Virtualizing Networks: The IT Perspective

Increase efficiency, scalability, and cost efficiency in the digital age
# Table of Contents

**Introduction** | 3

**Managing Enterprise Networks in a Big Data World**
Chapter One | 4

**IT Pros on Network Function Virtualization**
Chapter Two | 7

**AT&T FlexWare℠: Modular, Flexible, Highly Secure**
Chapter Three | 10

**Conclusion** | 13
Introduction

Whether your business is embracing new digital technologies, reinventing customer experiences, or moving to cloud services, your network needs to be up to the task. As organizations scale their digitization strategies, they are turning to server virtualization, cloud computing, and software as a service (SaaS) to enable increased agility, greater innovation, and the capacity to deploy applications on demand. It’s hardly surprising, then, that the pressures on modern networks are higher than ever.

Today’s networks provide the backbone of an effective digital transformation strategy. With an unprecedented increase in cloud computing and mobility, more traffic than ever before is flowing over them. To stay ahead, IT pros need to take care that their networks are resilient, secure, and dynamic enough to support the speed of business, stay responsive, and improve performance.

And yet, many organizations have limited time—and resources—to configure their diverse application-specific equipment when adding or changing network functionality. Their network-related tasks are buried on a long to-do list of managing business applications, leveraging the cloud, and supporting a proliferation of devices. For these organizations, the answer often lies in incorporating network function virtualization (NFV) into their digital transformation strategies. Virtualization gives them a simpler way to build and scale their networks.

A recent Spiceworks survey of 300 IT decision-makers revealed deep insights into how IT pros view network and data management practices, including the challenges, benefits, and drivers of using NFV-enabled solutions across their organization. This report explores the survey results.
Big data is a reality for all organizations today. As analytics become more granular, businesses are turning to data—in different formats, from a variety of sources, and in extremely high volumes—to derive key insights, understand customer behavior, and create more targeted offerings.

The pace at which data is generated and stored is accelerating exponentially, driven in large part by digital adoption and the proliferation of IoT devices. Studies predict that by 2020, there will be an estimated 20.5 billion connected devices.¹ By 2025, an average connected person anywhere in the world will interact with connected devices nearly 4,800 times per day—basically one interaction every 18 seconds.² IoT is disrupting every industry as companies create new business models based on the wealth of data these networks generate to transform processes, empower workforce efficiency, spur innovation, and personalize customer experiences.

Like the physical universe, the digital universe—driven by data—is large and constantly expanding. On average, the businesses that participated in the Spiceworks survey store 16.8 million TB of data, and most expect their data storage needs to increase over the next three years. More than half of the surveyed organizations reported managing over 250 endpoint devices across their network. Data collected from these connected devices helps businesses to gain insights and respond rapidly to change.

Studies predict that by 2020, there will be an estimated 20.5 billion connected devices.¹

All this data from new sources opens up new vulnerabilities across corporate networks. As a result, IT pros are worried about the widening gap between the amount of data being produced today that requires security and the amount of data that is actually being secured. By 2025, almost 90% of all data created in the global datasphere will require some level of security, but less than half will be secured.²
Without a future-ready solution to help protect your entire network and its connection points, your network security is only as strong as the weakest link. IT pros that participated in the Spiceworks survey pointed out security as their top challenge when it comes to application and data management, followed by escalating costs, multi-solution complexity, latency, and storage limitations.

To alleviate these challenges, the surveyed IT pros indicated a need for best-in-class vendors and solutions, as well as more time, money, and resources. More and more IT pros in industries with complex networking requirements are seeing the value of NFV to help their businesses lower infrastructure costs, boost security, and accelerate deployment of network services.

**Top 5 Challenges**

**Application & Data Management**

- **41%**
  Security/Compliance

- **33%**
  Cost/ROI

- **26%**
  Complexity of managing multiple solutions

- **26%**
  Latency

- **25%**
  Storage capacity
When asked about what they're looking for in a network management solution, IT pros responded:

**JESSE**
IT professional at an educational institution

I’d like to see better performance, better redundancy, and easier manageability to map and change things without having to go to an individual device.

**SHIVA**
IT professional at a data center services provider

There should be more scalability as well as simplicity in the usage of the solution.

