



Moving beyond VMware: Create agility, save costs, and future-proof your transition



Contents

Chapter 1: Why now is the time for an alternative to VMware

05

The trap of choosing the easy and popular paths	05
Why KubeVirt is a viable alternative to VMware	06
Now is the time to make the transition	06

Chapter 2: The business case for migrating from VMware to KubeVirt

07

The business benefits of migrating to KubeVirt from VMware	07
Improved resource utilization	07
Scalability and elasticity	08
Cost-effective licensing	08
Infrastructure simplification	08
Vendor lock-in mitigation	08
From good idea to migration plan	08

Chapter 3: Migrating your virtual machines from VMware to KubeVirt

09

Understanding the migration process	09
Preparing for the migration	09
Getting Kubernetes and KubeVirt installed	10
Migrating virtual machines	10
Lift-and-shift migration	11
Rebuilding VMs	11
Transferring VM disk images	12
Getting into the details of your VMware VM to KubeVirt migration	12

Chapter 4: Beyond the move - Other migration factors to consider.

13

Configuring VM networking

13

Validating the migration

13

Post-migration considerations

14

Chapter 5: Reaping optimal benefits from a VMware to KubeVirt migration

15

Platform9 can help you reduce the cost of legacy Virtual Machines by as much as 50%

15

Executive summary

VMware has been the proverbial 800-pound gorilla in the room for decades. With some organizations running thousands of virtual machines, staying with the virtualization giant seemed like the best plan if not simply the path of least resistance. However, the recent announcement of VMware's acquisition by Broadcom, among other concerns, has many technology leaders rethinking the decision to stay with their long-time virtualization solution.

The question then becomes, what are the reasonable alternatives to VMware? Many commonly accepted solutions, such as switching to Hyper-V or moving to public cloud, are complex or just as expensive as staying on VMware, with the added overhead of moving to a new solution. There is another choice, however – KubeVirt.

KubeVirt is a mature open-source solution that allows you to run your VMs along with Kubernetes. With the right solution, a move from VMware to KubeVirt can set your organization on a path to modern infrastructure, promote operational efficiency, and even save you as much as 50% off your current VMware costs.

Chapter 1: Why now is the time for an alternative to VMware



Broadcom’s acquisition of VMware has customers worried about higher prices and less innovation from the virtualization giant. Comments by analysts have reflected this concern. An article featured on the Silverlinings website quoted Gartner, who recommended that VMware customers “identify exit ramps for deployed products, including alternative solutions and migration activities.”

Of course, these analysts stop short of suggesting solutions, leaving companies wondering where to turn next. Organizations, like yours, need to find solid, workable alternatives that answer the problem without stalling existing momentum or increasing budgets.

The trap of choosing the easy and popular paths

Let’s take a closer look at some commonly considered alternatives and why they may not provide the ideal solution for businesses concerned about cost increases and future-proofing their transition.

Staying with VMware and reducing costs in other ways	Switching to a different legacy virtualization provider	Migrating virtual machines to the public cloud
<p>You could save costs by reducing staff but continue to pay high VMware license fees. Doing so can have a significant impact on your operational service-level agreements (SLAs).</p> <p>Furthermore, many forward-thinking enterprises have realized cloud-native is the future and are looking for modern alternatives.</p>	<p>Transitioning to Hyper-V or HCI might seem like a logical choice, but it may not result in significant cost savings or deliver any modernization benefits.</p> <p>Other legacy virtualization providers often come with their own limitations, including high licensing fees, a lack of agility, and limited support for cloud-native technologies.</p>	<p>Despite growing in popularity, the public cloud is no longer proving to be an economically sound solution.</p> <p>As workloads grow or have specific requirements (e.g. edge, AI/ML), the costs of running virtual machines in the public cloud can quickly add up and may end up being more expensive than the costs of on-premises infrastructure.</p>

Why KubeVirt is a viable alternative to VMware

KubeVirt is a dependable and mature open source project that many enterprises use to run critical applications and services.

