AUTOMATION WITH NETWORK VIRTUALIZATION: THE BASICS

Delivering business value with VMware NSX

Data Center Networking Challenges Without Automation

It's easy to see why IT organizations have it tough these days.

Business obligations require you to deliver more applications and services at a faster pace than ever before, all without making concessions on security, and without the budget flexibility to make significant investments.

While it's true that virtualization gives you the capacity to provision servers in an instant, the delivery process gets snagged if your data center networking is still beholden to manual provisioning and configuration. That's because for each request that comes in for a new application or service, a variety of labor-intensive networking and security tasks are still required behind the scenes—routing, switching, load balancing, quality of service (QoS), establishing firewall rules, etc.— before delivery is possible. The entire process can take up to four weeks. And should an error occur in any of these manual tasks, the cycle is extended further.

Consider the ramifications. Not only is your IT staff distracted from helping your business pursue more strategic opportunities, you risk the rise of "shadow IT"— often occurring when LOB users lose patience and seek out third-party cloud services in the name of expediency—and the security hazards that may follow.

In fact, while the rest of the data center enjoys the capabilities and benefits of automation, networking and security continue to lag. By continuing to rely on command line interface tools and scripting, the process for provisioning and configuration remains approval-intensive, highly manual, and inconsistent.

What Is the Solution?

So how do you free yourself from the malaise of manual tasks and start delivering apps and services at the speed of business?

The solution requires virtualization of networking and security services—the routing, switching, load balancing, and firewalling that now occur in the physical infrastructure. In so doing, you're ready to reap many of the same automation benefits from networking that you now get from virtualizing compute and storage services.

Setting the stage for virtualization is the VMware Software-Defined Data Center (SDDC), enabling previously hardware-centric services to be decoupled from the infrastructure and abstracted into the data center virtualization layer. With the SDDC, all services are managed in software, and the hardware can be focused on the simpler task of forwarding packets between hypervisors as quickly as possible. By contrast, the more traditional software-defined networking (SDN) solution allows you to control network switches and routers through software, but it doesn't virtualize all networking functions and components. What you get is a hardware orchestration utility, leaving overall virtualization efforts—as well as automation efforts specifically—rigidly tied to the physical network hardware.

Once you've virtualized your networking and security services, you can run them automatically, without command line interfaces or administrative intervention. All services are flexible, automated, and controlled by software—allowing for delivery of apps and services, which once required several weeks, to occur in minutes.

> "Configuration and change management of networking gear remains primarily a labor-intensive, manual process... These suboptimal network practices result in downtime, reduced security, degraded application performance, and wasted human and capital resources."

ANDREW LERNER
RESEARCH DIRECTOR
GARTNER

KEY HIGHLIGHTS

- Intelligence in software
- Operational model of VM for data center
- Automated provisioning and configuration

VMware NSX: at the Core of the SDDC Approach

With VMware NSX®, VMware's network virtualization platform, you can bring together the three pillars of data center virtualization—compute, storage, and network—and realize the full financial and operational benefits of the SDDC. That's because NSX is the platform for creating and deploying your entire network in software, which is imbedded in the hypervisors running on top of your physical servers. In the resulting network overlay—distributed across the hypervisors—you can then provision and manage all of the networking and security functions independent of hardware.

