VMWARE INTEGRATED OPENSTACK

Build a Production-Ready Developer Cloud

AT A GLANCE

VMware Integrated OpenStack is a VMware-supported OpenStack distribution that makes it easy for IT to run and manage an enterprise-grade OpenStack cloud on top of VMware infrastructure. With VMware Integrated OpenStack, you can boost developer productivity and flexibility by providing a simple, vendor-neutral OpenStack API access to VMware best-of-breed infrastructure technologies.

KEY BENEFITS

• Provides rapid deployment and simplified operations

• Runs on the proven VMware SDDC, and leverages in-house expertise and skillsets

• Supports edge computing—build micro data centers in remote locations to gain a competitive advantage

• Supports production-ready Kubernetes—natively integrated, leveraging VMware SDDC capabilities such as high availability and persistent storage

• Runs OpenStack at scale—tested and validated to run on 500 hosts, 15,000 VMs in a region, with support for multiple regions

• Complies with the OpenStack Foundation's 2018.02 interoperability guideline

VMware Integrated OpenStack Overview

VMware delivers an Interop-compliant, enterprise-grade OpenStack distribution that provides developers and IT teams with the best of both worlds: open, standard OpenStack API access to the most proven VMware infrastructure. Building on existing expertise, VMware vSphere® admins can boost developer agility and flexibility by providing simple, vendor-neutral OpenStack APIs access to the VMware Software-Defined Data Center (SDDC). Advanced operations and management capabilities allow you to plan, troubleshoot, and have more visibility into infrastructure and application health across your cloud.

Key Use Cases of VMware Integrated OpenStack

VMware® Integrated OpenStack is the ideal distribution for many different use cases. The following are the most common use cases:

• **Developer cloud** – Increase developer productivity by providing a private cloud that offers self-service and programmable and dynamic provisioning of infrastructure resources through standard OpenStack APIs, supporting agile development and DevOps (CI/CD pipeline). Remove any barriers, eliminate manual workflows, and provide developers with the user experience they want.

• **Network virtualization with VMware NSX® Data Center** – To run your business-critical applications, there are a lot of things to consider: scalability, security, manageability, stability, and integration with existing networks and tools. Deploy NSX Data Center with OpenStack to provide a programmable network that is fully integrated with OpenStack as well as other VMware infrastructure components, providing rich, API-accessible network and security services like firewalling, micro-segmentation and load balancing.

• **Edge computing** – Companies in all industries are looking for ways to analyze their data faster and gain competitive advantage. Data tends to lose its value if it can't be analyzed fast enough. Edge computing and analytics help solve this challenge for enterprises, ranging from oil and gas to banks and retailers, by enabling them to analyze the data and make calculations in real time, in distant locations. Examples include data from security cameras, phones, machine sensors, point of sale, manufacturing plants, financial institutions, and oil and gas drilling platforms. With VMware Integrated OpenStack, organizations can put small footprint, highly resilient micro data centers in remote locations. Customers will have full control over these micro data centers and apps at the edge via automated, API-driven orchestration and lifecycle management.

Key Features of VMware Integrated OpenStack

Foster Innovation and Agility for Application Development Teams

• **Open, standard OpenStack APIs** – Whether transitioning to a DevOps-centric agile product development methodology or building cloud-native applications, foster innovation and agility by providing developers with OpenStack APIs on top of VMware's best-of-breed SDDC infrastructure.

• **Kubernetes support** – Get out-of-the-box support for container orchestration with Kubernetes for dev/test, as well as for running production containerized applications on OpenStack, leveraging VMware Integrated OpenStack enterprise-grade capabilities such as multitenancy and persistent volume (persistent storage).