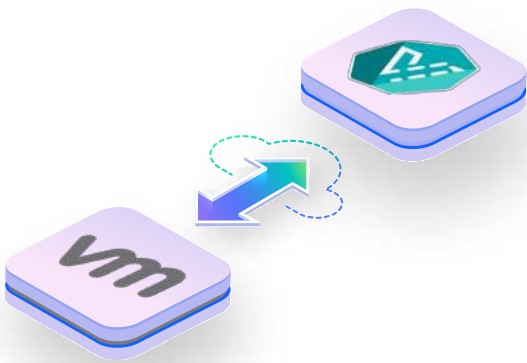
- KubeVirt has been under development for more than 5 years.
- KubeVirt is a CNCF graduated project, which means that it has met the CNCF's rigorous requirements for stability, security, and community support.
- It is based on the battle-tested KVM hypervisor, used by major cloud providers to run millions of VMs.
- KubeVirt has been certified by a number of independent testing organizations, including the Cloud Native Computing Foundation (CNCF) and the Linux Foundation.

KubeVirt provides a compelling alternative that enables businesses to reduce costs, embrace cloud-native technologies, and future-proof their infrastructure. Organizations can drive operational efficiency, cost savings, and innovation by consolidating legacy virtualization products, leveraging automation, and harnessing the power of unified capabilities.

Now is the time to make the transition

Now is the time to assess your options, break free from legacy constraints, and embark on a journey toward a future-ready infrastructure. However, the question remains – what does a migration from VMware to KubeVirt entail? In this guide, we'll outline the requirements and steps needed to move off VMware and on to a more modern infrastructure.

Chapter 2: The business case for migrating from VMware to KubeVirt



The Broadcom acquisition isn't the only thing that is keeping VMware users up at night. The current economic climate is hampering modernization projects as organizations look to save money where they can. At the same time, teams are looking for ways to gain efficiency in managing both VMs and containers as organizations work to future-proof their workloads. Many workloads can't be moved out of a VM – refactoring to containers isn't realistic or perhaps even possible, and even when feasible, requires significant time and effort that many businesses simply can't afford at the moment.

This is where KubeVirt comes in. VMs can be migrated to run in a Kubernetes environment – without the need to be containerized. KubeVirt minimizes the need for expensive legacy VM management licenses. Plus, because VMs don't need to be refactored, KubeVirt can provide a rapid path to addressing the operational and cost concerns of running VMs.

Over the next few chapters, we'll walk you through why considering a shift from VMware to KubeVirt makes sense, what a migration project looks like, other factors that need to be considered during and after migration, and finally how you can realize as much as a 50% cost reduction over your current VM costs.

The business benefits of migrating to KubeVirt from VMware

By seamlessly integrating VMs with containerization technologies in a Kubernetes environment, KubeVirt provides businesses with the tools they need to improve efficiency, reduce costs, and mitigate vendor lock-in risks. Let's look at five key business benefits that organizations stand to gain by using KubeVirt instead of VMware.

Improved resource utilization

KubeVirt takes advantage of Kubernetes's containerization and orchestration capabilities, allowing for more efficient resource utilization. By running VMs alongside containers on the same infrastructure, you can achieve higher density and better compute resource utilization. This can result in significant cost savings by reducing the number of physical servers required to run your workloads.

Scalability and elasticity

KubeVirt offers seamless scalability and elasticity, enabling you to dynamically adjust the number of VMs based on workload demands. With Kubernetes's native scaling features, you can automatically scale VMs horizontally (and vertically), optimizing resource allocation and reducing idle capacity. This flexibility allows you to match resource usage with actual workload requirements, leading to cost savings by avoiding over-provisioning.

Cost-effective licensing

VMware's licensing model frequently includes substantial upfront costs as well as ongoing licensing fees based on the number of CPUs or sockets. It is possible that their licensing will be moved to core pricing, which will significantly raise customer costs.

