

# Enterprise Data Management for All Kubernetes Deployments Across all Architecture Layers at Scale

Unlock, fortify and optimize Kubernetes environments.

## Overview

Kubernetes has defined a generational blueprint for the modern data center. By orchestrating containers, which have drastically shifted how applications are developed and deployed, Kubernetes has created the best way to deliver rapid, efficient, and portable applications as a leading open-source solution. The benefits to using Kubernetes and containers are vast and many companies, including Veritas, are leveraging them for numerous optimizations in how they build and deliver IT solutions.

Although the benefits that come with this shift are clear, Kubernetes is not impervious to risks or failure. Like all workloads that came before, Kubernetes still exists on physical and virtual infrastructure that is vulnerable to risks like ransomware, network outages, natural disasters, and human error. Even the most ephemeral microservices can create and leave behind data that needs to be managed. These services may be designed to exist briefly and brilliantly, but if they cannot access the right information and infrastructure or if they are provisioned in a non-functional state, money is lost and so is confidence in the organization providing them.

Veritas understands the importance of perfecting Kubernetes deployments firsthand. Our latest scale-out appliance, NetBackup<sup>™</sup> Flex Scale, was designed to operate within a container environment. We soon realized that Kubernetes alone would not ensure the level of resiliency needed to provide organizations with the enterprise-grade resiliency they expected, so we improved the setup. Because we understood both the power Kubernetes brought to our software and also where we needed further resiliency, we quickly learned how to add the features and functionality to Kubernetes environments enterprises are looking for.

## Unlock

When it comes to choosing how to best use Kubernetes, the options can be overwhelming. Between Red Hat's OpenShift, VMware's Tanzu, Google Kubernetes Engine (GKE), Azure Kubernetes Service (AKS), and open-source solutions like native Kubernetes and Rancher, picking the right solution to meet your application needs can be daunting.

Fortunately, mobility is always an option with Veritas, regardless of the decision. With the latest NetBackup release, standardizing the Kubernetes operating model is simple. The ability to back up and restore across clusters or distributions ensures you can easily avoid outages, errors, and downtime while keeping application resiliency and portability constant. With self-service management, Kubernetes admins can easily and securely access the functionality needed to control their containerized application and metadata to deploy or recover Kubernetes namespaces anywhere. With Veritas, you can use Kubernetes any way you want, and your application mobility remains constant across physical, virtual, and cloud environments.

## Fortify

Although mobility can bring a level of freedom and resiliency to Kubernetes deployments, it is not enough by itself. Containerized applications running within Kubernetes are prime targets for threats like ransomware, and ensuring it is also recoverable in any situation is equally important. Just because the containers and microservices housed within it are built to be ephemeral and re-deployable at a moment's notice does not mean the persistent data and infrastructure they interact with is. When considering how to appropriately fortify Kubernetes and the applications within, a widened top-down approach across all infrastructure layers is critical to maintaining a healthy application state.

The approach to ensuring complete top-down recoverability is twofold. It starts by building a catalog of recoverable points in time with NetBackup. Confirming all data protected is compliant and indexable—while also recoverable to a last good state in case of corruption via malware—is the only reliable way to ensure long-term recoverability (see Figure 1). With many modern ransomware attacks lying dormant within infrastructure for months, having a robust catalog of recoverable points is crucial for an organization's success.

