Portworx & Red Hat OpenShift

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Run Mission-Critical Applications at Scale

With Portworx & RedHat OpenShift

#1 Kubernetes Data Platform

+

Leader in Kubernetes Distribution

Together, Portworx and Red Hat OpenShift help enterprises operate, scale and secure Kubernetes and application databases anywhere with just a few clicks.

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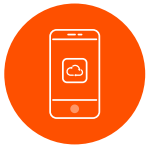
Red Hat

Challenges with Cloud-Native Applications and Databases



Slow App Development

- CSI “Connector” approach
- Developer wait time is high
- Poor quality of experience
- Hardware “lock-in”

Heterogeneous Databases

- Each solution has own patterns
- Multiple operating tools and vendors
- Skillset gaps
- Scaling challenges

Lack of Robust Data Protection

- Traditional backup is time-consuming and machine-based vs. app-aware
- Unable to backup and restore anywhere
- Difficult to maintain compliance
- Ransomware attacks is a growing concern

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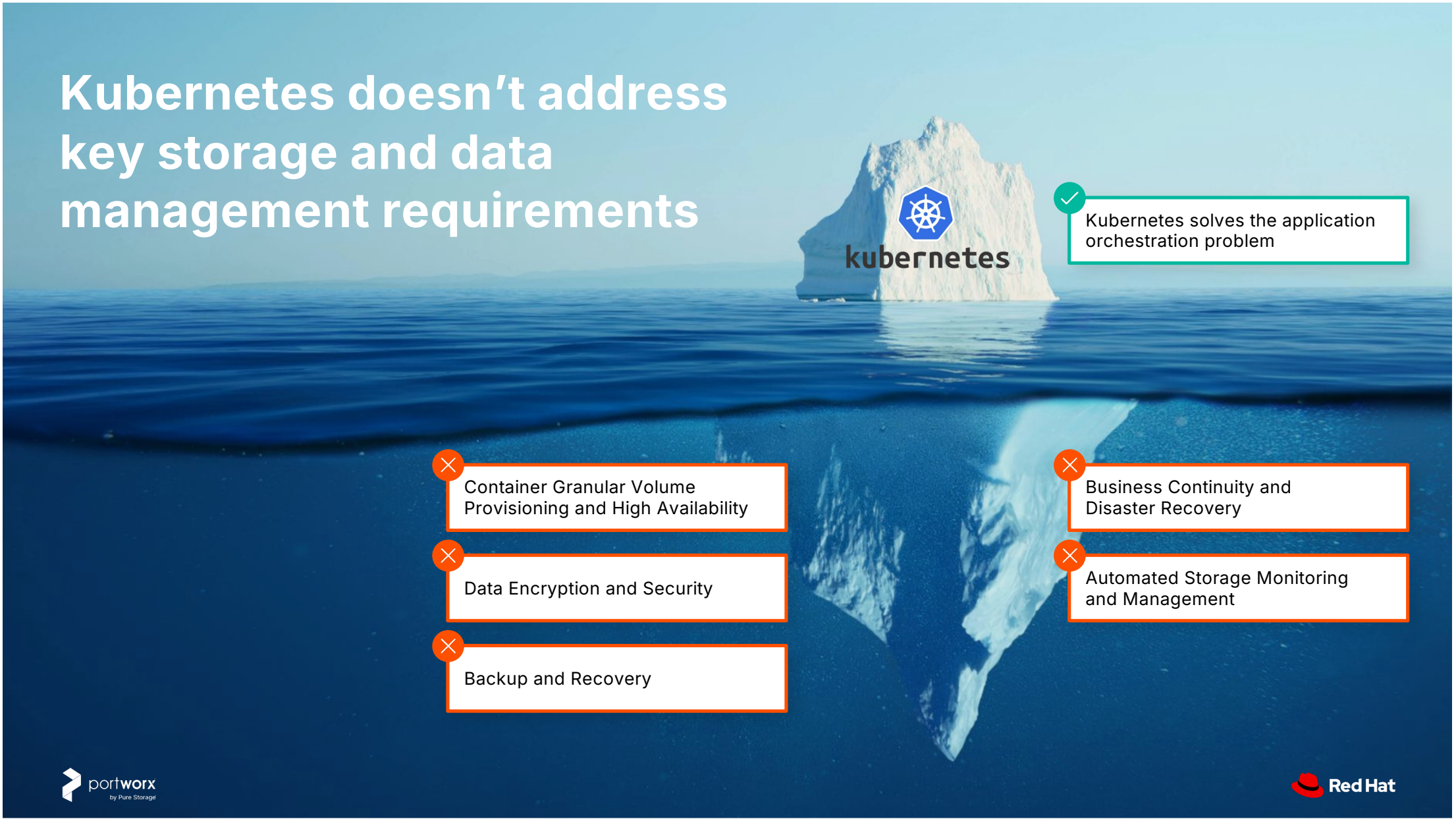
Kubernetes doesn't address key storage and data management requirements



