



A comparative study of Rancher and Platform9: Enterprise Kubernetes Solutions



About This Guide

This guide describes the factors that lead to operational complexity and lock-in and 17 detailed capabilities to consider while evaluating an enterprise Kubernetes platform and to what extent Platform9 and Rancher deliver these capabilities including:

- Provisioning of Kubernetes Clusters
- High availability and healing
- Deployment models supported
- Prerequisites and Operating System Requirements
- Monitoring and operations management
- Multi-cluster management
- And more

Summary

For large-scale production usage and distributed cluster management, Kubernetes remains a very complex platform from an operational standpoint. Here are few factors that add to this complexity:

- The Kubernetes open source ecosystem is constantly evolving, with different complementary services (e.g Prometheus, Istio, Fluentd) maturing at different rates. This can be hard to track without dedicated engineering resources.
- Day 2 operations are extremely challenging. Monitoring, security patching, SLA management, troubleshooting, and upgrades are not trivial.
- High caliber Kubernetes talent is hard to hire and retain. Attrition must be closely controlled.



Platform9 runs **Kubernetes-as-a-service** for you. You don't need to install or manage a software tool anymore. Platform9's SaaS delivery model for Kubernetes uses software automation and resident k8s experts to completely offload ALL k8s operational pain off your team. We developed a unique **SaaS Management plane** that remotely collects metrics from your clusters to provide an added layer of protection with targeted alerts for the most critical components. Platform9 puts your clusters on auto-pilot. When your cluster breaks at 2 am, it gets fixed - proactively.

Platform9 delivers upstream, open-source technologies as easily consumable SaaS. Service endpoints offered by Platform9 are **100% open source** without any proprietary lock-in. Platform9 fully manages them via a SaaS management plane, guaranteeing a **99.9% uptime SLA** with world-class support.



Tools like Rancher solve just the first of the above factors. Without advanced skills and deep knowledge of Kubernetes and CNCF add-ons, operational complexity is going to bog down most teams. The burden is on the internal staff to install, patch, upgrade, and troubleshoot their Rancher tooling and infrastructure. Additionally, Rancher uses traditional ticket-based support - ultimately you are responsible for identifying the root cause of your cluster failures, submitting support tickets, and waiting for a response. How will you ensure your uptime and SLAs while you are waiting for support?

From an open source perspective, Both Platform9 and Rancher have the least lock-in. Rancher provides the open source software (RKE) which you can manage on your own (albeit with the operational complexity outlined earlier). The Rancher management software automates some of the operational activities, but you still need to budget for, hire, and retain your internal staff.

A detailed comparison of the specific capabilities is now explained in the rest of this document.

Seventeen (17) detailed capabilities to consider while evaluating an enterprise Kubernetes platform

1) Provisioning of Kubernetes clusters, high availability and healing: Kubernetes does not offer deployment of highly available clusters out of box and must be configured by the Kubernetes administrator. It is recommended that at least three master nodes are configured behind a load balancing solution with integrated or independent clustered deployment of etcd that stores all the cluster state information. Any high availability solution must also account for failure scenarios and auto repair and recovery.

2) Monitoring and operations management: A production Kubernetes cluster must be monitored at all times to handle any issues and outages without severely affecting cluster and application availability to users. An enterprise Kubernetes solution must provide this capability out of box.

3) Cluster upgrades: Kubernetes has a large community of contributors and a new version is available every 3 months. An enterprise-class solution will support rolling upgrades of clusters, such that the cluster and the cluster API is always available even while the cluster is being upgraded.

4) Edge, Private and Public Cloud Support: Build a cloud neutral strategy by investing in a platform that supports multiple cloud strategies.

5) Multi-cluster Management: A single Kubernetes cluster can scale horizontally to support large sets of workloads. However,

running Kubernetes in production requires being able to run multiple Kubernetes clusters, as you will want to fully isolate your dev/test/staging applications from production applications by deploying them on a separate cluster.

