

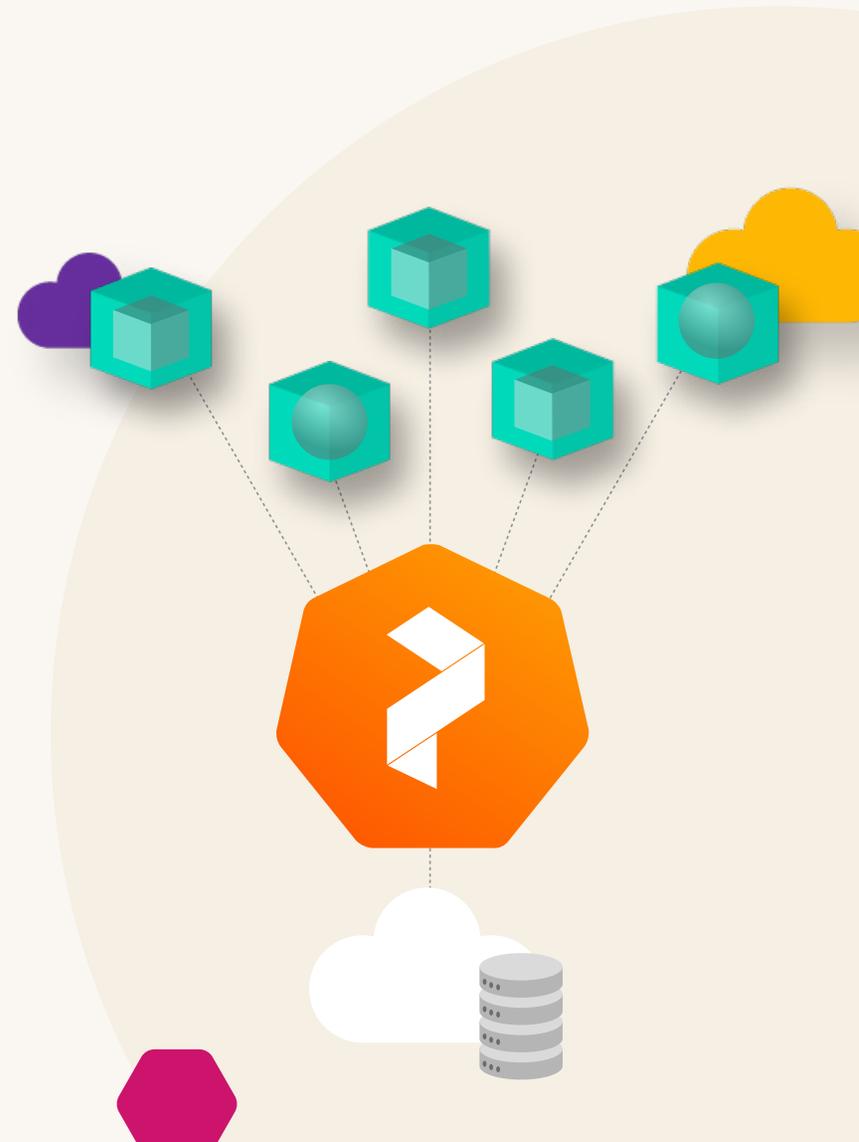


portworx<sup>®</sup>  
by Pure Storage<sup>®</sup>

# The Kubernetes Data Services Platform

Available in AWS Marketplace

 aws marketplace

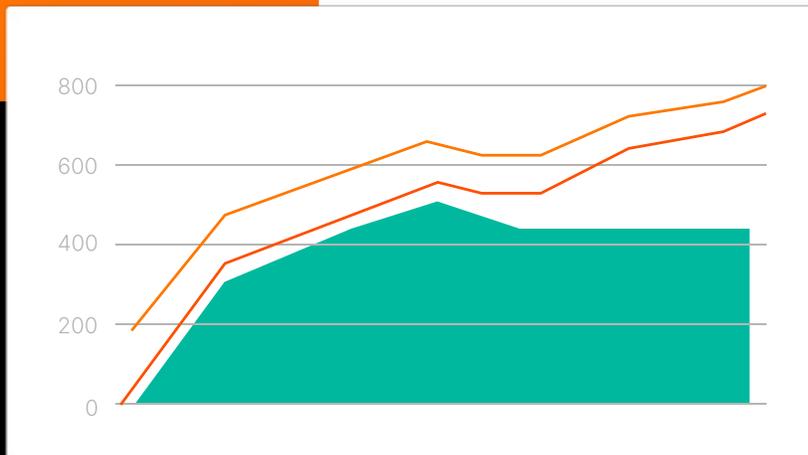


## About this eBook

This eBook will help you learn more about containers, why high performance storage, HA, DR, backup, and security optimized for containers is critical for enterprise application deployments on Kubernetes, and how to deploy Portworx with Amazon EKS.

## In this eBook

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**High performance storage,  
high availability (HA), disaster  
recovery (DR), backup, and  
security for stateful services  
running on Amazon Elastic  
Kubernetes Service (EKS)**

# Portworx by Pure Storage on Amazon Web Services (AWS) at a glance

Improve application reliability with Kubernetes-granular storage, data availability, data security, backup, and DR while slashing your Amazon Elastic Block Store (Amazon EBS) storage costs in half.



## Cross-AZ HA

When you run Portworx on top of Amazon EBS, your Kubernetes volumes are automatically replicated across Availability Zones (AZs), providing high availability (HA) and faster failover for Kubernetes applications.



## Backup and DR

Portworx PX-Backup provides point-and-click backup and restore of Kubernetes applications across Regions while PX-DR provides zero recovery point objective (RPO) disaster recovery (DR).



## Cross-Region migrations

PX-Migrate lets you easily migrate entire Kubernetes applications, including data and app configuration, between any AWS Region or AWS Outpost.



## Optimize infrastructure

Portworx PX-Autopilot enables you to optimize your Amazon EBS usage by intelligently provisioning storage on demand.

Portworx solves the five most common problems DevOps teams encounter when running database containers and other stateful services in production.

05

## Top 5 production operations problems solved by Portworx

### High availability

HA for all of your databases and stateful containers even across Availability Zones. Portworx can also eliminate stuck volume issues resulting in reducing failover times from up to 10 minutes down to seconds.

### Backup and recovery

Seamlessly back up any application running on Kubernetes to Amazon Simple Storage Service (Amazon S3) with the click of a button. Recover to any environment just as easily.

### Disaster recovery

No matter how essential your application is, run it with confidence on Amazon EKS with Portworx. Achieve Zero RPO Disaster Recovery for data centers in an AWS Region as well as continuous backups across Regions for an even greater level of protection.

### Application migrations

Easily move entire applications, including their data, between clusters, AWS Regions, Amazon EKS Anywhere environments, and AWS Outposts.

### Data security

Highly secure, key-managed, container-granular encryption integrated with AWS Key Management Service (AWS KMS) and data access controls.

