

DELL EMC NETWORKING SMARTFABRIC FOR VXRAIL

Dell EMC extends simplicity, efficiency and agility of VxRail to HCI Network Fabrics with OS10 Enterprise Edition SmartFabric Services

Hyper-Converged Infrastructure for the masses

Experts predict that over the next 5 years, data growth will reach hundreds of zettabytes – that is, a trillion gigabytes. This growth, along with the rise of hyper-convergence, poses an interesting question: **should network infrastructure fabric design methodologies be revised?**

Read on.

Introduction

As companies race to keep pace with the aggressive growth of social media and other IT data demands, the rapid adoption of HCI in core datacenters and across the edge plays a key role in digital transformation initiatives. Network infrastructure is critical for the high-performance access, delivery, and response times needed to lead in today's business marketplace. However, the network continues to be prone to configuration and management issues that affect the speed of transformation.

Dell EMC Networking and VxRail are driving products and solutions by offering a well-engineered solution for the software defined enterprise that can deliver both operational and infrastructure efficiencies that were previously unavailable. Dell EMC is the only vendor with a complete set of hardware and software products capable of providing the necessary tools for the digital transformation. With the introduction of VxRail 4.7 and Dell EMC Networking OS10 Enterprise Edition SmartFabric Services, the conversation around automated dynamic infrastructure deployment can finally take place.

A simple and consistent distributed enterprise with Dell EMC VxRail

Realizing the benefits of HCI, IT organizations have started to deploy in all areas of the business, from the remote branch office to the central data center. Key to this adoption are agility, simplicity, modernization, and scalability.

Dell EMC VxRail is the only fully integrated, preconfigured and pre-tested VMware hyper-converged infrastructure appliance family on the market. Based on VMware's vSphere and Virtual SAN and VxRail software, VxRail appliances deliver an all-in-one IT infrastructure transformation.

Dell EMC fabric solutions for HCI

As hyper-converged clusters scale, the network fabric becomes the critical piece of a successful deployment. Dell EMC fabrics deliver:

- ♦ **On-demand scalability:** to remain competitive, the modern data center requires the capability to dynamically grow and shrink based on business requirements. Together, Dell EMC Networking switching fabrics and Dell EMC VxRail provide an intelligent and capable architecture that scales on demand and increases the efficiency of the data center.
- ♦ **Increased availability at scale:** robust and redundant fabrics and storage are an absolute necessity for today's data center. A single failure should not cause a full-service interruption.

Dell EMC simplifies HCI fabrics

Dell EMC simplifies the process of fabric creation, administration and operation in three ways:

- **Dell EMC Validated Deployment Guides:** customize your fabrics for DIY IT based on prescriptive guidance provided by Dell EMC
- **Dell EMC Fabric Design Center (FDC):** design and deploy fabrics faster by customizing fabrics based on the Dell EMC-provided fabric design wizard
- **Dell EMC SmartFabric Services:** automate fabric creation and operation by leveraging Dell EMC Open Manage Network Integration and VxRail Manager

These three approaches provide different levels of customization, but the end result is always the same: a fully scalable, agile and efficient fabric for HCI solutions.

Dell EMC SmartFabric Services (SFS)



SmartFabric Services is a “one-of-a-kind” feature, part of the Dell EMC OS10 Enterprise Edition flagship networking operating system. Its introduction creates a fully integrated solution between the fabric and a hyper-converged cluster infrastructure such as VxRail.

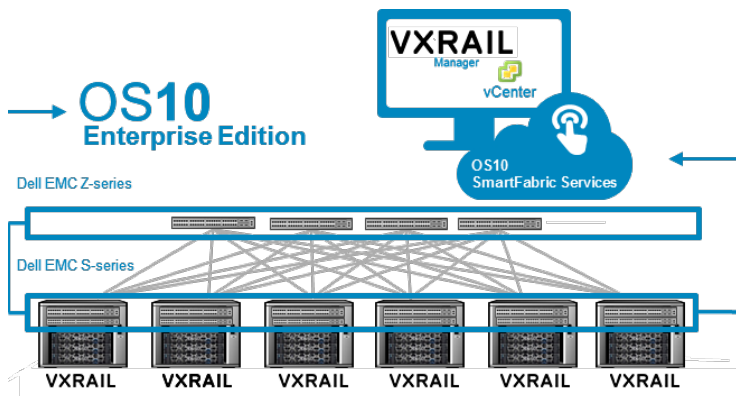


Figure 1 – Dell EMC SmartFabric Services for VxRail

With SmartFabric Services, customers can quickly and easily deploy and automate data center networking fabrics. This enables faster time to production for hyper-converged and private cloud environments at any scale while being fully interoperable with existing data center infrastructure. Figure 1 shows a spine and leaf distributed architecture, with the leaf switches running Dell EMC SmartFabric Services.

There is a clear need for **a different approach to deploying scalable fabrics capable of supporting extreme data consumption and HCI.** The next generation hyper-converged infrastructure needs to overcome the current issues of manageability, scalability, and efficiency by looking towards an open infrastructure concept — while also reducing costs and lowering innovation risks.

Dell EMC Fabric solutions provide a proven, fully-integrated and adaptable infrastructure.

Our solutions leverage components of a hyper-converged architecture and purpose-built networking infrastructure elements, created solely to address the requirements of hyper-convergence and efficient data consumption.

