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Managing IT operations in the real world: how customers use vRealize to drive data center efficiency

Introduction

IT operations are in crisis. Driven by digital transformation, demands from the business keep growing. Yet as budgets fall or flatline, the classic siloed architecture of most data centers limits the extent to which IT operations can respond. It's becoming increasingly necessary to take complexity out of the system: to automate our way toward the kind of agility that organizations so desperately need.

Our discussions with customers suggest three broad use cases for automation in the data center. It's important to note that although these approaches tend to follow one another in sequence, they don't necessarily need to be taken sequentially.

Typically, what we describe as the journey to agility starts with a relatively high level of virtualization (described in the graphic below as "managed virtualization"). At this point, IT benefits primarily from significant savings in capital expenditure (CapEx), primarily generated by much higher rates of efficiency in server utilization. However, configuration and provisioning remain primarily manual. Automation largely exists in the form of fragmented scripts. Beyond the overwhelmingly manual process of Day 1 configuration and provisioning, monitoring the environment can be challenging because of a proliferation of point monitoring solutions. These can result in "alert storms" during which diagnosis of problems becomes difficult. failure. For IT organizations, the ability to manage complexity has become one of the key challenges of the digital era.

Begin your journey to agility >

Use Case 1: Intelligent Ops

In Use Case 1 of the automation process, IT develops an approach we describe as "intelligent operations". The focus here is on meeting service level agreements for performance, quality and security. The key issue is the need to develop a unified view across infrastructure as a whole, including compute, network and storage.

Use Case 2: Automated IT

In Use Case 2, IT now automates the delivery of infrastructure resources. It's possible to automate many of the tasks involved in the context of a traditional ticket-driven provisioning process. Alternatively, IT organizations can allow developers to configure and provision their own infrastructure (at which point, IT is effectively providing infrastructure-as-a-service, or IaaS). Previously, provisioning might once have taken admins three or four weeks. With full automation, the job can be done in minutes.

Use Case 3: DevOps-Ready IT

In Use Case 3, the focus is on speeding up the delivery of applications and making development teams as productive as possible. Typically, IT begins to deliver complete application environments on request to developer teams. Governance and control is achieved via background processes that don't disrupt the productivity of developers. Finally, Operations and development teams can extend the scope of automation to start to include continuous delivery and continuous integration.
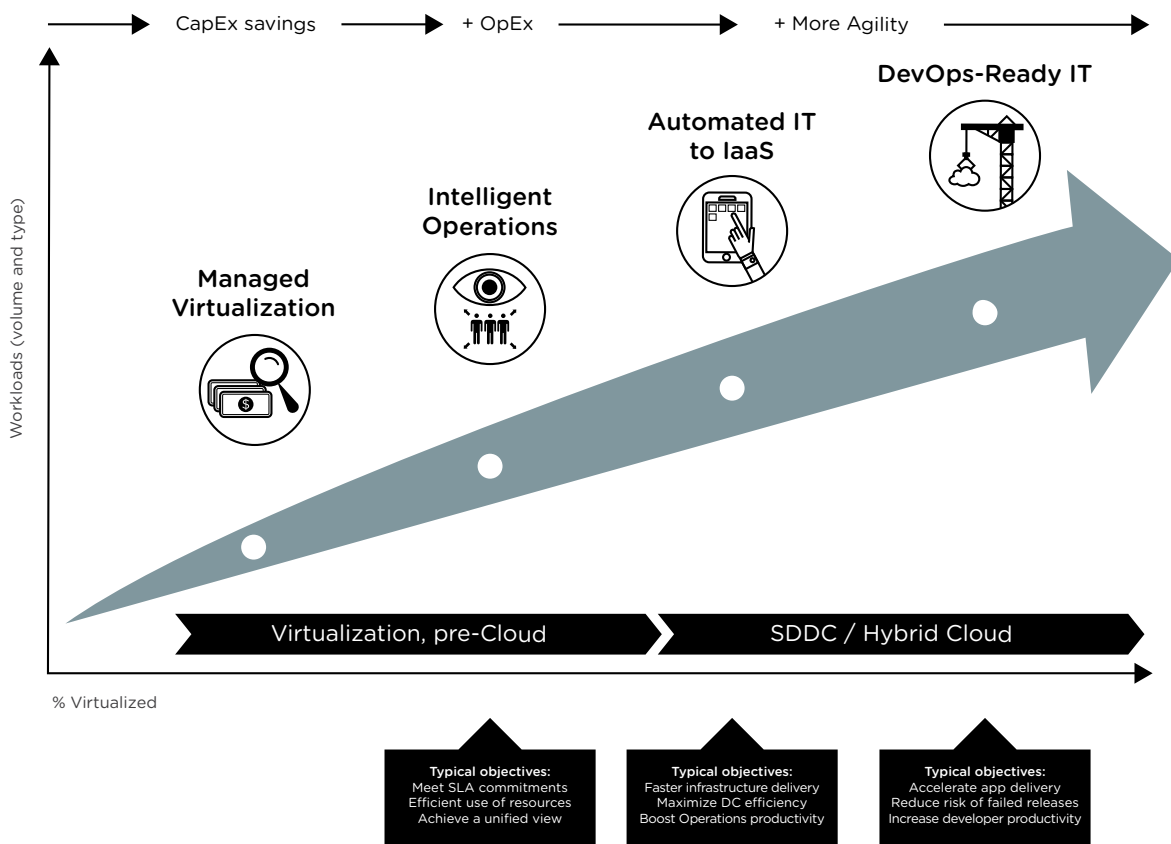
Figure 1. The journey to agility: how IT organizations approach operational automation