**Portworx Enterprise** is the Kubernetes Data Services Platform businesses trust to run mission-critical applications in containers in production.

**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).

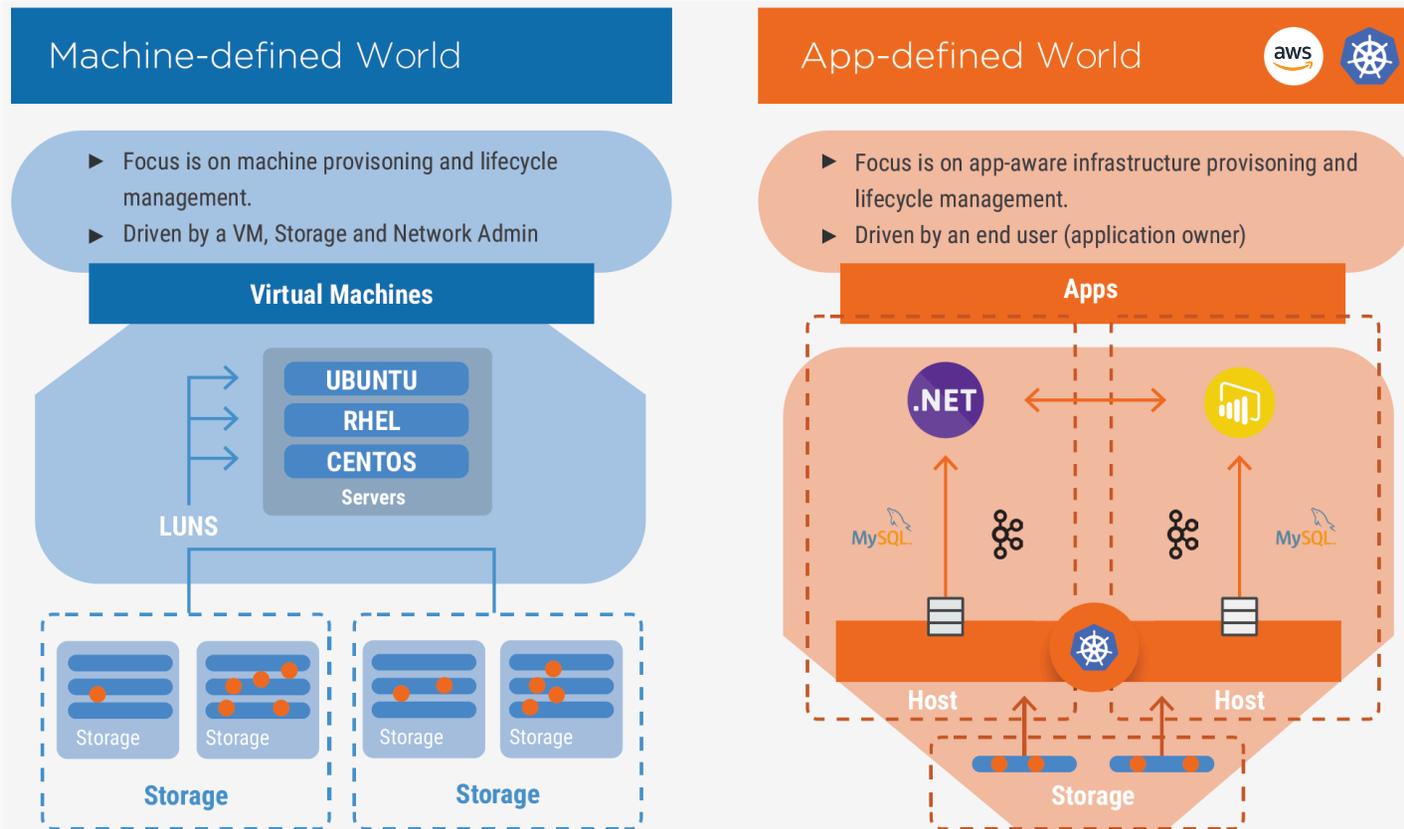
**Gartner**



## Overcome data gravity with containerized storage

Traditional enterprise storage revolves around the virtual machine. But when apps are packaged as containers to run on Kubernetes, VM-based storage, backup, DR, and data security solutions no longer apply.

You need the same performance, reliability, and security provided by traditional storage, but optimized for the application-centric world of Kubernetes. That's what Portworx provides.



In order to run stateful services and applications on Kubernetes, you need scalable persistent storage similar to what is used for virtual machines (VMs), but optimized for containers.

## Run mission critical, stateful applications on Amazon EKS with Portworx

### With Portworx and Amazon Web Services (AWS), you can:

- Operate at enterprise scale. Get the same scalability for data that AWS provides for compute. Easily create thousands of volumes in minutes.
- Meet strict SLAs. Run stateful applications on Amazon EKS and still meet strict SLAs and regulatory requirements with high availability (HA) and Kubernetes integrated disaster recovery (DR).
- Move apps and data seamlessly. Migrate and back up entire applications, including data, between clusters in a single data center or cloud, or between Amazon Regions, Amazon EKS Anywhere environments, or AWS Outposts.
- Protect your data from disasters. Achieve Zero RPO and < 1 minute RTO Disaster Recovery for mission-critical data services.
- Optimize infrastructure. Portworx PX-Autopilot enables you to optimize your Amazon Elastic Block Store (Amazon EBS) usage by intelligently provisioning storage on demand.
- Simplify data access. Portworx simplifies data access and analysis using open-source SQL, NoSQL, Big Data, and AI/ML technologies without requiring central IT to give up control.
- Secure data automatically. Eliminate security risks with automatic policy-based data encryption in transit and at rest, as well as complete role-based access controls integrated with corporate authentication systems.



# Are you ready for the modern app economy?

In today's world, the fast are eating the slow. Enterprises are deploying modern apps like AI, personalization, and fraud detection to offer better, faster results to their customers. Unfortunately, IT leaders often struggle with deploying these modern apps and spend more time firefighting than innovating. **Portworx is on a mission to change that.**

Traditional apps are centrally managed and operated by skilled human administrators. Modern apps, on the other hand, are distributed, and leverage automation and technologies like containers and Kubernetes that allow rapid change and agility.

