



## I D C T E C H N O L O G Y S P O T L I G H T

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# Data Efficiency and the Value of Unified Data Storage

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*Many organizations across all industries are experiencing tremendous growth in data volume. This growth in turn is driving increased investments in storage technologies. Between 2007 and 2010, annual spending on file-based storage solutions increased from \$12.1 billion to \$15.6 billion. For many organizations, the efficient storage, organization, long-term retention, and timely retrieval of files are at the core of the business and are driving high demand for file-based solutions. However, organizations cannot simply obtain more and more storage capacity to handle their data storage volumes because this approach would be both expensive and difficult to manage. To effectively handle increasing data volumes, organizations have to more efficiently manage existing storage capacity through such technologies as thin provisioning, data deduplication, and inline compression. This Technology Spotlight examines the need for more efficient data storage approaches and discusses how efficient storage technologies can enable organizations to improve capacity utilization and reduce costs. This paper also discusses the role that IceWEB plays in the important market for efficient storage solutions.*

### Economic Realities, Data Growth, and the Transformed Datacenter

Business owners and IT decision makers are increasingly careful about IT investment decisions in the context of uncertain business cycles and tighter IT budgets. Business owners and IT decision makers want every spending decision to boost asset utilization, enhance responsiveness to business changes, and improve IT operational efficiency. They don't want to tie up scarce capital to buy excess IT capacity (servers, storage, switches, etc.) as a hedge against future growth. Instead, they want to procure any and all IT hardware and software as needed.

Virtualization, where resources are pooled and shared as consumed, is playing a critical role in helping IT organizations better address business requirements and current economic realities. Companies leveraging server virtualization (hypervisor) are already apportioning compute resources into logical subpools. Today, however, IT organizations want to go beyond using only server virtualization to deal with server sprawl and wasted server compute cycles. They want to deploy and manage a fully virtualized datacenter. These efforts require much more intelligent and usable storage solutions that complement and extend the value of other virtualized IT assets.

Concurrently, organizations and individuals are witnessing unprecedented growth in the need for storage. Whether we are talking about individual consumers, small businesses, or the largest enterprises, people want to retain digital information for longer periods. In addition, unstructured data (think MRI results or video surveillance records) is growing quickly and consuming datacenter storage space at an alarming rate. Companies in data-intensive industries are challenged by storage system floor space and power limitations. These organizations need file-based storage systems that can quickly scale to meet unpredictable data growth.



Most important, organizations have also become impatient with the care and feeding of their IT infrastructure. In virtually all organizations, IT generalists and application specialists greatly outnumber storage specialists. These application specialists don't want to perform mundane storage device provisioning and management tasks or deal with multiple, incompatible storage platforms. They just want to set up, protect, and expand storage capacity.

One of the most important consequences of all this development is a dramatic increase in the demand for universal (block and file) storage solutions that also support robust storage virtualization. Organizations looking to improve storage capacity should look for storage solutions that increase storage efficiency by reducing the overall volume of data that organizations need to store.

## Benefits of Storage Efficiency Technologies

As organizations contend with ever-increasing volumes of data, they need storage solutions that will make their storage initiatives more efficient and deliver the following benefits:

- Reduced physical footprint required for storage infrastructure
- Increased capacity/utilization of storage assets
- Improved application performance
- Reduced costs related to storage operations and acquisition of storage-related hardware

Customers in small and midsize enterprises as well as IT teams in larger enterprises are demanding major improvements in the usability of all IT products, and they are demanding improved usability for storage products in particular. For these companies, "usability" in storage solutions must provide:

- **Interconnect flexibility.** The system seamlessly supports both block-based (e.g., iSCSI) and file-based (e.g., NFS/CIFS) storage network protocols so that IT organizations can use a single system while still using the best option for different applications (e.g., email, database, hypervisors, file/print).
- **Embedded data efficiency.** The system includes support for a range of advanced storage virtualization and data management services (e.g., thin provisioning, compression, deduplication) that ensure maximum effective use of the physical storage capacity actually deployed.
- **Simple capacity provisioning and data protection.** The system provides automated provisioning, reallocation, and data replication through a simple and intuitive management interface.

IDC believes that information efficiency should happen earlier in the storage process, perhaps even at the point of content creation for maximum potency, rather than postprocess, or on secondary storage. The ability to provide primary inline compression is an increasingly attractive strategy among some storage vendors, and they are offering products and/or making acquisitions accordingly.

## Considering IceWEB

IceWEB Inc. is a provider of data storage products based in Sterling, Virginia. Founded in 1994, the company offers universal storage systems (file and block), custom-built appliances, and cloud-based software and services.

The IceWEB Storage System is a unified storage platform for file and block data of all kinds that is designed to be easy to install. The system's OS provides built-in storage management features including inline deduplication, inline compression, linked clones, and thin provisioning for storage efficiency rates without major performance penalties. In addition, the IceWEB OS includes VMware

integration. According to the company, the features available within IceWEB's OS provide the following benefits:

- **Thin provisioning** provides the ability to increase utilization of storage arrays by storing only data that is actually written to file systems.
- **Linked clones** provide capacity savings of up to 90% without performance degradation, especially for virtual server and virtual desktop deployments.
- **Inline compression** accommodates compression and uncompression when data is written and read to arrays without adding significant overhead to I/O operations.
- **Inline block deduplication** eliminates duplicate blocks within the storage system, even across different servers and applications, for significant capacity savings and performance improvements.

The IceWEB Storage System is designed to provide customers with end-to-end data integrity, along with multiple interconnects and drive types. The system is designed to provide scalability up to 400TB with significant performance and availability.

## **Challenges**

Initially, IceWEB was founded to provide storage products and services to a targeted market (federal computing). The company is now also targeting the commercial midmarket space. As data growth becomes a pressing issue for companies of all sizes, a wider range of storage solutions suppliers are developing or acquiring their own unified storage management products. IceWEB needs to clearly communicate its current storage efficiency and ease-of-use propositions to both reseller partners and customers. This messaging includes clearly detailing the spending and operational efficiencies that customers can achieve by taking advantage of the capabilities built into the IceWEB solutions.

## **Conclusion**

The virtualization of servers, storage, and datacenter infrastructure is ramping up very quickly as companies seek to dramatically boost IT asset utilization and reduce IT operational complexity. Providing IT teams in midsize organizations with storage systems that are optimized for usability in virtual and rapid data growth environments is a critical factor that requires storage vendors and their reseller partners to continually innovate.

Equally important, however, is the need to ensure that the resellers and business partners that have primary responsibility for recommending and deploying these storage solutions are well qualified. The resellers and partners will play a key role in addressing related challenges in the areas of data security, data protection, and data archiving that companies will face as they move to this new IT model.

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