STORAGE FOR THE MODERN ENTERPRISE

DEMOCRATIZING ENTERPRISE STORAGE WITH PURE STORAGE

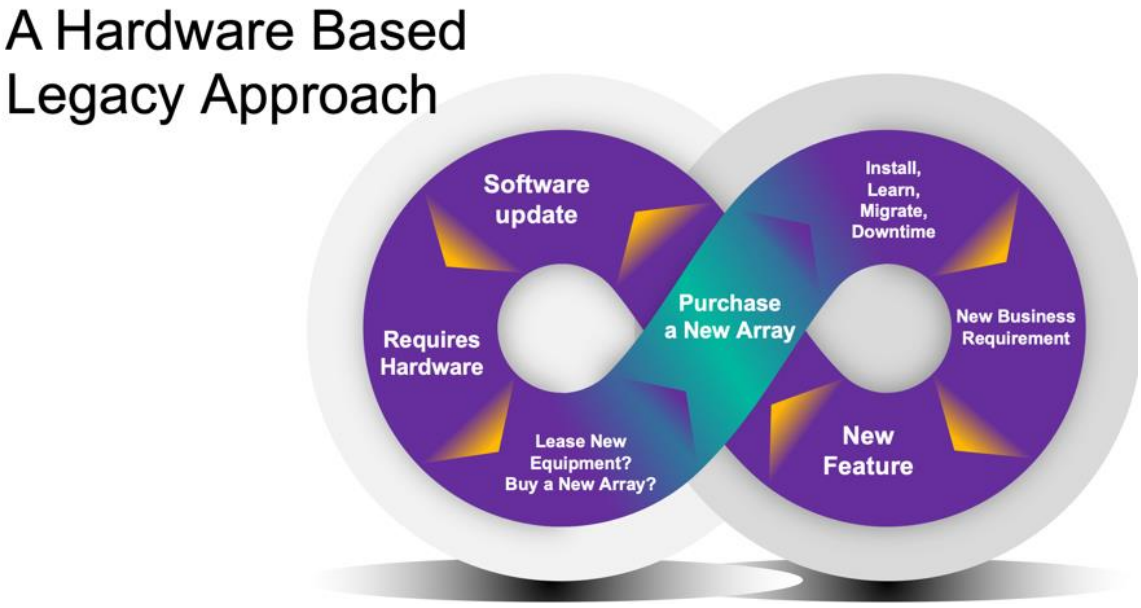
Storage stands apart in the world of IT infrastructure. Despite delivering capabilities that the industry could only dream of just a few years ago, it also carries the last vestiges of an obsolete model of how IT solutions are sold and managed. There is still a class distinction in storage.

THE ARTIFICIAL STRATIFICATION OF STORAGE

The storage industry segments its offerings into products targeted at either “enterprise” or “midrange” markets but rarely addresses both within the same product family. As a result, the solutions that the industry delivers into these spaces tend to be completely different offerings, running completely different software stacks.

The concept of "midrange" dates to the 1960s when the IT world was split between minicomputers and mainframes. The same thing happened in storage, with entirely different storage architectures delivered into different segments. This made sense for the technology of the time.

FIGURE 1: HARDWARE USED TO DEFINE CAPABILITY



Source: Moor Insights & Strategy

Unlike the sophisticated software-defined solutions of today, early storage products were defined by the capabilities and limitations of the hardware components within them. For example, early storage solutions with their hardware-centric architectures masked early-era mechanical hard drive performance and latency limitations. As the storage market needed more performance, vendors responded with more complex and expensive hardware-centric systems.

The technology constraints faced by the pioneers of the storage industry no longer exist. Today, the industry can deliver seemingly endless storage capacity over interconnects that operate at the speed of flash. Storage in the modern enterprise has also become fungible, with data seamlessly transiting from on-prem storage arrays to various cloud and edge locations. The hardware constraints are gone, yet legacy storage vendors remain rooted in the idea that different application classes require different storage architectures.

