REACTIVE TO PROACTIVE TO INNOVATIVE

The Guide to Successful Digital
Transformation with Intelligent Operations

vmware®

IT Management's Conundrum

The power to transform business lies in software, yet IT complexity thwarts innovation. Choosing among so many options—from expanding internal software-defined data centers to selecting one of so many public clouds, then integrating hybrid cloud models—to eliminating organizational silos can frustrate even the best IT teams.

How can IT organizations adapt to successfully partner with the business and drive the digital transformation agenda?

Across industries, successful IT organizations are the ones who make the transition from being reactive to being proactive and ultimately innovative in their operations management approach.

These IT teams are unafraid of modernizing data center infrastructure, and embracing Cloud-First initiatives for increased efficiency and agility. They are the teams reducing complexity by ensuring performance by pro-actively resolving issues, automating operations and accelerating roll out of apps and services by devising successful cloud strategies.

IT organizations driving digital transformation have embraced Intelligent Operations.

> *"Intelligence is the ability to adapt to change."*
>
> – STEPHEN HAWKING

The Intelligent Operations Journey

Forward-thinking organizations recognize that the IT solutions they are responsible for delivering, evolve and so do the needs of their end users. Traditional data centers, built for on-premises applications, have complex deployment and operations that slow down application and service delivery. These organizations also understand that although the public cloud can provide greater agility, implementation, management and integration brings its own challenges.

Advisor to global senior executives and chief technologist for IT operations transformation at VMware, Kevin Lees outlined the Intelligent Operations journey through which IT organizations move to become enablers, even drivers of transforming to a digital business.
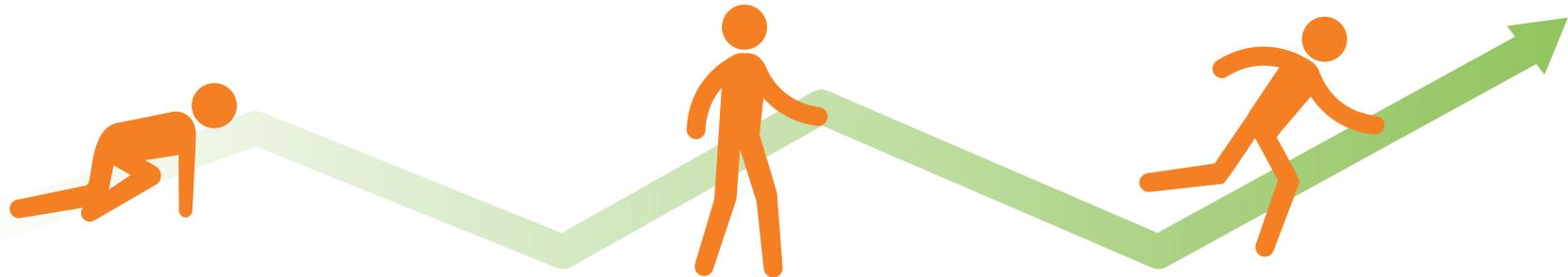
CRAWLING REACTIVELY

Modus operandi for IT is reacting to incidents using tools that save troubleshooting time.

WALKING PROACTIVELY

IT has increasing interest and ability to better ensure performance and availability using reactive tools plus customizable dashboards, super metrics, alerts, policy-driven automation and intelligent workload placement.

RUNNING INNOVATIVELY

IT has made a commitment to identifying a potential service disruption or performance drop well before it happens so there's time to fix the underlying cause before service disruption, using predictive analytics, machine learning and automated re-balancing.

IT teams on this journey increase business agility, improve time to market, and focus more on business outcomes that drive overall business value.

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Intelligent Operations Use Cases

The digital transformation strategy of successful IT organizations has two parts:

• **Operationalize SDDC:** Modernize and streamline on-premise SDDC

• **Integrate Public Clouds with Confidence:** Adopt and integrate public clouds using data driven decisions

Existing operations management approaches in virtualized data centers are still difficult. A better solution is necessary to ensure performance, achieve greater efficiency, and reduce costs.

