

BROCADE ACCESS GATEWAY



STORAGE AREA NETWORK

An Innovative Platform for Connecting Blade Servers to SANs

HIGHLIGHTS

- Simplifies the connectivity of blade servers to any SAN fabric, using hardware that is qualified by industry-leading OEMs
- Increases scalability of blade server enclosures within SAN fabrics
- Helps eliminate fabric disruption resulting from increased blade server switch deployments
- Simplifies deployment and change management utilizing standard Brocade Fabric OS
- Provides extremely flexible port connectivity
- Features fault-tolerant external ports for mission-critical high availability

Blade servers are experiencing explosive growth and acceptance in today's data center IT environments. A critical part of this trend is connecting blade servers to Storage Area Networks (SANs), which provide highly available and scalable storage solutions. IT organizations that want to connect blade server enclosures to SANs in this manner typically utilize one of two methods: Fibre Channel SAN pass-through solutions or blade server SAN switches.

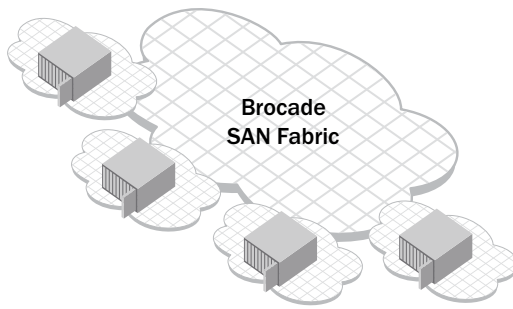
Today, Brocade® offers blade server SAN switches from all leading blade manufacturers, providing significant advantages over Fibre Channel SAN pass-through solutions. With fewer cables and related components, Brocade blade server SAN switches provide lower cost and greater reliability by eliminating potential points of failure.

Brocade has expanded upon these blade server SAN switch benefits with the introduction of the Brocade Access Gateway.

A revolutionary feature of Brocade Fabric OS® specifically for blade server SAN switches, the Brocade Access Gateway simplifies server and storage connectivity in blade environments. By enabling increased fabric connectivity, greater scalability, and reduced management complexity, the Brocade Access Gateway provides a complete solution for connecting blade servers to any SAN fabric.

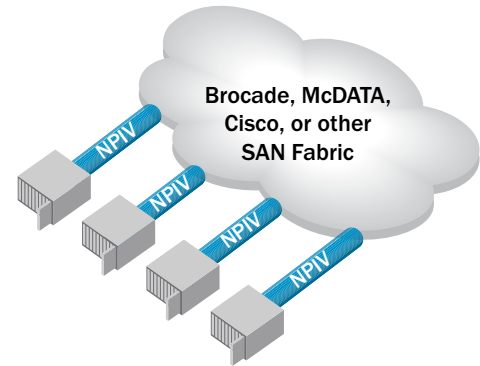
This unique solution protects investments in existing blade server SAN switches by enabling IT organizations to use them as traditional Brocade full-fabric SAN switches or operate them in Brocade Access Gateway mode via Brocade Web Tools or the Brocade command line interface. As a result, the Brocade Access Gateway provides a reliable way to integrate state-of-the-art blade servers into heterogeneous Fibre Channel SAN environments (see Figure 1).

Traditional Brocade Blade Server SAN Switches



Blade enclosures with Brocade blade server SAN switches running in Brocade Switch mode and attached to a Brocade SAN fabric

Brocade Blade Server SAN Switches in Brocade Access Gateway Mode



Blade enclosures with Brocade blade server SAN switches running in Brocade Access Gateway mode and attached to a SAN fabric

Figure 1. Alternatives for Brocade blade server SAN connectivity.

SAN CONNECTIVITY FOR BLADE SERVERS

Facilitating broad connectivity for highly scalable, reliable, and manageable SAN environments, the Brocade Access Gateway provides a wide range of features for Brocade blade server SAN switches, including:

- Seamless fabric interoperability
- Improved scalability
- Simplified management
- Automatic failover and failback
- Adaptable port capabilities

Seamless Fabric Interoperability

The Brocade Access Gateway mode eliminates traditional heterogeneous switch-to-switch interoperability challenges. It utilizes N_Port ID Virtualization (NPIV) switch standards to present blade server Fibre Channel connections as logical devices to SAN fabrics. Attaching through NPIV-enabled switches and directors, the Brocade Access Gateway seamlessly connects server blades to Brocade, McDATA, Cisco, or other SAN fabrics.

