WHITE PAPER

WHERE ARE YOU ON THE PATH TO A MODERNIZED DATA CENTER?

Insights from VMware Customer Surveys

vmware®

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IT leaders are on the path to modernize the data center for digital transformation.

Executive Summary

It's no secret that speed is more important than ever in today's digital economy. New technologies and heightened customer expectations are accelerating the pace of business. In a digitally connected world, businesses are under more pressure to differentiate by delivering superior experiences. These imperatives are putting additional demands on IT organizations, which need to help their business stakeholders spark innovation and bring new products and services to market faster. Lines of business and developers require convenient, "consumer-ready" access to the IT services and resources they require. If their in-house IT teams can't deliver, these internal stakeholders may bypass IT and use public cloud solutions. Although these "shadow IT" initiatives may be fast and easy to set up, they can introduce compliance, security, and management risks.

To stay relevant, IT needs to up its game by accelerating development and delivery of applications that power faster time to market for the business. Technology teams also need to provide options to enable their line-of-business clients and developers to use both private and public cloud resources. These options must be convenient, fast, and cost-effective, while allowing IT to maintain visibility, security, and governance over all company data and information.

Recent surveys of global enterprise and midsize organizations underscore these trends. In this paper, we'll explore research related to IT managers and practitioners, and their initiatives to modernize the data center for digital transformation. We'll chart your peers' progress and discuss the top challenges they face in building more nimble, responsive organizations to support their business constituents. We will also show how data center modernization can help you deliver the agility required to meet ever-increasing demands for faster innovation, through a flexible, service-oriented IT model that employs both private and public clouds.

43%

of IT professionals cite the need to support business stakeholders with faster, on-demand delivery of infrastructure and applications[1].

What's Keeping IT from Accelerating Service Delivery

As the pressure grows to meet business demand for IT in the digital economy, IT priorities are changing. According to a VMware survey of its customer community, 43 percent of IT professionals cited the need to support business stakeholders with faster, on-demand delivery of infrastructure and applications[1]. They are also focusing on controlling costs and reducing complexity. Today's IT environments are becoming increasingly complex, heterogeneous multi-cloud environments that are difficult to manage—with limited resources and budget. Legacy IT environments are often inefficient and lack automation, employing siloed IT groups that rely on manual processes for configuring and provisioning policies and infrastructure resources. These limitations bog down IT, slowing communication and processes, and preventing them from keeping up with demands of the business.

1 Data Center Modernization Research, VMware Inner Circle Community, December 2016

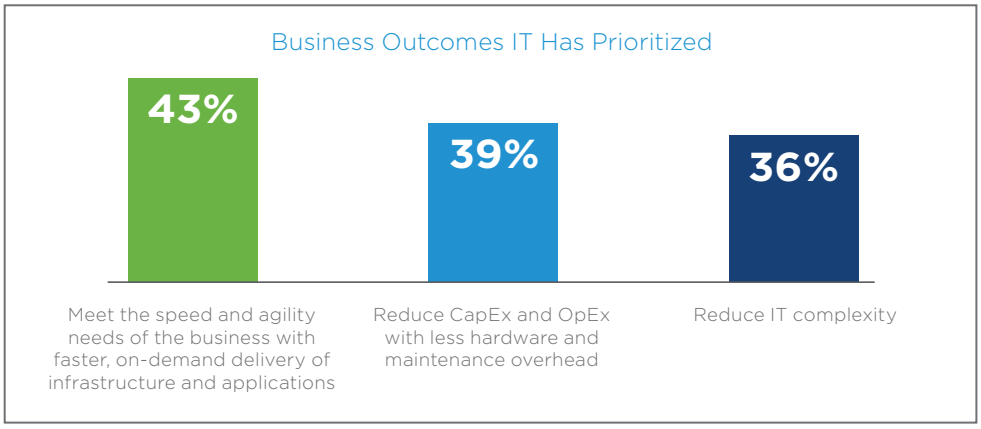

Figure 1. IT professionals are increasingly focused on boosting agility while reducing cost and complexity.

IT teams have made some progress in enhancing the delivery of infrastructure and application components to development and production groups, using scripts, configuration management tools, and manual effort. But most have not achieved the fast delivery or high levels of operational efficiency that today's business climate demands.

