

CHOOSING THE RIGHT SDN SOLUTION FOR YOUR BUSINESS

What is the purpose of your IT department? Most would say their purpose is to come up with technical solutions to solve business problems. Those problems may be as granular as figuring out why the shipping clerk's email isn't working correctly or as big as implementing an enterprise software solution to streamline operations within the company. In today's hyper competitive global environment, it's not enough to merely come up with a solution that solves a problem. Optimally, a solution should also add value to the business. Operational managers base nearly every decision according to the measurement of profitability. That time has now arrived for IT managers as well.

In our white paper entitled, *Software Defined Networking—The Next IT Paradigm of Promise*, we discussed how nearly 80% of IT budgets today are consumed with maintenance and routine tasks such as performing firmware updates, configuring VLANs on switches, modifying router ACL's, etc. To sum it up, IT staffs spend much of their time working with hardware blocks and when they aren't maintaining them, they are most likely ripping them out of the data center to replace them with new blocks.

SDN isn't about replacing blocks with better blocks. It's a solution with a whole new approach, and there are a number of tools and solutions to make SDN a reality. Before we dive into some of the leading SDN solutions, let's establish some foundational statements about SDN:

- SDN is a software solution, not about the latest hardware trend
- SDN doesn't put blocks first, it puts the application first

- SDN is about taking human middleware out of the configuration process and automating it

The basic premise of SDN is about separating the control plane from the data plane so that an application driven controller can manage and configure all of your devices on the data plane, accelerating the deployment process for new applications to a matter of minutes instead of weeks or months. Although all SDN solutions adhere to this concept, there are differences among the individual SDN solutions offered by the leading providers today. **The following solutions are not mutually exclusive, so it's critical to learn about each of them in order to determine which solution(s) may be right for your business.**



SDN isn't about replacing blocks with better blocks. It's a solution with a whole new approach.

VMWARE NSX

It's no surprise that the leader in server virtualization would be a leading SDN provider. NSX is an SDN solution that was designed to leverage the vSwitches already present in server hypervisors across the data center. Today it also integrates with hardware devices from its leading partners



as well. This allows you to decouple the management and configuration process from the hardware itself.

NSX emulates the architecture of their server virtualization hypervisor in which a virtual machine is a software container that presents logical CPU, memory and storage to an application. NSX works with a software container called the virtual network which presents network services that include:

- Logical switching that supports all Layer 2 and 3 switch functionality
- Logical routings
- Logical firewalls
- Logical load balancer
- Logical VPN supporting both site-to-site and remote access

At the heart of the system is the NSX controller cluster. The controller maps the logical network services to the underlying IP infrastructure, requiring nothing more than connectivity and packet-forwarding from the underlying IP infrastructure. IT administrators interact with the controller through a web-based GUI management dashboard for the provisioning, administration and troubleshooting processes. NSX is not an all-or-nothing proposition. It is designed to allow IT administrators to virtualize the decoupling of portions of your physical network over time. It also supports multiple management platforms.

CISCO ACI

Just as it makes sense for the leading virtualization company to enter the SDN market, it makes sense for the leading network device company to do so as well. ACI stands for Application Centric Infrastructure and represents a new systematic approach to networking that Cisco redesigned from the ground up in order to create a model in which applications guide network behavior. As Cisco pronounces today, applications are everything.

The controller for ACI is called the Application Policy Infrastructure Controller or APIC. Not only does it decouple the management control from the hardware layer, but it completely separates itself from the data plane so that any failure on its part doesn't impact network traffic. Of course APIC is designed to support Cisco network devices, but its southbound interface also supports multiple third party devices as well.

ACI delivers configurations and policies to the underlying hardware layer by what Cisco calls Application Network Profiles. An application network profile is the end-to-end connectivity and policy requirements for an application. Through the APIC, the IT administrator can create the necessary configurations to support a desired application. The APIC will then deliver the ANP to the allocated network devices below it, automatically generating the VLANs, routing tables, access list modifications, etc., paving the way for application deployment.

ARUBA/HP OPENFLOW

Unlike the other two solutions outlined, HP has a non-proprietary SDN solution that is derived around OpenFlow. OpenFlow is an open source standards-based SDN protocol. Originally published in 2007 by a partnership of California universities, the protocol is now overseen by an organization called the Open Networking Foundation (ONF). HP has played a contributing role in the development of OpenFlow since its inception and is an active member of ONF. HP also has the most SDN-enabled switches on the market today.

Like the others, HP's SDN solution is composed of three layers: the infrastructure layer where the physical devices reside, the control layer where their own controller resides, and the application layer. HP has created their own SDN applications called the HP VAN SDN Controller that can integrate with the controller through the northbound interface, but they also allow anyone to integrate their own SDN applications as well. By doing this, HP will have



an application store in which its customers can browse, purchase and download a wide array of applications suited for their needs. The SDN controller also integrates with HP's Intelligent Management Center or IMC that many HP switch customers already utilize. It is HP's vision that their continuous commitment to an open and collaborative application development environment will accelerate innovation for SDN and facilitate its penetration in the marketplace.

TAKE AN INFORMED APPROACH

All of these solutions do one thing in principle, that being to eliminate manual provisioning and fragmented management interfaces. Organizations that take an informed approach to deciding which solution is the best solution for their own environment will be on the right path. We highly consider consulting an IT solutions provider that not only knows these solutions from implementation experience, but also understands your existing IT infrastructure and your business objectives.

Whether implementing an SDN solution is on the roadmap for this year or next, one thing is for certain—SDN will continue to develop and mature as time goes on, providing more automating solutions that will make IT a department of empowerment for their organizations.



TALK TO WEI TODAY

Our technical experts want to answer your toughest questions. We can assess your current IT environment and help you develop a software defined networking strategy to meet the demands of your business.

ABOUT WEI



WEI is an innovative, full service, customer centric IT solutions provider.

Why WEI? Because we care. Because we go further.

At WEI, we're passionate about solving your technology problems and helping you drive your desired business outcomes. We believe in challenging the status quo and thinking differently. There are a lot of companies that can take today's technology and create a great IT solution for you. But we do more. We go further. And we have the customer, vendor and industry awards to prove it. WEI is a premier technology partner, who always puts our customers first while providing the most innovative solutions for over 25 years.