Solution Brief

# The Business Value of Cloud Management Platforms: VMware vRealize

Sponsored by: VMware

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## IDC OPINION

IDC expects that over 85% of enterprises will commit to multicloud architectures by 2018. These architectures will encompass a mix of public cloud services, private clouds, community clouds, and hosted clouds as well as traditional on-premises virtual and physical computing and storage infrastructure. Some of these organizations may focus on SaaS solutions for public cloud and rely on private or even noncloud on-premises infrastructure for other workloads. Other organizations will embrace a cloud-first strategy that aggressively shifts a wide range of workloads to the most appropriate mix of public IaaS, PaaS, and SaaS solutions available while continuing to support existing legacy systems as needed to enable mission-critical business requirements.

IT organizations not only will be asked to provide business users and developers with unified access to multiple cloud services but will also be expected to manage contracts, optimize spending, ensure SLAs, and maintain regulatory compliance. As the operational complexity of multicloud environments expands, business and IT decision makers will find great value in management processes and tools that can simplify operations, maintain end-to-end service levels, and ensure that resources adapt seamlessly to dynamic changes in workload, processing, storage, and network requirements. Particularly, among organizations that are implementing DevOps and big data strategies to support digital transformation, effective management of complex cloud environments will be critical to business success. Cloud management platforms offer an option for unified automation, monitoring, and analytics across multiple clouds.

Organizations that are developing multicloud strategies and considering the use of cloud management platforms should consider:

- **The depth and breadth of automation, monitoring, and analytics provided by the platform.** Most multicloud environments encompass a range of vendors, services, application architectures, and middleware. Effective cloud management platforms need to ingest data from many sources, integrate and orchestrate workflows, and provide clear actionable insight.
- **The usability of reporting engines, visualization, queries languages, and correlation analysis.** Complex cloud environments require robust discovery, dependency awareness, predictive analytics, and role-based insights. These cloud environments need to provide rapid value out of the box but allow for deep inspection and custom queries.
- **Value to the business.** Organizations should consider the extent to which the platform will provide value to the business by enabling developers and line-of-business (LOB) analysts to access resources, support DevOps, and provide insight into business performance and productivity.

This IDC Solution Brief provides insight for organizations looking to unify, automate, and proactively manage virtualized and cloud infrastructure and applications across on-premises and public cloud resources. It highlights VMware vRealize Suite, a comprehensive cloud management platform, as an example. IDC interviewed three organizations currently using a variety of VMware vRealize Suite capabilities to automate, monitor, and optimize their environments. These organizations are leveraging vRealize to increase their business agility, improve end-user service levels, and optimize the cost and performance of multicloud environments.

## DIGITAL TRANSFORMATION DEPENDS ON DEVOPS AND MULTICLOUD STRATEGIES

Digital transformation is accelerating as more and more enterprises work to create and innovate by taking advantage of cloud, big data, social computing, and mobility. These efforts can cover a wide range of initiatives. Some organizations may launch new mobile and web applications to engage with new types of customers using DevOps strategies to continuously integrate and deliver new capabilities. Others may invest aggressively in big data analytics and the internet of things to create new revenue streams. Still others embrace cloud computing architectures to improve business agility and flexibility.

Regardless of a company's specific digital transformation effort, the goal is almost always to fundamentally change the status quo by creating new revenue opportunities, expanding product and service offerings, and improving the productivity of business and IT staff. IDC's 2016 *CIO Sentiment Survey* found that revenue from digital products, digital channels, or digitally enabled operational improvements currently represents 27% of the business on average, with respondents expecting this percentage to rise to 33% in three years.

