

VMWARE NSX DATA CENTER: ACCELERATING THE BUSINESS

VMware NSX® Data Center is foundational to the software-defined data center and completes the virtualization infrastructure, enabling IT to move as fast as the business demands without compromising the security or availability of critical applications. NSX Data Center embeds networking and security functionality typically handled in hardware directly into software, delivering the operational model of a virtual machine for networking and security and unlocking the ability for IT to move at the speed of business.

Competing Demands and Compromises

Speed and agility, impenetrable security, and availability of applications are all critically important priorities for IT organizations to deliver. Businesses depend so heavily on a solid application infrastructure that increasingly, IT is the foundation for the business, enabling organizations to innovate and succeed in their digital transformation journey. However, the rapid pace of change and shifting expectations in IT require a continual shuffle of priorities and often compromises effective delivery.

IT is painfully aware of the frequent tension caused by accommodating multiple stakeholders to meet these demands, often being forced to give preference to one IT priority over another. For example, speed of application deployment is often a casualty of securing that application due to the rigid complexities associated with security. Similar compromises are often made for availability and continuity of applications, effectively placing the business at odds with itself.

The eventual outcome of this constant tension and compromise has tremendous implications for IT. In fact, it leads to serious deficiencies in multiple areas of responsibility: business is unable to meet demands quickly, vulnerabilities exist inside the data center, and organizations are lacking in overall agility.

Unlocking the Infrastructure

Most organizations have already virtualized compute components in their data centers, with the overwhelming majority virtualizing 50% to 100% of their servers. [1] In addition, many businesses have also made the decision to virtualize storage, with more than 70% of businesses having already adopted or planning to adopt software-defined storage.

This abstraction of functionality from hardware into software enables businesses to quickly provision applications, move virtual systems across and between data centers, and automate a number of processes.

Unfortunately, a number of these benefits are still anchored to data center components that have been slow to evolve, and are still constrained to the one piece of the data center infrastructure that has not been virtualized: networking. The full value of the software-defined data center still remains completely unavailable to most organizations because of this legacy.

The fact is that businesses that possess network architectures rooted in hardware can't match the speed, agility, or security of those running virtualized networking. The state of the business is being held hostage by the state of the network.

“Technology continues to accelerate at an incredible pace, promising great rewards to organizations capable of seizing the initiative.”

BART VAN ARK
PH.D, EXECUTIVE VICE PRESIDENT, CHIEF
ECONOMIST AND STRATEGY OFFICER,
THE CONFERENCE BOARD

KEY BENEFITS

Intrinsic Data Center Security

Micro-segmentation and granular security delivered to the individual workload

Automation

Dramatically improved operational efficiency through automation

Multi-Cloud Networking

Extend networking and security across VMware vCenter (TM) and data center boundaries irrespective of underlying physical topology—enabling capabilities such as disaster recovery, active-active data centers, and workload mobility.

Speed and Performance

Reduced network and security provisioning time from days to seconds

KEY FEATURES

Distributed Stateful Firewalling

Distributed stateful firewalling, embedded in the hypervisor kernel for up to 20 Gbps of firewall capacity per hypervisor host

Dynamic Security Policy

Security policy that is attached directly to the workload and “travels” with the workload, independent of the underlying network topology, enabling security to adapt to changes

Cloud Management

Native integration with VMware vRealize® Automation™ and OpenStack, enabling advanced automation capabilities

3rd Party Integration

Enhanced security and advanced networking services through an ecosystem of leading third-party vendors

A fundamentally new approach to the network infrastructure is needed—one that no longer demands compromises between speed and security or between security and agility. The rules of the data center that have held businesses back from unleashing their full potential need to be rewritten to enable IT to perform without compromises. As thousands of businesses have now realized, network virtualization is that new approach.

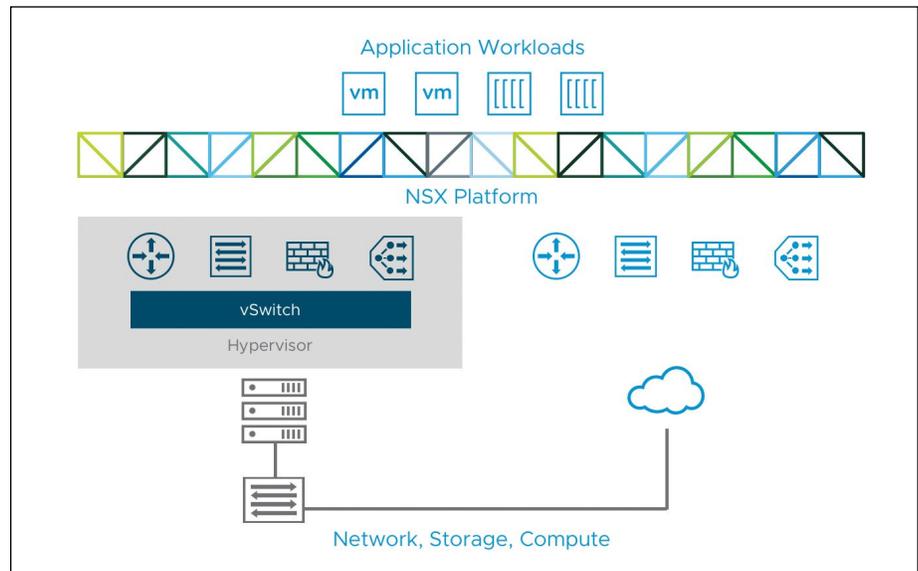


Figure 1. Consistent Networking and Security with NSX Data Center

By moving network and security services into the data center virtualization layer, network virtualization enables IT to create, snapshot, store, move, delete, and restore entire application environments with the same simplicity and speed that they now have when spinning up virtual machines. This, in turn, enables levels of security and efficiency that were previously infeasible.

