



White Paper

HDS' Holistic Object Storage Offerings can Help Enterprises Beat New-Age Data Management Challenges

Sponsored by: Hitachi Data Systems

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IDC OPINION

We live in an information age where data is at the heart of organizations' digital transformation strategies to provide their customers with enhanced user experiences. But as data volumes grow in an unprecedented manner, organizations are faced with a trio of challenges – managing and leveraging data, keeping IT costs in check, and remaining compliant with the ever stricter data regulations. Realizing that newer challenges have to be tackled with newer IT approaches, IDC is seeing many organizations come out of their comfort zone of using just tried and tested or familiar storage systems.

Object storage is one such technology that is entering a new growth phase. IDC estimates that in 2014, object storage solutions accounted for nearly 46% of the file-and-OBS (FOBS) market in revenue. IDC forecasts it to be a \$28.3 billion market in 2018 with a CAGR of 27%.

By way of their core design principles, object-based storage systems deliver unprecedented scale at reduced complexity and reduced costs over the long term. As businesses move toward petabyte-scale data storage, object storage solutions are emerging as viable alternatives for balancing scale, complexity, and costs. Although object storage technologies have been around for a long time, early object-based solutions were perceived to be cumbersome to deploy and, in some cases, causing a platform lock-in because of their proprietary access mechanisms. IDC also believes that many enterprises hesitated to deploy object storage in their infrastructures because of a lack of standard interfaces and its departure from how traditional SAN and NAS arrays, which were the dominant storage consumption models, are deployed. We have come a long way from that now and the culmination of three key factors is fueling the adoption of object storage:

- **Commercialization of object storage in the Amazon S3 era.** A growing number of organizations are familiar with object storage, its scalability, and cost efficiency features, thanks to public cloud infrastructure services. The market has more or less adopted Amazon S3 and OpenStack Swift as the RESTful access mechanisms for object storage.
- **Need for cost-effective storage as enterprises approach petabyte scale.** Many businesses are quickly moving toward petabyte-scale data storage needs and finding that their existing storage infrastructure is not capable of meeting their robust data management requirements.
- **Object storage becoming enterprise-ready.** Leading suppliers (especially incumbent storage vendors) are focusing on a broader portfolio to go after more buyers. Furthermore, many such suppliers are adopting a dynamic portfolio approach wherein object capabilities would be provided using multiple platforms – both legacy and next-generation platforms.

As incumbent suppliers and newer entrants aggressively expand their object offerings and accelerate innovation to capture the growing market, IDC believes that suppliers with a rich object portfolio to demonstrate how their technologies help businesses meet their new requirements across verticals and use cases such as archiving or cloud storage or data management and analytics will gain a competitive edge.

SITUATION OVERVIEW

IDC estimates that by 2020, the amount of high-value data – that is worth analyzing – will double. But more importantly, we estimate that by 2020 organizations able to analyze and act on relevant data will be able to generate over \$400 billion in productivity benefits over their analytically challenged peers.

