Companies know that the modern data center does more than run the business; it’s also the starting point of their ability to respond to changing needs. Indeed, today’s business environment demands incredible agility, aided by the right technologies.

Strategic investments in server virtualization and modern storage systems have been the de facto standard for driving costs down, providing greater performance and delivering enhanced agility. Now companies have an opportunity to deliver new services that speak to their future needs through software defined networking (SDN).

SDN Removes Networking Restrictions for the Cloud Era
Networking infrastructure is racing to catch up to the application explosion resulting from the technology advances in virtualization, cloud computing and mobile. Kelly Herrell, Brocade vice president and general manager, Software Networking Business Unit, emphasizes the importance of advancing the network to achieve a new plane of flexibility. “The network needs a level of agility on par with what the applications have now,” he says. “The focus of SDN is modernizing the network to enable the business value of the application build-out. Otherwise the IT architecture has feet but no wings.”

“The focus of SDN is modernizing the network to enable the business value of the application build-out.”

—Kelly Herrell
Vice President and General Manager,
Software Networking Business Unit, Brocade

One barrier to the adoption of SDN is a perception that there is a lack of clear industry standards in vendor implementation. The reality is that openness to other networking technologies is assumed in any implementation. Sunil Khandekar, founder and CEO of Nuage Networks, believes this to be the case with SDN: “The reality is that no SDN solution should assume a greenfield installation. We must intercept the data center network where it stands today, and propel it dramatically forward. Heterogeneity must be part of the design, and no workload should be left behind.” This requirement is accentuated by the variety in today’s data centers, from both physical and virtual workloads to new application models.

“The key challenge we address,” says Khandekar, “is making the consumption of network resources as rapid and dynamic as compute resources have become, so that companies can turn up cloud applications instantaneously, on any cloud, without sacrificing control or visibility.”

CIOs have seen plenty of new technologies arise, but they know what to look for before investing in anything new. When considering SDN, it’s important to understand that openness and flexibility are critical requirements that must be met before companies make any investment. The leading adopters of SDN all keep their options open. Herrell confirms this approach: “We don’t see customers doing a complete rip-and-replace model. Instead, we are seeing a rapid series of innovative, value-adding upgrades to address the areas of greatest pain, all with the larger goals in mind.”

Khandekar agrees that openness is a priority: “The true power of SDN lies in delivering abstraction and automation of network services in support of cloud applications, in a truly open way—one that spans different hypervisors and cloud management systems, across multiple sites, inclusive of virtualized and non-virtualized assets alike. Anything short of that is less than what is required and what is possible.”
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Collaboration Is Key
The network is one of a company’s most precious and passionate infrastructure areas because it affects all operations. Navigating any change across many groups requires a collaborative approach that must start at the top. Application requirements, data security and ubiquitous connectivity are some of the many challenges that networking alone may not address. CIOs can leverage an SDN strategy to balance stakeholders’ needs and ensure they don’t seek workarounds.

It’s clear that companies need to retain control of the applications and the network technologies that play an integral role in the SDN strategy. A lot can be learned from recent examples of how SDN aided a fundamental change.

As server virtualization has gone mainstream, the network has hit a tipping point where too many existing controls are broken and fixing them with traditional processes is excessively complex and costly. Cloud service providers were the first to hit this barrier and the first to operationalize software-driven networks. Enterprises are following suit, driven by hybrid public/private cloud strategies.

The formerly clear lines between networking and computing have blurred as networking technologies have entered the server in software form. The virtual router has been a primary enabler in this change. “What had been technology hurdles are no longer impediments,” says Herrell.

Technology is available now that allows companies to address current challenges. One specific example is the virtual router, which solves a real problem, yet presents a fundamental change from previous routing practices.

Putting the router inside a server as a virtual software-controlled router yields a number of benefits. First of all, it can be done quickly and it satisfies application priorities. Secondly, a virtual router can isolate fault domains, which can increase the availability of more services. Finally, a virtual router can cost less than a physical router, especially when a hardware purchase is part of the discussion to add a new service. Yet the virtual router can meet all of the enterprise requirements such as segmentation and separation—at the speed of the business.

Many companies can relate to the virtual router as one example of how SDN can benefit them, but there are many more advantages. SDN is ushering in a fundamental change to the data center architecture as software networking gains rapid momentum. “This is networking’s open systems era,” says Herrell. “We have an explosion of innovation. The software is beginning to decouple from the hardware for the first time.”

“It’s all about driving business agility and operational simplicity as enterprises embrace the cloud.”
—Sunil Khandekar
Founder and CEO, Nuage Networks

A Need for Speed
From vendor to vendor, SDN has different meanings and offerings. However, there is a common denominator: improved service time. Any company can realize this benefit when applying SDN correctly. CIOs can focus on that primary benefit, align it to the business and see where the technology can take them. At that point, the technology stakeholders can focus more on the business rather than the infrastructure.

No two SDN strategies and implementations are identical. The same goes for the different requirements and expectations different companies may have. But there is a common risk if they don’t adopt an SDN strategy now. According to Herrell, “There is a distinct risk of losing IT velocity, which the business will feel downstream.”

This risk applies to the business more than to the technology. “It’s all about driving business agility and operational simplicity as enterprises embrace the cloud. SDN principles stand to bridge the gap between applications and networks to deliver exactly these benefits, making networks as instantaneous and unconstrained as cloud applications need them to be,” says Khandekar.

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