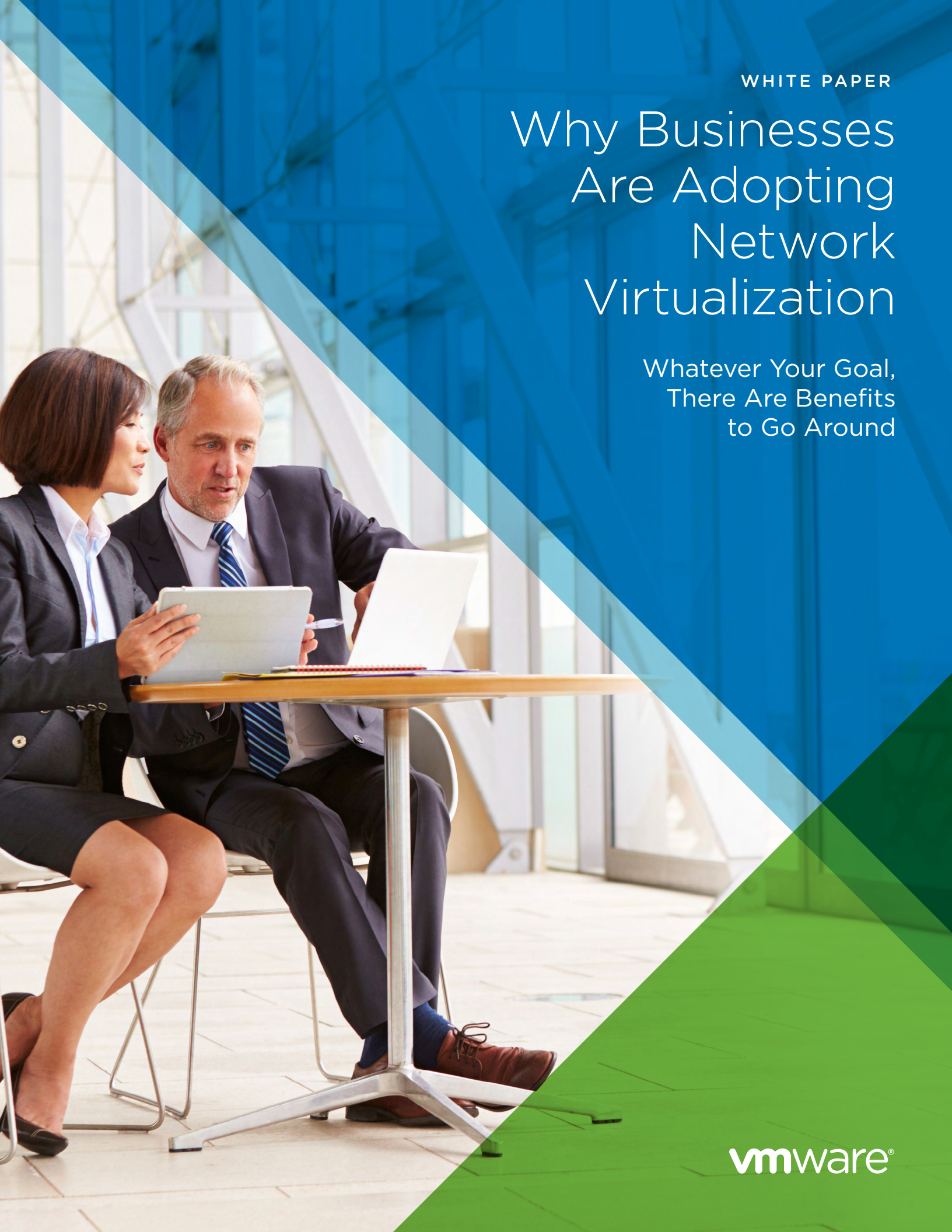

WHITE PAPER

# Why Businesses Are Adopting Network Virtualization

## Whatever Your Goal, There Are Benefits to Go Around

vmware®

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## Networking virtualization is not an all-or-nothing proposition. It can benefit different enterprises with different needs, or it can beget a host of benefits for any one enterprise.

Pick your purpose. Need to beef up security for your data center? Eager to accelerate your IT processes? Aiming to keep your applications up and running? In fact, you can choose to virtualize part of your network to pin down any one of these objectives, or take virtualization across your entire network to accomplish all of them. And what's more, it only takes one such objective to make the move worth your while.