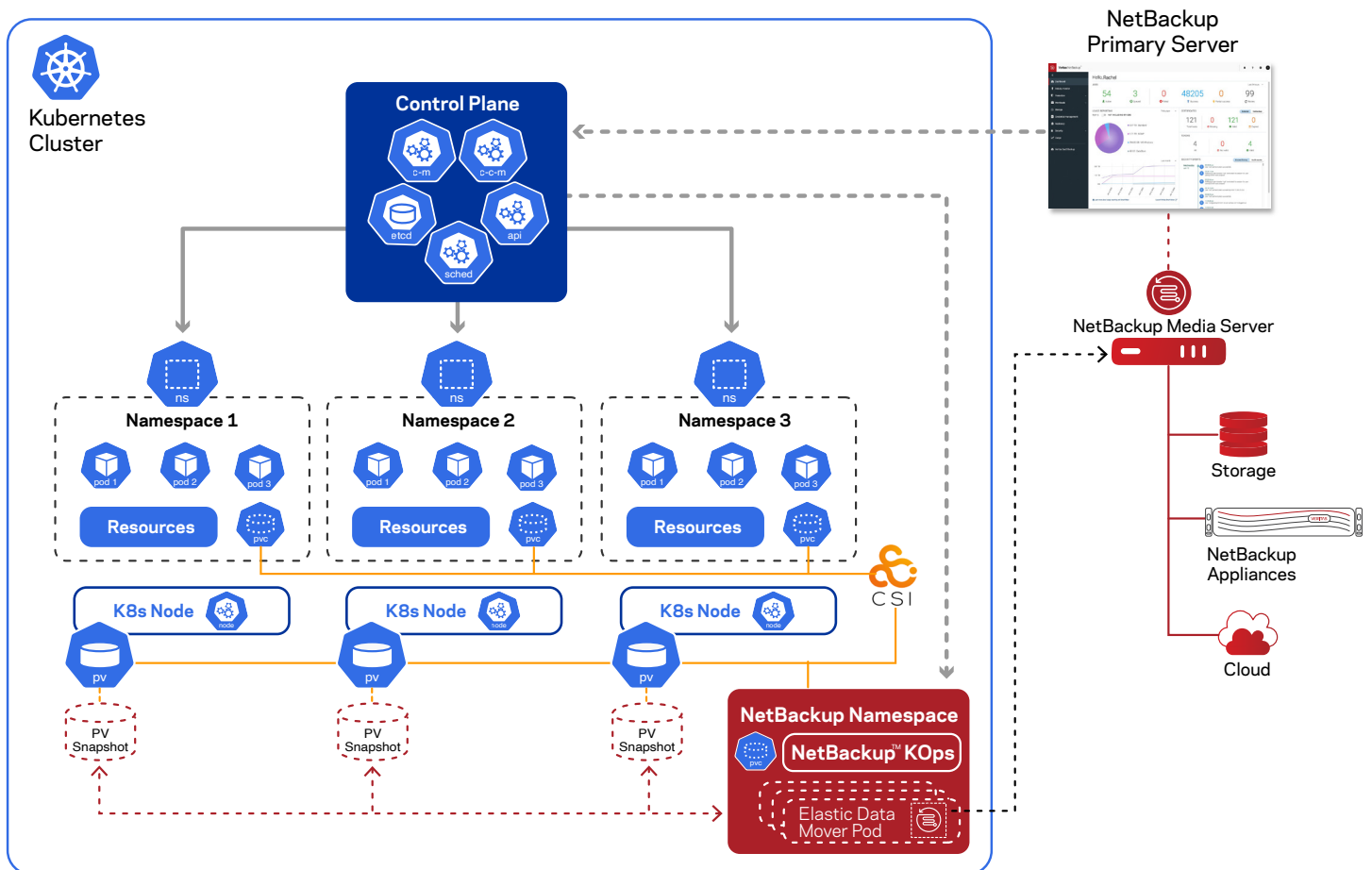


Figure 1. NetBackup protection for Kubernetes operates natively within the architecture, providing elastic automated protection.

Step two is ensuring infrastructure resiliency. Veritas InfoScale™ provides a foundation for Kubernetes storage volumes that offer the software-defined storage needed by stateful applications running in Kubernetes environments. This approach solves the inherent infrastructure gap to which all Kubernetes deployments are vulnerable (see Figure 2). Although a Kubernetes cluster is built for failover, the storage and underlying infrastructure are not. Only InfoScale availability built for Kubernetes can ensure near-zero downtime for the production apps and data within.

