an integrated cloud file server that delivers low cost, low touch and big results. Ideal for distributed consumers of IT, HDI can be used as a cloud onramp or as an elastic scale, backup-free file server. HDI automatically copies all data to the central HCP, keeping certain files in the local cache for easy access and making all other files accessible via links to the HCP. Time-consuming application recoding and user disruption are alleviated, which help reduce the need for IT resources beyond the data center. The latest release includes:

- *Elastic scalability*. Dynamically grows and shrinks file systems.
- *Enhanced security*. Supports end-to-end encryption at rest on HDI and from the remote site, over virtual private networks (VPNs) or public Internet, all the way back to HCP.
- *Enhanced deployment.* Enables simplified provisioning and management, ease of deployment and implementation, and transparent NAS migration.
- *Content mobility.* Allows roaming of home directories across remote and branch office locations.

**Hitachi Cloud Services**

Hitachi Cloud Services enable organizations to leverage investments and build cloud in the ways that make sense for their business. Built on best practices and proved methodologies, Hitachi Cloud Services include a wide array of onramp certifications and hybrid configuration options to enhance archiving solutions, hosted disaster recovery cloud service, data ingestion, and opportunities for lower TCO.


**It's About Agility**

Always being agile demands one platform for all workloads to accelerate time to value. In the mobile environment, it means content is at the ready whenever and wherever it is needed. Now, IT is able to connect and manage a blend of current and emerging cloud apps and services with a single point of control. And file services located outside the data center are centrally managed with remote server technology to support the mobile workforce without the need for 3rd-party products.

The breadth of services and SLAs can be cataloged and offered to diverse user groups and business goals. Data governance and privacy requirements are automated for both public and private information and lines of business leaders have access to new data sources and analytics for better business insight and innovation.

**It's About Secure Access**

Always having secure access means that content is only where it should be. Now the business can truly be mobilized because IT has visibility and control over data, files, apps and services, regardless where they reside or move. Security policies span onsite, offsite and mobile environments, for multitenancy demands and global requirements. Encryption technologies make sensitive data tamperproof and reduce exposure to data leaks. Complexity and risk decrease, thanks to customizable, automated and enforceable features and integration with existing policies, authentication systems and access controls.

**It's About Cost Optimization**

Always optimizing costs across a data-centric mobile enterprise calls for the acute IT efficiencies and business alignment as with business-defined data mobility. Content is automatically based and placed according to its business value to ensure that data is in the right place at the right time for the right reasons. Intelligent tools simplify data compression, deduplication, bottomless backup and elastic services, to alleviate storage of erroneous or excess content. Support for any class of storage enables data to be on the right storage for the right price at the right time. Tight system integration and centralized data management across cloud environments, remote locations and mobile entities diminish ongoing costs for additional resources. Opex and capex are balanced and the TCO is substantially reduced.

**And a Lot More**

The Hitachi Content Platform portfolio provides  all the critical capabilities necessary for businesses to win in the dynamic new landscape of ubiquitous technology. Hitachi has been recognized by customers[5] and analysts[6] as distinguishable in the market for end-to-end trusted content mobility.

The industry-leading HCP portfolio is a tightly integrated solution for content mobility to empower workforces and maintain visibility and control with an agile hybrid cloud. It is cloud neutral with no lock-in and manages data globally for secure flexibility to stay ahead of cloud and mobility trends. Poised for outstanding efficiency gains and new business innovations, HCP portfolio promotes faster time to value and adaptability to market changes. Organizations can more easily meet compliancy demands with automated data retention policies and a proactive response to storage capacity management. Finding a balanced approach between flexible workplace mobility and corporate control and visibility of the data is now possible.

## Final Notes

The confluence of workplace mobility, cloud offerings, social networks and big data analytics will drive 98% of future IT industry growth over the next 7 years.[7] With a flexible data mobility strategy based on Business-Defined IT and Hitachi Content Platform portfolio, even the most demanding enterprises and organizations of all sizes can improve business agility, stay in control, and gain competitive advantage.

For more information, please visit hds.com.

[5] Users of HCP for highly diverse use cases, including archiving, backup reduction, big data, cloud storage, metadata management, ROBO file services, and file-sync-and-share, TechValidate Survey TVID 7FB-799-873.
[6] IDC has placed Hitachi Data Systems in the Major Players category: IDC MarketScape: Worldwide Object-Based Storage 2013 Vendor Assessment.
[7] Mobile Content, Collaboration & IDC's 3rd IT Platform: The Next Frontier for the Mobile Enterprise.


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