



The Voice of Kubernetes Experts Report 2024

The Data Trends Driving the
Future of the Enterprise

Introduction

In June 2024, Kubernetes celebrates its 10 year anniversary.

What began as an open-source project to run containerized applications at scale is now the de-facto standard for container orchestration used by enterprises of all sizes.

This report aims to cover the data trends in the cloud native and platform engineering landscape in 2024 by directly surveying seasoned experts in the field. (**91% have at least two years of Kubernetes experience, and 56% have over 4 years.**)

What's become clear as Kubernetes hits a decade is that for these experts, Kubernetes is no longer an emerging technology. In fact, these organizations are trusting Kubernetes to build critical modern applications like real-time analytics and AI/ML workloads. However, they need to be able to build these applications on a scalable, resilient, and dynamic platform.

This report will uncover some of the top priorities experts in the enterprise have across virtualization and persistent storage, as well as the data management challenges platform engineers face when managing complex Kubernetes environments that often span hybrid and multi-cloud environments.

These are the top takeaways from Kubernetes experts on data trends in the enterprise:

- **80%** plan to build most of their new applications on cloud native platforms over the next 5 years; **86%** build their cloud native platforms in hybrid cloud environments
- **54%** are running AI/ML workloads on Kubernetes, **72%** run databases, and **67%** run analytics
- **58%** will migrate some of their VMs to Kubernetes management by using technologies like KubeVirt; **65%** plan to migrate their VMs within the next two years
- **96%** currently have a platform engineering function

Read on to see how organizations further along in their Kubernetes journey are planning for a cloud native future.

Who did we survey?

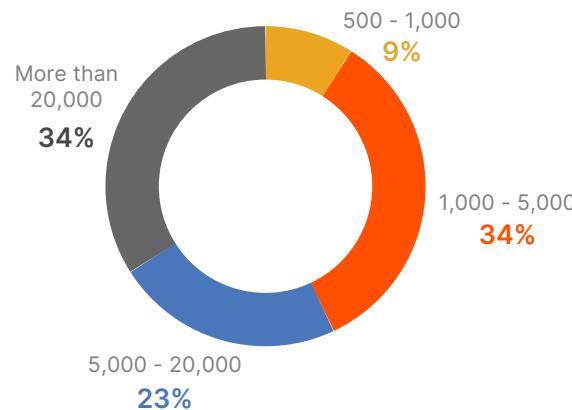
Portworx by Pure Storage partnered with Dimensional Research to survey **527 qualified participants** who were directly responsible (hands-on or management) for data services in a Kubernetes environment at **companies of 500 employees or more**.

Survey participants were spread out across job functions, spanning platform engineers to senior executives.

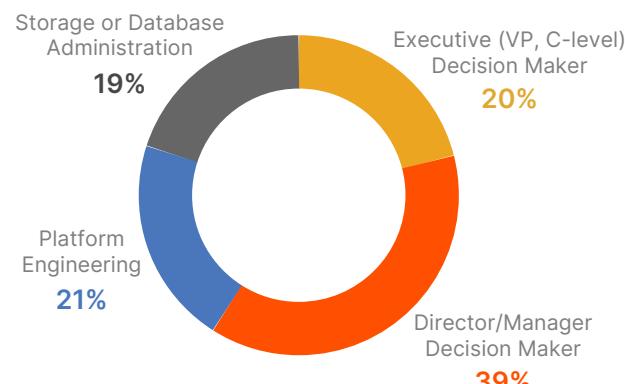
56% of respondents have more than 4 years of Kubernetes experience, showing their level of expertise in comparison to the technology.

In the survey, “cloud native” refers to use of modern technologies like containers, Kubernetes, immutable infrastructure, microservices, and service mesh to develop scalable applications.

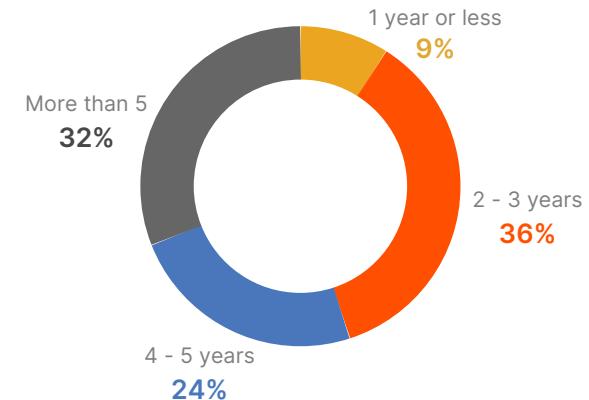
Company Size (# of Employees)