KubeVirt, on the other hand, is an open-source platform based on Kubernetes. It also makes use of KVM, the battle-tested open-source hypervisor used by the world's largest cloud providers. As a result, you can avoid the high licensing costs associated with proprietary virtualization solutions. Generally, companies leverage an enterprise Kubernetes distribution or managed service (like Platform9) to reduce the technical and operational burden on their team.

Infrastructure simplification

KubeVirt's integration with Kubernetes creates a unified management platform for containers and virtual machines. This integration eliminates the need for separate virtualization and containerization management tools and infrastructure, streamlining your operations and reducing complexity. Simplifying infrastructure management results in lower administrative overhead and operational costs.

Vendor lock-in mitigation

Migrating from VMware to KubeVirt reduces reliance on a single vendor, lowering the risks of vendor lock-in. KubeVirt is an open-source project with a vibrant community. This open ecosystem offers you the flexibility to choose from multiple vendors for hardware, software, and services, enabling cost-effective procurement and avoiding vendor-specific pricing models.

While KubeVirt provides cost savings and business benefits, the actual cost savings may vary depending on the specific requirements, workloads, and existing VMware licensing agreements. To get a more accurate estimate of potential savings for your organization, conduct a thorough cost analysis and compare the total cost of ownership (TCO) of VMware and KubeVirt.

From good idea to migration plan

In this first chapter, we've examined the business benefits of migrating your VMs to KubeVirt. In the next chapter, we'll take a high-level look at what a migration project from VMware to KubeVirt might look like.

Chapter 3: Migrating your virtual machines from VMware to KubeVirt



Technology migrations are historically complex projects with a lot of uncertainty at the beginning and a fair amount of risk accepted to reap the gains of the transformation. However, much of the stress of a migration is in the unknown – what does the migration process look like? What’s involved? What are my options? More than a few migration projects stopped before they started simply because there wasn’t a clear and understandable path to get from A to B.

Like any migration, a move from VMware to KubeVirt can have challenges. However, an examination of the process can make it easier to see where the speed bumps and roadblocks might exist, as well as help identify valuable tools and assistance to get through any rough spots.

Understanding the migration process

Before diving into the migration process, it’s essential to comprehend the key differences between VMware and KubeVirt. VMware is the industry’s de-facto virtualization platform, with a widely used vSphere hypervisor. KubeVirt is a modern cloud-native alternative that leverages Kubernetes to orchestrate both VMs and containers.

By migrating to KubeVirt, organizations can achieve increased scalability, improved resource utilization, and a more streamlined infrastructure. However, the migration process may present challenges such as network and storage configurations, as well as potential application compatibility issues. Understanding these factors will enable you to plan an effective migration strategy.

Preparing for the migration

To ensure a successful migration, you must thoroughly understand your current environment. Here are steps to consider:

- Assess your current VMware environment, noting the number of virtual machines (VMs), their configurations, and dependencies. This information will help you determine the required resources for the KubeVirt cluster.
- Make a note of the VMware versions that these VMs are running on. Many organizations may have multiple versions running, which can complicate the migration process.

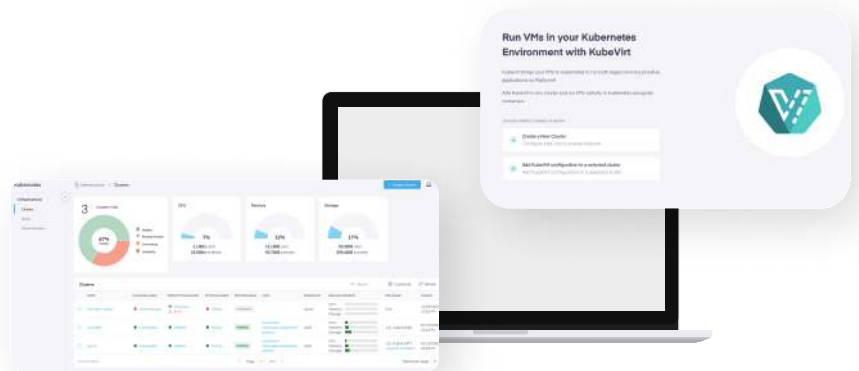
- Make a note of Guest OS versions.
- Analyze VM dependencies, such as shared storage, network connectivity, and external services.
- Establish a clear migration strategy outlining the order and priority of VM migrations.

