

From Chaos to Control:

A Cloud Native Strategy Guide for IT Leaders



NUTANIX

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Cloud Native in the Enterprise

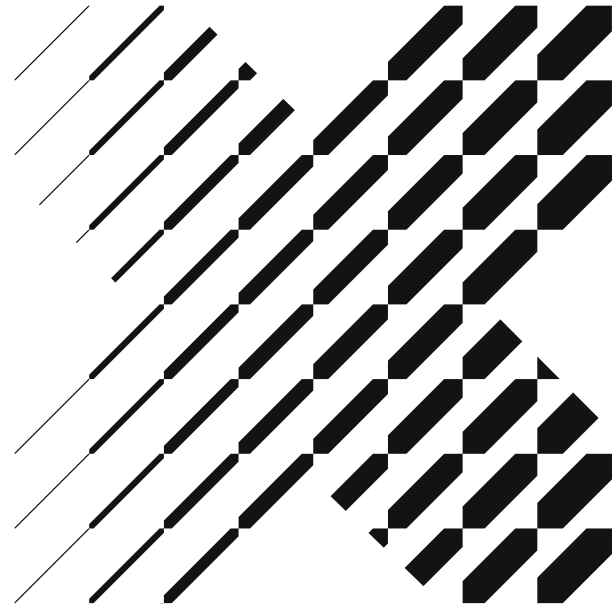
Cloud native adoption is accelerating, but complexity is growing just as fast.

IT teams are under pressure to modernize operations, accelerate app delivery, and improve agility, resilience, and scalability—all while controlling costs. To achieve these goals, many teams are adopting containers, Kubernetes® container management, and cloud native methods. You may already have dozens or even hundreds of Kubernetes clusters running in datacenters, at the edge, and in multiple public clouds.

The rise of AI is further accelerating cloud native adoption, as organizations seek containerized, scalable platforms to meet the demands of modern AI workloads and deliver better digital experiences while reducing time to market and operational risk.

Yet, as with any rapid technology transition, the move to cloud native is not always a simple one for established enterprises with hundreds or thousands of existing applications and years of technical debt. The rapid, organic adoption of container technology has left many teams struggling to rationalize their IT operations and gain control over their existing Kubernetes footprint, even as Kubernetes growth accelerates.

This guide explores the key capabilities that will streamline your company's cloud native efforts so you can accelerate application modernization, drive innovation, reduce time to market, and create a hybrid multicloud strategy that makes your business future-ready.



Enterprise Cloud Native Challenges

The hidden costs and complexities of scaling Kubernetes across the enterprise.

To decide what capabilities you need as part of your cloud native strategy, it's important to understand the major challenges that enterprises typically face as they seek to deploy Kubernetes widely and scale cloud native operations.

Fragmentation

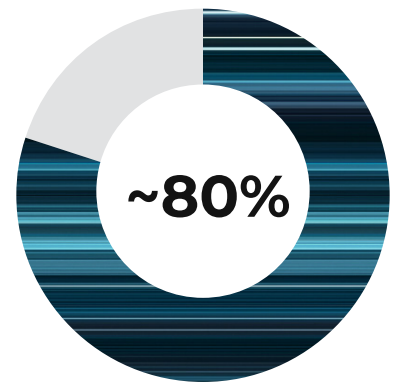
Many enterprises have multiple “flavors” of Kubernetes in use. For example, your company may have clusters running in multiple public clouds using native Kubernetes services like Amazon EKS or Azure AKS, and you may also have different Kubernetes distributions in datacenter or edge locations supporting various projects. Each environment has different tools and processes, and each may be managed by a different team, duplicating personnel. Achieving complete proficiency across the different environments is a challenge for any IT team, making it difficult to establish consistency, enforce governance, maintain security, and control costs.

Minimize fragmentation and improve consistency to enable operations at scale.

Operational Complexity and Day 2 Operations

Fragmented Kubernetes environments can cause management complexity due to diverse configurations, inconsistent updates, and differences in tooling. This adds friction every time someone has to switch environments, and increases the likelihood you'll end up with separate, siloed teams. It also makes Day 2 operations like monitoring, scaling, and troubleshooting more challenging than they need to be. Ultimately, this complexity can increase the chance of operator errors, putting your company at risk from downtime and potentially opening the door to cyber attacks.

Address complexity to streamline operations and minimize risk.



Using more than one Kubernetes environment. Most use 2 or 3.

Source: Nutanix 2025 Enterprise Cloud Index

Data Management Challenges

The ephemeral nature of containers introduces challenges for storing and managing data, particularly for stateful workloads that require persistent storage. Delivering data consistency, portability, security, scalability, and compliance across distributed, hybrid multicloud environments is made more complicated by heterogeneous storage systems, diverse data services, and a lack of enterprise-grade data protection.

Unify data management while addressing disaster recovery and data governance mandates.

Separate Silos for VMs and Containers

In the rush to cloud native, many enterprises have deployed new and separate infrastructure for Kubernetes—both in the cloud and on-premises—while continuing to run virtualized infrastructure to support traditional business applications. While the benefits of containerization are undeniable, there's also no question that maintaining separate environments for VMs and containers can lead to additional operational complexity and costs.

Simplify VM and container management to unify operations and optimize costs.

Lack of Enterprise Security

Kubernetes security is evolving rapidly, but significant vulnerabilities can exist from things like misconfigurations, supply chain attacks, and container escapes. A fragmented Kubernetes environment makes it challenging to establish consistent security and comply with regulations or internal governance.

Fragmentation can lead to security risks and make compliance challenging when it comes to Kubernetes.



Source: Gartner "A CTO's Guide to Containers and Kubernetes," Jan 2024

Developers in Charge

In many enterprises, developers are still in charge of some, if not all, Kubernetes clusters. This potentially hinders developer time that could be utilized creating new applications and services. It can also lead to the complication of the overall Kubernetes infrastructure environment. Each cluster may end up tailored to a particular set of needs, possibly with less concern for data protection and security mandates.

Developers should create digital services that drive innovation.

Skills Gaps

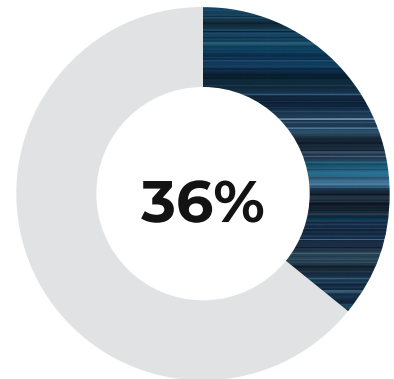
In many IT teams, existing staff don't have all the cloud native skills they need. These skills are in high demand, so it's difficult to hire more people with the necessary skills. Fragmented Kubernetes environments can hinder the ability to apply new skills consistently across diverse platforms.

Address the skills gap and focus on automation to navigate complexity.

DIY Kubernetes

Many organizations architect, deploy, and manage their own cloud native environments because the Kubernetes ecosystem is open source, flexible, and widely adopted. But Kubernetes is not inherently production-ready. A complete cloud native platform is typically assembled from 25+ different projects. Keeping them up-to-date, vulnerability-free and tested takes deep expertise and significant ongoing effort.

Do-it-yourself (DIY) is a hurdle to achieving consistency, agility, and scale.



Feel they do not have all of the necessary skills needed to support cloud native applications and containers

Source: Nutanix 2025 Enterprise Cloud Index

These challenges grow in lockstep with your Kubernetes operations. To move ahead, you need a single, unified enterprise Kubernetes platform that runs everywhere.

Enterprise Kubernetes Platform: Key Capabilities

What to look for in a platform that simplifies, secures, and scales Kubernetes.

A Kubernetes platform is a system or set of tools built on top of Kubernetes to provide a comprehensive and streamlined environment for operating containerized applications. By deploying the same Kubernetes platform everywhere, you provide a consistent baseline for scaling your operations.

While there are multiple Kubernetes platform options to choose from, they are not all created equal. Here are some key features to consider.

Enterprise-Grade Features

A Kubernetes platform should be designed to meet the needs of enterprise customers in the following critical areas:

Resilience:

Does the platform include additional resiliency capabilities to enhance the native capabilities of Kubernetes, such as backup, failover, self-healing, and desired-state-based configuration?

Security and Compliance:

Does the platform provide security controls—including authentication, role-based access, and auditing capabilities—to satisfy internal governance and regulatory compliance objectives? Can it support air-gapped deployments? Who is responsible for finding and mitigating critical vulnerabilities in the platform itself?

Persistent Storage:

Many containerized applications are stateful. Does the platform offer built-in persistent storage to simplify application deployment, management, and mobility? Does it have advanced data management capabilities, such as snapshots and replication, that further enhance resilience?

Scalability:

Does the platform include important scalability features such as multi-cluster federation, high availability, advanced scheduling, service mesh integration, and scalable storage and networking?