Forcing a choice of storage architecture based on the class of workload being serviced is an archaic concept. That approach limits the flexibility of an IT organization. It also needlessly complicates the management experience. Cost and complexity are the enemies of efficient IT operations, yet it is often precisely what the storage industry delivers to its customers.

Motivations of the Legacy Storage Vendors

The storage industry should be able to deliver a storage architecture that scales from workloads with limited demands to high-performance business-critical applications. Moreover, it should provide this with a consistent set of capabilities and management experience. Why doesn’t it?

There's no one answer. In some instances, it's simply the inertia that comes from building a product portfolio over a long period. It is costly for a technology vendor to unify products developed for different segments or added to the portfolio through an acquisition.

Recently, many legacy storage vendors entered the all-flash storage market by acquiring smaller companies with different technologies, with little to no unification between the product lines. The cost burden for these heterogeneous offerings is borne by the IT shops who buy them.

The promise of potential revenue often compels legacy storage companies to perpetuate artificial segmentation. As enterprises grow capability and needs, these

vendors have tremendous opportunities to upsell new solutions. These solutions often require expensive and complex reconfiguration of an enterprise's storage architecture, making moving an application up the stack across heterogeneous midrange and enterprise storage architectures a lucrative rip-and-replace upgrade.

Dominant players in the industry have forced this model on IT buyers, with limited options. IT organizations have accepted this approach as the only way to buy storage solutions. However, that landscape is shifting.

The modern storage vendor builds software-driven, modular architectures that allow a scalable storage experience spanning traditional segments. Upstart companies, like Pure Storage, deliver storage architectures that provide a consistent experience across a set of systems, that can scale from entry-level flash storage up to the highest reaches of the storage application.

WHAT ALL IT SHOPS WANT

IT administrators want storage they don't have to think about. The true value of any storage system, after all, is the data that it's protecting. IT practitioners want a storage architecture that allows them to focus less on the mechanics of storing data and more on how to best leverage that data to create business value.

Delivering data to the enterprise requires interacting with the systems that store and protect that enterprise's data. But it can be made easier. Simplifying the storage experience reduces operational cost and complexity. It also provides confidence that the enterprise's data is protected by a system that can scale with an application's needs.

IT administrators want to manage their enterprise's data infrastructure through a simple and consistent set of management interfaces. In addition, they want to deploy storage solutions equipped with a consistent set of capabilities that span entry-level flash storage, storage for high-end, business-critical applications, and even storage in the cloud.

Heterogeneity breeds complexity, and complexity leads to cost and risk. IT is in the business to minimize risk. Simple, consistent, and scalable storage solutions address these risks.

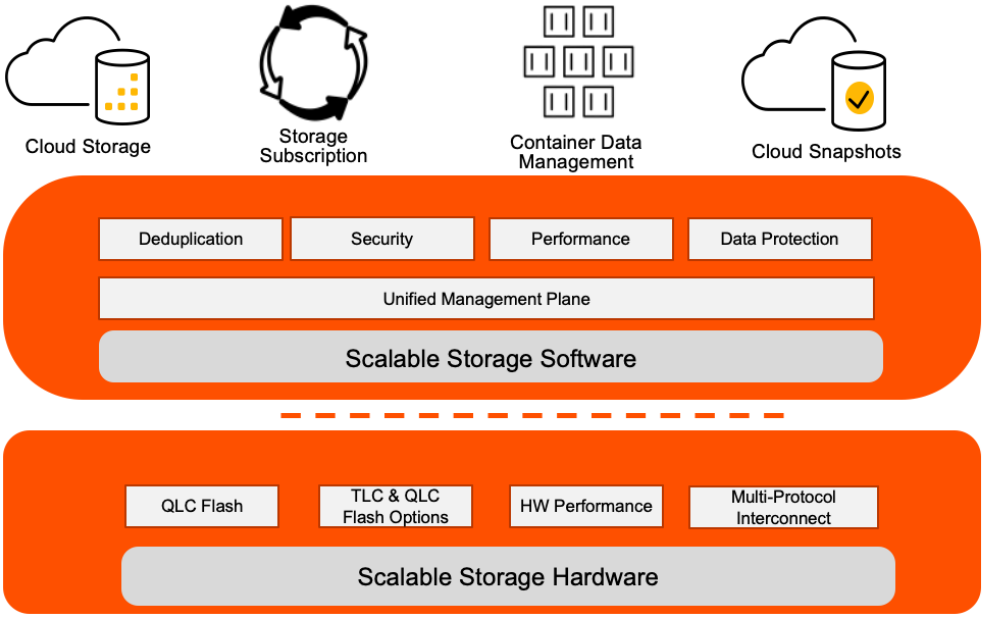
- **Consistent Management Experience**: a unified experience spanning the entirety of an enterprise's IT infrastructure, on-prem to cloud.