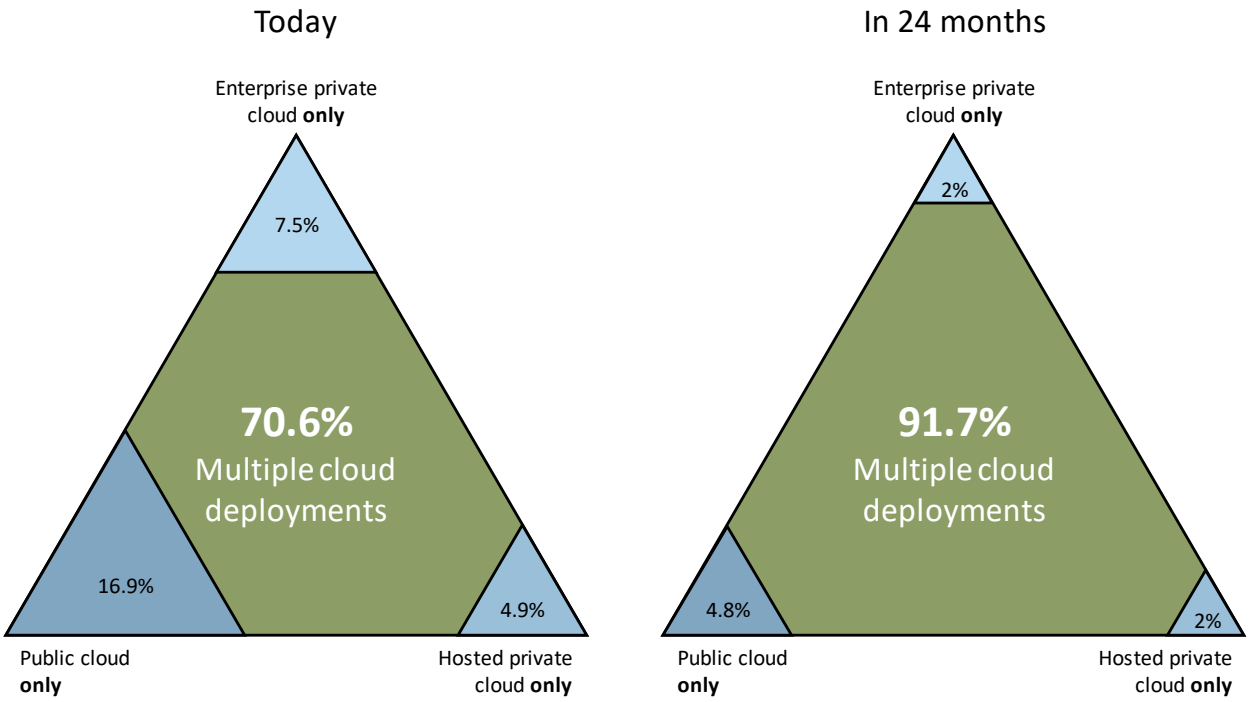
Essentially, today, every company is a software company and requires dynamic on-demand access to computing and development resources to stay competitive. DevOps teams can't wait for resources, and big data analysis needs large-scale computing power. These organizations also need to meet performance, security, and risk management requirements for both existing and new applications. For most organizations, multicloud strategies are a critical part of the digital transformation playbook.

IDC's research shows that in the near future, over 90% of enterprises plan to use hybrid, multicloud architectures to provide the type of cost-effective flexibility and scalability needed by today's digital transformation initiatives (see Figure 1).

## FIGURE 1

### Majority of Enterprises Implementing Multicloud Architectures

*Q. What percentage of your organization's total annual IT budget is allocated to each of the following procurement/management models?*




n = 6,159 worldwide respondents

Note: The data is weighted by GDP and company size.

Source: IDC's *CloudView Survey*, January 2016

Multicloud architectures frequently include some mix of dedicated on-premises private clouds, hosted or virtual private clouds, and one or more public IaaS, PaaS, and/or SaaS clouds. Traditional on-premises physical and virtualized infrastructure remains in the mix, and new infrastructure capabilities such as containers are being introduced as needed to improve operational effectiveness and scale.

