BROCADE 8 GBPS SAN SWITCH FREQUENTLY ASKED QUESTIONS

Overview

Brocade® provides the industry's leading family of Storage Area Network (SAN) switches, including the Brocade 300 Switch, the Brocade 5100 Switch, the Brocade 5300 Switch, and the new Brocade VA-40FC Switch. These high-performance, highly reliable Fibre Channel switches address a wide range of business requirements for small shared storage environments all the way up to the most demanding enterprise data centers.

General Questions and Answers

Q **What does the Brocade switch family consist of and what are the new capabilities?**

A The new family includes the 8- to 24-port Brocade 300 (1U, Fibre Channel only), the 24- to 40-port Brocade 5100 (1U, Fibre Channel and FICON®), the 48- to 80-port Brocade 5300 (2U, Fibre Channel and FICON), and the 40-port Brocade VA-40FC (1U, Fibre Channel). These new switches provide:

- **Industry-leading performance:** The switches utilize sixth-generation ASICs to deliver highly robust, 8 Gbps network performance. All switches can drive all ports at full 8 Gbps speed without over-subscription—providing 2.5 times more performance than previous switch models. All ports support 4 Gbps or 8 Gbps SFPs and will auto-negotiate 1, 2, 4, and 8 Gbps connections.
- **Greater scalability:** The switches provide a 25 to 50 percent increase in port density, enabling more servers to share storage without adding SAN hardware. All switches feature Ports On Demand capabilities to provide a lower entry cost with the flexibility to scale upward by simply upgrading the switch license.
- **Industry-leading energy efficiency:** The switches further reduce power consumption (less than one-half watt per Gbps), cooling needs, and carbon emissions—and, like Brocade directors and backbone-class products, lead all competitive offerings.
- **Performance monitoring and Adaptive Networking:** Performance monitoring and Adaptive Networking services are suites of tools for optimizing fabric behavior and ensuring ample bandwidth for mission-critical applications. These tools include:
  - **Quality of Service (QoS):** Allocates bandwidth in the event of congestion to expedite high-priority traffic and keep all traffic flowing. Organizations use existing zoning to easily assign traffic flows a high, medium (default), or low priority. If congestion occurs, high-priority zones automatically are assigned 60 percent of the available bandwidth, medium 30 percent, and low 10 percent.
  - **Ingress Rate Limiting:** Restricts data flow from less-critical hosts at preset bandwidths. This is useful for tiered levels of service, and it prevents low-priority and unpredictable applications from impacting network SLAs during SAN consolidation and/or the addition of physical and virtual servers.

- **Traffic Isolation:** Assigns high-bandwidth data flows to specific Inter-Switch Links (ISLs). This prevents high-bandwidth traffic from causing congestion and impacting critical application performance. For example, backup applications often require high bandwidth, and assigning them to dedicated paths with Traffic Isolation improves fabric utilization. Traffic Isolation is also supported with Fibre Channel Routing to isolate traffic routing between fabrics.
- **Top Talkers:** Measures the top bandwidth-consuming traffic in real time for a specific physical or virtual device, or end to end across the fabric.

Top Talkers is available through the Advanced Performance Monitoring license. QoS and Ingress Rate Limiting are available through the Adaptive Networking license.

Q Why would someone choose Brocade 8 Gbps switches over 4 Gbps switches?

A The key advantages are performance, scalability, Adaptive Networking capabilities, investment protection, ease of use, interoperability, and energy efficiency. Deploying 8 Gbps performance along with intelligent management features can provide an extra generation's worth of use from a storage network.

Q Are Brocade SFPs required for the 8 Gbps switches?

A Yes. The Brocade 300, Brocade 5100, Brocade 5300, and Brocade VA-40FC switches require Brocade-branded SFPs.

Q Does Brocade offer a choice of SFPs?

A Yes, the Brocade 300, Brocade 5100, Brocade 5300, and Brocade VA-40FC switches can use 4 Gbps or 8 Gbps SFPs. Organizations can purchase these switches with 4 Gbps SFPs today, and upgrade to 8 Gbps SFPs when they are ready. *Note: The Brocade VA-40FC is delivered with 8 Gbps SFPs.*

Q Does Adaptive Networking require a license?

A Yes, with the exception of Traffic Isolation.

Q What resources are available to learn more about Adaptive Networking?

A Brocade explains the Brocade data center architecture and the importance of Adaptive Networking in the Technical Briefs section located at www.brocade.com/resources.

