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AT-A-GLANCE

Brocade Data Center Fabrics Deliver Cloud Scale, Agility, and Operational Efficiency

HIGHLIGHTS

- Delivers open and simplified scalability for Layer 3 network deployments of up to 2 million servers with Brocade IP fabrics and Layer 2 deployments of up to 10,000 servers with Brocade VCS fabrics
- Optimizes operational agility with Brocade Workflow Composer, a network automation platform that enables cross-domain integration with turnkey, customizable, or do-it-yourself network workflows supporting provisioning, validation, and event-driven troubleshooting and remediation
- Enables workload mobility, security, and segmentation through standards-based, controller-less BGP-EVPN network virtualization or controller-based network virtualization options such as VMware NSX
- Leverages the power of DevOps methodologies, popular open source technologies, industry best practices, and a thriving technical community for peer collaboration and innovation
- Enables cloud orchestration and control through OpenStack integrations, VMware vRealize plugins, and OpenDaylight-based SDN controller support

Transforming Networks to Support the New IP

Brocade is transforming networks to support the New IP by delivering cloud-optimized architectures that offer new levels of scale, agility, and operational efficiency. These highly automated, software-driven, and programmable data center fabric solutions provide flexible network virtualization options and scale for data center environments ranging from tens to thousands of servers. Brocade® solutions make it easy for organizations to architect, automate, and integrate their infrastructure with current and future data center technologies as they transition to a cloud model.

Architectural Flexibility for Cloud Scale and Performance

Leveraging more than 20 years of experience with network fabrics, Brocade has the know-how to deliver operational efficiencies that will make life easier for organizations today while enhancing their network's value as they transition to the New IP. It starts with selecting the right fabric and the best building blocks for each organization's unique environment.

Brocade data center fabrics can support data centers of various sizes and levels of automation readiness. Brocade VCS® Fabric technology, for example, enables seamless scalability for Layer 2 deployments of up to 10,000 servers. It provides embedded automation and plug-and-play scalability, allowing organizations to evolve their data centers to a cloud model on their own time and their own terms, without the steep cost and learning curve of developing script-based automation solutions.

Brocade IP Fabric technology, on the other hand, is an open, automated, programmable solution for large data center deployments of up to 2 million servers. It is based on a cloud-proven, BGP-based Layer 3 design that easily integrates with popular data center ecosystem tools, so organizations can leverage their current automation investments for a seamless evolution to the cloud.

Brocade VDX® switches support both Brocade VCS fabrics and Brocade IP fabrics. This allows organizations to standardize on one data center switch

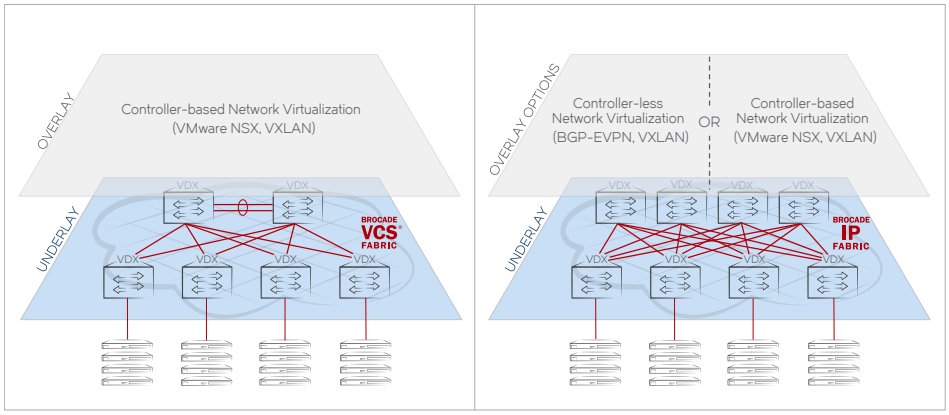

Figure 1: Brocade data center fabric and network virtualization architecture deployment options with Brocade VDX switches.

family and implement the fabric that suits their needs. Moreover, they can use different fabrics for different areas of their business, or start with one fabric and evolve to the other without hardware changes, ensuring full investment protection. These Brocade VDX-based data center fabrics also support flexible network virtualization—including controller-based architectures such as VMware NSX and standards-based, controller-less architectures leveraging Border Gateway Protocol-Ethernet Virtual Private Network (BGP-EVPN)—to enable workload agility, security, and segmentation within and across data centers (see Figure 1).