vRealize and the journey to agility

VMware vRealize Suite is a cloud management platform (CMP) that helps IT Operations to automate the running of modern, heterogeneous, computing environments. By replacing multiple incompatible point solutions with a single pane of glass, vRealize Suite greatly simplifies provisioning, management and planning. Ultimately, vRealize Suite opens up the prospect of making the transition to a new way of operating, in which accelerated development and deployment of applications becomes the norm, rather than the exception.

VMware's CMP is the industry's most complete solution, giving you the ability to provision and manage compute, storage, network and application services across private and public clouds, with the ability to manage both VMware vSphere and non-vSphere hypervisors.

▸ **Day One: Provision compute, storage, network and application resources quickly using blueprints that embed both automation and related operating policies.**

▸ **Day Two and beyond: Monitor and manage the health and performance of those resources across physical, virtual and cloud environments and understand and manage the cost of both public and private cloud resources**.

vRealize Suite is available in three editions that broadly correspond to the three cases for automation in IT Operations: Standard, Advanced and Enterprise.

	vRealize Suite **STANDARD**	vRealize Suite **ADVANCED**	vRealize Suite **ENTERPRISE**
Application monitoring For applications, middleware and databases			✔
Application automation App stack provisioning, dynamic scripting, app-centric network and security configuration			✔
Infrastructure automation API-based service catalogue: IaaS & XaaS provisioning, lifecycle management		✔	✔
Cloud planning Forecast the costs of adding capacity & savings from reclamation		✔	✔
Cloud costing & comparison Analyze and optimize cost and usage: virtual, private and public cloud	✔	✔	✔
Log analytics for SDDC Deep visibility: extensible, intuitive, scalable	✔	✔	✔
SDDC monitoring for hybrid cloud Predictive analytics, smart alerts, intelligent workload placement	✔	✔	✔

Figure 2. The three editions of vRealize Suite: Standard, Advanced and Enterprise

Use Case 1: Making IT operations intelligent

Applications play a vital role in the digital economy, yet managing them has become more complex than ever. Workloads have become increasingly dynamic. The amount of resource that needs to be managed continues to grow. The rise of the hybrid cloud has brought operational complexity with it.

