

LAYER 2 GATEWAY SERVICES WITH VMWARE NSX

Juniper Integrates with NSX to Programmatically Connect Physical and Virtual Environments

Challenge

Businesses need to seamlessly bridge their physical networks to their virtual data center networks to provide greater agility and scale.

Solution

Juniper and VMware deliver Layer 2 gateway services leveraging VMware's NSX on select Juniper access switches, core/aggregation switches, and edge routers to bridge virtual and physical environments in any data center networking topology.

Benefits

- Enables the programmatic connection of VLANs to logical networks
- Offers choice of NSX L2 gateway services across access switches, core/aggregation switches, and edge routers to bridge virtual and physical networks in any data center topology
- Provides foundation for hardware accelerated VxLAN routing to support virtualized network multi-tenancy and enable virtual machine mobility over distance for business continuity/disaster recovery and resource pooling
- Allows flexible workload placement and workload mobility
- Provides single pane of glass (NSX API) for configuring logical networks across hypervisors and physical switches
- Eliminates need for IP multicast for physical networks

VMware NSX, the industry's leading networking and security virtualization platform, decouples the virtual network from the underlying physical network to allow enterprises to rapidly deploy virtual networks securely for any application.

With network virtualization, simplified logical networking devices and services are abstracted from the physical network and exposed as logical networking objects across a fully distributed virtualization layer, consumable by third-party applications through northbound APIs. VMware NSX exposes these logical networking devices and services as logical ports, logical switches, logical routers, distributed virtual firewalls, and virtual load balancers, all with monitoring, quality of service (QoS), and security built in.

Juniper Networks leverages the NSX distributed service framework to integrate with the NSX platform. This integration delivers Layer 2 gateway services that allow virtual networks to be bridged to any physical network environment to provide a unified user experience. It also provides the ability to seamlessly integrate with any cloud management platform for greater data center agility and scale.

The Challenge

Virtual networks must connect to a physical device at some point, along with legacy physical applications and database servers, in order to reach the client application. In addition, most data center environments will operate multiple virtualized Layer 2 networks, whether to support separate production and development environments, business continuity/disaster recovery efforts, multiple tenants, or other unique business needs. "Bridges" are required between physical and virtual networks, as well as between separate virtual networks. The placement of bridges is critical to delivering agility and performance and if placed in the wrong tier of the network will impact data center both. Ideally, bridges are placed as close to the physical element as possible—server, storage, or client application—to provide the greatest data center agility and scale.

Separate add-on bridges such as dedicated gateways increase operational complexities and expenses. Seamlessly bridging physical and virtual networks to optimize application and operational efficiencies requires physical-to-virtual gateways to be integrated into the physical network. In addition, the physical infrastructure must be flexible enough to provide physical-to-virtual Layer 2 gateway services at any point in the data center network to provide on-demand connectivity between physical and virtual workloads.

Juniper Networks Layer 2 Gateway Services with VMware NSX

The VMware NSX network virtualization platform delivers the operational model of a virtual machine for the network. Similar to virtual machines for computing, virtual networks are programmatically provisioned and managed independent of the underlying networking hardware. NSX reproduces the entire network model in software, allowing diverse network topologies to be created and provisioned in seconds. However, the challenge of connecting to the physical environment remains.

Juniper and VMware jointly address this challenge by delivering VMware NSX L2 gateway services to bridge the virtual and physical network environments on select access switches, core/aggregation switches, and edge routers to allow optimal NSX deployments for all data center network topologies.



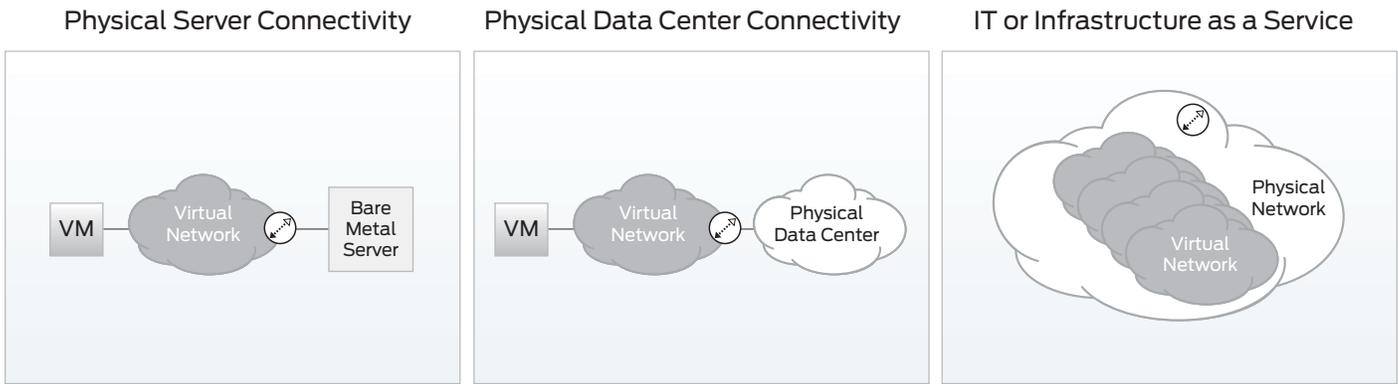


Figure 1. Juniper VMware NSX L2 gateway use cases

Features and Benefits

The combination of Juniper and VMware optimizes applications and data center operational efficiencies by:

- Enabling programmatic connection of VLANs to logical networks
- Offering the choice of NSX L2 gateway services across access switches, core/aggregation switches and edge routers to bridge virtual and physical networks in any data center topology
- Providing foundation for hardware accelerated VxLAN routing to support virtualized network multi-tenancy and enable virtual machine mobility over distance for business continuity/disaster recovery and resource pooling
- Allowing flexible workload placement and workload mobility
- Delivering a single pane of glass (NSX API) for configuring logical networks across hypervisors and physical switches
- Eliminating the need for IP multicast for physical networks

Solution Components

Juniper will deliver VMware NSX Layer 2 gateway services on select QFX Series access switches, as well as for the EX9200 line of programmable core/aggregation switches and MX Series 3D Universal Edge Routers via a Juniper Networks Junos® operating system software release upgrade scheduled for mid-2014.

Whether providing connectivity between the virtual network and physical hosts, between remotes sites, or between external networks, Juniper L2 gateway services for VMware NSX provide programmatic connections of VLANs to logical networks throughout the data center, optimizing applications and data center operational efficiencies.

Summary

Virtual networks created through VMware's NSX allow enterprises to rapidly deploy networking and security for any application

by enabling the fundamental abstraction of networks from networking hardware.

Juniper Networks leverages the NSX distributed service framework and SDK to integrate with the NSX platform and provide Layer 2 gateway services that allow the virtual network to be bridged to any physical network environment. This integration provides a unified user experience and the ability to seamlessly integrate with any cloud management platform.

Next Steps

To learn more about bridging physical and virtual data center environments, or about other Juniper solutions for VMware environments, please contact your Juniper Networks or VMware representative.

About VMware

VMware is the leader in virtualization and cloud infrastructure solutions that enable businesses to thrive in the Cloud Era. Customers rely on VMware to help them transform the way they build, deliver and consume Information Technology resources in a manner that is evolutionary and based on their specific needs. With 2012 revenues of \$4.61 billion, VMware has more than 500,000 customers and 55,000 partners. The company is headquartered in Silicon Valley with offices throughout the world and can be found online at www.vmworld.com.

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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