

# VMware NSX and Cumulus Linux Solution Brief

## Connecting physical and virtual worlds with VMware NSX and Cumulus Linux™

VMware NSX and Cumulus Linux enable the best combination of virtual network platform and underlay physical network for a scalable datacenter orchestration, automation, and multi-tenancy solution over high capacity IP fabrics. Abstraction from the underlying hardware enables a cost effective solution. With the integration of VMware NSX Layer 2 gateway services on networking hardware running Cumulus Linux, customers can now connect virtual workloads to physical workloads with no performance impact.

### Why Network Virtualization?

Compute and networking have been evolving at different pace. While new server workloads can be created, provisioned, and moved within seconds at little to no cost, networks have required manual provisioning, and extra network capacity has been expensive. As compute requirements grow, networks need to follow, and network virtualization has become a critical element of Software Defined Data Centers.

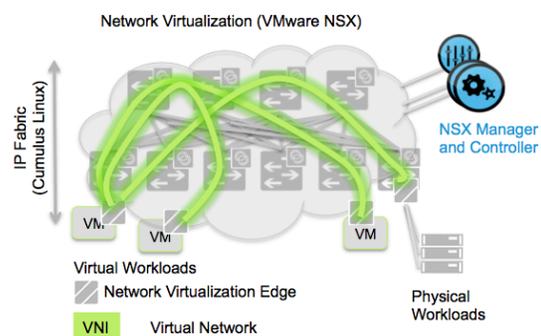
### Complementary Solutions:

VMware NSX's Network virtualization platform provides the flexibility and rapid network deployment needed for virtual workload agility and scalable multi-tenancy. It delivers the operational model of a virtual machine for the network by decoupling the virtual network from the physical network and reproducing L2-L7 services completely in software. Similar to virtual machines for compute, virtual networks and services can be added, moved and expanded in seconds without changing the underlay infrastructure. VMware NSX includes a distributed service framework for easy partner service insertion using management, control, and data plane APIs to offer customers a rich portfolio of best-of-breed solutions.

Cumulus Networks enables faster, cheaper and easier physical networks. It provides a network operating system, Cumulus Linux, which provides a

native Linux® experience on industry-standard networking gear and accelerates the kernel data path in hardware. With a breadth of hardware options to choose from, network capacity has finally become affordable. What's more, the Cumulus Linux software is a true Linux OS that offers rich programmability and the same automation tools that have been available for compute environments on networking gear. This results in rapid physical network provisioning and the simple, cost effective addition of new network capacity to the IP fabric. Companies can choose from a rich ecosystem of hardware platforms, automation and third party tools with Cumulus Linux.

Complementary VMware NSX and Cumulus Linux Solution:



The VMware NSX and Cumulus Linux solutions complement each other:

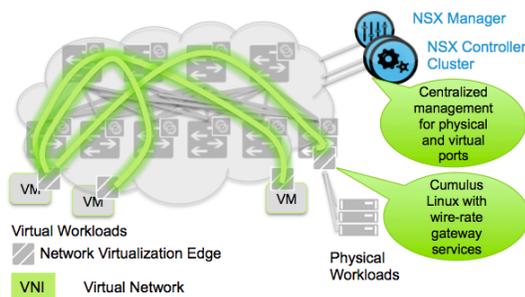
- Network virtualization with VMware NSX

- Underlay physical network running on Cumulus Linux

## Integrated Solutions:

Datacenters often have mixed environments where both physical and virtual workloads need to communicate with each other. Virtual networks have been implemented on hypervisors. The VMware NSX and Cumulus Linux solution is now providing Network Virtualization Edge connectivity to physical workloads at wire-rate.

*Integrated VMware NSX and Cumulus Linux solution:*



Cumulus Linux supports the network virtualization edge function by implementing the Layer 2 gateway VXLAN overlay scheme, and terminating virtual networks in hardware using VXLAN tunnel end point (VTEP). To enable further management simplification, Cumulus Linux registers Layer 2 gateway services with the VMware NSX Controller. VMware NSX becomes the central control and management point for virtual and physical ports, providing seamless connectivity between virtual and physical worlds.

## Solution Characteristics:

The combined VMware NSX and Cumulus Linux solution has the following characteristics:

- Programmable, open architecture that enables the best of breed ecosystem
- Rich automation tools for the virtual and physical networks
- Single point of management for virtual and physical worlds
- Non-blocking underlay infrastructure with wire-rate Layer 2 gateway services
- Software-only solution leveraging customer's choice of industry-standard hardware platforms

## Solution Benefits:

VMware NSX and Cumulus Linux provide the ideal solution for rapid provisioning of new applications.

- **SIMPLICITY**  
Simplified operations of large scale Data Centers with automation for the compute, virtual networks, and physical networks
- **PERFORMANCE AND SCALE**  
Faster networks, wire-rate VXLAN gateway services, scalable multi-tenancy
- **LOWER OPEX AND CAPEX**  
Lower OPEX through automation, rapid provisioning, lower CAPEX through hardware-agnostic solution

## Get Started!

To get started, use the following Cumulus Linux and VMware NSX solution elements:

- Network Virtualization: VMware NSX Controller, NSX Manager, NSX Service Node
- Underlay Physical Network: Cumulus Linux software running on standard networking gear. For wire-rate Layer 2 gateway services at the Top of Rack switch, additional care needs to be taken to ensure the networking gear supports hardware VXLAN (VXLAN tunnel end point (VTEP) enabled switch).

More information can be found at [vmware.com](http://vmware.com) and [cumulusnetworks.com](http://cumulusnetworks.com)