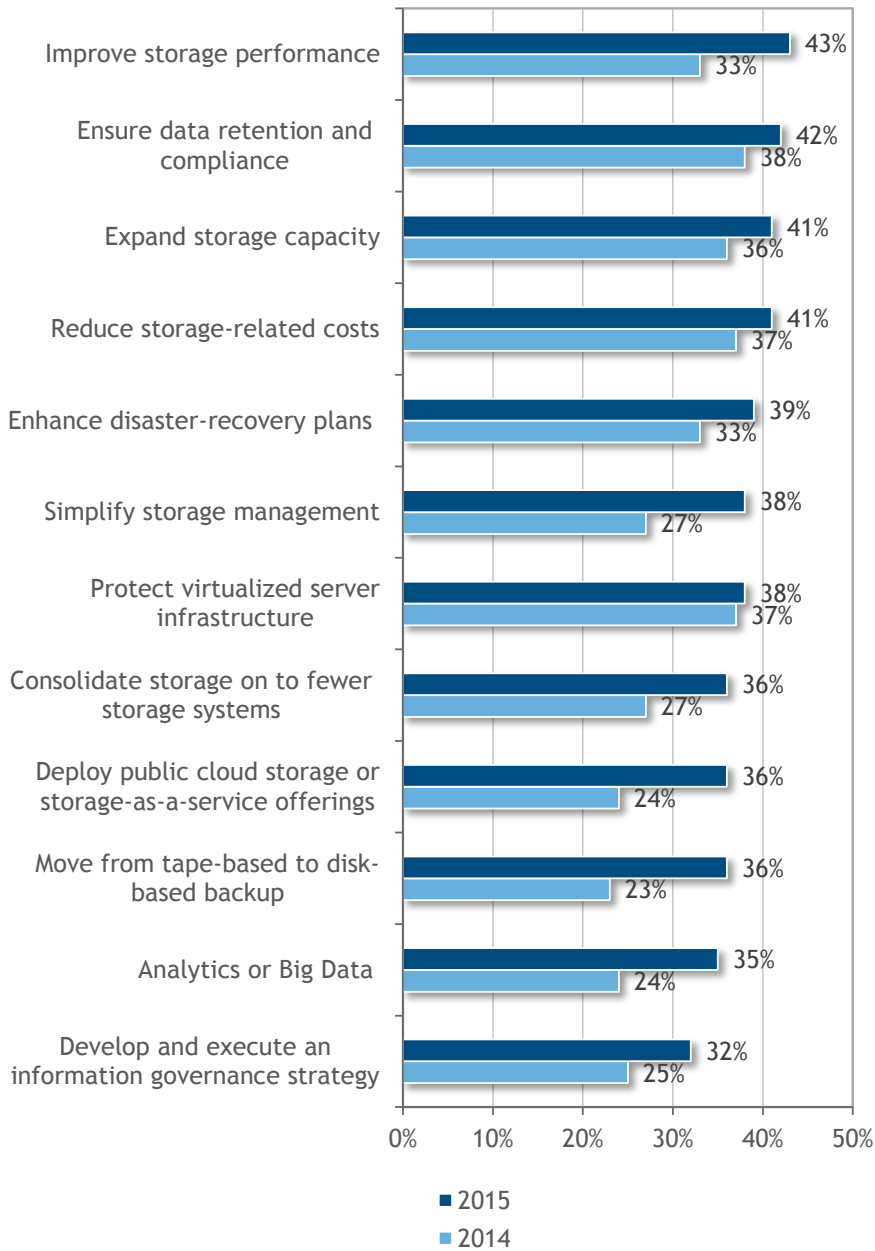
But, in order to tap the potential in the growing volumes of data, particularly unstructured data, organizations need to reevaluate their existing data management technologies and strategies that are not fit for the dynamic and complex requirements of data and applications in the 3rd Platform era defined by cloud, mobility, social business, and Big Data. Organizations need to adopt scalable storage technologies, consolidate data silos, and deploy next-generation data management solutions to meaningfully analyze data for business insights.

Newer deployment and delivery models such as online (cloud-based) content delivery, digital archiving, and continual reanalysis (Big Data) continue to define the object storage market.

As is evident from IDC's 2015 storage manager survey (see Figure 1), organizations' challenges around storage performance, cost, capacity, protection, and consolidation are not going away. But crucially, a greater focus on Big Data and analytics, data governance, backup, and cloud storage demonstrates where organizations are really feeling the pinch today when compared to a year ago. The study also reveals how the top applications driving storage spend are backup and recovery, data governance, archiving, and disaster recovery.

