

Brocade® 300 Switch

Small SAN affordability with growth capabilities



➤ As the value and volume of business data continue to rise, organizations need technology solutions that are easy to implement and manage, and that can grow and change with minimal disruption. The Brocade® 300 Switch provides small to medium-sized enterprises with SAN connectivity that simplifies their IT management infrastructures, improves system performance, maximizes the value of virtual server deployments, and reduces overall storage costs.

Highlights

- Provides an affordable, flexible foundation for entry-level SANs, and an edge switch for core-to-edge SAN environments
- Delivers up to 24 ports of 8 Gb/s performance in an energy-efficient, optimized 1U form factor to support the most demanding server and virtual server deployments
- Simplifies configuration and management with easy-to-use tools such as the Brocade EZSwitchSetup wizard, and is Microsoft Simple SAN-compatible
- Enables “pay-as-you-grow” scalability from single-switch fabrics to full-fabric enterprise capabilities with Ports On Demand scalability from 8 to 16 or 24 ports in 8-port increments
- Offers dual functionality as either a full-fabric SAN switch or as an NPIV-enabled Brocade Access Gateway that enhances fabric scalability and simplifies management
- Protects existing device investments with auto-sensing 1, 2, 4, and 8 Gb/s capabilities and native operation with Brocade and Brocade M-Series fabrics
- Future-proofs investments by enabling organizations to use 4 Gb/s SFPs today and upgrade to 8 Gb/s SFPs when required

The 8 Gb/s Fibre Channel Brocade 300 provides a simple, affordable, single-switch solution for both new and existing SANs. To simplify deployment, the Brocade 300 features the EZSwitchSetup wizard and other usability and configuration enhancements, as well as the optional Brocade Access Gateway mode of operation. Moreover, it provides state-of-the-art performance and Ports On Demand scalability to support SAN expansion and enable long-term investment protection.

Increased efficiency to manage business growth

The Brocade 300 significantly increases performance and functionality for SANs at an entry-level price. Based on sixth-generation Brocade technology, the Brocade 300 combines auto-sensing 1, 2, 4, and 8 Gb/s throughput with features that greatly enhance fabric operation. The evolutionary design provides these capabilities while consuming less than 2.5 Watts of power per port for exceptional power and cooling efficiency.

As a result, organizations can enjoy the advantages of low-cost device connectivity and powerful capabilities that make SAN technology highly accessible and affordable. In addition, hot code load and activation help maximize application uptime with faster system software upgrades and maintenance to reduce the dependency

Pay-as-you-grow scalability

The Brocade 300 integrates innovative hardware and software features that make it easy to deploy, manage, and integrate into a wide range of IT environments. With powerful yet flexible capabilities—such as Ports On Demand scalability from 8 to 16 or 24 ports in 8-port increments—the Brocade 300 enables organizations to start small and grow their storage networks in a non-disruptive manner. In addition, organizations can initially deploy 4 Gb/s SFPs and upgrade to 8 Gb/s SFP+ when necessary.

Brocade Access Gateway Mode

The Brocade 300 can be deployed as a full-fabric switch or as a Brocade Access Gateway, which provides connectivity into any SAN (the default mode setting is a switch). Access Gateway mode utilizes N_Port ID Virtualization (NPIV) switch standards to present Fibre Channel connections as logical devices to SAN fabrics. Attaching through NPIV-enabled switches and directors, the Brocade 300 in Access Gateway mode can connect to Brocade, McDATA, or other SAN fabrics.

Organizations can easily enable Access Gateway mode via a command line interface, Brocade Web Tools, or Brocade Fabric Manager. Key benefits of Access Gateway mode include:

- Improved scalability for large or rapidly growing server and virtual server environments
- Simplified management through the reduction of domains and management tasks
- Fabric interoperability for mixed vendor SAN configurations that require full functionality

Note: Brocade Access Gateway Mode is supported only in 24-port configurations.

Backward and forward compatibility

The Brocade 300 operates seamlessly with existing Brocade switches through native E_Port connectivity into Brocade Fabric OS® (FOS) or M-Enterprise OS (M-EOS)* environments. In addition, the Brocade 300 can enable seamless expansion to larger core-to-edge network architectures as business needs dictate.

To facilitate deployment, the Brocade 300 integrates easily into heterogeneous environments with operating systems such as Windows NT, UNIX, Linux, Solaris, and AIX, as well as virtual server environments. As a result, these capabilities make it ideal for SAN solutions such as virtual server deployment, LAN-free backup, and server and storage consolidation.

A better way to improve business operations

One of the primary benefits of a SAN environment is the consolidation of hardware resources. This centralized approach helps increase operational efficiency and staff productivity, two critical requirements for small and medium-sized organizations. With fewer physical resources to manage, staff members can handle additional business growth or focus on other strategic initiatives.

High-performance 8 Gb/s Fibre Channel capabilities speed data transfer to help keep data flowing and applications running. As a result, organizations can significantly improve storage utilization in distributed e-mail environments, for example. In addition, a SAN-based architecture enables LAN-free backup and more efficient data center resource management—increasing overall system performance and productivity (see Figure 1).