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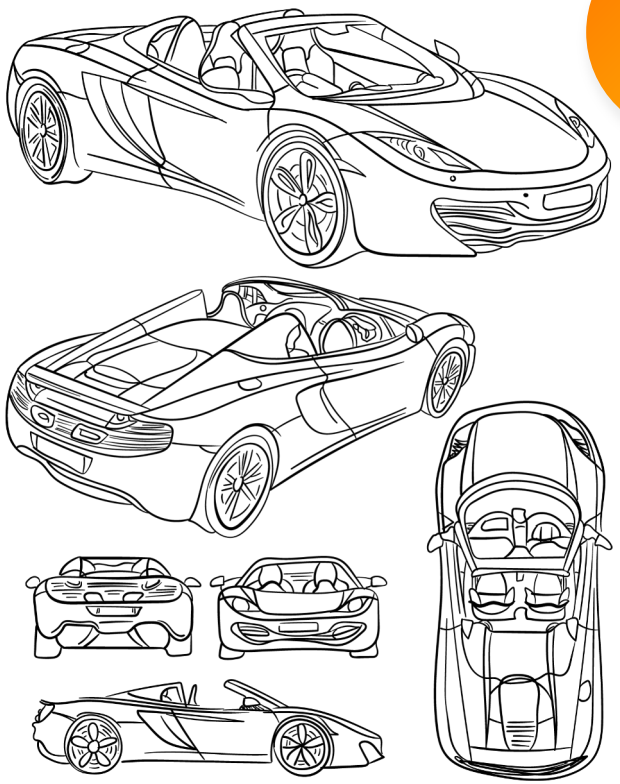
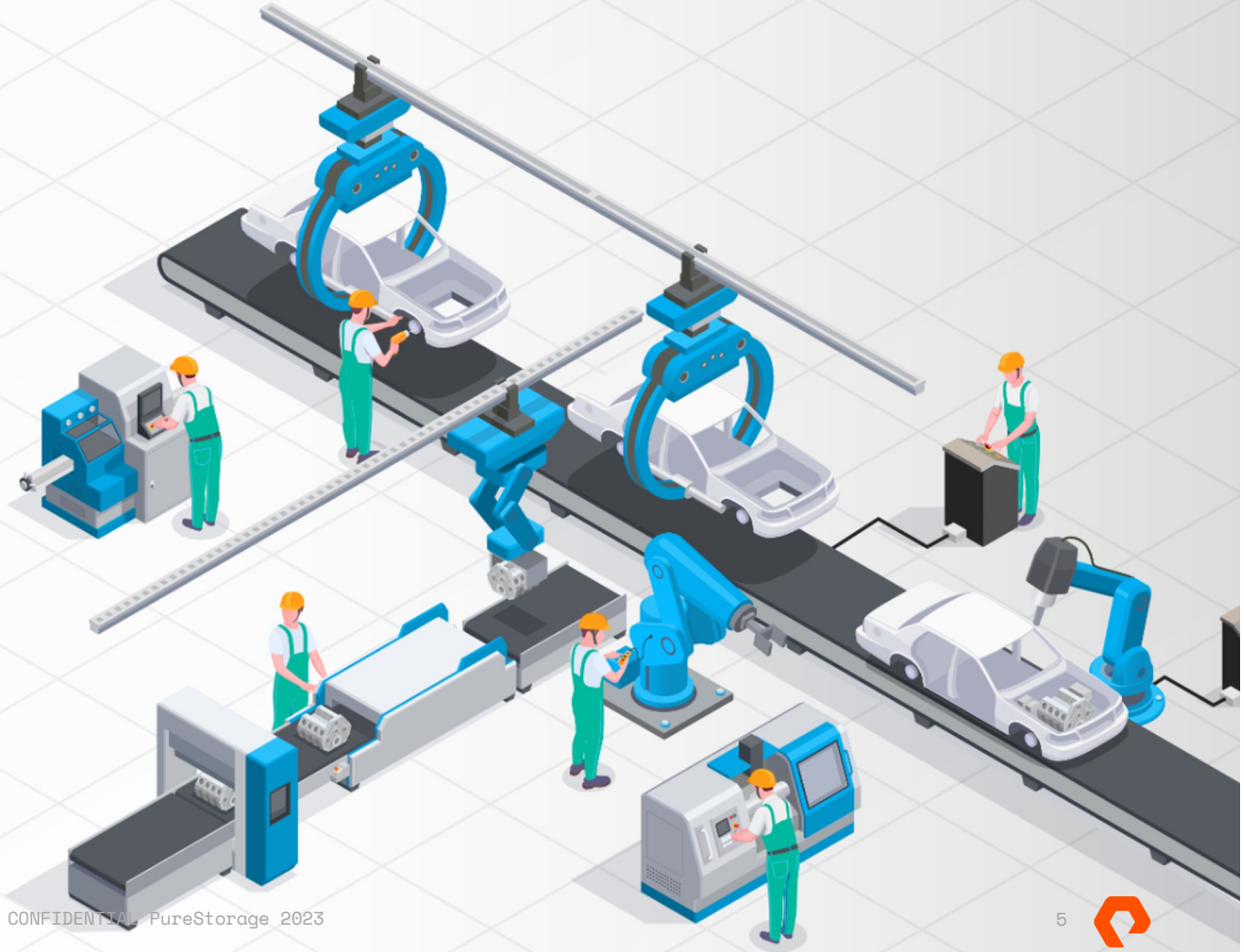
Do Your Applications Scale from Dev to QA to Production?

