



VMware to Open-source Alternatives

Move out of VMware cage and embrace open-source alternatives

Version: 1.0

Date: Sep 28, 2024



CONTENTS

Executive Summary	03
Key Learnings	04
Challenges with proprietary infrastructure	05
Economics	05
Vendor lock-in	06
Technical	06
VMware: an established player undergoing a big change	07
Considering different alternatives	08
Considering OIF OpenStack	10
Considering Mirantis Virtualization Platform	12
Considering RedHat OpenStack Platform	14
Considering Canonical infrastructure	16
The Advantages of Open-source Infrastructure	18
Feature parity	18
Cost-effectiveness	19
Future-proofing through flexibility and innovation	19
Scalability and modularity	20
Migrating to open-source alternatives	21
Conclusion	23

Executive Summary



With Broadcom's acquisition of VMware, many enterprises are re-evaluating their IT infrastructure strategies. This shift presents an excellent opportunity to explore open-source alternatives that can offer a lower total cost of ownership (TCO) through no vendor lock-in.

When organizations commit to a proprietary ecosystem, they often face complex interdependencies and lengthy contracts, which make it difficult to switch to better solutions, even when they are available and often perform better than the proprietary alternatives. As a result, many businesses are increasingly turning to open-source options. The long-term benefits of eliminating expensive licensing fees can lead to substantial savings and greater control over critical infrastructure that are often locked by vendors.

Open-source solutions offer not just cost savings, but also strategic and technical advantages. These include increased flexibility, enhanced innovation, and a more scalable, modular approach to developing infra that is suited for your business.

Key Learnings



- VMware is a dominant infrastructure player, but it faces severe challenges with its offerings and support for existing customers.
- Open-source is a solid alternative to VMware software, ensuring TCO reduction and no vendor lock-in, resulting in better ROI for your cloud investments.
- There are simple open-source alternatives for VMware's hypervisor, including KVM and Xen, but we recommend KVM.
- We offer a range of different VM orchestrators that include [the OIF OpenStack toolchain](#), [Mirantis](#) virtualization solution, [RedHat](#) OpenStack platform, and [Canonical](#) OpenStack platform.
- You can lean on the necessary building blocks to run fully functional cloud infra on top of these alternatives.
- Cloudly provides commercial services to support VMware customers on their migration path to an open-source alternative.

Challenges with Proprietary Infrastructure



Proprietary solutions have long held a dominant position in the IT market; however, they often need help to meet the evolving needs of modern businesses. These solutions' limitations are evident in several key areas, including economic efficiency, flexibility, and technical capabilities. As businesses face increasing demands for adaptability and innovation, the shortcomings of proprietary software become increasingly problematic.

Economics

Proprietary infrastructure solutions are typically available as ready-to-use packages, but this accessibility comes at a significant cost—both upfront and in the long term.

Initially, businesses must invest in hardware and software and incur expenses for solution deployment (CAPEX). Following this setup, ongoing operational costs and expensive licensing fees accumulate (OPEX). The TCO (CAPEX+OPEX) necessarily trends quite high.

Moreover, licenses and support subscriptions are often priced per CPU, leading to rapidly escalating costs for servers with multiple CPUs. Specific proprietary solutions also necessitate specialized hardware, which is usually more expensive than standard commodity options.

Despite a maturing market characterized by a significant increase in customer expectations and an expanding array of choices, traditional industry leaders have struggled to adapt, resulting in persistently high costs. This underscores the need for continuous innovation to meet these evolving customer demands.

Vendor lock-in

After substantial initial investment in proprietary IT infrastructure, organizations often find adopting additional solutions from the same vendor easy. For example, VMware provides a suite of products, including vSphere, ESXi, VDS, and vSAN, to support virtualization, storage, and management.

While leveraging multiple tools from a single proprietary provider can enhance convenience and create a seamless user experience, it also increases dependency on that vendor. However, this approach can streamline operations and foster a more integrated IT environment. The more tools an organization integrates, the more challenging it becomes to replace them.