To manage infrastructure across virtual, physical and cloud environments, IT professionals need solutions that streamline time-consuming manual processes. They also need a way to handle the massive quantities of monitoring data generated by heterogeneous infrastructure.

vRealize Suite Standard offers the ability to address these challenges. Across multiple heterogeneous environments, vRealize Suite Standard allows you to:

▸ **Proactively solve performance issues.**

▸ **Continuously monitor and manage capacity.**

▸ **Streamline processes with customizable policies, guided remediation and automated enforcement of standards.**

▸ **Understand the cost and consumption of private and public cloud.**

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[1] VMware, "Study Shows Businesses Experience Significant Operational and Business Benefits from VMware vCenter Operations Management Suite" (2014)

Taking virtualization to a new level

> "A key advantage resulting from the additional visibility... is increased IT administrator confidence. With [vRealize], IT can more aggressively leverage its physical infrastructure. In problem management, capacity planning, change management, application dependency mapping, multi-hypervisor management, and many other areas, [vRealize] customers reveal far better capabilities than those that have not deployed."
>
> Management Insight (2014)

VMware commissioned Management Insight to survey 190 customers, all of whom had VMware's virtualization platform vSphere deployed inside their organizations. Of these customers, 73 had also deployed vRealize to help them manage IT operations. The survey asked both sets of customers — those who used vRealize and those who did not — to quantify the operational benefits generated by either vSphere alone, or the combination of vSphere and vRealize Suite Standard operations capabilities.[1]

The customers who had deployed VMware's vSphere saw substantial efficiency gains across a wide range of metrics, from the overall cost of infrastructure management to the time spent on managing trouble tickets.

However, supplementing vSphere with vRealize Suite Standard operations capabilities took these efficiency gains to a new level. For example, vSphere-only customers on average reported a 44% decline in the cost of managing infrastructure. But among those customers using virtualization and vRealize to manage it, the cumulative improvement in management costs was 93%. In other words, the combination of virtualization and management tools was responsible for reducing operational costs to more than half of their previous level.

The savings generated by deploying vRealize were so substantial that over half of the customers who had deployed it described achieving a value in excess of the cost of deployment within six months.
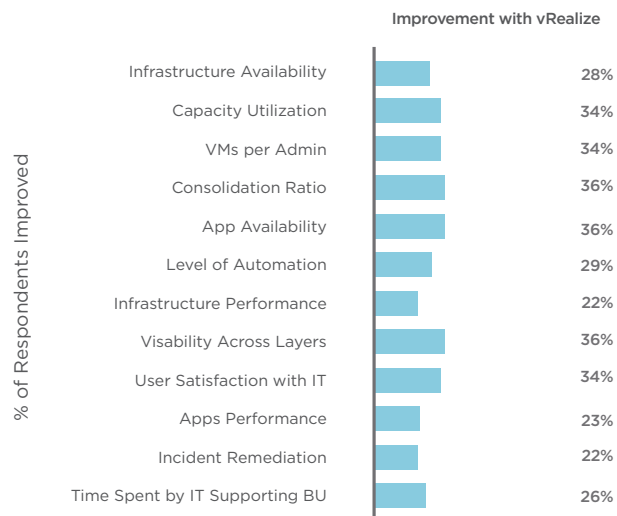
Improvement with vRealize

	% of Respondents Improved
Infrastructure Availability	28%
Capacity Utilization	34%
VMs per Admin	34%
Consolidation Ratio	36%
App Availability	36%
Level of Automation	29%
Infrastructure Performance	22%
Visability Across Layers	36%
User Satisfaction with IT	34%
Apps Performance	23%
Incident Remediation	22%
Time Spent by IT Supporting BU	26%

Figure 3. KPI improvements from deploying vRealize Suite Standard Edition in a vSphere environment (Source: Management Insight)

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[1] VMware, "Study Shows Businesses Experience Significant Operational and Business Benefits from VMware vCenter Operations Management Suite" (2014)

Case study: intelligent operations at Cox Automotive

IT teams in every industry are under pressure to centralize and optimize operations so they can do more with less. That's certainly the case at Autotrader.com, part of the $18bn-turnover Cox Enterprises, one of the largest media companies in North America. Autotrader's business is advertising: every month, 14m car buyers consult the site to examine an average of 3m vehicle listings. At any one time 40,000 dealers and 250,000 private owners are selling vehicles on the site.

