



Cloud Management with Actionable Insights

A Practical Guide to Self-Driving Operations Management with
vRealize Operations, Powered by AI/ML

The Flip Side of Digital Transformation

Business and technology initiatives have become inextricably linked. From speeding supply chains to increasing client and workforce engagement to improving healthcare patient outcomes, digital transformation is happening everywhere, across industries.

In the digital era, your ability to bring new applications and services to market quickly is critical to your organization's success and competitive advantage.

Your IT team is on point to not only keep up but to accelerate business and technology innovation while boosting scale, application performance, and IT agility.

A software-defined approach to modernizing data center infrastructure and embracing public cloud gives you an edge — improving agility and efficiency — but it also introduces operational complexity that you might not have anticipated. Instead of having more time for strategic projects, your IT team can become frustrated by the number of operational problems it must solve.

Don't let IT management get in the way of delivering business value. Run production operations hands off and hassle free with self-driving operations. It's simpler, automated operations that lets your business take advantage of software-defined data center (SDDC) hybrid and public cloud resources.



Why Self-Driving Operations?

Manual IT operations made more sense before cloud computing. Now that your business can choose the best resources for each application and workload, self-driving operations is a requirement.

It's a powerful strategy for automating and simplifying operations management. Self-driving operations incorporates artificial intelligence (AI) and machine learning (ML) so your IT team can be proactive and agile.

AI/ML-driven operations management evolves IT's approach from reactive troubleshooting to predictive innovation by enabling

- Comprehensive data and policy-based control across your entire infrastructure, wherever you choose to run workloads
- A way to optimize observable conditions against business key performance indicators (KPIs)
- Proactive, real time, and reliable optimization, remediation, and compliance leveraging advanced analytics with AI/ML intelligence

With self-driving operations powered by VMware vRealize® Operations™, your IT staff now has a way to continuously assure performance while optimizing for successful business outcomes.



Self-Driving Operations by VMware

vRealize Operations powers self-driving operations from apps to infrastructure, across HCI and hybrid cloud environments while delivering multi-cloud observability. It solves both business and technical challenges with capabilities that help your team optimize, plan, and scale your on-premises and cloud environments:

- **Reduce downtime with continuous performance optimization** – Ensure application performance with automatic workload placement and balancing workloads based on business and operational intent
- **Lower costs with efficient capacity management** – Run infrastructure like a public cloud – optimal consolidation, proactive planning, and procurement for increased efficiency
- **Speed time to value with intelligent remediation** – Predict, prevent, and troubleshoot across SDDC and multiple clouds – from apps to infrastructure
- **Mitigate risk with integrated SDDC compliance** – Reduce risk and enforce IT and regulatory standards with integrated compliance and automated remediation

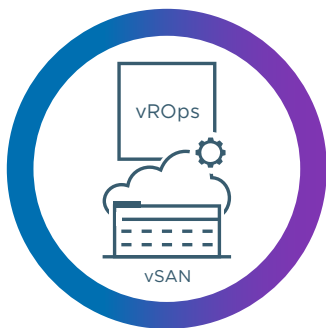
vRealize Operations offers a flexible deployment model that best aligns with your IT strategy, available on premises or as a service.



Operations Use Cases and Capabilities

To realize the full benefits of SDDC and cloud infrastructure requires a rethinking of your data center operations. Our VMware self-driving operations management platform connects, senses, and adapts to your environment to provide the real-time and proactive insights your team needs to automate performance and capacity management.

The benefit to your IT organization is hands off, hassle free operations, no matter where your workloads are running:



HCI Operations



Hybrid Cloud Operations



App-aware Operations



Compliance



Multi-Cloud Monitoring

Continuous Performance Optimization

Assure application performance at minimal cost — driven by operational and business intent — with real-time predictive analytics performing actions to automatically balance workloads and proactively avoid contention.