**JIM**
IT Professional at a retail grocery chain

We want to make sure that the network and servers are going to work seamlessly, but we also want to ensure that we’re getting the best possible price.

**KEVIN**
IT professional at a worldwide manufacturing company

Enhanced agility, simplified management, and a reduced need for proprietary skill sets are becoming more important as we’re being asked to do more with less.
Network function virtualization (NFV) enables IT pros to modernize their networks with modular software running on standard server platforms. As a technology, NFV makes it possible to quickly add network capabilities to your infrastructure without having to install specialized equipment for each function. It also separates software functionality from its underlying hardware and lets you host those functions on virtual machines.

In the traditional network scenario, every network function runs on proprietary hardware appliances that are physically deployed and maintained separately. When you add up all of the network functions that organizations maintain at each site and multiply it by the number of locations, it can amount to hundreds or thousands of cumbersome boxes to manage across the network. When changes are required, they need to be made manually, box-by-box, often across locations, which is expensive, time-consuming, and prone to human error.

By opting to use NFV-enabled solutions, IT pros no longer have to deal with buying, managing, and maintaining a stack of specialized network appliances—such as routers, firewalls, and WAN accelerators. Instead, they can simply run these—and virtually any other network function—as software on industry-standard, high-volume servers. Each virtual network function can be easily deployed, configured, and moved in the network as needed.

**NFV eliminates a major barrier to business agility by virtualizing key network functions...**

NFV eliminates a major barrier to business agility by virtualizing key network functions so they can be deployed quickly in software running on industry-standard, high-volume servers. By deploying software-based virtual appliances known as Virtual Network Functions (VNFs), instead of hardware, you can minimize the time, labor, and cost associated with buying, installing, and maintaining separate physical and proprietary network equipment.
Over time, NFV has the potential to deliver high-performance networks with greater scalability, elasticity, and adaptability at reduced costs compared to networks built from traditional networking equipment. NFV covers a wide range of network applications, but it is driven primarily by new network requirements, including video, SD-WAN, the IoT, and 5G.

The Spiceworks survey revealed that while a majority of IT pros are currently using Ethernet (91%) and MPLS-driven solutions (50%), many of them agree that NFV solutions are relevant, compelling, and unique. Respondents from larger companies (500+ employees) tend to rank the value of NFV solutions higher than those at smaller companies. Most survey respondents indicated the abilities to streamline network operations and management, reduce hardware needs, as well as improve agility and efficiency are the most critical features to consider in an NFV solution.

So, what’s holding IT pros back from deploying NFV? While cost (51%) ranked as the top concern for adopting NFV solutions, many IT pros are also worried about security and reliability.

Top 5 Features Desired in an NFV Solutions

1. Streamlined network operations
2. Fewer hardware appliances
3. Improved agility
4. Enhanced efficiency
5. Reduced need for proprietary solution skills
When asked about their top concerns around NFV solutions, IT pros responded:

- Security and trusting one single source to provide a solution.
- Lack of knowledge and skill sets.
- Underlying hardware upgrades and recurring costs.
- Combining multiple functions into one device seems to provide a single point of failure.
- Compatibility and depth of product support. How will a product like this actually work and how much of a load will it take on existing hardware?
Today, more and more IT pros looking to build an agile network are turning to AT&T FlexWare—a solution that allows your network to be as responsive as the business it supports. AT&T FlexWare is a platform that helps IT pros transform how they manage their network infrastructure by simplifying the delivery and deployment of software-based network functions. With AT&T FlexWare, businesses can easily manage their networks, reduce total costs of ownership, and avoid being locked into proprietary hardware-based solutions.

Designed and deployed on the AT&T Integrated Cloud platform that utilizes Software-Defined Networking (SDN) and NFV technologies, AT&T FlexWare simplifies your network infrastructure while potentially lowering capital investments—a significant benefit for IT pros wrestling with concerns around cost. You only need a single AT&T FlexWare device (run on industry-standard x86 servers) at each site to run multiple AT&T-certified virtual functions from best-of-breed vendors.

AT&T FlexWare is offered in conjunction with multiple connectivity options. AT&T-certified FlexWare applications can be deployed on both small or medium industry-standard FlexWare devices and come with flexible customer management options.