VMware NSX is the network virtualization platform of the software defined data center. It takes the functionality that was formerly embedded in network hardware—such as switching, routing, and firewalling—and abstracts it to software.

By doing this, NSX creates what can be thought of as a “network hypervisor” that is distributed throughout the data center. With it, IT is able to become an enabler of innovation for the organization, effectively saying “yes” to multiple stakeholders instead of treating their requests as competing and mutually exclusive. Not only is IT now able to provide unprecedented levels of security; it is able to do so at a speed that keeps pace with the demands of the organization. The continuity of applications, automation of manual IT processes, and critical security of the data center are all able to work in harmony with business-driven time constraints and schedules in a way that significantly reduces operational complexities and associated costs.

Intrinsic Security

Traditional hardware-defined solutions rely on placing rigid security constructs primarily on the data center perimeter, leaving the inside of the data center unguarded. By contrast, NSX enables a fundamentally more secure the data center by integrating virtualized security and distributed firewalling directly into the infrastructure. This creates policy enforcement points for every workload. For the first time, it is operationally feasible to provide granular security with policies that travel with the workloads, independent of where workloads are in the network topology. This dramatically reduces risk to the business by enabling security actions to adapt quickly to changing threats, while significantly simplifying the operational model for security.

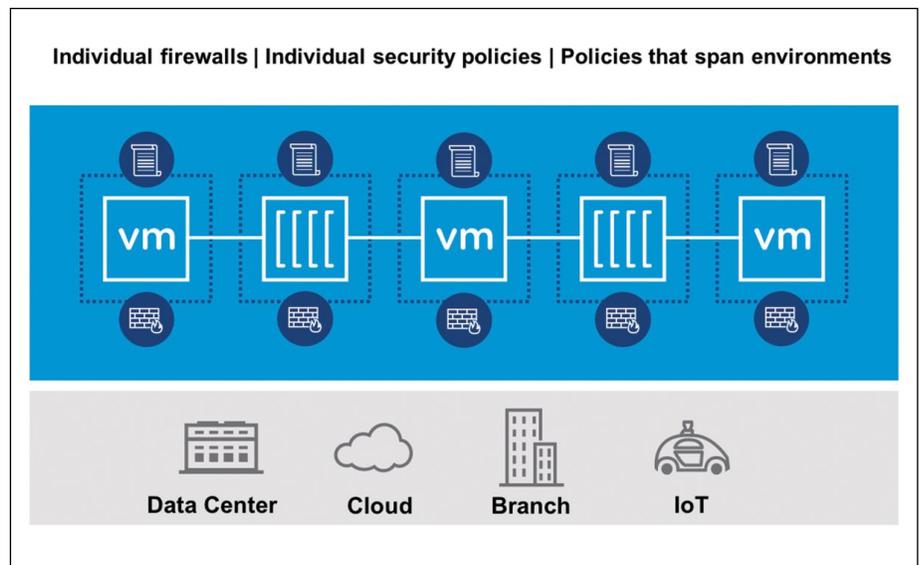


Figure 2. Enforce Security at the Most Granular Level of the Data Center

Automation

Automation is at the heart of IT agility and consistency, which in turn significantly improve overall operational savings. However, IT organizations that are still constrained by hardware are not able to implement a meaningful automation strategy that meets the often competing goals of the organization. Networking hardware in particular depends heavily on error-prone manual configuration and maintenance of a sprawling library of scripts. The result is a labor-intensive process that impacts IT's ability to support the business as it moves quickly to seize emerging opportunities.

NSX Data Center completely removes this hardware-centric barrier to the automation of networking operations. By moving networking and security services into the data center virtualization layer, NSX Data Center delivers the same automated operational model of a VM, but for the entire network. Whether through VMware vRealize Automation, OpenStack, or other tool, NSX Data Center is able to automate a number of processes, significantly accelerating service delivery and reducing provision times from months to minutes. The positive business impacts of this cannot be overstated and include dramatically reduced operational complexity and cost, as well as improved governance, compliance,

and consistency.