CAPABILITIES	
Automated workload balancing	<ul style="list-style-type: none"> Automatically and continuously balance workloads across clusters based on business and operational intent Optimize workload balancing for performance, software license management or densification Continuously verify workload performance against defined intent, applying predictive analytics to project future requirements, and balance workloads automatically or schedule balancing in a convenient maintenance window
Continuous and automated workload placement throughout the VM lifecycle	<ul style="list-style-type: none"> Integrate vRealize Operations and VMware vRealize® Automation™ — which accelerates IT service provisioning and delivery across infrastructure, containers, apps, and custom services — for initial workload placement and on-going placement to meet utilization and business intent
Automated host-based placement, driven by business intent	<ul style="list-style-type: none"> Create placement zones across hosts regardless of cluster boundaries to optimize placement and balancing of workloads based on software license enforcement, tiers, and other tags. Automatically apply business intent to VMware vSphere® Distributed Resource Scheduler™ (DRS), which automatically load balances across hosts and optimizes power consumption by turning off hosts during lower load periods — and automate DRS management
Hyperconverged infrastructure performance optimization	<ul style="list-style-type: none"> Optimize performance of VMware vSAN™ clusters — hyperconverged software-defined storage for virtual environments — through workload balancing that is resync, slack space, and storage-policy aware
Predictive DRS	<ul style="list-style-type: none"> Avoid contention by combining predictive analytics from vRealize Operations with VMware DRS Analyze and predict future demand or contention and proactively move workloads to avoid the issue



Reducing downtime

Efficient Capacity Management

Enjoy real-time capacity analytics, delivering optimal utilization, cost savings, and consolidation along with proactive planning and procurement.

CAPABILITIES	
Reclaim and right-size	<ul style="list-style-type: none"> Reclaim overprovisioned, orphaned VMDKs, or idle capacity, right-size virtual machines (VMs) and increase consolidation while honoring business and operational intent Gain real-time predictive capacity analytics that provide proactive alerting based on capacity usage and demand as well as allocation with actionable recommendations that include reclamation, procurement, and cloud migration planning options
Correlate capacity and cost insights	<ul style="list-style-type: none"> Combine capacity analytics with costing information to easily understand and track how operational efficiency and capacity management drive cost efficiency Understand TCO and fine-grain savings opportunities, including hyperconverged Infrastructure costs Define and customize cost drivers and take actions to optimize capacity and costs
Capacity planning	<ul style="list-style-type: none"> Use flexible capacity modeling to develop resourcing strategies and what-if scenarios across multiple clouds Use advanced capacity planning to model multiple scenarios and stack them together to understand cumulative impact, for example model <ul style="list-style-type: none"> Best fit for new workloads or to remove workloads Procure or decommission hardware Determine the impact of adding HCI capacity to vSAN cluster Plan public cloud migration with side-by-side cost comparison across the private cloud, VMware Cloud™ on AWS, Amazon Web Services (AWS), Microsoft Azure, Google Cloud, IBM Cloud, VMware Cloud Provider™ partners, or custom clouds



Reducing costs

Intelligent Remediation

Predict, prevent, and troubleshoot faster with actionable insights correlating metrics and logs with unified observability from applications to infrastructure. Centralize IT operations management with native SDDC integrations, federated views, and a highly scalable and extensible platform.

CAPABILITIES	
Unified observability	<ul style="list-style-type: none"> • Get a unified IT operation view into applications and infrastructure health • Visualize key performance indicators and get actionable, out-of-the-box, persona-based dashboards and workflows to troubleshoot quickly • Gain insight into application-to-infrastructure dependencies to simplify change impact analysis and troubleshooting • Correlate metrics associated with an object and easily create super metrics • Integrate with common ticketing systems, such as Service Now, and automate remediation • Customize dashboards, reports, and views to create unique workflows across infrastructure, operations, and applications teams
360-degree troubleshooting	<ul style="list-style-type: none"> • Use metrics and logs side-by-side and in context to troubleshoot smarter • Leverage structured data (e.g., metrics and KPIs) and unstructured data (e.g., log files) together from vRealize Operations and VMware vRealize® Log Insight™ integration for faster root-cause analysis
Native SDDC integrations	<ul style="list-style-type: none"> • Operationalize and scale VMware SDDC components such as VMware vCenter®, vSAN, and VMware Cloud Foundation™ with native integrations and a unified view into SDDC health • Leverage native vSAN support for vSAN specific monitoring and troubleshooting as well as capacity management, including capacity and time remaining, deduplication, and compression savings and reclamation opportunities • Enjoy centralized management of multi-site and stretched vSAN clusters with advanced troubleshooting, proactive alerting, and visibility from virtual machines to disk • Optimize vSAN performance with automated workload balancing across vSAN clusters
Global operations view within vCenter	<ul style="list-style-type: none"> • Get an overview of vSphere and vSAN environments within the vCenter user interface, including KPIs, critical alerts, capacity overview, and operational insights and recommendations • Launch in context to vRealize Operations dashboards for full-stack troubleshooting and capacity management

<p>Common packaged applications and operating systems native monitoring</p>	<ul style="list-style-type: none"> • Empower IT and application owners to triage and resolve issues faster • Easily and automatically discover VMs and apps, deploy agents with full lifecycle management capabilities, and collect the required metrics for observability and troubleshooting for common packaged applications • Map relationships between applications and infrastructure to provide visualization of the full stack and decrease time-to-identify root cause of performance and availability issues
<p>Open and extensible platform</p>	<ul style="list-style-type: none"> • Manage large, complex, heterogeneous and hybrid environments with an open and extensible architecture with scalability and resilience to support highly complex environments • Get federated views across multiple data centers • Deploy domain-specific Management Packs from VMware and third-party hardware and application vendors



Speeding time to value

Integrated Compliance

Reduce risk and enforce IT and regulatory standards with integrated compliance and automated drift remediation.