Dell EMC Fabric Design Center (FDC)



Simplifying the process of deploying these fabrics, Dell EMC FDC provides turn-key network fabrics for:

- HCI – VxRail and XC Series
- Storage - Isilon
- Software-defined storage – VMware® vSAN, Microsoft® Storage Spaces Direct
- Data center fabric infrastructure

This network design customization and configuration tool accelerates time to value, automates network deployment, offers faster time to production, and provides an interoperable network fabric sized specifically for the environment.

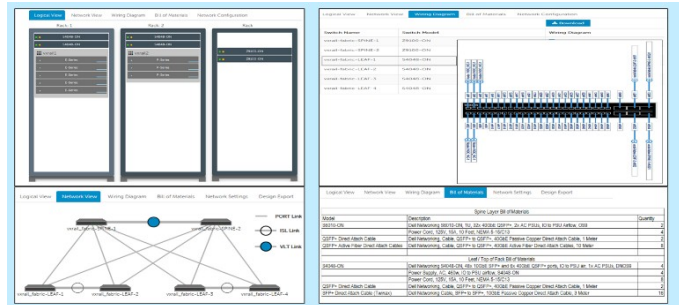


Figure 2– Dell EMC Fabric Design Center

Dell EMC Fabric Validated Deployment Guide (VDG)

Along with Fabric Design Center, Dell EMC offers a complete portfolio of scalable networking solutions for VxRail appliances, validated deployment guides, choice of operating system, and industry standard features to ensure interoperability and investment protection. Customers wishing to explore highly customizable fabric deployment can leverage the various validated deployment guides certified through proven best practice guides and engineering solution qualifications.

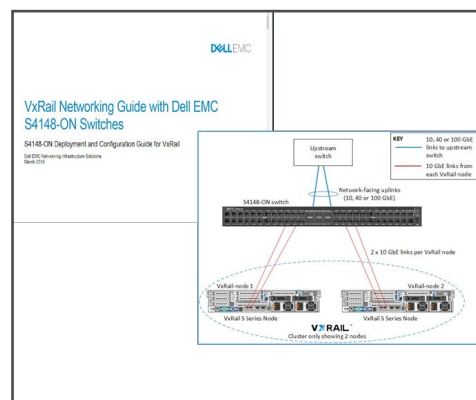


Figure 3 – An example of a Dell EMC Validated Deployment Guide

Dell EMC Open Manage Network Integration (OMNI) for VMware vCenter

The Dell EMC OMNI is an efficient REST API based plug-in, integrated with VMware's vCenter whose primary objective, is to enable vCenter to easily deploy and manage a large virtual network of VMs and physical underlay on a VxRail HCI stack. With Dell EMC OMNI, day two operations and management of the hyper-converged fabric is a breeze. With the capability to provide visibility into the virtual environment and dynamic infrastructure configuration deployment, OMNI is key to the overall Dell EMC fabric umbrella portfolio.

In addition to OMNI, VxRail Manager complements day-to-day operation with all virtualization management done within the familiar vCenter Server interface. This results in all day-to-day operations for Dell EMC Networking, VxRail, and virtualization management all taking place within the vCenter Server interface. Additional IT and Cloud automation can be provided with optional software like

VMware's vRealize Operations and vRealize Automation allowing you to seamlessly integrate VxRail as the foundation of your data center infrastructure.

Dell EMC fabric building blocks

With a full range of 10/25/40/50Gigabit and 100Gigabit Ethernet data center switches plus a distributed architecture, Dell EMC delivers a highly scalable purpose-built fabric for leading virtualization environments including hyper-converged infrastructure.

At the spine, our high-performance Z-series 100GbE switches provide optimum inter-hyper-converged cluster communication. At the top-of-rack, our small-med-high density S-series 1/10/25GbE switches provide an efficient 10GbE-to-25GbE evolution path for the single hyper-converged cluster.

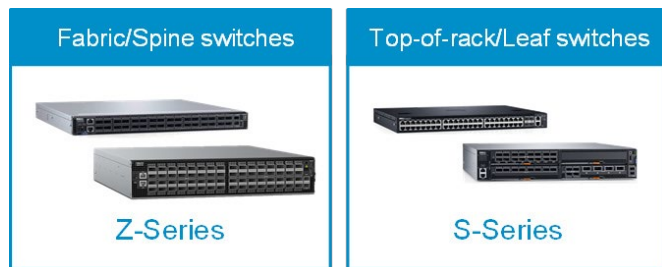


Figure 4 – Dell EMC Fabric Hardware Blocks

Dell EMC services

Organizations deploying solutions based on Dell EMC Open Networking are never alone: Dell EMC provides a comprehensive set of deployment and support options covering the entire lifecycle of the enterprise IT investment.

Services such as planning and design, deployment and integration, and education are just a few offerings within a comprehensive set of customer services available. Dell EMC ProDeploy and ProDeploy Plus provide full-service installation and configuration of both hardware and system software by certified deployment engineers. Dell EMC is a single vendor support, eliminating the usual headaches encountered when dealing with a multi-vendor solution.

Summary

Dell EMC can and wants to be a partner on our customers' digital transformation journey. Whatever the size of your organization, Dell EMC can help by providing solutions that are:

- **Purpose-built:** our purpose-built Open Networking product portfolio is optimized for I/O intensive networking workloads and traffic patterns
- **Future-ready:** Dell EMC fabrics span from 10GbE through 100GbE
- **Validated:** our production-ready solutions are tested and validated
- **Supported:** global secure supply chain and support services ensure deployments of any scale virtually anywhere in the world

[Learn more about Dell EMC Networking and Dell EMC VxRail at DellEMC.com](https://www.dell.com/learn)