Greater agility and continuity

HP-VMware Networking solution

Federated Software-defined Networking (SDN) and network virtualization solution provide common infrastructure and operations model across physical and virtual networks

Networks must become easier to manage

As companies embrace cloud and mobility, manual network configuration has proven time and resource intensive, as well as error prone. SDN virtual-only solution for network virtualization offers a centralized control plane, but does not automate configuration and provisioning of network devices. Virtual networks also lack visibility of the underlying physical infrastructure, which results in blind spots that can impact business continuity and force manual remediation. Network virtualization offers a centralized control plane, but does not automate configuration and provisioning of physical network devices.

The HP-VMware Networking solution is the industry's first multivendor east-west federation to deliver interoperability and openness. The solution federates the HP Virtual Application Networks SDN Controller with the VMware NSX network virtualization platform. This provides customers with an integrated approach to automating their physical and virtual network infrastructure. The networking solution also provides a centralized view, unified automation, visibility and control of the complete data center network, thereby improving agility, monitoring, and troubleshooting.

"Although it's true that most network virtualization solutions can run over any IP network, performance and reliability directly depends on the performance and reliability of the underlying physical network. As network costs grow, IT organizations push network utilization to contain cost. Traffic engineering of the underlay network and its careful correlation to the logical network abstraction layer, where network policies are defined, will be essential to ensuring performance and reliability."

— Simon Richard, Gartner, Improving Data Center Agility With Network Virtualization, 17 April, 2014

Unifying physical and virtual networks

HP and VMware have collaborated to deliver the industry's first interoperable SDN solution—HP-VMware Networking Solution. The solution provides unified automation and visibility of the physical and virtual data center networks, enabling business agility and continuity.

The key components of the solution include:

• HP Virtual Application Networks SDN Controller

• HP ConvergedControl SDN application

• HP FlexFabric 5930 Top-of-Rack Switch

• VMware NSX network virtualization platform

This federated solution integrates with orchestration tools to provide cloud automation and agility. Additionally, the HP Intelligent Management Center (IMC) along with the SDN Manager provides a single pane-of-glass management for both virtual and physical networks.

VXLAN or Virtual Extensible LAN is an encapsulation protocol for running virtual networks across layer 3 networks. VXLAN adds a 24-bit segment ID to the Ethernet frame allowing up to 16 million virtual networks across a common layer 3 infrastructure.

The Open vSwitch Database management protocol which is a protocol used to manage Open vSwitch instances. The protocol manipulates a set of tables representing switch configuration data.

Figure 1. HP-VMware network solution
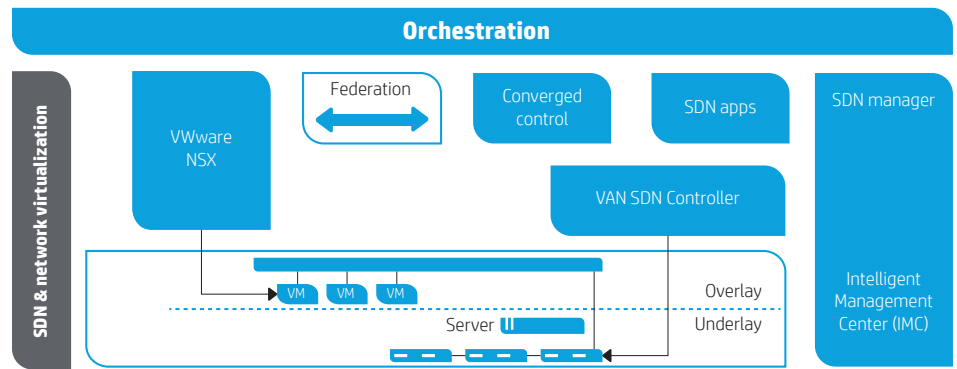
Enable unified automation and visibility

The HP-VMware Networking solution joint solution:

• Unifies automation, visibility, and control of the complete data center network improving agility, monitoring, and troubleshooting

• Delivers open, interoperable network virtualization and SDN solution across physical and virtual networks

The HP-VMware Networking solution eliminates manual configuration of both the physical and virtual data center networks through interoperable automated orchestration of policies and creates a single view of the network—both physical and virtual.

"Customers are adopting network virtualization to gain the necessary agility needed to realize the promise of virtualized and cloud data centers. To be successful, IT organizations need solutions to deliver common management of services and operations across the physical and virtual domains."

— Stephen Mullaney, Senior Vice President and General Manager, Networking and Security Business Unit, VMware

A closer look the HP-VMware Networking solution

The HP-VMware Networking solution federates the HP Virtual Application Networks SDN Controller and the VMware NSX network virtualization platform through Federation APIs. NSX communicates with the VAN SDN Controller using the Open vSwitch Database (OVSDB) management protocol, which is supported by the VAN SDN Controller via the federation APIs. This allows NSX to share virtual tunnel state information with the Converged control application to deliver virtual network tunnel endpoints on physical network devices such as the HP FlexFabric 5930 Switch with VXLAN support.

In addition, the VAN SDN Controller also integrates with NSX via the federation API to deliver SDN applications across virtual networks. Together, the HP VAN SDN Controller and VMware NSX network virtualization platform unify virtual and physical networking while providing SDN agility.

The solution federates the HP Virtual Application Networks SDN Controller with the VMware NSX network virtualization platform providing a centralized control plane and view of the physical and virtual network while automating underlying configuration.

The solution provides unified automation and visibility of the complete data center network—improving agility, monitoring, and troubleshooting. It is built upon:

OVSDB Federation interface between the VMware NSX network virtualization platform and the HP ConvergedControl SDN ApplicationUnified physical and virtual visibility and intelligence with the HP Virtual Application Networks SDN ControllerSingle pane-of-glass management tool with HP Intelligent Management Center (IMC) with SDN Manager and integrated VMware vCenter plug-in

The HP FlexFabric 5930 Switch to support the automated provisioning of the virtual network with VXLAN support

With VAN SDN and NSX federation, virtualized virtual networks have the ability to:

• Unify virtual and physical devices

• Bridge virtual and physical networks

• Simplify network lifecycle management

• Deploy additional bandwidth rapidly

• Provide end-to-end visibility into availability and performance

• Enable rapid root-cause analysis and troubleshooting

"Building upon our SDN leadership, the HP- VMware networking solution unifies visibility and automation of the physical and virtual network with a common control plane, enabling new application and service delivery in minutes rather than months."

– Dominic Wilde, Vice President, HP Networking

Availability

The complete HP-VMware Networking solution will be available worldwide in 2H 2014. Key components will be available on the following timeline:

• HP ConvergedControl SDN Application, Q4 2014

• HP FlexFabric 5930 Top-of-Rack Switch, currently available

• HP Virtual Application Networks SDN Controller, currently available

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