

# Self-Driving Operations by VMware vRealize Operations

## AT A GLANCE

Self-driving operations—a simple, yet powerful strategy for automating and simplifying operations management—incorporate AI and predictive analytics to help IT teams be more proactive and agile.

## KEY BENEFITS

- Reduce unplanned downtime
- Lower costs
- Increase operational efficiency
- Deliver faster time to value
- Reduce risk
- Is available as a software-as-a-service (SaaS) or an on-premises offering

## KEY FEATURES

- Predictive analytics for continuous operations management
- Intent-driven placement and balancing
- Real-time, predictive capacity and cost analytics to proactively forecast demand and deliver actionable recommendations
- Cost transparency across private, hybrid and public clouds to optimize planning
- Integration with vRealize Network Insight™ and vRealize Log Insight™ for 360-degree troubleshooting<sup>1</sup>
- Support for physical, virtual and cloud infrastructure and container platforms
- Centralized management for the VMware SDDC and VMware Cloud™ on AWS
- Complete VMware vSAN™/HCI operations
- VMware SDDC and VMware Cloud on AWS configuration and regulatory compliance
- Unified monitoring and visibility across AWS, Google Cloud Platform and Microsoft Azure
- Open and extensible platform

## Overview

VMware vRealize® Operations™ delivers self-driving IT operations management for private, hybrid and multi-cloud environments in a unified, AI-powered platform. Offering full-stack visibility from physical, virtual and cloud infrastructure—including virtual machines (VMs) and containers—to the applications they support, vRealize Operations provides continuous performance optimization, efficient capacity and cost planning and management, app-aware intelligent remediation and integrated compliance. vRealize Operations is available as an on-premises or SaaS offering.

## Capabilities

### Continuous performance optimization

Assure hybrid cloud performance at minimal cost. Based on operational and business intent, real-time predictive analytics and AI drive actions to automatically balance workloads and proactively avoid contention, continuously optimizing hyperconverged infrastructure (HCI), software-defined data center (SDDC) and hybrid cloud environments. Automate workload balancing and placement to VMware Cloud Foundation™ or VMware Cloud on AWS.

### Efficient capacity and cost management

Reduce cost and improve efficiency with real-time, predictive capacity and cost analytics with AI, delivering optimal consolidation and proactive planning. Using a real-time, forward-looking capacity analytics engine, vRealize Operations can predict future demand, get actionable recommendations, and automate reclamation and rightsizing. Integrate costs and capacity analytics to optimize utilization of VMware Cloud Foundation and VMware Cloud on AWS. Advanced what-if scenarios help plan capacity and model best-fit for new workloads, hardware procurement, HCI planning, cost comparison across data centers and migration planning to public clouds.

### Intelligent remediation

Predict, prevent and troubleshoot faster with actionable insights correlating metrics, events, logs and configuration data to deliver AI-based anomaly detection across hybrid clouds. Extend monitoring visibility to multiple public clouds. Centralize IT operations management with native integrations with VMware Cloud Foundation; VMware vSphere® 7 with VMware Tanzu™; VMware Cloud on AWS; and multiple public clouds, such as AWS, Azure and Google Cloud Platform.

### Integrated compliance

Reduce risk and enforce IT regulatory standards for VMware Cloud Foundation and VMware Cloud on AWS with integrated compliance and automated drift remediation. Ensure your environment's adherence to common requirements with six out-of-the-box compliance templates—such as for PCI, HIPAA or SOX—or create your own custom templates.