FIGURE 1

Organizations' Storage Priorities for 2015 and Beyond

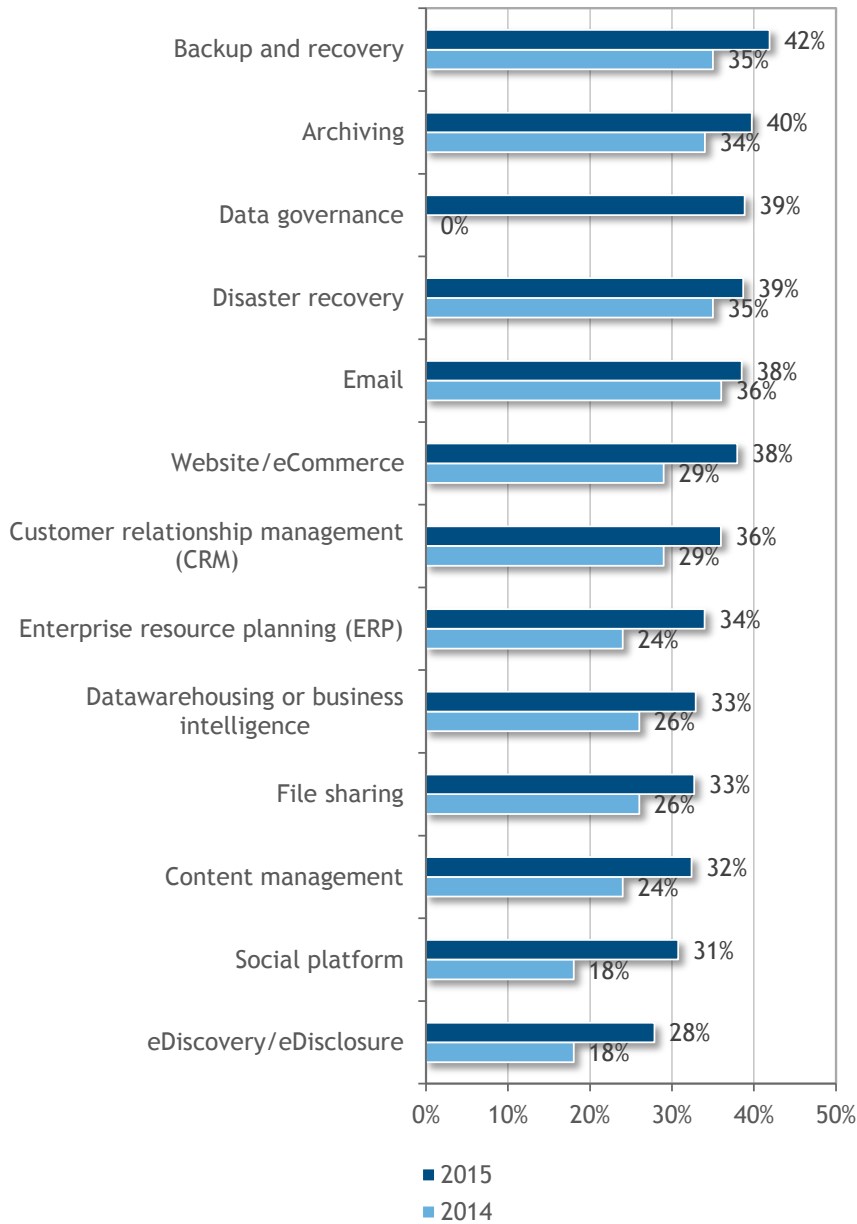


Notes: n = 556

Source: IDC, 2015

FIGURE 2

Applications Driving Storage Investment in 2015 and Beyond



Notes: n = 556

Source: IDC, 2015

All these factors are forcing organizations to move away from traditional, monolithic storage solutions that cannot scale cost-effectively to meet their business requirements in the information economy and pave the way to scalable storage technologies such as object storage.

Ever-Expanding Object Storage Use Cases

IDC is seeing increased demand for object storage from multiple industries and sectors. In IDC's opinion, the growing use cases and dynamic delivery models of object storage are defining its resurgence in the digital era.

- Object-based storage lends itself to use cases such as information digitization, data retention policies, and globally dispersed information sharing (to name a few) – all aimed at controlling the insatiable appetite for data consumption. IDC believes that pressures created by four fundamental IT trends – cloud, mobility, social business, and Big Data – are expected to place additional (and near unprecedented) demand for storage supporting unstructured data.
- File- and object-based storage solutions are also serving newer use cases such as server and desktop virtualization, machine-generated content repositories, and streaming data, proving that object storage is no longer only meant for unstructured data but, as these new use cases dictate, are being used for semistructured and structured data.
- Newer delivery models such as public or private cloud-based storage are increasingly relying on OBS as the platform, with data accessed via newer interfaces such as HTTP/REST or via traditional FBS interfaces such as network file system (NFS) and server message block (SMB) (previously called common Internet file system or CIFS).

As object storage enters a new phase of growth, IDC is noticing innovation and investment efforts from both incumbent storage suppliers and niche object storage startups.