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LEVERAGE VMWARE'S BEST-OF-BREED SDDC INFRASTRUCTURE

RELIABILITY, PERFORMANCE, SECURITY, SCALE, AND COST REDUCTION

vSphere for Nova Compute

- Industry standard for security, stability, and reliability
- Lower CapEx from server savings with higher VM density
- Lower OpEx from advanced management and operations features (vMotion, DRS, HA, and more)

NSX Data Center for Neutron Networking

- Advanced security and multitenancy with micro-segmentation
- Advanced network services with massive scale and throughput, such as LBaaS, FWaaS, routing, and more
- Integration with third-party network services providers

vSAN for Cinder and Glance Storage

- Advanced storage policies with vSAN
- Works with any vSphere-validated storage
- Leverages hyper-converged storage nodes

Streamlined Deployment and Operations

- **Complete support for core OpenStack services** – Get support for Nova, Neutron, Cinder, Glance, Horizon, Keystone, Heat, Ceilometer, and Designate.
- **vSphere Web Client-based deployment** – Deploy VMware Integrated OpenStack with an OVA file using the vSphere Web Client. The vSphere Web Client then deploys all the virtual machines (VMs) and components needed to create a highly available, production-ready OpenStack cloud in a few simple steps.
- **Patching and upgrade** – VMware Integrated OpenStack includes a patching mechanism that allows administrators to easily perform patching and upgrades with minimum disruption to the OpenStack infrastructure or the applications running on it.
- **Backup and restore** – Back up and restore OpenStack services and configuration data.
- **Auto scaling** – Set up metrics to scale up or down application components. Development teams can address unpredictable changes in demand for app services. Ceilometer provides the alarms and triggers, Heat orchestrates the creation (or deletion) of scale-out components, and load balancer as a service (LBaaS) provides load balancing for the scale-out components.
- **Live VM resize** – Respond quickly to changing business needs by dynamically changing CPU, memory, and disk size of a running VM instance without powering down.
- **Import existing VM templates and workloads** – Quickly leverage existing vSphere templates and workloads, and start managing them via standard OpenStack APIs.

Optimized for the Software-Defined Data Center

- **vSphere** – VMware Integrated OpenStack leverages enterprise-grade vSphere features such as Dynamic Resource Scheduling (DRS) and Storage DRS™ through Nova, the OpenStack compute service, to achieve optimal VM density. Features such as high availability (HA) and VMware vSphere vMotion® are used to protect tenant workloads against failures.
- **NSX Data Center** – NSX Data Center provides a highly scalable network virtualization solution with rich features such as private networks, floating IPs, logical routing, LBaaS, firewall as a service (FWaaS), and security groups that can be consumed through Neutron, the OpenStack networking service.
- **VMware vSAN™** – vSAN provides simple, high-performance, resilient shared storage for VMs. vSAN features are supported through Cinder and Glance, the OpenStack block storage and image storage services.
- **Multi VMware vCenter® support** – VMware Integrated OpenStack can manage multiple vCenters, providing a higher level of isolation and security.

Integrated Operations and Management

- **Built-in CLI tools** – Troubleshoot and monitor your OpenStack deployment and the status of the OpenStack services.
- **Simplified configuration and operations** – Pre-defined workflows automate common OpenStack operations, such as adding/removing capacity, configuration changes, and patching.
- **Integrated monitoring and troubleshooting tools** – Out-of-the-box VMware vRealize® Operations™, vRealize Log Insight™, and vRealize Business™ for Cloud integrations provide faster and easier monitoring, troubleshooting, and cost visibility of your OpenStack cloud.
- **More governance and control** – Integration with vRealize Automation™ provides enhanced user management and advanced governance and control. In addition, OpenStack workloads can be managed through vRealize Automation, and Heat templates can be consumed as catalog items in vRealize Automation blueprints.

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Compact Management Control Plane

- **HA mode** – Optimized architecture requires fewer hardware resources but still provides production-ready resilience, scale, and performance.
- **Compact mode** – Dramatically reduces the infrastructure footprint to two VMs, saving resource costs and overall operational complexity. Ideal for evaluations or for building a small OpenStack cloud for branch locations.

Scale from the Data Center to the Edge

- **Run OpenStack at scale** – VMware Integrated OpenStack has been tested and validated to run on 500 hosts, with 15,000 VMs in a region. With support for multiple regions, the sky is the limit.
- **Leverage edge computing** – Build micro data centers in remote locations based on VMware Integrated OpenStack and your application running on top of it. This will allow you to collect and analyze data in real time, reducing the amount of data that needs to be transmitted back to the data center, and increasing agility and real-time insights into your business. The remote machines can be automatically orchestrated and managed from the centralized data center, with maximum control and flexibility.

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