Virtualization of compute and storage, and management tools, has provided efficiencies and some levels of automation, but provisioning network and security services is still mostly a manual, time-consuming process. Tasks remain distributed across multiple teams with multiple handoffs, and are often plagued by human error that requires manual troubleshooting and rework, all of which causes delays—and can nullify many of the benefits of server virtualization.

These IT challenges add up to reduced business agility. According to VMware research, 34 percent of organizations reported that they require one to three weeks to provision a production-ready infrastructure[2], and that's not acceptable in light of today's dynamic business needs.

A software-defined data center is based on a virtualized environment of compute, storage, networking, and security in conjunction with policy-based management and automation.

Evolving Toward a Software-Defined Data Center

To overcome these limitations and meet higher expectations, IT organizations require an agile, service-oriented model for data centers that lets them connect apps across clouds and devices with security, compliance, and availability—quickly and cost-effectively. That means building a data center that is virtualized, software defined, and automated, with a consistent operational model for infrastructure and application delivery and management.

2 Inner Circle Data Center Modernization Research, December 2016

Organizations understand the value of modernizing the data center, and are already moving aggressively to accelerate their business responsiveness. In a recent survey, 45 percent of companies stated that they were seeking to deploy a software-defined data center (SDDC) company-wide[3].

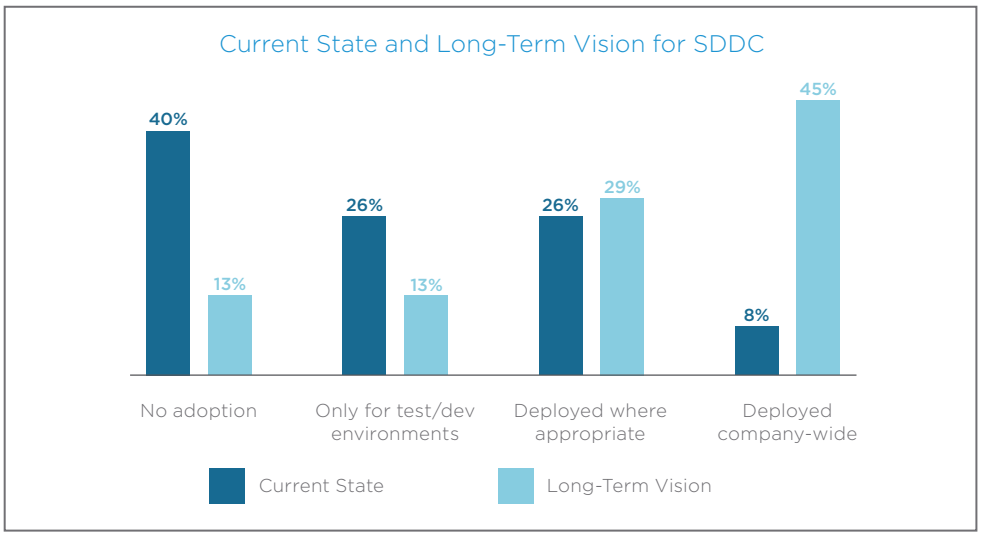

Figure 2. 45 percent of survey participants consider an SDDC part of their long-term vision.

It's important to remember that virtualization is not a single step but a journey. Many companies have already successfully virtualized their compute and storage environments, and have realized significant benefits in cost reductions and greater efficiencies. In a VMware customer survey, nearly 70 percent of participants indicated they have virtualized more than 75 percent of their compute environment[4].

But follow-up initiatives have lagged behind. Once they have virtualized their compute resources, IT teams could easily extend that virtualization to storage and networking, and fully abstract the data center into a flexible pool of infrastructure resources. Applying virtualization throughout the data center environment also gives IT an opportunity to employ a single tool to automate its IT resources. Yet according to the VMware survey, only 12 percent reported that they have fully virtualized their network environments[5].

IT teams still have plenty of virtualization opportunities to achieve further efficiencies and agility in delivering IT services. For the business, these improvements can drive improved innovation, faster time to market, and decreased costs—the types of advantages that add up to a substantial competitive edge.

