



# ACCELERATING THE BUSINESS VALUE OF FLASH STORAGE: A PRACTICAL GUIDE FOR IT DECISION-MAKERS

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## INTRODUCTION

In the rapid-paced business environment, company leaders are continually on alert for competitive actions that can change the landscape. According to recent Frost & Sullivan surveys of CEOs and IT decision-makers:<sup>1</sup>

- 53% of CEOs cite **a highly competitive environment** as their major business challenge
- 65% of businesses believe **managing data growth** is important to business success
- 58% say their IT infrastructure must **support business agility and market responsiveness**
- 45% say **competitors' use of data and analytics** represents the greatest potential to disrupt the industry

The mandate is clear: businesses must disrupt or be disrupted. And data—collecting, aggregating, analyzing, and deriving insights from it—is fueling business innovation and success.

With the stakes so high, forward-thinking businesses are investing in data storage technology that delivers maximum value to the business—with all-flash solutions for the datacenter.

In recent years, flash has been recognized as the optimal technology to support today's data-driven businesses. Early adopters are realizing gains in productivity, end user satisfaction, and cost-efficiency, compared with traditional storage. That's why many businesses recognize that an all-flash data center is in their future.



By accelerating your timeline to an all-flash data center, you will start achieving maximum value from your data.



But why wait? If flash is good enough for your business's future, why not implement it today? By accelerating your timeline to an all-flash data center, you will start achieving maximum value from your data.

In this white paper, we will examine the storage challenges faced by businesses. We consider the case for the all-flash data center, discuss the importance of a flash-optimized data protection strategy, and provide tips for gaining support from business leaders for your vision.

<sup>1</sup> Frost & Sullivan, *Global CEOs' Perspectives on Growth, Innovation, and Leadership* (2016) and Frost & Sullivan, *Survey of IT Decision-Makers* (2015).

## WHY STORAGE IS A CHALLENGE FOR ENTERPRISES

If your business is like most, you are grappling with data storage. In an annual Frost & Sullivan survey of IT decision-makers, storage growth has been listed among top data center challenges for the past five years.<sup>2</sup> With businesses collecting, replicating, and storing exponentially more data than ever before, simply acquiring sufficient storage capacity is a problem.

Even more challenging is that businesses expect more from their stored data. Data is now recognized as a precious corporate asset and competitive differentiator: spawning new business models, new revenue streams, greater intelligence, streamlined operations, and lower costs. Booming market trends such as Internet of Things and Big Data analytics are generating new opportunities faster than IT organizations can prepare for them.

In today's environment, businesses must ensure that their storage solutions can deliver on a new and complex range of needs:

- Data comprises **multiple file types and formats** (especially fast-growing unstructured data, such as video, images, and files).
- Data is stored and utilized for **longer periods of time**, supporting historical and trending reports.
- Data may be accessed by **multiple applications**, including latency-sensitive and high-performance apps that require near-real-time processing.
- Data must be **always available**, with backup and recovery solutions supporting appropriate recovery point and recover time objectives.
- Data is increasingly subject to **continuous analytics**, as businesses adopt innovative, intelligent platforms and applications.

### How Your Current Storage Environment is Holding You Back

The new business environment requires new ways of storing and managing data. Yet, even when business leaders recognize the criticality of data and analytics to their future success, their storage solutions remain mired in the past.

Most enterprises currently have a heterogeneous storage environment, serving multiple workloads and applications; and comprising multiple vendors' storage systems; and multiple technologies, including hard disk drive (HDD) and flash, standalone and hyperconverged systems, maybe some cloud object storage. Such an environment is rarely the result of a considered plan. Often, the complex legacy environment is a result of corporate mergers and acquisitions; sometimes it just grew organically, as hardware was refreshed, and capacity was added over time.

In a heterogeneous environment, each system likely must be administered, upgraded, and managed through separate management software. Scaling is a challenge, with different systems imposing various limitations to the expansion of storage arrays. Backups and other data protection practices are unwieldy, often requiring untenable maintenance windows as volumes grow. Data mobility and migration across systems and sites remains a major struggle for businesses—with 57% of IT decision-makers citing “challenges migrating data” as a top issue.

<sup>2</sup> Frost & Sullivan Cloud Survey of IT decision-makers, 2010-2015

Such a haphazard, heterogeneous storage environment is not an optimized storage environment. While businesses recognize that their legacy systems are not ideal, they have not been convinced that an upgrade to a new platform would deliver sufficient value to justify the perceived disruption of a migration.

That perception is changing, as all-flash storage becomes mainstream. Businesses are starting to see the extent to which flash systems deliver improved application performance, data protection, and management efficiencies. In fact, more businesses are using flash as the catalyst for data center transformation, thus maximizing the value of the investment.