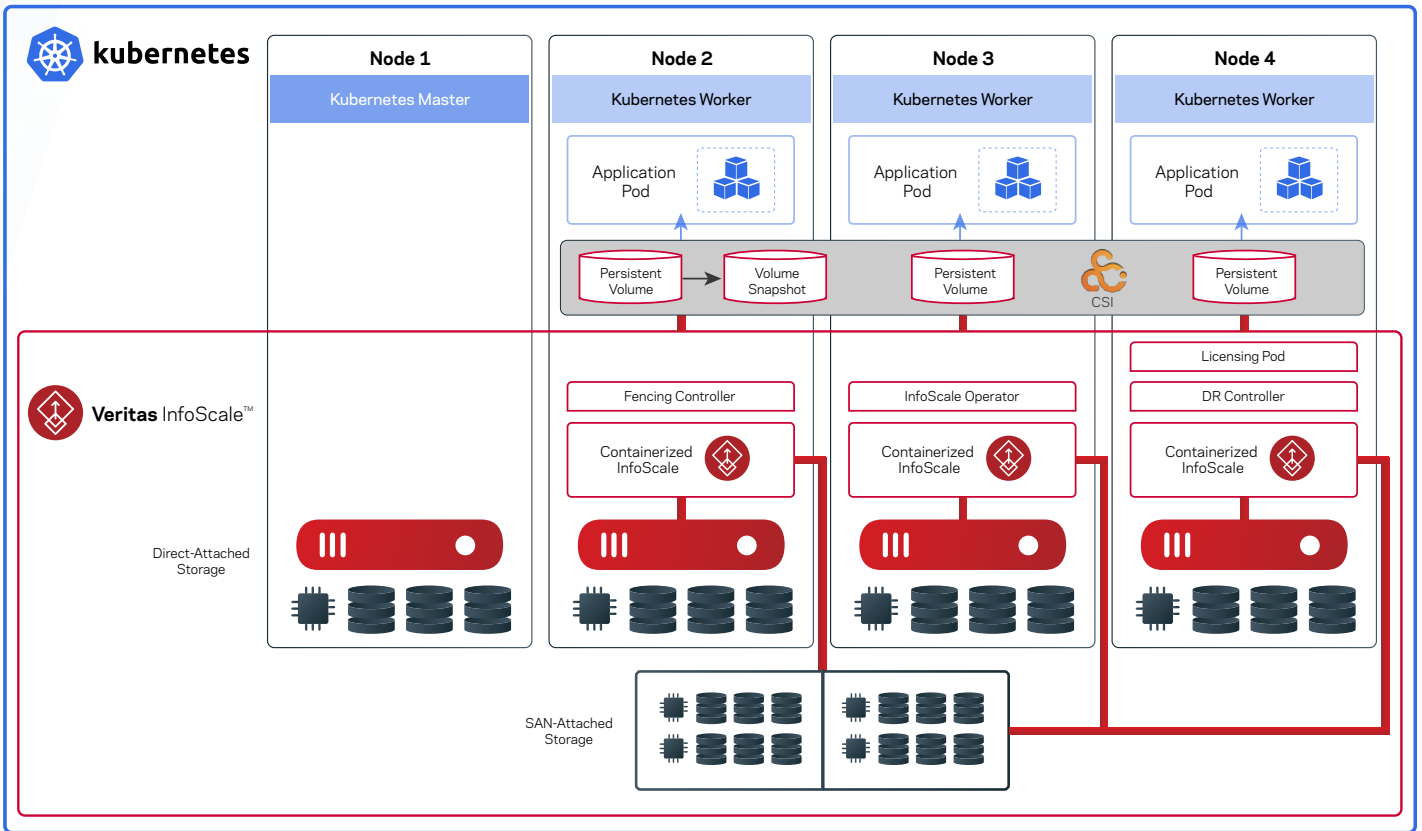


Figure 2. InfoScale's storage and underlying infrastructure further assures Kubernetes resiliency.

## Optimize

Once mobility is unlocked and environments are fortified, all that remains is to ensure the continued optimization of Kubernetes environments as they evolve and grow. Veritas simplifies this process with a unified integration approach with Kubernetes (see Figure 3). To ensure efficient deployment and integration, we use native Kubernetes constructs and existing frameworks to make sure the performance of Veritas operations does not impact the rest of the platform and applications within. Because of our software-defined focus, we have the flexibility to quickly incorporate the latest Kubernetes developments and updates, which enables us to provide solutions with expediency for organizations relying on Kubernetes for their mission-critical applications.

Today, Veritas ensures all Kubernetes storage environments can be built dynamically and that our solution operates natively and scales to meet demand. This approach keeps the costs of maintaining a flexible, fortified environment low while delivering performance and scalability as needed. Optimizing for value and efficiency, Veritas helps solve the potential challenges faced by enterprises currently using or moving to Kubernetes.