Role*



Years of Kubernetes Experience



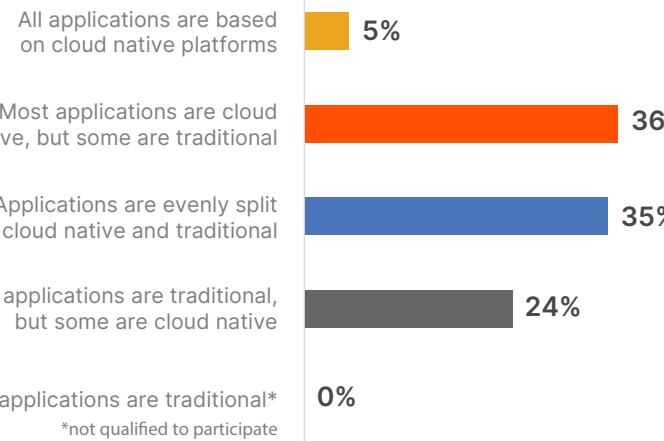
*Quotas for participation set. All other demographics had natural fallout.

01 Cloud Native Applications are the Future

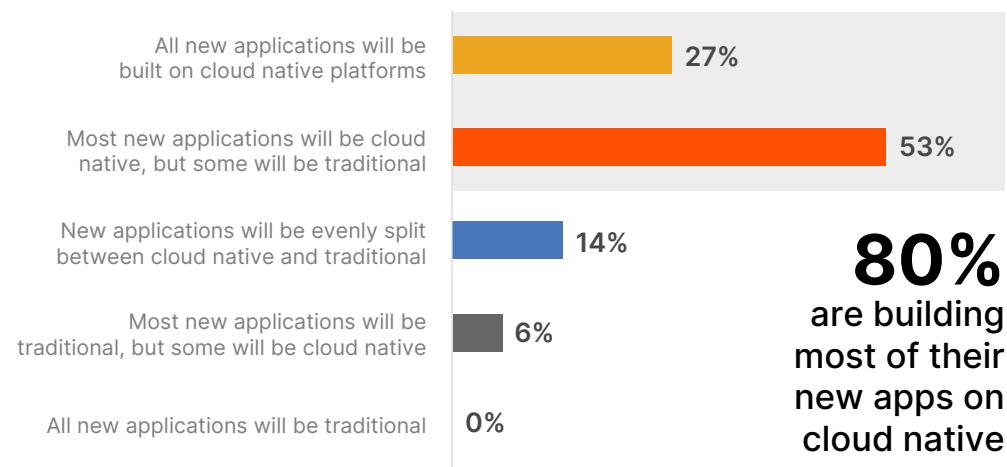
Cloud native applications are maturing fast

Cloud native applications are well past the adoption phase. In fact, for organizations who have already made the switch, their cloud native platforms are maturing quickly, giving **80% of respondents the confidence to build most of their new applications on these newer platforms** within the next five years.

How would you describe your company's overall CURRENT application footprint?



How would you describe your company's investment plans for NEW applications in the next five years?



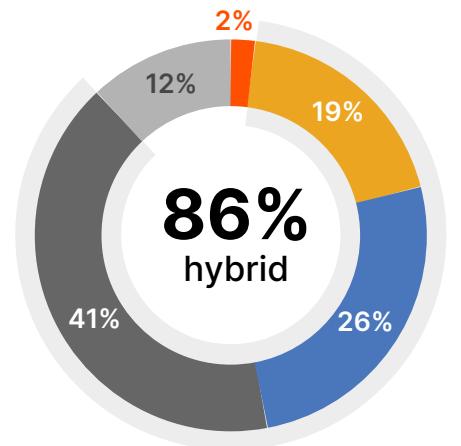
80%
are building
most of their
new apps on
cloud native