Companies eager to jumpstart innovation deploy intelligent operations to help plan, manage, and scale SDDC and multi-cloud deployments with confidence.

Operationalize SDDC

IT teams use Intelligent Operations to ready teams and infrastructure, move workloads to production, and scale and optimize SDDC deployments, resulting in faster time to value and accelerated decisions.

ENSURE READINESS

The first part of operationalizing SDDC is ensuring the readiness of both the underlying infrastructure and the IT team. An intuitive user interface, out-of-the-box dashboards and visualizations put the right information, in the right hands, at the right time, so IT becomes an immediate expert even when deploying new technologies. Confirming the readiness of the infrastructure requires an intelligent solution with out-of-the-box health and configuration checks—with visuals showing before and after deployment impacts.

SCALE IN PRODUCTION

Once readiness is ensured, IT can move production workloads onto the SDDC infrastructure—gaining confidence through line of sight visibility and the ability to correlate across the entire stack. Intelligent Operations provides capabilities to troubleshoot production virtual machines like an expert through guided dashboards and integration of metrics and log data, plus out-of-the-box content and native SDDC integrations. From there IT can extend monitoring and troubleshooting to other data centers components through management packs.

AUTOMATE

With readiness assured and confidence in their ability to effectively troubleshoot production environments, IT teams can begin to automate as much performance management as possible with capabilities including automated workload balancing, predictive distributed resource scheduling, predictive analytics and alerts, and guided remediation workflows.

OPTIMIZE

IT teams rely on Intelligent Operations to optimize and manage capacity utilization and costs. In addition to optimizing utilization and capacity, IT teams can now also perform fine-grained cost analyses of the various infrastructure components to understand how capacity is driving costs, which teams or individuals are consuming the highest capacity, and other major cost drivers.
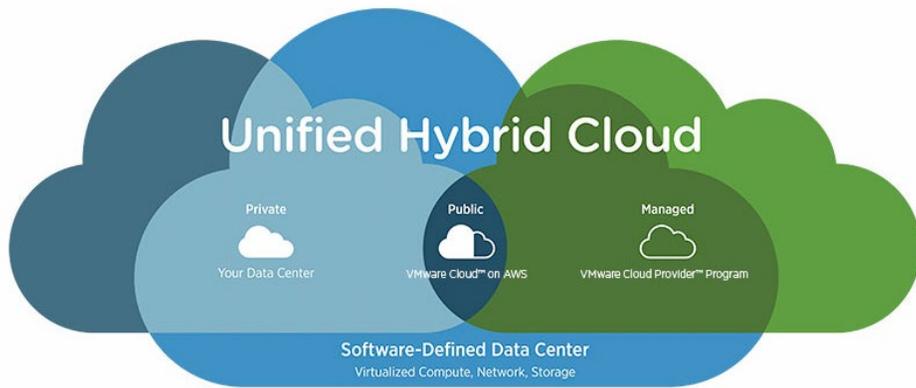
Integrate Public Clouds with Confidence

Across industries, IT teams use Intelligent Operations to plan for moving workloads to cloud for efficiency and cost benefits, and once they move to cloud, to manage all IT apps and infrastructure more efficiently.

PLAN FOR CLOUD

Intelligent Operations helps IT teams proactively identify capacity shortfalls, based on current usage and future requirements. Using alerts and recommendations, Intelligent Operations helps IT teams optimize on-premises capacity utilization—through right-sizing. Should they still face a capacity shortfall, Intelligent Operations enables IT teams to answer two critical questions: Which workloads to move to public cloud? And, which public cloud to choose, based on cost comparison?

MOVE APPLICATIONS TO CLOUD

Once the decision is made to deploy a workload to the cloud, Intelligent Operations simplifies workload move planning by exposing underlying dependencies. Using Intelligent Operations, IT teams can reveal the level of interconnectedness as well as confirm the readiness of the destination cloud. For example, is there enough capacity at the destination or is more needed? IT teams also can ensure they are meeting compliance requirements using Intelligent Operations capabilities. Post-move, the IT team can also confirm migration success.

