

NVMe-oF Storage for Private Cloud

No-compromise containers-as-a-service with NVMe-oF

Containers are a major building block for providing services to internal and external organizations. IT has evolved, from deploying services using a SAN-based infrastructure and traditional applications, like Oracle RAC and SQL Server, to quickly responding to needs by deploying micro-services using cloud-like rack-scale applications, containers that use container frameworks, like Kubernetes, and disaggregated storage services, documenting the deployment with Infrastructure as Code.

Containers enable IT to develop applications fast, but containers were traditionally designed as short-lived resources for development and test. Implementing containers in production creates new challenges for data storage at scale.

Pavilion helps organizations migrate from Virtual Machines (VMs) and non-persistent containers to a Composable, Disaggregated Infrastructure (CDI) where persistent containers and stateful applications are readily available and meet the needs of the ever-changing product workloads. With CDI compute, network, and storage resources all scale independently to meet a diverse set of application requirements.

The Pavilion HyperParallel Flash Array™

The Pavilion HyperParallel Flash Array does not compromise on NVMe performance. It provides up to 120 GB/s throughput, 25µs of latency, 20M IOPS, and 2.2 petabytes of density in a compact 4U form factor. It provides containerized applications with the performance of locally attached NVMe SSDs. The Pavilion HyperParallel Flash Array uses NVMe SSDs and supports multiple block and file protocols with NVMe-oF/RDMA, NVMe-oF/TCP, iSCSI, and NFS (v3, v4, pNFS, RDMA) and S3.

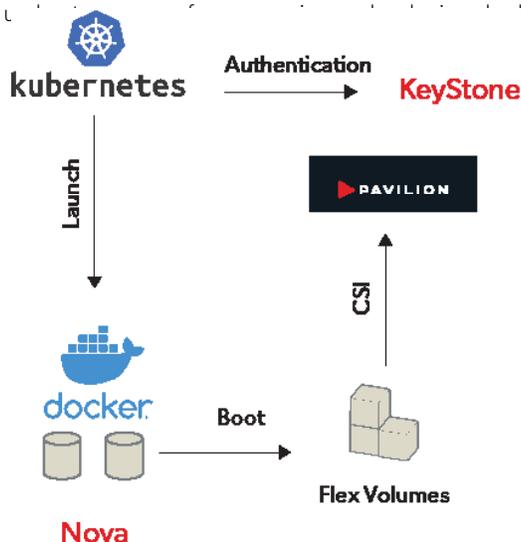
The Pavilion HyperParallel Flash Array requires no proprietary software to be installed on a server farm and uses standard NVMe, NVMe-oF, Ethernet, and InfiniBand drivers, freeing up



kubernetes

Benefits

- Doubles container density
- Reduces storage deployed by 75% and storage TCO by half
- Petabyte scalability, high-performance, low-latency, and linear scaling maximizes data center efficiency
- Protects containers and the business
- Concurrent block & file protocols gives deployment flexibility
- FlexVolume plugin and support of the Container Storage Interface enables the creation of persistent containerized applications
- Enterprise design and data integrity validation ensures containers can reliably access data
- Rack scale/CDI management via Web GUI, vCenter, Kubernetes, RESTful API, OpenStack, DTMF/Redfish, and Swordfish



Benefits of Disaggregation for Containers

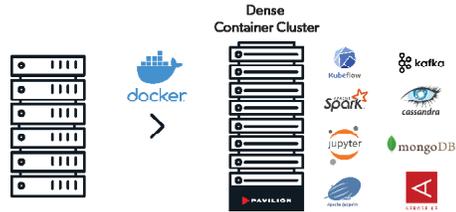
The Pavilion HyperParallel Flash Array delivers high performance and low latency to Kubernetes.

Fast & Dense



Move to a disaggregated infrastructure and achieve optimized levels of processing, storage and network bandwidth that can be scaled independently, and speed the transition to Infrastructure 3.0.

Disaggregating flash storage from each server in a rack no longer requires dedicating resources to managing local SSDs, letting IT deploy a single high-speed storage platform to deliver Containers as a Service (CaaS).



Using servers that don't have to support DAS storage can double the container density of a rack. No custom software needs to be installed on the nodes, enabling them to take full advantage of host processing resources and reduce risk.

Safe & Secure



Protect the SSDs with RAID-6. The Pavilion Swarm controller™ rebuilds a failed SSD 1 at the rate of less than 5 minutes per TB. Get self-healing bit-rot support for containerized applications, to assure every application gets uncorrupted data.

Security is a must for every organization. Pavilion uses a FIPS-compliant data at rest encryption and ensures the always-on encryption does not impact performance. Use consistent snapshots, encrypt those snapshots, and use standard backup and restore utilities with the confidence that application data is safe and secure.

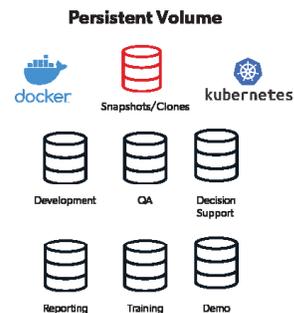
Enterprise Strength & Enterprise Support



Pavilion's instant, zero-space snapshots and clones can be used to create additional containers, enabling DevOps to accelerate go-to-market activities by rapidly deploying copies of containers to Dev, QA, and other stakeholders. Pavilion enables DevOps to isolate data backup and snapshot management, enabling the creation of zero-space instant consistent copies of multiple volumes.

Get end-to-end data integrity, a robust and modular chassis, and redundancy throughout the storage array to protect your containers as infrastructures grow. All features come in-the-box, including thin provisioning, snapshots, clones, data at rest encryption and more.

Don't let support concerns prevent the deployment of containerized applications. Pavilion provides 24/7 proactive support and can act as an extension of your IT organization for all applications.



Block, File, & Object



Pavilion enables a Kubernetes PersistentVolume to leverage all of its .block and file storage services for all of an applications needs. It offers block, file, and object protocols, allowing containerized application to simultaneously use NVMe/RDMA, NVMe/TCP, iSCSI, and NFS (v3, v4, pNFS, RDMA) and S3.

Economical & Flexible Management



NVMe SSDs are the most expensive components of a containerized application, why not reduce them? Scale down flash storage deployed by 2-3X, and save 50% over DAS in terms of \$/GB/sec.

Reduce IT expenditure in several areas including hardware acquisition, rack-space, power and cooling, and storage management costs by moving to Pavilion. Reduce management complexity by moving storage to a composable, disaggregated state when the storage pool can be centrally managed with a Web GUI, vCenter, Kubernetes, RESTful API, OpenStack, DTMF/Redfish, Swordfish, and more.