Easily, Cost-effectively & Resiliently?





Portworx is the Most Widely Used Data Platform for Deploying Cloud Native

Top Service Providers

Largest FSIs

Large Retailers

Top Healthcare or Pharma

Biggest Auto-makers

Top Industrial

Top Technology Companies

Portworx &
Red Hat OpenShift

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Red Hat OpenShift and Portworx by the numbers

50%
Reduce cloud storage costs by 50% or more for Kubernetes data and apps

100X
Cost reduction for operating infrastructure*

Seconds
Reduce failover times from up to 10 minutes down to seconds

5X
Faster revenue growth attributed to enabling developer velocity*

0 RPO
Achieve up to Zero RPO and < 1 minute RTO Disaster Recovery for mission-critical data services

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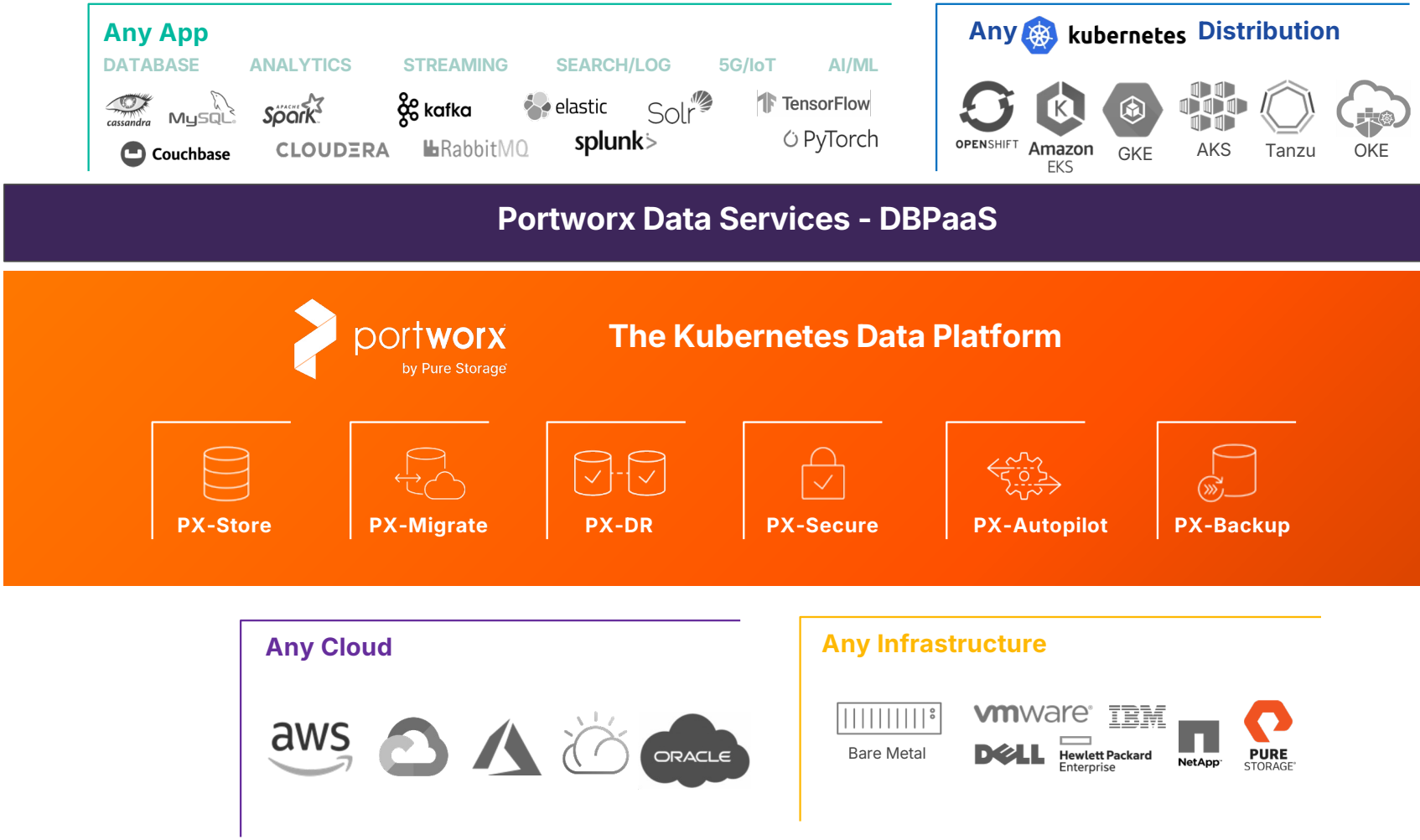
Portworx: The #1 Container Data Management Platform



Joint Use Case

Migration

Key Migration Challenges

- Migrating from one version to another (ex: OpenShift 3 to 4)
- Capturing the full application
- Autoscaling
- Native tooling insufficient
- Blue Green migration
- Hybrid migration (on prem and between public clouds)

How Portworx + Red Hat OpenShift Solves

- App portability (container portability)
- One ELA for all - one portfolio
- Flexibility/Scalability
- Automation
- App awareness/Discoverability
- Hybrid cloud
- Single portfolio
- Simplicity

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Joint Use Case

Data Protection

Key Data Protection Challenges

- Existing products don't cut it (not built for K8/containers)
- No app awareness
- Container Granularity
- Target Flexibility
- Lack of RBAC capability
- Hybrid Cloud
- Restore or save anywhere
- Compliance
- Ransomware attacks
- Human error (security mishaps)

How Portworx + Red Hat OpenShift Solves

- Self service
- Save anywhere
- Automate encryption
- Auto discovery
- Built in ransomware
- Cross cluster restore