UNIFY INTELLIGENT OPERATIONS

Finally, Intelligent Operations gives IT teams a unified management experience to effectively manage workloads spanning on-premises and cloud infrastructure. IT can troubleshoot, monitor, and apply predictive analytics and alerts to detect and avoid issues. IT can also use Intelligent Operations to optimize capacity utilization and forecast future needs—increasing the success of all production deployments.

A Closer Look at Intelligent Operations: Key Capabilities

APPLICATION-AWARE MONITORING AND TROUBLESHOOTING enables IT teams to centralize operations management of SDDC and multi-cloud environments, troubleshoot smarter with native integrations, get unified visibility from applications to infrastructure health, gain actionable insights combining metrics and logs and enforce IT and configuration standards.

AUTOMATED AND PROACTIVE WORKLOAD MANAGEMENT helps IT teams simplify operations with fully automated management of infrastructure and applications performance. They can automatically balance workloads, avoid contention and enable proactive detection and automatic remediation of issues and anomalies before end users are impacted.

CLOUD PLANNING AND CAPACITY OPTIMIZATION allows IT to optimize utilization and costs through capacity management, reclamation and right sizing. They gain the ability to correlate operational and cost insights to accelerate cloud planning and procurement and compare costs across multiple datacenters and public clouds to optimize placement.

Application-Aware Monitoring Across the SDDC and Multiple Clouds

SPEED TROUBLESHOOTING, GAINING GREATER CONFIDENCE IN ISSUE RESOLUTION

App-aware monitoring ensures line-of-sight visibility from applications to infrastructure to diagnose issues and enable rapid 360-degree troubleshooting.
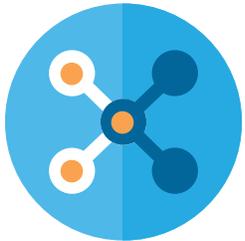
UNIFIED MANAGEMENT

Centralize monitoring and management of SDDC infrastructure, public clouds, applications and operating systems. OOTB and customizable dashboards, reports, and views enable operations and applications teams to visualize key performance indicators (KPIs), see infrastructure component dependencies, and get actionable out-of-the-box explanations of problems and recommended corrective actions.

360-DEGREE TROUBLE-SHOOTING

Accelerate root cause analysis and troubleshooting with structured data metrics and unstructured data logs side-by-side, and in context, IT teams save time and improve ROI using central log management to analyze data across the entire IT environment, including virtual, physical and cloud environments.
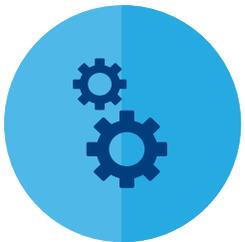
NATIVE SDDC INTEGRATIONS

Operationalize and scale SDDC components such virtual compute and virtual storage with native integrations. For example, virtual storage management provides capacity monitoring, including capacity and time remaining, de-dup and compression savings, and reclamation opportunities with visibility and troubleshooting across stretched clusters.

Application-Aware Monitoring Across the SDDC and Multiple Clouds
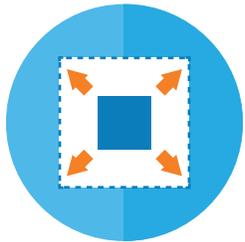
OPEN AND EXTENSIBLE

Manage complex heterogeneous and hybrid environments with an open and extensible architecture that scales and is resilient. Domain-specific management packs are available to support popular computing platforms, storage, networking, public clouds, apps and containers.
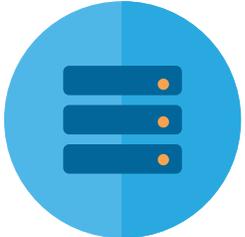
APPLICATION-AWARE INFRASTRUCTURE MANAGEMENT

Gain insight into application-to-infrastructure dependencies through a centralized operations view, visualize dependencies. Uncovering overlooked relationships between virtual machines and critical connections can help IT teams simplify change impact analysis, troubleshooting and identify holes in their disaster recovery plans.