Organizations of all sizes are choosing hybrid cloud deployments

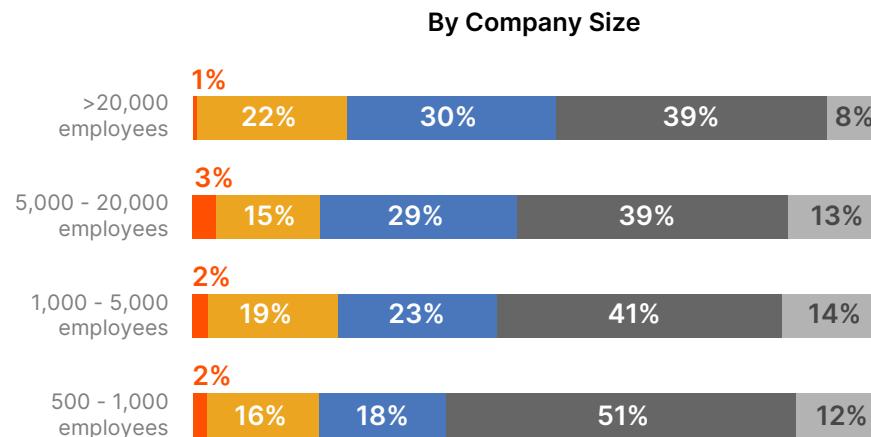
For their cloud native platforms, organizations of all sizes prefer the flexibility of deploying in hybrid cloud environments. **86% of respondents run their cloud native applications across public and private cloud environments**, with large enterprises far more likely to have a bigger on-prem footprint.

Deploying applications in multiple environments gives organizations the flexibility they need to run applications at scale with resilience, high performance, and cost efficiency. Hybrid cloud environments can also introduce complexity with orchestrating workloads across multiple platforms, making it difficult for platform teams to ensure consistency and compatibility for their developers.

Approximately how much of your organization's footprint of cloud native technology is currently deployed in a public cloud and how much is on-prem?



- It is all on-prem
- It is mostly on-prem, but we have some in the public cloud
- It is all in the public cloud
- It is evenly split between public and on-prem infrastructure



02 Traditional VM Infrastructure is Moving to Cloud Native

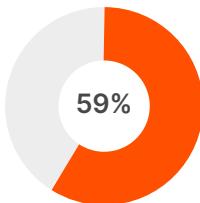
More than half of IT professionals plan to migrate or modernize some of their VM workloads to Kubernetes

Companies are increasingly looking to a VMware alternative, with **80% agreeing that Broadcom's acquisition of VMware has made them nervous about the future of their existing VM workloads.** Many organizations are making changes to their VM workloads as a result, although it is important to note that those surveyed have already adopted Kubernetes and should be considered more advanced users.

Organizations recognize supporting VMs and containers on multiple platforms is challenging and expensive, so **58% plan to migrate some of their applications from VM management to Kubernetes** by using technologies like Kubevirt and Red Hat OpenShift Virtualization.

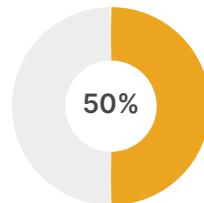
Over the coming years, what do you expect that your company will do with existing VM workloads? Choose all that apply.

58%
“Modernize or Migrate VMs”



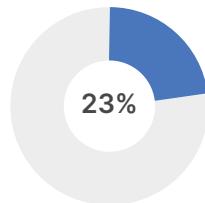
Modernize by re-architecting VM workloads to run as containers

50%
“Lift-&-Shift”

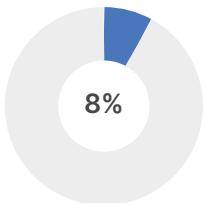


Migrate VM management to Kubernetes (via KubeVirt, Red Hat OpenShift Virtualization, etc.)

28%
“Do Nothing”



