Red Hat OpenShift Container Storage

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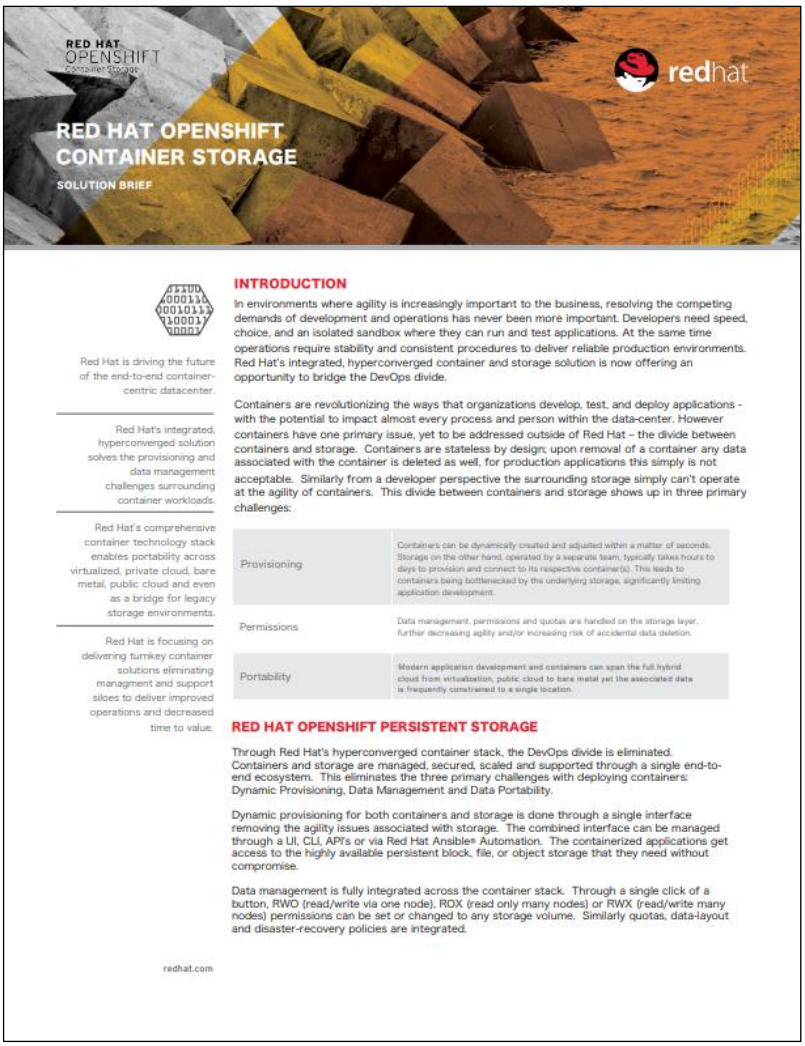

RED HAT OPENSHIFT
Container Storage

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RED HAT OPENSHIFT CONTAINER STORAGE

SOLUTION BRIEF

Red Hat is driving the future of the end-to-end container-centric datacenter.

Red Hat's integrated, hyperconverged solution solves the provisioning and data management challenges surrounding container workloads.

Red Hat's comprehensive container technology stack enables portability across virtualized, private cloud, bare metal, public cloud and even as a bridge for legacy storage environments.

Red Hat is focusing on delivering turnkey container solutions eliminating managment and support siloes to deliver improved operations and decreased time to value.

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INTRODUCTION

In environments where agility is increasingly important to the business, resolving the competing demands of development and operations has never been more important. Developers need speed, choice, and an isolated sandbox where they can run and test applications. At the same time operations require stability and consistent procedures to deliver reliable production environments. Red Hat's integrated, hyperconverged container and storage solution is now offering an opportunity to bridge the DevOps divide.

Containers are revolutionizing the ways that organizations develop, test, and deploy applications - with the potential to impact almost every process and person within the data-center. However containers have one primary issue, yet to be addressed outside of Red Hat – the divide between containers and storage. Containers are stateless by design; upon removal of a container any data associated with the container is deleted as well, for production applications this simply is not acceptable. Similarly from a developer perspective the surrounding storage simply can't operate at the agility of containers. This divide between containers and storage shows up in three primary challenges:

Provisioning	Containers can be dynamically created and adjusted within a matter of seconds. Storage on the other hand, operated by a separate team, typically takes hours to days to provision and connect to its respective container(s). This leads to containers being bottlenecked by the underlying storage, significantly limiting application development.
Permissions	Data management, permissions and quotas are handled on the storage layer, further decreasing agility and/or increasing risk of accidental data deletion.
Portability	Modern application development and containers can span the full hybrid cloud from virtualization, public cloud to bare metal yet the associated data is frequently constrained to a single location.