This issue is further complicated by complex contractual obligations. Proprietary vendors frequently offer discounted rates as incentives for customers to bundle solutions and commit to longer contract terms. While these packages may seem attractive, they deepen vendor lock-in, a situation that can have significant long-term implications for businesses, making it difficult for them to change one aspect of their infrastructure without affecting others.

Technical

In addition to the strategic challenges outlined earlier, proprietary infrastructure presents significant technical limitations. Users often need help troubleshooting and diagnosing issues swiftly or resolving problems independently. The complexity and closed nature of proprietary environments can make it challenging to identify the root cause of a problem, leading to considerable time and effort spent in investigation—and in some cases, resolution may not be feasible at all. This reliance on vendor support can further delay critical operations and impact productivity.

VMware: an Established Player undergoing a Big Change



VMware is the largest player in the virtualization market, holding approximately 60-70% of the hypervisor and server virtualization sector, as well as nearly 40% of the hyper-converged infrastructure market. Many enterprises worldwide depend on VMware for their mission-critical workloads, which has led to significant concern regarding VMware's acquisition by semiconductor giant Broadcom.

A survey conducted by 451 Research, involving over 300 VMware customers, revealed that 40% of respondents expressed negative sentiments about the acquisition. Despite Broadcom's assurances that it does not intend to raise prices on VMware products, customer skepticism remains high. Previous acquisitions, such as CA Technologies and Symantec, have seen Broadcom implement price increases, reduce investment in innovation, and scale back support services.

If these concerns are validated, VMware customers may face exacerbated challenges related to cost, flexibility, and innovation. Consequently, there is a strong case for exploring alternative solutions that Cloudly team feels well positioned to help with. While other proprietary options share similar issues with VMware, organizations seeking to escape the cycle of vendor lock-in and rising costs should consider adopting open-source alternatives.

1. Team, V. (2016, October 5). VMware leads the HCI market in Q4, 2016, according to IDC. Virtual Blocks Blog. <https://blogs.vmware.com/virtualblocks/2016/04/15/vmware-leads-hci-market-q4-2016-according-to-idc/>

2. Vance, J. (2024, August 16). Broadcom's VMware acquisition sparks concern. Network World. <https://www.networkworld.com/article/3674590/broadcoms-vmware-acquisition-sparks-concern.html>

3. What a combined Broadcom and VMware can deliver to our customers. (n.d.). <https://www.broadcom.com/blog/what-a-combined-broadcom-and-vmware-can-deliver>

Considering Different alternatives



When evaluating alternatives to VMware, it is important to recognize that these alternatives may evolve over time. There is no assurance that a specific product will remain unchanged indefinitely; however, recent acquisitions have increased the potential for disruptions within VMware's offerings.

Before migrating from VMware, organizations must identify a suitable replacement platform. One of the primary concerns for clients is finding an effective substitute for deploying virtual machines. Therefore, this discussion will focus specifically on alternatives to VMware's virtualization software, particularly the formerly free vSphere hypervisor. In the following sections, we will explore viable options that can serve as replacements for VMware's core virtualization capabilities.

Free and open-source software (FoSS) offers numerous advantages, with one of the most significant being that it is often available at no cost. Open-source solutions are highly effective for running virtual machines (VMs). Notable options include:

- **Linux KVM (Kernel-Based Virtual Machine):** A virtualization module that enables the Linux kernel to function as a hypervisor.
- **Linux Xen:** An open-source Type-1 hypervisor that operates directly on hardware, utilizing paravirtualization for efficient VM management.
- **Oracle VirtualBox:** A hosted hypervisor for x86 virtualization, developed by Oracle, suitable for desktop and server virtualization.

These alternatives provide powerful and cost-effective solutions for organizations looking to transition from proprietary virtualization platforms. With Cloudly's extensive expertise, businesses can confidently leverage the benefits of open-source technologies while minimizing disruption and maximizing efficiency.