**Streamlined Network Operations**

Enabled by NFV and backed by the AT&T network cloud platform, AT&T FlexWare solutions help businesses keep pace with the next wave of networking and transform how they manage their network infrastructure with greater speed, flexibility, and simplicity. Businesses can run multiple FlexWare applications on a device, mix and match applications based on capabilities they need at each location, and logically connect applications together via service chaining and orchestration. This not only simplifies and streamlines deployment and management of your network, but can lower capital expenses and increase operational efficiency.
**Reduced IT Costs**

Businesses can install a FlexWare device on premises, just like a traditional managed network device, except that the FlexWare device has the flexibility to be virtually any kind of network appliance that they want. Because the FlexWare device can house multiple FlexWare applications on a single piece of hardware, it replaces the need for multiple specialized hardware appliances. For IT pros looking to pare down their hardware investments, AT&T FlexWare reduces the total cost of ownership in comparison to what they would typically spend to buy and operate traditional equipment.

In traditional networks, specific functions also require specialized—and often proprietary—IT skills to configure and manage various aspects of network performance. NFV makes it possible to easily deploy any combination of these functions on one general-purpose piece of hardware, and simplifies the process of configuring and managing them via software, eliminating the need for specialized skills.

**Improved Agility, Greater Efficiency**

NFV removes a major barrier to business agility by virtualizing key network functions so they can be deployed quickly in software running on industry-standard, high-volume servers. By deploying NFVs instead of hardware, you minimize the time, labor, and cost associated with buying, installing, configuring, and maintaining separate, physical, and proprietary network equipment.

Like all NFV-enabled solutions, AT&T FlexWare is modular. You can mix and match FlexWare devices and applications and deploy them to your various global locations much quicker than with traditional single purpose-built network equipment models. This not only streamlines deployment, management, and scalability of your network, but also reduces power and cooling requirements, and can increase operational efficiency.
Increased Security, Better Reliability

To address concerns around security in a data-driven world, AT&T has added multiple virtual security options to AT&T FlexWare to give IT pros increased choices and greater peace of mind. In addition to self-managed and AT&T-managed firewall options, the solution also offers software-defined security options so that organizations can move to virtualized edge platforms with confidence. The solution also delivers high reliability, thanks to FlexWare’s enhanced redundancy options, including wireless backups, if primary communication networks are disabled.

Best-in-Class Vendor Ecosystem

AT&T FlexWare applications are designed to integrate virtually seamlessly with your current network infrastructure. They support a robust ecosystem of best-in-class NFV providers, including Juniper and Cisco virtual routers; Palo Alto, Check Point, Fortinet, and Juniper virtual security; and Riverbed virtual WAN optimization. The solution is offered in conjunction with multiple connectivity options, including AT&T VPN, internet, switched Ethernet and third-party internet and MPLS networks. To give you all the choice and flexibility you need, AT&T is working to expand its FlexWare application offerings and partner ecosystem.
The Spiceworks survey revealed important data about how IT decision-makers view network realities and solutions, including what challenges have been experienced, and what benefits can be realized by opting for NFV-enabled solutions. A large number of respondents were clear in their beliefs that NFV solutions are compelling and useful, with many of them indicating an interest in learning more about the technical aspects, use cases, implementation, and support options for these solutions, as they make future network management decisions. AT&T is a trusted advisor to businesses seeking to modernize and scale their networks. By virtualizing their network infrastructure with AT&T FlexWare, IT organizations can easily adapt their networks to changing business needs and rapidly growing volumes of data traffic, while lowering total cost of ownership and ramping up security.

Effective digital transformation and best-in-class agility are top priorities for all organizations today. IT pros are being tasked with finding faster and simpler ways to deploy, manage, and scale network infrastructure and computing resources on demand, while wrestling with limited resources.

Ready to take the next step?
Contact a sales rep to explore how AT&T FlexWare can meet your unique needs, or download our recent white paper to learn more.
About the Survey

In August 2018, Spiceworks surveyed IT decision-makers in the U.S. in an online research panel on behalf of AT&T Business. All 300 respondents were required to be involved with network management decisions for their organizations. The respondents held a wide range of job titles, came from diverse industries, and worked in organizations of all sizes with different numbers of branch locations.

Sources:
