

HERE'S WHAT YOU NEED TO KNOW ABOUT DATA REDUCTION, SOFTWARE LICENSING, AND MAINTENANCE COSTS.

# DEMYSTIFYING STORAGE COSTS: CAN YOU AFFORD TO ADOPT FLASH?

**E**conomics play a key role in whether your agency can adopt flash as your next-generation storage infrastructure. Although cost comparisons can be as simple as comparing acquisition prices – valuing the price per raw gigabyte of storage capacity – these comparisons can be misleading.

Many other cost factors should be considered, including:

- Effective capacity
- Software licensing
- The inevitable rise in maintenance and support costs
- The cost of upgrades and migrations to subsequent product generations

By including the above factors, and calculating the total cost of flash over a reasonable timeframe (typically five or six years), you'll have a more accurate basis to compare vendors and make the choice that's right for your organization.

## **DATA REDUCTION: AMPLIFYING EFFECTIVE STORAGE CAPACITY**

The method of data reduction in a flash storage device will have a material effect on the performance, efficiency, and cost-per-GB of effective storage. You buy storage based on raw capacity, and the more data reduction you see, the more effective capacity you can expect.

The amount of reduction ratio will ultimately dictate how many TB of storage you need. With higher rates of deduplication, you need fewer TB of storage. The more comprehensive the data reduction technology, the greater the savings capabilities – and the greater the applicability of the solution to your environment. Look for a solution that includes both data deduplication and data compression for optimal reduction results.

## RETROFIT BEWARE

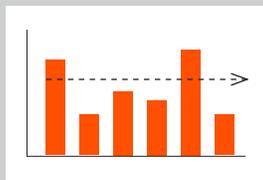
Storage architectures retrofitted with flash often offer data reduction as an option. However, adding data reduction results in a significant performance trade-off. You can avoid this by working with a technology that was specifically engineered for flash rather than retrofitted from spinning disk.

## COSTS

Typically, when a new storage array is purchased, it includes a given storage capacity that may be expanded over the life of the product.

### Tip:

Many vendors share data reduction figures that can be misleading and offer a best case rather than real-world averages. Avoid this by asking each vendor for their average data reduction ratio across all customers.



However, the maximum storage *performance* is fixed based on the controllers and the internal bandwidth of the array. As organizations need better performance, and the system no longer meets changing requirements, they repurchase

their storage in favor of more modern technology. Maintenance renewal rates often increase significantly to support this upgrade and of course, this approach does not just force a re-purchase, but a forklift upgrade (and a massive data migration).

Organizations need to think through not just the cost of the re-purchase, but also the person hours, application downtime, and risk associated with a major data migration. Although the industry has accepted this hard reality for many years, new technology and purchase models allow you to upgrade across technology generations without having to re-purchase, and with no downtime or need for excessive people costs. This lengthens the life of the array, eliminates the need for the dreaded forklift upgrade and significantly lowers the total cost of ownership for the storage solution.

### *Do maintenance and support costs increase over time?*

When evaluating flash, don't forget to examine the maintenance plan that your vendor is offering. Is the maintenance cost flat, or does it go up annually? Can the vendor raise the price of maintenance at its discretion to force you into a re-purchase? More modern support models allow you to pay for storage more like a software-as-a-service (SaaS) application, with flat annual fees, which allows for more consistency and predictability in spend.

## REDUCING INFRASTRUCTURE AND APPLICATION COSTS: 5 QUESTIONS TO ASK

### 1 *Is the array software included?*

Traditional storage vendors often license their data service software (protocols, snapshots, replication, cloning, etc.) based on capacity, which may require you to purchase new, more expensive versions as your data footprint grows or as you upgrade your storage hardware.

## 2 **Are you currently paying for encryption or compression at the database level? Disaster recovery?**

Depending on the storage product you purchase, you may be able to eliminate these costs because they're natively provided by the storage platform.

## 3 **How will your infrastructure costs increase when scaling?**

Some storage arrays scale performance and capacity independently, while others require additional power supplies and multiple network IO ports. Server-based scaling requires redundancy to protect data and provide high availability. These costs add up quickly.

## 4 **What's the density of the infrastructure?**

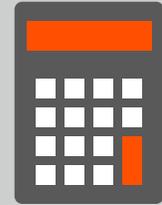
The denser the storage, the smaller the physical footprint and the more space that is freed up in the data center. Think about the power and cooling costs associated with racks of storage – the smaller and more efficient your storage, the lower your data center costs.

## 5 **What other licenses are you currently paying for (that you may be able to eliminate)?**

If you have more virtual machines running on flash storage, you often need fewer servers and that means significant savings in application licenses.

### Tip:

**In the real world when evaluating storage costs, you need to compare effective capacity, not raw. Use the average data reduction across all customers (per the tip on page 2) to estimate your needs and do a proof-of-concept if possible so you know your true effective capacity needs. Some vendors now offer capacity guarantees, which would eliminate the risk of under-sizing the storage purchase.**



### CONCLUSION

Budget-constrained agencies need to be smart about every IT purchase, and the transition to all-flash storage is no exception. The benefits of flash are clear, and the economics certainly support it when looking comprehensively at the many factors that make up the total cost of ownership.

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