Portworx by Pure Storage: Simplifying and Automating Storage Management for Amazon EKS

Overcome the complexity of your application environments.

Operate, Scale, and Secure Amazon EKS Applications and Databases with a Few Clicks

Creating modern applications using a cloud-native methodology, with containers and Kubernetes at the core, has hit critical mass. As a result, organizations are lowering costs and delivering new applications faster. However, although using Kubernetes automates application orchestration, managing cloud-native containers in applications can be a challenge. Case in point is storage management, which is core to all modern applications and must be highly available and secure.

Portworx by Pure Storage is a Kubernetes storage platform that can help you run mission-critical applications in containers in production. When you run Portworx on Amazon Web Services (AWS), you address key storage and data management challenges that enable scalable production workloads on Amazon Elastic Kubernetes Service (Amazon EKS) and Amazon Elastic Block Store (Amazon EBS).

In this ebook, discover how running your mission-critical applications with Portworx on AWS allows operators to scale on-demand without having to re-architect or redeploy and reduces unnecessary complexity by not needing multiple environments for multiple applications.

95%
OF NEW APPS
are developed
in containers

451 Research

81%
OF ENTERPRISES
work with 2+ public
cloud providers.

Gartner.

78%
OF CNCF MEMBERS
use Kubernetes
in production.

CLOUD NATIVE
COMPUTING FOUNDATION

85%
OF GLOBAL BUSINESSES
will be running containers
in production by 2025
(up from 35% in 2019).

Gartner.

Cloud Native Data and Apps
At Scale, Anywhere.

Overcome Data Gravity with Container-Native Storage Built for Kubernetes on AWS

Previously, storage was implemented with either virtual disks and files or physical block or object storage. Modern, microservices-based applications demand a more agile approach to storage and compute services. By implementing containerized workloads on AWS utilizing Amazon EKS, DevOps and platform engineers need a set of tools to simplify, optimize, and automate the data storage services that support Kubernetes.

Running stateful applications on Kubernetes requires enterprise-class reliability and availability for the storage services that support the underlying data services and databases. Portworx on AWS provides DevOps and platform engineers with the tools to build and support an environment that allows developers to innovate, fail, and go-to-market faster. Simply put, Portworx removes the complexity previously associated with managing and provisioning Kubernetes storage while optimizing storage costs and increasing data availability.
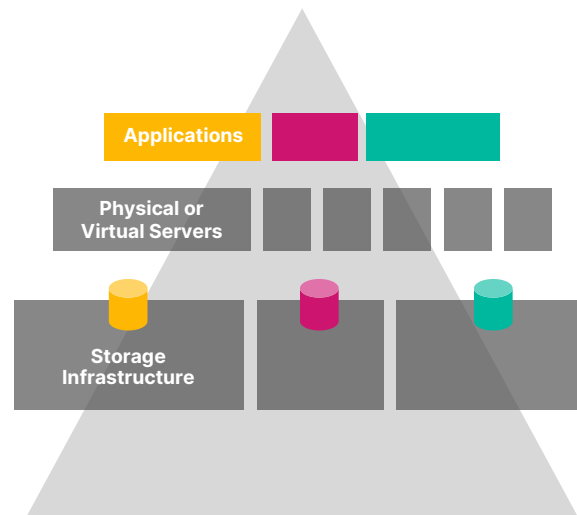
**Virtual Machine World:
Infrastructure Centric**
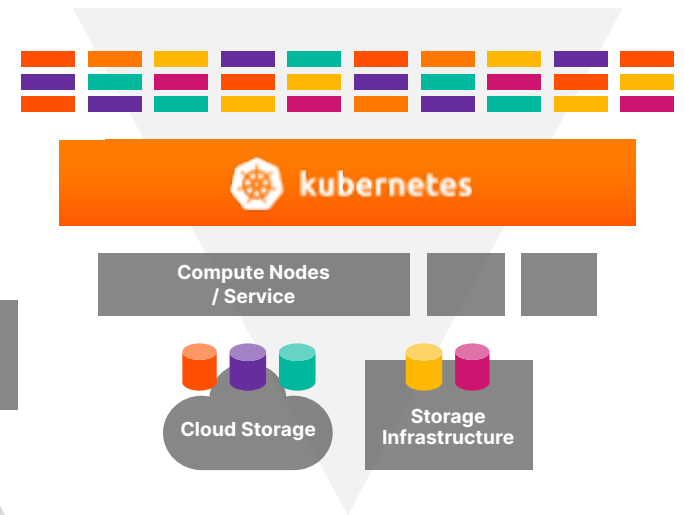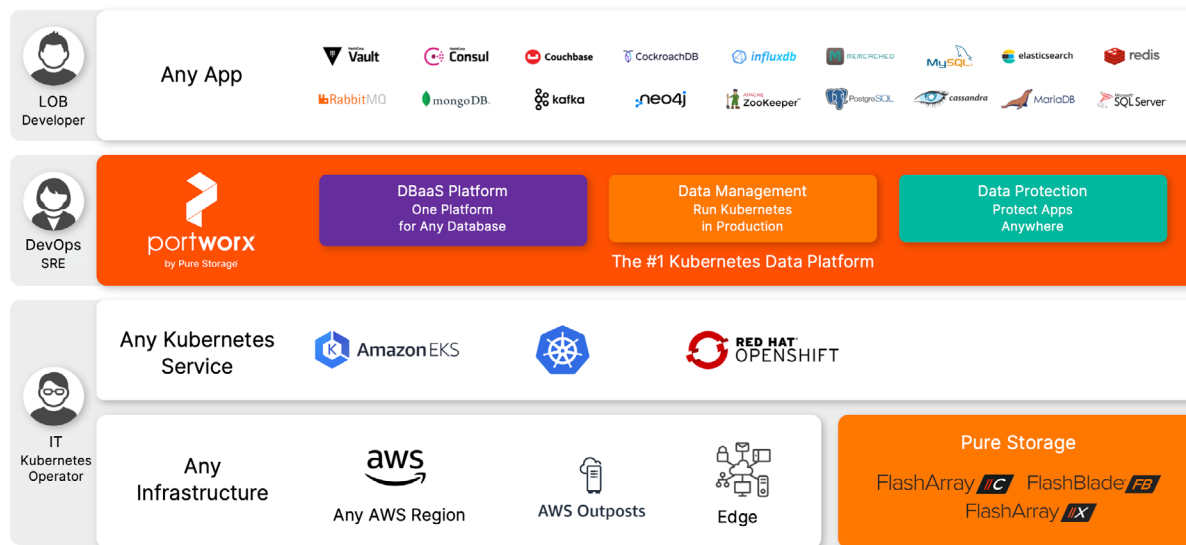
**Kubernetes World:
App Centric**

