

Maximizing Storage Technologies and Optimizing Performance

Insight

I. How to Keep Up with the Data Deluge

Summary

Data is a corporate asset that must be protected, managed – and leveraged to improve business outcomes.

New storage technologies support higher levels of performance than traditional platforms – and work in far less data-center space than before.

Although storage technology is changing, three pillars of enterprise computing – quality of service (QoS), availability and security – must be delivered to the business.

To keep up with the rapid growth of data, customers will be deploying efficient storage systems that address the data deluge by supporting new workloads coming from the Cloud and the Web.

Data is becoming increasingly important to organizations – not only as data to be stored, tiered and archived, but also as a valuable asset to be mined for business insights. However, the amount of data is truly staggering. Today, instead of thinking about terabytes, many enterprises are thinking about petabytes of data – and current systems simply cannot keep up.

The data deluge cannot be stopped, and it is affecting everyone.

Too much data, from multiple sources, causes headaches for IT managers and business managers alike. The volume of business-generated data in the world is doubling every two years. Nothing could be worse than feeling overwhelmed with the sheer amount of data pouring into your organization, and not having the ability to manage it easily and efficiently.

Complexity is the biggest enemy of efficiency in today's data center. Reducing the cost and complexity of storage will go a long way toward keeping day-to-day operational expenses in check. It will also reduce the burden on system administrators to reconfigure storage every time new workloads come online.

Deciding how, and where, to store data are the keys to achieving more IT efficiency. Storage capacity needs can be reduced by using real-time compression of the data to be stored. Then you will need to consider the following:

- Identifying the types of data that need to be stored (block, file, object).
- Deciding where to store it – locally or in the cloud
- Reducing the cost and complexity of storage



-  Avoiding business disruption due to IT outages
-  Improving business responsiveness through data analysis

Storage technology is being transformed in a number of ways, including flash, virtualization, and software-defined storage that optimizes the placement of data – moving it to available resources, and protecting it in case of sudden outages that would otherwise disrupt business.

II. Customer Perspectives on Storage: Business Agility

Today, data analytics programs are finding “patterns in the data” that allow businesses to gain important business insights by analyzing transactional data from ongoing business processes. Here are some examples of business innovation:

-  A major consumer-goods company re-routed its products to market, based on deep analysis of its current distribution by truck and rail. It saves millions of dollars each year from the new distribution methods.
-  A large insurance company turned anonymized data into a profit center, rather than a cost center – up-ending more traditional ideas about IT being a cost center.
-  A famous retailer found new ways to combat consumer fraud by applying analytics to its credit-card data. In fact, the process became real-time, allowing the store to deny credit when fake credit cards were presented for payment.

The world has become data-centric. These customer use-cases make the point: Customers report they are able to improve performance and cost-efficiency while reducing data center operational expenses. At the same time, each was able to leverage faster data analysis to change business outcomes.



III. New Storage Solutions Improve Performance and Efficiency

Today, many IT and line-of-business (LOB) managers want to know how to achieve their storage goals for expanded capacity, better performance and better utilization without having to build another data center or computing room. And, they are finding that storage offers new solutions based on new technologies that improve data density and operational efficiency, including:

-  **Flash Storage:** Flash storage especially all-flash-arrays can dramatically improve performance, while reducing the data-center “footprint” required to house very powerful storage systems with TB (terabytes), or PB (petabytes), of capacity. With flash, some workloads can be run 5 to 10 times faster than before – and the amount of data center space is dramatically less (40 to 70 percent, in many cases) than it is for hard-disk-drive-based storage systems. Power/cooling costs and software licensing costs are reduced, as well.
-  **Software-defined storage.** Today, software can determine the best placement for data and provide many other data management and storage services. This software is at the core of the software-defined data center, automating the movement of data, reducing costs, and increasing operational efficiency.
-  **Integrated infrastructure:** Consolidated, or converged, technologies bring hardware, software and management together in new ways, enabling storage and other data center components to work together much more efficiently and simply.
-  **Better management controls.** IT administrators gain greater control over data storage when they have consolidated, more functional management consoles, providing visibility into the data and making it easier to protect that data through backup/restore and high-availability configurations. New consoles provide a more unified view of storage resources across the data center.



-  **Avoiding downtime for business processes.** In today's fast-moving world, downtime due to storage outages is becoming unacceptable: Downtime must be minimized, with little to no disruption in business processes. Data-replication and backup/restore procedures must be updated with hardware and software that supports faster recovery – avoiding long-lasting disasters that threaten business continuity.

IV. IBM's Storage Portfolio

IBM's storage products are designed to address the storage problems faced today by enterprises of all types and sizes.

-  [IBM FlashSystem](#) is designed for deployments in mission-critical environments, providing high performance, cost-effective reliability and industrial-strength RAS (reliability, availability, serviceability).
-  [IBM Spectrum Storage](#). This family of storage software solutions accelerates storage performance, simplifies management of storage resources and supports virtualization for greater IT flexibility as your data-under-management experiences rapid growth.
-  [IBM-Cisco VersaStack](#) converged infrastructure solution. This is an integrated systems solution that brings together Cisco Unified Computing System (UCS) Integrated Infrastructure, including Cisco computing, UCS Director, data center networking, and Applications Centric Infrastructure, with IBM storage technology. Backed by Cisco Validated Design (CVD) certifications, VersaStack architectures that include IBM storage are designed for rapid deployment and easy management.
-  [IBM XIV](#) is a grid storage-based platform that provides predictable and linear scalability. It automates storage management, removing manual processes for load balancing, performance tuning, and disk-rebuild. IBM XIV is designed for use in cloud environments and heavy data analytics workloads.



V. Conclusion: Getting Ready for a New Storage World

You are constantly looking for ways to simplify your systems and derive greater value from your data assets. When you evaluate your storage needs, especially as you look toward the future, you must consider data velocity, data volume, data variety and data value – and how to best address them, in terms of your own site.

While it is true that every data center has its own combination of hardware and software, management systems and skillsets – here are steps to make your in-house evaluation easier to do.

-  **Taking Stock of What You've Got.** A complete inventory of what is on-hand will identify the storage slow-downs and network bottlenecks that are making data growth such a difficult process.
-  **Planning Now for Future Needs.** Take a close look at your storage assets – are they keeping up with incoming data? Many customers cope with data growth on a day-to-day, quarter-to-quarter basis. Taking the long view, with three-year planning horizons, will help you to map future needs to storage platforms.
-  **Implementing Plans for Practical Technology Refreshes.** Today's economic realities often delay storage decisions that really need to be made right now. The most pressing question to ask is: Can your current infrastructure handle the new data-demands coming in from the Web and the Cloud?

As you plan for your next storage systems, it will not be enough to shop around for the best \$/GB rates. Rather, you will need to take a thorough look at the total cost of acquiring, deploying, operating and maintaining storage systems. Storage is no longer a limiting factor; it is the enabling technology for your data center and your business.



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