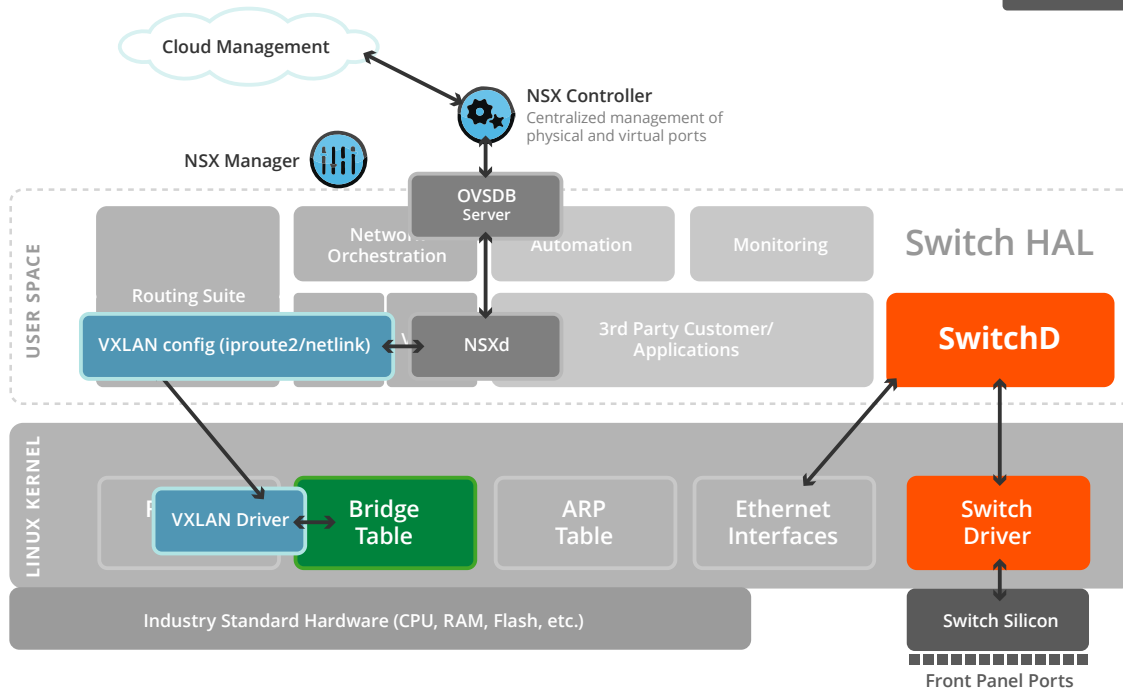
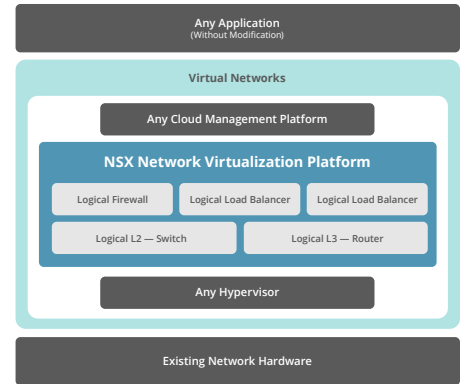


VMware NSX and Cumulus Linux

VMware NSX

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's 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 Linux

Cumulus Linux is the first full-featured Linux OS for data center networking running seamlessly over bare metal switches. With the introduction of VXLAN and support for it through Trident II merchant silicon hardware, customers can achieve desired wire-rate performance and scale with rapid deployment and growth. Through the integration provided with VMware's NSX solution, end users can now have a complete end-to-end solution from both an underlay and an overlay. As a 3rd party hardware gateway, Cumulus Linux can connect bare metal workloads with higher performance/throughput and provide the same operational model (provisioning, monitoring) as virtual networks.





Challenges

Compute and networking have been evolving at a 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.

An Integrated Solution

Data centers 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.

Cumulus Linux supports the network virtualization edge function by implementing the layer 2 gateway VXLAN overlay scheme and terminating virtual networks in hardware using a 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.

VMware NSX is a key product in the SDDC architecture as it programmatically creates, snapshots, deletes and restores software-based virtual machines (VMs). The result is a completely transformative approach to networking that not only enables data center managers to achieve orders of magnitude better agility and economics, but also allows for a vastly simplified operational model for the underlying physical network.

Conclusion

Connecting physical and virtual worlds with VMware NSX and Cumulus Linux

VMware NSX and Cumulus Linux enable a true integration of a virtual network platform and an underlay physical network for a scalable data center 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.

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 and cumulusnetworks.com

Solution Benefits

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 virtual and physical networks**
- **Single point of management for virtual and physical environments**
- **Non-blocking underlying infrastructure with wire-rate layer 2 gateway services**
- **Software-only solution leveraging customer's choice of industry-standard hardware platforms**

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 of new applications, lower CapEX through a hardware-agnostic solution

About Cumulus Networks

Cumulus Networks is bringing the Linux revolution to networking. Founded by veteran networking engineers from Cisco and VMware, Cumulus Networks makes the first Linux operating system for networking hardware and fills a critical gap in realizing the true promise of a software-defined data center. For more information visit cumulusnetworks.com or follow us on Twitter [@cumulusnetworks](https://twitter.com/cumulusnetworks).

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