These complex environments present IT operations and DevOps teams with new types of management challenges. Traditional IT management strategies and tools were designed for stateful applications that were tightly coupled to enabling infrastructure. However, today's virtualized, cloud, and container-based architectures no longer maintain such stable relationships with applications. The ability to deliver service levels and satisfy business demands for on-demand access to computing means that operations teams need to be able to proactively monitor infrastructure and applications, rapidly assess and remediate the root cause of any problems, and maintain consistent, approved configuration and user profiles. They must also reduce friction between departments and processes by taking full advantage of automation.

## BUSINESS VALUE ENABLED BY CLOUD MANAGEMENT PLATFORM AUTOMATION, MONITORING, AND ANALYTICS

Given the dynamic nature of today's digital, cloud-enabled architectures, many organizations find that a unified cloud management platform can be easier to implement and can provide greater business value than integrated cloud management strategies that depend on best-of-breed point solutions or community-based open source technologies. Rather than requiring a myriad of point-to-point integrations, cloud management platforms enable organizations to ingest data from a variety of sources, normalize the data around a common data model, and then apply query, reporting, and analytics using a consistent set of interfaces for performance and configuration management, log analysis, capacity planning, showback/chargeback, and provisioning and migration automation. Many platforms offer standard reporting and query templates out of the box and provide customizable role-based dashboards for IT operations, LOB analysts, and DevOps teams.

Some of the most important capabilities that allow cloud management platforms to contribute to business value are:

- Full-stack application and infrastructure automation using blueprints and templates to standardize and streamline application and infrastructure provisioning, configuration, and migration
- Self-service catalogs and orchestration technology to enable both IT staff and end users to initiate automation as needed (This is particularly important for enabling developers to set up and tear down test, dev, and staging resources as needed to keep up with continuous integration and delivery of DevOps programs.)
- Proactive performance monitoring and predictive analytics that allow IT teams to detect and remediate problems before they impact customers (Platforms must be able to ingest and analyze data from a wide range of sources and APIs and provide user-friendly graphics and visualizations to help IT staff quickly assess and respond to service-impacting events.)
- Cross-cloud visibility spanning heterogeneous on-premises and public cloud resource consumption and the ability to proactively predict when additional resources are required
- Accurate, timely cloud cost and capacity management, modeling, and forecasting to enable customers to optimize the cost of workload placement and cloud resource utilization

The most dramatic benefits associated with cloud management platforms are seen when customers pair advanced automation with robust monitoring, capacity planning, cost management, and log analytics to ensure that infrastructure is available when development teams and end users need it.

By scaling infrastructure and applications rapidly, deploying new functionality as soon as it is ready, and keeping up with changing business requirements, cloud management platforms can directly impact a company's ability to generate revenue and successfully engage with customers. IT staff and end-user productivity results come from the use of more standardized and consistent configuration and automations that reduce manual labor and downtime paired with proactive and predictive monitoring and analytics that detect emerging performance issues before they impact end users and help more rapidly identify and remediate the root cause of performance problems.

