



# HOW TO HOW TO TRANSFORM YOUR NETWORK FOR AGILITY, SIMPLICITY, AND COMPELLING ECONOMICS

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## EXECUTIVE SUMMARY

Interest in software-defined networking (SDN) is growing quickly as organizations recognize opportunities for improving agility, simplifying network management, and lowering costs. SDN eliminates the need for expensive proprietary physical devices—the domain of traditional networking. Instead, you can use commodity devices and rely on software to enable advanced switching, routing, and firewall capabilities.

With SDN, you can deploy new networks in minutes instead of weeks or months, and easily scale across data centers hundreds or thousands of miles apart. Through automation, you can change network configurations on the fly. And SDN lets you securely host multiple tenants on a single physical network, increase network utilization, improve network performance and quality of service, accelerate application development, and more.

This white paper highlights the features and benefits of a fully engineered and tested SDN solution from Jeskell and Dell EMC, built on Dell EMC server, storage, and networking technologies, with network virtualization provided by VMware. With the information provided in this paper, you will gain greater insights into the value that SDN can bring to your organization, and understand how Jeskell can help you plan and deploy an SDN solution that meets your specific business needs — quickly and cost effectively.

## INTRODUCTION

Server virtualization has been a boon for organizations of all sizes in countless industries over the past two decades. By decoupling the operating system from the underlying hardware, virtualization provides an unprecedented degree of flexibility, with the ability to enhance server utilization, improve availability, and strengthen security. It's only natural that organizations are now looking to network virtualization for many of the same benefits and taking the next step toward a fully software-defined data center. (Figure 1)

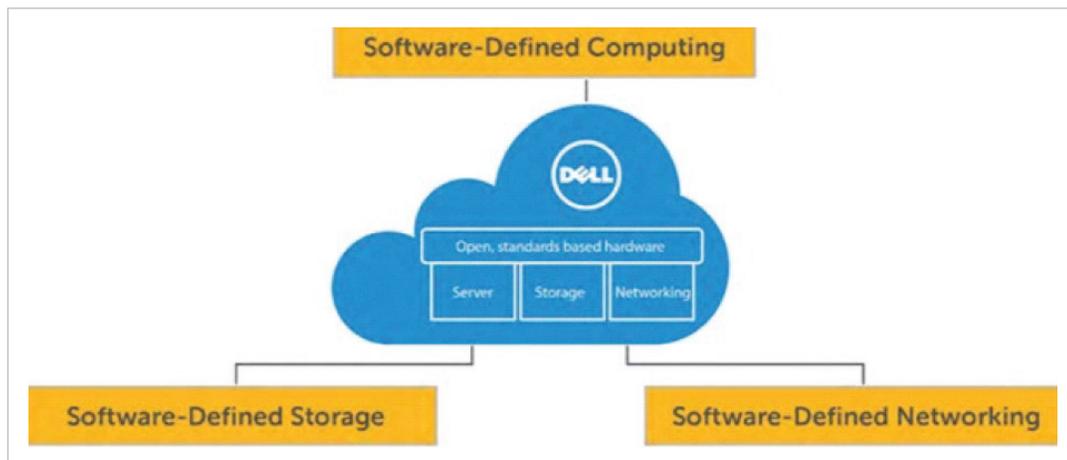


Figure 1 – Overview of Software-Defined Data Center

By managing network services such as routing and switching with software instead of relying solely on physical devices, organizations can speed resource provisioning and network reconfiguration while streamlining network administration. With such compelling benefits, it is no surprise that International Data Corporation (IDC) projects the software-defined networking global market as having a compound annual growth rate (CAGR) of 53.9 percent from 2014 to 2020, and predicts it will reach nearly \$12.5 billion by 2020.<sup>1</sup>

This white paper presents a compelling solution to help enterprises accelerate adoption of SDN and network virtualization with a complete hardware and software stack from Jeskell and Dell EMC. The information presented in this paper will give you a better appreciation of how much SDN can transform your network, much as VMware virtualization redefined server infrastructures years ago. You will also learn how to reap the compelling operational and economic benefits SDN offers.

<sup>1</sup> <https://www.businesswire.com/news/home/20160203005954/en/SDN-Market-Experience-Strong-Growth-Years-IDC>

## A PRE-CONFIGURED, FULLY TESTED SDN SOLUTION FOR ACCELERATED DEPLOYMENT

Through our close partnership with Dell EMC, Jeskell accelerates and simplifies SDN adoption by offering a pre-configured and tested SDN solution.

This solution combines Dell EMC Networking switches, Dell EMC PowerEdge servers, and Dell iSCSI storage arrays, layered with VMware NSX network virtualization and security software.

The choice of VMware NSX is key. While some organizations might consider open source software, such as OpenSwitch, because of its lower upfront cost, OpenSwitch is much more complex and time consuming to manage, offsetting any cost advantages. It is also not as feature rich as NSX, which offers built-in security, superior scalability, and advanced automation.

As a leader in IT consulting, solutions, and services, Jeskell brings more than 25 years of experience working with commercial enterprises and government agencies. Building on our broad

infrastructure expertise, customer-focused business approach, and collaboration with Dell EMC and VMware, Jeskell can help you move into the world of SDN and network virtualization with assured success and lower risk.

## SDN YIELDS COMPELLING ECONOMIC BENEFITS

The opportunities for financial savings with SDN are compelling. By elevating granular network control to the software layer, you no longer need expensive, proprietary network gear – just reliable commodity hardware that can perform basic routing and switching functionality. SDN does the rest, saving money and setting the stage for the future of networking. (Figure 2)

VMware NSX manages network equipment as a single pool, increasing hardware utilization and reducing the number of required devices for additional cost savings. Yet NSX provides more granular control of traffic, right down to the individual virtual machine (VM), which is simply not possible on a physical network.

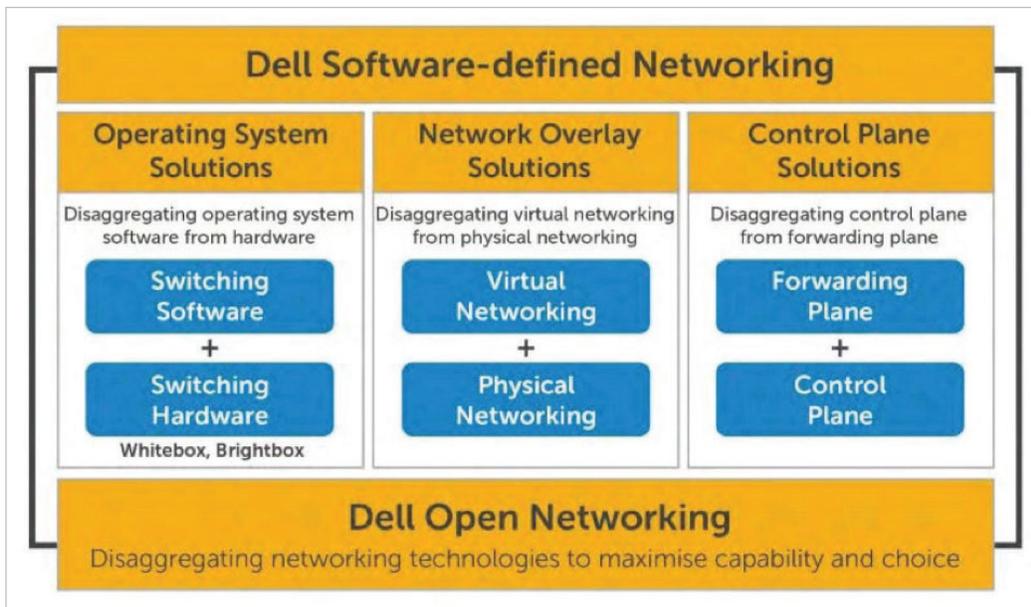


Figure 2 - Network Transformation with SDN

## WITH SDN AND NSX, YOU SHOULD EXPECT THE FOLLOWING ECONOMIC ADVANTAGES:

### **Simplified multi-tenancy with a common network foundation**

SDN makes multitenancy simpler and less expensive. Traditionally, you needed physically separated networks, virtual LANs (VLANs), and subnets to securely isolate traffic for individual tenants. With numerous tenants, this would become extremely costly. By contrast, SDN allows you to create dozens of virtual networks for multiple tenants — each fully secured and isolated — using the same common pool of networking hardware. Controlling traffic the old way meant installing physical firewalls and writing policies for each tenant to control network traffic and server access. Now, you can use VMware NSX to restrict or allow access to VMs based on port and protocol, as well as by individual user, IP address, or application type. SDN, and NSX specifically, enable an unprecedented level of granular control and efficiency over physical networks.

### **Automated network administration delivers time savings**

NSX enables network administrators to perform traditionally labor-intensive tasks with ease. Rather than spending hours reconfiguring a VLAN or subnet, NSX lets you do this in minutes. With the intuitive NSX graphical interface, you can push patches or security policies across the network with a single action. Configuring and managing virtual routers, switches, and firewalls are less time-consuming since you don't need to know different operating conventions and commands

for network devices. SDN is vendor-agnostic, so all network tasks are performed using a common approach through NSX. SDN also makes it easier to perform hardware maintenance. When replacing, repairing, or updating a physical device, you simply move traffic to an alternate virtual network device. Once maintenance is complete, just return traffic to the original virtual network and resume normal operations. The process is not only faster than traditional approaches, but has virtually no impact on network users.

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### **Making staff training a breeze**

With NSX control and management of the virtual network, you save on staff training. Network administrators are only required to learn one environment — NSX. There's no need to spend additional time or resources to learn every vendor's device in your network. Another important factor is that VMware has a broad footprint in enterprise IT. Most organizations have already invested in VMware training at some level. The additional NSX training builds on that foundation, providing a more efficient training path and leading to a richer knowledge base and skill set for your administrators.

## TRANSFORM BUSINESS OPERATIONS WITH GREATER AGILITY AND SECURITY

SDN brings substantial operational benefits to improve the flexibility, speed, service quality, and security of your network, by allowing you to:

- **Liberate your network from proprietary devices**
  - Because VMware NSX software handles all the advanced routing and switching features, you're not locked into any particular vendor's hardware. You can continue to use devices in your network and shop around for the best value regardless of vendor. New physical devices are immediately recognized by VMware NSX and become part of the managed pool of resources. This saves deployment time and makes it easy to scale your physical infrastructure as needed.
- **Enable network provisioning in minutes** – Provisioning and scaling virtual networks with NSX is fast and easy because you can use existing physical devices. It's not necessary to procure new devices to deploy a virtual network. Instead of taking months to purchase, install, and configure a physical network, you can deploy a virtual network with NSX in less than 10 minutes. Adding individual virtual routers or switches takes seconds. Similarly, you can scale a virtual network just as quickly and easily in a data center or across data centers thousands of miles apart. To extend a VLAN with NSX, you simply check the box to add a new network, select the subnet it's tied to, and the software automatically provisions resources without any other hands-on effort.

- **Accelerate the pipeline of business applications**
    - The speed and ease of spinning up virtual networks helps improve productivity for application developers. Rather than waiting for IT to provision resources, developers can use the automation and self-service features enabled by NSX to create their own virtualized sandboxes in minutes. The sandboxes mirror the production environment exactly, so developers can quickly move through testing and validation with confidence their applications will run identically in the production environment. This is a perfect fit for today's DevOps organizations that want to accelerate the pipeline of business applications from development into production.
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## CONCLUSION

If you're ready to make the move to SDN, Jeskell is ready to help. With decades of experience in virtualization, deep engineering skills, and close relationships with Dell EMC and VMware, Jeskell is well qualified to guide you on your SDN journey. With proven competency and technical expertise, our SDN specialists will collaborate with your team to assess your current network architecture and recommend a seamless approach for adopting SDN, from planning through implementation. Ultimately, we will deliver a fully integrated and tested SDN solution built on Dell EMC and VMware technologies, sized and configured for your business needs.

And as you continue to evolve your infrastructure, you might start to explore hybrid cloud. Jeskell can help you virtualize workloads and network devices and move them into the public cloud (if appropriate for your organization's needs). With SDN, it's as easy as creating cloud-based VMware hosts and replicating VMs and IP addresses from your private cloud. This strategy brings new opportunities for lowering costs, enhancing business agility, and adding another layer of data protection.

From virtualizing your network to building a complete hybrid cloud for your business, you can count on Jeskell as your trusted advisor and partner.

DOES YOUR AGENCY HAVE QUESTIONS ABOUT  
SOFTWARE-DEFINED NETWORKING?

Contact Jeskell today for a free consultation.

[info@jeskell.com](mailto:info@jeskell.com) or 1-877-JESKELL