1. Sold separately as standalone and included in VMware vCloud Suite® and VMware vRealize Suite.

vREALIZE OPERATIONS PACKAGING				
	STANDARD	ADVANCED	ENTERPRISE	SAAS <sup>2</sup>
Standalone	Per VM/ Per CPU	Per OSI/ Per CPU	Per OSI/ Per CPU	On demand; 1-, 2-, 3-, 4- or 5-year SaaS
Available in Suite		vRealize Suite/ vCloud Suite Standard, Advanced (PLU)	vRealize Suite/ vCloud Suite Enterprise (PLU)	vCloud Suite Subscription; vRealize Cloud Universal™
Scale-Out Operations Platform	•	•	•	•
Single Sign-On	•	•	•	•
Remote Collectors	•	•	•	•
Native Ping Adapter	•	•	•	•
Visualization: Out-of-the-Box Dashboards, Views, Reports, Heat Map, Performance Charts	•	•	•	•
Performance Monitoring and Analytics	•	•	•	•
vSphere Security and Compliance, Including DISA, FISMA, ISO, CIS, PCI and HIPAA	•	•	•	•
FIPS 140-2 Compliance	•	•	•	
Real-Time Predictive Capacity Management, Including Trending, Metering, Rightsizing, Optimization	•	•	•	•
What-If Scenarios for Adding/Removing VMs <sup>3</sup>	•	•	•	•
Manual Workload Optimization	•	•	•	•
Predictive DRS and DRS Management	•	•	•	•
Guided Remediation	•	•	•	•
vRealize Log Insight Integration	•	•	•	Integrates with vRealize Log Insight Cloud™
VMware and Third-Party Infrastructure Management Packs: Compute, Dell EMC Storage	•	•	•	•
vSAN Overview and Migration Dashboards	•	•	•	•
vSAN: Workload Balancing, Performance, Capacity/Cost Management, Planning, Troubleshooting and Compliance		•	•	•
Automation Central		•	•	•
Built-In High Availability (Automated Failover of Platform Nodes)		•	•	•
Customizable Dashboards, Reports and Views		•	•	•

2. Features shown are for the Enterprise editions of vRealize Operations Cloud™, vCloud Suite Subscription, and vRealize Cloud Universal. Standard and Advanced editions contain features equivalent to those in vRealize Operations Standard and Advanced, respectively.

3. What-if scenarios for vSAN/HCI workloads are only available in Advanced and above.

vREALIZE OPERATIONS PACKAGING				
	STANDARD	ADVANCED	ENTERPRISE	SAAS <sup>2</sup>
Super Metrics, Metric Correlation, Relationship Mapping		•	•	•
Advanced APIs: Resource/Data Addition, Report Generation and More		•	•	•
Fine-Grained Cost Analytics for Reclamation, Planning and Public Cloud Cost Comparison		•	•	•
What-If Scenarios: <ul style="list-style-type: none"> <li>• Hardware Procurement and Decommission</li> <li>• vSAN/HCI Planning Scenarios</li> <li>• Migration to VMware Cloud on AWS, Azure VMware Solution, Google Cloud VMware Engine, AWS, Azure, Google, IBM, or VMware Cloud Provider™ Program Partners, and Custom Clouds</li> </ul>		•	•	•
Custom VM Profiles		•	•	•
Multiple What-If Stacked Scenarios		•	•	•
Business and Operational Intent-Based Automated and Schedulable Workload Balancing and Optimization		•	•	•
Host-Based Placement		•	•	•
Integration with vRealize Automation for Initial and Ongoing Workload Placement		•	•	•
VMware Cloud on AWS: Workload Balancing, Performance, Capacity/Cost Management, Migration Planning, Troubleshooting, Configuration and Compliance		•	•	•
Azure VMware Solution: Performance, Troubleshooting, Migration Planning		•	•	•
Google Cloud VMware Engine: Performance, Troubleshooting, Migration Planning		•	•	•
Automated Actions		•	•	•
Monitoring of OS Resources (CPU, Disk, Memory, Network)		•	•	•
Custom Compliance Templates		•	•	•
Automated Compliance Drift Remediation		•	•	•
Service Discovery and Application Dependency Mapping		•	•	•
Service and Process Monitoring		•	•	•
Custom Webhook Payload Templates		•	•	•
ServiceNow Integration		•	•	•
Slack Integration		•	•	•
VMware Skyline™ Integration		•	•	•
Out-of-the-Box Discovery, Monitoring and Troubleshooting for vSphere 7 with Tanzu		•	•	•
vRealize Automation™ Integration		•	•	Integrates with vRealize Automation Cloud™

vREALIZE OPERATIONS PACKAGING				
	STANDARD	ADVANCED	ENTERPRISE	SAAS <sup>2</sup>
SDDC and Cloud Pod Health Management Pack		•	•	•
vRealize Orchestrator™ Management Pack		•	•	•
VMware Site Recovery Manager™ and vSphere Replication™ Management Packs		•	•	•
Kubernetes Management Pack: Monitoring for VMware Tanzu Kubernetes Grid™, OpenShift, Kubernetes on Amazon EC2, Azure, Google VMs and Others		•	•	•
VMware and Third-Party Infrastructure Management Packs: Storage, Networking, Converged/Hyperconverged as well as Non-vSphere Hypervisors <sup>2</sup>		•	•	•
Physical OS Monitoring		•	•	•
Continuous Availability		•	•	•
Integration with vRealize Network Insight for Application Discovery and Network Alerts			•	Integrates with vRealize Network InsightCloud™
Out-of-the-Box Monitoring and Troubleshooting for Packaged Applications			•	•
Integration with CloudHealth® by VMware			•	•
Multi-Cloud Monitoring: AWS, Azure, and Google Cloud Platform			•	•
VMware and Third-Party Database, Middleware and Application Management Packs			•	•
Near Real-Time (20 Seconds) Monitoring				•
Application Performance Management Tool Integration (AppDynamics, Datadog, Dynatrace, New Relic)				•
Open Source Telegraf Agent Support				•

## Self-Driving Operations Glossary

AI Engine	The application of data science and predictive analytics to IT operations problems. The AI engine automates and enhances IT operations by applying analytics to data collected from infrastructure and applications to automatically detect and react to issues in real time, including performance monitoring, capacity management, anomaly detection and remediation.
VMware Cloud	The ideal architecture for private and hybrid clouds. Pioneered by VMware and recognized by the industry and analysts, VMware Cloud extends virtualization concepts—abstraction, pooling and automation—to all data center resources, including compute, storage and networking. The VMware SDDC consists of vSphere, vSAN and VMware NSX®.
Hybrid Cloud	Private and public cloud platforms working in conjunction to offer consistent infrastructure with consistent operations. Key VMware hybrid cloud offerings include VMware Cloud on AWS and VMware Cloud Foundation, as well as VMware Cloud Provider Program clouds based on vSphere.
Multi-Cloud	The use of more than one public cloud service provider along with an on-premises data center and hybrid cloud.
Operations Platform	The best product to manage your VMware SDDC and hybrid cloud environment, including monitoring, troubleshooting, capacity and configuration compliance.
Visualization: Health Map, Performance Charts and so on	Numerous out-of-the-box dashboards are driven by widget visualizations and workflows that allow for the fastest troubleshooting and firefighting possible.
Policy Management	Allows you to manage the parts of your environment based on your business needs. Different settings/configs can be used for your production, staging, test, environment (e.g., clusters).
Performance Monitoring and Analytics	Out-of-the-box alerts and intelligent analytics.
Capacity Management	Visualize CPU, memory and disk utilization with real-time predictive analytics to project time remaining and capacity remaining. Get a view of current total cost of ownership and cost savings opportunities with built-in cost analytics. Take actions to reclaim unused capacity such as idle VMs, snapshots and powered-off VMs. Rightsize VMs up or down to assure performance or save costs. Build what-if planning scenarios to model adding new VMs, purchasing hardware or migrating workloads to public cloud such as AWS or VMware Cloud on AWS.
Continuous Availability	The ability to stretch a vRealize Operations cluster across fault domains, which allows a vRealize Operations cluster to survive the failure of a fault domain.
Workload Balancing	Allows you to run your data center based on operational and business intent: <ul style="list-style-type: none"> <li>• Drive better application performance</li> <li>• Compliance</li> <li>• License enforcement (save money)</li> <li>• Consolidation (get more out of your hardware investment)</li> </ul>
vSphere Health Monitoring and Configuration Change	<p>vRealize Operations evaluates the data in your environment, identifying trends in object behavior, calculating possible problems and future capacity needs for objects in your system based on those trends, and alerts you when an object exhibits defined symptoms.</p> <p>Compliance is used to monitor the VMware vCenter Server® instances, hosts, VMs distributed port groups and distributed switches in your environment to ensure that the settings on your objects meet the defined standards.</p> <p>vRealize Operations includes alerts for vSphere Hardening Guides as well as for hardening guides for the Health Insurance Portability and Accountability Act (HIPAA) and the Payment Card Industry Data Security Standard (PCI DSS), which are delivered as PAK files that you upload, license and install.</p>
Built-In High Availability (Automated Failover of Platform Nodes)	High availability creates a replica for the vRealize Operations master node and protects the analytics cluster against the loss of a node.

<p>Customizable Dashboards, Reports and Views</p>	<p>To view the status of all objects in vRealize Operations, create a dashboard by adding widgets. You can create and modify dashboards and configure them to meet your environment needs.</p> <p>With the vRealize Operations reporting functions, you can generate a report to capture details related to current or predicted resource needs. You can download the report in a PDF or CSV file format for future and offline needs.</p>
<p>Management Packs: Compute, Storage, Networking, Converged/Hyperconverged, Non-vSphere Hypervisors</p>	<p>You can extend the monitoring capabilities of vRealize Operations by installing optional solutions from VMware or third parties.</p> <p>VMware solutions include VMware vRealize True Visibility™ Suite, as well as management packs for AWS, Azure, Google Cloud Platform, VMware Integrated OpenStack, VMware vRealize Network Insight, VMware NSX and many others. Third-party solutions include compute, storage, networking, HCI and more from Dell, IBM, Juniper, HPE, Nvidia and others. To download software and documentation for optional solutions, visit VMware Marketplace™ at <a href="https://marketplace.cloud.vmware.com">marketplace.cloud.vmware.com</a>.</p>
<p>Multi-Cloud Monitoring Packs: AWS, VMware Integrated OpenStack, VMware Cloud Provider Program Partners</p>	<p>See above.</p>
<p>Super Metrics</p>	<p>The super metric is a mathematical formula that contains one or more metrics. It is a custom metric that you design to help track combinations of metrics, either from a single object or from multiple objects. If a single metric does not inform you about the behavior of your environment, you can define a super metric.</p>
<p>Monitoring of OS Resources (CPU, Disk, Memory, Network)</p>	<p>Telegraf agents gather operating system metrics and monitor availability of remote platforms and applications.</p>
<p>Service Discovery and Application Dependency Mapping</p>	<p>vRealize Operations Service Discovery™ discovers all the services running in each VM and then builds a relationship or dependencies between services from different VMs based on the network communication.</p> <p>It can create dynamic applications based on the network communication between the services and brings the functionality into vRealize Operations.</p>

## Purchase options

VMware vRealize Operations is available as part of VMware vRealize Suite and can also be purchased standalone. Choose the edition of either vRealize Suite or vRealize Operations that meets your needs.

## SaaS

*vRealize Operations Cloud* is available as a standalone VMware Cloud service and as part of *vRealize Cloud Universal* to provide organizations with operational agility and faster time to innovation. With SaaS, you only pay for what is used as on-demand or one- to five-year commitments.

## Support

VMware offers global subscription and support (SnS) services to all VMware customers. For customers requiring additional services, VMware also offers professional services engagements for best practices and getting started with your deployment, both directly and through an extensive network of certified professionals. For more information, visit [vmware.com/services](https://vmware.com/services).

## Learn more

For more information or to purchase VMware products, call 877-4-VMWARE (outside North America, +1-650-427-5000), visit [vmware.com/products](https://vmware.com/products) or search online for an authorized reseller.

For detailed product specifications and system requirements, refer to the VMware vRealize Operations documentation at [docs.vmware.com/en/vRealize-Operations-Manager](https://docs.vmware.com/en/vRealize-Operations-Manager).