6) Multi-tenancy, Role-based Access Control and Single Sign-on Support: Kubernetes supports multi-tenancy at the cluster level using the namespace abstraction. However, in a multi-cluster environment, you need a higher level multi-tenancy abstraction to supplement Kubernetes multi-tenancy and provide the right level of isolation across different teams of users. It should integrate with Single-Sign On (SSO) solutions most commonly used by enterprises such as Active Directory or ADFS, Okta, and other popular SAML providers.

7) Ease of Setup, Installation, Continuous Use, Management, and Maintenance: A successful Kubernetes platform must be easy to implement and maintain so organizations can leverage containers continuously. This alone is a major barrier that many organizations do not overcome

8) Load Balancing: Kubernetes automatically load balances requests to application services inside of a Kubernetes cluster. However, some services need to be exposed externally for consumption by outside clients. Kubernetes does not provide an out-of-the box load balancing solution for that type of services. An enterprise

Kubernetes product should include a robust external load balancing solution, or integrate seamlessly with existing commercial load balancers.

9) Hybrid Cloud Integrations and APIs: Every enterprise today wants to build a cloud neutral strategy by investing in multiple cloud solutions. Having multiple private and/or public clouds as part of your cloud strategy ensures that you aren't getting locked into a single provider with no leverage on pricing, to have high availability across your infrastructure overall, and to satisfy your unique business policies.

10) Enterprise Grade User Experience: Enterprise grade user experience is all about having a polished user interface that enables enterprises to manage their hybrid environments through a single UI. This delivers complete visibility simplifying communications across the environment. This UI should allow operations that span multiple clusters: for example, globally searching for workloads of a specific type or tagged with a specific label across all clusters running on different regions, data centers and cloud providers.

11) Application Lifecycle Management - Application Catalog: Application catalog provides easy one-click deployment for a set of prepackaged applications on top of Kubernetes. It also provides end users a vehicle to build and publish their own applications via the catalog for others in their team or their organization to deploy in a one click manner. The application catalog enables organizations to standardize on a set of application deployment recipes or blueprints, avoiding sprawl of configurations.

12) Production Grade Service Level Agreements (SLA): As more and more organizations are running their business on Kubernetes, IT must ensure that it can support the SLAs that the business requires. IT must ensure that Kubernetes is available to developers and the business to support key initiatives. Most organizations require 99.9% uptime.

13) Storage Support and Integrations: Similar to networking, integration with enterprise grade storage is an essential component of running Kubernetes clusters in production. Kubernetes provides an abstraction called Persistent Volumes to hold data persisted by stateful applications. It is important for a Enterprise Kubernetes product to map PVs to an actual highly-available storage technology. Enterprises will typically want their Kubernetes deployment to integrate with storage solutions that they have already deployed such as NetApp, Pure, SolidFire, etc. or they may want to integrate with a container native storage technology such as Portworx.







14) Self Service Provisioning: Developers must have self-service access to one or more Kubernetes clusters with right levels of isolation in place so only members with right privileges can access production workloads.







15) Built-in CI/CD Support: One of the most critical workloads run by the developers is Continuous Integration / Continuous Delivery. A robust CI / CD pipeline is critical to ensure agile development and rapid delivery of new software releases to Customers.







16) Free Managed Service Plan: Not every company is ready to go into production right away. Kubernetes is still new and companies need the room to start free, learn, test, and then scale to production on their terms. A 100% free managed service gives users the freedom to start at zero cost and grow at their own pace into more supported options







17) Enable Cluster Administration and Workload Management: Users should be able to manage clusters and troubleshoot applications from the same platform, including developers, devops and application teams.