## WHY YOUR BUSINESS NEEDS FLASH TECHNOLOGY

Your storage environment likely includes some newer flash-based systems amid the traditional hard-disk-based solutions. As a refresher, here is a comparison of the two technology types:

Storage Technology	Hard Disk Drive (HDD)	Flash Drive (sometimes called Solid-State Drive or SSD)
<b>How it works</b>	Data is written to a magnetic spinning disk via a “head” affixed to a mechanical arm that floats above the disk—like an old-school record player.	Data is written to interconnected memory chips using transistors.
<b>Advantages</b>	<ul style="list-style-type: none"> <li>▪ “Incumbent” in most storage systems and PCs.</li> <li>▪ Handles large volumes of data at low cost.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Fast processing speed (read/write execution)</li> <li>▪ Cost per IOP is lower than HDD</li> <li>▪ High capacity &amp; scalability without impacting performance</li> <li>▪ Capacity efficiency (via data compaction technologies)</li> <li>▪ Data center efficiency (stores more data in smaller footprint; lower power/cooling needs)</li> <li>▪ Ability to perform very rapid and granular snapshots and offload for retention and recovery</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>▪ High latency can impact application performance</li> <li>▪ Poor density; takes up more space in data center as capacity is added</li> </ul>	<ul style="list-style-type: none"> <li>▪ Cost per raw GB may be higher than HDD; although decreasing costs and more efficient systems have made total costs about on par with HDD.</li> </ul>

## Flash Technology Supports Critical Business Requirements

The technology advantages of flash deliver benefits that can help a business achieve goals such as agility, speed-to-market, productivity and data protection. Specific benefits of flash include:

- **Support for analytics-based workloads** – Innovative new workloads that rely on continuous analytics and business intelligence just aren't possible with traditional HDD.
- **Speed to market** – Next-generation flash systems are easy to deploy and scale, requiring less manual configuration, testing, and tweaking than HDD. In addition, apps run more efficiently on all-flash arrays, without requiring labor-intensive rewriting.
- **Application performance and scalability** – Flash processes transactions more quickly than traditional HDD, so the apps that access your storage will perform better. Furthermore, flash supports data growth without performance degradation.
- **Data protection** – Flash systems can allow you to protect your data with speed and integrity, using a combination of snapshots (enabling fast Recovery Time Objective) and backup (enabling long-term data retention with high integrity).
- **Cost-effectiveness** – Data compaction technologies add to the cost-effectiveness of high-density flash systems. In addition, with the most efficient and flexible flash systems, enterprises may also realize savings on power and cooling, as well as technical staff to maintain the system.

## OVERCOMING OBJECTIONS TO AN ALL-FLASH DATA CENTER

Unfortunately, it's not uncommon for business leaders to acknowledge the superior performance of flash technology—but still resist implementing an all-flash data center. How can you convince decision-makers and influencers that investing in the right system is a smart and essential investment? Here are six common misperceptions about all-flash, and ways to overcome them.

### 1. *“Flash is fine for a few high-performance apps, but it's overkill for most of my apps.”*

**Response:** This logic is similar to keeping an old black-and-white TV in the living room, in case you want to watch “I Love Lucy” reruns. The HDTV may be “overkill” for some shows, but the need to maintain and devote separate space to parallel systems offsets any advantage. And in fact, flash benefits—including cost and efficiency gains—compound as more workloads are moved onto it. So, let the old technology go, and start seeing real gains!

### 2. *“Hard disks are good enough for my legacy application data.”*

**Response:** Your old Nokia phone was good enough to place and receive calls. But the introduction of the smartphone enabled new opportunities beyond telephony. The same logic applies to flash, which enables new data- and analytics-based solutions not possible with HDD. There may be hidden gold in the data stored on your old systems—e.g., customer buying behavior or potential system efficiencies that can be brought to light by analytics software—but only if the data is quickly and continuously accessible with a flash-based solution.

**3. “The old storage is working. I don’t want to risk disruption by upgrading to all-flash.”**

**Response:** You may feel that way about the old refrigerator in your basement, also, until you learn that you’re spending way more in energy costs than it would cost to replace it with a new, high-efficiency model. Your old storage is likely costing you a lot in maintenance, power and cooling, even floor space. In addition, under your old storage system, your critical business processes are probably already at risk for disruption, due to unwieldy and complex backup and recovery plans. Still concerned about disruption? Some storage solutions have built-in data migration and federated data mobility functionality that you can leverage when implementing new storage. You can also engage a professional third-party expert to provide an assessment, and to assist with migration to flash storage, and the move to flash-optimized data protection.

**4. “We can’t afford flash.”**

**Response:** This is old-school thinking that can hurt your business. The high efficiency of flash systems, coupled with plummeting per-GB costs, now make flash systems as affordable as traditional HDD. In fact, some ROI analyses have shown that replacing all HDD with all-flash arrays can allow enterprises to recoup the investment in less than 18 months.

