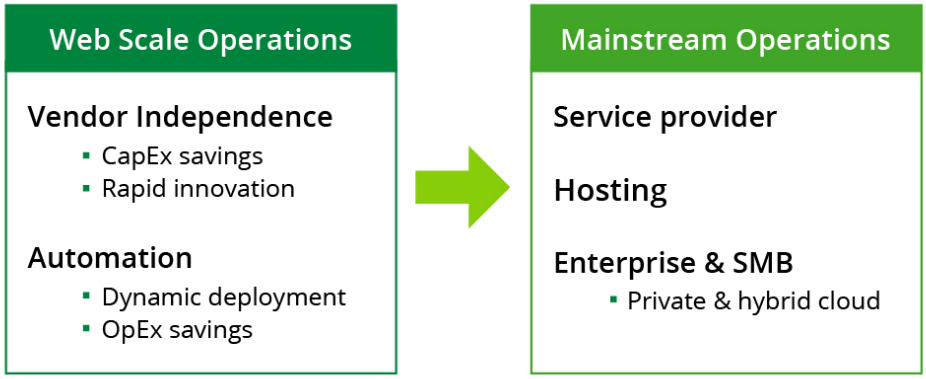
Open Networking: Improving Economics and Unlocking Innovation in the Data Center

Data Centers Transform

Major changes are underway in the IT industry that improve data center networking, allowing organizations of all sizes to leverage efficient technology that was developed by the world's largest cloud operators. The resulting data center networks scale more easily, enable faster innovation, and cost significantly less to build and operate. Adoption is expanding to the mainstream market with solutions available worldwide from IT solution providers and integrators and bare metal switch vendors, including Supermicro.



Web-scale benefits for organizations of all sizes

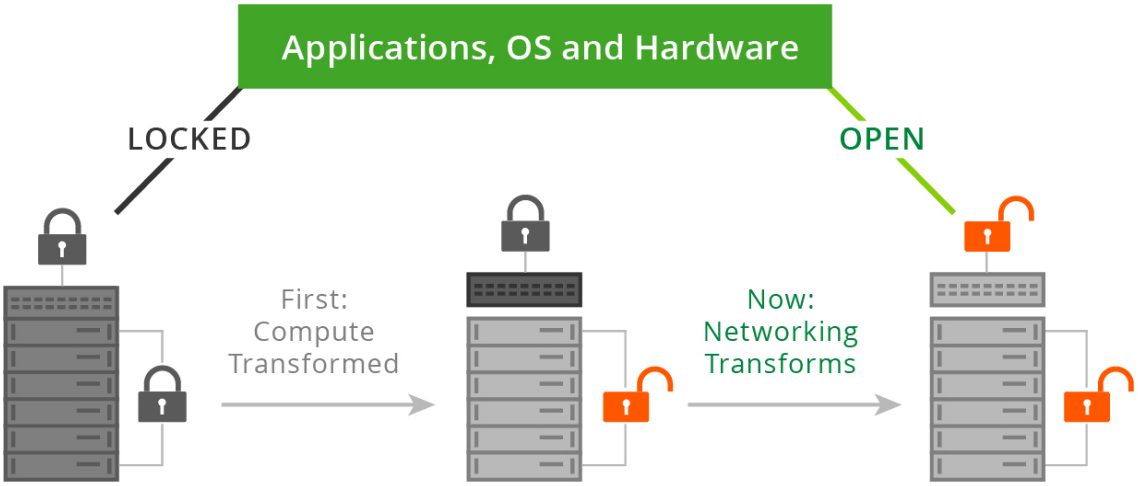
Highly engineered networks carry high costs and constrain innovation

Most enterprise data centers today are built with highly engineered networking stacks from Cisco and other traditional switch vendors. These networks are operated by engineers who are experts in networking and are trained in vendor-specific deployment, configuration and management. The networks work well, but as needs change, they're difficult to evolve. Expanding the network can require manual provisioning. Proprietary hardware/software stacks provide high margins for vendors, which means high costs for buyers. There are limited opportunities for network administrators to innovate with new capabilities on platform-specific operating systems, and vendor feature development cycles can be long. For these reasons, the world's largest cloud operators developed their own unique approaches to networking.

Should network devices operate more like servers?

While most data center networks are locked into vendor-controlled stacks, the servers are far more open. Years ago, disaggregation of server hardware and software transformed this business, providing customers with choice, better tools and cost improvements. Linux operating systems allow systems administrators to leverage a wide range of open source and commercial automation tools to speed service delivery. They can focus on applications instead of spending so much time managing hardware.

Now this same transformation is taking place for data center networks. "Open networking" refers to the disaggregation of switching hardware and software and to the possibility of using of a true Linux operating system to enable the same kind of model used with servers: open choices for customers, lower total cost of ownership, and ability to rapidly innovate via customized, open source and/or commercial tools and applications. In fact, the very same automation tools used for servers may now be used for the network as well, an important efficiency as IT organizations continue to scale infrastructure and services. With Linux, networking adopts the native language of the data center.



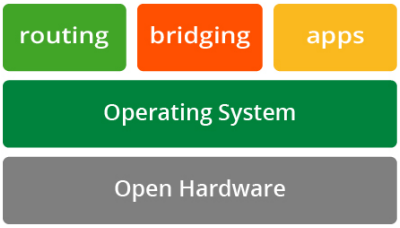
Open networking enables platform choice and affordable capacity

Open networking adoption expands to the mainstream

Two important trends are reshaping the networking industry today: software defined networking (SDN) and SDDC with open networking. There are a wide range of approaches to SDN, but they all involve separating the control of how network resources are used (the "control plane") from the management of the physical hardware devices within the underlay network (the "data plane"). The other major trend is the software defined data center or SDDC.