Volico. (2024, April 8). Migrating from VMware: The best alternatives and practices. Miami and Broward Colocation | Volico Data Centers. <https://www.volico.com/migrating-from-vmware-the-best-alternatives-and-practices/>

Considering OIF OpenStack



Open Infrastructure Foundation (OIF) OpenStack is a robust platform designed to facilitate the deployment and management of cloud computing resources. However, organizations looking to adopt OIF OpenStack may encounter several challenges. These include the complexity of deployment, the need for skilled personnel, and the integration of existing legacy systems. Moreover, ensuring security and compliance in a multi-tenant environment can be daunting.

To address these challenges, OIF OpenStack provides comprehensive documentation and a supportive community that can guide organizations through the deployment process. Additionally, organizations can leverage managed services from experienced vendors to alleviate the burden of managing the infrastructure. By employing automation tools and orchestration frameworks, businesses can streamline operations and reduce the potential for human error, further simplifying deployment.

The benefits of adopting OIF OpenStack are substantial. It offers a flexible and scalable infrastructure that supports diverse workloads, enabling organizations to optimize resource utilization. With its open-source foundation, OIF OpenStack ensures freedom from vendor lock-in, allowing businesses to customize their environments according to specific needs. Furthermore, the extensive ecosystem of compatible tools and integrations enhances the platform's capabilities, promoting innovation and rapid development.

While the adoption of OIF OpenStack may present challenges, Cloudly is committed to providing the necessary support and solutions to ensure a successful transition. The resulting benefits—including cost efficiency, enhanced agility, and robust security—position OIF OpenStack as a strategic choice for organizations looking to leverage open-source cloud technologies in partnership with Cloudly.

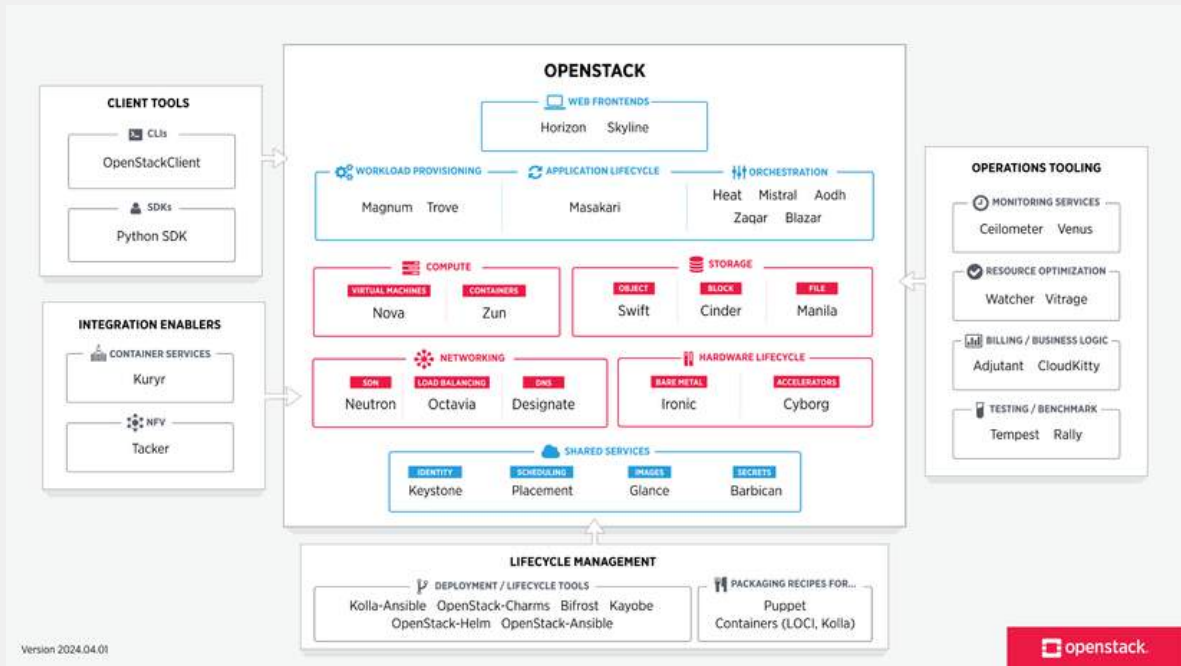


FIG.1. OIF OPENSTACK SUITE

Considering Mirantis Virtualization Platform



Enterprises are shifting to open-source technologies to reduce total cost of ownership and avoid vendor lock-in. As a leader in OpenStack and Kubernetes, Mirantis provides expert, open-source cloud infrastructure solutions for managing virtualized and containerized applications on public or private clouds.