Improved Scalability

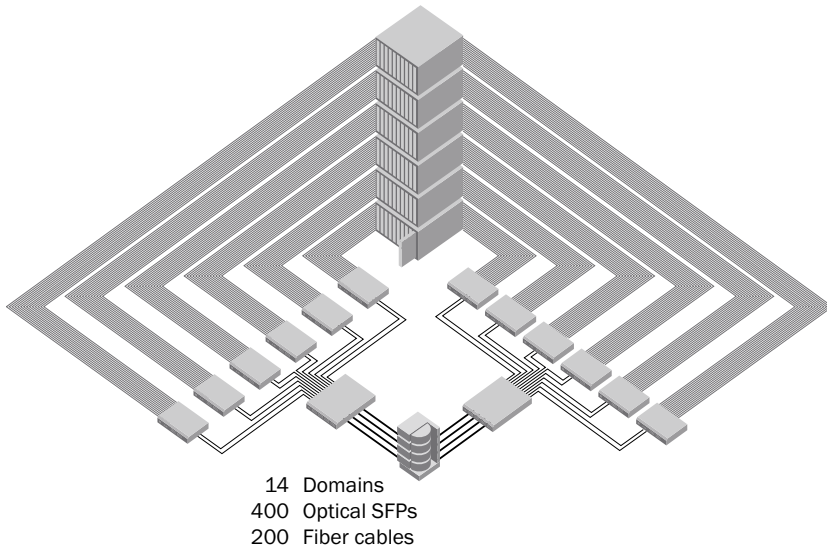
Blade servers have traditionally connected to SANs one enclosure (chassis) at a time, each time adding two more switch domains to the fabric. Increasing the number of blade enclosures has also meant additional switch domains to manage. These additional domains create complexity and can sometimes disrupt fabric operations during the deployment process. To address that challenge, the Brocade Access Gateway simplifies the deployment of blade enclosures into SAN fabrics by presenting blade server Fibre Channel connections (rather than switch domains) to the SAN fabric.

By increasing the number of device ports that can be connected to a single fabric port, the Brocade Access Gateway can also support a much larger fabric. Unlike Fibre Channel pass-through solutions, it can do so without substantially increasing the number of switches (see Figure 2).

Simplified Management

Using the Brocade Access Gateway to connect Fibre Channel blade servers to SAN fabrics eliminates certain management tasks associated with traditional blade server SAN switches. In addition, the Brocade Access Gateway eliminates the potential for fabric

Fibre Channel Pass-Through



Brocade Access Gateway

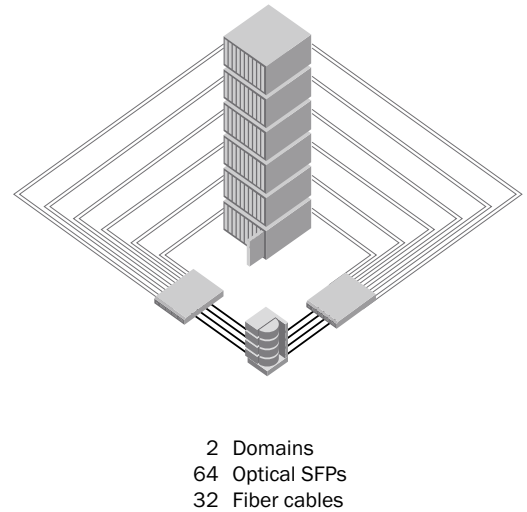


Figure 2. The advantages of the Brocade Access Gateway compared to Fibre Channel pass-through solutions.

disruptions that can result from incremental switches or domains joining an existing fabric. Together, these capabilities significantly reduce management workload and administrative complexity.

Automatic Failover and Failback

To enhance availability, the Brocade Access Gateway can automatically and dynamically fail over the preferred I/O connectivity path in case one or more fabric connections fails. This approach helps ensure that I/O operations finish to completion, even during link failures. Moreover, the Brocade Access Gateway can automatically fail back to the preferred fabric link after the connection is restored, helping to maximize bandwidth utilization.

Adaptable Port Capabilities

Some Brocade blade server SAN switches include the Ports on Demand feature, which enables “pay-as-you-grow” scalability. After the required ports are enabled, Brocade blade server SAN switches can leverage the flexible Dynamic Ports on Demand feature, so organizations can utilize ports wherever they want regardless of the physical location of the blade server inside the blade enclosure.

MAXIMIZING SAN INVESTMENTS

Brocade and its partners offer complete SAN solutions to meet a wide range of technology and business requirements. These solutions include education and training, support, service, and professional services to help optimize SAN investments. For more information, contact an authorized Brocade sales partner or visit www.brocade.com.

BROCADE ACCESS GATEWAY SPECIFICATIONS

Operating system	Brocade Fabric OS 5.2.1 or higher
NPIV switch/director support	<ul style="list-style-type: none"> • Brocade Fabric OS 5.1 or higher (Fabric OS 5.2.1 recommended) • Brocade Enterprise OS 9.0 or higher (running in McDATA native mode) • Cisco OS 3.0 or higher
Scalability	Up to 30 Brocade Access Gateways connected to a single external switch, depending on the switch's processing capability
Management capabilities	<ul style="list-style-type: none"> • Management through Brocade Web Tools • Configurable through the Brocade command line interface • Management Information Block (MIB) support • Simple Network Management Protocol (SNMP)-based services • Fabric Device Management Interface (FDMI) for managing attached Fibre Channel HBAs • RASLOG for event recording and auditing • Secure Shell (SSH) for encrypted telnet sessions • RADIUS for enhanced user authentication • Registered State Change Notification (RSCN) filtering

Usage Note

Certain Brocade switch features are not applicable in Brocade Access Gateway mode, including: Admin Domains, Brocade Advanced Performance Monitoring, Brocade Advanced Zoning, direct connection to SAN target devices, Brocade Fabric Manager, Fibre Channel Arbitrated Loop support, FICON®, IP over Fibre Channel, Brocade Inter-Switch Link (ISL) Trunking, Brocade Extended Fabrics, Management Services, Name Services (SNS), port mirroring, Brocade Secure Fabric OS®, and SMI-S.

For information about supported SAN standards, visit www.brocade.com/sanstandards

For information about switch and device interoperability, visit www.brocade.com/interoperability

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