OpenNebula versus Broadcom VMware: Competitive Pricing Review

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Scope

This report compares pricing for the OpenNebula and Broadcom VMware cloud management platforms, and highlights those of OpenNebula's key differentiators about which we receive the most consultations. OpenNebula's capabilities exceed the cloud management requirements of most enterprise and service provider users, and in the particular case analyzed can yield up to x5 and x30 cost savings when using 2- or 4-CPU servers with 48 cores per CPU, respectively. We show how OpenNebula not only increases business value thanks to its lower capital and operational costs, but also provides greater flexibility with no vendor lock-in, offering simplicity of use and multiple features not available in VMware—such as native support for VMs without requiring additional management layers, or automatic provision of remote clusters for simple Multi-site, Hybrid and Edge cloud computing.

What are VMware Cloud Foundation and VMware vSphere Foundation?

As part of the VMware integration into Broadcom, the VMware portfolio has been simplified to two core offerings: VMware Cloud Foundation and VMware vSphere Foundation, plus a set of advanced add-on services.[1]

VMware Cloud Foundation is VMware's new solution for customers looking to capture the value of full-stack infrastructure. It offers a platform that includes vSphere, vSAN, NSX, and the full Aria management and orchestration suite with new services included. As a full-stack Infrastructure as a Service (IaaS) platform, VMware Cloud Foundation delivers software-defined compute, storage, networking, security and management. It provides:

- An integrated self-service infrastructure platform to deploy VMs/containers for developer agility.
- A hardened platform that offers built-in resilience, scaling, and clustering for non-stop operations.
- Cloud agility to scale infrastructure without scaling staff, delivering cloud consumption on-premises.
- Automation and orchestration to simplify Day 0, Day 1, and Day 2 tasks.

VMware vSphere Foundation is VMware's solution for data center optimization in traditional vSphere environments. As part of its standard suite of features, it includes Tanzu Kubernetes Grid in addition to Aria Operations and Aria Operations for Logs. VMware vSphere Foundation is a simplified, enterprise-grade workload platform for mid-sized to smaller customers. It integrates vSphere with operations management and aims to provide high performance, availability, and efficiency with greater visibility and insights.

[1] https://blogs.vmware.com/cloud-foundation/2024/01/22/vmware-end-of-availability-of-perpetual-licensing-and-saas-services/

Additionally, customers with lighter requirements such as basic hardware consolidation or virtualization on a very small number of servers can still purchase subscriptions to **vSphere Standard** and **vSphere Essentials Plus Kit**. VMware provides a complete comparison table between offerings.[2]

What is OpenNebula?

OpenNebula[3] is a **simple, but powerful, open source solution to build and manage Enterprise Clouds**. It combines existing virtualization with advanced features for multi-tenancy, automatic provision and elasticity to offer on-demand applications and services.

OpenNebula provides a single, feature-rich and flexible platform with **unified management of IT infrastructure and applications** that **avoids vendor lock-in** and **reduces complexity, resource consumption and operational costs**. OpenNebula manages:

- **Any Application**: Combine containerized applications from Kubernetes with Virtual Machine workloads in a common shared environment to offer the best of both worlds: mature virtualization technology and orchestration of application containers.
- **Any Infrastructure**: Open cloud architecture to orchestrate compute, storage, and networking driven by software.
- **Any Cloud**: Unlock the power of a true hybrid, edge and multi-cloud platform by combining your private cloud with infrastructure resources from third-party virtual and bare-metal cloud providers such as AWS and Equinix Metal, and manage all cloud operations under a single control panel and interoperable layer.
- **Any Time**: Add and remove new clusters automatically in order to meet peaks in demand, or to implement fault tolerance strategies or latency requirements.