High-density flash technology means you need to buy and install fewer storage systems. That means you’ll spend less capital than you expect, you’ll save on power and cooling, and your system will be easier to deploy and scale.

You also need to consider how flash can help you meet your business goals, such as revenue growth, compared with traditional storage. For example, with flash, your customer service reps can process more transactions per hour, which translates to higher customer satisfaction, which translates to higher retention, which translates to higher revenue. Your line-of-business colleagues will be happy to help calculate the overall business value.

**5. “I don’t need to re-evaluate my data protection strategy. It will be the same with flash as with my current storage solution.”**

**Response:** Not all data protection processes are equally effective. Rethinking how you perform data protection functions can bring immense benefits in performance, as well as significant cost savings. To ensure that your valuable data is sufficiently protected, you should implement a flash-optimized strategy that offers a combination of data protection techniques that are both effective and efficient; for example, snapshots for rapid backup, and full backup for longer term protection.

**6. “We are more comfortable moving slowly, adding flash as needed, rather than adopting an all-flash data center.”**

**Response:** You don’t have to make a “flash” cut to flash. Of course, high capacity HDDs are going to be around for a long time. But be aware that the longer you wait to implement broad-scale flash, the more ground you may lose to competitors. Once you accept that all-flash is where you will inevitably end up in the future, why not start the future today? By implementing all-flash storage solutions, you can start immediately realizing the business benefits of app performance and availability, business agility, and security.

## TIPS FOR CHOOSING A FLASH VENDOR

Once you've decided to move to all-flash, you will quickly learn that not all flash systems are alike. To get the most from your investment in an all-flash data center, you need to choose not only the right technology, but the right vendor and solution. Be sure to consider the whole solution—not individual features or claims. The right all-flash data center offers your business measurable value across multiple dimensions: performance, availability, integrity, ease of use, and affordability. And don't be distracted by a vendor's claims of superiority in one context (often based solely on a lab test). Your solution needs to work in your real data center, with real business constraints and needs. Find the solution with the right balance of factors for your business.

Here are tips to help you during your search for the flash storage provider that's right for you:

- **Research multiple vendors.** Even if you are satisfied with your current vendor, don't automatically assume that the vendor's flash or hybrid solution is right for you. To maximize the business value, you need to be prepared to switch vendors. Do a thorough research effort, understanding each vendor's contracts, service level agreements, terms and conditions, and payment options (including consumption-based payment schemes) to determine which best fits your needs.
- **Focus on data protection and resiliency.** The flash platform should support your critical business needs for data protection, integrity, and availability. Ensure that your vendor's platform supports integrated data protection—including high-availability and disaster recovery functions—within a single architecture. Also look for vendors that offer integration between flash storage and long-term data retention platforms.
- **Map Service Level Agreements and warranties to your business needs.** Look for a solutions vendor that understands your needs for data protection, integrity, and availability, and that accepts responsibility through strong SLAs. Similarly, expect the vendor to offer a best-practice 5-year no-exception warranty on the flash system.
- **Consider a long-term investment strategy.** Ensure that the investment you make today will be able to adapt to new non-volatile memory technologies as they emerge. Additionally, work with your internal finance team and your vendor to align consumption models to your business needs. For example, should you make a capital investment or should you pay on a monthly basis out of your operations budget?
- **Mitigate business risk with managed and professional services.** Few enterprises have the on-staff skills to support IT transformation and optimization efforts. To minimize business disruption, and ensure you have access to the expertise you need for success, look for a vendor that offers a full range of managed and professional services, including migration and data center optimization.

## THE LAST WORD

As businesses plunge into the digital future, no asset will have a greater impact on success than data. The ability to collect, harness, analyze, protect, and manage data will determine which businesses disrupt their industries, and which are disrupted; which businesses thrive, and which disappear. But traditional storage solutions are not designed to optimally handle such a critical business asset. Instead, businesses need to adopt an all-flash data center.

In their new role as strategic business enablers, IT leaders have the responsibility to ensure that their businesses are protected, by investing in flexible, future-proof flash storage solutions. The right flash solution can deliver on critical business needs for agility, rapid growth, speed-to-market, data protection, application performance, and cost-effectiveness—while minimizing the maintenance and administration burden.

In today's hyper-competitive business environment, companies that adopt a “wait and see” approach will be left behind. Don't give your competitors an edge. Begin your migration to an all-flash data center today.

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For key considerations when evaluating flash storage solutions, download the following helpful guides:

[Invest in the Right Flash Storage Solution: A Guide for the Savvy Tech Buyer](#)

[The Data Protection Playbook for All-flash Storage](#)

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