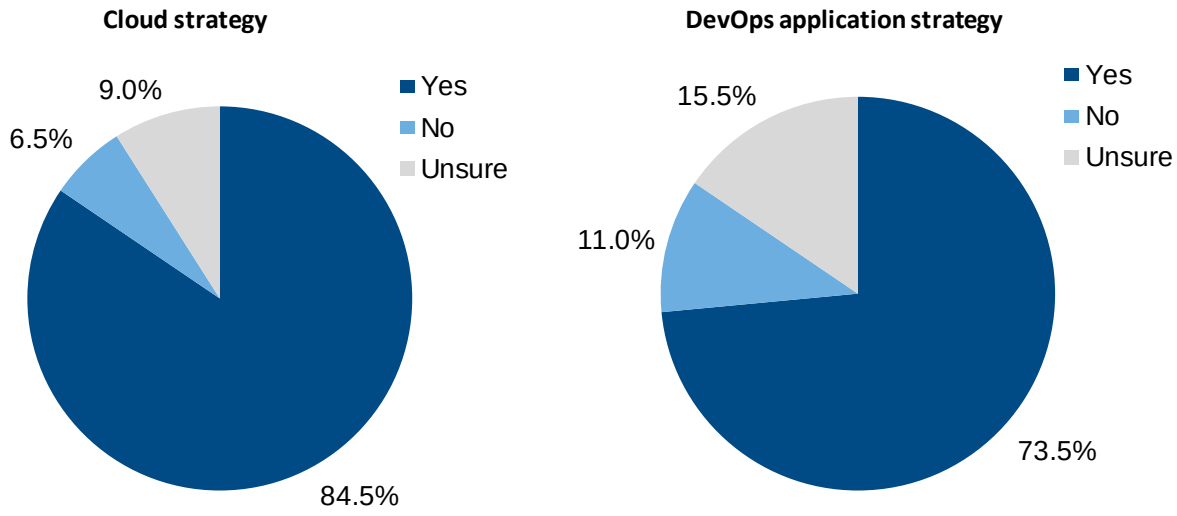
## NEW CLOUD MANAGEMENT CAPABILITIES REQUIRED TO SUPPORT DIGITAL TRANSFORMATION

IDC's research indicates that the majority of enterprises believe their cloud and DevOps strategies will require the purchase of net-new management functionality over the next two to three years (see Figure 2).

## FIGURE 2

### Net-New Management Functionality Required for Cloud and DevOps Strategies

*Q. Will your organization require the purchase of net-new management software or SaaS solutions to supplement or replace existing solutions by 2020 due to …?*




n = 200

Source: IDC's *Enterprise Cloud and DevOps Management Survey,* July 2016

Cloud management platforms offer customers a range of integrated automation, monitoring, planning, and analytics to optimize workload performance, IT costs, and business agility across multiple clouds. IT decision makers emphasize that much of the power of cloud management platforms comes from avoiding data and process silos that are common with point solutions and open source tooling. The ability of platforms to normalize and correlate data and integrate process flows can enable enterprises to more effectively manage and optimize complex multicloud environments.

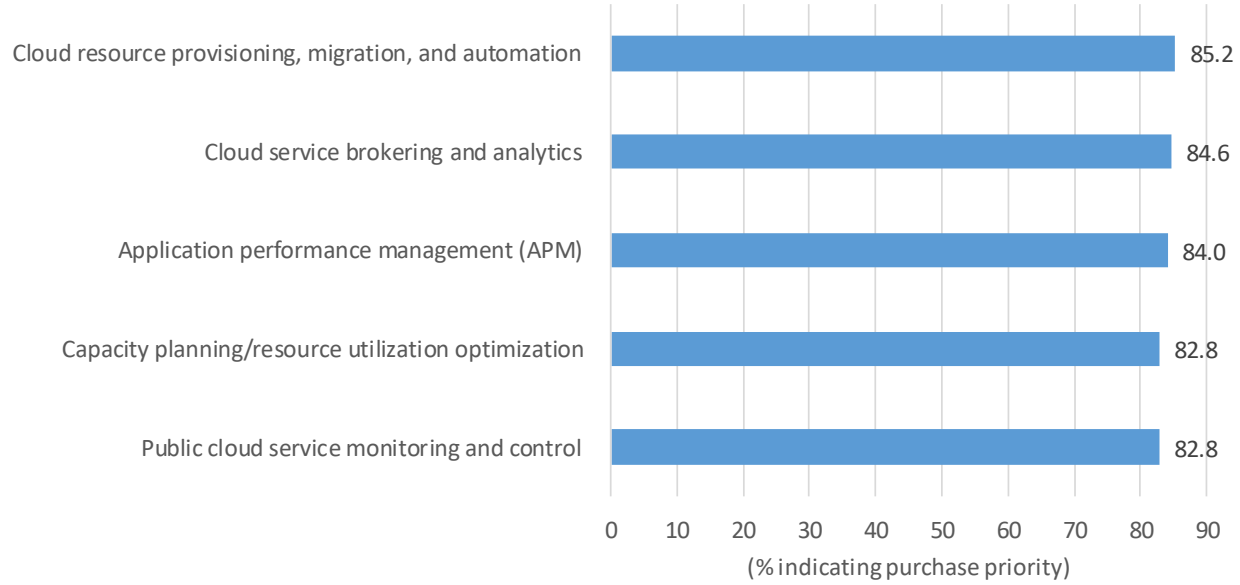
Cloud management platforms must be proactive, predictive, and aware of workload performance and capacity demands across on-premises and public or hosted cloud infrastructure. These platforms must integrate with existing management processes and tools and provide operations, development, and LOB analysts with user-friendly, role-based insight into service levels, availability, resource utilization, and control over provisioning and configuration.

