CFMS Adopts Mellanox Spectrum™ Open Ethernet and Cumulus Networks to Drive Agility & Automation

Disaggregated 25/100GbE Ethernet Switches Deliver Best ROI

CFMS BACKGROUND

The Centre for Modelling & Simulation (CFMS) is a not-for-profit specialist in high-value design based out of Bristol in the U.K. As a trusted and neutral provider, CFMS's vision is to be the recognised, independent, digital test bed for the design of high value engineering products and processes.

THE CHALLENGE

As with many companies, the CFMS infrastructure team was challenged to update its high performance and agile data center network used by customers and members. They faced several issues with the solutions offered by legacy vendors.

Traditional network vendors lead with vertically integrated product offerings in order to reap higher profits and to maintain customer account control. As a side effect, it is difficult to automate and integrate equipment from legacy vendors to build an efficient solution that optimizes operational expense and total cost of ownership.

Since the traditional vendors' systems are based on the same chipsets, they share similar performance issues. For example, 25/100GbE Ethernet switch chipsets used by most legacy vendors have performance and traffic fairness issues. As a result, it is hard for customers to adopt newer 25/100GbE speeds despite it having a potential to reduce capital expenditure significantly.

THE SOLUTION

CFMS chose Mellanox Spectrum™ Open Ethernet switches running Cumulus Linux to build their infrastructure. Open and disaggregated systems offer customers a choice to build their infrastructure with best of breed, modern and high-performance components.

Mellanox Spectrum switches support a robust and high-performance 25/100GbE data path with high bandwidth, zero packet loss, and consistent low latency. Cumulus Linux is a powerful open network operating system that allows operators to automate, customize and scale using the same DevOps principles as those used by the mega-scale data centers. With Cumulus Linux, all standard Linux server automation tools are readily available for network infrastructure automation as well. CFMS uses Ansible® to seamlessly automate their server as well as network infrastructure. With Ansible based automation, CFMS can accomplish network changes that traditionally took days, in a matter of a few minutes.

HIGHLIGHTS

Customer Background

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CFMS Challenge

CFMS infrastructure team was challenged to update its high performance and agile data center network used by customers and members.

Solution Components

- Mellanox Spectrum™ Open Ethernet 25/100GbE switches running Cumulus Linux
- Ansible based automation

Key Benefits

- Open, agile and automated infrastructure
- High performance
- Reduced total cost of ownership

"CFMS have adopted Mellanox Spectrum Open Ethernet switches running Cumulus Linux to deploy an agile, high performance and highly-automated network infrastructure, to underpin its digital test bed, delivering design, manufacture and services for new innovative products."

– Nathan Harper, IT Systems Lead

KEY BENEFITS OF THE SOLUTION

Open, Agile and Automated Infrastructure

Infrastructure and operations teams are under constant pressure to deliver higher performance with tighter budgets. Agile and automated infrastructure not only reduces operational costs but also brings in tremendous agility.

CFMS was using Ansible playbooks to automate the server infrastructure. With Cumulus Linux supporting Ansible, CFMS used Ansible to support the network infrastructure as well. Using Ansible dramatically simplified the network operations. With standardized Ansible playbooks, the possibility of human-induced network error was also greatly reduced.

High Performance

The Mellanox SN2100 switches pack 16x100GbE ports in a half-width compact form factor. Two such switches can be installed side-by-side to provide active-active redundancy in 1U rack space. Mellanox Spectrum switches provide the best forwarding scale for layer-2, layer-3 as well as network virtualization applications.

Reduced Total Cost of Ownership

Mellanox Spectrum Open Ethernet switches support ONIE as a bootloader and provide customers with a widest choice of open network operating systems. This frees customers from vendor lock-in and gives them the ability to pick the best-of-breed and "fit for purpose" software. Open Ethernet brings transparency to solution pricing and reduced capital expenditure. Also, 25/100GbE speeds improve cable utilization and effectively bring down cabling cost. With sub-100W power consumption, SN2100 Ethernet switches have the lowest power footprint in the industry. This power efficiency further reduces the operating costs associated with the solution.
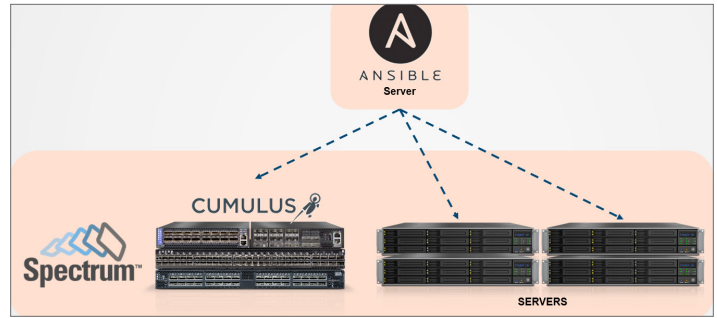
Figure 1. Mellanox Spectrum switches support a robust and high-performance 25/100GbE data path with high bandwidth, zero packet loss, and consistent low latency. CFMS uses Ansible to seamlessly automate their server as well as network infrastructure.

CONCLUSION

CFMS infrastructure and automation team were tasked to update its high performance and agile data center. Traditional vertically integrated solutions lacked performance and were difficult to automate. CFMS adopted Mellanox Spectrum Open Ethernet switches running Cumulus Linux to build their network. CFMS employs Ansible with the open Linux-based environment to build an agile, high performance and highly-automated infrastructure.

About Mellanox

Mellanox Technologies is a leading supplier of end-to-end InfiniBand and Ethernet interconnect solutions and services for servers and storage. Mellanox interconnect solutions increase data center efficiency by providing the highest throughput and lowest latency, delivering data faster to applications and unlocking system performance capability. Mellanox offers a choice of fast interconnect products: adapters, switches, software, cables and silicon that accelerate application runtime and maximize business results for a wide range of markets including high-performance computing, enterprise data centers, Web 2.0, cloud, storage and financial services. More information is available at: www.mellanox.com

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