By allowing your infrastructure to be controlled by software, NSX serves as the platform from which you can build out automation capabilites by integrating with other products and services. For instance, when you employ VMware vRealize® Automation™ with NSX, you can templatize and automate delivery for not only compute and storage services, but networking and security as well. You get the capability to establish a self-service catalog of applications for your end users. At the same time, with approval policies built into vRealize Automation, you can enforce application deployment standards that determine which end users can deploy those apps.
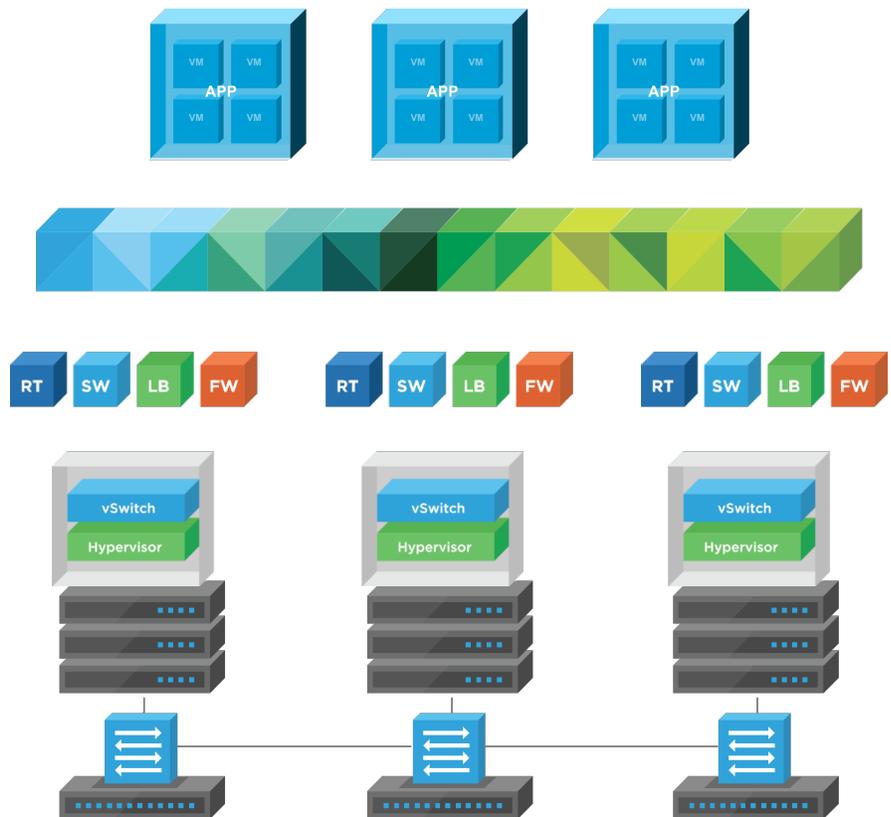
NSX VALUE PROPOSITION

- Virtual networks
- "Network platform"
- Network and security services now in the hypervisor
- Virtualization layer
- Networkstorage compute

FIGURE 1. NSX Value Proposition: Network virtualization is at the core of the Software-Defined Data Center approach

> "The way NSX and vRealize Automation has helped us is we can template environments and spin up VMs with appropriate networking and security and say this system is HIPAA compliant."

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DIRECTOR OF COMPUTING PLATFORMS,
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BETTER TOGETHER: VMWARE NSX AND VREALIZE AUTOMATION
- Rapid time to market
- Accelerated service delivery
- Reduced OpEx
- Faster IT response to business initiatives
- Innovation role for IT

A Closer Look: Key Capabilities of NSX

As a platform for automation, VMware NSX provides a range of capabilities that will help your IT organization save time and money, deliver better service, reduce errors and inconsistencies, as well as provide greater security and operational scalability. Let's take a closer look at these key capabilities:

Automation for IT and Developers

VMware NSX supports the effort to automate for IT and developers—allowing for the quick, secure, and automatic deployment of applications and services. By acting as the platform on which automation capabilities such as self-service portals, application catalogs, service blueprints, and network profiles can be built out, NSX enables rapid and consistent provisioning of resources when and where they are needed.

Dynamic Configuration of Application Services

VMware NSX enables automated delivery of secure, scalable, and high-performing multi-tier applications. And because networking and security are delivered in configurative software, provisioning can happen in minutes rather than weeks, taking advantage of zero-touch automated deployment.

Automation for Application and Infrastructure Deployments

Using vRealize Automation with VMware NSX, you can create blueprints for an entire application environment. From there, you can choose to provision centrally, publish a catalog for self-service access, or provision infrastructure as a service (IaaS).

Automation with On-Demand Networking and Security

Automation enabled by NSX provides developers with a unified set of APIs for on-demand networking and security services. Because these services can be provisioned in minutes, and without hands-on IT involvement, you gain more business value as well as the ability to maintain separate and secure parallel development, test, and production environments on a common infrastructure.

Automation for Application Updates and Changes

With NSX and vRealize Automation, you can update your application blueprints and push changes automatically. For instance, if you want to update a security policy, all of your workloads using that blueprint are automatically updated, keeping your environment standardized and sparing the time it now takes for manual adjustments.

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Build a fundamentally more agile, efficient and secure application environment with VMware NSX network virtualization on powerful industry standard infrastructure featuring Intel® Xeon® processors and Intel® Ethernet 10GB/40GB Converged Network Adapters.

Summary

Once you've established automation through the VMware NSX network virtualization platform, you'll realize newfound capabilities for speed, agility, and standardization. And as a result, you'll be poised to deliver substantial business benefits.

By eliminating repetitive manual tasks and allowing your IT team to focus on strategic goals, you save on OpEx costs and pick up productivity gains. Automation also helps your developers get on-demand networking and security resources faster, which gets new applications and features to market faster and spurs an advantage over your competitors. Additionally, with templated and automated systems, you're ensuring a higher grade of IT service that comes from consistent and repeatable deployment of components.

GET STARTED TODAY

Put automation to work in your data center with VMware NSX.

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