Kubernetes buyers’ guide: Detailed comparison







Features	Product	
	Platform9 Managed Kubernetes (Enterprise tier)	Rancher
Provisioning of Kubernetes clusters	<div><ul style="list-style-type: none">Fully automated provisioning of clusters on any infrastructure: on-premises, public clouds, or at the edge</div>	<div><ul style="list-style-type: none">Fully automated provisioning of clusters (except imported clusters)</div>
High availability and healing	<div><ul style="list-style-type: none">Built-in support for highly available clusters out-of-the-boxSupports multi-master clusters (with a separate Etcd instance on each master) for high availabilityBuilt-in Etcd high availability support Etcd can be recovered from backups in the event of cluster failure</div>	<div><ul style="list-style-type: none">Leverages native Kubernetes features to deliver HA and healing</div>
Deployment and model (s) supported	<div><ul style="list-style-type: none">Platform9’s unique remotely-hosted SaaS-managed offering enables customers to run their upstream open source Kubernetes clusters on any infrastructure, such as:<ul style="list-style-type: none">on-premises,VMware,Public cloudsEdge cloudsPlatform9 remotely handles all the complex monitoring, upgrading, and SLA management</div>	<div><ul style="list-style-type: none">Can be deployed on-premises or in all the major public clouds</div>







Features	Product	
	Platform9 Managed Kubernetes (Enterprise tier)	Rancher
Available as hosted managed services	 <ul style="list-style-type: none"> • Yes. Platform9 provides a central SaaS management plane for deploying and managing clusters on any infrastructure (public cloud, private cloud, or on-prem) with closed-loop monitoring, alerting, and troubleshooting automation. • Support is provided by Certified Kubernetes Administrators (CKAs) who proactively resolve issues 24/7 that customers may not even notice. • Customers enjoy a single platform, a single license, and fully automated management 	 <ul style="list-style-type: none"> • Yes, via Rancher Hosted. Requires certain infrastructure configurations
Prerequisites and operating systems supported	 <ul style="list-style-type: none"> • Supports all popular enterprise Linux distributions like Red Hat, CentOS, Ubuntu. 	 <ul style="list-style-type: none"> • Supports all popular enterprise Linux distributions like Red Hat, CentOS, Ubuntu. Also offers support for RancherOS, a lightweight Linux distribution for container hosting
Cluster upgrades	 <ul style="list-style-type: none"> • Fully automated cluster upgrades delivered seamlessly, with no interruption to the environment • Zero-downtime upgrade 	 <ul style="list-style-type: none"> • Provides an easy built-in cluster upgrade experience • Upgrade one cluster at a time or multiple clusters simultaneously

Features	Product	
	Platform9 Managed Kubernetes (Enterprise tier)	Rancher
Monitoring and operations management	 <ul style="list-style-type: none"> • 24 x 7 live monitoring • 99.9% guaranteed SLA • Proactive repair • Automated email notifications for any issues • Automated support ticket creation and triaging of issues • Out-of-the-box automated deployment of Prometheus and Grafana • Support provided by Certified Kubernetes Administrators (CKAs) 	 <ul style="list-style-type: none"> • Performs health checks on all Kubernetes clusters and presents resource consumption statistics • Sends cluster-level alerts for Kubernetes system components (e.g., etcd, DNS, etc.) – Customizable resource alerts, such as CPU, memory, etc. • Traditional support ticketing process for issues • Automatically deploys and configures Prometheus and Grafana for
Multi-cluster management	 <ul style="list-style-type: none"> • Built-in multi-cluster support. Create any number of clusters • Admins can manage multiple clusters across different regions, data centers, and clouds 	 <ul style="list-style-type: none"> • Provides unified management of multiple clusters • Build clusters on public cloud providers like GKE, EKS, AKS, or on data centers • Able to discover and manage existing, pre-created clusters
Multi-tenancy, role-based access control, and single sign-on support	 <ul style="list-style-type: none"> • Support for multi-region management • Built-in multi-tenancy support • Kubernetes RBAC is fully supported • Full support for Single Sign-On (SSO). Integrate with a SAML- based provider that your organization uses, such as Okta, ADFS, Ping Identity, etc. 	 <ul style="list-style-type: none"> • Provides centralized authentication (GitHub, AD/ LDAP, SAML, etc.) across Rancher or cloud Kubernetes services • Allows admins to define Kubernetes RBAC policies as well as network and pod security policies centrally and apply them across any cluster