Openness:

Is the platform built using upstream CNCF projects that have been fully integrated, with the ability to replace specific functionality to address unique needs and avoid lock-in?

Flexible and Extensible:

Can the platform integrate with existing systems, developer workflows, and CI/CD toolset?

Deployment and Management Features

The right management and automation features are essential to simplify operations, overcome skills gaps, and enable your operations to scale with less effort.

Flexible Deployment Options:

A Kubernetes platform shouldn't lock you into a single Kubernetes distribution, operating system, or deployment model. Look for the ability to deploy your preferred operating system in all your target environments (datacenter, edge, and/or cloud). The ability to extend management to established clusters—such as AKS, EKS, or GKE clusters—can have significant advantages.

Fleet Management:

Fleet management capabilities simplify management for enterprises with large numbers of clusters serving multiple teams by automating deployment, scaling, monitoring, and updates.

Hybrid Multicloud Support and Unified Management:

A centralized control plane allows your team to deploy and manage Kubernetes clusters across all the environments where you operate.

Centralized Observability:

Comprehensive logging and monitoring across clusters from a single dashboard unifies your Kubernetes operations.

Cost Optimization:

Real-time, granular cost management can help minimize waste and improve forecasting. This is a critical capability for Kubernetes in the public cloud.

Enterprise Kubernetes Platform: Benefits



Unify Management



Simplify Operations



Enhance Security



Address Skills Gaps



Minimize Friction



Cost Effective

Why Choose Nutanix as Your Cloud Native Partner?

A complete, open, and enterprise-grade platform to simplify Kubernetes management for fleets of clusters, unify operations, and accelerate innovation.

Nutanix is a global leader in cloud software, offering a unified platform to run applications and manage data across datacenters, edge, and cloud environments. [Recognized for its strengths in Kubernetes and container management](#), Nutanix offers a full-featured and flexible enterprise-grade Kubernetes platform.

Nutanix Kubernetes Platform (NKP)

An enterprise-grade Kubernetes platform uniquely designed to reduce operational complexity and establish consistency across any environment.

Nutanix Data Services for Kubernetes (NDK)

Application-level data services for Kubernetes, extending enterprise data management to containerized apps.

The combination of NKP and NDK provides the capabilities you need to address your cloud native challenges, minimize management bottlenecks, and scale your Kubernetes environment to satisfy business objectives.

Open and Complete

An end-to-end Kubernetes platform built on pure upstream components, Nutanix Kubernetes Platform allows customers to operate cloud native applications in production at scale, with the flexibility to customize freely:

Streamlined Infrastructure Life Cycle Management:

Automated Kubernetes deployment, scaling, and upgrades in any environment.

Reduced Operational Complexity:

Consolidates multiple Kubernetes management tools into a single platform. NKP Insights and AI Navigator bring expert-level support to administrators by offering real-time best-practice guidance, anomaly detection with root cause analysis, and a conversational troubleshooting interface, helping to narrow the skills gap.

Pure Upstream Kubernetes:

No proprietary APIs that can result in lock-in.

Integration With Cloud Native Ecosystem:

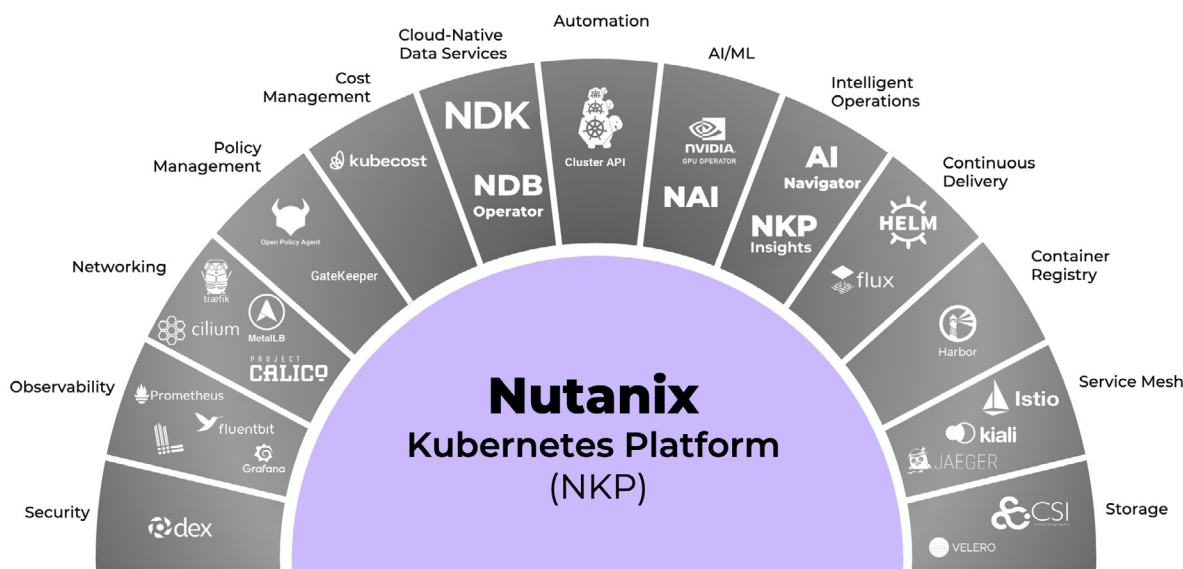
The full-stack platform provides all of the components needed to deploy and run containerized applications in production, plus access to a full catalog of validated CNCF projects, enabling you to integrate the right tools for your needs.