Superior network performance

The Brocade 300 provides high performance with all ports capable of operating at 1, 2, 4, and 8 Gb/s (full duplex) to enable up to 408 Gb/s of uncongested throughput. Auto-sensing and speed-matching of data

traffic provides interoperability with previous 1, 2, and 4 Gb/s devices. To provide more targeted performance, enhanced Brocade Inter-Switch Link (ISL) Trunking combines up to eight ISLs between a pair of switches into a single, logical high-speed trunk capable of up to 68 Gb/s of throughput.

Simplified management

All Brocade switches utilize the intelligent Brocade Fabric OS, which enables highly reliable and scalable environments. To manage their switch configurations, organizations can use a command line interface, the Brocade Web Tools utility, or broader SAN management tools such as Brocade Enterprise Fabric Connectivity Manager (EFCM) or Fabric Manager. The Brocade 300 also provides a USB port that increases serviceability and error logging by facilitating firmware upgrades and downloads of system log files.

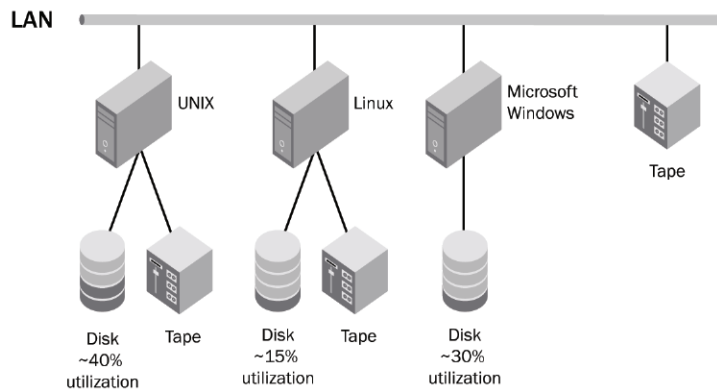
Adaptive networking services

The Brocade 300 utilizes Brocade Adaptive Networking services, a suite of tools for optimizing fabric behavior and ensuring ample bandwidth for mission-critical applications. These tools currently include QoS, Ingress Rate Limiting, Traffic Isolation, and Top Talkers.

By assigning zones a high, medium, or low priority, QoS allocates bandwidth in the event of congestion to expedite high-priority traffic and keep all traffic flowing. Ingress Rate Limiting restricts data flow from less critical hosts at preset bandwidths. Traffic Isolation assigns high-bandwidth data flows to specific ISLs. And 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.

* Brocade M-EOS fabrics are McDATA switches and directors running McDATA Enterprise OS in McDATA Fabric mode or McDATA Open Fabric mode.

Before SAN



After SAN

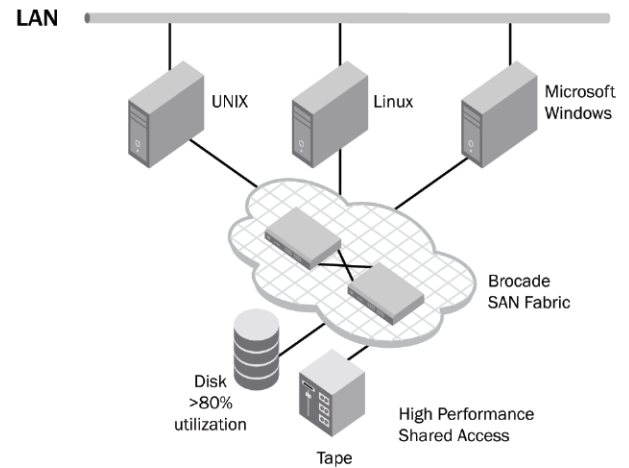


Figure 1. A Brocade SAN-based consolidation solution can significantly improve data availability and resource utilization.

Brocade 300 Switch Specifications

Systems architecture

Fibre Channel ports

- Switch mode (default): 24 ports in 8-port increments through Ports on Demand licenses at 8, 16, and 24 universal (E, F, M, FL, or N) ports
- Access Gateway Default Port Mapping: 16 F_Ports, 8 N_Ports

Scalability

- Full fabric architecture with 239 switches maximum

Certified maximum

- Single Brocade FOS fabric: 56 domains, 19 hops
- Single Brocade M-EOS fabric: 31 domains, 3 hops
- Larger fabrics certified as required; consult Brocade or OEM Sun's SAN design documents for configuration details

Performance

- 1.063 Gb/s line speed, full duplex
- 2.125 Gb/s line speed, full duplex
- 4.25 Gb/s line speed, full duplex
- 8.50 Gb/s line speed, full duplex
- Auto-sensing of 1, 2, 4, and 8 Gb/s port speeds; optionally programmable to fixed port speed; speed matching between 1, 2, 4, and 8 Gb/s ports

ISL Trunking

- Frame-based trunking with up to eight 8 Gb/s ports per ISL trunk with optional license; up to 68 Gb/s per ISL trunk (8 ports x 8.5 Gb/s [line rate])
- Exchange-based load balancing across ISLs with DPS included in Fabric OS