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Joint Use Case

Data Management

Key Data Management Challenges

- Keeping apps up & running
- 1 size doesn't fit all; apps are different
- Operational efficiency
- Nodes fail
- Scaling
- Availability zone replication
- Volume placement
- Dev self service
- Manual provisioning
- Manual expansion
- Keeping developers happy

How Portworx + Red Hat OpenShift Solves

- Highly customizable at granular level
- HA - no downtime, no loss of data;
- Granular volume placement
- Autoscaling and intelligent scaling,
- More cost efficient
- Turn provisioning
- Choose your replication factor
- Auto provisioning - cloud drives
- QOS
- Auto expansion
- Recovery from node failure

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Joint Use Case

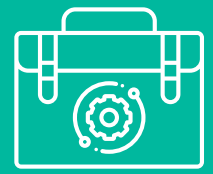
Data Services

Key Data Services Challenges

- Multiple platforms
- Multiple opps
- ”Too many throats”
- Multiple tools
- Need many skill sets
- Lack of automation
- Manual security patching
- So much complexity
- Lot of DIY tools

How Portworx + Red Hat OpenShift Solves

- Day 2 Operations
- ONE single platform
- Self Service for develop
- Curated template
- Run operating one API
- Manage one Solution



Joint Use Case

Disaster Recovery

Key Disaster Recovery Challenges

- Meeting RPO (synced)
- Meeting RTO (how long to recover)
- Compliance challenges
- Data loss
- Native tooling insufficient
- Complexity - takes too long, manual process
- Can't do PR in Cloud w/ODF -(ROSA) EBS - manual replication
- No app awareness
- Can't test
- Lack of regional DL functionality
- Geographical challenges (replicate @ multiple locations)

How Portworx + Red Hat OpenShift Solves

- RTO RPO Compliance
- Async (non-mission critical)DR
- Portworx reduces failover times from up to 10 minutes down to seconds.
- Sync DR (mission critical)
- App awareness
- Ability to test + peace of mind
- Cross-region replication (asym rep)
- PX: Achieve up to Zero RPO and < 1 minute RTO Disaster Recovery for mission-critical data services. **(source?)**

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Red Hat

What Do You Get With Portworx?

Automated Capacity Management
- PX-Autopilot, Cloud Drives

Cloud-native DBPaaS for Any DataBase
- Curated DB images, UI & API Parity

Full suite of Enterprise class Disaster Recovery
- Sync DR, Near-Sync DR & Async DR

App and Volume Migrations Across Any Cloud
- PX-Migrate, VPS, Stork, Cloud Drives