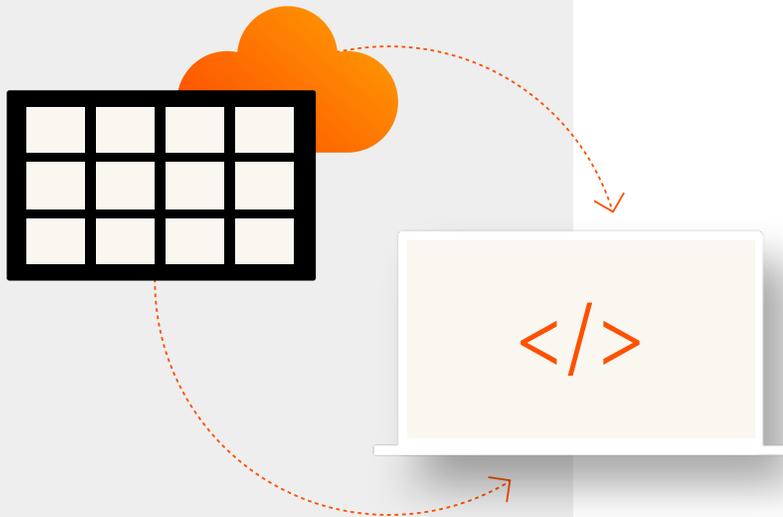
Huge data growth, rapid expansion, and global deployment of these modern apps are straining storage and data management systems that were designed for a more static world.

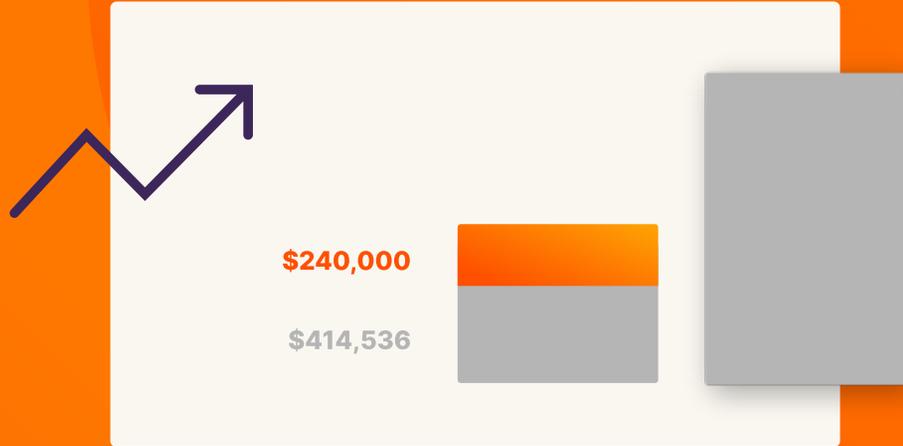
This causes missed deadlines, poor user experience, and strained resources. In other words, more firefighting and failures and less innovation and speed.

## **Enter Portworx.**

Portworx was built from the ground up for modern applications that run on Kubernetes. Portworx provides the performance, availability, data protection and security your apps require, but in a completely automated, API-driven world.

With Portworx, you can deliver more apps, faster. Stop firefighting and focus on innovation with Portworx.





## T-Mobile

“We can now take an idea that our executive team or our marketing team has at the beginning of the day, and have that shift out in production across all of our data centers and cloud providers by the end of the day.”

—Joe Searcy, T-Mobile



# Container-native storage—built for Kubernetes. Now available for AWS.

With Portworx Enterprise, Amazon EKS development teams can spend less time on storage and data management and more time driving innovation. Portworx Enterprise enables mission critical, stateful workloads, like databases and data analytics, to run on AWS with high performance and high availability throughout the entire application lifecycle.

## Deploy Portworx with Amazon EKS

Portworx enables data availability, data security, backup, and disaster recovery for Kubernetes-based applications running on Amazon EKS deployments.

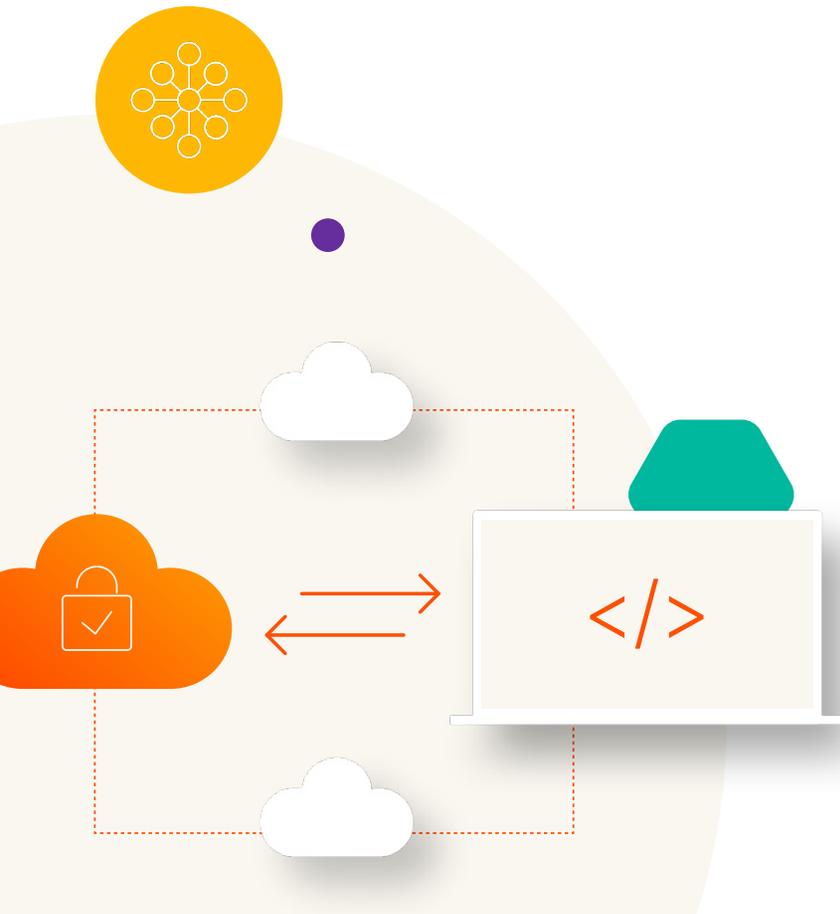
## There are two ways to deploy Portworx to manage Kubernetes clusters on AWS:

### Bring Your Own Portworx License

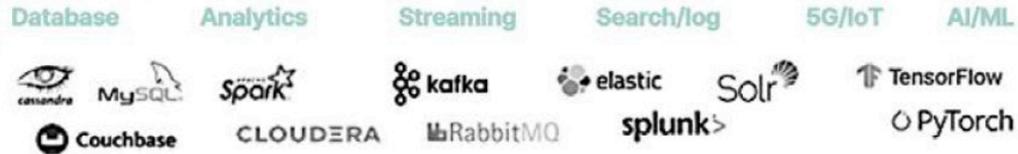
Portworx has been extensively tested and validated to be compatible with Amazon EKS. Extend your existing Portworx licenses to Amazon EKS clusters or contact your Portworx or AWS representatives to explore additional licensing options.

### AWS Marketplace

The Portworx software-defined storage solution for Amazon EKS can be provisioned for Kubernetes clusters in AWS Marketplace.



## Any app



## Any kubernetes distribution



## The Kubernetes Data Services Platform



## Any AWS Region



## Any AWS Outpost or Amazon EKS anywhere environment



## Every stage



**Portworx provides a single data management layer for all stateful services running on Amazon EKS:**

- Dynamically provisioned, high-performance storage
- High availability, even across racks and AZs
- Seamless migration, backup, and recovery
- Zero RPO disaster recovery
- Data encryption and security
- Automated capacity management



“At Audi Business Innovation, we’ve explored different strategies for managing cloud costs, and the integration of Portworx as our Kubernetes storage platform has been successful in achieving this goal.”

“Portworx provides an enterprise-class alternative to the network-attached storage commonly available on the cloud but at one third the price and substantially higher performance. Additionally, using PX-Autopilot to automatically provision storage only when it is needed, we are driving our cost savings even further.”

—**Florian Buchmeier, DevOps Engineer,**  
**Audi Business Innovation, a 100% subsidiary of Audi AG**



# Dynamically provisioned, high performance storage

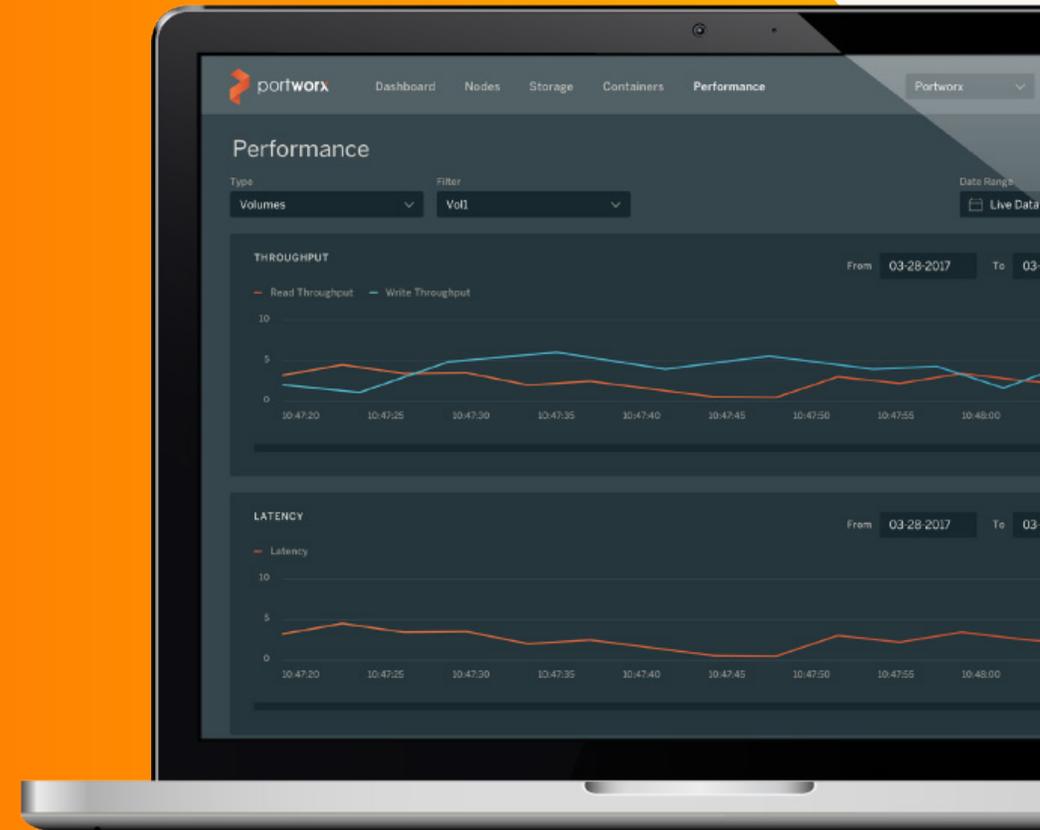
## PX - Store

### Get more out of Amazon EBS for Kubernetes

Built from the ground up for containers, PX-Store provides cloud native storage, with built-in HA, for applications running in any AWS Region, Amazon EKS Anywhere environment, or AWS Outpost. PX-Store takes your Amazon EBS storage and turns it into a cluster-wide storage pool for all your containerized applications streamlining deployment and optimizing resources.

### Storage at the speed of Kubernetes

As the foundation for Portworx Enterprise, PX-Store provides the reliability, performance, and data protection you expect from an enterprise storage company, but delivered as a container, and managed 100% via Amazon EKS and other container platforms.



# Sleep soundly with Zero RPO DR and continuous backups

## PX - DR

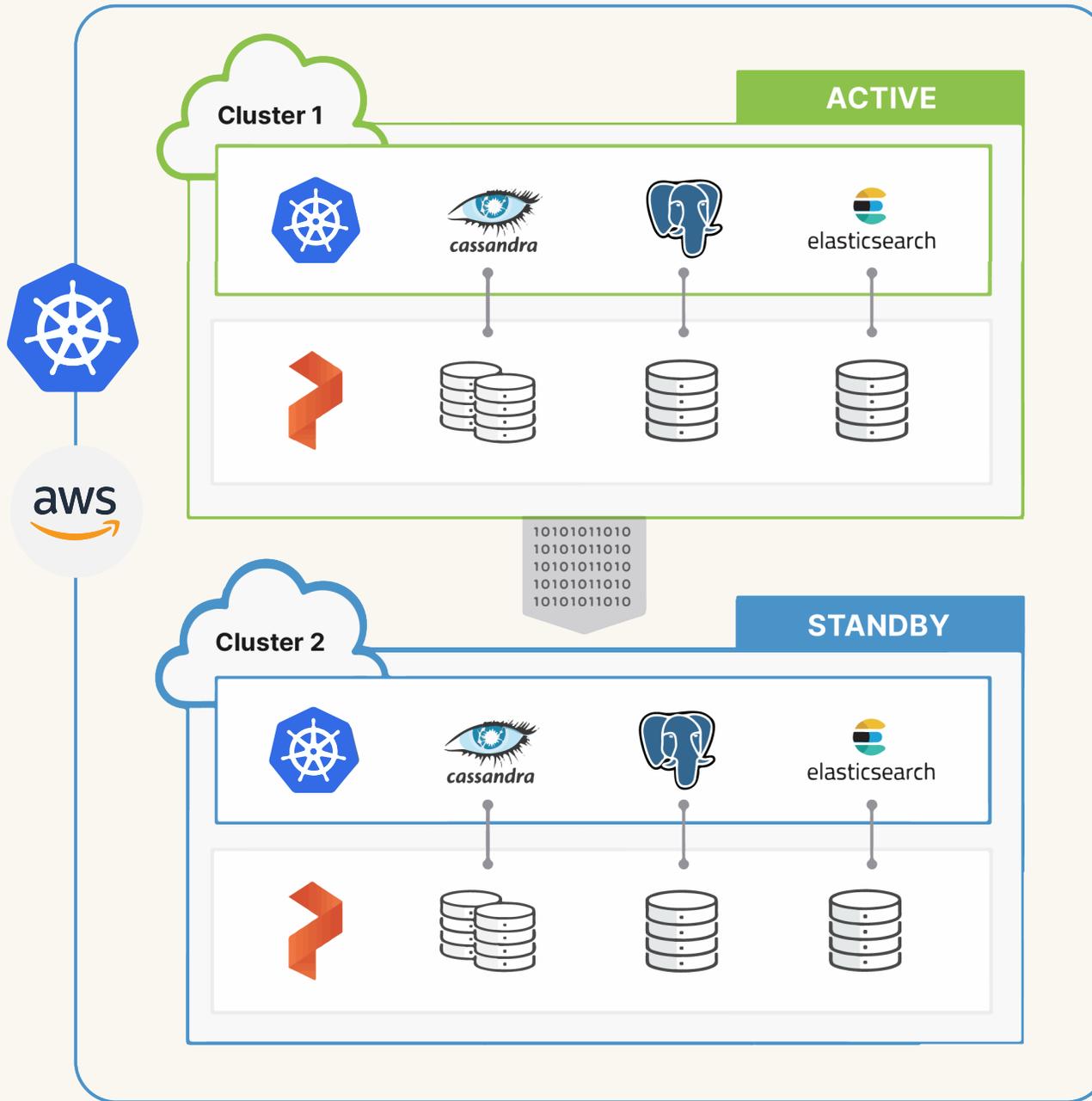
### Zero RPO DR

PX-DR extends the high availability data protection included in PX-Store with Zero RPO Disaster Recovery for AWS Regions.

### Continuous backup across the globe

For DR needs that span a country or globe, PX-DR offers continuous incremental-backups to keep an up-to-date backup of mission critical apps staged in case disaster strikes.

PX-DR provides data protection for applications running across multiple data centers



# Back up and recover with just one-click

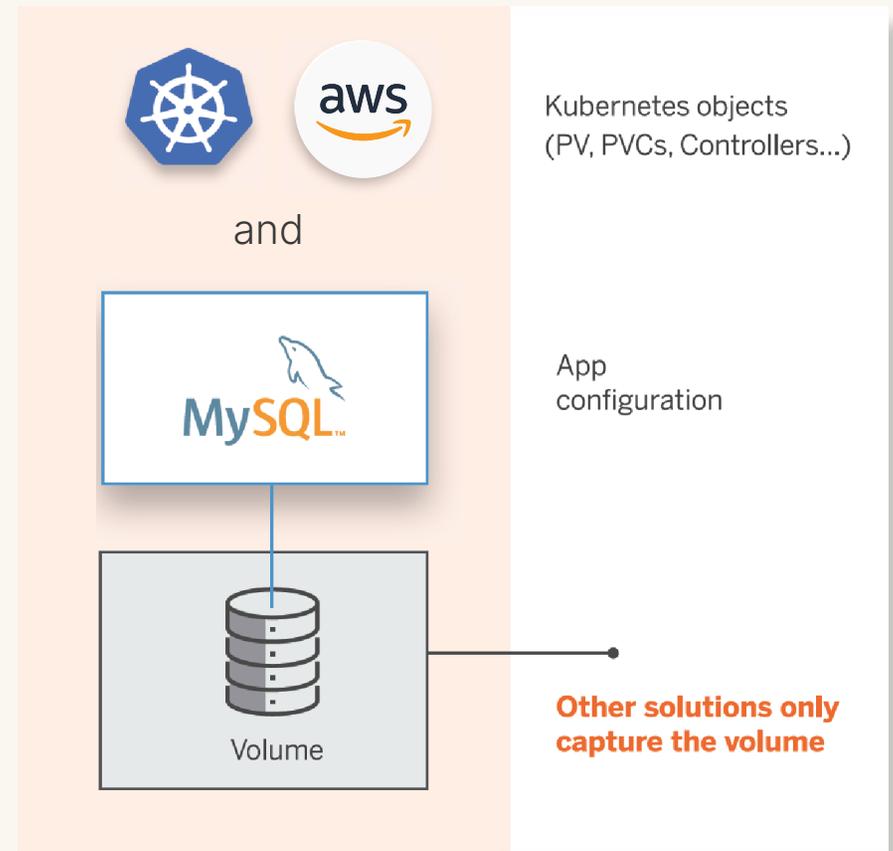
## PX - Backup

PX-Backup allows you to capture entire applications, including data, application configuration, and Kubernetes objects, and move them to any backup location at the click of a button. Recover entire applications just as easily.

### Backup to any Amazon S3 bucket globally

PX-Backup captures application data, configuration, and Kubernetes objects as a single unit and enables enterprises to place this critical data into any Amazon S3 bucket globally:

- Continuous backups across global data centers
- Point-and-click recovery for any Kubernetes app
- Backup multi-node distributed databases like Cassandra, Kafka, Elasticsearch, and MongoDB
- Fulfill compliance and governance responsibilities with a single pane of glass
- Available in AWS Marketplace



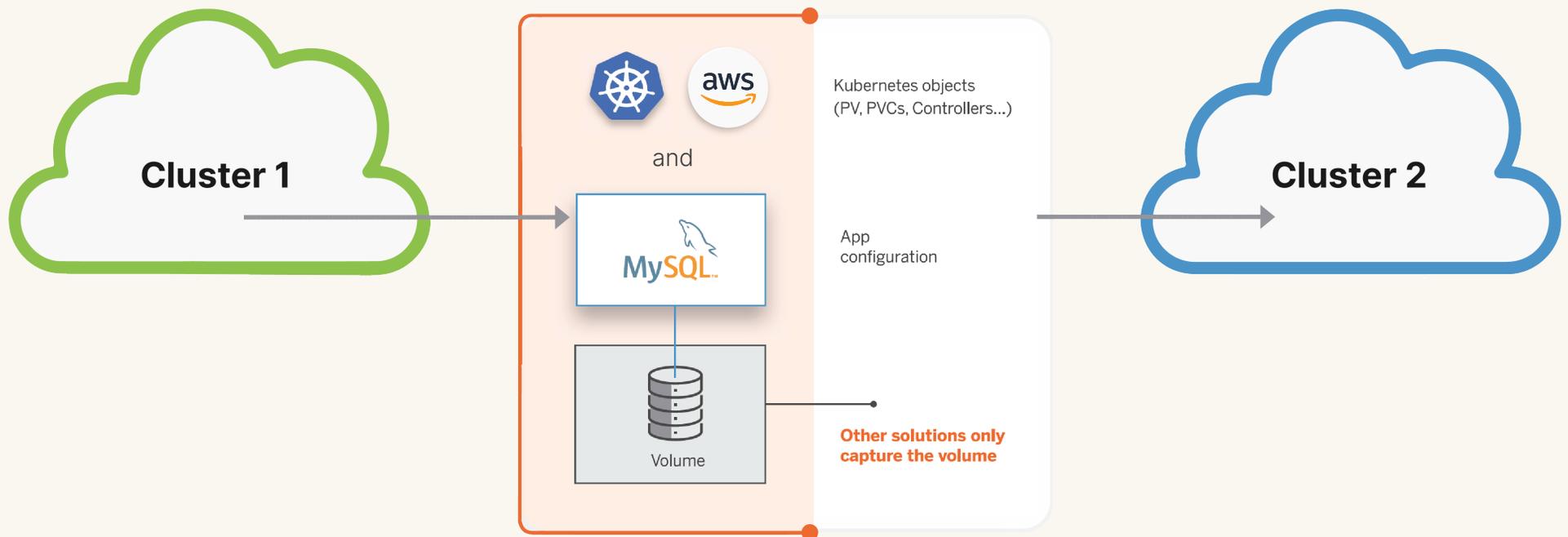
# Move apps and data between clusters or clouds with a single command

## PX - Migrate

With PX-Migrate, migrate entire applications, including data, application configuration, and Kubernetes objects, between clusters in a single cluster, AWS Availability Zone (AZ), or AWS Region with a single command.

### App-consistent, not just crash consistent

The typical Kubernetes app is composed of multiple stateful pods, so you can't perform a migration with only a single snapshot. PX-Migrate makes migrating multi-pod applications easy with application-consistent snapshots of complex apps.



# Kubernetes without compromise

## PX - Secure



### **Bring-your-own-key encryption**

PX-Secure enables encryption of Kubernetes data at the volume, storage class, or cluster level.

### **Integrated access controls**

Define authentication, authorization, and ownership of data volumes in Kubernetes through direct integration with corporate authentication systems like Active Directory or LDAP.

### **Integrations with AWS KMS**

Create and manage keys and control their use across your AWS services and applications using a single control point.

# Automate Kubernetes storage management

## PX - Autopilot



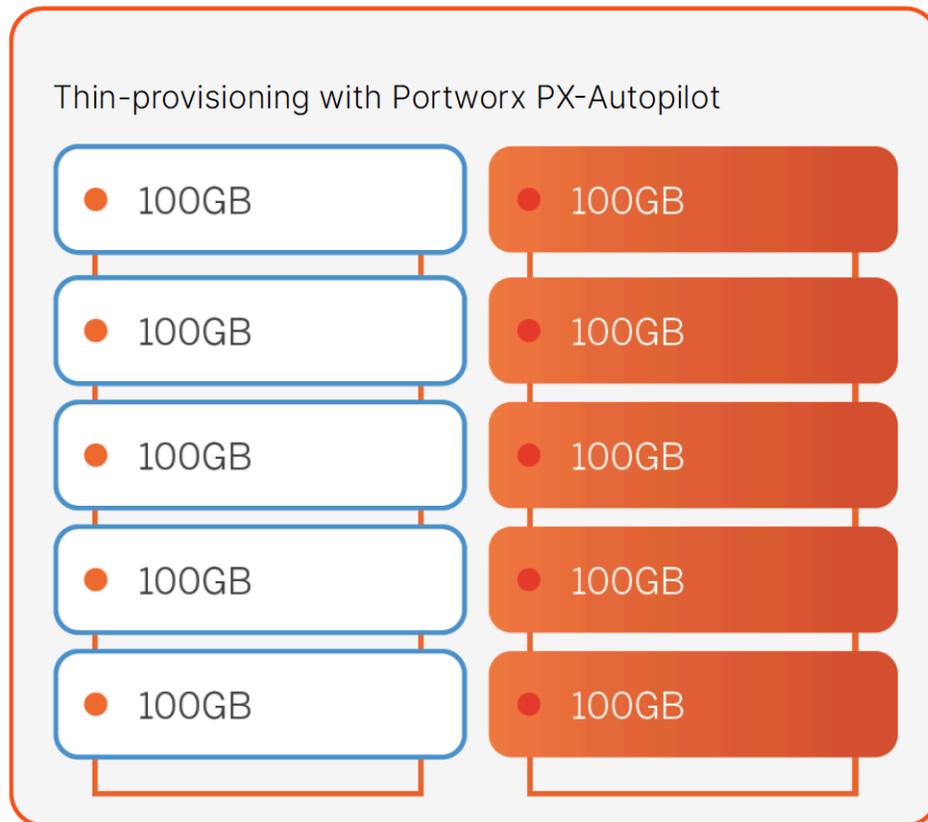
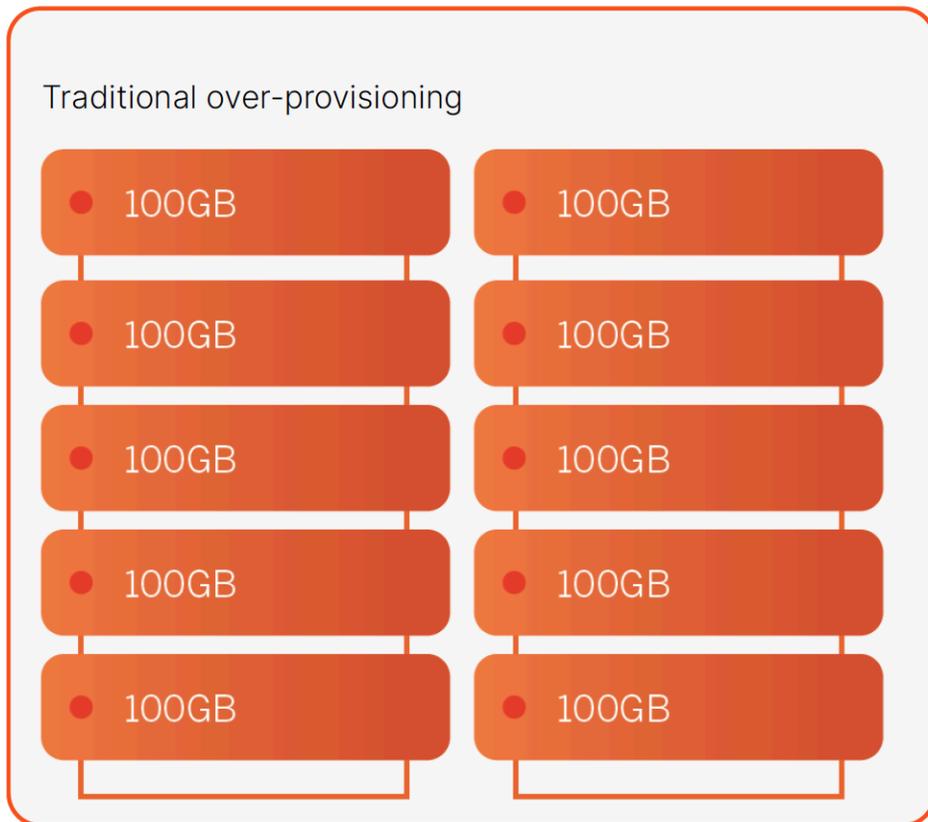
Portworx dynamic volume provisioning and on-demand storage resizing allow enterprises to avoid over-provisioning storage resources.

Portworx PX-Autopilot enables you to reduce cloud storage costs by intelligently provisioning Amazon EBS only when it is needed, eliminating the inefficiency of paying for additional cloud storage before it is consumed.

**By thin provisioning,  
you can save up to 50%  
on storage costs**

For example, with Portworx, an internal IT team can provide 10 application teams with a PostgreSQL database of 100 GB max each. Most storage solutions would require you set aside 1 terabyte of capacity initially, even though the vast majority of that storage will be underutilized. Portworx “thin provisions” the storage such that only a fraction need actually be provisioned, perhaps 500 GB.

- Storage actually provisioned and paid for
- Thinly provisioned storage



## Up to 40% reduction in compute footprint

When using application replication to increase read throughput across a greater number of hosts, Portworx can reduce your compute footprint for stateful services.

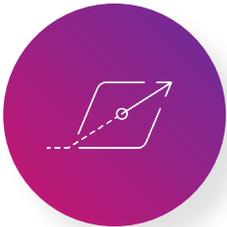
For example, with Portworx you can reduce the number of replicas from 5 containers to 3 containers (40% savings). Portworx also allows for greater container volume density per host, allowing you to deploy up to four times more containers per compute node than Amazon EC2 and Amazon EBS services out of the box to further reduce your footprint.

## Lighten up. Compute more.

Containers are significantly more lightweight than virtual machines. This allows you to substantially increase the density of applications per host, depending on your environment.

Due to increased average density, enterprises report being able to reduce their total server footprint overall through containerization initiatives. Portworx plays a critical role in these infrastructure savings by increasing the number of databases and other stateful services that can run on a single host. Portworx delivers all this without impacting performance or stability.





# 3.2x

## INCREASE IN WRITE PERFORMANCE

Using Portworx to run MongoDB reduces compute costs significantly while speeding up failover.

Performance tests showed Portworx enabling failover 300% faster while using just 33% of the compute resources required by MongoDB to failover at the same speed.

(Portworx benchmark test for MongoDB, 2018. See <https://portworx.com/kubernetes-failover-mongodb/>)



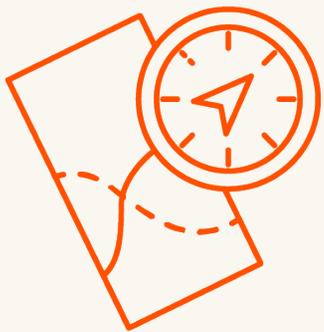
# 50%

## REDUCTION IN COST

Portworx helps reduce infrastructure costs by delivering automated just-in-time provisioning, ensuring that capacity is added only as needed. This helps customers like Audi save on their Amazon EBS cost.

Running data services on Amazon EKS with Portworx reduces cost by 50% over running the same data service on Amazon Relational Database Service (Amazon RDS).

(Source: [https://apperati.io/articles/db\\_cost\\_aws-bs/](https://apperati.io/articles/db_cost_aws-bs/)  
[https://apperati.io/articles/db\\_cost\\_aws-bs/](https://apperati.io/articles/db_cost_aws-bs/))

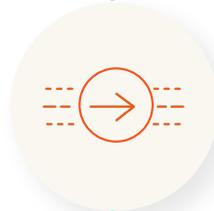


## Portworx customers

Portworx is trusted by sophisticated IT organizations including:



## Portworx accelerates your digital transformation



### Speed.

T-Mobile reduced app deployment times from 6 months to hours.



### Reliability.

RBC gained reliability as well as speed by moving to Kubernetes and Portworx.



### Agility.

Audi uses Portworx to automatically provision storage only when it is needed.



### Cost savings.

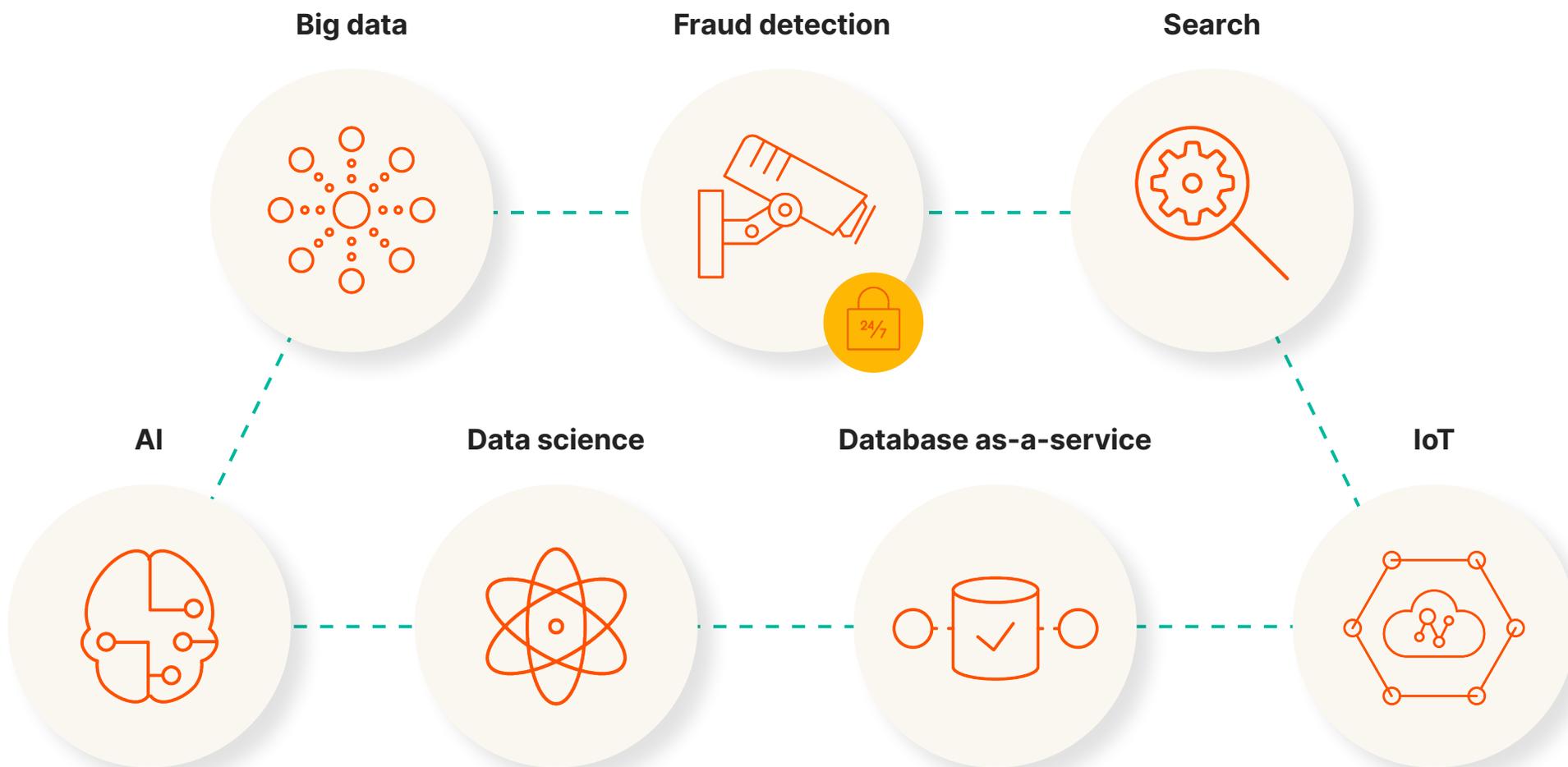
Audi Business Innovation cut their AWS storage bill by 60% with Portworx.



## About Portworx

Portworx is the Kubernetes Data Services Platform enterprises trust to run mission-critical applications in containers in production. Portworx provides a fully integrated solution for persistent storage, data protection, disaster recovery, data security, data migrations, and automated capacity management for applications

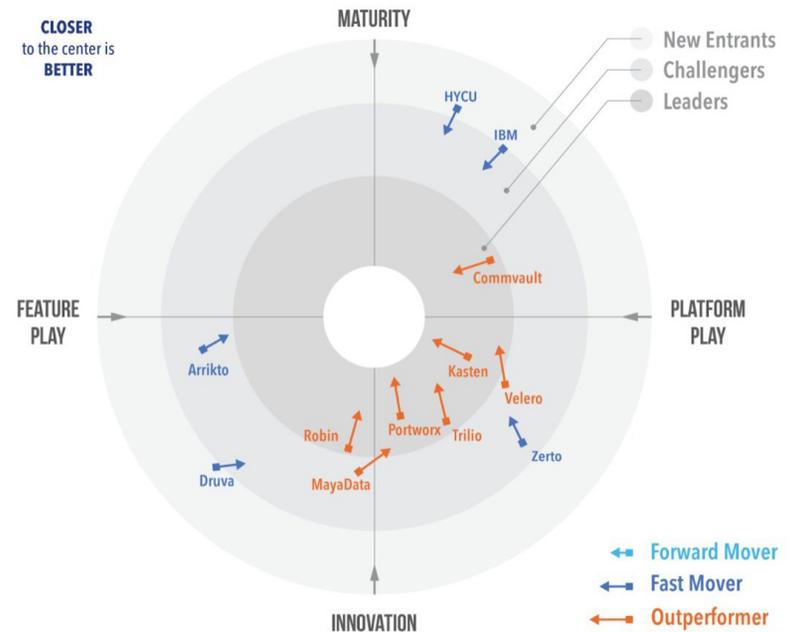
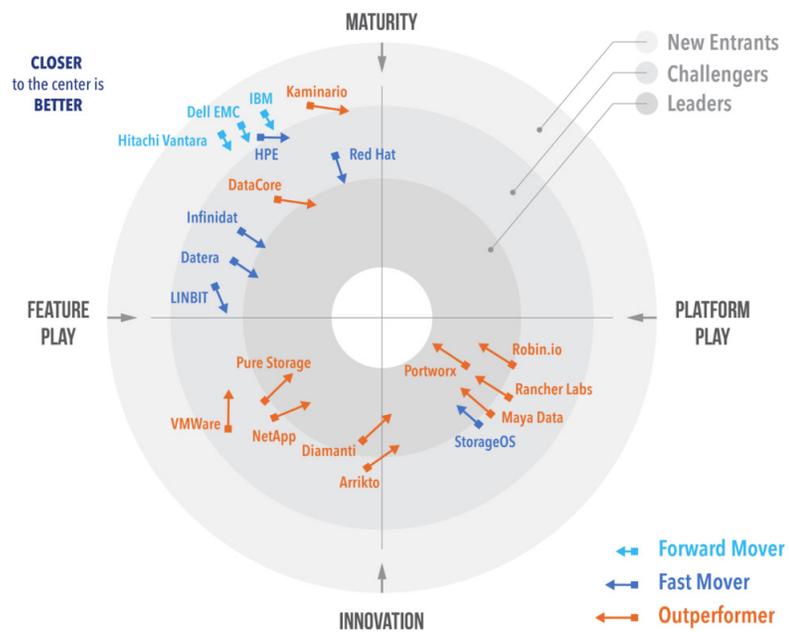
running on Kubernetes. As a result, Portworx is used Kubernetes data services platform by Global 2000 companies, including Carrefour, Comcast, GE Digital, Kroger, Lufthansa, and T-Mobile. The company was also named a Leader in the 2020 GigaOm Radar for Data Storage for Kubernetes and Kubernetes Data Protection reports.



Portworx supports all the use cases that are driving modern applications

# Portworx is a market leader for Kubernetes storage and data protection

## GIGAOM



## Why customers choose Portworx



“Portworx provides infrastructure-agnostic features—such as volume persistence, high availability, data security and automation—that are valuable to a business like GE Digital.”



**Lufthansa**

“With Portworx, our containers have fewer moving parts, fewer commands to understand, and fewer things to break.”

**T-Mobile**

“We looked for a partner that would provide us a stable performing environment for critical data on Kubernetes and Portworx checked all those boxes.”

Portworx is a high availability and disaster recovery partner for Amazon Kubernetes Service and Amazon Outposts.

## Partner certifications

**With Portworx and Amazon Web Services (AWS), you can:**



Portworx is a high availability and disaster recovery partner for SQL Server 2017 on Docker.



Portworx is a Level 5 certified operator for OpenShift. Red Hat OpenShift Certified Operators deliver enterprise applications with consistent packaging, deployment, and lifecycle management across all OpenShift footprints including AWS.



Portworx Enterprise has achieved Red Hat certification for Red Hat OpenShift Container Platform and is available in the Red Hat Container Catalog.



Portworx is a Kubernetes certified service provider. Portworx solves the challenges of running stateful services on Kubernetes—stuck volumes, downtime, manual backups and migrations, lost data and more—with cloud native storage and data management built from the ground up for Kubernetes.



portworx<sup>®</sup>

by Pure Storage<sup>®</sup>

Ready to build the next generation of enterprise applications on AWS?

Request a demo and get your free trial of Portworx on AWS at:

[portworx.com/AWS](https://portworx.com/AWS)

451 Research

“Platforms like Portworx offer a coherent ecosystem for automating data management and protection of Kubernetes-based workloads, combining the flexibility of containers with enterprise-class business continuity and disaster recovery capabilities.”

—Steven Hill, senior analyst at 451 Research