



Solution Brief

Revolutionizing data center networking with Dell Ethernet switches/service and Cumulus® Linux® OS

Dell offers Linux savvy customers greater choice in networking with the Cumulus' full-featured Linux OS to help build, manage and automate massive-capacity, next-generation data center networks.

- Offering the industry's first disaggregated hardware + software data center networking solution empowering organizations to deploy modern workloads and applications designed for the open networking era
- Helping adopt a more consistent interface in IT departments for both compute and networking resources, by utilizing common deployment, and operational best practices
- Helping companies leverage the large talent pool available in Linux and open source standards-based communities for data center tools that help accelerate rapid innovation and organizational agility

Network challenges in an open data center ecosystem

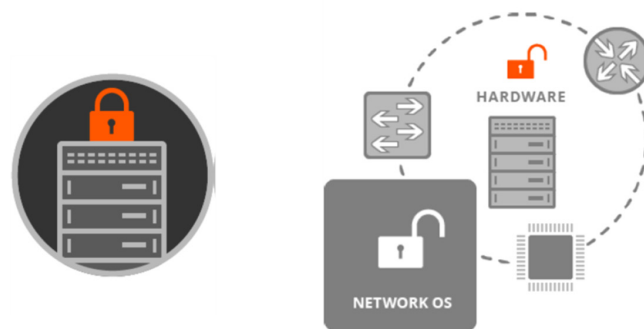
Enterprise networks, data centers and cloud deployments are becoming increasingly complex, crowded and difficult to manage due to changing business demands arising from new workload deployments and users' need for anytime, anywhere, any device computing and productivity requirements. Network traffic within data centers is shifting from traditional north-south (vertical) paths to east-west (horizontal) paths due to high-performance workloads and virtualization technology requiring more communication and coordination between server and storage platforms.

The data center network is now a mission-critical superhighway infrastructure that ties together and regulates all of these applications and services. A scalable backbone fabric which provides uninterrupted operations across both physical and virtual environments within the data center has become a necessity for 24x7x365 operations.

Looking back, large Web 2.0 companies like Google, Facebook and Amazon overcame scale and manageability challenges with their server platforms within their data centers by adopting bare-metal x86 server platforms running Linux OS for economies of scale and price/performance.

The new network paradigm

Dell is adapting these lessons from the server world where proven open architectures based on x86 and Linux are powering some of the world's largest datacenters to provide Linux savvy customers a new approach to networking in the data center. This new approach is based on industry-standard networking platforms, network operating systems and network applications that serve organizations specific business needs.



Traditional network gear
Networking gear and networking OS locked onto one vendor

New paradigm
Disaggregate the networking gear from the network OS

Figure 1. A new approach to networking in the data center

By combining the S4810-ON and S6000-ON networking switches with Cumulus Linux OS, organizations can take the next step in the data center network evolution and benefit from:

- **Power of choice** – Organizations that benefited from utilizing the disaggregation model with their data center server platforms, can now leverage even greater benefits from Dell open networking platforms.
- **Flexibility** – The new offerings provide organizations the needed flexibility to transform their data centers and offer high-capacity network fabrics that are easy to deploy, cost-effective and provide a clear path to a software-defined data center.
- **Accelerated innovation** – Organizations can take advantage of this disaggregated networking model using industry-leading hardware and a choice of leading network operating systems to simplify data center fabric orchestration and automation and accelerate innovation.

Full-featured Cumulus Linux OS for data center networking

Cumulus Linux is the first full-featured Linux OS for datacenter networks which can run seamlessly over industry standard switches to help deliver high capacity fabrics with attractive price-performance and ROI metrics. The Cumulus OS leverages a large ecosystem of native Linux applications and automation tools to drive new levels of innovation bringing needed flexibility and agility to the data center. This new disaggregated model helps organizations deploy next-generation workloads on rich data center networking solutions built on large-scale Clos fabrics and new data center architectures.

Cumulus Linux empowers customers to build a modern, scalable data center bringing the server, virtual machine paradigms of manageability, clustering, monitoring and orchestration to networking.

Dell Networking high-performance Ethernet switches

Dell has been delivering high-performance, reliable networking solutions for over a decade and today powers some of the world's most demanding enterprise and cloud/Web 2.0 environments. For data centers, this means feature-rich Top-of-Rack and blade switching solutions and high-performance 10/40GbE networking fabrics that fit organizations business and budget. For campus and branch environments, this means complete solutions to mobilize users, desktops and devices securely, meeting the fast-paced needs of business-on-the-go.

The broad Dell data center switching product portfolio now includes new options with its high-performance fixed form factor 1/10 Gigabit Ethernet S4810-ON and 10/40 Gigabit Ethernet S6000-ON top-of-rack switches for modern data center fabric architectures. These two new Dell switch offerings will also support the industry standard Open Network Install Environment (ONIE) for zero touch installation of alternate operating systems like the Cumulus Linux OS.

Dell backs up each and every deployment with a comprehensive suite of design, deployment and management services to help customers of any size every step of the way. All of this translates directly into a capability set designed to fit any organization's needs, granting them and their business the power to do more.

Summary: Bringing the Linux revolution to networking

Exploding data center network traffic and the spread of virtualization technologies require a network fabric backbone infrastructure that can stay ahead of these demands. IT departments need software defined solutions that go beyond today's monolithic legacy networking platforms to address dynamically changing business needs and simplify deployment and operations while reducing costs.

Together Dell and Cumulus are transforming the network with an innovative solution that combines the industry's first, full-featured Linux OS with the market leading and field tested Dell Ethernet switching platforms. Dell with Cumulus helps organizations realize the full potential of a software-defined data center today.

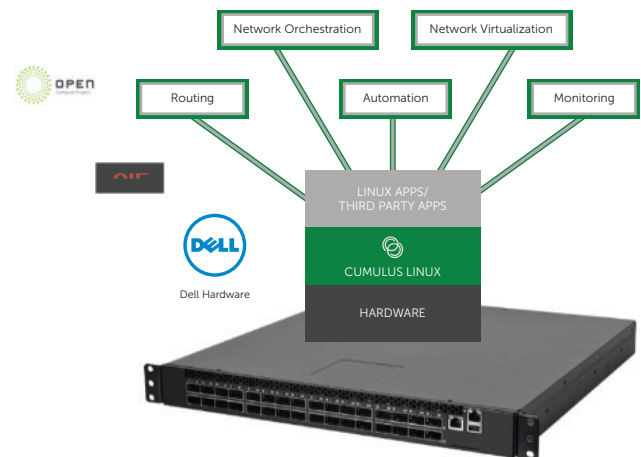


Figure 2. The Dell and Cumulus open networking solution

Transform and modernize your network at DellNetworking.com

