

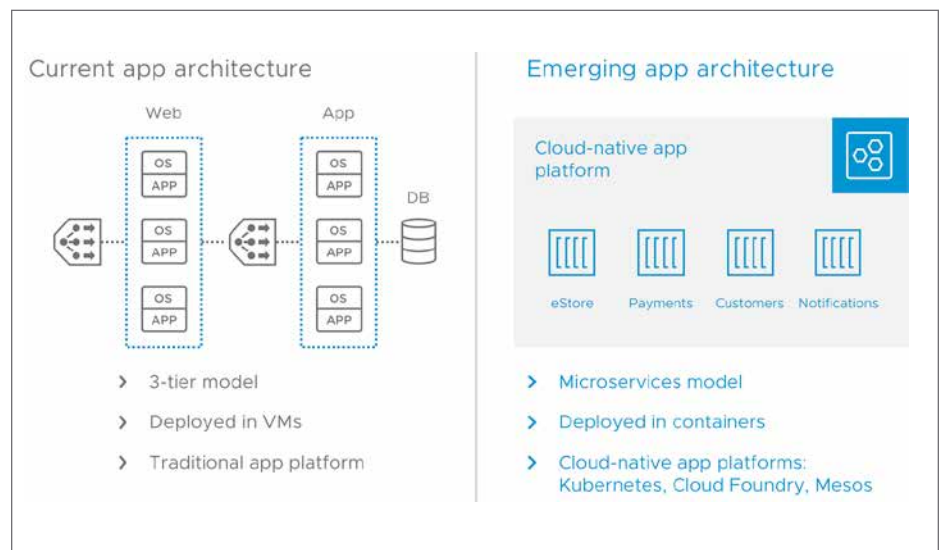
## ADVANCED NETWORKING AND SECURITY IN A CLOUD-NATIVE WORLD WITH VMWARE NSX DATA CENTER

Digital transformation is no longer just hype or a buzzword; reality has caught up. In fact, 50 percent of CEOs expect their industries to be substantially or unrecognizably transformed by digital.<sup>1</sup> The businesses that not only survive, but truly thrive, are the ones that recognize the potential of digital transformation and embrace it. We live in a world where applications are increasingly at the center of everything a business does. They are powered by software and driving differentiation and innovation across industries. Apps are being built to transform the customer experience, provide new innovative services, increase the speed and agility of business, and drive efficiencies. By 2020, 50 percent of the Global 2000 will see the majority of their business depend on their ability to create digitally-enhanced products, services, and experiences.<sup>2</sup>

This digital transformation is driving the need for new application architectures that are radically different from those of the past. Most enterprise apps today are based on the 3-tier model (leveraging web, app, database servers), deployed in virtual machines (VMs), and developed on platforms that have been in use for years. For organizations to keep up with the rapid pace of app development and deployment, they are turning to new app architectures, based on microservices, deployed in containers, and developed on cloud-native app platforms like Kubernetes, Pivotal Cloud Foundry (PCF), OpenShift, and others.

### KEY HIGHLIGHTS

- Digital transformation is driving the need for new application architectures that are radically different from those of the past
- Developers need to get apps up and running as quickly as possible, but IT organizations are encountering challenges in keeping up with the pace that they are being developed, deployed, and iterated upon
- NSX Data Center enables advanced networking and security for VMs and containers across any application framework, helping to speed the delivery of applications by removing bottlenecks in developer and IT workflows



<sup>1</sup> GARTNER, "2016 CEO Survey: The Year of Digital Tenacity," 20 April, 2016

<sup>2</sup> <http://www.idc.com/getdoc.jsp?containerId=prUS41888916>

“The application container market will grow from \$762M in 2016 to \$2.7B by 2020—with an estimated CAGR of 40%.”

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## The Cloud-Native Networking Challenge

Businesses need faster time-to-market and more innovation, all while controlling costs and mitigating risk. Developers need higher productivity, greater speed and agility, improved operational efficiency, and to leverage infrastructure-as-code. IT teams need to ensure that apps and data are protected, gain visibility into costs, and improve operational control over the environments they manage.

As developers build and deploy cloud-native apps faster than ever to respond to the needs of the business, networking and security challenges have arisen. Developers need to get app up and running as quickly as possible, but IT organizations are encountering challenges in keeping up with the pace that they are being developed, deployed, and iterated upon. The problem arises from the fact that traditional networking and security configuration is still a manual process, often on infrastructure hardware. In addition, because of the limited networking and security services in the cloud-native platforms themselves, provisioning these services on traditional network architectures can add days or weeks to the development cycle, bottlenecking not only app development but hindering the speed and agility of business as well.