IDC's research indicates that automation, analytics, capacity planning, and visibility into public cloud service costs and SLAs are typically the top priorities (see Figure 3). IDC also expects that support for containers, microservices, and DevOps programs will become increasingly important.

## FIGURE 3

### Top 5 Enterprise Cloud Management Priorities

*Q. What are your current functional priorities in terms of purchasing net-new management solutions to support cloud from now to 2020?*




n = 169

Base = cloud users that expect to need new management solutions for cloud

Source: IDC's *Multicloud Management Survey,* July 2016

Because cloud management platforms can provide such a broad range of functionalities, many organizations opt to initially implement one or two specific functions across specific workloads or user groups and then expand the use of these functions over time as business requirements demand.

## VMWARE CLOUD MANAGEMENT PLATFORM RESPONDS TO BUSINESS NEEDS

VMware vRealize Suite provides IT operations and DevOps teams with a unified full-function platform for managing cloud infrastructure and application provisioning, monitoring, capacity planning, cost management, and analytics functions across VMware and third-party public clouds including Amazon Web Services (AWS) and Azure. The suite includes:

- vRealize Automation supports full-stack application and infrastructure blueprint design and template-driven provisioning via the vRealize service catalog, allowing IT operations teams to configure and deploy VMs and enabling infrastructure across on-premises and public cloud. It includes out-of-the-box support for public clouds such as AWS, VMware vCloud Air, and Microsoft Azure to provide unified service blueprints for the delivery of integrated multitier applications including networking and security.
- vRealize Log Insight provides log management, analysis, and alert management functionality via a modern, easy-to-navigate user interface.

- vRealize Operations supports monitoring and alert management across virtualized and container-based infrastructure delivered via customized persona-based dashboards that span infrastructure, developer, and cloud management roles.
- vRealize Business for Cloud provides cloud costing, capacity planning, and consumption reporting including the ability to compare the cost of private versus public cloud alternatives.

VMware has committed to broad-based support for emerging infrastructure technologies such as Docker-style containers and microservices application architectures. Recent updates to vRealize Automation allow developers to build and deploy hybrid container and VM applications using vRealize or Docker Compose. The updates also include integrations with VMware Integrated Containers (VIC) using Admiral to ensure proper container placement, multi-container application deployments, and container management. Most of these enhancements are currently in private beta testing. This functionality is particularly targeted at organizations that want to modernize existing applications with microservices and support deployments into cloud-based architectures.

vRealize is available in three editions. Each edition permits full license portability for vRealize products across multivendor on-premises resources and supported public clouds. Specifically, the three editions are:

- **vRealize Suite Standard Edition** focuses on providing monitoring, analytics, and business management for hybrid clouds. It includes vRealize Operations Advanced with hybrid and software-defined datacenter monitoring, Log Insight for log analysis, and vRealize Business for Cloud Standard, which offers cloud costing and consumption reporting along with the ability to compare the cost of private versus public cloud alternatives.
- **vRealize Suite Advanced Edition** targets organizations that want to automate IaaS cloud environments; the Advanced Edition adds vRealize Automation Advanced to support automated infrastructure provisioning and life-cycle management. It also adds the cloud business planning capabilities provided by vRealize Business for Cloud Advanced.
- **vRealize Suite Enterprise Edition** focuses on the needs of DevOps teams by adding the application blueprint automation capabilities of vRealize Automation Enterprise Edition and the application monitoring functions provided by vRealize Operations Application Monitoring.