Move on-prem VM workloads to public cloud environments



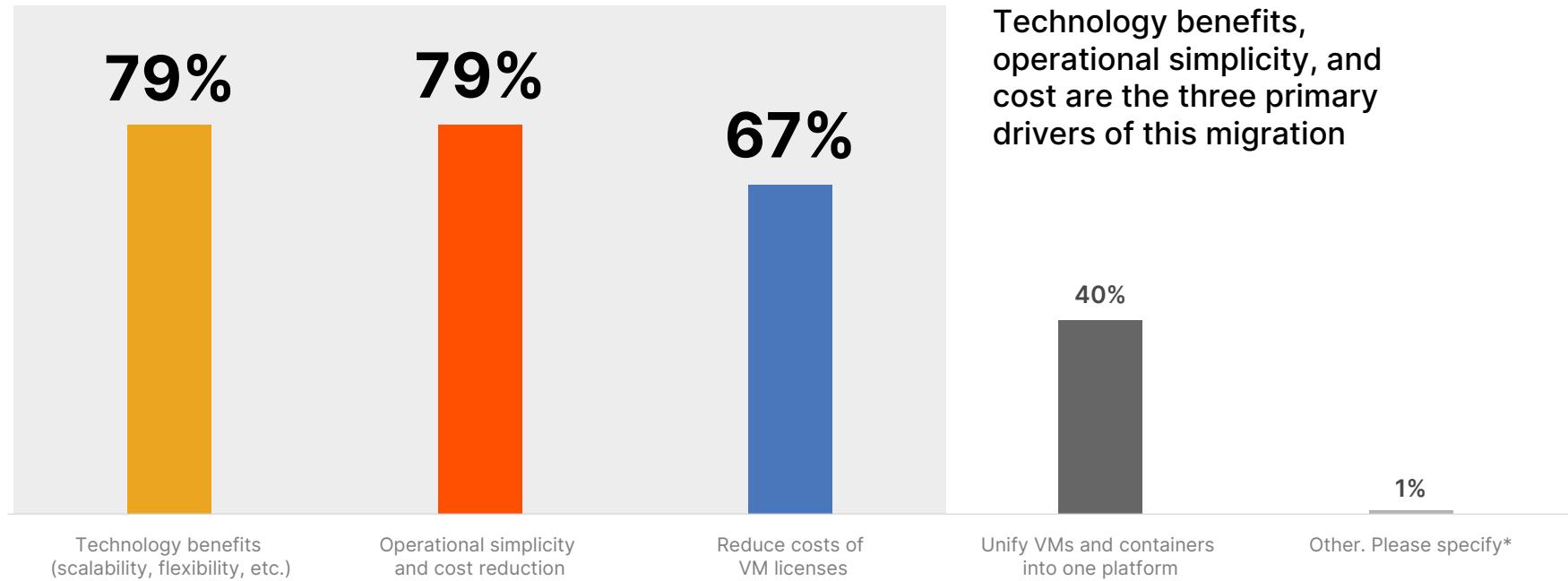
Leave existing on-prem VM workloads in our datacenter

We'll leave existing cloud VM workloads in the cloud

Organizations moving their VMs to cloud native anticipate many benefits

By migrating their VMs, organizations are able to realize the benefits of running their VMs and containers side-by-side. **79% say the primary drivers for migration are scalability, flexibility, operational simplicity, and cost considerations.**

What are the primary drivers of your organization's interest in migrating existing VM workloads to cloud native? Choose all that apply.



(n = 81%, "Leave VMs")

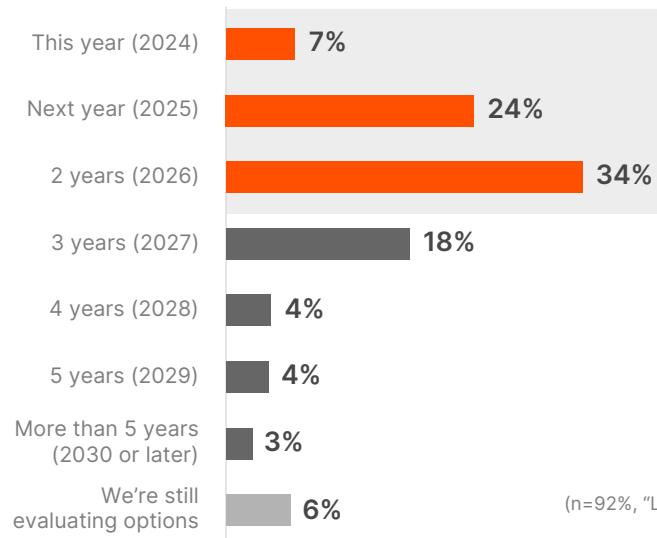
*Other: Risk management, natural application evolution, portability

Those moving to cloud native plan a swift, significant transition

Of the organizations who plan to migrate or modernize their VM workloads to cloud native, migration timelines indicate urgency—most (**65%**) are planning to migrate VM workloads within the next two years. And, the move to cloud native is significant: **85% plan to move a majority of their VM workloads to cloud native.**

The future of virtualized workloads is rapidly modernizing, favoring a shift to cloud native. Organizations making changes to their VM workloads need to be able to support their developers with this shift. At the helm of driving this support are platform engineers.

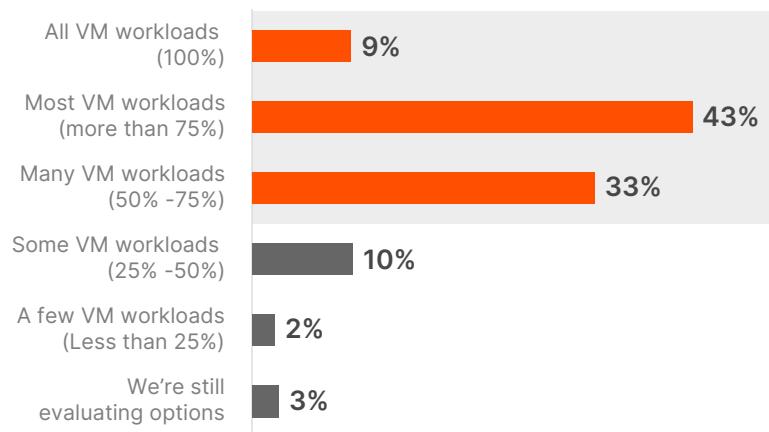
What is your organization's most likely timeline for completing any planned migrations of VM workloads?