- **Scalability**: a storage solution that scales with the application, providing the right blend of scale-out and scale-up, and not requiring expensive and complex rip-and-replace upgrades as the application grows.
- **Availability**: data remains available and resilient.
- **Data Protection**: data is protected against malware, user error, and other unforeseen disturbances.
- **Secure**: data is protected against intrusion, theft, and misappropriation.
- **Performance**: data is delivered with the full capabilities of modern technology
- **Integration with Modern IT Architecture**: storage adapts to shifting IT architectures, such as cloud, cloud-native, and even AI machine learning.
- **Agility and Modernization**: the storage architecture evolves with the organization's needs, with a clear path to simplified migration as the systems scale to address those needs.

ENTERPRISE FOR ALL WORKLOADS: DELIVERING A SCALABLE STORAGE EXPERIENCE

Legacy storage vendors define these capabilities differently for their various midrange and enterprise offerings. This delivers a segmented and complex storage experience to IT administrators. The industry is capable of much more.

FIGURE 2: A SCALABLE STORAGE EXPERIENCE



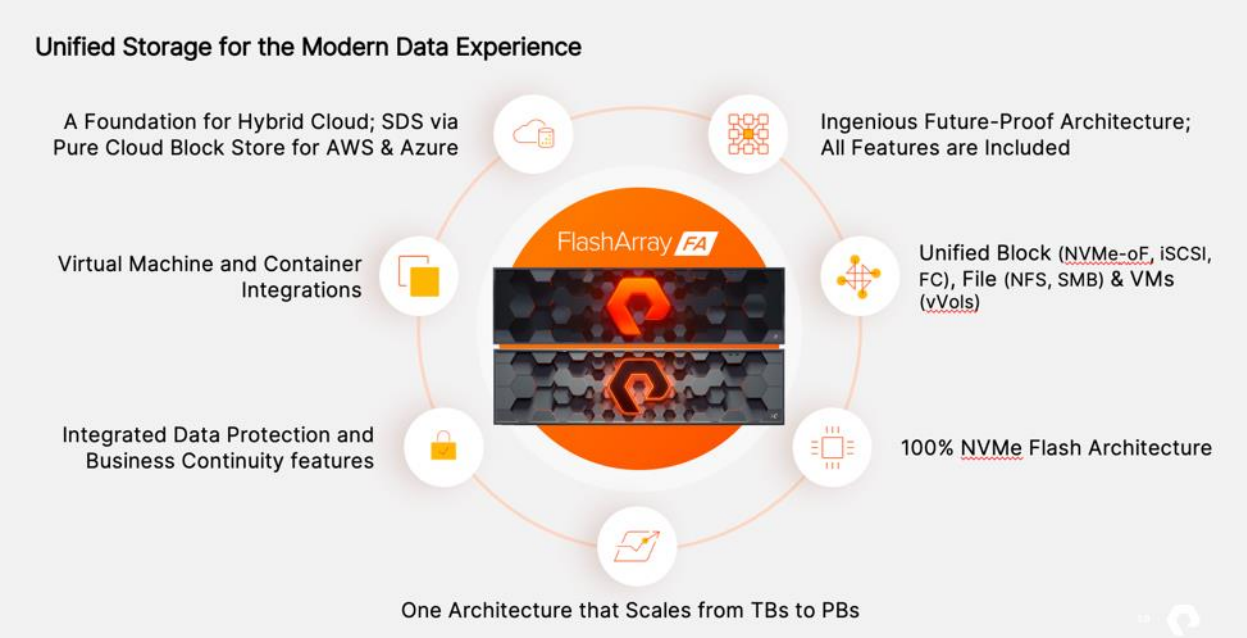
Source: Pure Storage

Pure Storage offers an ideal example of a modern architecture that promises to break through the artificial constraints of midrange and enterprise storage. From the ground up, Pure built a software-centric, modular storage architecture designed to deliver a consistent and scalable experience.