In this paper, we will explore the advantages that make network virtualization attractive to IT organizations in the first place, identify how network virtualization might suit your business scenario, and see how VMware customers are putting VMware NSX® to work for them.

### What Is Network Virtualization?

Much as server virtualization recreates the traits of a physical server within software, network virtualization likewise replicates the components of network and security services in a software container. Consequently, the virtualized network is provisioned and managed independent of your hardware, and the physical networking devices simply become a vehicle for forwarding packets. With network virtualization, your network administrators can provision and change virtual networks—logical switches, routers, firewalls, load balancers, VPN, and workload security—in minutes rather than days or even weeks.

What's it mean for IT organizations? Network virtualization helps enterprises achieve major advances in simplicity, speed, agility, and security, by automating and simplifying many of the processes that go into running a data center network.

Here's a quick checklist of some of the key benefits that come with this new approach to the network:

- Reduce network provisioning time from weeks to minutes.
- Achieve greater operational efficiency by automating manual change processes.
- Place and move workloads independently of physical topology.
- Improve network security within the data center.

## Who Is Benefitting from Network Virtualization?

So just who is shedding legacy network architecture and applying network virtualization in their data centers? How about a Who's Who of enterprise organizations?

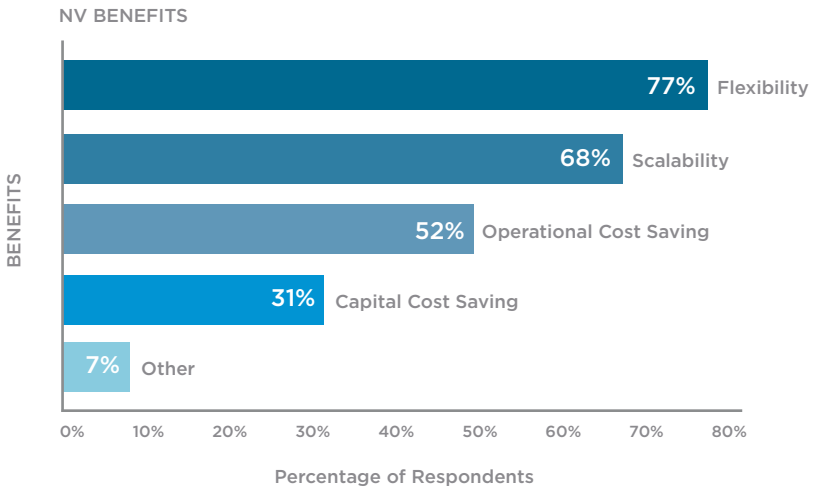
Network virtualization has been deployed in full production, at scale, by several of the largest cloud service providers, global financial organizations, and enterprise data centers in the world. AT&T, NTT, Rackspace, eBay, and PayPal represent just a handful of the companies that have virtualized their networks.


But the list is not limited to household names. Large and mid-size organizations alike are now benefiting from the speed and operational efficiency this game-changing solution delivers. Let's take a closer look at the factors driving adoption of network virtualization.

## Three Forces Driving Network Virtualization

Demands upon enterprise networks continue to surge, a trend characterized by the increasing expectations of end users and the growth of devices and business applications. With network virtualization, IT organizations are acquiring the means to adapt to changing demands, and align their networking capabilities with their virtualized storage and compute resources. In fact, a recent survey by SDxCentral found that 88 percent of respondents insist that it's "important" or "mission critical" to adopt a network virtualization solution in the next two to five years.[1] Additionally, the survey found that network virtualization is essential to help IT address three pressing needs in the data center: flexibility, scalability, and cost savings—both OpEx and CapEx.[1]

1. SDxCentral, "2015 Special Report: Network Virtualization in the Data Center," December 2015.




## A Business Needs Speed

For any company these days, the pace of business is pretty crazy, and the pace of change is only increasing. And everything now revolves around the ability of IT to support the business. This new reality has big implications for the network.

When a business wants to wow its customers with a new app, roll out a hotly competitive promotion, or take a new route to market, it needs the supporting IT services right away—not in weeks or months. That means IT needs to move a lot faster. Networks now need to change at the turbocharged speed of a digitally driven business. And that requires big changes in our hardwired approaches to the network.

## Security Requirements Are Rising

To say that data center security is a high priority for IT is a major understatement. The average company experiences two successful attacks each week, according to a global survey by PricewaterhouseCoopers.[2] Perimeter security is simply not sufficient to stem this tide. Network professionals are on the line to provide a better answer.