Q How do the sixth-generation ASICs compare to previous generations?

A The latest-generation Brocade ASICs provide 8 Gbps transfer rates, increased port density, greater bandwidth, and virtual channel technology supporting Adaptive Networking. They also integrate Fibre Channel Routing, enable switching resources to sustain performance up to 3400 kilometers for disaster recovery, and improve scalability for large-scale server environments through Access Gateway F_Port Trunking.

Q Do the new Brocade 300, Brocade 5100, and Brocade 5300 switches replace the Brocade 200E, Brocade 5000, and Brocade 4900?

A Yes. As with all Brocade products, however, the new Brocade 300, Brocade 5100, and Brocade 5300 switches are backward-compatible with earlier Brocade switches, directors, and backbone-class products to protect existing investments.

Q Can the new switches connect to classic McDATA fabrics?

A Yes, in both native and open mode. The new switches connect natively and non-disruptively to McDATA switches and directors—the new switches behave as M-Series devices in M-Series fabrics—and work with common management tools such as Brocade EFCM. As a result, organizations can protect and leverage their M-Series investments.

Q Who is the target market and what are the expectations for 8 Gbps switch adoption?

A An immediate use case is 8 Gbps ISLs to replace 4 Gbps ISLs. This frees up ports for server and storage connections while doubling the bandwidth between switch connections for greater scalability.

Brocade also anticipates fast adoption rates in growing virtual server environments. As organizations continue to capitalize on the cost savings of virtualization by adding more virtual machines per host (20, 30, or 40) and by running tier-1 applications, they will eventually reach 4 Gbps capacity and incur over-subscription. 8 Gbps speed removes bandwidth constraints, allowing larger high-performance virtual deployments. System z environments and high-bandwidth applications such as backup are also driving demand for 8 Gbps speed. By delivering 8 Gbps performance across switch, director, and backbone-class products, Brocade provides a capability in the fabric to accelerate market development of 8 Gbps HBAs, RAID systems, and tape devices.

Q What role do 8 Gbps switches play in the Brocade data center architecture?

A They provide building blocks for this architecture, incorporating advanced features for end-to-end performance, availability, extension, monitoring, and reporting. For organizations that are building smaller SANs, fewer highly reliable switches means lower capital and management costs. For organizations expanding the server edge in large data centers, higher server density requires more switch ports and greater speed per port. Access Gateway further simplifies fabric configuration and increases scalability.

Q Why not just wait for 10 Gigabit Ethernet?

A 10 Gigabit Ethernet (GbE) is typically not viewed as a reliable approach for storage device connectivity, which will remain Fibre Channel for some time. A new class of Ethernet called Converged Enhanced Ethernet (CEE) is required for reliable support of storage traffic. Fibre Channel over Ethernet (FCoE) enables the Fibre Channel protocol to run on CEE. The new Brocade 8000 Switch includes both CEE and Fibre Channel ports in a compact 1U form factor, providing top-of-rack server connectivity into both data center LANs and SANs.

Q Are Brocade Fibre Channel switches compatible with the Brocade 8000?

A Yes. The Brocade 8000 Switch, as well as future Brocade CEE/FCoE solutions, can connect to Brocade Fibre Channel switches using native Fibre Channel ports to enable Fibre Channel SAN expansion.

Q Cisco says there's no market demand for 8 Gbps switches. Isn't this an indication that there is no need?

A No. It is likely more an indication of the challenges Cisco faces in keeping up with the pace of innovation and bringing 8 Gbps to market across an entire product line. Cisco does not seem to fully understand enterprise requirements for performance and scalability in data center networks to achieve greater consolidation, virtualization, protection, and application performance.

Q How much do the 8 Gbps switches cost? Isn't 8 Gbps performance overly expensive?

A Pricing for 8 Gbps switch configurations is available from Brocade Partners. For choice and flexibility in achieving the best levels of price and performance, organizations have the flexibility to use 4 Gbps or 8 Gbps SFPs/optics—and to utilize the Brocade Ports On Demand licensing structure. This allows them to align cost and performance with their current needs, then scale cost-effectively as their server and storage needs grow.

Q What is Integrated Fibre Channel Routing?

