NVMe-oF Storage For VMware

Accelerate VMs with No-compromise

Save Space, Time, and Money

Organizations are embracing modern deployment models and applications for digital transformation. One of these is virtualization, which provides superior operational efficiencies. A DAS-based converged infrastructure prevents many organizations from implementing virtualization in production. Consolidate workloads, accelerate operations, reduce storage over provisioning, accommodate storage growth, and reduce TCO, by disaggregating VM storage with the Pavilion Hyperparallel Flash Array (HFA). It scales to over a petabyte of data, provides ultra-high performance, and ultra-low latency.

The no compromise enterprise storage platform also supports a complete suite of data management features for consolidation of VM sprawl and native Container Storage Interface (CSI) for simplified migration to Docker and Kubernetes Containers. It includes native VMware support for vCenter, is VMware® Ready™, supports NFS and iSCSI for datastore provisioning and will support VMware's NVMe-oF driver when available.

Pavilion's HFA provides the scalability, performance, and latency making it ideal for virtualization of all types, such as legacy applications and cloud-like web-scale applications. It supports hundreds of thousands of VMs across 72 standard NVMe SSDs (with capacity reaching 1.1PB using 16TB NVMe drives), has ultra-high performance (90GB/sec. throughput and 20M IOPS), ultra-low latency (40µs), provides multiple 100Gb Ethernet and InfiniBand ports, and is the industry's first NVMe-oF storage array.

DAS-based datastores will result in 2-3X overprovisioning and create islands of storage, while a hyperconverged data center using software-defined storage takes CPU resources away from VMs. With the Pavilion HFA, VMs get performance and capacity needed with no compromises.

The array requires no proprietary software to be installed on a server farm and uses standard Ethernet and InfiniBand drivers, freeing up host resources for processing, eliminating deployment complexity and increasing VM density. VMware has not released an NVMe-oF driver for vSphere, but when it does it will be fully supported by the Pavilion HFA.

The Pavilion Hyperparallel Flash Array

The Pavilion HFA's architecture unlocks the power of NVMe SSDs to enhance the performance of latency-sensitive VMs all in a compact 4U form factor. And we make it simple to integrate with the management platform of your choice: VMware vCenter, REST API, OpenStack, Redfish, Swordfish, and others.

Using Pavilion's HFA, organizations can implement a Composable, Disaggregated Infrastructure (CDI) where applications are virtualized or containerized and readily available. This means that compute, network, and storage resources all scale independently to meet a diverse set of application requirements.

Benefits

- Increase vSphere density 2X
- Petabyte scalability, high-performance, low-latency, and linear scaling maximizes data center efficiency
- Protect your data and your business. Meet evolving requirements for data security and compliance
- Reduces VM storage TCO 50%
- Deployment flexibility using concurrent protocols
- Enterprise design and data integrity validation ensure reliable access to data
- Rack scale/CDI management via vCenter, REST API, Kubernetes, OpenStack, DTMF/Redfish, and Swordfish
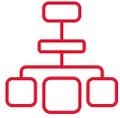
Benefits of Disaggregation

The Pavilion HFA provides high performance and low latency to VMs.

Scalable & Flexible

Provide up to 1.1 Petabytes, 90GB/s throughput, 20M IOPS, and 40μs of latency to VM datastores with iSCSI or NFS. Scale without compromising on-going VM I/O operations.

Reduce the amount of raw flash storage needed for virtualization by up to 3X, and save 50% on CapEx compared to DAS SSDs in terms of $/GB/sec. The Pavilion HFA is the one platform for your VM needs. No wasted capacity, no time spent messing with volume managers or file systems. Just set and forget.

Fast & Dense

The ultra-high performance, extreme low latency, and multiple storage controllers of the Pavilion HFA accelerates VM workflows and boosts time to results.
The Pavilion HFA lets VM applications search terabytes of structured and unstructured data over 20 times faster than a DAS NVMe SSD. When the VMware NVMe-oF driver is available, VM I/Oand provisioning a datastore will increase significantly over using iSCSI due to eliminating unnecessary protocol translations while enabling NVMe semantics for low-latency and high IOPS.

Disaggregating high-speed flash storage from each server in a rack eliminates the need to use CPU resources to managing local SSDs or using servers designed for DAS storage. This increases the compute density of a rack by up to 2X, giving more CPU resources to VMs while centralizing storage management will enable each server to support more VMs.

No custom software needs to be installed on server nodes, enabling applications to take full advantage of host processing resources as well as simplifying deployment complexity.

Safe & Secure

Protect SSDs with RAID-6 erasure coding. Rebuild a failed SSD transparently ten times quicker than a DAS or an AFA. The Pavilion HFA ensures that the failure of an SSD does not impact VM operations.

Self-healing bit-rot support for datastores assures every VM gets uncorrupted data. Zero-footprint snapshot with consistency group features speed VM backup and disaster recovery operations.

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

Keep data and snapshots safe with a FIPS-compliant data at rest encryption, the Pavilion HFA's always-on encryption keeps data secure without impacting VM performance.

Block & File

Connect different vSphere hypervisors using iSCSI and NFS. When the NVMe-oF driver is available from VMware, you can provision vSphere using NVMe, iSCSI, and NFS.

Enterprise Strength & Flexible Management

Your VMs get full speed data services, 24/7 proactive support. end-to-end data integrity, chassis, mixed file size performance, enterprise services, and redundancy throughout the Pavilion HFA. No tuning or extra fees required, consolidate all your virtualization workloads and use vCenter to manage VMs with Pavilion HFA, or integrate with other management frameworks, including: vCenter, Kubernetes, RESTful API, OpenStack, DTMF/Redfish, Swordfish, and more.

Economical

Using a local NVMe SSD is the largest cost for a VM. Why squander the most expensive storage in your data center? Pavilion's OpenChoice storage does not lock you in to any vendor. Use remote NVMe SSDs that have the performance, endurance, capacity, and technology you need for VMs, leveraging existing suppliers or purchasing new NVMe SSDs from Pavilion.

Its thin provisioning reduces TCO also. Pavilion's powerful ability to define arbitrary/large volume sizes to a VM datastore is significantly better than DAS, since the Pavilion array will only allocate physical space when the VM needs it. This can result in physical space savings of up to 75% per server. No wasted capacity, no time spent messing with volume managers or file systems. Just set and forget.

Find Out More

Pavilion is defining the future of disaggregated NVMe-oF and redefining virtualiation workflows. Whether it is a streaming a Big Data business application that uses kdb+, a logical evolution of Greenplum Data Lakes to improve storage utilization, shattering backup windows, or a wholesale replacement of the customer experience with MongoDB, MariaDB, Cassandra or AeroSpike, the Pavilion NVMe-oF storage array provides unprecedented availability, performance and versatility to future-proof the storage infrastructure as you leapfrog the competition.

Our expertise is in simplifying and optimizing NVMe to make the impossible, possible. When storage is business-critical, there's no substitute for the guaranteed performance, functionality, high availability, and OpenChoice support of a Pavilion NVMe-oF storage array. Use the Pavilion Hyperparallel Flash Array with its NVMe over fabrics support and make better decisions, faster! Contact us to learn more.