Value of OpenNebula Subscription

OpenNebula subscriptions[4] provide the assurance of counting on the OpenNebula experts steadily involved, under SLA guidelines—standard 9-to-5 or premium 24/7—in providing support for your cloud. On top of this, they unlock additional benefits for corporate users, such as access to an enterprise repository with maintenance and LTS versions of the OpenNebula Enterprise Edition and Enterprise Tools, access to the Knowledge Base, notifications about critical issues, and exclusive services provided by OpenNebula consultants and engineers.

When comparing the OpenNebula Subscription to VMware licensing,[5] OpenNebula offers a number of material benefits, including:

- ✔ Significantly lower total cost of ownership (TCO).
- ✔ No capital expenses (CapEx)—OpenNebula is fully open source, so there are no licensing costs as with proprietary software deployments.
- ✔ Operating expenses (OpEx) charged via subscription.
- ✔ Subscription sold per host with any number of sockets (CPUs)—VMware licenses and support are sold per single socket.

[2] https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/docs/feature-comparison-and-upgrade-paths-vcf-and-vvf.pdf
[3] https://support.opennebula.pro/hc/en-us/articles/360036935791-OpenNebula-Overview-Datasheet
[4] https://support.opennebula.pro/hc/en-us/articles/208381403-OpenNebula-Subscription-Guide
[5] https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/whitepaper/vrealize-suite-licensing-pricing-packaging.pdf

Simple Case Pricing Review

As a simple case study, we will compare the annual cost of licensing and 24x7 support for the software needed to build a private cloud on a single cluster with 10 servers, each with two CPUs and 48 cores per CPU. Prices below are list prices (VMware and OpenNebula[6]) only. Discounts would apply depending on volume, length of contract and other factors.

Firstly let us evaluate the annual cost of the complete stack with **OpenNebula's** full-featured distribution. OpenNebula uses a per-host pricing model, regardless of the number of CPUs inside the host.[7] OpenNebula subscriptions include support for the KVM hypervisor and the Operating System (Ubuntu or AlmaLinux) in the managed nodes, as well as the network stack and OpenNebula's distributed storage solution.

OpenNebula Platform Infrastructure	Average Annual Cost
10 **OpenNebula - Managed Nodes** - Premium SLA	$11,000
1 **OpenNebula - Single Front-End** - Premium SLA	$13,750
TOTAL	**$24,750**

OpenNebula provides a variety of ways for Virtual Machines and containers to access storage. It supports multiple traditional storage models including NAS, SAN, NFS, iSCSI, and Fiber Channel (FC), which allow virtualized applications to access storage resources in the same way as they would on a regular physical machine. Additionally, it supports distributed Software-Defined Storage (SDS) models such as Ceph, GlusterFS, StorPool, and LINSTOR; that allow you to create and scale elastic pools of storage and hyperconverged deployments.

OpenNebula also provides, out of the box, its own hyperconverged Kubernetes platform, **OneKE**.[8] Certified by the Cloud Native Computing Foundation (CNCF), OneKE is available for download from the OpenNebula Marketplace. With OneKE you can deploy—within minutes—a High-Availability (HA) multi-master cluster ready for production environments. OneKE supports Longhorn distributed storage as well as multiple Container Network Interface (CNI) plugins, and includes integrated solutions to handle ingress traffic and load balancing for services deployed on-premises.

The following table provides an estimate of Broadcom's pricing at the current date.

Product	Cost per Server (2 CPUs and 48 cores per CPU) and Year
Broadcom vSphere	License/Support: $50/core $50 x 2 x 48 = **$4,800**
Broadcom vSphere Foundation	License/Support: $135/core $135 x 2 x 48 = **$12,960**
Broadcom vSphere Cloud Foundation	License/Support: $350/core $350 x 2 x 48 = **$33,600**

[6] https://support.opennebula.pro/hc/en-us/articles/208381403-OpenNebula-Subscription-Guide
[7] https://support.opennebula.pro/hc/en-us/articles/208381403-OpenNebula-Subscription-Guide
[8] https://support.opennebula.pro/hc/en-us/articles/6554989538717-Enterprise-Kubernetes-Made-Simple-White-Paper