## How Do We Get There?

In order for the needs of developers, IT teams, and the businesses to be met, networking and security needs to be provisioned, managed, and monitored with a cloud-native apps level of speed and agility. This requires a networking and security model that is independent of the underlying infrastructure with security that can be wrapped around containers, VMs, and microservices, and that applies to development and control across new app frameworks like Kubernetes, Red Hat OpenShift, and Pivotal Cloud Foundry. So how does this all come together? The answer is, with an infrastructure-independent and app-aware networking and security model.

This involves networking and security services running in software, with deep integration into new and existing app platforms. Networking and security services must be a consequence of the application and the developer's code, with policies that follow apps as they move in and between environments. This enables IT teams to provide guardrails that allow developers to move fast while providing advanced networking services, and ensuring security and compliance for the broader business. The sum total of these things is an organization where developers get the speed and agility they need, IT teams get the visibility and control they need, and the business gets the applications they need, in a fast and secure fashion.

## How NSX Data Center Can Help

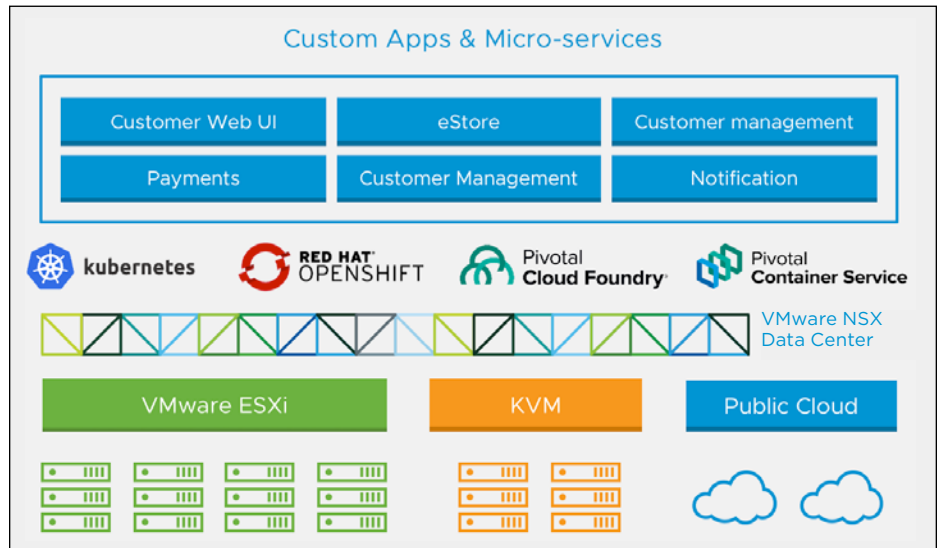
The VMware NSX® Data Center network virtualization and security platform can help organizations achieve the full potential of cloud-native apps and bring a number of benefits to the table. NSX Data Center enables advanced networking and security across any application framework, helps speed the delivery of applications by removing bottlenecks in developer and IT team workflows, enables micro-segmentation down to the microservice level, enhances monitoring and analytics for microservices, and has reference designs to help organizations get started. It enables a single network overlay and micro-segmentation for both VMs and containers as well as common monitoring and troubleshooting for traditional and cloud-native apps. NSX Data Center integrates with existing tools in the data center and public cloud for IT teams and plugs in to the Container Network Interface (CNI) to empower developers without slowing down or changing the workflows to which they are accustomed.

**LEARN MORE**

Check out the VMware NSX-T™ Data Center with Kubernetes Hands-on Lab: <http://labs.hol.vmware.com/HOL/catalogs/catalog/877>

Read the Pivotal Container Service blog: <https://blogs.vmware.com/cloudnative/2017/12/05/deploy-enterprise-grade-kubernetes-vmware-pivotal-container-service>

Take a look at the Pivotal Cloud Foundry blog: <https://content.pivotal.io/announcements/pivotal-unveils-expansion-of-pivotal-cloud-foundry-and-announces-serverless-computing-product>



NSX Data Center empowers both developers and IT teams to work together to the benefit of both, as well as the businesses they support, by enabling common networking, security, workflows, and management across any device, any app, any framework, and any infrastructure. Increased speed and agility for developers coupled with increased connectivity, security, visibility, and control for IT teams mean that the entire organization can operate in tandem to drive the digital transformation of their businesses forward.