Broadest Catalog of Data Services
- 1-click deployment, Single Pane of Glass

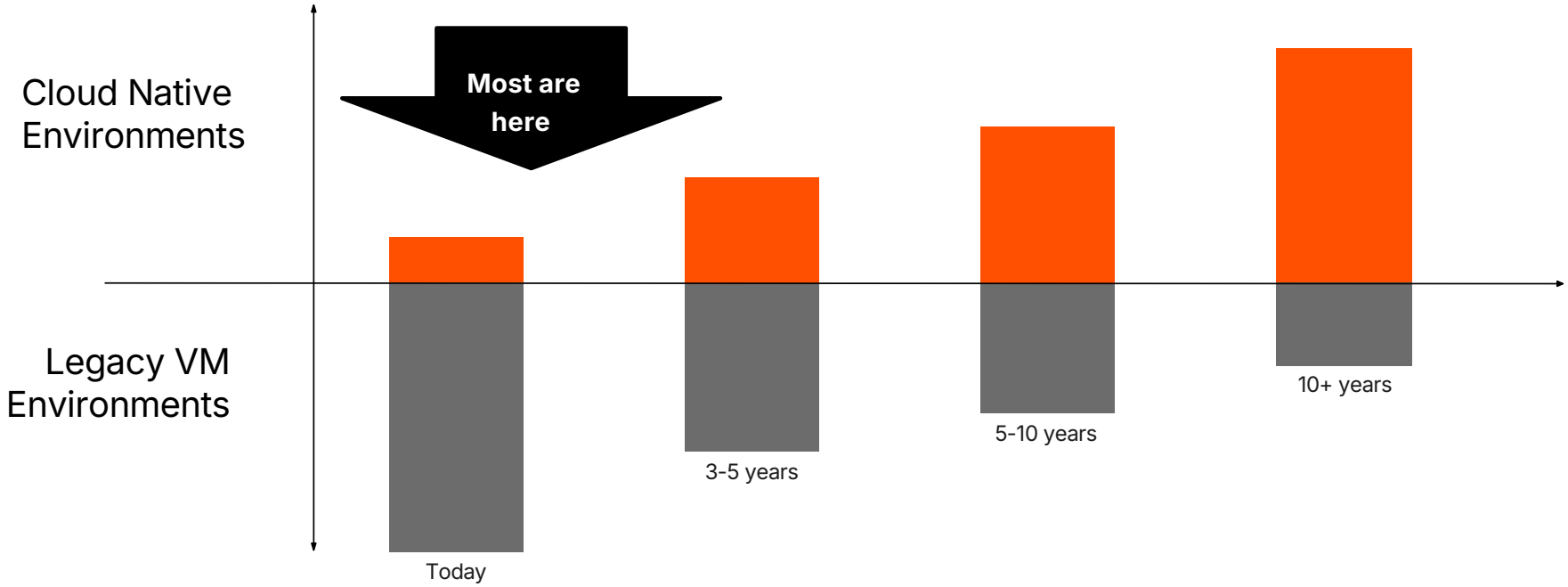
Resource Optimization at Scale
- App I/O control

12
Data Services

10
Kubernetes Distributions

100%
Data Protection

Cloud Native and VM environments will continue to exist side by side for the foreseeable future so supporting both is critical



By 2029, 35% of all enterprise applications will run in containers, an increase from less than 15% in 2023.

Gartner®

Virtualization Options

Four pathways to modernize your virtualization strategy for flexibility, scale and certainty.

Stay with VMware

Don’t change. Keep infrastructure and applications as is

- Lowest Risk
- Highest Cost
- Limited Innovation

Switch Virtualization Providers

Options: Hyper-V, Nutanix, OpenStack, others

- Low Risk
- High Cost
- Limited Innovation

Move to the Cloud

Migrate VMware workloads to the cloud with cost- effective storage that supports disaster recovery and data protection

- Medium Risk
- Medium Cost
- Limited Innovation

Modernize VMs with Kubevirt

Portworx automates, protects and unifies data management for containers and virtual machines

- Medium Risk
- Cost Optimized
- Maximum Innovation

Platform for the Future

Modernize on Your Own Terms

Four pathways to modernize your virtualization strategy for flexibility, scale and certainty.

1

Stay with VMware

Diversify your VMware stack with efficient, secure, and scalable storage from Pure.

FlashArray™ + vmware by Broadcom

2

Switch Virtualization Providers

Pure integrates directly with Hyper-V and OpenStack.

FlashArray™ + openstack / Microsoft Hyper-V

3

Move to the Cloud

Migrate VMware workloads to the cloud with cost-effective storage that supports disaster recovery and data protection.

Pure Cloud Block Store™ + Azure VMware Solution

4

Modernize VMs with Kubevirt

Portworx automates, protects and unifies data management for containers and virtual machines in Red Hat OpenShift.

portworx by Pure Storage + Red Hat OpenShift

portworx by Pure Storage

What if we ran VMs on Kubernetes?