CONFIGURATION AND COMPLIANCE

Intelligent Operations helps reduce risk by ensuring hardening for compute virtualization and other virtualized data center components. Out-of-the box cluster, host, and virtual machine compliance dashboards and compute virtualization regulatory compliance templates such as PCI & HIPAA are included, giving IT teams an opportunity to understand noncompliant areas and remediate.

Automated and Proactive Workload Management

AVOID ISSUES AND IMPROVE EFFICIENCY

Automated and proactive workload management ensures teams can automatically and continuously move workloads and avoid issues for optimal business results:

AUTOMATED WORKLOAD BALANCING

Automatically and continuously move and balance workloads across hosts and clusters based on business requirements. IT teams can use Intelligent Operations to control the level of automation, which automated actions are taken, and when those automated actions should be triggered. They can automatically optimize for performance, or utilization—distributing and balancing workloads appropriately. Automation can be set for when an issue occurs, during a convenient maintenance window, or triggered manually, immediately.

PREDICTIVE RESOURCE SCHEDULING

Intelligent Operations makes it easy to avoid system contention by combining predictive analytics with VMware Distributed Resource Scheduler. Based on historical patterns and predictive analytics, this combined capability calculates future contention and proactively moves workloads to ensure performance. Predictive analytics learn normal behavior for every metric associated with an object. Those analytics are used to predict future demand and proactively prepare for increased demand by triggering move actions.

PREDICTIVE ANALYTICS AND REMEDIATION

IT organizations can use Intelligent Operations to proactively correlate multiple symptoms into meaningful warnings and alerts. They can get simple actionable explanations of underlying problems and recommended corrective actions—remediating before they impact end users with 1-click or fully automated actions.

Cloud Planning and Capacity Optimization

OPTIMIZE AND PLAN FOR FUTURE GROWTH

Cloud planning, capacity optimization, and compliance ensure IT teams achieve maximum utilization and have all the information they need to inform stakeholders and choose the right resources to achieve business outcomes:

CAPACITY MANAGEMENT

Intelligent Operations simplifies the processes of reclaiming overprovisioned capacity and right-sizing virtual machines to increase resource utilization. Intelligent capacity management and proactive alerting of capacity shortfalls can eliminate the need for scripts and spreadsheets while capacity analytics provide proactive alerting based on capacity usage and demand.

CORRELATE BUSINESS AND OPERATIONAL INSIGHTS

IT teams can combine capacity analytics with costing information to easily understand and track how operational efficiency and capacity management drive cost efficiency. They can understand cost implications of unused and underutilized capacity while more accurately making hardware procurement plans.
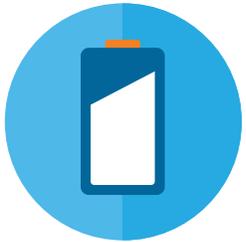
CAPACITY FORECASTING

IT teams can trust flexible capacity modeling to develop resourcing strategies and what-if scenarios around business demand. Advanced capacity modeling helps teams create and save multiple "what-if" scenarios and commit those capacity models to the analytics engine to influence future capacity calculations and alerts.
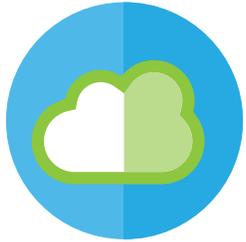
CLOUD PLANNING

Intelligent Operations provides cost transparency for private cloud resources, as well as across multiple public clouds to help optimize placement decisions. IT teams can evaluate the expenses of infrastructure in a private cloud environment and compare them to the cost of running the same workloads on other public cloud environments (e.g., Amazon Web Services or Microsoft Azure).

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Key Benefits of Intelligent Operations

OPERATIONAL READINESS THROUGH UNIFIED VISIBILITY

Intelligent Operations centralizes the management of SDDC components, providing confidence to fix issues fast with full line-of-sight visibility into applications to infrastructure health across the SDDC. It then extends these capabilities to multiple public clouds, providing a consistent operational experience.

SIMPLIFIED, PROACTIVE OPERATIONS AND BETTER AVAILABILITY WITH AUTOMATION

Intelligent Operations enables IT teams to avoid potential issues and simplify management by automating previously manual and unpredictable processes. IT staff can fully automate infrastructure and application performance—preventing disruption, proactively detecting, and automatically remediating issues and anomalies before they impact end users. IT teams can also rely on Intelligent Operations to streamline key IT processes while retaining full control of IT operations.