Migrating workloads to OpenStack requires a detailed strategy and expertise, but many teams lack the resources and time for proper planning. This can divert key resources from other priorities. Cloudly partners with Mirantis to help your team develop and execute a comprehensive migration strategy.

In the process of migrating from VMware to [Mirantis virtualization platform](#), we recommend the following phases:

Discovery and Planning: In this phase, Cloudly and the customer collaborate through workshops to inventory workloads, classify applications, and assess migration paths.

Analysis and Design: Using the Discovery outcomes, a detailed migration plan is created. This includes implementing automation, integrating corporate services if needed, and testing with pilot workloads.

Migration and Validation: Once migration design is completed, Cloudly partners with Mirantis and supports the team in migrating workloads and validates smooth operation in the target environments.

Migrating workloads allows organizations to reduce technical debt, achieve cost savings, break free from vendor lock-in, and transition away from end-of-life technologies. It also enables them to adopt open-source solutions with guaranteed SLAs and enterprise-grade support. This migration enhances scalability, flexibility, and performance, allowing businesses to innovate faster. Additionally, organizations can better align their infrastructure with modern cloud-native practices, ensuring long-term sustainability and growth

Considering RedHat OpenStack Platform



The RedHat OpenStack Platform is a leading solution for organizations seeking to build and manage scalable cloud infrastructures. Leveraging the power of open-source technology, Red Hat OpenStack offers unmatched flexibility, allowing businesses to tailor their cloud environments to meet specific needs. RedHat's commitment to enterprise-level support and continuous innovation ensures that users benefit from the latest advancements in cloud technology, security, and performance optimization. Furthermore, the platform's integration with RedHat's suite of tools, including Ansible for automation and Ceph for storage, enhances operational efficiency and simplifies management tasks. By embracing a community-driven approach, RedHat OpenStack fosters collaboration and innovation, allowing organizations to contribute to and benefit from a rich ecosystem of shared knowledge and resources. This positions businesses to respond rapidly to changing market demands while optimizing costs and resource utilization. Overall, the RedHat OpenStack Platform is a cornerstone for organizations aiming to leverage cloud computing to drive digital transformation, improve service delivery, and enhance competitiveness in an increasingly data-driven world.

Choosing RedHat OpenStack over other platforms provides several distinct advantages, making it a compelling option for organizations seeking a robust cloud infrastructure. First and foremost, RedHat offers enterprise-grade support and services, ensuring reliability and performance for mission-critical applications. This dedicated expertise helps organizations receive tailored assistance, enhancing their operational efficiency. The strong community and ecosystem surrounding RedHat OpenStack further bolsters its appeal; as a critical player in the open-source space, it benefits from continuous innovation and a wealth of resources from a diverse group of developers and partners.

Further, RedHat OpenStack seamlessly integrates with other RedHat products, streamlining operations and enhancing infrastructure capabilities. Security is a priority, with regular updates and adherence to industry standards. The platform is scalable and flexible, catering to organizations of all sizes. It incorporates innovative features like container orchestration and Kubernetes integration. RedHat offers training and certification programs to equip teams with necessary skills. With a proven track record, RedHat OpenStack is a reliable, secure, and flexible cloud solution backed by solid support and open-source innovation.

Considering Canonical Infrastructure



Building an IT infrastructure with open-source technologies can be a daunting task, as it involves integrating various solutions for virtualization, containerization, cloud platforms, networking, and storage—often sourced from different repositories and written in multiple programming languages. Ubuntu simplifies this process by acting as a unified platform for open-source software. It provides streamlined access to tens of thousands of software packages, eliminating the need to manually handle dependencies or compile code. Installation and configuration become effortless, allowing organizations to focus on building rather than troubleshooting.