RED HAT OPENSHIFT PERSISTENT STORAGE

Through Red Hat's hyperconverged container stack, the DevOps divide is eliminated. Containers and storage are managed, secured, scaled and supported through a single end-to-end ecosystem. This eliminates the three primary challenges with deploying containers: Dynamic Provisioning, Data Management and Data Portability.

Dynamic provisioning for both containers and storage is done through a single interface removing the agility issues associated with storage. The combined interface can be managed through a UI, CLI, API's or via Red Hat Ansible® Automation. The containerized applications get access to the highly available persistent block, file, or object storage that they need without compromise.

Data management is fully integrated across the container stack. Through a single click of a button, RWO (read/write via one node), ROX (read only many nodes) or RWX (read/write many nodes) permissions can be set or changed to any storage volume. Similarly quotas, data-layout and disaster-recovery policies are integrated.

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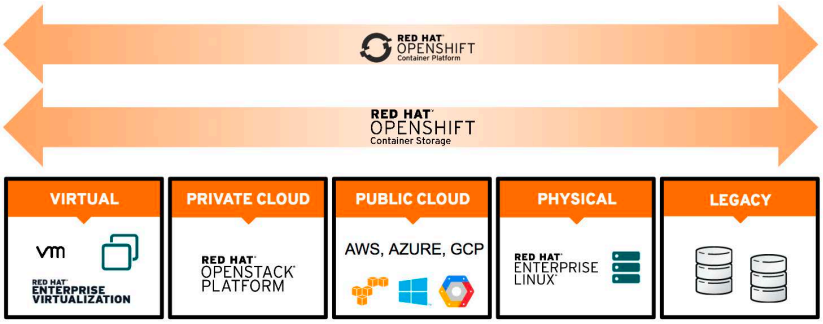
Red Hat's comprehensive container technology stack enables full data portability across virtualized, private cloud (OpenStack), bare metal, public cloud and even as a bridge for legacy storage environments. This enables the environment to size dynamically an future-proof the container workloads as new consumption models emerge.



Finally, development, testing, support, scalability, security and disaster recovery are all delivered through a single vendor integrated solution. With this comprehensive approach, Red Hat makes container adoption as easy and seamless as possible. Red Hat's vision is to become the de-facto hyperconverged platform for containers. The following provides a summarized chart for comparing storage options for OpenShift:

	Dynamic Provisioning	Online Expansion	Permissions & Quotas	Data Portability	Single Vendor Solution
OpenShift Storage	✔	✔	✔	✔	✔
iSCSI Array	✖	✖	✖	✖	✖
NFS Array	✖	✖	◆	✖	✖
Virtualized Disks	◆	✖	✖	✖	✖
Public Cloud	◆	✖	✖	✖	✖
Local Drives	✖	✖	✖	✖	✖

✔ Full Functionality ◆ Partial Functionality ✖ No Functionality

CONCLUSION

Container technology stands to truly revolutionize DevOps, but only if it remains open, standardized, secure, and simple to deploy. Red Hat's open, stack-based approach helps deliver on the promise of portable containerized applications by offering proven enterprise-grade storage options. Developers get their choice of integrated, persistent storage to support the specific needs of their application through a unified control plane.

Red Hat strives to offer better containerized and Platform-as-a-Service (PaaS) environments than any other vendor through Red Hat OpenShift Container Platform, and Red Hat Storage. Uniquely, all of this technology is developed and tested together at Red Hat, helping to ensure that software components work together. Using Red Hat technology, organizations can save valuable time and effort as they begin to deploy containerized applications and streamline a software-defined infrastructure.

ABOUT RED HAT

Red Hat is the world's leading provider of open source software solutions, using a community-powered approach to provide reliable and high-performing cloud, Linux, middleware, storage, and virtualization technologies. Red Hat also offers award-winning support, training, and consulting services. As a connective hub in a global network of enterprises, partners, and open source communities, Red Hat helps create relevant, innovative technologies that liberate resources for growth and prepare customers for the future of IT.

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