65%
plan to migrate
within the next
two years

(n=92%, "Leave VMs" and/or "Lift-and-Shift")

Which of the following statements characterizes your organization's most likely approach for migrating existing VM workloads to cloud native (re-architect or migrate VM management to Kubernetes via KubeVirt, etc.)?



85%
plan to move
over half of their
VM workloads

(n=81%, "Migrate or modernize VMs")

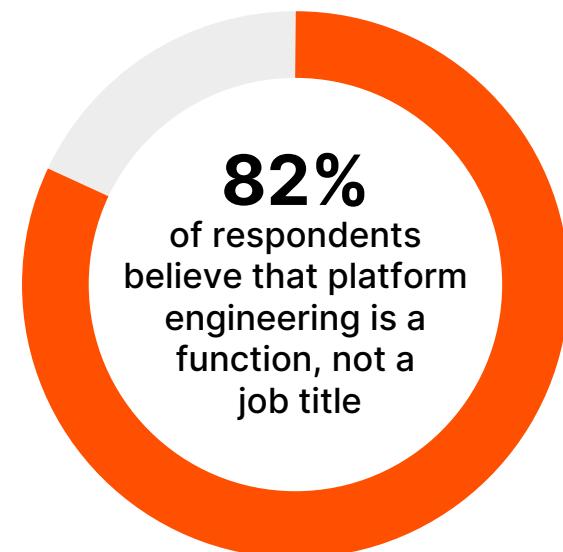
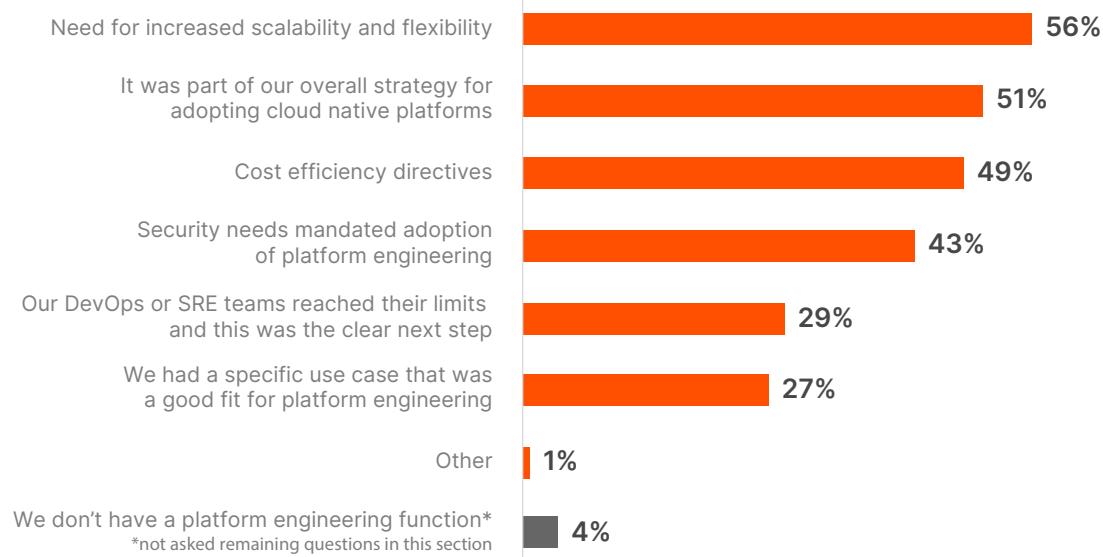
03 The Rising Importance of Platform Engineering

Organizations everywhere have platform engineering teams

The platform engineering team is the beating heart of every organization looking to take advantage of the full benefits in cloud native platforms. The value of platform engineering teams is not understated, with **96% of respondents stating they already have platform engineering teams to increase the scalability and flexibility of their applications.**

Although platform engineering as a discipline has been largely adopted by organizations running data on Kubernetes, platform engineer as a title has yet to see the same momentum. A large majority (**82%**) agreed that platform engineering is a function, not a job title.

What motivated your organization to adopt a platform engineering function?