With Ubuntu, even the most intricate infrastructure setups are supported by full automation, ensuring fast, reliable deployment and hassle-free operations. Whether an enterprise needs a simple hypervisor or a fully-fledged cloud infrastructure, Ubuntu delivers all the building blocks with the flexibility and cost advantages of open-source, without sacrificing the ease of use found in proprietary ecosystems.

By choosing Canonical's infrastructure, businesses gain access to an expansive range of open-source tools, enabling them to build highly customized and powerful systems. Ubuntu not only matches the performance of proprietary solutions but does so with greater flexibility, control, and at a fraction of the cost.

Ubuntu is the go-to operating system for users and businesses worldwide, thanks to its open-source nature, enterprise-grade security, and flexibility. With no vendor lock-in or mandatory licensing fees, Ubuntu ensures freedom of use. Canonical provides ten years of security maintenance for each Ubuntu LTS release through Ubuntu Pro, offering unmatched reliability. For those needing more, 24/7 commercial support and managed services are available.

As the most widely adopted Linux distribution, Ubuntu's large user base drives continuous innovation. Through partnerships with leading hardware and cloud providers, Ubuntu stays at the cutting edge of technology, supporting new features as they emerge. It's versatile across private and public clouds, IoT devices, and edge computing, ensuring a seamless experience wherever workloads run.

The Advantages of Open-source Infrastructure



The IT landscape has evolved significantly from when open-source solutions were often avoided due to enterprise support and security concerns. Today, open-source infrastructure is recognized as reliable, trustworthy, and highly cost-effective. 89% of IT leaders view enterprise open-source solutions as secure or more secure than their proprietary counterparts.

However, organizations contemplating transitioning from proprietary solutions, such as those offered by VMware, may question whether they can achieve feature parity with open-source alternatives.

Feature parity

VMware's capabilities extend well beyond virtualization. It provides comprehensive software to operate hypervisors and clusters of hypervisors, as well as solutions for configuring networks and storage in virtualized environments. Additionally, VMware includes containerization and observability stacks, automated power management, and more.

Native feature/open source equivalent	OpenStack	Mirantis	RedHat	Canonical
VMware vSphere	Xen	Xen	Nutanix AHV	Oracle VM
VMware ESXi	KVM	Nutanix AHV	KVM	Docker
VMware NSX	OvS	Juniper Contrail	Juniper Contrail	Cilium
VMware VDS	Calico	Cilium	MetaLLB	MetaLLB
VMware vSAN	Nexenta	Ceph	Gluster	Ceph
VMware Tanzu	Apache Mesos	Rancher	Apache Mesos	Apache Mesos
VMware DRS	CloudBolt	Apache Mesos	CloudBolt	CloudBolt
VMware vRealize Log insight	Fluentd	Grafana	Graylog	Elastic

Table 1. Feature comparison between VMware and Open-source solutions

4 The State of Enterprise Open Source: A Red Hat report. (n.d.). <https://www.redhat.com/en/resources/state-of-enterprise-open-source-report-2022>

Cost-effectiveness

Open source eliminates the need for expensive licenses, resulting in significant long-term cost savings compared to proprietary solutions. While enterprise design, delivery services, and commercial support incur costs, these expenses are typically much lower than those associated with equivalent services from proprietary vendors. Furthermore, open-source solutions do not require costly specialized hardware, reducing the total ownership cost (TCO).