And the table below summarizes the annual costs for 10 servers:

Platform Infrastructure	Annual Cost	Platform Infrastructure	Annual Cost
10 **Broadcom vSphere Foundation**	$129,600	**OpenNebula Front-end** + 10 **Managed Hosts**	$24,750
10 **Broadcom vSphere Cloud Foundation**	$336,000		

This case study reveals savings of more than **$100K and $300K per year (x5 and x15**) by using OpenNebula to build your cloud. And if you are using servers with more than two CPUs with 48 cores per CPU, or building a cloud with more than 10 servers, you will see that **the savings increase dramatically**. For example, in the same case using four-CPU servers, the savings would increase to more than **$200K and $600K per year (x10 and x30)**. The costs associated with the lock-in nature of VMware's licensing and support, and the per-CPU licensing model, can actually result in many enterprises seeing their TCO inflate significantly over time.

Consulting Services

Although the simplicity and flexibility of creating an enterprise private cloud using OpenNebula cannot be matched by any competitor on the market, some customers with no previous experience with OpenNebula may need assistance with designing and deploying their cloud. OpenNebula Systems offers a **Cloud Deployment Service**[9] that provides a well-tuned working implementation of OpenNebula on the reference architecture, sample Virtual Machines to evaluate features, and reference material for post review—Architecture Design Report, Implementation Guide, and a Verification Checklist. Time and pricing depend on the size, heterogeneity, and complexity of the infrastructure, starting with a minimum of three days for the Engineering Phase and $15,000 for small-scale infrastructures.

Although organizations can perform the initial deployment of VMware on their own, its complexity usually requires the need for consulting services at a very high price. Moreover, a successful deployment is just the beginning of the journey. Organizations will need to maintain the entire platform on a daily basis. Since VMware does not offer managed services for vRealize, its customers will need to hire and train dedicated staff. This makes operational costs unpredictable and hard to evaluate.

Key Differentiators

Lower TCO → Compared with VMware, OpenNebula delivers a lower TCO and helps to reduce OpEx budget pressure and concerns.

No Vendor Lock-in → Once you have built your cloud with OpenNebula, you can add new resources based on open source technologies and thus use OpenNebula as a framework for migration to the open cloud.

Simplicity → Very easy to install, upgrade, and maintain, with easy-to-use graphical interfaces.

Flexible → Completely open, customizable and modular, so it can be adapted to your needs and components.

[9] https://support.opennebula.pro/hc/en-us/articles/360000202703-Deployment-Services-Guide

Multi-site and Hybrid → Using a single OpenNebula instance, you can manage a distributed collection of clusters across multiple data centers, federate OpenNebula instances, and connect your cloud to public cloud providers.

Summary

Using OpenNebula to build clouds can bring **significant economic benefits** for any enterprise and will improve both infrastructure flexibility, business agility, and the bottom line. OpenNebula provides the most in-demand management features to build clouds for enterprises and service providers, matching most of the features offered by vCloud Director and vRealize at a fraction of their cost. The main advantage of OpenNebula is the strategic path to openness as you move beyond virtualization toward an enterprise cloud. By adopting OpenNebula, you take a step toward **liberating your stack** from vendor lock-in. Since it is a platform-independent software, it allows you to gradually migrate to other virtualization platforms. OpenNebula avoids future vendor lock-in, enables you to gain more control over your infrastructure, and strengthens the negotiating position of your company. Have a look at our **Case Studies**[10] to learn more from our users and customers about how they are putting OpenNebula to work.

Ready for a Test Drive?

You can evaluate OpenNebula and build a cloud in just a few minutes by using **miniONE**, our deployment tool for quickly installing an OpenNebula Front-end inside a Virtual Machine or a physical host, which you can then use to easily add resources such as remote clusters based on KVM, Virtual Machines and Kubernetes Clusters, on multiple cloud providers.

[10] https://opennebula.io/case-studies/

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