Autotrader's Atlanta-based IT team manages a number of data centers across the United States. The company's environment is approximately 75 percent virtualized, with more than 5,000 employees supported on approximately 13,000 virtual machines. Although centralized management offers obvious advantages in efficiency and cost, IT team members often found themselves with limited visibility into far-flung systems.

"We didn't have a clear, comprehensive view into key performance metrics," says Chris Nakagaki, lead virtualization architect at Autotrader.com. "That made it difficult to determine true capacity, so allocation was often a bit of a guessing game." The IT team also lacked a solid solution for handling log management and analysis. As a result, troubleshooting performance issues often required a laborious search through log files, with precious IT resources redirected in an effort to locate the proverbial needle in the haystack.

After considering a number of cloud management platforms, the IT team opted for vRealize. Today, Nakagaki and his team can proactively manage system performance, troubleshoot issues before they affect the business, and achieve a whole new level of business insight to help ensure optimal workloads. "We don't need to manually track performance metrics in spreadsheets anymore," Nakagaki says. "vRealize shows us what's happening in our environment, precisely as it's happening. This technology is able to marshal huge amounts of data to inform real-time metrics, all presented in a single pane of glass."

With faster access to deeper insights delivered by vRealize, IT staff are now able to allocate resources without overburdening the system. "We're definitely driving up our consolidation ratios," says Nakagaki. "Before VMware, we tended to hover around 8:1, but now it's fairly normal for one of our development clusters to be at 60:1, and sometimes as high as 120:1."

"I do far less manual work these days," Nakagaki adds. "I spend more time engineering solutions and more time acting as a service provider rather than an IT roadblock. And VMware is enabling me to do that."

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> Chris Nakagaki
> Lead Virtualization Architect
> Autotrader

vRealize Suite: rapid value delivery

Less Than 1 Month	8%
1 Month to Less Than 3 Months	22%
3 Months to Less Than 6 Months	23%
6 Months to Less Than 12 Months	12%
12 Months or More	10%
Don't Know	25%

Figure 4. Time to value for customers deploying vRealize Suite Standard Edition to manage operations

Use Case 2: Automation

Moving to the cloud typically results in a substantial increase in complexity. At the same time, the rise of public cloud has raised expectations among developers and line of business managers: increasingly, they expect internal IT teams to respond with the kind of speed they encounter when using resources from public cloud providers. These expectations are frequently accompanied by the threat that dissatisfied internal customers will defect to the public cloud, exacerbating the challenge of shadow IT.

Configuration and provisioning is a traditionally slow process, involving multiple teams within IT Operations (compute, network, storage and others). The key issue for IT Operations is how to move beyond a state in which automation is partial and fragmented, typically based around scripts and standalone configuration tools.

With vRealize Suite Advanced, it's possible to define how far you want to go. With vRealize Suite Advanced, you can:

▶ **Embed automation and policy within blueprints, allowing production-ready infrastructure to be stood up in minutes rather than weeks.**

▶ **Right-size, reclaim or retire already provisioned resources in order to maximize capital expenditures.**

▶ **Continuously monitor the health, performance, capacity and costs of already provisioned resources.**

As we'll see in the following case studies, automation profoundly changes the way in which IT operates, and, as a consequence, IT's relationship with the business.

vRealize: real-world benefits

Research conducted by Taneja Group among 300 IT professionals in VMware customer companies worldwide highlights just how effective the automation of application and infrastructure delivery can be. On average, Taneja Group found that organizations using the automation capabilities of vRealize Suite Advanced generated:[2]

