OPERATIONALIZE YOUR SOFTWARE-DEFINED DATA CENTER AND MULTI-CLOUD ENVIRONMENTS

Speed the Delivery and Ease the Management of Application and Infrastructure Services with Intelligent Operations from VMware vRealize
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Operations at the Speed of Business

For organizations embracing digital to push boundaries and reimagine markets, it’s now business imperative to increase IT operational efficiency. IT infrastructure is directly tied to your enterprise’s ability to work faster, increase efficiency, innovate, and harness opportunities in the digital age. Yet maximizing agility and competitive advantage is impossible with siloed systems and reactive troubleshooting approaches.

VMware is the ideal partner to help your organization modernize and keep on-premises data centers healthy and efficient while implementing an effective public cloud strategy.

Intelligent Operations delivered by VMware vRealize® Operations™ integrated with VMware vRealize Log Insight™ and VMware vRealize Business for Cloud™ empowers your organization to plan, manage, and scale your software-defined data center (SDDC) and integrate public clouds with confidence. With deeper insight from applications to infrastructure, Intelligent Operations from vRealize accelerates digital transformation—truly enabling your organization to run any device on any cloud—while minimizing IT’s operational commitment.

Why Intelligent Operations?

A multi-cloud strategy boosts business efficiency and agility, but it can also pose IT management challenges as staff requirements expand from supporting existing on-premises systems to adopting new cloud resources. Traditional models—with dedicated resources and technologies overseeing fragmented and siloed systems—are insufficient in multi-cloud environments because they cannot ensure performance and operational efficiency across applications and infrastructure. With existing models, your enterprise compromises time-to-value and decision-making speed, performance, and multi-cloud cost and capacity optimization.

Intelligent Operations from vRealize can help you achieve the full value of SDDC and public cloud resources if your organization’s current approach has you facing any of these challenges:

- **Lack of unified visibility** – Point solutions, implemented over time, provide snapshots of data center systems—for example, compute, storage, and networking resources—but no comprehensive, single pane-of-glass view of all critical data together in one platform, preventing easy understanding of what happened across domains when issues arise.

- **Reactive troubleshooting** – Major issues and outages typically cause alert storms—from servers, storage, and network devices—generating thousands of emails, yet because operations staff find analyzing so much data nearly impossible, they wait for end users to report problems and then react instead of proactively troubleshooting.

- **Overprovisioning in preparation** – To potentially avoid performance and availability issues, teams increase hardware resources (e.g., memory and storage), but overprovisioning adds cost and management overhead without necessarily fixing your performance and availability challenges.

- **Limited cost transparency** – Without more insight into infrastructure costs (e.g., virtual machines, CPUs, etc.), it’s difficult to correlate overprovisioning and wasted resources—and public cloud integration adds to the cost-complexity equation while also increasing the likelihood of vendor lock-in and operational management silos.
VMWARE INTELLIGENT OPERATIONS MANAGEMENT DELIVERS

- Rapid time to value and ROI on SDDC and cloud investments
- Maximum operational efficiency and performance
- Faster decision-making in the multi-cloud era

Intelligent Operations From vRealize

VMware’s intelligent approach to operations management empowers your IT team to evolve from reactive to proactive, even becoming more innovative because team members can agree to identify potential service disruptions or performance drops well before they happen.

Intelligent Operations from vRealize brings all of the most critical IT management functions, including performance and capacity management, troubleshooting, and automated workload balancing enabled by vRealize Operations together with integrated log analytics enabled by vRealize Log Insight and cost analytics, planning, and procurement enabled by vRealize Business for Cloud in one highly intuitive, scalable, and extensible platform. Intelligent Operations from vRealize is everything your team needs to plan, manage, and scale your SDDC and multi-cloud environment.

Figure 1. Get all of the capabilities your IT organization needs to plan, manage, and scale your SDDC and multi-cloud environment with Intelligent Operations from vRealize.

Intelligent Operations from vRealize raises service quality by preventing performance degradation with application-aware monitoring and troubleshooting. It also reduces fingerpointing among teams by providing unified visibility into infrastructure and application health across your SDDC and public clouds. Easy-to-use, persona-based dashboards—coupled with an intuitive user interface, predictive analytics and alerts, and customization capabilities—help ensure Intelligent Operations improves time to value. For example, using self-learning predictive analytics, Intelligent Operations from vRealize correlates operational data across compute, network, storage, and applications to give you a unified view and proactively alert you about issues.