Features	Product	
	Platform9 Managed Kubernetes (Enterprise tier)	Rancher
Private registry support and image management	 <ul style="list-style-type: none"> Does not provide out-of-the-box support for private registries Registries and secrets required to authenticate with the registries need to be managed by the customer separately 	 <ul style="list-style-type: none"> Does not provide out-of-the-box support for private registry deployment. Users have to deploy their own public or private registries. However, Rancher can pull images automatically from private registries once they are configured Does support storing of secrets required to pull images from private registries.
Hybrid cloud integrations and APIs	 <ul style="list-style-type: none"> Includes robust native integration with all major private data center/private cloud offerings and major public cloud providers Linux/KVM, OpenStack Clusters on public clouds are created with the public cloud's IaaS layer to provide a native Kubernetes cluster experience (and avoid any limitations in the cloud provider's Kubernetes service) Clusters can be imported from EKS and AKS and managed from the PF9 console. 	 <ul style="list-style-type: none"> Automates cluster creation on bare metal servers, VMware, or any IaaS cloud Clusters on IaaS clouds are created with a cloud-specific version of Kubernetes (EKS for Amazon AWS cloud, AKS for Azure cloud, etc.) Rancher is subject to any limitations the cloud providers expose around versioning, update, HA, etc
User interface and experience	 <ul style="list-style-type: none"> Provides an enterprise class UI and user experience The UI provides a single pane of glass across bare metal, virtualized, and containerized workloads Unify all your data centers, private clouds, and public clouds under a single UI 	 <ul style="list-style-type: none"> Includes an intuitive UI that makes it easy for users to deploy services on Kubernetes and get complete visibility Common configuration options directly from the UI for defining scheduling rules, health checks, ingress controllers, secrets, storage, and other key configuration choices are offered

Features	Product	
	Platform9 Managed Kubernetes (Enterprise tier)	Rancher
Support for automated application deployments	 <ul style="list-style-type: none"> Administrators can provide users access to applications that are private to the organization Support for managed apps Also supports all standard Kubernetes app deployment techniques, including Helm charts 	 <ul style="list-style-type: none"> Built-in application catalog that is populated with public Helm chart applications Offers 'Rancher certified' applications provided in the catalog that are tested and certified by Rancher
Template based central policy management	 <ul style="list-style-type: none"> Platform9's Profile Engine enables centralized policy management and governance across clusters Create templates that define cluster configuration and profiles, then provision clusters automatically Centralize RBAC management and mitigate configuration drift through standardized templates 	 <ul style="list-style-type: none"> RKE Templates support centralized provisioning for some cluster configuration variables However, RKE Templates lack support for RBAC configuration in particular
Production grade service level agreement	 <ul style="list-style-type: none"> Platform9 contractually promises 99.9% cluster uptime and high availability Provides self healing, problem resolution through the service Clusters are actively monitored and managed by Certified Kubernetes Administrators (CKAs) 	 <ul style="list-style-type: none"> 99.9% uptime guarantee for fully managed clusters (Only for Rancher Hosted) Provides a traditional enterprise class support model. Guaranteed response times depend on incident severity (determined by customer) and support plan tier Troubleshooting is handled via support tickets Customers drive manual upgrades and any issues require support team engagement

