Dell EMC SmartFabric Services for VMware ESXi on PowerEdge Servers

Tech Note by

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Summary

The design, validation and deployment process of fabric across VMware ESXi hosts is time-consuming and unpredictable when done manually.

This DfD will highlight what SmartFabric technology is and how it granted users the agility required to manage and scale ESXi clusters effectively through automation.

Non-SmartFabric Challenge

Manually configuring fabric for VMware ESXi clusters on PowerEdge servers requires a great deal of administrative work for both onboarding (day 1) *and* post-onboarding (day 2+) actions. This lack of autonomy will translate to needing a network administrator to make tedious adjustments for desired changes. There is a clear need for a more effective, autonomous approach to deploying scalable fabrics capable of supporting virtualized computing environments.

Two prominent resources are under-optimized when the manual approach is used:

1. **Time**
   a. Company man-hours are spent on IT trouble ticket creation, idle waiting, and ticket management
   b. Additional man-hours are required to service IT tickets
   c. Coding errors made must be troubleshooted and corrected
   d. There is a lengthy qualification process of networking OS and server hardware with network switches
   e. Any switch or ESXi end node failure results in manual intervention by network team
2. **Cost**
   a. Hiring a team of network administrators, which will scale as the size of the data center scales (see Figure 1)
   b. Inefficiency in the network can lead to decreased efficiency in virtual workloads, causing financial under-optimization
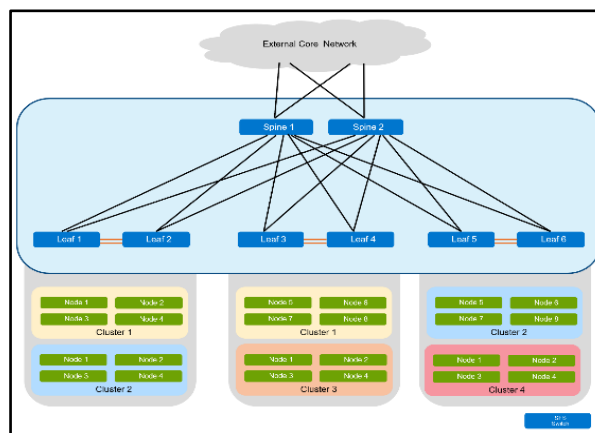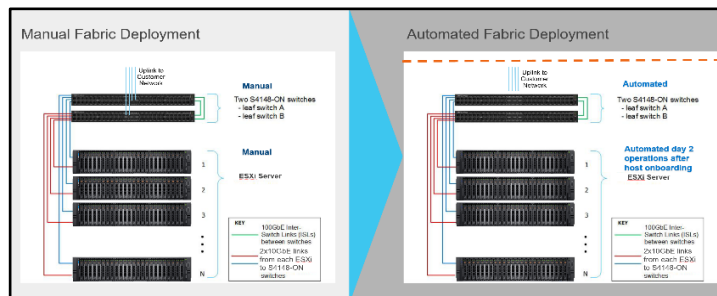

Figure 1 – Manually scaling this ESXi network would require hundreds of lines of code by a team of network administrators

The Solution – SmartFabric Services for ESXi

SmartFabric Services (SFS) optimizes resources by creating a fully integrated solution between the fabric and ESXi on PowerEdge infrastructures. Users need only perform a single manual step per profile; configure the server interface profile to the master switch through a software-based plug-in called OpenManage Network Interface (OMNI) in vCenter. This is simply done by using the ESXi physical NIC MAC address as a server interface ID, and then the creation and application of networks is automated.

Figure 2 – Manually configuring ESXi clusters (left) is very time-intensive, whereas using SmartFabric Services (right) automates the process and drastically reduces the deployment time for new or modified ESXi clusters

Upon onboarding the ESXi server interfaces, OMNI establishes a zero-touch automation for all day 2+ operations. OMNI, intergrated with VMware's vCenter, allows the network administrator to easily deploy and manage a large virtual network of VMs and physical underlay. Therefore, the daily operations for Dell networking and virtualization management will all take place within the vCenter Server interface. This is extremely valuable because it replaces any manual work needed, such as connecting leaf switches and writing coding, with a single-pane UI that performs these actions in a more simple and effective manner.

Six Benefits of Using SmartFabric

1. **Reduced Complexity –** Single and multi-rack deployments are managed in one single-pane solution
2. **Agile Modifications –** All network port groups are configured on the fabric and the appropriate interfaces associated with that network; eliminating time spent coding and manually configuring
3. **One Network Administrator –** The automated OMNI infrastructure requires only one network administrator, instead of a dedicated IT team, to manage the solution
4. **Affordable Scale-Out –** Incrementally scale out the network as needed, with up to 8 racks
5. **No User Error –** Automated server interfaces remove any chance of human error for day 2+ operations
6. **Software Driven Automation –** SFS delivers software-drive automation and lifecycle management

A New Way to Network

SmartFabric Services for ESXi on PowerEdge offers network configuration automation for virtualized data centers. By providing 100% zero-touch day 2+ operations, customers can optimize both time and cost when managing the growth of their ESXi solution.

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