IMPROVED PLANNING, AND UTILIZATION

IT teams can trust Intelligent Operations to correlate operational and cost insights that accelerate cloud planning, budgeting, and procurement decisions, control costs, and reduce risk. They can optimize cost and resource usage through capacity management, reclamation, and right sizing while improving planning and forecasting.

We can monitor our whole environment. We can pull out metrics for our tenants and we can predict when we're going to have a problem. It helps us now instead of being reactive to be proactive."

– TONY MORSHED, CTO, CALIFORNIA NATURAL RESOURCES AGENCY

42%
REDUCTION
IN CAPITAL
EXPENDITURES

With **Intelligent Operations**, the California Natural Resources Agency sees a 42% reduction in capital expenditures, and 35% in operating expenditures, plus a 300% increase in data center capacity for scale and agility.

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Intelligent Operations: Investment Return

VMware commissioned Forrester Consulting to conduct a Total Economic Impact™ study[1] and examine the potential return on investment (ROI) enterprises may realize by deploying the tools within its vRealize Intelligent Operations solution. **The study found:**

QUICK TIME TO VALUE

119% ROI
3-month payback period

OPERATIONAL EFFICIENCY AND PERFORMANCE

75% reduction in unplanned downtime
as result of proactive actions and automation
10% reduction in hardware costs
through better capacity utilization
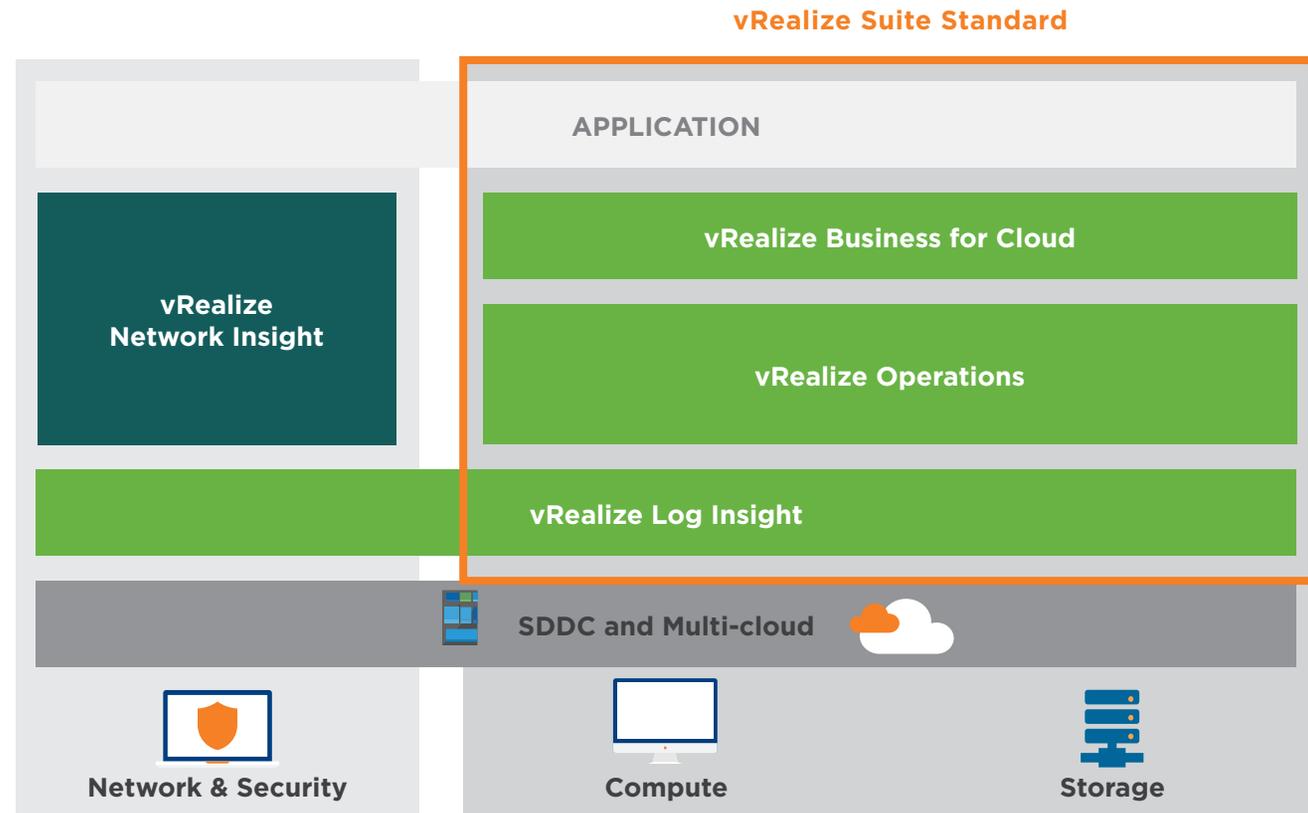
ACCELERATED DECISION MAKING