Getting Kubernetes and KubeVirt installed

To begin the migration process you'll need to set up a Kubernetes cluster and deploy the KubeVirt components. Once your cluster is up and running, you need to configure storage classes and persistent volumes to ensure proper data management and set up networking to establish connectivity between VMs and external resources.

How to set up your K8s cluster and KubeVirt with Platform9

[Learn more](#) →



Migrating Virtual Machines

Now, let's take a look at the various approaches to migrating virtual machines from VMware to KubeVirt. You can choose between a lift-and-shift migration, which involves replicating VMs as they are, or a rebuilding approach, where you create new VMs on KubeVirt and migrate the application and data.

Each of these methods has its strengths and weaknesses, making each well-suited to some workloads and less ideal for others.

Lift-and-shift

Pros

- Fast migration
- Minimal code changes, if any
- Reduces risk

Cons

- Some legacy apps may still need modification
- KubeVirt and cloud native toolsets such as backup, DR, etc. are different than VMware (we address this in a later blog)

Rebuilding

Pros

- Better optimization
- Opportunity to identify and implement workload improvements

Cons

- Better optimization
- Opportunity to identify and implement workload improvements

Lift-and-shift migration

The lift-and-shift approach involves replicating the VMs from VMware to KubeVirt without making significant changes. Here are the steps:

- Create VMs in KubeVirt that match the specifications of your VMware VMs. This includes defining the CPU, memory, and disk requirements.
- Use tools like `virt-v2v`, `QCOW2`, or `virt-p2v` to convert VMware VMs to KubeVirt-compatible formats. These tools convert the VM's disk images, network configurations, and other parameters.
- Deploy the converted disks in KubeVirt by easily adding them to the VM that was created.

Rebuilding VMs

The rebuilding method entails creating new KubeVirt VMs and migrating the application and data. Here are the steps:

- Get an inventory of the applications running on the VMware VMs and their dependencies.
- Set up the necessary infrastructure in the KubeVirt environment, such as networks, storage, and services.
- Rebuild the VMs in KubeVirt by creating new VM instances and installing the necessary operating systems and applications.
- Ensure that you replicate the networking and storage configurations from the VMware environment.
- Migrate the application and data from your VMware VMs to the new KubeVirt VMs, ensuring a smooth transition.

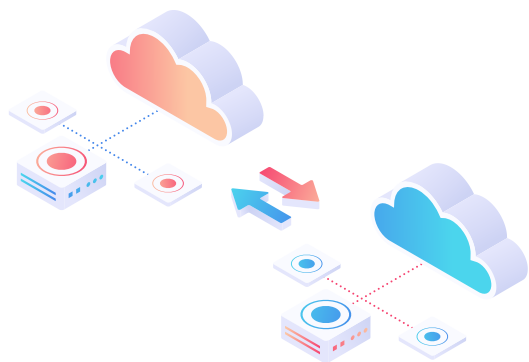
It's worth noting that there is a third option. It's possible to use a third-party utility to migrate the VMs. If you're interested in utilizing a third-party tool, [get in touch with us](#) for recommendations.

Transferring VM disk images

During the migration process, you'll need to transfer the VM disk images from VMware to KubeVirt. One approach is to use tools like `virt-v2v` or `virt-p2v` to convert the VM disk images into formats compatible with KVM/KubeVirt. Another option is to leverage storage technologies like NFS or block storage to make the disk images accessible to the KubeVirt environment. Ensure that the disk images are transferred securely and validate their integrity before starting the VMs in KubeVirt.