All vRealize editions are designed to support heterogeneous multivendor and multicloud environments regardless of whether they rely on vSphere for core infrastructure. IDC ranked VMware as number 1 by revenue for cloud management in 2015, with revenue estimated at $646 million.

## BUSINESS BENEFITS OF THE VMWARE CLOUD MANAGEMENT PLATFORM

IDC interviewed three VMware customers using the vRealize Suite as their cloud management platform to understand the types and scope of business benefits organizations can achieve with the suite. These interviews were conducted with the following individuals:

- Sunny Nair, Vice President of IT at Revionics, a SaaS-based provider of retail pricing, promotion, markdown, and space management analytics used by retailers to drive demand and revenue growth
- Chris Butler, Senior Systems Administrator at Rochester Institute of Technology (RIT), a major university located in Rochester, New York
- The Director of Service Design and Development at a healthcare managed service provider

Each organization started the use of vRealize in a different place based on the specific digital transformation needs of the organization. Immediate business benefits included improved infrastructure service availability, faster provisioning, and more cost-effective use of cloud services. Each organization has a long-term vision to extend the use of vRealize across a wide range of use cases in order to improve business agility, service levels, and time to value. Specifically, their collective experiences demonstrated how the VMware Cloud Management Platform delivers business value in a number of ways, which are described in the sections that follow.

## Improved Customer and End-User Satisfaction and Service Levels

Cloud management platforms provide robust automation to standardize and streamline application and infrastructure provisioning, resulting in more rapid availability of end-user services and more flexible scaling of resources as needed by changing business requirements. Proactive monitoring and predictive analytics allow IT teams to detect and remediate problems before they impact customers, which means service levels are more consistent and end-user satisfaction is higher.

## Faster Time to Market and Revenue

Cloud management platforms can monitor on-premises and public cloud resource consumption and proactively predict when additional resources are required. Automated onboarding and application deployment and support for continuous DevOps integration and delivery combine to speed new services and applications to market. Particularly, for organizations that derive significant revenue from online services and mobile applications, this can have a significant impact on time to revenue.

## Improved IT Staff, Developer, and End-User Productivity and Skill Utilization

Digital transformation, DevOps, and cloud all drive more frequent and complex changes across corporate IT environments. Traditional manual processes are too slow and error prone to support the rapid rate of change seen today. Cloud management platform automation, self-service engines, orchestration technologies, and blueprint design systems enable IT organizations to focus limited staff on getting the template design correct the first time and then rely on automation to manage deployments and changes consistently. Similarly, more sophisticated monitoring and analytics allow limited staff to find and remediate problems much more quickly than they could with traditional approaches, freeing staff to focus on more strategic initiatives. With higher application and infrastructure availability, developers and end users can focus on their jobs rather than waiting for resources.

## Greater Business Flexibility and Ability to React More Rapidly to Changes

Cloud management platforms can monitor and detect changes in resource utilization and can pinpoint the best location for specific workloads based on cost, security, and performance. When paired with automated provisioning and migration capabilities, this type of analysis allows organizations to scale resources, react to rapid business changes, and maintain optimal cost and performance levels.

## Direct Cost Savings from Better Workload Placement and Improved Staff Utilization

With improved visibility into cloud infrastructure costs, performance, and availability, IT organizations are in a better position to use and reclaim resources as needed, migrate workloads to the optimal resource, and focus staff on the highest-impact problems and end-user requests. The resulting improvements in staff productivity and reductions in the cost of infrastructure can be substantial for many organizations.

## Revionics Uses vRealize to Reduce Costs While Increasing Customer Satisfaction and Service Levels

Revionics is a SaaS-based provider of retail pricing, promotion, markdown, and space management analytics used by retailers to drive demand and revenue growth. The company uses vRealize Business and vRealize Operations to optimize the cost and capacity utilization of workloads running across on-premises and public cloud IaaS environments including vCloud Air and AWS datacenters.