Correlating costs with operational metrics allows IT teams to justify their investment, make informed decisions about where to invest, and track costs back to specific departments.

FORRESTER STUDY[1]

1 Forrester Total Economic Impact Study. "The Total Economic Impact™ Of vRealize Intelligent Operations - Cost Savings and Business Benefits Enabled By VMware's Cloud Management Platform." Nov 2016.

Intelligent Operations from the Industry Leader

Intelligent Operations from VMware includes VMware vRealize® Operations™ integrated with VMware vRealize® Log Insight™ and VMware vRealize® Business for Cloud. It brings together all management functions—performance management, capacity, log analytics, cost analytics, planning, topology analysis, troubleshooting and automated workload balancing—in one integrated, highly intuitive, scalable, and extensible platform.

vRealize Suite Standard

APPLICATION

vRealize Network Insight

vRealize Business for Cloud

vRealize Operations

vRealize Log Insight

SDDC and Multi-cloud

Network & Security

Compute

Storage

Enterprises across industries recognize the benefits of Intelligent Operations from VMware

"

As we embark on our software-defined enterprise journey, our deployment with VMware enabled us to provide 24/7, always-on service with minimal server downtime and close to 100 percent service availability. Telkom Indonesia can now better serve the needs of our customers."

- SIHMIRMO ADI,
DEPUTY SENIOR GENERAL MANAGER
ISC TELKOM INDONESIA

"

We don't spend hours troubleshooting those miscellaneous problems that once came out of nowhere. With vSphere we've also been able to limit the number of systems we have to manage and that means less maintenance time spent on things like Windows patching."

- ROB FRILLING, INFRASTRUCTURE
TEAM LEAD AND SENIOR
VIRTUALIZATION ENGINEER, OSIS

"

"We've been able to find problems before they've caused downtime in our environments, which has significantly improved the relationship between developers and IT."

- JOEY COCO,
SENIOR VIRTUALIZATION ENGINEER,
CHOICE HOTELS

Organizations Innovating with Intelligent Operations by VMware

TELKOM INDONESIA is supported by an always-on data center with **99.99%** service availability and a high-performance level of IT operations.

DELL EMC improves workload placement, troubleshooting, and capacity planning to achieve optimized utilization of **80%.**

CHOICE HOTELS sees **100+** overprovisioned VMs reclaimed in the first few weeks.

ZEBRA TECHNOLOGIES improves visibility across multi-cloud environments in **a single pane of glass**.

UNIVERSITY OF NEW HAMPSHIRE can spot and correct problems **within minutes,** before any damage is done.

Take the Next Step to Intelligent IT Management

Only VMware provides intelligent operations management from applications to infrastructure to help customers plan, manage and scale SDDC and multi-cloud environments.

VISION AND LEADERSHIP to provide the most complete operations management platform

AUTOMATED AND PROACTIVE performance management to operationalize and scale SDDC and multi-cloud

SMART CHOICE for monitoring and troubleshooting SDDC and multi-clouds

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https://www.vmware.com/products/vrealize-operations.html

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