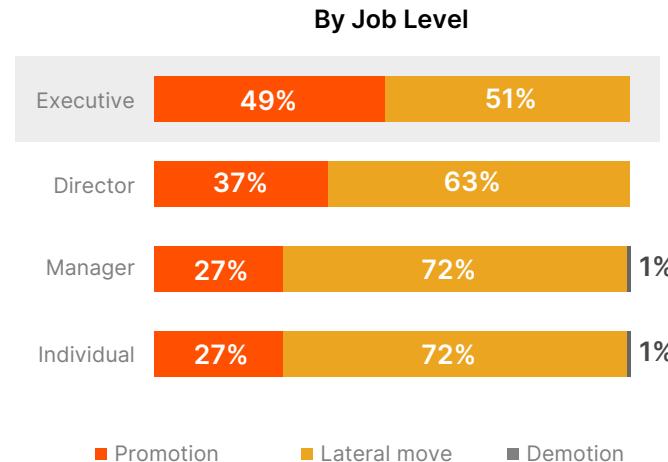


Executives are far more likely to view a move to platform engineering as a promotion

Platform engineer may not be a popular job title yet, but it is a critical part of an enterprise organization's strategy—and executives believe this more than anyone. Executives are more likely to see the move to platform engineer as a promotion (**49%**), and have shown willingness to invest in training (**63%**), consultants (**60%**), and hiring skilled engineers (**52%**) to support this function.

In order to take full advantage of their cloud native platforms, organizations know they need a platform engineering team to manage the complexities that come from their environments of choice, whether that's hybrid cloud, or VM and container management.

How would you personally perceive a staff member who moved from a DevOps or SRE position to a Platform Engineering position?



How has your organization obtained the needed expertise and skills to support platform engineering for data services? Choose all that apply.



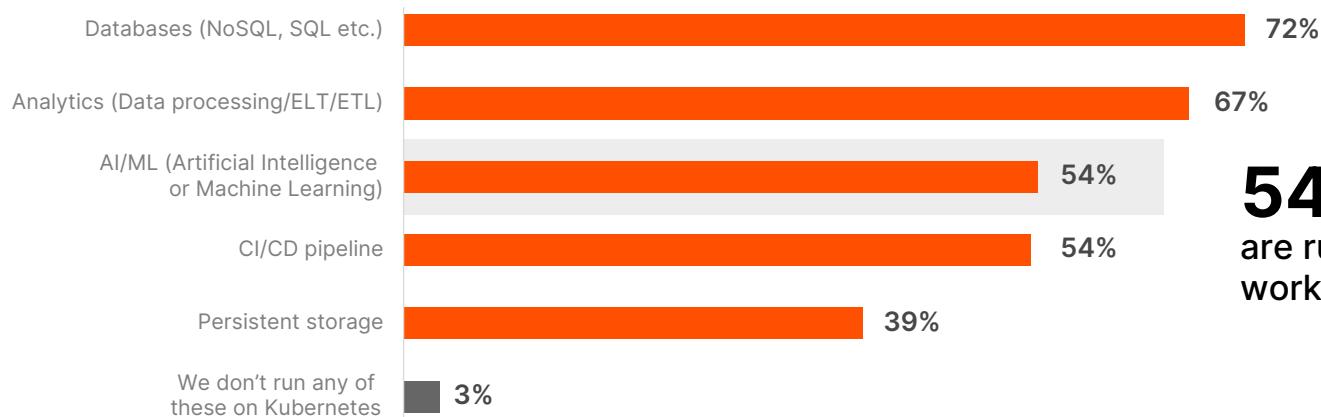
04 Data on Kubernetes is Accelerating Application Delivery

Data intensive use cases are ubiquitous in cloud native environments

Organizations everywhere are choosing to run their data on Kubernetes, with **97% choosing to run data-intensive workloads on their cloud native platforms**. A significant number of critical applications like databases (**72%**), analytics (**67%**), and AI/ML workloads (**54%**) are being built on Kubernetes, further proving the maturity of Kubernetes.

Managing these types of data-intensive workloads is no easy feat. More than half of respondents run AI/ML workloads in containers, thereby indicating that platform engineering teams need to be able to build dynamic platforms that can handle the changing demands of their developer's workloads.

Does your organization run any of the following types of data services or workloads on Kubernetes environments? Choose all that apply.