Features	Product	
	Platform9 Managed Kubernetes (Enterprise tier)	Rancher
Ease of installation, continuous use, management and maintenance	 <ul style="list-style-type: none"> Fully automated deployment and easy UI-driven wizard gets Kubernetes clusters running in a few minutes Create a simple Kubernetes cluster using on-prem servers, VMs, or public cloud resources in minutes Manage clusters with one-click UI-based upgrades and troubleshooting 	 <ul style="list-style-type: none"> Simple setup: run a single docker command on a Linux machine and you are up and running Provides an intuitive UI to help with the rest of the setup and Kubernetes cluster creation
Network support and integrations	 <ul style="list-style-type: none"> Provides full CNI support Integrates out-of-the-box with Flannel, Calico 	 <ul style="list-style-type: none"> Rancher provides CNI support Out-of-the-box support provided for Canal, Calico, Flannel
Storage support and integrations	 <ul style="list-style-type: none"> Supports integration with any FlexVolume drivers Integrates with any Cinder-supported storage backend (NetApp, Pure Storage, etc.) Compatibility with all CSI-compliant storage is in development and planned for upcoming release 	 <ul style="list-style-type: none"> Supports integration with network-based persistent storage using the Kubernetes persistent volume framework Supports a wide variety of persistent storage endpoints such as NFS, GlusterFS, OpenStack Cinder, FlexVolume, VMware vSphere, etc.

Features	Product	
	Platform9 Managed Kubernetes (Enterprise tier)	Rancher
Self-service provisioning	<div><ul style="list-style-type: none">• Complete self-service provisioning enabled via Platform9's UI• Users log into the UI as part of a specific tenant (e.g., dev/test/pro- duction) and access clusters, provided they have been granted access• Quick deployment of pods, deployments, services via a wizard</div>	<div><ul style="list-style-type: none">• Provides a complete self- service provisioning UI for end users and admins to create workloads on top of Kubernetes</div>
Support for CI/CD integrations	<div><ul style="list-style-type: none">• Provides Spinnaker and Jenkins via the Helm application catalog</div>	<div><ul style="list-style-type: none">• Includes integrated CI/CD, making it easy for teams using Kubernetes to quickly integrate it with their development, testing, and release management process• Users can easily point Rancher at any git repo and it will automatically run builds on Kubernetes, deploy test environments, and move product</div>
Free managed service plan	<div><ul style="list-style-type: none">• PMKFT is available here• It's free forever up to 20 nodes capacity, Slack support, and critical alerts capability</div>	<div><ul style="list-style-type: none">• No advertised free tier• Demo available upon request</div>

Platform9 Managed Kubernetes (PMK)

Platform9 Managed Kubernetes is the industry's only **SaaS-managed Kubernetes** offering that runs anywhere: public clouds, on-premises, and the edge. It delivers all the benefits and capabilities of Kubernetes, while managing updates, upgrades, and management of Kubernetes.

With PMK, DevOps, ITOps, Platform Engineering, and cloud architects can enjoy the freedom to:

Use any infrastructure of their choice



Provide a robust SLA-backed self-service Kubernetes platform to their developers



Deploy to multiple locations at scale: data centers, edge, or multiple public clouds



Avoid day-2 operational complexities of monitoring, upgrades, security patching etc.



Use upstream open source Kubernetes versions and not be locked into any proprietary stack.



Avoid the constraints of lack of skills, time, and cost to build and operate a Kubernetes platform yourself. Experience the SaaS managed difference and check out for yourself how easy it is to deploy, manage and scale your Kubernetes infrastructure, anywhere with our live sandbox: [https:// platform9.com/sandbox/kubernetes/](https://platform9.com/sandbox/kubernetes/)



About Platform9

Platform9 is the world's #1 open distributed cloud service, offering the power of the public cloud on infrastructure of customers' choice – powered by Kubernetes and cloud-native technologies. Public clouds are walled gardens, and DIY is difficult and time-consuming. Platform9 offers a third option – an open and faster option – enabling a better way to go cloud-native. Platform9's service powers 40K+ nodes across private, public, and edge clouds. Innovative enterprises like Juniper, Kingfisher Plc, Mavenir, Redfin, and Cloudera achieve 4x faster time-to-market, up to 90% reduction in operational costs, and 99.9% uptime. Platform9 is an inclusive, globally distributed company, backed by leading investors.

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