The platform simplifies operations, streamlining the management of infrastructure and applications with automated workload balancing as well as proactive detection and automatic remediation of issues and anomalies. You can troubleshoot smarter with line-of-sight visibility and by correlating metrics and logs. Views into the health and configuration of all of your SDDC components through native integrations with essential VMware Cloud Foundation components such as VMware vSphere® and VMware vSAN™, as well as detailed vSAN capacity and troubleshooting dashboards, alerts, and metrics make it easy to operationalize your SDDC technologies.
Intelligent Operations from vRealize also provides operational and business insights to help accelerate cloud planning and placement decisions across multiple clouds. It helps reduce costs and risk by optimizing capacity utilization, accurately forecasting capacity needs, and ensuring compliance. The solution can further extend management visibility into physical, virtual and cloud infrastructure and third-party applications through integrated Management Packs and Content Packs offered via VMware Marketplace.

Benefits Quantified in Forrester Study

You can review the recent Forrester Total Economic Impact™ (TEI) study to gain further insight into all of the business and cost-saving benefits of Intelligent Operations from vRealize.²

These are some of the highlights from the Forrester report:

![Figure 2. Compare the business and cost-savings benefits Forrester uncovered in Intelligent Operations from vRealize.](image)

- **ROI=119%**
- **NPV=$1.4M**
- **Payback Period =3 months**

  NASDAQ Composite 2013-2015 increase was 62%

  1,000 annual passes to the New York City subway

  Time it takes for Mercury to orbit the sun

Independent researchers noted these specific gains:

- **20% improvement in operational efficiency** – vRealize delivers real-time performance metrics, log analytics, and proactive capacity management, which allows for faster incident resolution and compliance monitoring activities. These functionalities ease the workload of the infrastructure operations team, allowing it to complete the same amount of work in less time.

- **More than 10% savings in hardware costs** – Workloads are proactively balanced across clusters, providing capacity scenario planning capabilities, and both rightsizing and reclaiming capacity. This functionality maximizes existing server utilization, reducing not only overall capacity requirements but also annual growth rates.

- **75% reduction in unplanned downtime** – IT operations teams receive alerts about potential issues so they can then automate an action, such as rebalancing workloads. They also receive log analytics data to conduct root-cause analysis of problems, allowing teams to solve potential issues before they become critical errors. Together, these functionalities reduce system shutdowns and the ensuing unplanned downtime.
Solving Two Key Use Cases

When your organization commits to improving IT efficiency and agility with Intelligent Operations from vRealize, you have more time for innovation. That’s because you now have one solution instead of many, providing a consistent experience and unified visibility, to operationalize your SDDC and integrate public clouds with confidence.

The California Natural Resources Agency has seen a 42% reduction in capital expenditures and 35% reduction in operating expenditures while achieving a 300% increase in data center capacity for scale and agility with vRealize.

Figure 3. Enable two key use cases with three core capabilities of Intelligent Operations from vRealize.

Operationalize SDDC

Operationalizing your SDDC with Intelligent Operations from vRealize accelerates time to value for keeping your SDDC running efficiently.

Figure 4. Prepare staff and infrastructure, efficiently move workloads into production, and scale and optimize your SDDC deployment, speeding investment time to value.
Ensure Readiness
The first challenge with operationalizing your SDDC is ensuring the readiness of both the underlying infrastructure and your team. Intelligent Operations from vRealize includes
• An intuitive user interface
• Out-of-the-box dashboards
• Content plus visualizations
• Health and configuration checks

All of these capabilities put information at IT’s fingertips, so even those new to technologies such as vSAN for virtual storage become instant experts. Included checks measure performance and provide you with before and after impact views. For example, you can quickly compare the performance of workloads running on traditional storage versus the same workloads running on a vSAN cluster.