While certain suppliers are pure-play software vendors, others sell a mix of hardware and software, mostly as appliances. Pure-play software typically represents 25%-50% of the total revenue. IDC recommends that enterprises new to object storage should adopt an appliance-based strategy as we believe appliances are tested and certified by the vendors and take the complexity out of deploying, using, and managing object storage infrastructure. But IDC also recommends that enterprises look for technologies where the core IP is in the software stack and there is no legacy hardware to avoid vendor lock-in and invest in vendors that have a comprehensive portfolio, deep expertise in the object storage area, have a credible roadmap, and most importantly enable enterprises to become future-ready.

Hitachi Data Systems' Object Storage Portfolio – Hitachi Content Platform

Hitachi Data Systems (HDS) entered the object storage market in 2007 (before Amazon S3 or EMC Atmos were launched) through the acquisition of Archivias. HDS offers a full-service portfolio of storage and integrated (compute, storage, and networking) infrastructure software and services solutions. In IDC's opinion, HDS has invested significant time and engineering efforts to integrate the Archivias IP into its other offerings, resulting in a tightly integrated portfolio approach. Today, HDS' object storage offering is available as Hitachi Content Platform (HCP).

In IDC's opinion, HDS' 2014 content mobility announcement represents one of its boldest launches yet and gets to the heart of what many customers are looking to accomplish in the areas of hybrid cloud and workforce mobility while retaining visibility and control over their digital assets.

At the core of HCP is the OBS software that HDS delivers either as software running on virtual machines or as an appliance complete with choices for primary storage via HUS or G1000 (both HDS storage products) as well as secondary tiers that utilize erasure coding.

While HCP was originally designed to be a highly scalable, highly reliable archiving platform, HDS has since focused development efforts on adding cloud features and capabilities to better position HCP as a cloud storage platform. It has made the platform more ubiquitous and scalable, with multitenancy, active-active replication, and support for cloud protocols like Amazon S3 as well as traditional storage standards such as NFS and SMB/CIFS.

We believe that one of HDS' strengths is how it fully embraces the impact of cloud computing in IT and engineers its solutions to make them fit for the 3rd Platform era. This became evident when HDS added the ability to tier data from HCP to leading public cloud services such as Amazon, Google, and Microsoft Azure as well as its own Hitachi Cloud Services to enable hybrid cloud architectures. The "Cloud Broker" capability in HCP allows organizations to move data objects to these public cloud services based along with their policies. We believe that object storage systems that provide a

seamless bridge between on-premises technologies and the cloud to enable enterprises to ease their data migration headaches align well with organizations' hybrid IT strategies.

HDS Object NAS

The advanced metadata architecture, including a scalable indexing and query engine, and new cloud-enabling features let HDS position HCP as a single platform for mobile computing and cloud storage and as the core of an integrated portfolio of three products:

- Hitachi Content Platform, which HDS labels as "Cloud Storage Platform for the Enterprise."
- Hitachi Content Platform Anywhere, which is a secure, enterprise-grade file sync-n-share solution.
- Hitachi Data Ingestor (HDI), which can be used as a cloud NAS gateway to HCP-based cloud environments or as a bottomless backup free file-serving solution for distributed, remote, or branch offices.

HDS has developed an ecosystem to surround its object storage solution. This includes HDS solutions such as Hitachi Content Platform Anywhere, Hitachi Data Ingestor, and Hitachi NAS Platform (HNAS), as well as third-party applications.

HDS' object storage strategy is focused around solving organizations' data management challenges and the company is targeting two key use cases – Object NAS and Cloud Storage. IDC believes this strategy will serve HDS well as data management is one of the key priorities highlighted by enterprises in IDC's 2015 research (see Figures 1 and 2).

IDC sees HDS Object NAS as a technology that replaces traditional NAS or Windows file servers with Object storage and cloud-based file gateways with organizations' primary datacenter as well as its remote/branch office, offering them with a low-cost alternative to all user file data. IDC believes that traditional NAS will become legacy architectures within 5-10 years due to the ubiquity of virtual computing and purpose-built storage's ability to better address VM dynamism.

With HDS Object NAS, organizations can build a bridge between old and new IT as they can leverage a next-generation storage platform while maintaining traditional CIFS and NFS access methods for user file shares. In addition, HDS HCP has capabilities such as erasure coding, compression and deduplication, encryption, and compliance capabilities to provide organizations with a data management architecture fit for the digital era and stricter regulations. Its self-protecting, self-healing, and replication capabilities enable users to have a backup-free, highly scalable storage architecture yielding savings in backup technologies.