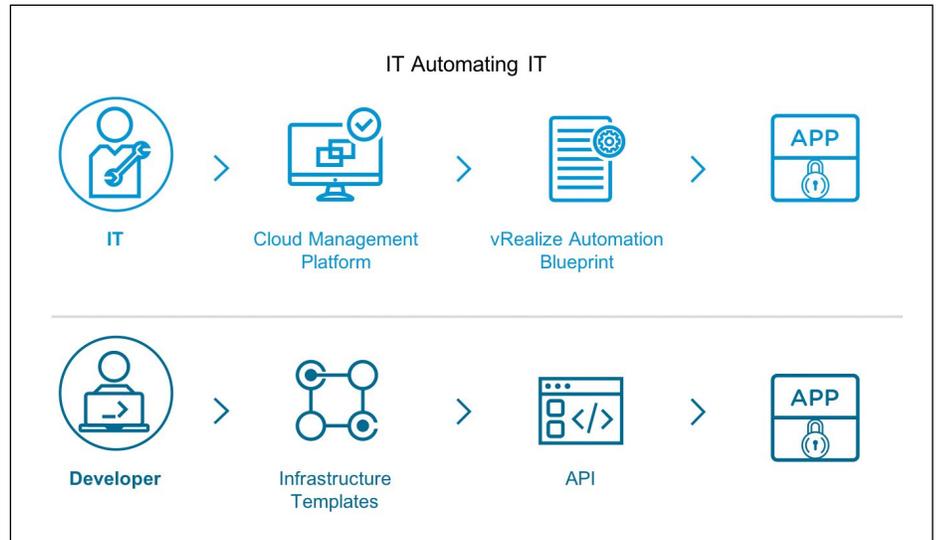


Figure 3. Rapid and Repeatable Deployments with Automated Networking and Security

Multi-Cloud Networking

In a multi-cloud world, IT needs networking consistency and security across heterogeneous sites and a level of automation that streamlines multi-cloud operations. NSX Data Center seamlessly extends on-premises data centers to other physical sites and to the cloud using VMware NSX Cloud*, enabling organizations to leverage scale, redundancy and economics. NSX Data Center allows fast migration and failover by maintaining an application’s networking services (e.g. same IP address, security policy, and other services) by binding the services to the application workload. As a result, the IP address and security policies associated with workloads (VM or container-based) remain consistent as they are moved dynamically from one location to another.

NSX Data Center enables organizations to migrate VMs or entire data centers from one location to another with minimal or no application downtime. As a result, organizations are able to expedite recovery during planned migrations and unplanned outages. With network and security spanning multiple sites, organizations can also leverage their resources from various physical data centers to operate as a single logical cloud. In addition, NSX Data Center delivers secure and seamless application mobility making it easy to migrate to and from the cloud or between physical sites.

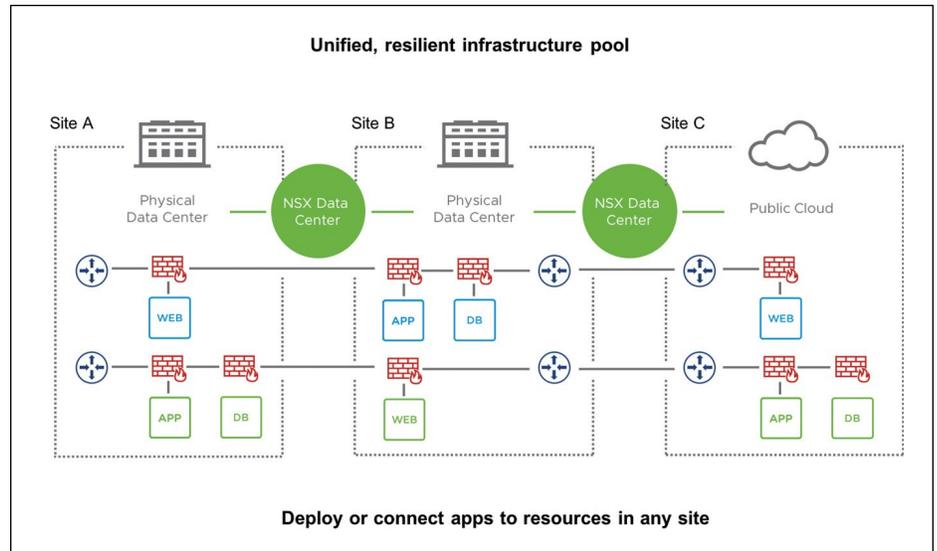


Figure 4. Minimize Impact of Outages with Multi-Site Pooling

NSX Data Center Accelerates Business Value Today and Sets the Stage for the Future

Businesses that have deployed NSX Data Center are finding that it is quickly becoming the defining factor for the success of their IT organizations and a foundational part of their data center infrastructure. Today, thousands of NSX Data Center customers are accelerating the delivery of value to their business, delivering some of their most sensitive and critical applications on top of fast, agile, and secure virtual networks in a way that simply cannot be achieved on legacy hardware-based networks.

While this evolution in networking and security has allowed NSX Data Center customers to reap significant and immediate benefits, it has also removed the time consuming and arduous tasks that previously occupied so much of their organizational bandwidth. This, in turn, has given these organizations the latitude to consider their most strategic moves as they plan for the future of the business and for the necessary functions of IT to support that vision.

Learn More

For more information visit www.vmware.com/go/nsx.