VAST

COMPARING VAST UNIVERSAL STORAGE TO LEGACY SCALE-OUT NAS

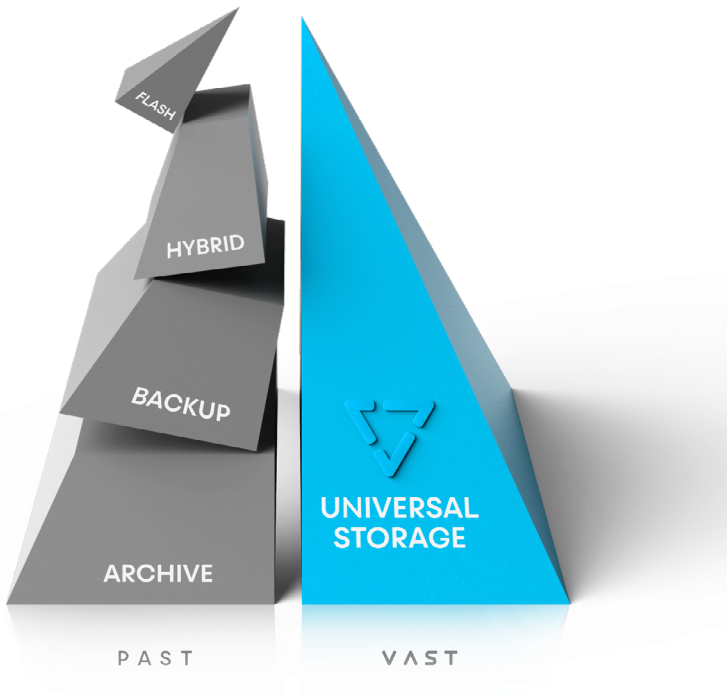
SUMMARY

VAST Universal Storage redefines the economics of flash storage, making flash affordable for all your data. When exabytes of data are readily accessible in real time, new insights become possible. Get all the storage you need for a fraction of the cost of legacy scale out NAS. Check out your storage savings.

TIERING IS TIRING

Today's applications need fast access to the largest amounts of data to achieve the most accurate models. But shared-nothing systems like Dell PowerScale were never designed to make flash affordable, forcing you to tier data between HDDs and SSDs. This tiered approach means you have to constantly devalue significant data and compromise the modern application experience by subjecting them to a response time that's up to 100x slower than the network.

But VAST has cracked the code to deliver all-flash performance at archive economics, so that you never have to compromise on fast access to any of your data sets.

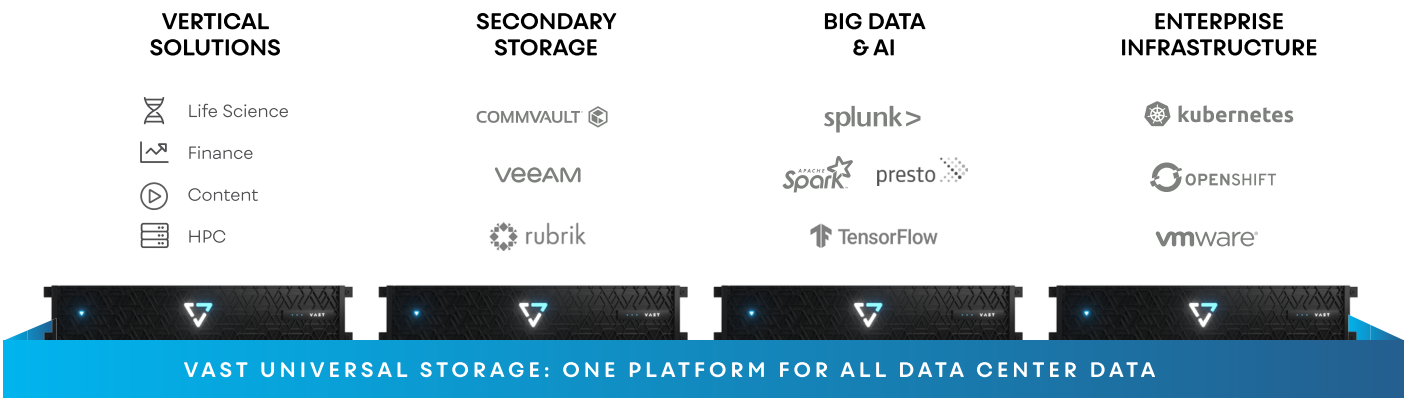


THINK BEYOND LEGACY SCALE OUT NAS

Legacy scale out NAS solutions such as Dell EMC PowerScale are based on a 20-year old shared-nothing architecture that was designed for hard drives and terabyte scale problems. Since then data has exploded, applications have evolved, and new foundational storage technologies such as NVMe-over-Fabrics, Storage Class Memory and low-cost flash have made it possible to reimagine what storage should be in the modern era.