▶ **A 40% reduction in provisioning time**

▶ **Almost 70% improvement in productivity**

▶ **Between 25-40% greater IT responsiveness to user requests**

2 Taneja Group, Automating Application and Infrastructure Delivery in a Growing Enterprise (2015)

Traditional provisioning: 4-6 hours of work spread over 3-4 weeks
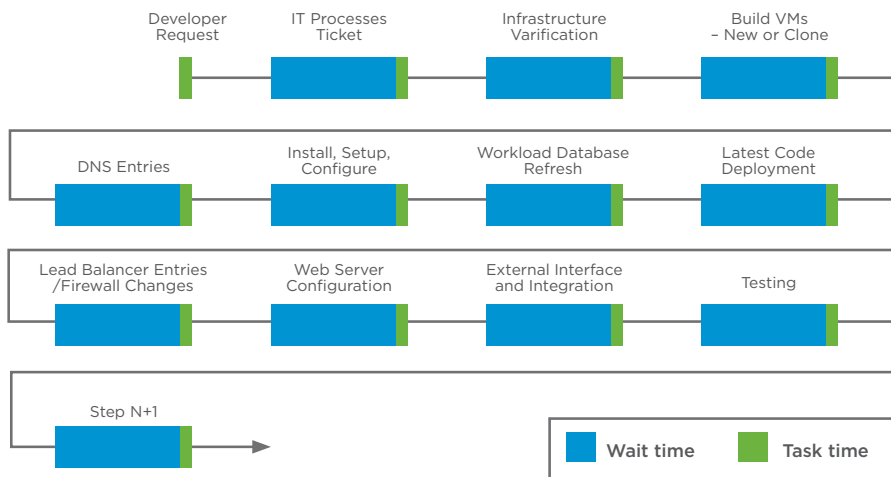
Figure 5. Pre-automation provisioning: manual tasks, organizational silos, multiple hand-offs

Case study: a software-defined roadmap

Columbia Sportswear provides customers with outdoors apparel and footwear, and sells to customers online and in retail outlets located in in over 100 territories worldwide. In 46 of those locations, the company operates some kind of infrastructure.

Unsurprisingly, Columbia Sportswear places a premium on its ability to manage these far-flung technology assets to best effect. Tim Melvin, the company's director of global technology infrastructure, describes the company's strategy for software-defined data centers as a "game-changer". Says Melvin: "Managing cloud assets today, it's not really about whether they are on-prem, in a private cloud or hybrid cloud. It's about understanding and having the confidence you can manage those assets wherever they are."

vRealize is a crucial part of that strategy. Columbia Sportswear has automated configuration and provisioning to a significant degree. "More and more, we're seeing hardware becoming code, we're seeing infrastructure as code," says Melvin. "And we're seeing automation become more necessary to deliver the efficiencies and values we need."

By automating repetitive tasks, vRealize allows Columbia's IT staff to turn their attention to satisfying the business. The benefits are clear. "VMware's vRealize Suite gives us the ability to understand our landscape, to understand our workflows, to provide the correct profiles and security for the people working in those environments," says Melvin. "It gives us the tools that we need to deliver the components and building blocks that drive our automation to the people that are consuming them."

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Tim Melvin
Director of Global Technology
Columbia Sportswear

Case study: self-service in Saudi Arabia

King Abdulaziz City for Science & Technology's Internet Services Unit (ISU) has the job of providing Internet and IT Services to educational institutions and the wider public sector in Saudi Arabia.

ISU needed to build a reliable, secure, scalable public cloud service for its end users. ISU was able to satisfy this requirement by deploying VMware NSX for network and security virtualization and VMware vRealize to automate creation and delivery of infrastructure and applications. ISU's requirements included a unified IT service catalogue to deliver infrastructure-as-a-service (IaaS), with the potential to provide platform-as-a-service (PaaS) and software-as-a- service (SaaS).

At ISU, vRealize now provides automation, workflows and a unified service catalogue. End users access the data center directly and securely through an automated portal, where they can build automated multi-tier applications with the underlying networking and security automatically provisioned.

"After evaluating the success rate post deployment, we have realised that we are able to deliver new services to customers within an hour, which used take from 4 days up to 3 weeks. This enables our team to spend more time on less manual tasks, not to mention invest in new projects," said Abdulmajeed Al-Osaimi, systems and development manager at ISU.