Revionics uses vRealize Business to monitor server and storage usage and optimize resource consumption across 800 to 1,100 VMs at any given point in time. This analysis is being used by internal IT operations teams to improve decision making about where to deploy different types of workloads. vRealize Business provides detailed insight into the cost of different public cloud services and on-premises assets and is credited with helping Revionics achieve 20% cost savings for datacenter infrastructure without any loss of end-user performance levels.

**"Revionics achieved 20% cost savings for datacenter infrastructure while maintaining SLAs, improving customer satisfaction, and accelerating time to revenue." — Sunny Nair, vice president of IT at Revionics**

More recently, Revionics has deployed vRealize Operations to improve capacity planning and service-level availability. The predictive monitoring and alerting provided by vRealize Operations provide the operations team with a forward-looking perspective on when existing resources will be exhausted and allow the team to more proactively plan to bring new in-house resources on board or get approval for expanded public cloud usage. As a result, the company has almost totally eliminated applications crashes because of lack of computing or storage resources. Uptime has improved a significant 0.05%, and problems are resolved much more quickly than was previously possible. Sunny Nair, vice president of IT, reports that many high-impact programs are being detected, diagnosed, and remediated in half the time previously required.

The use of vRealize to monitor and optimize Revionics' revenue-generating infrastructure resources has become mission critical in a number of ways, including:

- Maintaining contractual SLAs and controlling the cost of business operations
- Increasing customer satisfaction and accelerating time to revenue
- Enabling consistent scaling and provisioning of cost-effective infrastructure and meeting changing business demands

In an industry where demand for pricing and demand generation services can vary widely based on seasonality, vRealize directly improves customer support and satisfaction and accelerates time to revenue. The use of predictive monitoring and capacity management means that Revionics never has to wait for computing resources and can activate new customers — and begin to recognize revenue — almost instantly. In the future, the company expects to expand the use of vRealize to include automation of many infrastructure configuration and provisioning activities to provide an even more streamlined operational environment and further speed up time to market.

## Rochester Institute of Technology Improves Academic Computing Performance and Agility with vRealize

Over the past several years, Rochester Institute of Technology has worked to improve collaboration between central IT and over 20 distributed IT groups. A key element of this strategy has been to implement a shared computing and IT infrastructure environment for use by all groups. This has allowed RIT to move to two- and three-year hardware refresh cycles compared with previous five- and six-year cycles. It has also dramatically improved academic computing performance and availability.

The vRealize Suite has been an important enabler of these initiatives. Specifically, RIT uses vRealize Operations to analyze computing usage, identify underutilized resources, and proactively manage infrastructure capacity usage across 1,200 servers. RIT also uses vRealize Log Insight to analyze and correlate logs generated by thousands of VMs running across the university. The combination of these two products has had a significant positive impact on the university's overall application and infrastructure performance levels.

RIT is currently piloting the use of vRealize Automation and vRealize Orchestrator to enable self-service lab computing infrastructure provisioning. The concept has been demonstrated in support of a national security software hackathon sponsored by the university that saw dozens of developer teams take advantage of on-demand computing resources on a single day. RIT used predefined full-stack blueprints and the vRealize Self-Service Catalog to enable these teams to provision, scale, and tear down computing as needed to support the hackathon. The vRealize Automation hackathon pilot reduced the time needed to configure and provision complex, high-performance academic resources by one-third, saving hundreds of man-hours in comparison to the prior year's much more manual effort — even as the number of participants increased. Over time, RIT plans to implement a production-quality self-service catalog to enable IT staff, web developers, and database administrators to provision resources on demand.

Chris Butler, senior systems administrator, explains that the business benefits of vRealize are substantial. Specifically, he points to:

- Improved availability and uptime because of better capacity planning and rapid identification of the root cause of performance issues, often reducing the MTTR from over a day to under an hour
- Improved academic and research flexibility by allowing the IT team to more quickly fulfill the computing needs of developers and academic users
- Capital cost savings found by reducing physical server footprint and better utilizing computing resources

**"The business benefits have been substantial. RIT has seen improved uptime, greater academic and research flexibility, and measurable capital cost savings." — Chris Butler, senior systems administrator at Rochester Institute of Technology**

As RIT continues to build out its full shared services computing environment, the IT operations team believes that vRealize will continue to provide important enabling technology to improve the productivity and end-user experience of students, faculty, administrators, and developers.