3 Inner Circle Strategy and Direction Research, December 2015
4 Inner Circle Data Center Modernization Research, December 2016
5 Ibid

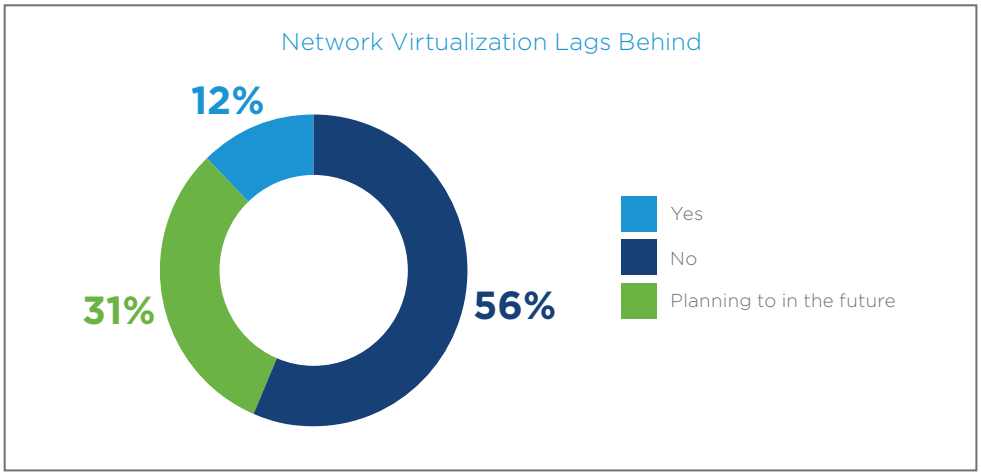

Figure 3. Only 12 percent of survey participants have virtualized their network environment.

Taking Virtualization a Step Further

The virtualization of compute resources represented a fundamental shift in the industry. With network virtualization, companies can achieve the same automated operational model as a virtual machine, and enjoy many of the same benefits. Under this approach, the routing, switching, load balancing, and firewalling that traditionally occur in the physical infrastructure are decoupled from the infrastructure and abstracted into the data center virtualization layer. All services are then managed in software. Organizations can produce a virtual network in seconds. When business needs grow or change, they can programmatically create, move, copy, delete, and restore virtual networks as needed—without reconfiguring the underlying physical hardware or topology.

The Opportunity for Hyper-Converged Infrastructure

Some organizations are finding value in modernizing their environments with a software-defined hyper-converged infrastructure (HCI) across compute, storage, network, and security. HCI transforms industry-standard x86 servers with direct-attached storage into cost-effective, scalable building blocks with software-defined compute and storage, which can all be seamlessly extended with virtual networking. The architecture is more flexible, because it's hardware independent; more agile because it's highly programmable; and more cost-effective because it's scalable and based on commodity hardware.

Today, HCI remains in the early stages of adoption. Approximately 50 percent of survey participants are currently using HCI, or have plans to in the future[6].

6 Inner Circle Data Center Modernization Research, December 2016

Powering Speed and Agility with Automation

IT often overlooks automation in favor of other priorities, but it is key to achieving the speed and agility required to deliver services to the business. Without automation, IT service delivery requires lengthy provisioning, manual steps that can lead to configuration errors, and other time-consuming processes. This cumbersome manual approach can cause bottlenecks and delays when it comes to deploying, managing, and maintaining the IT services delivery lifecycle.

Automation solves these issues by unleashing IT agility in a way that's standardized, consistent, scalable, repeatable, and secure. Agility is top of mind for IT teams, which need to support fast-changing demands for their resources from their line-of-business constituents. Participants in the VMware customer survey cited three top drivers for automating IT configuration and provisioning[7]:

- 64% want to standardize repeatable processes
- 63% seek faster provisioning of IT resources
- 63% want to reduce manual configurations to eliminate inconsistencies, errors, and rework