Brocade SLX routers easily integrate with Brocade VDX switches in IP fabric deployments to deliver the ultimate physical scalability. The Brocade SLX 9850 Router is the perfect fit for IP fabric spine or super-spine capacity data centers, as it aggregates high-performance Brocade VDX leaf switches to support the relentless growth in network devices and services today and well into the future (see Table 1).

Turnkey Automation for the Entire Network Lifecycle

Brocade data center fabrics accelerate time to value with dramatically reduced deployment times, made possible through the automated provisioning of network devices. Brocade VCS fabrics are self-forming and self-aggregating thanks to embedded turnkey automation and plug-and-play scalability, enabling organizations to provision the network with minimal effort. Brocade IP fabrics leverage Brocade Workflow Composer™, a network automation platform, and turnkey IP fabric provisioning workflows for automated provisioning of network devices and network virtualization, delivering an out-of-the-box experience that allows administrators to deploy services in minutes rather than days.

In addition, both Brocade VCS fabrics and Brocade IP fabrics leverage Brocade Workflow Composer to automate the network lifecycle, dramatically reducing the potential for human error and improving IT agility. Brocade Workflow Composer provides turnkey automation workflows that span the entire network lifecycle—from initial provisioning, configuration, and validation to troubleshooting and remediation with event-driven automation. Powered by StackStorm, Brocade Workflow Composer can integrate cross-domain workflows with other commonly used IT services tool chains by leveraging nearly 2,000 customizable sensors and actions.

Open Interfaces Enable Cloud Agility and Innovation

Brocade Workflow Composer enables turnkey, customizable, and do-it-yourself automation workflows, along with support for community-preferred tools such as Python, Ansible, Puppet, Mistral, and YANG model-based REST and NETCONF APIs. Together, these automated workflows and open tools enable straightforward customization and extensibility for optimized delivery of current and future cross-domain IT services.

In addition, cloud orchestration and control through OpenStack integrations, VMware vRealize plugins, and the OpenDaylight-based Brocade SDN Controller support enable full network integration with compute and storage resource provisioning and management.

For more information about Brocade data center fabrics, read *Data Center Fabric Architectures Solution Design Guide*.

About Brocade

Brocade networking solutions help organizations achieve their critical business initiatives as they transition to a world where applications and information reside anywhere. Today, Brocade is extending its proven data center expertise across the entire network with open, virtual, and efficient solutions built for consolidation, virtualization, and cloud computing. Learn more at www.brocade.com.

Table 1: Brocade SLX routers at spine and super-spine levels integrate with Brocade VDX switches to deliver the ultimate physical scale for IP fabric deployments.





Three-Stage Clos Brocade IP Fabric Physical Scale					
40 Gbps Spine Switch	**VDX 6940-36Q**	**VDX 8770-4**	**VDX 8770-8**	**SLX 9850-4**	**SLX 9850-8**
Rack Scale (dual-homed)	18	36	72	120	240
10 GbE Server Scale Option 1: VDX 6740 leaf	864	1,728	3,456	5,760	11,520
10 GbE Server Scale Option 2: VDX 6940-144S leaf	1,728	3,456	6,912	11,520	23,040
100 Gbps Spine Switch		**VDX 8770-4**	**VDX 8770-8**	**SLX 9850-4**	**SLX 9850-8**
Rack Scale (dual-homed)		12	24	72	144
10 GbE Server Scale VDX 6940-144S leaf		1,152	2,304	6,912	13,824
Five-Stage Clos Brocade IP Fabric Physical Scale					
40 Gbps Super Spine Switch		**VDX 8770-4**	**VDX 8770-8**	**SLX 9850-4**	**SLX 9850-8**
40 Gbps Spine Switch		**VDX 6940-36Q**	**VDX 6940-36Q**	**VDX 6940-36Q**	**VDX 6940-36Q**
Rack Scale (dual-homed)		648	1,296	2,160	4,320
10 GbE Server Scale Option 1: VDX 6740 leaf		31,104	62,204	103,680	207,360
10 GbE Server Scale Option 2: VDX 6940-144S leaf		62,208	124,416	207,360	414,720
100 Gbps Super Spine Switch		**VDX 8770-4**	**VDX 8770-8**	**SLX 9850-4**	**SLX 9850-8**
100 Gbps Spine Switch		**VDX 8770-4**	**VDX 8770-4**	**SLX 9850-4**	**SLX 9850-8**
Rack Scale (dual-homed)		144	288	5,184	20,736
10 GbE Server Scale VDX 6940-144S leaf		13,824	27,648	497,664	1,990,656

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