Freedom of Choice:

Including compute, storage, networking, security, and developer tools.

Portability Across Environments:

Maintain consistent operations and run workloads anywhere.



Enterprise-Grade Data Services for Kubernetes

Integrated disaster recovery, backup, and storage capabilities promote application resilience and simplify cloud native operations. All data services are designed to be scale-out and distributed—just like Kubernetes.

Simplified Disaster Recovery and High Availability:

Integrated backup, BCDR, and high availability are integrated directly into the platform and operate at an application level.

Streamlined Storage Management:

Integrated persistent storage for stateful applications, including support for block, file, and object storage and streamlined database management. Out-of-the-box storage integration enables more powerful container management and distributed storage capabilities.

One Unified Platform

Nutanix provides a single platform that enables you to run traditional and containerized applications anywhere. You benefit from:

Full-stack Operations:

A single platform for managing Kubernetes, VMs, storage, networking, and security ensures standardized operations across hybrid, multi-cloud, bare metal, and edge environments. The Nutanix platform breaks down operational silos and simplifies governance.

Integrated Platform Experience:

Native integrations across the Nutanix product ecosystem, including the AHV hypervisor and the Nutanix Cloud Clusters (NC2), Nutanix Cloud Infrastructure (NCI), and Nutanix Enterprise AI solutions.

Centralized Governance:

Apply consistent policies for data protection and resource management across both traditional and containerized workloads.

Full-Stack AI

Building on our proven infrastructure and Kubernetes capabilities, Nutanix helps you accelerate AI deployments and run AI like other applications.

Nutanix Enterprise AI

AI inferencing solution, offering endpoint APIs for leading LLM providers and simplifying the secure deployment of a wide range of GenAI models.

Nutanix GPT-in-a-Box

A full-stack AI solution that combines Nutanix infrastructure capabilities with NKP, NDK, and Nutanix Enterprise AI plus to streamline AI operations with turnkey simplicity.

Nutanix simplifies AI deployments with a cloud native platform that integrates seamlessly into your existing IT environment. With the GPT-in-a-Box solution that is pre-validated, you can deploy and run AI workloads just like any other application—securely, efficiently, and at scale. It's AI made simple, so your organization can focus on innovation, not infrastructure.

Deliver Better Business Outcomes

By partnering with Nutanix, you can deliver business impact in less time and with less disruption.

Accelerate Application Development:

With a simplified, integrated platform, Nutanix enables developers to build and deploy applications fast, accelerating time-to-market. Developers can focus on writing code rather than on the intricacies of Kubernetes.

Enhance IT Productivity:

Free platform engineering teams from complex infrastructure management, allowing more time to focus on higher-value tasks.

Simplify Security and Governance:

With built-in security and centralized management, your team can enforce policies, enable compliance, and minimize the risk of security vulnerabilities across your Kubernetes environments.

Unify Hybrid Multicloud Operations:

With a unified control plane that enables you to simplify management and automate routine tasks, Nutanix helps IT teams avoid the need for specialized skills. Run Kubernetes consistently across all environments.

Ready to get started?

Explore how Nutanix helps you unify VMs and containers, simplify Kubernetes everywhere, and run AI like other workloads. Pick the challenge that's holding you back, and see how to solve it.

[Unifying VMs and Containers On One Platform](#)

[Running Kubernetes at Scale](#)

[Deploying and Managing AI Like Other Workloads](#)

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