Aggregate bandwidth

- 408 Gb/s: 24 ports x 8.5 Gb/s (line rate) x 2 (full duplex)

Maximum fabric latency

- 700 ns with no contention, cut-through routing at 8 Gb/s

Maximum frame size

- 2112-byte payload

Frame buffers

- 700 dynamically allocated, 484 maximum per port

Classes of service

- Class 2, Class 3, Class F (inter-switch frames)

Port types

- FL_Port, F_Port, M_Port (Mirror Port), and E_Port; self-discovery based on switch type (U_Port); optional port type control in Brocade Access Gateway mode: F_Port and NPIV-enabled N_Port

Data traffic types

- Fabric switches supporting unicast, multicast (255 groups), and broadcast

Media types

- 4 Gb/s: Requires Brocade hot-pluggable, Small Form-factor Pluggable (SFP), LC connector; 4 Gb/s Short-Wavelength Laser (SWL); 4 Gb/s Long-Wavelength Laser (LWL); 4 Gb/s Extended Long-Wavelength Laser (ELWL); distance depends on fiber-optic cable and port speed
- 8 Gb/s: Requires Brocade hot-pluggable SFP+, LC connector; Short-Wavelength Laser (SWL); distance depends on fiber-optic cable and port speed

USB

- 1 USB port for firmware download, support save, and configuration upload/download

Fabric services

- Simple Name Server (SNS); Registered State Change Notification (RSCN); NTP v3; Reliable Commit Service (RC S); Dynamic Path Selection (DPS); Brocade Advanced Zoning (default zoning, port/WW N zoning, broadcast zoning); NPIV; N_Port Trunking; FDMI; Management Server; FSPF; Fabric Watch; Extended Fabrics; ISL Trunking; Advanced Performance Monitoring; Adaptive Networking (per data flow QoS, Ingress Rate Limiting, Traffic Isolation, Top Talkers; licensing varies); IPoFC, Frame Redirection; Port Fencing; BB credit recovery
- Note: Some fabric services do not apply or are unavailable in Brocade Access Gateway mode

Options

- Rack-mount rail kits (fixed, slide, mid-mount)

Management

Management

- Telnet, HTTP, SNMP v1/v3 (FE MIB, FC Management MIB); Auditing, Syslog, Change Management tracking; EZSwitchSetup wizard; Brocade Advanced Web Tools; Brocade EFCM Standard/Enterprise 9.x (optional); Brocade Fabric Manager (optional: FOS environments only); SMI-S compliant, SMI-S scripting toolkit, Administrative Domains; trial licenses for select add-on capabilities

Security

- SSL, SSH v2, HTTPS, LDAP, RADIUS, Role-Based Access Control (RBAC), DH-CHAP (between switches and end devices), Port Binding, Switch Binding, Secure RPC, Secure Copy (SCP), Trusted Switch, IPsec, IP Filtering

Management access

- 10/100 Ethernet (RJ-45), in-band over Fibre Channel; serial port (RJ-45); USB; call-home integration enabled through Brocade EFCM and Brocade Fabric Manager

Diagnostics

- POST and embedded online/offline diagnostics, including RAstrace logging, environmental monitoring, non-disruptive daemon restart, FCping and Pathinfo (FC traceroute), port mirroring (SPAN port)

Mechanical Specifications

Enclosure

- Non port-to-port side airflow; 1U, 19-inch EIA-compliant, power from port side

Size

- Width: 42.88 cm (16.88 in)
- Height: 4.29 cm (1.69 in)
- Depth: 30.66 cm (12.07 in)

System weight

- 4.2 kg (9.30 lbs), without SFP/SFP+ media

Environment

Temperature

- Operating: 0°C to +40°C (+32°F to +104°F)
- Non-operating: -25°C to +70°C (-13°F to +158°F)

Humidity

- Operating: 10% to 85% non-condensing
- Non-operating: 10% to 95% non-condensing

Altitude

- Operating: Up to 3000 meters (9800 feet)
- Storage: Up to 12 km (39,370 feet)

Shock

- Operating: 20 g, 6 ms, half-sine
- Non-operating: half sine, 33 g 11 ms, 3/eg Axis

Vibration

- Operating: 0.5 g sine, 0.4 grms random, 5 to 500 H z
- Non-operating: 2.0 g sine, 1.1 grms random, 5 to 500 H z

Heat dissipation

- Maximum 24 ports: 195 BTU/hr

Learn More

To learn more about the Brocade 300 Switch visit sun.com/storagetek/networking

CO₂ emissions

- 210 kg per year (with 16 ports at 0.42 kg/kWh)
- 1.09 kg per Gb/s per year

Airflow

- Maximum 23 CFM (cu. ft./min.); nominal 18 CFM

Power

Power inlet

- C13

Input voltage

- 85 to 264 VAC nominal

Frequency

- 47 to 63 H z

Power consumption

- Nominal 48 Watts; maximum 57 Watts with 24 ports at 8 Gb/s



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