When Pure Storage delivered its FlashArray, it decoupled its hardware from the software that controlled the array. This choice was partly market-driven. Pure entered the storage market in the early days of flash storage. Building functionality into the hardware for specific functions, such as deduplication, would have been cost-prohibitive for both Pure and its customers. But this choice also helped Pure build a more modular and upgradeable storage architecture. In addition, decoupling the hardware from the software simplified the approach to storage system design while also simplifying the management and agility of those systems.

Pure Storage's Purity FA software enables a set of consistent functionalities. Marrying Purity FA with Pure's FlashArray controllers and DirectFlash media yields a capable storage array that can scale from midrange to enterprise. Pure's FlashArray family (//X, //C, and the new //XL) are all built on a common architecture and capable of delivering enterprise-level data services, regardless of model chosen. Pure can do this because of the flexibility and powerful features enabled by its Purity FA software approach.

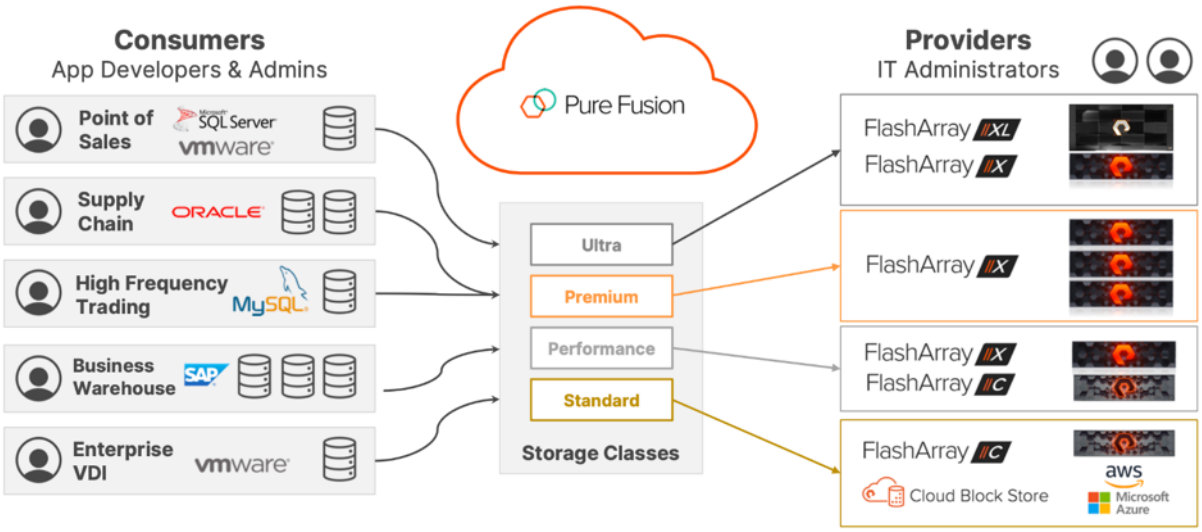
FIGURE 3: PURITY FA



Source: Pure Storage

The same software that powers Pure Storage's arrays also powers its cloud solution. Pure Cloud Block Store scales the Pure Storage experience from on-prem to cloud.

FIGURE 4: PURE STORAGE'S SCALABLE PORTFOLIO



Source: Pure Storage

Different applications and workloads do require different hardware capabilities. The hardware platform underpinning a storage solution defines attributes such as performance, capacity, and storage density. The hardware platform also dictates the storage technology, QLC NAND for example. But in a modern storage architecture, it is the software that defines the functionality of the system. The software enables a consistent experience.