Object NAS uses advanced caching techniques, ensuring sat recovery in the event of failure and that recovered systems are up and running with access to user data quickly.

One of the hallmarks of Object NAS is that it provides a backup-free, efficient way of storing data at low cost, while maintaining data integrity and availability. This is critical because IDC believes that data protection and B/R operations are labor-intensive for most organizations, whereby they have to rely on "smart" IT staff to compensate for a lack of automation. Organizations can reduce their reliance on human frailty and improve service levels by adopting VM-level and object storage technologies.

The other use case is cloud storage where cloud-native applications using REST-based protocols can have data and associated metadata stored in lower-cost object storage systems in-built with custom search and index capabilities saving organizations costs in database applications too.

In our opinion, this breadth of simultaneous use cases allows HCP to be used as a private, public, and hybrid cloud storage platform; as an archive for stringent corporate data security and governance oversight; and as a Big Data repository – and even combinations of all these, for example, a secure cloud repository, a compliant archive, and a file sync-and-share solution, all without creating silos.

European Use Case: How a Major EMEA eCommerce Retailer Overcame Data Management Challenges with HCP

The organization has multiple remote sites in EMEA across London, Milan, Zurich, Amsterdam, Munich, and Barcelona, among others. But managing NAS filers in remote offices as well as remotely managing capacity requirements, backups, and snapshot was becoming problematic, inefficient, and time-consuming. The IT team was also struggling to provide data encryption necessary for secure environments.

Another big problem was that the IT did not have any processes in place for pruning data, resulting in it storing, managing, and securing stale data and copy data. The IT team wanted a solution that will help it simplify backup and data protection and free it up from worrying about capacity management at all the remote sites. It also wanted the data to be hosted in a private cloud system. The organization picked Hitachi Data Ingestor for encryption and to simplify data management tasks and HCP as its private cloud system. Although the organization's IT does not yet have processes to prune data, it does not worry about capacity as it uses duplicate data elimination and compression techniques on HCP to gain space savings on it. In addition, IT is freed up from managing complex snap mirror policies or worrying about snapshots filling up because everything goes to the HCP and the HCPs replicate for data protection.

CONCLUSION

IDC believes that HDS has engineered rich features in HCP such as adaptive cloud tiering for hybrid cloud configurations, and HCP Anywhere, HDI, and Hitachi Cloud Service for Content Archiving, demonstrating the ability to deliver suitable on-ramping and/or purpose-built capabilities for its solutions. This reaffirms HDS' commitment to HCP and to the OBS market segment – something that few incumbents can claim.

HDS' dedication to object storage is evident in that it has packed a rich set of features into HCP making it a compelling storage alternative which will somewhat affect the company's long-standing enterprise storage revenue. IDC believes that disrupting its own business strategy to make way for a new generation of storage technologies will enable HDS to remain a credible technology provider for enterprises focusing on digital transformation.

In our opinion, another factor that distinguishes HDS is that it is looking at this market differently and not just as another route to fulfilling revenue targets for other storage products. As a software-based storage solution, HDS has the opportunity to position HCP as a "hardware free" platform, and as a result the opportunity to expand its reach beyond its traditional customer base and offer customers freedom from vendor lock-in. But it will need to keep the momentum in innovating its object storage portfolio as competition in the field intensifies and demonstrate HCP's capabilities across multiple use cases beyond Object NAS and cloud storage. IDC also believes that highlighting use cases and aligning object storage solutions with users' business objectives rather than dwelling on the mechanics of the technology will help HDS gain further traction. Lastly, it will also have to extend its reach engaging channel relationships for steady and sustained growth.

HDS has the IP, the appetite, the experience, investment potential, and engineering intelligence to make its object storage solution a compelling platform with software-defined intelligence, policy-based controls, automation, and rich data services, and thereby make object storage technology almost invisible, providing users with a technology backbone that they can rely on to beat their data management, cost, and compliance challenges as well as execute on their digital innovation projects. Enterprises have come to expect Amazon S3 style infrastructure features and we believe that vendors that can provide Amazon S3 like capabilities but on an on-premises infrastructure will be able to give organizations the best of both worlds.

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