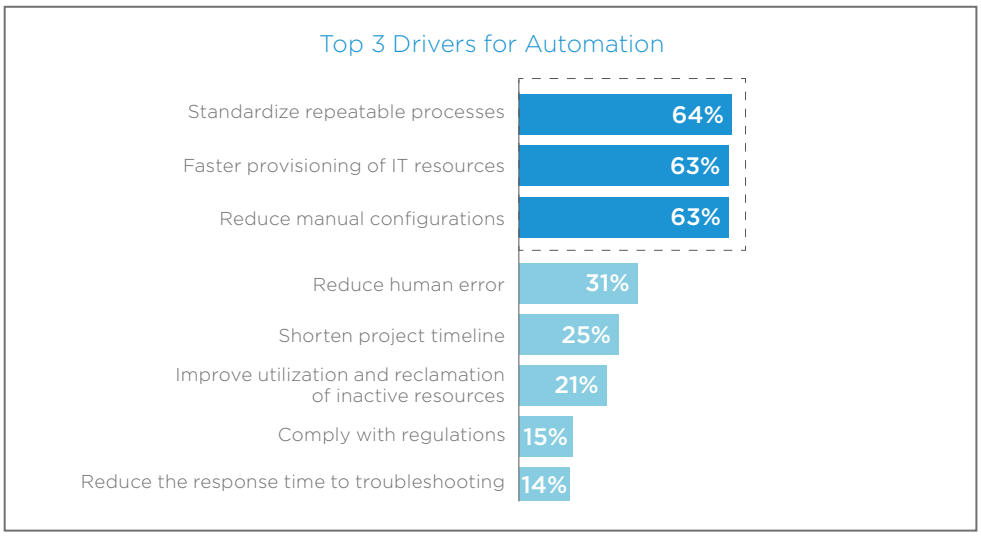

Figure 4. Automation initiatives are driven by a desire for greater agility.

Virtualizing and automating compute resources helps IT gain some efficiencies, but provisioning IT resources, including networking and security, to development and production groups, is still manual and slow. IT needs to embrace an approach that fully automates the delivery and ongoing management of infrastructure and applications, including network and security operations, across the IT service lifecycle.

7 Inner Circle Data Center Modernization Research, December 2016

65%
of IT organizations surveyed are considering or have already completed automating the provisioning of IT resources[9].

Applying Automation Across IT Service Delivery Lifecycle

A software-defined approach lets organizations abstract functionality from hardware into software. This abstraction lets organizations reduce provisioning time, improve resource utilization, and eliminate error-prone processes by automating the delivery and management of production-ready infrastructure and application components.

Automation also helps minimize the operational bottlenecks caused by manually configuring and provisioning security policies, networking, and infrastructure resources for applications, so IT staff can deliver applications and services faster. By automating IT, organizations can more easily meet security and compliance requirements by templating networking and security services and policies, to deliver standardized services. According to the VMware customer survey, 53 percent are considering or have already implemented standardized service offerings[8].

IT professionals can envision the positive outcomes that automation can bring, and many are well on their way to deploying more automated environments. According to VMware research, 65 percent of survey participants were either considering, or have already completed automating provisioning to minimize their IT operations efforts[9]. The organizations that have been slow to adopt automation risk falling behind to competitors with more responsive, nimble operations.

47%
of survey participants cited improved agility as the top goal for using public cloud[10].

Integrating Public Cloud as Part of the IT Strategy

The cloud plays a vital role in establishing a more modern IT environment that forms a strategic foundation for new apps and processes. As IT organizations explore innovative new models to improve agility, they are looking to standardize on software-defined data center solutions that support both private and public clouds, so they can easily scale and extend IT resources when needed to support business demands.

In a competitive landscape where speed and time-to-market are critical, lines of business and developers see public clouds as the fastest option for meeting their IT platform requirements. According to VMware research, improved agility was cited as a top goal by 47 percent of participants using public cloud[10]. Another recent survey found that 35 percent of organizations had moved applications to the public cloud[11].

Unlocking the Value of Hybrid Cloud

Many enterprises are employing a hybrid cloud approach to maintain control over key data and information, while taking advantage of the convenience and flexibility of public cloud options. Hybrid clouds can provide an easy on-ramp out of the data center and into public clouds for infrastructure scale, consolidation, migration, and application modernization. And they enable organizations to continue using the same processes, tools, and skill sets.

According to the VMware customer survey, 46 percent of participants were attracted by the hybrid cloud model's ability to retain sensitive data on-premises, together with the benefits of public cloud. In the same survey, 42 percent stated that they employed cloud solutions for short-term project support without the need to modify on-premises infrastructure[12].