Deploy in Production
Once you have prepared your infrastructure and team, you can begin to move production workloads onto the SDDC stack. Intelligent Operations from vRealize gives empowers you to deploy production workloads on SDDC stacks by providing line-of-sight visibility with correlation capabilities across the entire stack. Your team can then troubleshoot production infrastructure like experts using the guided workflows, out-of-the-box and custom dashboards, reports, and views.
For example, Intelligent Operations with native vSAN management integration delivers multi-cluster vSAN management, predictive analytics for performance and capacity management, rapid troubleshooting, and simple monitoring, making it a popular option for large-scale data centers. This approach allows you to

- Proactively monitor infrastructure health
- Quickly resolve issues
- Increase application uptime and
- Lower the risk of business disruptions

As a result, your organization can ultimately reduce costs and shift resources to more strategic initiatives. Read the solution brief about vSAN integration with Intelligent Operations.

Integrated log analytics accelerate your root-cause analysis with 360-degree troubleshooting across structured and unstructured data, side-by-side, and in context. Predictive analytics, smart actionable alerts, and guided remediation also support proactive remediation of performance problems, offering simple, actionable explanations of underlying problems and recommended corrective actions.

Add-on Management Packs and Content Packs also improve visibility and troubleshooting capabilities into other applications (e.g., SAP, Oracle, etc.), infrastructure (e.g., networks and switches), and clouds (e.g., Amazon Web Services), complementing purpose-built capabilities in Intelligent Operations from vRealize.

**Optimize and Scale**

When you can effectively troubleshoot with line-of-sight visibility, there is greater confidence in automating performance management. Intelligent Operations from vRealize helps you fully automate workload balancing and placement across clusters.
and datastores, based on business requirements such as utilization, performance, and even application licensing restrictions. Workload balancing can be set to automatically occur during convenient maintenance windows or be triggered by a specific alert, threshold, or event. Cross-cluster workload balancing happens in conjunction with VMware vSphere® Distributed Resource Scheduler™ (DRS).

Intelligent Operations from vRealize takes DRS integration to the next level by offering full DRS management and Predictive DRS (pDRS). With pDRS, your team can avoid contention by combining predictive analytics from Intelligent Operations with vSphere DRS to anticipate future contention and proactively move workloads. Predictive analytics learn the normal behavior, analyzing hourly, daily, and monthly patterns for every metric associated with an object including the upper and lower bound of what has been shown to be normal. vSphere DRS then uses these analytics to predict future demand and proactively prepare for increased demand by triggering move actions.

By pairing Intelligent Operations from vRealize with vRealize Business for Cloud, you can:

- More effectively optimize and manage capacity utilization
- Correlate operational and cost insights to accelerate cloud planning, budgeting, and procurement decisions
- Control costs
- Reduce risk

Capacity analytics proactively alert you with information about usage and demand. You can also use them to inform optimization strategies, such as reclaiming unused and overprovisioned capacity or right-sizing virtual machines (VMs) to increase resource utilization. Intelligent capacity management and modeling also can help you eliminate the need for scripts and spreadsheets. Flexible capacity modeling
capabilities help you evaluate resourcing approaches and what-if scenarios to ensure you are meeting business demands as well as service-level agreements.

The solution ensures your team further optimizes utilization and capacity by providing insight into the fine-grained cost analysis of various infrastructure components. This way you can better understand how capacity is driving costs, which groups are consuming the least and most capacity, and what currently are the major cost drivers for capacity.

In addition to workload balancing, Intelligent Operations from vRealize optimizes workload placement through integration with VMware vRealize Automation™ (available in vRealize Suite Advanced and above). The vRealize Automation Management Pack extends the operational management capabilities of Intelligent Operations to vRealize Automation cloud constructs such as tenants, business groups, reservations, and reservation policies.

Integrate Public Clouds
With cloud-first strategies on the rise, your IT and business stakeholders want assurances that your approach to cloud adoption is right. For example, they may want to know when a workload should move to the cloud, where it should be hosted, and how much it will cost. When you are ready, Intelligent Operations from vRealize helps your team integrate public clouds with confidence by enabling you to compare costs, unify operations management, and track consumption.

In addition to popular public clouds such as Amazon Web Services (AWS) and Microsoft Azure, Intelligent Operations can be used to plan, manage and scale VMware Cloud™ on AWS. The VMware Cloud on AWS solution helps ensure
- Consistency and familiarity of VMware technologies
- Easy workload portability and hybrid capabilities
- Direct access to the power of native AWS services and
- Support for existing and new apps as well as containers and virtual machines

Common use cases include regional capacity disaster recovery and backup, data center consolidation and application migration, and test and development cyclic capacity.