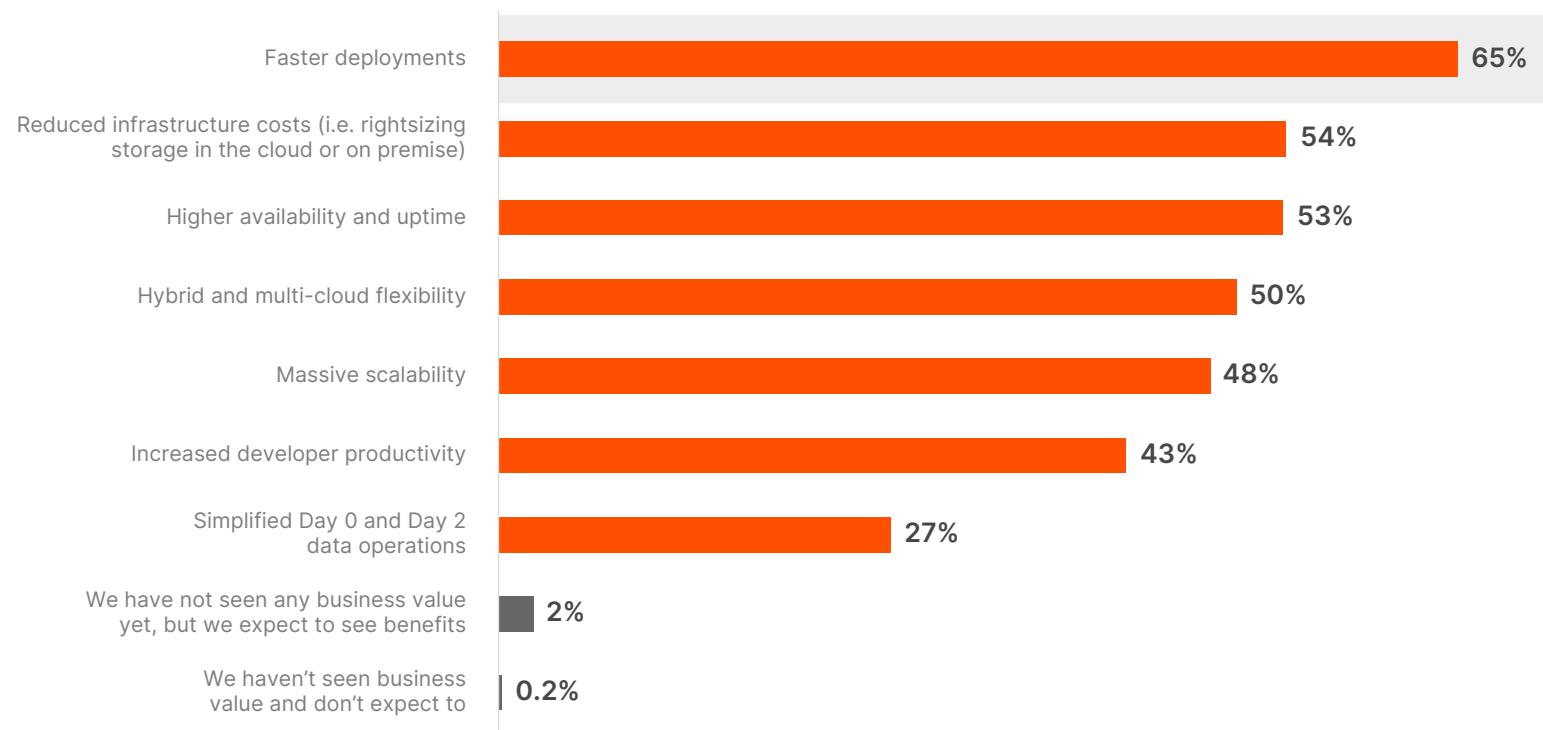
54%
are running AI/ML
workloads on Kubernetes

Most organizations see benefits by running data on Kubernetes

These types of critical workloads are built on Kubernetes in order to realize a host of benefits. The top is faster deployments (**65%**), followed closely by reduced infrastructure costs (**54%**)—often due to the flexibility

of the hybrid and multi-cloud deployments most organizations choose. Faster deployments leads to faster application development, bolstering time to market for Kubernetes applications.

What benefits has your organization achieved by running data services and workloads on Kubernetes? Choose all that apply.



