Hewlett Packard Enterprise

Solution brief

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PROTECT YOUR CONTAINERS WITH HPE AND COMMVAULT

Flexible, granular, and hybrid protection for enterprise-scale containers

The global application container market size was valued at USD 1.5 billion in 2018 and is expected to reach USD 8.2 billion by 2025, according to a new report by Grand View Research, Inc. and other analytics firms, registering a 26.5% CAGR during the forecast period.

Top reasons to protect containers:

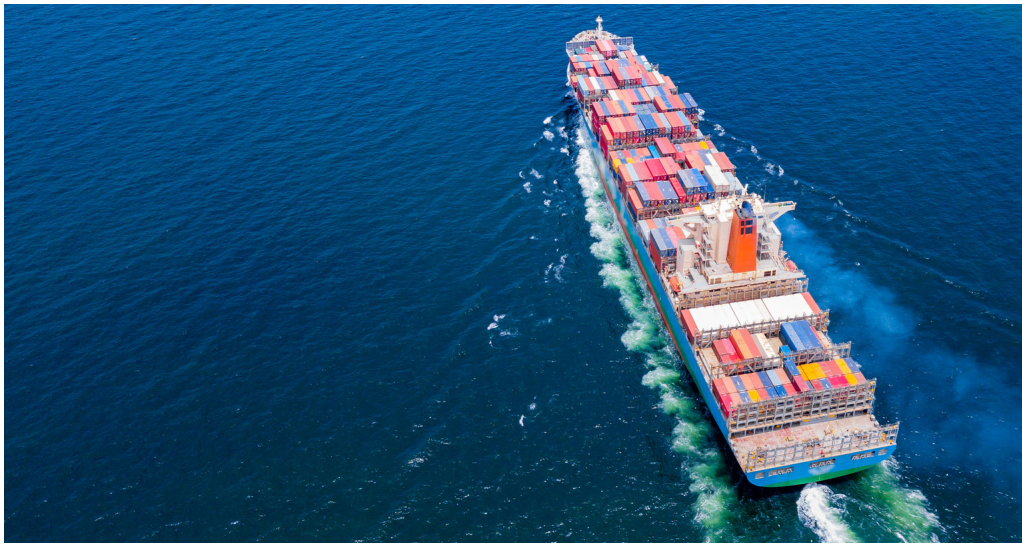
- Recovery of stateful containerized applications from failures and disasters
- Replication of the environment for migrating a test/dev environment to production or from production to staging before an upgrade
- Easy migration of container clusters

Top requirements for a container protection solution:

- Public cloud and on-premises coverage
- Application level protection
- Automatic policies
- High level of security

The HPE and Commvault container protection solution:

- Is fully tested, validated, and optimized
- Provides the maximum level of flexibility and granularity for containers backup and restore
- Can be deployed and managed in hybrid environments (public clouds and on-premises)
- Is supported with technical white papers describing step-by-step implementation for containers protection



WHAT'S DRIVING GROWTH IN CONTAINER ADOPTION?

Container technology adoption is increasing at an amazing rate.[1]

This growth is the result of the ease with which containerized applications can be ported and deployed across different environments. Indeed, containers virtually package the applications with everything they need to run (configuration files, dependencies, and so forth) and isolate them for the deployment environment. This enables containerized applications to run easily on a variety of environments such as local desktops, virtual and physical servers, development, testing and production environments, and private or public clouds.

Another benefit of containers is that a physical server can host more containers than a virtual machine. Because each container shares access to the host's operating system kernel, it requires much less space than a virtual machine. The average size of a container is within the range of tens of megabytes; virtual machines can be up to gigabytes in size.

Lastly, containers are very popular for deploying artificial intelligence (AI) and analytics applications. Containers are becoming the standard way to build and deploy machine learning (ML) models, creating real-time analytics pipelines and running batch analytics and extract, transform, load (ETL) jobs. Their portability across different environments makes containers the perfect vehicle to manage the full lifecycle of AI/ML models and, for that matter, most any analytics application.

The massive adoption of containers for analytics and AI/ML applications is creating a demand for containers for stateful applications that use and generate a lot of data, and as a result, need persistent storage.

[1] Best Practices for Running Containers and Kubernetes in Production, Gartner, August 2020

Why protect containers?