The Power of a Platform with the Scalability of the Cloud

With Portworx, DevOps and platform engineers can simplify provisioning and managing storage while increasing data availability for their developers, architects, and others who build on Amazon EKS.

The combination of AWS and Portworx means that developers have immediate access to a Kubernetes platform for developing, testing, and deploying mission-critical applications.

Key benefits of Portworx on AWS:

- Speed infrastructure availability by creating thousands of storage volumes in minutes to support development, testing, and production of AWS EKS environments.

- Scale applications dynamically with automatic container volume and storage cluster resizing to support workload demand.

- Migrate data for entire applications from on-premises containers to AWS or move data between AWS Regions, Amazon EKS Anywhere environments, or AWS Outposts.

- Optimize application storage costs with thin provisioning to pay for only the storage needed.

- Increase availability with enterprise-class synchronous and asynchronous replication within AWS Availability Zones (AZs) and between Regions.

- Provide zero recovery point objective (RPO) data protection with less than one-minute recovery time objective (RTO) with application-aware backup and DR.

- Secure data with container or storage class based bring your own key (BYOK) encryption, role-based access control (RBAC), authorization, and authentication.

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Portworx by Pure Storage on AWS at a glance

DR and availability with replication within AWS AZs and across Regions delivering zero RPO and RTO within minutes.

Backup built for Kubernetes with application-aware and container-granular backup and restore. Immutable backups can be stored in Amazon Simple Storage Service (Amazon S3) for ransomware recovery.

Migration to and from on-premises and multi-cloud with application consistent snapshots.

Optimize storage cost and performance for Amazon EBS through thin provisioning and automatic storage resizing to support dynamic workloads.

Functionality	Amazon EKS + Amazon EBS	Amazon EKS + Amazon EBS + Portworx
Mount volume into container or pod	✓	✓
Dynamically provision volume	✗	✓
Asynchronous replication	◑ (volume only, DR volume)	✓ (app + data)
Thin provisioning	✗	✓
High-density support (large number of volumes per host)	✗	✓ 1,024 volumes per host
Volume aggregation	✗	✓
Resize volumes on demand	◑ (offline only)	✓
QoS/CoS	✗	✓
Cross-AZ support	✗	✓
Fast failover (and mitigation of stuck volumes)	✗	✓
Application-optimized I/O profiles (databases, sequential, random, auto)	✗	✓
Right-sized, performance-optimized persistent volumes – no overprovisioning	✗	✓
Flexible storage configuration – hyper-converged and disaggregated architectures	✗	✓
Data portality through virtualized volumes	✗	✓

FIGURE 1 What You Get with Portworx on AWS

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Customer Story: CHG Healthcare

CHG Healthcare manages more than 30% of the temporary medical employees in the United States, making it one of the largest healthcare staffing companies in the country. The company also helps customers fill thousands of permanent positions for physicians, nurses, and other health professionals.

CHG migrated most of its technology infrastructure to AWS and adopted Kubernetes to rapidly develop, test, and deploy new applications. But to operate this continuous integration/continuous development (CI/CD) environment, the company needed a storage layer that was as flexible as the other elements of its cloud-native stack.

Portworx meets CHG Healthcare's storage needs in its development environment with Portworx including strong replication, data recovery, and availability. CHG accelerates the development cycle to get new services in front of customers faster.

Key Results:

- Speeds up the software development cycle

- Saves $5,000 per month in data streaming and management costs

- Gains strong support from Portworx engineers

"The platform offers so much more than storage. It accelerates and streamlines our cloud development life cycle. With Portworx in place, we can continue to play our part in helping hospitals and medical institutions deliver modern care services across the United States for years to come."

REED GLAUSER, DIRECTOR OF ENGINEERING AT CHG

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Conclusion

Portworx adds value to Amazon EKS by providing a software-defined container storage platform that runs on top of Amazon EBS to provide Kubernetes applications with scale-out storage, cross-AZ data availability, data security, backup, and DR in any Region or AWS Outpost.

Learn more about the Portworx Platform.

Get the most out of your AWS infrastructure with Portworx.

Cross-AZ HA: When you run Portworx on top of Amazon EBS, your Kubernetes volumes are automatically replicated across AZs, providing faster failover and HA for Kubernetes applications.

Backup and DR: Portworx Backup provides point-and-click backup and restore of Kubernetes applications across Regions while Portworx DR provides zero RPO disaster recovery

Cross-Region migrations: Portworx Migrate lets you migrate entire Kubernetes applications—including data and application configuration—between any Region or AWS Outpost.

Optimize infrastructure: Portworx Autopilot enables you to optimize your Amazon EBS usage by intelligently provisioning storage on demand.

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