Built from the ground up as a Disaggregated and Shared Everything (DASE) all-flash architecture, VAST Data is engineered to break many of the tradeoffs and compromises that have emerged through the global adoption of shared-nothing architectures. Our modern architecture and the fundamental difference in data management philosophy gives us several distinct advantages over legacy scale out architectures, allowing you to be exabyte scale ready in the AI era.

SIMPLE, SCALABLE, AND RESILIENT STORAGE FOR ALL YOUR DATA



COMPARISON AT A GLANCE

VAST's DASE architecture has several distinct advantages when compared to more traditional shared-nothing based architecture like Dell Power Scale. These include:

	VAST UNIVERSAL STORAGE	DELL EMC POWERSCALE
Total Cost of Ownership (TCO) *VAST Data combines flash innovations with architectural brilliance to deliver a compounded level of storage savings that make flash affordable for all your data. Check out your savings today.*	**Built from the ground up as an all-flash architecture, Universal Storage is specifically designed to extend the longevity of the lowest cost flash available.** **All new and existing features are instantly available with the latest generation of SW at no additional cost.** **Combination of DASE and storage class memory allows significantly wider write stripes (Max width: 140+4), which reduces data protection overhead to between 3% to 11%.**	Originally designed for HDD capacity, flash was implemented as an afterthought; Expensive, enterprise-grade flash required to overcome architectural limitations. Additional licenses required for features such as data replication and deduplication. Shared nothing and small NVRAM allow for very limited (Max width: 16+4) stripe width, resulting in at 33% to 66%+ overhead; Restrictions based on HW apply.

	No "small file penalty" : Data stored on VAST incurs the same data-protection overhead regardless of file size.	Due to per-file striping, data protection overhead can be much higher for smaller files. In some scenarios, a file can require greater than 3x the storage compared to VAST.
	No maintenance extortion; Universal Storage is backed by a 10 year warranty and a flat+fixed price for maintenance.	Charge extra for maintenance in the later years of a system's lifespan.

Enhanced Resilience

VAST Data delivers enhanced resilience by protecting against multiple device failures without the overhead and rebuild complexity of legacy solutions.

✓	✗
99.9999999% durable architecture	99.999% durable architecture
Servers are stateless and failures of any server never require data reconstruction across a network. This means there is minimal impact to cluster performance.	Each node "owns" a portion of cluster data, so node failure requires I/O intensive rebuild operations, that can lead to significant performance degradation.
Lower risk of data unavailability. As long as a single node remains online, data is fully accessible for reads and writes. Additionally, VAST erasure codes are fail-in-place, to enable instant recovery.	Node failure can lead to data unavailability when multiple nodes fail simultaneously; Node rebuilds can be lengthy, and this 'window of risk' can span days or even weeks.
SMB clients enjoy zero interruption to data access during node failure and system upgrades, without requiring the configuration of the SMB Continuous Availability (CA).	Lack of globally accessible session state means that SMB client failover can only be enabled via SMB CA, which incurs a significant performance penalty.

Linear, Predictable Scale

Get virtually unlimited, linear scale that delivers performance for your most demanding computing environments

✓	✗
Scale compute independent of capacity; You don't need to buy capacity when all you need is performance, and vice versa.	Rigid architecture forces capacity and performance to be scaled in lock-step.
No east-west cluster traffic means every node adds a proportionately linear amount of performance to the cluster.	East-west cross talk due to cluster coherency and storage rebuilds may limit the effective performance scale to only a few dozen nodes.
VAST's "designed-for-flash" I/O engine ensures no loss in aggregated IOPS and bandwidth, even when the system is saturated with extreme client load (as seen in large HPC centers)	Once the system performance peak is reached, each additional client I/O request can result in aggregate IOPS and bandwidth loss.
Deploy multiple generations of HW in a single storage pool, thereby preserving capital investments. Data is striped across all available flash enclosures regardless of generation.	Mixing multiple generations of HW in the same cluster requires the creation of additional storage pools, adding complexity and wasted I/O to move data between pools.

A Composable Flash Cloud

VAST Data delivers a composable architecture that provides dedicated Quality of Service (QoS) and eliminates the need for multiple clusters

No east-west traffic means compute servers can be composed into pools that provide dedicated QoS and even data isolation across multiple tenants/ applications.

Server pooling enables application consolidation onto one scalable all-flash platform.

Easily share data across multiple physical and logical networks, including to both Infiniband and high speed Ethernet simultaneously, without the need for additional gateways.

Because of east-west traffic, storage pools are never truly isolated and cannot be effectively used for QoS or workload isolation.

Diverse performance requirements across applications may require deploying separate clusters.

To share data between Infiniband and ethernet networks, you must either purchase expensive and underperforming gateways, or build separate clusters.

For more information, visit
vastdata.com/nomoretiers