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>
> Jonathan Bowman
> CTO
> MyFinity

Case study: smarter global payments

MyFinity, a global payments provider headquartered in Dublin, offers payment solutions to businesses, transferring money on behalf of major card networks and banks around the world. Two years ago, the IT team realized that, in order to support the growth plans of its management team, it had to make changes. The company's development and operations teams worked in separate siloes, which meant that the company wasn't reacting to market changes as quickly as it could. Getting systems up and running was causing delays in deployments. Often, IT had to ask sales to reduce activity levels because existing systems couldn't keep up keep up with demand.

"We ultimately had to find a way to process more transactions per second so that, when customers come in with big orders, they know that our systems will be able to handle this and process everything seamlessly and without delay," says Jonathan Bowman, CTO, MyFinity. Today, MyFinity has a stable infrastructure and can confidently support an increasing number of transactions. According to Bowman, vRealize has freed up IT staff to spend more time on research and development, as well as optimization. "This means that customers can benefit from even more innovative ways to handle customer payments in the future," says Bowman.

Use Case 3: Moving to DevOps–Ready IT

DevOps isn't a product. It's a process, and a culture. But the tools you use at the meeting point between developers and Operations play a critical role in defining the levels of agility within your IT organization.
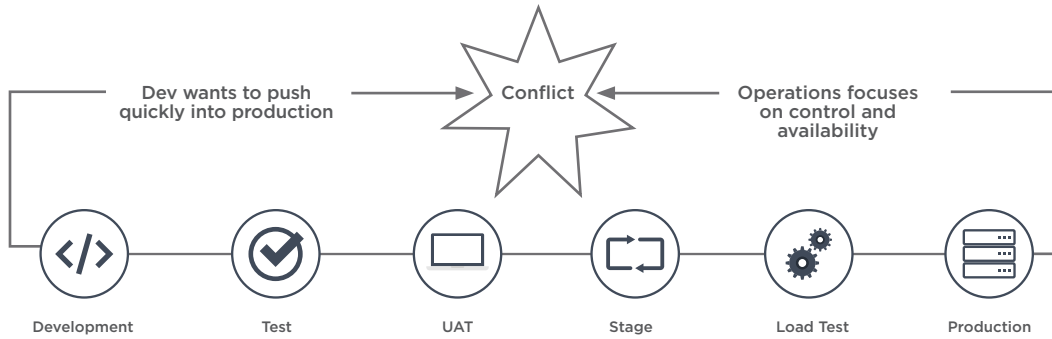
Traditionally, developers and test engineers have had to wait weeks for infrastructure to be provisioned by Operations. These delays are often followed by the application deployment process, with further delays caused by bottlenecks and hand-offs involving developers and test engineers. Cumulatively, these delays generate a series of knock-on inefficiencies. One of these is a tendency among development teams to request more resources than they actually need, on the basis that going back to Operations for additional resource in the future would simply incur additional delays. Over-provisioning is a workaround triggered by delays, but over time it results in sub-optimal capacity utilization.

By contrast, DevOps teams can use vRealize Suite Enterprise along with VMware vRealize Code Stream to build a private or hybrid cloud that increases developer productivity. With vRealize Suite, DevOps teams can:

▶ **Rapidly provision a complete application stack within a private or hybrid cloud.**

▶ **Provide both self-service and an API approach to support developer choice in how resources are accessed.**

▶ **Deliver a solution for continuous delivery that seamlessly integrates with VMware's cloud management platform for resource provisioning.**

In the presence of the right culture and processes, vRealize Suite underpins the agility agenda of DevOps. Among the survey respondents highlighted by Taneja Group in its recent survey of vRealize customer organizations was an IT professional working for a large mobile phone insurance company, which is using vRealize Suite to reduce the typical provisioning time for self-service virtual machines from five days to around 40 minutes. In another case, a global payment processing firm streamlined full app stack provisioning for developers from 40 hours to 40 minutes using vRealize with Jenkins and Docker integration.