Portworx + Red Hat

Modern Application Development Platform

- Optimize Operational Costs
- Mitigate enterprise risk
- Accelerate Time to Revenue
- Achieve Data Agility

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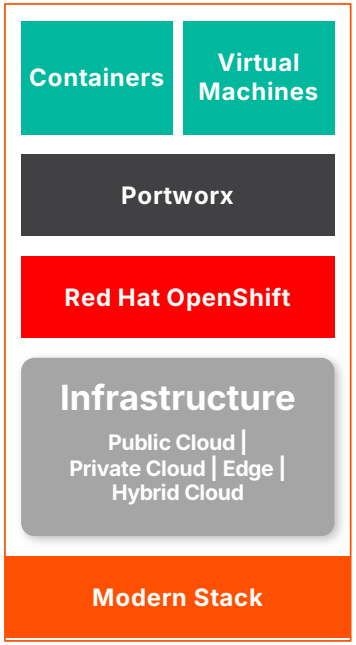
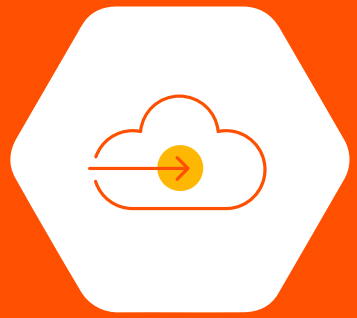
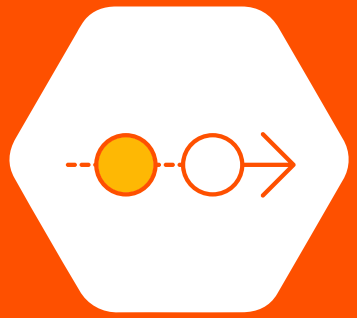


Why should you run VMs on Kubernetes



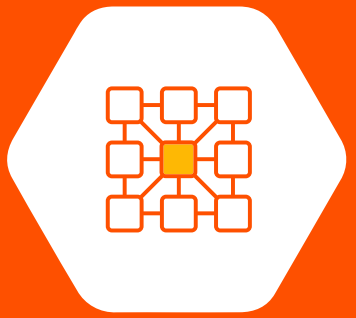
Migrate

Existing VM-based applications can be migrated as-is to Kubernetes from VMware/RHEV/OpenStack environments



Modernize

Organizations can choose to refactor applications when they want, instead of doing everything at once.



Unified Management

Development teams can use the same tools, pipelines, and platform for building, managing and diagnosing issues with all applications.

Storage & Data Mgmt: VMware vs KubeVirt

Portworx addresses key storage and data management capabilities within Kubernetes

Benefit/Feature	*VMware Capability*	*KubeVirt Capability*	*KubeVirt + Portworx Capability*
Application Availability	VMware vSphere HA	Deployments / Services	Deployments / Services
Application Deployment	VMware Templates	Container Images	Container Images
Application Resource Utilization	VMware DRS, SIOC, NIOC	Kube Scheduler, Requests / Limits	Requests / Limits
Application Portability	vMotion	Delete/Redeploy with Load Balanced Apps	***Live Migration*** and Delete/Redeploy with Load Balanced Apps
Storage Infrastructure	VASA/VAAI/SPBM/vVols	StorageClasses, CSI Provisioner	StorageClasses, CSI Provisioner
Data Availability	Shared Storage or vSAN FTT	X	Portworx Enterprise StorageCluster
Async Disaster Recovery	VMware Site Recovery Manager	X	Async PX-DR
Sync Disaster Recovery	VMware Metro Storage Cluster	X	Sync PX-DR
Encryption	Security Abstraction / Volume Encryption	X	PX-Security
Data Protection	VM Aware Backups (Partner)	X	Container Aware Portworx Backup
Storage Performance	SIOC	X	Portworx Enterprise Application I/O Control
Data Portability	Storage vMotion	X	Portworx Backup / PX-Migrate
Capacity Management	Thin Provisioning	X	Thin Provisioning / PX-Autopilot

Portworx with provides the enterprise-grade services required for modern virtualization running on Red Hat OpenShift

VM Migration

Live migration of virtual machines between OpenShift worker nodes coupled with VM migration between OpenShift Clusters.

Common Storage Layer

A single, common storage layer for managing storage and data across VM and container apps

Disaster Recovery and Business Continuity

Synchronous and Asynchronous Disaster Recovery for VMs running on OpenShift Virtualization

Next Steps

- Book Your Demo with cswanepoel@purestorage.com
- Follow Portworx
- Engage the Team