Open networking, which consists of (1) bare metal switches (or white boxes or "brite boxes"), (2) a true Linux operating system, and (3) use of standard tools for automation and other functions is an element of the SDDC and is also the best value as a networking underlay for many SDN deployments.

As mentioned above, open networking allows data center switches to be managed in the same manner as servers. Network administrators who adopt open networking leverage familiar switching and routing features provided by the Linux OS. Server administrators use their existing Linux tools as they deploy open networking to support VMware vSphere, OpenStack, big data, and other application environments. DevOps teams benefit from the ability to innovate at a faster pace.

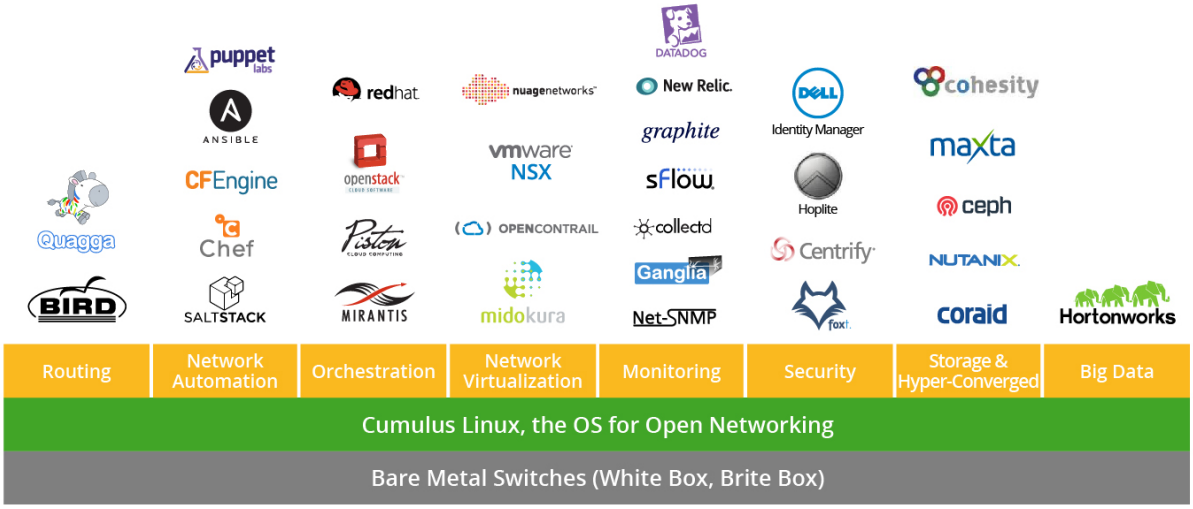


Open networking

Cumulus Networks provides the OS for open networking

System software company Cumulus Networks was founded with the principle of enabling high capacity networks that are easy to deploy and affordable, helping customers realize the full promise of the software-defined data center. The company is led by experts from Cisco and VMware. CEO JR Rivers is a former Cisco Fellow, the highest level of distinction among Cisco engineers. Cumulus Networks technology powers well over one million ports worldwide and has customers ranging from small businesses and universities to enterprises and some of the world's largest cloud providers.

The Cumulus Networks strategy is to provide great networking for layer 2, layer 3 and overlay architectures, supported by improved economics and a robust ecosystem as an alternative to highly engineered, proprietary vendor-locked stacks that constrain IT innovation. Cumulus Linux, the OS for open networking, enables disaggregation of top-of-rack (ToR) data center switching that provides customers with choice, improved automation, and affordable scalability. The company unleashes the power of open networking with a business strategy that leverages (1) the rapid technology improvement cycles of merchant silicon, (2) an expanding set of bare metal switching hardware providers, (3) the growing ecosystem of commercial and open source Linux tools and applications including automation and Network Functions Virtualization (NFV) overlays, and (4) diverse routes to market globally to fit customers' purchasing behaviors.



Broad range of tools and solutions supported on Cumulus Linux

Cumulus Networks has six hardware providers as of February 2015. The Cumulus Linux hardware compatibility list includes a broad range of bare metal switches for open networks including 1G, 10G and 40G platforms. As 100G platforms hit the market, Cumulus Linux will address that market need as well. Routes to market include Supermicro and their solution provider partners, with offerings spanning servers, switches, storage and integration services to enable customers to set up and manage their private, public and hybrid clouds.

Open networking enables better economics and accelerated innovation

The current model of networking is changing. Vendor-locked stacks played an important role in enabling today's data centers, but now open networking solutions are available in the mainstream market. This approach, based on learnings from the largest and most successful cloud providers, allows organizations of all sizes to build and manage networks that improve both CapEx and OpEx cost structures, that unlock innovation from internal staff and from a robust ecosystem, and that speed service delivery.

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Cumulus® Linux®
Network OS

About Cumulus Networks

Cumulus Networks unleashes the power of open networking and accelerates its adoption with Cumulus Linux, the operating system for open 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 the software-defined data center. Just as Linux completely transformed the economics and innovation on the server side of the data center, Cumulus Linux is doing the same for the network. It is radically reducing the costs and complexities of operating modern data center networks for service providers and businesses of all sizes. Cumulus Networks has received venture funding from Andreessen Horowitz, Battery Ventures, Sequoia Capital, Peter Wagner and four of the original VMware founders. For more information visit cumulusnetworks.com or follow @cumulusnetworks.