Intelligent Operations from vRealize supports VMware Cloud on AWS by helping your organization achieve four goals:
1. Plan for VMware Cloud on AWS
2. Migrate applications to VMware Cloud on AWS
3. Manage VMware Cloud on AWS (including showing resource status in a unified view of your environment; highlighting system performance; and supporting troubleshooting and capacity management at scale)
4. Extend management to AWS Services
Dell EMC has improved workload placement, troubleshooting, and capacity planning with vRealize to achieve optimized utilization of 80%.

Figure 8. Manage your VMware Cloud on AWS environment using Intelligent Operations from vRealize.

Take the VMware Cloud on AWS assessment or read the Using Intelligent Operations with VMware Cloud on AWS solution brief to learn more.

Figure 9. Resolve cost questions about moving to cloud and manage IT apps and infrastructure more efficiently.

Get Ready for Cloud
Adding public cloud resources can overcome key business challenges such as ensuring always-available capacity when demand is elastic. However, public clouds may not always be the most efficient choice compared to your on-premises cloud, and even choosing among multiple public clouds can be a challenge.

The cloud comparison capability in vRealize Business for Cloud helps your team quickly compare the cost of running virtual machines across private cloud and multiple public cloud alternatives. The cost is automatically calculated and displayed with customized configurations, including CPU, memory, storage, operating system, expected usage level, and other data. Your IT staff can continuously evaluate the cost of existing and new workload placement in the data center against public clouds.
You can also use Intelligent Operations from vRealize to:

- Identify capacity shortfalls, based on current usage and future requirements
- Optimize private cloud utilization—through right-sizing, reclamation, and densification—to use as much existing capacity as possible
- Compare the costs of deploying workloads on private and public clouds, determining the best placement for each workload, if you still have a capacity shortfall

With more accurate information, your enterprise can make better cloud planning decisions.

Figure 10. Integrated cost insights from vRealize Business for Cloud drive data-driven cloud planning decisions.

**Plan for Application Migration**

When your IT team decides to deploy an application to the cloud, Intelligent Operations from vRealize helps you simplify workload migration planning by:

- Assessing the application’s underlying dependencies – Service Discovery Management Pack in Intelligent Operations identifies services and their interdependencies while vRealize Network Insight (an add-on to vRealize Suite Standard) helps identify traffic patterns, volumes, and the interconnectedness of different tiers within an application and between applications
- Confirming the readiness of the destination – Intelligent Operations shows the application’s resource needs and confirms whether there is enough capacity available at the destination
- Helping to meet compliance – Intelligent Operations helps monitor system compliance and provides alerts if requirements are not met
Unify Intelligent Operations
As workloads spread across public and private clouds, you can leverage Intelligent Operations from vRealize for unified management and 360-degree visibility of workloads across your private and public clouds. You can troubleshoot issues using structured and unstructured log data to detect and avoid issues. You can also optimize capacity and forecast future needs—increasing the success of all workload deployments. With Intelligent Operations from vRealize, your team can gain visibility into the cost of on-premises resources and track the usage and spending across multiple public cloud providers and accounts, including VMware Cloud on AWS, Azure, AWS, and IBM SoftLayer, continuously monitoring aggregated operational and cost data across your hybrid cloud environment from a single dashboard.
Learn More

Intelligent Operations with vRealize empowers your team to drive digital transformation, speeding application and infrastructure delivery and easing IT management across your data center, private cloud, and the public cloud resources you choose. Solve your current operational challenges and shift resources to more strategic initiatives to prepare for the future with Intelligent Operations delivered by VMware vRealize Suite Standard.

Team with VMware to operationalize your SDDC, troubleshooting smarter with full line-of-sight, unified visibility from applications to infrastructure and accelerating time to value by taking advantage of the solution’s native integrations, third-party management packs, log analytics, and real-time metrics. In one solution, get answers to your cost questions about moving workloads to the cloud and then manage all of your infrastructure—on-premises and off—more efficiently.

Learn more about VMware Cloud on AWS with Intelligent Operations by vRealize at vmware.com/go/vrops.