Although it can't be predicted that containers will completely replace virtual machines, their adoption will drive the need for similar levels of protection and disaster recovery requirements in place for servers and VMs.

Backup and recovery of container environments such as Kubernetes or Docker and their associated applications are needed for:

- Recovery of stateful containerized applications from failures and disasters
- Replication to seed a new development initiative or migration between test/dev and production
- Protection prior to container lifecycle activities
- Easy consolidation of container clusters to reduce cluster sprawl

Top requirements for container protection

The key challenge for protecting containerized applications in AI/ML environments is managing their dynamic deployment. A complete solution must meet the following key requirements:

- **Implement seamless operations and policies across on-premises and clouds.** Container deployment can span on-premises, cloud, or even multicloud. This "ubiquitous" flexibility must be reflected in the backup and restore approach.
- **Backup and restore at the application level, not at VM/server level.** By their nature, containers are not bundled with physical servers or virtual machines. Protection must be application-centric and collect all application sub-components (data and metadata) to permit recovery.
- **Protection granularity.** A Kubernetes cluster must be able to be backed up with different levels of granularity: Cluster, namespace, label selector, application, or persistent volume levels.
- **Automation.** Fully automatic application restore is among the key criteria of the solution in order to manage large container environments.

HPE/COMMVAULT SOLUTION

HPE and Commvault offer traditional backup architectures with deep integration with HPE StoreOnce Catalyst or flexible scale-out architectures with hyperscale reference architectures built on HPE Apollo 4200 and HPE ProLiant DL380 servers.

The combination of HPE and Commvault provides end-to-end enterprise-grade container protection, safeguarding containers wherever they live (on-premises or in the cloud or hybrid) and restoring them wherever they are needed. Through the HPE Complete program, HPE provides a one-stop shop, where you can purchase validated turnkey backup and recovery solutions, reducing risk and improving recovery readiness while protecting your data.

The solution for protecting containerized applications includes the HPE hardware and Commvault software components.

HPE server families

The container protection software is available on two HPE server families:

- **HPE Apollo 4200 Gen10**

  HPE Apollo 4200 Gen10 servers offer an architecture optimized for Big Data analytics, software-defined storage, backup and archive, and other data storage intensive workloads. Its unique, easily serviceable 2U design saves data center space with up to 28 large form factor (LFF) or 54 small form factor (SFF) hot-plug drives. HPE Apollo delivers accelerated performance with a superior bandwidth and balanced architecture, Intel® Xeon® Scalable processor family CPUs, and NonVolatile Memory express (NVMe) connected solid state drives (SSDs).

- **HPE ProLiant DL380 Gen10**

  HPE ProLiant DL380 servers are designed to simplify hybrid cloud by providing the agility of a modernized infrastructure with 10th generation servers, improving their existing extensive portfolio of modern solutions.

Commvault software

Commvault backup software is natively integrated with Kubernetes (K8s), Red Hat®, OpenShift Container Platform (OCP), and other container orchestration platforms via the Container Storage Interface (CSI). Commvault leverages the K8s API and the CSI to perform K8s-native protection. Commvault provides comprehensive support across traditional enterprise workloads and storage infrastructures, enabling you to store, protect, replicate, and migrate persistent data and containers across on-premises and cloud environments.

For Commvault backup software, containers are simply another workload to protect. Commvault was an early adopter of CSI, enabling the application-consistent protection of not only persistent K8s data, but also the other data in the application landscape, such as source code, CI/CD systems, and image registry data. Being able to protect all the data in your application landscape is a key differentiator for Commvault.

Commvault software can be deployed on HPE Apollo systems and HPE ProLiant servers, with scale-up and scale-out options to suit your architecture requirements, allowing you to easily scale your infrastructure. Using this approach, the platform grows incrementally with compute, memory, storage, and networking. You can build a unified, modern data protection and management platform that delivers cloud-like services on-premises.

CONCLUSION

Enterprise-grade container platforms are here to stay. HPE and Commvault offer a joint solution for protecting containerized applications that:

- Is fully tested, validated, and optimized
- Provides the maximum level of flexibility and granularity for container backup and restore
- Can be deployed and managed in hybrid environments (public clouds and on-premises)
- Is fully documented with supporting technical white papers describing step-by-step implementation of container protection as well as detailed FlexBOMs and predefined configurations to make building and configuring your infrastructure easy

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Enhance Data Protection: HPE Storage and Commvault software

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