The challenge of application deployment

Conflict

Dev wants to push quickly into production

Operations focuses on control and availability

Development → Test → UAT → Stage → Load Test → Production

Limited collaboration between teams

Lack of visibility across the toolchain

Inconsistent configurations

Long release cycles

Manual processes

How vRealize accelerates development

Provision Complete App Stacks	Enable Continuous Delivery	Leverage Existing Investments

Provision Complete App Stacks
- Model, automate, govern the provisioning of complete, multi-tier apps
- Provide API access and blueprints as code to meet developer expectations
- Integrate application-centric networking and security into application blueprints

Enable Continuous Delivery
- Model and automate the execution of tasks across the release pipeline
- Manage application artifacts all the way from development to production
- Provide detailed status of executed tasks to track and triage failures

Leverage Existing Investments
- Plugin-based architecture to leverage existing SDLC toolchain
- Deploy applications to hybrid cloud environments using popular configuration management tools
- Use vast library of plugins from Jfrog Artifactory or vRealize Orchestrator

Case study: speeding up innovation

Choice Hotels International is one of the world's largest and most successful lodging companies. The company currently franchises more than 6,300 hotels in more than 35 countries and territories, representing more than 500,000 rooms. Choice Hotels was looking for a solution that would help them speed up the delivery of infrastructure and application resources to their 200-strong development team.

"We're able to deliver resources to our development teams much faster," says Joey Coco, senior virtualization engineer at Choice Hotels International. "With vRealize Suite, we're able to give them a self-service portal. They're able to go in, and with a couple of clicks they're provisioning their own systems.

"The biggest benefit we see is that we're able to provide much faster time to market. We're able to provide much faster the resources that the developers need."

Forrester on the benefits of automated application deployment

In a recent report commissioned by VMware, Forrester looked in depth at the experience of four enterprises that deployed vRealize Suite Enterprise: a multinational technology company, a global electronic payments company, a US-based education organization and a European telecommunications start-up. Forrester's analysts combined metrics from all four organizations to form a composite picture of how an enterprise with 4,000 virtual machines and 800 applications might benefit from deployment of vRealize Suite Enterprise.

▸ **By configuring and provisioning servers nine hours faster, and reducing lifecycle management (Day 2) tasks by two hours per application per week, IT Operations in the composite organization cut the task time for their admins by 1,491 hours per year.**

▸ **vRealize Suite also significantly reduced the amount of time developers and test engineers spend waiting during projects. As a result, vRealize Suite shaved 144 hours off the average amount of time it took to develop an application.**

▸ **Using standardized blueprints facilitated by vRealize Suite reduced errors and re-working. This led to an improvement in productivity for both developers and Operations.**

Conclusion

vRealize Suite is the most complete solution on the market for enterprises that have achieved a high level of virtualization in the data center and are now moving toward a future that's increasingly software-defined and based around hybrid cloud capacity.

In this context, the manual and fragmented work routines of yesterday are no longer tenable. Taking up to four weeks to provision resources for internal customers — around the same time as it takes the moon to orbit the Earth — is no longer acceptable. Time and again, our customers have told us that these long lead times result in IT being seen as a break on innovation, rather than a facilitator. Confronted with escalating demands from the business and the threat of shadow IT, IT needs to find a way of becoming more responsive.

Automation is the answer. At each stage of the journey to agility, vRealize Suite can help you to achieve your goals. With the right tools for managing your resources, you can accelerate infrastructure delivery with policy-driven blueprints and reclaim/ right-size existing unused capacity. vRealize Suite also allows you to squeeze further efficiency gains out of hardware and develop much deeper analysis of resource costs. It also allows you to press further forward with automation, offering self-service provisioning of infrastructure and full application stacks for development teams. vRealize Suite enables you to:

▶ **Improve productivity and reduce costs**

▶ **Cut infrastructure spending**

▶ **Accelerate application delivery**

▶ **Increase developer productivity**

▶ **Increase application quality**

▶ **Reduce the risk of failed releases**

The case studies and research quoted in this white paper demonstrate how organizations can reduce CapEx and OpEx, and boost their innovative potential by automating IT Operations. Automation isn't just about efficient task management inside the IT department. Ultimately, it defines your organization's ability to respond to market conditions in a way that maximizes competitive advantage in the digital economy.

Learn more about vRealize Suite and our strategy for the Software-Defined Data Center here.

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