## Healthcare Managed Service Provider Relies on vRealize to Accelerate Time to Market

A healthcare managed service provider (MSP) relies on vRealize Automation, in conjunction with vRealize Orchestrator, to automate the provisioning and scaling of computing and network infrastructure used by 3,000 IT operations and developer employees to create, test, deploy, and operate the company's managed service delivery platform.

The healthcare MSP is in the process of standing up a new generation of highly automated managed service delivery datacenters using both dedicated and multitenant resource configurations. It has chosen to use vRealize Automation as a core enabler of processes that automates the initial configuration and onboarding of customer-specific computing and network resources. To date, the company has used vRealize Automation to support initial onboarding of about five customers, but over time, it expects to scale up to using vRealize Automation to automate the onboarding of more than 150 customers, collectively using tens of thousands of VMs. The healthcare MSP has a long-term goal to become a cloud service provider capable of automating up to 80% of provisioning, configuration, and scaling activities across the new datacenter environments.

**"By reducing the variability of our environment, the company has improved time to market and is able to provide a more reliable end-user experience." — Director of Service Design and Development, Healthcare MSP**

Initial blueprinting efforts have focused on the design of about 30 infrastructure and application blueprints for use with the initial group of customers. Eventually, the healthcare MSP expects to manage a service catalog containing hundreds of customer-specific blueprints as well as a set of more standard internal infrastructure templates.

The use of vRealize Automation has significantly improved time to market and time to revenue for the MSP. The company is seeing a number of business value benefits, including:

- More consistent and reliable end-user experience because of consistent configuration and enforcement of configurations standards
- Faster time to value as the company can now onboard and provision new customers in a fraction of the time previously required
- More efficient use of IT operations staff by focusing on subject matter expertise and value-added activities on the initial, one-time design or blueprints rather than the constant manual configuration and deployment of individual customer infrastructure resources
- Greater flexibility and scalability to support customers' changing requirements across seasons and business changes
- Competitive differentiation by creating a platform for rapid and continuous delivery of new features and functions that provide a more efficient and consistent end-user experience

By reducing the variability of the environment and standardizing configuration, the healthcare MSP is able to better support continuous integration of DevOps and minimize outages and performance problems because of configuration drift and human error. This results in higher service levels, more efficient operations, and faster time to revenue.

## THE FUTURE OF CLOUD MANAGEMENT

Multicloud architectures will increasingly dominate enterprise IT strategies in the coming years. IT buyers are shifting steadily toward cloud-first strategies, and nearly all are recognizing the need for more automated, integrated, and analytics-driven solutions for managing complex hybrid and multicloud environments. Seamless workload portability and automated migration, facilitated by open APIs and container technologies, will allow enterprises to quickly shift new or modernized workloads across multiple cloud options with limited downtime or service-level impacts.

As more and more enterprise workloads are deployed onto some type of cloud, IT organizations will be asked to help their organizations make better choices about which workload goes where. Early experimentation with independent developer and business unit selection and management of cloud resources has created expensive and competing cloud silos that can be difficult to bridge. With the majority of enterprises committed to multicloud strategies, it becomes mission critical to be able to effectively evaluate the needs of individual workloads and consider the available cloud options in terms of cost, performance, security, and contractual agreements.

Once the workload is deployed, the health, security, and performance, as well as the resource consumption, of the workload need to be administered and monitored. IDC believes that by 2017, the level of production workloads deployed into clouds will have forced at least 60% of enterprise IT teams to purchase net-new workload-aware cloud management solutions. Enterprises will seek out solutions to monitor, model, and predict the health, security, and performance of the workload and maintain SLAs using automation and orchestration to scale, migrate, patch, and update applications as needed.

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