
NETWORK VIRTUALIZATION ... AND REALITY

Making it Look Easy Isn't Simple

Magicians are masters of illusion. Guess your card. Pull a rabbit out of the hat. Saw the lady in half. It looks so easy, it must be magic! But we all know it is neither easy nor magic. It is the fruit of hard work, planning, preparation, and practice. And the easier it looks, the harder the magician has worked.

In the technology world, the magic of today is called virtualization. Expand your data center like a balloon, move applications from one compute node to another, or create new services on the fly. And now the network is involved as well, with software-defined networking (SDN), Network Functions Virtualization (NFV), and virtual customer premises equipment (vCPE).

It is clear that the virtualization of networks, in all of their varieties, will be a driving force for the remainder of this decade and beyond. Although there are CapEx benefits, the OpEx advantages are especially attractive as network operations are simplified and sped up. Having worked for several years with a number of early adopters, Juniper Networks is

of the opinion that the move to virtualization is highly worthwhile as part of a considered strategy. It does, however, require a complete understanding of your options, how they align with your business requirements, and a good roadmap. This means paying careful attention to the activities and impacts for all phases of your virtualization project—Plan, Build, and Operate. And regardless of the depth of skill your team may possess, almost any organization will benefit from assistance and consulting services from an experienced external source.

It really is like learning a new, complex magic trick: you first need to understand it, and then you still need time and practice to get comfortable with it. It can be daunting to make the move from today's world of more-or-less straightforward physical interconnectedness to one where everything is abstracted up one or several levels. And unlike a magic trick, we are not always sure where to start or what it is going to look like when we are done.



PLAN

Assess, design and plan your network.



BUILD

Deploy your new or upgraded network and security system.



OPERATE

Keep your network up and running.

The Virtual Life Cycle Is Very Real

In order to reap the benefits of virtualization, it is essential to evaluate the impact it will have as you implement the project and then operate it. Not to mention the ripple effects it will have as you seek to add virtualization to other parts of your network, or add greater functionality, or create brand new virtualized environments.

In the Plan phase, the first question is “where to start?” The early adopters Juniper has worked with illustrate the maxim that there is no such thing as a “typical” project. We have seen that each customer’s situation is different. Deciding where to start is as much a business question as a technical one, in many cases more so. Where can you get the greatest return on an early investment? Will it be due to the ability to offer new services, to counter a competitor, to increase provisioning speed, or to cut costs? Or will it be some combination of these . . . and others? And what is the logical follow-on? You want to make sure that your steps into network virtualization do not take you down a dead end. From a technical standpoint, what are your goals? How will your network virtualization be tied to your server and storage virtualization systems? What will you use for a hypervisor, what orchestration layer tools will you be using, and what types of service chaining can you put in place?

So many questions, but answers do exist. By carefully assessing your current situation from a business and technical point of view, Juniper Networks Professional Services consultants can help you understand exactly what your starting point is, evaluate various possible endpoints, and plot the best paths to reach them.

Because one of the key benefits of virtualization is the agility it provides, the best path for you may be to try something completely new. In the course of the virtualization projects we have engaged in, Juniper has found that it is beneficial to work with customers to jointly develop new solutions specifically tailored to their needs. We call this co-creation.

A major aspect of co-creation is to go beyond mere conceptualization to implementation—what we call the Build phase of the networking life cycle. Our consultants can provide you with guidance on connecting virtualized networks into your broader ecosystem of storage, computing, and applications. This means everything from deployment and migration to how to work with, or work around, your existing operations/business support systems (OSS/BSS) and IT infrastructures. And once you complete a trial phase, building out a real deployment at scale will bring up new challenges. Here there is no substitute for experience; someone who has already been through it can help you avoid the worst.

The challenges don’t end once your virtualization project is in production. On the contrary, although things will seem simplified to users and applications, there is still plenty to do “under the covers” to make sure everything continues to operate smoothly. As with any complex system, sometimes things go wrong, and in a virtualized world troubleshooting becomes a multidimensional task that must take into account the physical, the logical, and the abstracted layers of the network and its services. That means a lot more than just reacting when things go wrong. Proactive and preemptive support are not nice-to-haves, they are absolute musts. Automation modifies the virtual environment so quickly and so frequently that avoiding problems is far preferable to rushing madly to find and fix them. In addition, your virtualized network will need to grow, scale, evolve, and change. There will be new users and subscribers to add, and you will need to implement new applications and services, with their own behavioral requirements. In this brave new world, you want expert assistance and support now—it cannot wait.

Conclusion

It started with processing and storage, and now the benefits of virtualization are available for networks as well. Highly efficient use of resources, simplified management by humans, and greater control by applications bring a degree of agility and responsiveness never available before. But the devil, and the magic, is in the details. This is why your virtualization

projects can benefit by supplementing your in-house skills with resources from Juniper Networks Customer Services and Support. Our experience and dedication can help guide you on your journey, navigate the traps and pitfalls, and provide you with the reactive and proactive tools necessary to ensure that your project does not become a virtual nightmare.

Juniper Networks Customer Services and Support

The Juniper Customer Services and Support team consists of over 1,800 Juniper support personnel and more than 1,000 consultants within our partner community. Our global Professional Services team alone consists of more than 200 senior-level consultants, each

with an average of over 10 years' networking experience within multiple industries. For more information, please visit www.juniper.net/us/en/products-services/services/technical-services/.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that

transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net



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