CAPABILITIES	
Hybrid configuration and compliance	<ul style="list-style-type: none">• Enable security configuration for VMware vSphere, NSX-T, vSAN and VMware Cloud on AWS with out-of-the box compliance dashboards
vSphere regulatory compliance	<ul style="list-style-type: none">• Measure vSphere compliance stature against DISA, FISMA, ISO, CIS, PCI, and HIPAA• Create custom compliance standards• Import or export compliance standards
Automated configuration management	<ul style="list-style-type: none">• Automate drift remediation with out-of-the-box workflows and integration with VMware vRealize® Orchestrator™ which simplifies the automation of complex IT tasks and workflows



Improving risk management

Self-Driving Operations Works Across IT Environments

IT Strategy	Digital Foundation	Benefit
Private Cloud / On-Premises Data Center	VMware vSphere®	Automated workload optimization, capacity, and cost management, as well as apps to infrastructure intelligent remediation, configuration, and compliance for maximum efficiency and consolidation, improving CapEx and OpEx
Core Hyperconverged Infrastructure (HCI)	VMware vSAN™ VMware HCI	Native integration with virtualized compute and storage for automated performance and capacity management and apps-to-dying disk troubleshooting for improved visibility, increased uptime, and quick time to value
Private Cloud / On-Premises Data Center	VMware Cloud Foundation	Automated workload optimization, capacity, and cost management as well as intelligent remediation, configuration, and compliance with consistent operations for simply managing consistent infrastructure across your SDDC stack
Hybrid Cloud	VMware Cloud VMware Cloud on AWS VMware Cloud Provider Partners	All of the capabilities available for private/on-premises data center environments running vSphere plus consistent visibility and management across hybrid vSphere based clouds, lowering costs, standardizing operations, and reducing risk
Public / Multi-Cloud	Amazon Web Services (AWS) and Microsoft Azure	Consistent observability across hybrid and public cloud environments, accelerating decision making, speeding troubleshooting, and improving operational efficiency

vRealize Operations Investment Return

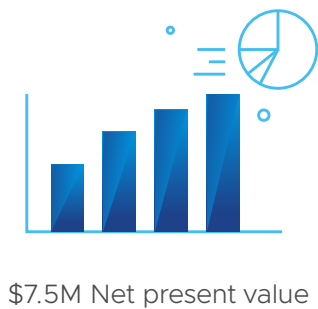
The Total Economic Impact™ of VMware vRealize Operations, documented by Forrester Consulting illustrates how the VMware solution delivers both business benefits and cost savings.¹

[Read the study](#), or [calculate your ROI](#).

Business Benefits



Financial Benefits



1. The Total Economic Impact™ of VMware vRealize Operations, a commissioned study conducted by Forrester Consulting on behalf of VMware, May 2019.

Organizations Innovating with VMware



The work we've done with VMware will serve as a model for other states looking to consolidate and streamline their IT operations while improving security.

- Michael Allison, CTO, State of Louisiana



In the past, a CTO would focus on the operation and maintenance of services, possibly with a view to tactical services. Today, it's more about having a vision looking three to five years ahead, and leading teams, towards this vision.

- Jose Luis Romanos, CTO, CaixaBank



There's no question that VMware has reduced our costs and our operational overhead. We're able to do more with less, provide 24/7 services with no interruption, and grow in a less reactive, more strategic way.

- John Levay, CTO, Niagara College



Introduce Your Organization to Self-Driving Operations

Only VMware delivers hands off, hassle free operations management from applications to infrastructure to help your business plan, manage, and scale SDDC hybrid and multi-cloud environments.

- VISION AND LEADERSHIP to provide the most complete, self-driving operations management platform
- SIMPLE AND AUTOMATED performance management to operationalize and scale SDDC and multi-cloud environments
- MARKET LEADER for monitoring and troubleshooting SDDC hybrid and multi-clouds

[Learn more](#)

about self-driving operations powered by vRealize Operations
