

POSITION PAPER: Dell Opens Datacenter Networking with Cumulus Networks

Networking, the last bastion of inflexible vertical integration, is being shaken up by a partnership that delivers choice

Highlights of the Dell – Cumulus Joint Announcement on 1/28/14

- Dell and Cumulus Networks are partnering to enable the Cumulus Linux network operating system to be integrated on Dell Networking S4810 and S6000 switches
- Dell is the first major networking vendor to offer a pre-installed Cumulus solution alongside its own networking operating system – straight from the factory
- This partnership lets enterprises align their networking needs to application and network deployments with a factory integrated solution
- Delivers a common acquisition, deployment and operational model for single source fulfillment and optimized supply chain

Topline Observations

We believe that this partnership is the first break in the wall that has kept networking as an integrated “black box” forcing enterprises into a vertically integrated model with little or no choice. Previously the decision was either a fully integrated tier one solution with no choice or a “white box” solution that gave flexibility but lacked the solid backing of a top tier player. Combined with the directions of Software Defined Networking (SDN), this partnership signals that the market for networking equipment is beginning to change, becoming more responsive to the end customer.

Why Was This Needed?

The enterprise landscape is rapidly changing, applications are moving to a cloud/SaaS model. The “Internet of Things” is amplifying the number of inputs and the type of data required. Mobility is pushing people out of the office and enterprise applications need to follow them. Combine those factors with strategies like “bring your own device” and it is clear that networking needs to become more flexible to address the rapidly changing market needs.

Enterprises have had choice and flexibility in their server platforms, but the networking world has remained a fully integrated platform with limited choice. When enterprises buy network switches, the hardware and software were generally locked, giving the buyer

little flexibility, despite being able to buy a more complicated and configurable server with any OS that was needed. Unless one wanted to take a risk and buy “white box” switches, there was no ability to receive an enterprise-class switch with the features needed and the proper OS from a major vendor.

Dell Networking Switches

The Dell Networking S4810 and S6000 products are 10Gb/40Gb switches designed for top of rack and end of row use. The [Dell Networking S4810](#) is a 48-port 10Gb with 8 40Gb uplinks. This switch is primarily targeted as a top of rack solution. The [Dell Networking S6000](#) features 32 40Gb ports that can also be configured as 96 10Gb ports (with QSFP+ splitters) and 8 40Gb ports. With the high throughput of this switch, it is targeted as a middle of row or end of row switch.

While there is interest in the market for SDN today because many companies are looking for more agility and less complexity, most [are not in a position to deploy SDN today](#). By offering choice in OS, Dell is taking a step towards giving customers more flexibility and better agility without needing to deploy SDN just yet. And for those that have chosen an SDN path already, the fact that they can utilize these switches in an SDN environment and choose their OS makes these switches a more flexible solution.

What is Cumulus Linux?

[Cumulus Linux](#) is a network operating system that is based on the open source Linux operating system. Cumulus not only runs the networking functions for the switch, but also serves as the host for third party Linux applications like routing, network orchestration, automation, network virtualization and monitoring. Cumulus Networks has also engaged in SDN as well through support of VMware NSX, allowing the SDN controller of NSX to drive the Cumulus Linux functions and routing. With NSX running on top of Cumulus Linux, Cumulus can handle the QoS while NSX handles the routing. In addition, [there are many applications](#) that can run on top of Cumulus Linux, making it more of an operating platform, not just an operating system.

As a multi-platform operating system for networking hardware, Cumulus Linux helps to unify the network functions with higher level networking applications support, allowing for better orchestration of the network functions all from a single platform as well as the virtualization of network functions.

Enabling Network Choice

Today Dell and Cumulus Networks are forming a partnership that will bring more flexible choice in the market. Enterprise IT will now be able to purchase fully featured top-tier network switches like the Dell Networking S4810 and S6000 with their choice of operating system, including the most popular Linux-based network OS, Cumulus Linux.

With a need to be more agile and move quickly, data centers are looking for ways to cut down the acquisition and deployment cycles, allowing them to bring new services and

locations online faster. The ability to have pre-configured Dell Networking switches delivered with the OS of choice already installed – at the same time (and on the same PO) as the Dell PowerEdge servers– shortens both procurement and deployment. Once deployed, the streamlined support on the back end brings better accountability through a single point of contact.

Changing Compute Landscape

In the past the mainframe model presented a fully integrated proprietary stack, from hardware through OS and tools – expensive and inflexible. Distributed computing brought industry-standard systems with faster innovation cycles as distributed computing gained steam. With standardized hardware, a wider variety of operating systems and applications could be run on the platforms. In 1996 Dell changed the server market by bringing its full configure to order capabilities to its PowerEdge servers, allowing companies to leverage the supply chain efficiencies of Dell, accelerating their deployment and support expertise. This change to the market, bringing configure to order and OS installation flexibility helped drive Dell to a top position in the server market worldwide in only a few short years. In a world of standardized platforms, acquisition, integration and deployment matter more. But while the server market changed to meet the needs of enterprises, networking had remained rigid and static.

Now the compute landscape is changing yet again and enterprise IT is looking for more agility and flexibility in order to meet the application and usage demands of today's enterprises. Two ways to execute to a more agile strategy include shrinking the execution time for service delivery and increasing platform flexibility so that systems can be tuned and optimized around the applications and workloads. Standardizing the hardware with choice in the software stack on top has proven to be a strong solution for servers, and now, in networking, that strategy can bring the same benefits to the networking world.

Through this partnership, both of these goals are delivered with a single source for ordering, deploying and managing servers, storage and networking, with each having a flexible configuration. Having the choice on how platforms are configured helps to drive a more optimized stack that can be tuned to the needs of the application instead of the other way around.

With a choice straight from the factory of the Dell Networking OS, Cumulus Linux, or even no operating system, Dell is providing flexibility for its switches. This bold move will probably accelerate the other players in the market to respond, but as a first mover, Dell will enjoy a leadership position in bringing choice to enterprises. As a trusted worldwide provider of IT solutions, Dell has the ability to deliver all of the necessary pieces, each with an unmatched level of factory integration. Dell and Cumulus Networks are well positioned to change enterprise networking in the same way that Dell changed the server market years ago.

The Customer Impact

DreamHost, a company that provides critical cloud computing services for large enterprises is in a position to know the benefits of this close partnership. In the hosting business, the key external drivers are quality and delivery, both of which are measured in SLAs with end customers, while the key internal driver is cost efficiency.

By buying Dell Networking S4810 switches and Cumulus Linux, DreamHost was able to achieve its goals for higher performance as well as the ability to meet its SLA and support levels for customers. Most importantly it was also able to meet the key metrics around cost savings, allowing it to optimize its web hosting solutions for Fortune 100 customers. Now that DreamHost can acquire their switches straight from Dell with Cumulus pre-installed, service delivery and deployments can be accelerated.

Important Information About This Paper

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