8 Inner Circle Data Center Modernization Research, December 2016
9 Inner Circle Multi-Cloud Research, May 2015
10 Inner Circle Multi-Cloud Research, May 2015
11 Inner Circle Multi-Cloud Research, May 2015
12 Inner Circle Data Center Modernization Research, December 2016

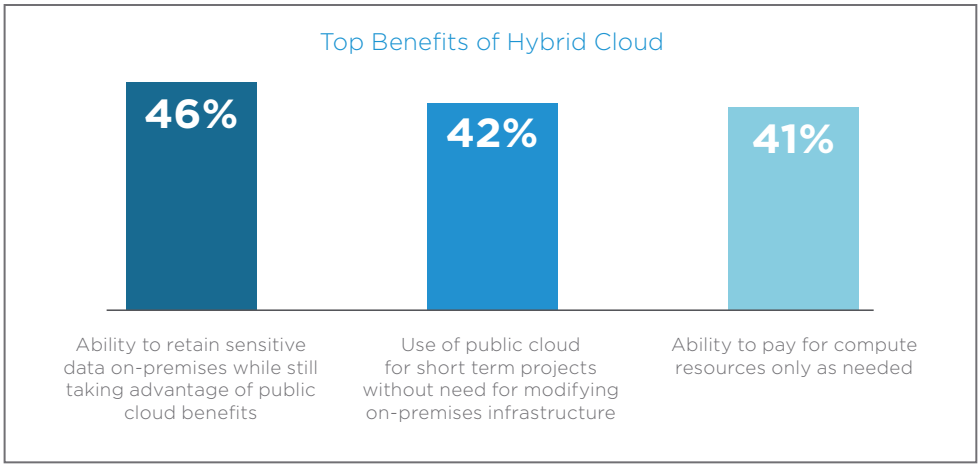

Figure 5. Hybrid cloud is an attractive alternative for organizations seeking agility, capacity, and resilience.

Despite enthusiasm about public cloud, a recent survey found that 73 percent of applications still reside on-premises[13].

As businesses invest in multiple clouds and support increasingly mixed environments, management becomes increasingly important. In the VMware survey, 64 percent of those using hybrid cloud considered it an extension of their on-premises data center, federating public cloud resources with on-premises data center resources under one management domain[14]. When organizations have the tools they need to holistically manage applications across multiple clouds, they gain the freedom to make the right cloud choice based on insight into the cost and performance of their cloud services.

VMware Solutions: Your Path to Modernize the Data Center

The digital economy will continue to pick up speed. In this fast-changing environment, the rewards will go to companies that can accelerate innovation and agility. The pressure is on for IT to shorten the end-to-end IT service delivery lifecycle, and as the VMware surveys show, organizations understand that they need to modernize their data centers to stay competitive. Many are already far along on the journey.

VMware changed the industry with server virtualization, and has continued to introduce revolutionary technologies for a software-defined data center. Its innovative, open, software-defined approach enables IT to confidently and efficiently deliver and manage both new cloud-native and legacy applications across physical, virtual, and cloud environments. As a partner and advisor, VMware enables IT to gain the speed and agility its business stakeholders demand.

13 Inner Circle Multi-Cloud Research, May 2015
14 Inner Circle Data Center Modernization Research, December 2016

As the industry leader in virtualization, HCI, and cloud technologies, VMware offers proven solutions and strategies that help IT modernize its data centers to deliver IT infrastructure and application services rapidly, to innovate and drive growth. VMware helps organizations modernize their data centers for the digital era with IT initiatives that enable organizations to:

- Virtualize compute, storage, and networking for an agile, software-defined data center
- Automate the provisioning of infrastructure and application resources
- Integrate public clouds to extend access to resources on demand

Take the Next Step

It's clear that your peers believe that now is the time to seize the initiative in modernizing the data center. By employing a flexible, evolutionary approach to a modern data center environment, you can jump-start innovation and agility today, and put a foundation in place to support new capabilities as your business changes and grows.

Learn more about how VMware is helping companies around the world on the path to a modernized data center:

American Tire Distributors, an industry leader in tire distribution with more than 140 distribution centers across the U.S. and Canada, is building a private cloud to reduce operational costs, improve security, and provide better service to its customers. **Watch the video >**

California Natural Resources Agency restores, protects, and manages the state's natural, historical, and cultural resources. It is on a software-defined journey to become a business enabler by taking advantage of virtualization, automation, and cloud technologies. **Watch the video >**

Sugarcreek, an innovative food manufacturer of packaged foods for retail and food service channels, is modernizing to a software-defined data center to help drive business growth. **Watch the video >**

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VMware, Inc. 3401 Hillview Avenue Palo Alto CA 94304 USA Tel 877-486-9273 Fax 650-427-5001 www.vmware.com

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