Hewlett Packard Enterprise

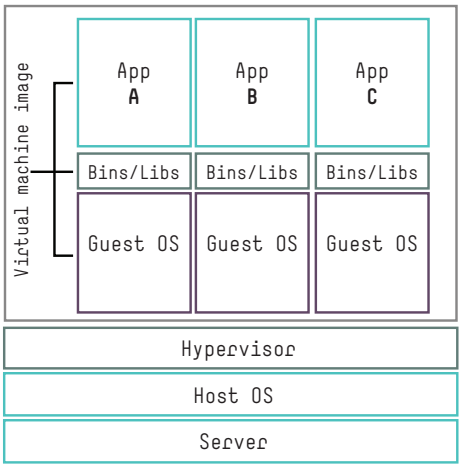
Efficient, stateful storage containers

Rapidly deploy HPE Storage virtualization solutions

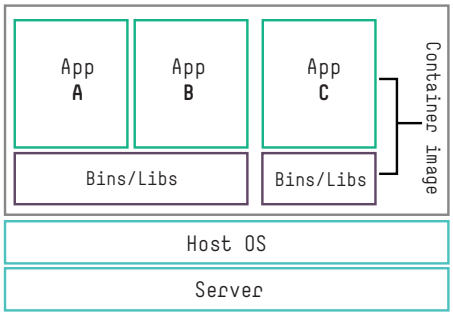
DevOps is moving applications to container technology using stateful storage for:

- **Efficiency:** Significantly fewer system resources required than virtual machines.
- **Speed:** Quick and flexible deployments—either with or without hypervisors.
- **Simplicity:** Abstracts underlying infrastructure.
- **Data management:** Provides access and control for enterprise application data.

What are containers?



With containers, virtualization is achieved at the operating system (OS) level instead of at the hardware level like virtual machines.



Container-based virtualization technology is an innovative approach to bundling, running, and managing applications in a highly portable manner. Containers are isolated locations for applications to execute without altering the underlying system and without the system altering the application. Inside, a container is like a newly installed physical computer or virtual machine, with a key difference in packaging: containers bundle only the applications, libraries, other binaries, and configuration files needed for production environments.

Containerized applications can run in virtual machines and on "bare metal" servers, sharing a single instance of the operating system without a hypervisor. This allows containers to be much smaller than a virtual machine and launch in seconds. Together this enables DevOps teams to achieve greater velocity in moving projects into production, and to rapidly scale Web and cloud environments for unpredictable e-commerce demands.

Whether it's moving containerized applications from developer laptops to a test environment or migrating a data center to a private or public cloud, applications are increasingly mobile. Persistent storage for containers supports that mobility—offering agile, efficient movement of complex applications between environments—while maintaining enterprise-level data management.

HPE Storage container technology

Developers and IT operations teams managing production environments with HPE Storage can take advantage of these core container benefits:

Efficient use of system resources
Order of magnitude reduction in resources with containers since they don't need an OS for each application. As a result, a virtual machine may be gigabytes in size compared to only a few megabytes with a container.

Quick and simple deployment
As containers reside above a single Linux® instance, they are leaner and can be deployed very quickly and easily without the hypervisor overhead.

Abstracts underlying infrastructure
Container technology abstracts the operating system distributions and underlying infrastructure. DevOps teams can move and host applications in diverse operating, network, and hypervisor environments without extra coding and work-arounds.

Data management
HPE Storage delivers enterprise-class data management for containers allowing applications to administer persistent data using the ClusterHQ Flocker OpenStack® driver for HPE 3PAR StoreServ arrays and StoreVirtual software-defined storage.

Stateful containers with persistent storage needs can be deployed with Docker in an OpenStack environment using HPE 3PAR all-flash as the backing storage for the highest performance or StoreVirtual VSA for flexibility and simplicity.

StoreVirtual flexible storage
HPE software-defined storage solutions help meet the unpredictable data demands of the cloud. Fully integrated with every HPE Helion OpenStack distribution, HPE StoreVirtual VSA provides enterprise-class features that simplify provisioning and deployment of cloud storage.

For quick container deployment and improved efficiency, data centers can achieve "five nines" availability with StoreVirtual VSA, starting with as few as two storage nodes. Simply transform internal or direct-attached storage into a fully-featured, shared storage array without the cost and complexity of traditional storage.

HPE 3PAR and hybrid flash arrays
In environments demanding the highest performance and lowest latency, HPE 3PAR StoreServ delivers all-flash and hybrid flash arrays addressing the needs of DevOps to the extreme requirements of massively consolidated cloud service providers. The HPE 3PAR proven architecture crosses file and block workloads to achieve over 3 million IOPS. Start with a few terabytes and scale past 60 petabytes with a common operating system, feature set, and management.

Learn more at
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