Getting into the details of your VMware VM to KubeVirt migration

In this chapter, we've given you a high-level overview of the migration process when moving your VMware VMs to KubeVirt. In the next chapter, we'll take a look at additional elements you'll need to consider as part of the process, including network configuration and post-migration considerations.



Chapter 4: Networking and validation considerations

When considering a migration, moving your VMs is only part of the story. There are other facets to these projects that must also be considered - specifically networking, validation, and post-migration considerations.

Configuring VM networking

Networking plays a crucial role in VM migration. You'll need to ensure that the network configurations of the migrated VMs, now in KubeVirt, match those in VMware to maintain application connectivity. With Platform9 KubeVirt, advanced networking functionality is easily configured with built-in addons. By leveraging the Multis CNI, Platform9 can deploy KubeVirt VMs with multiple virtual NICs configured with DPDK, SRIOV, OVS, and other built-in features to run your networking processes at line speed. (Customers with VMs requiring low latency and high throughput networking requirements have experienced up to 3x improved networking throughput on Platform9 KubeVirt.) Select the appropriate networking approach based on your enterprise needs and configure the network interfaces and connectivity accordingly.

The network configuration can get complex. You can take advantage of automation and tools like the advanced networking operator, Luigi, which is provided by Platform9 as part of our solution. Luigi is a Kubernetes operator used by KubeVirt to deploy, manage, and upgrade advanced networking plugins. The advanced networking operator was nicknamed Luigi because it provides the “network plumbing” used to simplify the configuration of advanced technology stacks such as SR-IOV, DPDK, OVS, Multus, Device Plugins, IPVLAN, MacVlan. See more details on how to install it in this [Luigi Networking Quickstart guide](#).

Validating the migration

After migrating the VMs to KubeVirt, it is critical to validate their functionality and ensure that applications are running smoothly. Here are some steps to consider:

- Test the migrated VMs by accessing them, verifying network connectivity, and executing critical functions.
- Monitor the performance of the VMs and identify any performance bottlenecks or issues that may have arisen during the migration process.

- Use monitoring and observability tools to track resource usage, network traffic, and application performance. If any issues are identified, troubleshoot and resolve them promptly to maintain optimal VM performance.
- Confirm and Test HA capabilities with Live Migration.

Post-migration considerations

Once the migration is complete, there are several post-migration considerations required to ensure ongoing success with KubeVirt.

Optimizing performance

Fine-tune the performance of your migrated VMs in KubeVirt by optimizing resource allocation, tuning CPU and memory configurations, and configuring storage and networking appropriately. Regularly monitor and analyze performance metrics to identify opportunities for improvement and make adjustments as needed.

Implementing backup and disaster recovery

Establish robust backup and disaster recovery mechanisms for your KubeVirt environment. Consider utilizing Kubernetes-native backup solutions like Trilio, Velero, Kasten K10, or Stash. These tools are designed specifically for Kubernetes environments, including KubeVirt, and offer robust backup and restore capabilities that align with Kubernetes. It's important to thoroughly test and validate any backup strategies to ensure they meet your data protection requirements and align with your specific use case.

Training and educating your team

Provide comprehensive training to your operations and development teams to familiarize them with KubeVirt concepts. Platform9 expert services provides assistance with implementation and KubeVirt training as part of our handoff to clients. As you can see, VM migration is about more than just moving the VMs themselves. In our final chapter we'll tackle how you can bring this all together and save as much as 50% off your current legacy VM costs.



Chapter 5: Reaping optimal benefits from a VMware to KubeVirt migration

A migration from VMware to KubeVirt makes business sense, and the move to a modern infrastructure makes technical sense as well. However, migration is just the start. Organizations need an easy way to move their VMs, and a commonsense approach to operations after the migration. It's time to examine how Platform9's proven solution, incorporating KubeVirt as part of its open-source stack, can bring your organization significant cost savings while increasing operational efficiency.