Faster deployments tops the list as the most common benefit for running data services or workloads on Kubernetes

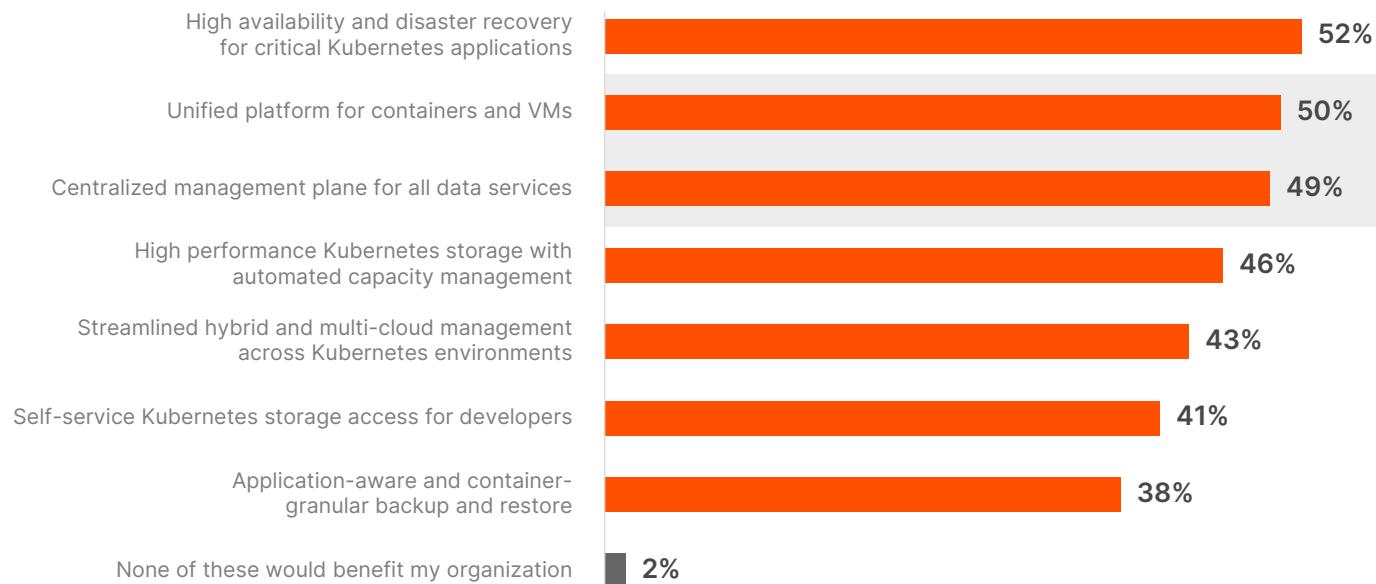
Effectively running data on Kubernetes requires better data management

However, running workloads on Kubernetes does not come without its own data management challenges. Chief among these challenges is high availability and disaster recovery (**52%**), indicating that faster application development must not come at the sacrifice of data availability. High performance storage (**46%**) also ranked among the top desired capabilities, but the most highly desired capability is especially compelling for platform engineers looking to build a consistent platform.

71% of respondents said a unified platform for VMs and containers and/or a centralized platform for all data services would greatly benefit their organization.

As Kubernetes data management matures, platform teams should be looking to provide a consistent and centralized platform experience for developers to continue to drive faster application development.

Which of the following capabilities for data management on Kubernetes would benefit your organization? Choose all that apply.



71%
of organizations would
especially benefit from
a centralized platform

Summary and Recommendations

Kubernetes experts have made it clear that cloud native platforms are not only here to stay, but they are the platform of the future. These cloud native platforms are supported by platform engineering teams, who are not only planning to build a majority of their new applications on Kubernetes, but overwhelmingly choosing to move legacy applications on VMs to Kubernetes, either by rearchitecting their applications or using technologies like KubeVirt.

Those who have not yet considered a strategy for their existing VM workloads must do so quickly—a majority of Kubernetes experts and trendsetters have indicated an urgency for moving their VM workloads within the next two years.

Another trend that emerged from the report is the desire for centralized management in cloud native platforms, including a platform that unifies container and VM management and eliminates the operational overhead that comes with managing disparate platforms. These unified platforms need to be able to support the same enterprise-grade data management requirements across VMs and containers.

However, the need for better Kubernetes data management is a requirement for all cloud native platforms. Respondents indicated their current Kubernetes data management systems lacked some key capabilities, with gaps in availability, disaster recovery, and high performance storage. There is a clear need for a better solution.

Portworx by Pure Storage addresses these data management challenges with a highly flexible storage solution that automates storage across the application lifecycle, provides data protection and data resiliency, and unifies modern applications across hybrid and multi cloud environments. Portworx also provides a unified platform for VM and container environments, allowing organizations to realize the full benefits of scalability, flexibility, and operational simplicity in their cloud native environments.

Try Portworx free for 30 days

Portworx® by Pure Storage provides a fully integrated solution for persistent storage, data protection, disaster recovery, data security, cross-cloud and data migrations, and automated capacity management for applications running on Kubernetes.

For more information, visit portworx.com