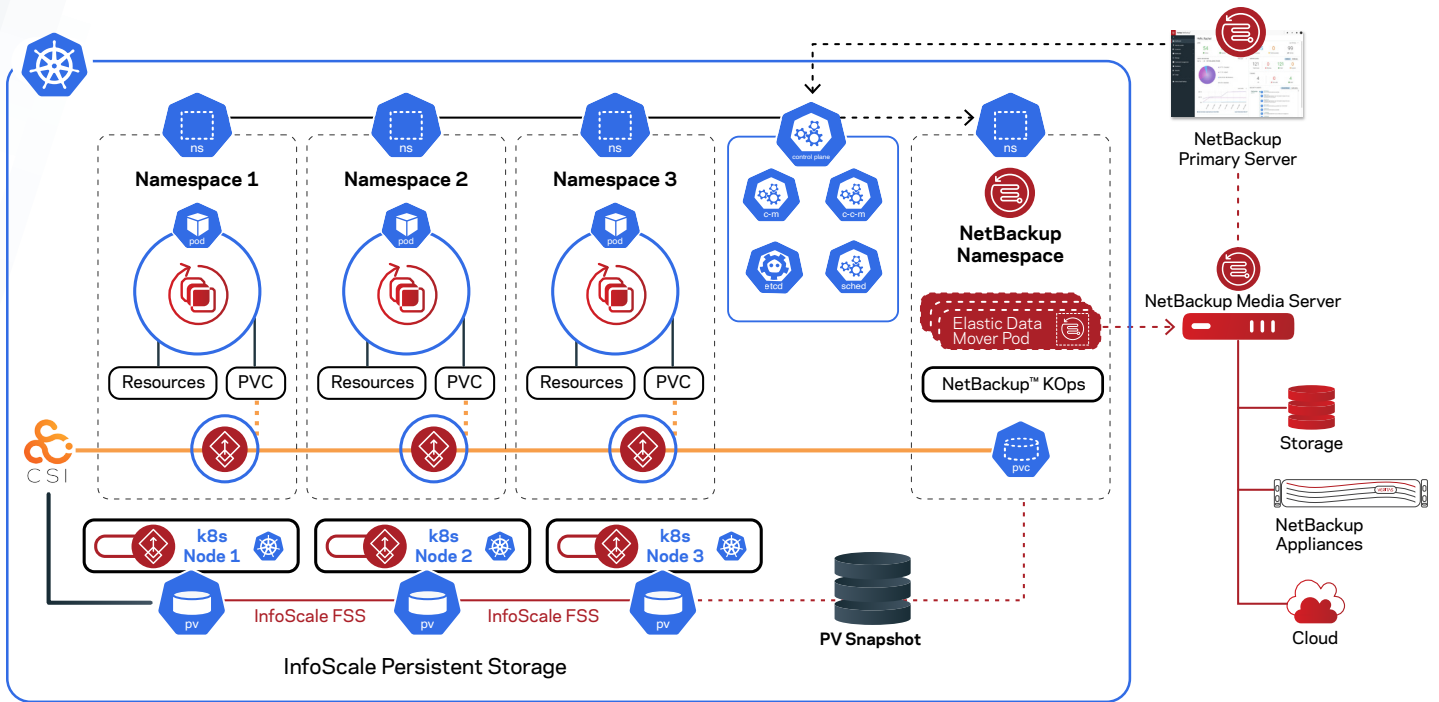


Figure 3. NetBackup and InfoScale simultaneously providing protection and dynamic storage scalability for Kubernetes.

## Solution

Having the right solution for Kubernetes is critical, especially when you need enterprise-focused data management functionality for Kubernetes that can operate at scale. To do so, you must first unlock multi-cloud mobility, then fortify all Kubernetes layers at scale and finally optimize for operations and future state. With Veritas as a partner, solving this problem is easy and building enterprise-focused Kubernetes environments is simple.

## About Veritas

Veritas Technologies is a global leader in data protection and availability. Over 80,000 customers—including 87 percent of the Fortune Global 500—rely on us to abstract IT complexity and simplify data management. The Veritas Enterprise Data Services Platform automates the protection and orchestrates the recovery of data everywhere it lives, ensures 24/7 availability of business-critical applications, and provides enterprises with the insights they need to comply with evolving data regulations. With a reputation for reliability at scale and a deployment model to fit any need, Veritas Enterprise Data Services Platform supports more than 800 different data sources, over 100 different operating systems, more than 1,400 storage targets, and more than 60 different cloud platforms. Learn more at [www.veritas.com](http://www.veritas.com). Follow us on Twitter at [@veritastechllc](https://twitter.com/veritastechllc).

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