Platform9 can help you reduce the cost of legacy Virtual Machines by up to 50%

In today's tight economy, as CEOs and CFOs step in to assess costs at all levels, IT leaders are faced with a number of challenging tasks, including controlling cloud costs, lowering legacy vendor license fees, optimizing staffing, and improving operational efficiencies.

Platform9 has been working on making [KubeVirt](#) robust, scalable, and enterprise ready. Our [latest version](#) of Platform9 KubeVirt is capable of fully replacing multiple VMware products in a unified platform without the need for multiple products, licenses, and complicated integration and support needs and saving enterprises significant money.

Platform9 can help enterprises migrate 100s and even 1000s of virtual machines from legacy virtualization products, driving down costs in several ways.

- **No need to invest in new hardware:** You can leverage your existing infrastructure with Platform9, eliminating the need for costly hardware investments.
- **Cost-effective off-premises solution:** Our partnership with Rackspace enables you to move to an off-premises environment for a fraction of the cost of public cloud. Save compared to enormous public cloud bills by repatriating back to this environment.
- **Save on license fees:** Our unified stack, including container management, virtualization, bare metal, monitoring, alerting, and more means you no longer need multiple legacy products, saving you license fees. We charge by the node, unlike other legacy management products that have moved or are moving to core-based pricing, which can easily double or triple your licensing bill.
- **Built-in automation:** Our platform automates several processes, reducing operational costs.

Capabilities of our unified platform

Enterprise grade virtualization	
VM HA, live migration, broad hardware support	Yes
Distributed network virtual switch	Yes
I/O controls, acceleration, and SR-IOV	Yes
Proactive HA and predictive DRS, long distance vMotion	X
Bare Metal management	
Bare metal OS provisioning	Yes
Centralized image management	Yes
Management capabilities	
Micro-segmentation support	Yes
End user self-service, quotas, limits, and leases	Yes
Software Defined Networking	
Single pane management of distributed data centers/regions	Yes
Self-service network provisioning with tenant user networks	Yes
Container orchestration	
Support for containers and Kubernetes	Yes
Run VMs with containers under Kubernetes as a single stack	Yes
Operational considerations	
Seamless management across VMs, Bare Metal, containers, using a cloud control plane	Yes
Management plane - Installation, backup, upgrades, and recovery	Yes

Platform9 rollout process can get you into production in 6 weeks.

- We'll gather inputs to generate your initial TCO analysis report, and review it with your team.
- Next, we'll create a personalized TCO & Architecture workshop, including a 1-day onsite meeting and culminating in an in-depth report and recommendations for platform architecture.
- A POC follows, either on-site or virtually, migrating a sample workload with use case validation, followed by an executive review.
- A production rollout is next, scaling out environments and beginning to migrate workloads identified during the workshop.

Summary

Platform9 has the expertise, automation tools, and robust, proven Kubernetes and KubeVirt products to help you make a smooth transition. To learn more about how Platform9 can help your organization save up to 50% on legacy VM management costs, we encourage you to reach out to the experts at Platform9. With our in-depth knowledge and experience, we can provide a free consultation tailored to your specific needs. Bring a sample VM image, and our experts will demonstrate how to migrate it to KubeVirt.

**Save 50% on legacy VM
management costs**

[Get a free consultation](#)



About Platform9

Platform9 empowers enterprises with a faster, better, and more cost-effective way to go cloud native. Its fully automated container management and orchestration solution delivers cost control, resource reduction, and speed of application deployment. Its unique always-on assurance™ technology ensures 24/7 non-stop operations through remote monitoring, automated upgrades, and proactive problem resolution. Innovative enterprises like Juniper, Kingfisher Plc, Mavenir, Redfin, and Cloudera achieve 4x faster time-to-market, up to 90% reduction in operational costs, and 99.99% uptime. Platform9 is an inclusive, globally distributed company backed by leading investors.

Follow us on



Headquarter: 800 W El Camino Real, #180, Mountain View, California 94040, US

Phone: 650-898-7369

| Phone: <https://platform9.com/contact/>