

## PARTNER'S GUIDE TO

# Software-Defined Networking



other networking ideas. SDN origins date to about 2008, and at a high level, the idea is dividing networking into two “planes” and separating them. If you look at the traditional seven-layer networking stack, network logic and network policies are interspersed throughout. Network policies emerge from the topology of the network. That topology, which is created by the placement of and connections between routers, switches and other hardware along with programming by experts of each device in its proprietary language, is something that’s fixed and that may not change for years.

Even as committees hash out standards for SDN and most of the action is at the cloud computing industry and enterprise datacenter level, heavily packaged solutions are hitting the market for MSPs and their SMB customers.

**By Scott Bekker**

**S**oftware-Defined Networking (SDN) is one of those terms that’s been in the air for the last few years. It sounds important, but it feels early for managed services providers (MSPs) and other partners serving small and midsize business (SMB) customers to pay close attention. Recent developments point to at least one way that MSPs may be able to actually turn an industry buzzword into a business opportunity right away.

## A DEFINITION FOR SDN

The concept of SDN hasn’t been around for long, but the eagerness of cloud computing giants to embrace it has given it faster momentum than many

SDN represents an effort to abstract the network logic and policies from the networking hardware—placing it instead on a server, where it can be modified with more user-friendly tools that work across multiple types of hardware from many vendors.

Put another way, SDN creates a “control plane” that’s configurable from a server that’s separate from a “data plane,” which is the packet-routing activity carried out in real time.

UC Berkeley computer science professor Scott Shenker, a major proponent of the SDN approach, calls it being able to change network policies in software time rather than in hardware time. In a 2012 lecture on SDN available on YouTube, Shenker likens SDN to computer coding. In creating software, nearly all developers prefer to use a high-level programming language, which is then compiled to machine language, rather than trying to write code directly in the x86 instruction set.

One of the main functions of SDN is to abstract all the complex data about the topology, about individual networking equipment brands and about different types

of networking equipment so that what a network administrator faces in dealing with an SDN interface is simply making a statement of policy, such as "I don't want Point A to be able to talk to Point B." SDN takes that policy statement and acts as a compiler to take care of all the details and convert the statement into action.

"We've already virtualized storage and compute so being able to virtualize the network is the last stage in actually freeing ourselves from physical reality," says Shenker, who was also a cofounder of Nicira Networks, an SDN and network virtualization startup that VMware acquired in mid-2012 for \$1.26 billion.

If SDN works, the value is obvious to enterprises running large datacenters, and cloud computing giants are especially excited about the potential of SDN to simplify their infrastructures and the way those infrastructures connect to the global network.

One other important design decision that has helped with the quick rise of SDN is that in a large environment, it doesn't require adopters to rip-and-replace all their legacy switches and routers. Instead, Shenker says, SDN-based networking equipment can be plugged in at the edges of the network and abstract the rest of the gear.

### A BURGEONING MARKET OPPORTUNITY

Rohit Mehra, a vice president covering network infrastructure at market analysis firm IDC, elaborates on the value proposition.

"SDN's ability to decouple network logic and policies from the underlying network equipment allows for a more programmable network," Mehra says. "Providing better alignment with the underlying applications, this programmability allows for greater levels of flexibility, innovation and control in the network. Logic and policies that can be defined, changed and modified result in a more dynamic network, providing the scale network administrators so desperately crave."

In a public release a little more than a year ago, IDC gave the market a fairly high valuation. "The worldwide SDN market for the enterprise and cloud service provider segments is forecast to grow from \$360 million in 2013 to a robust \$3.7 billion by 2016. This forecast for the SDN ecosystem includes the associated network infrastructure, SDN applications and control plane solutions, and SDN-related professional services."

To justify the valuation, IDC noted a number of contributing factors that make SDN an idea whose time has come. They include the growth of cloud services and applications; a focus on converged infrastructures for compute, storage



and network; a focus on the software-defined datacenter; experience from server virtualization; and customer frustration with network inflexibility.

"For many of the SDN-related solution providers, some of them still in stealth-mode, 2013 is likely to be a year of reckoning," Brad Casemore, an IDC research, director said at the time of IDC's 2013-2016 forecast.

**"We've already virtualized storage and compute so being able to virtualize the network is the last stage in actually freeing ourselves from physical reality."**

*Scott Shenker, Computer Science Professor, UC Berkeley*

Indeed it was. Recognition of the opportunity has touched off interest from a wide variety of vendors.

A recent report from the Enterprise Strategy Group (ESG) showed how difficult it is to keep tabs on this fast-moving market. "Market Landscape Report: The Evolution of Software-Defined Network Architectures" was completed Aug. 31, 2013. At the time, the ESG list of vendors with deep involvement in SDN was already long and included a mix of networking industry heavyweights, start-ups and converts. With the caveat that the list was not even necessarily

SHUTTERSTOCK

comprehensive, ESG listed Arista Networks Inc., BigSwitch Networks Inc., Brocade, Cisco Systems Inc., ConTeXtream, Cumulus Networks, Cyan Inc., Dell Inc., Extreme Networks Inc., Hewlett-Packard Co., IBM Corp., Juniper Networks Inc., Midokura, NEC Corp., Netsocket Inc., Nuage Networks, Pica8 Inc., PLUMgrid Virtual Network Infrastructure Inc., Pluribus Networks, Tail-f Systems, Vello, VMware Inc. and 6Wind.

### **WILL SDN WORK AT THE SMB SCALE?**

For enterprise-focused vendors and major cloud services providers, the potential value of SDN for their large networks is clear. What's been less clear to this point is whether there will be any useful and cost-effective applications of SDN for smaller players such as MSPs and the SMBs they typically serve.

What's more is high-end technologies that require a lot of integration, fluid standards and custom implementation can be a great business for enterprise-focused partners that have expert specialists and can build high margins into mysterious areas.

Technologies that work well for the SMB channel tend to be highly packaged and commoditized. One of the vendors mentioned in the ESG report—Plano, Texas-based Netsocket—is trying to carve an SDN niche for MSPs and SMBs.

Netsocket has been making noise about an MSP play for SDN since last summer.

In a blog post in November, Tricia Hosek, vice president of products and marketing, proposed that a “good place to start with SDN and NFV [Network Functions Virtualization] is relevant to managed services providers (MSPs), cloud services providers (CSPs), and also to traditional carriers relative to their business services offerings. Many of these providers live in the world of virtualization, automation, multi-tenancy, and self-service, but are still forced to wrestle with legacy routers and switches and the wretched CLI [command-line interface]. If you're an MSP looking to get started with SDN and NFV, focus on the edge and your [SMB] clients first.”

At the time, MSPs would've had to build the SDN solutions themselves, but Netsocket was setting up its February rollout of a packaged offering for MSPs called Netsocket Virtual Edge, which is targeted at SMBs and enterprise remote offices.

Based on the Netsocket SDN framework called Netsocket Virtual Network (NVN), Virtual Edge consists of a standard x86, pre-configured server that acts as a server, router and

**“SDN's ability to decouple network logic and policies from the underlying network equipment allows for a more programmable network.”**

*Rohit Mehra, Vice President,  
Network Infrastructure, IDC*

Layer 3 switch that's shipped to the customer, eliminating the need for an MSP to visit each customer site. Once the customer plugs in the server and attaches a cable, the system is designed for an MSP to centrally manage the virtualized network, along with those of other customers through a multi-tenant management interface. From the management console, MSPs can manage edge routing, switching, firewall and tunneling capabilities to distributed environments, while the on-site server can also support additional third-party SDN solutions, according to Netsocket.

“[MSPs] must find a way to provide affordable network services to smaller business customers and at a profit,” Netsocket President and CEO Fletcher Hamilton said in a statement. “We are very excited to pioneer the path for MSPs by delivering a solution that can virtually revolutionize their business and profitability model and, in short, result in new revenue streams.”

As a first effort in trying to apply an MSP sales model to reach SMB customers, Netsocket will be a test case for the utility of the solutions in smaller environments.

One prominent Microsoft National Systems Integrator partner with an MSP practice, Austin, Texas-based Catapult Systems LLC, is trying out the Netsocket SDN solutions in its own branch offices to evaluate if SDN represents a workable model for small and remote office customers. So far, Catapult Systems IT Director Joe Stocker reported good results internally: “Utilizing the NVN Web-based GUI, I've been able to make adds and changes to the network within mere minutes.”

If the experiment works and SDN can scale out to a number of SMBs rather than just up to major enterprise and cloud datacenters, expect to see more solutions come flooding into the MSP market. •

---

*Scott Bekker is editor in chief of Redmond Channel Partner.*



# Virtualized Networks Save Your SMB Customer Time and Money

Managed Service Providers have had their eyes on the growing SMB market for years, but most have found it a challenge to provide IT services that could both meet the budget constraints of these customers and provide an attractive profit to the MSP.

**Introducing Netsocket's Virtual Edge**, a solution specifically optimized for Managed Service Providers (MSPs) and their enterprise remote office and SMB customers. It allows you to efficiently and cost-effectively deliver managed edge routing and other services to these distributed environments—providing the same large enterprise-capable routing functions and other IT services without the need for labor intensive certified engineers and costly truck-rolls associated with conventional network deployments. In fact, you can reduce operational expenses tied to networking components by as much as 75 percent.

## Netsocket Virtual Edge solution:

- Provides an extensible platform for new services to be deployed
- Enables service providers to deploy a managed service with no truck roll required
- Gives you a Touch, Trial and Commit offering
- Overlays your existing physical network infrastructure
- Creates a highly profitable new service offering
- Can virtually grow your customer reach outside your physical region

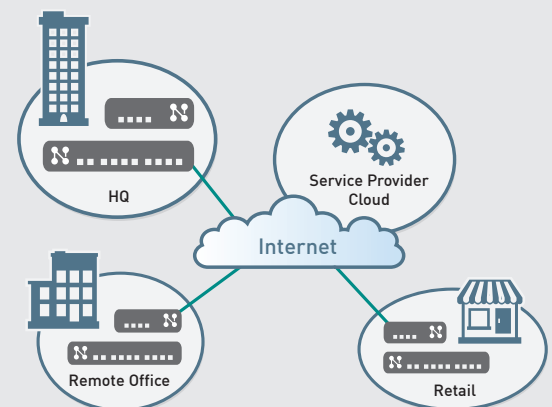


"The SDN-enabled hardware space will exceed \$707 million this year and reach \$13.3 billion in 2018. Meanwhile, the market for SDN software in service provider networks will be valued at \$2.3 billion in 2018"

– ACG Research

## Netsocket Virtual Edge

- Cloud-managed virtual network is optimized for enterprise and SMB edge deployments
- Enables service providers to deploy a highly profitable new managed service with no truck roll
- Centralized "GUI-Based" Cloud Management—No CLI Required



To learn how to partner with Netsocket and explore how Netsocket can virtualize your world, visit:

[www.netsocket.com](http://www.netsocket.com)