The new model for data center security will: a) be software-based, b) use the principle of micro-segmentation, and c) embrace a Zero Trust (ZT) model. The ZT model says that in a more virtualized world there should be no distinction between trusted and untrusted networks or segments—protection must be pervasive and granular.

In order to build a ZT model, you need a network virtualization platform that supports micro-segmentation.

2. "Global State of Information Security Survey 2015," PwC, October 2014.

### Apps Need to Move Around

With the rise of server virtualization, applications are no longer tied to a single physical server in a single location. You can now replicate apps to a remote data center for disaster recovery, move them from one corporate data center to another, or slide them into a hybrid cloud environment.

But there's a catch: the network. The network configuration is tied to hardware, so even if apps can move with relative ease, the hardwired networking connections hold them back. Because networking services tend to be very different from one data center to another, and from an in-house data center to a cloud, you need a lot of customization to make your apps work in different network environments. That's a big barrier to app mobility—and another compelling reason for using virtualization to transform the network.

## Four IT Initiatives Boosted by Network Virtualization

Enterprises are setting new standards for simplicity, agility, and security in their data centers—all accentuated by advancements in cost efficiency, flexibility, and choice. In order to arrive at these outcomes, organizations are undertaking a range of IT initiatives made possible by network virtualization. Let's introduce four of these initiatives, and review how innovative VMware customers are getting rewarded for their virtualization efforts.

### 1. Micro-segmentation

With an average cost of $5.85 million per incident,[3] data breaches represent substantial threats to the bottom line. IT organizations are confronting this risk with micro-segmentation, which deploys granular firewall controls and security for east-west traffic inside the data center—which can account for up to 80 percent of all network traffic. Without network virtualization, micro-segmentation can require firewalls for each virtual machine—which is cost prohibitive and operationally infeasible. Network virtualization provides the footing for affordable micro-segmentation, effectively enabling each virtual machine or virtual desktop to have its own firewall, and generating CapEx savings of up to 66 percent.


Of network traffic


Average cost per incident


CapEx savings

3. PwC, "Managing cyber risks in an interconnected world," September 2014.

### Novamedia Wins the Security Lottery

Novamedia, the Dutch Postcode Lottery, handles 8.5 million lottery tickets per month and generates and distributes billions of euros each year to charities around the world. In order to secure these financial transactions, Novamedia turned to the VMware NSX network virtualization solution.

**Key Challenges**

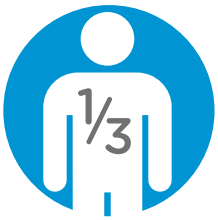
- Protect donation data to build and maintain trust among customers.
- Achieve flexibility and scalability to support a dynamic industry.
- Provide security for a platform that manages 1.4 billion euros each month.

**Benefits of VMware Solution**

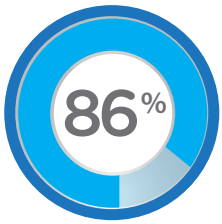
- Every virtual machine is firewalled, isolated, and segmented.
- Security against cyber-attacks: "Even if a hacker gets in, they can't go further than the first step," said Dharminder Debisarun, Novamedia's head of IT.
- Provisioning and configuration of virtual networks are reduced to seconds or minutes, tasks that previously took hours or days.

## 2. IT Automation and Orchestration

For IT administrators, reliance on manual processes can be a source of frustration and stress. Responsibility for deploying and managing hardware-based networks adds both time and complexity, and increases the risk of network downtime—one-third of network outages are the result of human error.[4] Network virtualization makes it possible to automate labor-intensive, error-prone tasks associated with network configuration, provisioning, management, and more. Furthermore, network virtualization features powerful orchestration capabilities to efficiently distribute network services to virtual machines. The result: accelerated IT service delivery and time to market for new applications, generating up to 86 percent in OpEx savings in some cases.




**Of network outages result of human error**




**In OpEx savings**

4. Dimension Data, "2015 Network Barometer Report," June 2015.

## IBM Introduces Agility into Client Networks

IBM Global Technology Services (GTS) takes pride in its reputation for helping customers solve critical business issues. And networking is a pivotal component of successful IT solutions.

IBM was looking for an alternative approach to networking that could still allow customers to increase agility from their installed networking equipment.

**Key Challenges**

- Help clients leverage value from existing networking hardware.
- Provide clients with solutions to keep pace with competitors.

**Benefits of VMware Solution**

- Achieve agility by empowering clients to quickly adjust networking as business needs change.
- Save time by automating manual and repetitive network configuration tasks.
- Save CapEx by reducing the need for additional hardware or bandwidth.
- Provide a stable virtualization tool that doesn't force clients to change the underlying physical network.

## 3. Reduce Hardware Dependency and CapEx: Adopt Multi-Tenancy Cloud

With network virtualization, enterprises are better positioned to optimize existing network investments, such as integrating existing IT systems in the event of an acquisition or merger, isolating tenants to take advantage of multi-tenant clouds, or drawing on the capacity of unused servers. Network virtualization makes it possible by delivering a common platform with the same logical networking that works with both traditional multi-tier tree-type architectures and next-generation fabric architectures. Optimization further spares the enterprise from the cost of ripping and replacing expensive hardware on a proscribed refresh cycle. As a result, enterprises are reporting CapEx savings in the range of 66 percent to 88 percent.


CapEx savings range

## CBOSS Delivers Secure Multi-Tenancy while Slashing CapEx and OpEx

CBOSS, an Ohio-based payment processing service provider, serves customers in both Europe and North America. That means measuring up to strident security compliance standards that can be unique to each market. As the expense of investing in physical firewalls for each customer was becoming onerous, CBOSS looked for a software-centric networking option that could ease the CapEx and OpEx impact it was experiencing from the hardware-centric approach.

**Key Challenges**

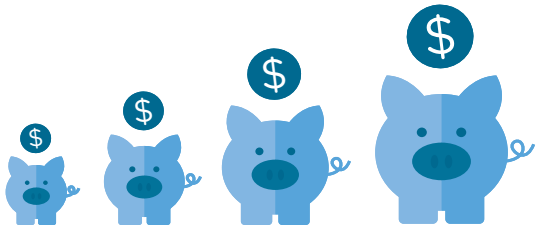
- High cost of meeting payment card industry (PCI) compliance for both European and North American customers, due to reliance upon dedicated physical networks and firewalls for each customer.
- Inability to provision secure multi-tenancy on the fly.

**Benefits of VMware Solution**

- Reduced physical equipment CapEx by 50 percent, using VMware NSX and Arista Networks.
- Saved 60 percent on power and operational management costs, with fewer physical networks, firewalls, and cables to manage.
- Created secure, multi-tenancy networks on the fly in minutes.
- Established template-based network and security services, ready for any app in a few hours.

## 4. Disaster Recovery

IT organizations are measured by their ability to maintain application continuity in the face of unplanned outages. With the capacity to enable faster recovery and reduce downtime, network virtualization can serve to complement an existing disaster recovery. Network virtualization enables IT organizations to replicate entire network and security services for any app with a push of a button. Such replicated network and security services—untied to physical networks, locations, and topologies—come at a fraction of the cost of traditional DR solutions, and can subsequently be available in standby mode at the push of a button. Such cloud-scale service availability reduces the risk and impact of outages, and consequently saves on related costs—known to range from hundreds of thousands of dollars to tens of millions of dollars per incident.



**Hundreds of thousands of dollars to tens of millions of dollars per incident**


### Global Speech Networks Automates Network Provisioning and App Continuity

Global Speech Networks (GSN), the largest call center cloud company in Australia, uses NSX to automate the provisioning and configuration of networks, as well as for application continuity—to keep an application available as it moves between data centers.

**Key Challenges**

- Changing or moving apps for customers requires time and effort to procure, install, provision, or configure physical networking hardware.
- Integration problems result from deploying custom apps on customer networks.

**Benefits of VMware Solution**

- Establish a template to streamline a complex tenant environment.
- IT automation makes it easy to scale the template again and again.
- Provide load balancing using NSX for a highly resilient solution with better app continuity.
- Achieve unmatched levels of integrity and availability at lower TCO with non-stop app continuity.

## Conclusion

In growing numbers, enterprises are realizing the power of network virtualization to transform their IT from hardware-based infrastructures to agile, software-based architectures. And with VMware NSX, organizations are pursuing a range of use cases—previously out of reach with traditional networking—to help them deliver services faster, strengthen security, keep applications up and running, and save substantially on CapEx and OpEx costs.

Find more information about the benefits of network virtualization, visit https://www.vmware.com/products/nsx.

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