A software-first storage solution, such as Pure Storage's Purity FA, allows an IT organization to address these needs without forcing a significant shift in how systems are managed, or the overall capabilities provided.

The Pure Storage modular and software-driven approach yields a scalable experience for an IT administrator. As applications outgrow their storage performance or capacity, it is no longer a forklift upgrade to move to a denser, faster storage array. Individual components such as array controllers or flash media can be upgraded while data remains in place to provide more performance and capacity.

It also opens the door to a new level of software-driven flexibility, such as the ability to perform active disaster recovery between on-prem and the public cloud, snapshots into

the cloud, or replication into the cloud. New data service features can be added simply through a non-disruptive software upgrade. When those software upgrades and new features are included in a subscription such as Pure's Evergreen Storage, agility increases even more since no new budget is needed for additional software purchases.

Not having to re-buy storage as applications mature out of current capabilities into faster, denser storage solutions yields tangible savings. For example, an Evergreen Storage subscription can remove up to 30% of the total cost of ownership via its included and on-demand controller upgrades.[1] This can also keep storage costs predictable over time.

A software-first storage architecture also makes it easy to integrate new capabilities, such as AI-driven operations (AIOps). In addition, it provides a flexible path towards embracing new application architectures, such as container-driven cloud-native workflows, which Pure Storage addresses with its Portworx products.

THE ANALYST TAKE

Segregating solutions into midrange and enterprise is an approach born in the early days of the computer industry. It's a model that most of the IT world has moved beyond, except, notably, the storage industry. It persists to the benefit of legacy storage providers, but that is shifting.

A storage solution defined by software and enabled by best-in-class storage hardware provides a tremendous amount of benefit to any size IT organization. The needs of IT shift over time, with applications scaling with the requirements of an organization. Storage should not inhibit that, yet that is what happens time and again when deploying legacy architectures.

Pure Storage offers a storage architecture that is simple, scalable, and flexible. Pure Storage's Purity FA software allows IT to deploy storage that meets today's needs and is ready for tomorrow's. That's a powerful statement that most legacy storage vendors cannot make.

[1] Pure Storage Webinar: https://www.purestorage.com/au/resources/webinars/democratising-storage-enterprise-for-all-od.html

IMPORTANT INFORMATION ABOUT THIS PAPER

CONTRIBUTOR
Steve McDowell, Senior Analyst at Moor Insights & Strategy

PUBLISHER
Patrick Moorhead, Founder, President, & Principal Analyst at Moor Insights & Strategy

INQUIRIES
Contact us if you would like to discuss this report, and Moor Insights & Strategy will respond promptly.

CITATIONS
This paper can be cited by accredited press and analysts but must be cited in context, displaying author's name, author's title, and "Moor Insights & Strategy". Non-press and non-analysts must receive prior written permission by Moor Insights & Strategy for any citations.

LICENSING

DISCLOSURES
This paper was commissioned by Pure Storage. Moor Insights & Strategy provides research, analysis, advising, and consulting to many high-tech companies mentioned in this paper. No employees at the firm hold any equity positions with any companies cited in this document.

DISCLAIMER
The information presented in this document is for informational purposes only and may contain technical inaccuracies, omissions, and typographical errors. Moor Insights & Strategy disclaims all warranties as to the accuracy, completeness, or adequacy of such information and shall have no liability for errors, omissions, or inadequacies in such information. This document consists of the opinions of Moor Insights & Strategy and should not be construed as statements of fact. The opinions expressed herein are subject to change without notice.

Moor Insights & Strategy provides forecasts and forward-looking statements as directional indicators and not as precise predictions of future events. While our forecasts and forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could cause actual results to differ materially. You are cautioned not to place undue reliance on these forecasts and forward-looking statements, which reflect our opinions only as of the date of publication for this document. Please keep in mind that we are not obligating ourselves to revise or publicly release the results of any revision to these forecasts and forward-looking statements in light of new information or future events.