A Integrated Fibre Channel Routing leverages the latest Brocade 90 nm ASIC technology to provide Fibre Channel Routing on a per-port basis. By making an 8 Gbps port act as an EX_Port, data can be read/written between fabrics while maintaining remote fabric isolation. Integrated Routing eliminates the need for a dedicated router or consumption of chassis slots with special routing blades—thereby reducing cost, complexity, and management overhead.

Q Is Integrated Routing a licensed feature?

A Yes. It is available via the optional Integrated Routing license.

Q Are there feature differences or performance advantages with Integrated Routing compared to an extension switch or an extension blade?

A With 8 Gbps SFPs, Integrated Routing provides twice the bandwidth of the Brocade FR4-18i SAN Extension Blade and the Brocade 7500 Extension Switch (both of which operate at 4 Gbps). There are no differences in functionality or management between Integrated Routing and using an extension switch/blade. The main advantages of Integrated Routing are lower cost, complexity, and administration overhead.

Q Are there scalability limitations with Integrated Routing?

A The Brocade 5300 and Brocade 5100 switches allow all ports to be EX_Ports and support up to 32 front domains (connections to edge fabrics). The Brocade DCX® Backbone supports up to 128 ports acting as EX_Ports and 48 front domains.

Q Can Integrated Routing be used to connect Brocade devices to M-Series fabrics?

A Yes. Ports configured as EX_Ports can route data to Brocade M-EOS devices running in either McDATA Fabric mode (native) or McDATA Open Fabric mode.

Q What is Brocade Access Gateway mode?

A Brocade Access Gateway mode can make a switch appear transparent to hosts or the network fabric. With a switch configured in Access Gateway mode, F_Ports connect to the fabric as N_Ports rather than E_Ports. This allows more hosts (and virtual machines)

to access the fabric without increasing the size of the Fibre Channel fabric—thereby simplifying configuration and reducing the number of Domain IDs to manage.

Q What switches support Access Gateway mode?

A The Brocade 200E, Brocade 300, Brocade 5100, and Brocade VA-40FC switches, as well as the Brocade 40xx and 50xx blade server switches support Access Gateway mode. Access Gateway support in the Brocade 5100 was added in Brocade Fabric OS® 6.2. The Brocade VA-40FC is the only Brocade switch that runs in Access Gateway mode by default.

Q In regard to Brocade Fibre Channel switches, what are the key new features available in Fabric OS 6.2?

A Fabric OS 6.2 brings the Virtual Fabrics feature to the Brocade 5100 and Brocade 5300 switches. It also brings Access Gateway mode to the Brocade 5100.

Q What is Virtual Fabrics?

A Virtual Fabrics enables the partitioning of a physical SAN into logical fabrics. This provides fabric isolation by application, business group, customer, or traffic type without sacrificing performance, scalability, security, or reliability. Virtual Fabrics is supported on both the Brocade 5100 and Brocade 5300.

Q How does the new Brocade VA-40FC switch differ from the rest of the Brocade Fibre Channel switches?

A The primary difference between the Brocade VA-40FC and the Brocade 300, Brocade 5100, and Brocade 5300 switches is that it is in Access Gateway mode by default. Access Gateway mode enables the Brocade VA-40FC to support rapidly growing server environments by not requiring any switch configuration during deployment. In addition, the Brocade VA-40FC features a minimized switch depth of 17.6 inches and reversible airflow options, meeting the requirements of some emerging large-scale server solutions.

Q Why does the Brocade VA-40FC have a different hardware design than other Brocade switches?

A Some emerging large-scale server solutions for data center deployments, such as the IBM iDataPlex and Verari BladeRack, have specific requirements for network switches due to their compact rack designs. Some of these server racks have a depth of only 24 inches. To allow room for access and cabling, the network switch needs to be less than 18 inches deep to fit these racks. Moreover, these high-density server solutions have specialized cooling systems with stringent airflow requirements. This is one of the reasons why the Brocade VA-40FC offers front-to-back and back-to-front airflow.

Q Does the Brocade VA-40FC only support Access Gateway mode?

A No. The Brocade VA-40FC also supports Fabric Switch mode to provide the same functionality as the Brocade 5100 and 5300 switches. The Brocade VA-40FC can be changed from Access Gateway mode to Fabric Switch mode using Brocade Data Center Fabric Manager (DCFM™), Brocade Web Tools, or the command line interface.

Learn More

Q How do I find out more about Brocade switches?

A Contact your Brocade Sales Representative or OEM Partner for details. Or visit www.brocade.com/products.

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