VMware vs. Alternatives	VMware	OpenStack	Mirantis	RedHat	Canonical
No mandatory subscription required	✓	✗	✗	✗	✗
Fixed-price design & delivery service	✓	✗	✗	✗	✗
Support subscription charged per-host	✓	✗	✗	✗	✗

Table 2. Cost conditions comparison between VMware & Open-source solutions

Future-proofing through flexibility and innovation

Open-source software is developed by a broad community, which reduces reliance on a single vendor. This collaborative approach accelerates the pace of development, allowing businesses to swiftly adopt the latest technologies and capabilities without the delays often associated with proprietary vendors. Additionally, users of open-source software can seamlessly integrate new solutions without the constraints of contractual obligations or bundled products. If a more cost-effective or advanced solution becomes available, transitioning to it is significantly less cumbersome compared to proprietary technology, enabling organizations to remain at the forefront of innovation. However, a critical consideration remains: what about interoperability among various open-source infrastructure components?

Scalability and modularity

Open-source solutions enable organizations to begin with community versions, allowing them to explore various alternatives and identify the best fit for their specific use cases. As business needs evolve, they can then scale up to commercially supported solutions as required.

The collaborative nature of open-source software typically results in high integration and interoperability among different solutions. Even when tools originate from distinct communities, enterprises often find it straightforward to implement modular solutions tailored to their unique requirements.

While the advantages of open source are evident, navigating its vast landscape and selecting the appropriate solutions can be challenging. This is where Ubuntu comes into play. As the most popular Linux distribution published by Ubuntu offers a reliable foundation for organizations seeking to leverage open-source technologies effectively.

Migrating to an Open-source Alternative



To assist businesses in their migration from VMware to open-source solutions, Cloudly has established a structured methodology that facilitates a streamlined deployment and migration process tailored to the unique needs of each organization. This comprehensive approach encompasses design, delivery, enablement, support, and ongoing operations.

The key steps are as follows:

Assessment: Cloudly analyzes the customer's current state and existing IT ecosystem to understand its business and technical goals.

Solution design: Cloudly identifies dependencies and hardware requirements that will enable the business to achieve its goals and optimize its infrastructure. Next, the team designs the solution, helping the customer choose solutions tailored to its needs while ensuring that it fully understands the total cost of ownership (TCO) and return on investment (ROI) of the deployment.

Deployment: Cloudly deploys the solution and handles the planning, project management, engineering, and documentation work.

Migration: If the new infrastructure is intended to replace an existing platform, such as VMware, Cloudly will conduct a thorough assessment of the workloads that need to be migrated. Based on this assessment, Cloudly will design a tailored migration path that includes support for necessary integrations.

Training and enablement: After setting up the new infrastructure, Cloudly offers instructor-led training to help internal teams improve their skills in using open-source software. The specific details of each migration depend on the workloads and the organization's goals. The process can be as simple as a lift-and-shift, or it can be an opportunity to redesign workloads to align with a modern, cloud-native strategy. Regardless of the approach chosen by an enterprise, Cloudly provides the necessary expertise. Beyond the deployment and migration, day two operations pose significant challenges for CIOs. Following the successful implementation of the infrastructure, Cloudly offers ongoing support through Ubuntu Pro and fully managed services as outlined above.

¹ Migrating from VMware to Open Source | Ubuntu. (n.d.). Ubuntu.
<https://ubuntu.com/engage/vmware-migration-to-open-source>

Conclusion



Open-source solutions offer feature parity and significantly reduced costs, all while eliminating the risk of vendor lock-in, making them a compelling alternative to traditional proprietary IT infrastructure. The true strength of open source lies in the vast array of options available. However, deploying and maintaining a diverse set of open-source tools to meet enterprise standards can present challenges.

Cloudly infrastructure effectively bridges this gap, facilitating open-source consumption at the enterprise level. Our expertise stems from the world-class experts who worked at hyperscaler companies in Silicon Valley and we take pride in enabling enterprise with the best in the industry open-source tools that are proven to work at the hyperscalers.

Additionally, Cloudly's commercial services provide essential support 24x7, streamlining the transition to open-source adoption and equipping organizations with the capabilities required to address the most demanding enterprise use cases. By leveraging Cloudly's expertise in cloud migration, cloud integration and CloudOps, businesses can fully harness the potential of open-source technologies while ensuring operational excellence through migration as well as beyond migration in the steady state.

Get in touch with us: solutions@cloudly.io