The 2 Gbit/sec Brocade SilkWorm 3850 16-port fabric switch enables small and medium-sized organizations to deploy affordable SANs that improve the efficiency of their business operations.

SILKWORM 3850

Highlights

- Improves business operations by increasing efficiency through higher resource utilization

- Increases productivity through ease of use and simplified storage management

- Enables "pay-as-you-grow" scalability from entry 2-switch fabrics to full-fabric enterprise capabilities

- Protects investments with seamless upgrades to new functions and future switch capabilities

- Meets high-availability requirements with hot code activation, automatic path rerouting, extensive diagnostics, and dual-redundant power supplies

- Includes 1 and 2 Gbit/sec interfaces for backward compatibility with existing Brocade SAN fabrics

- Provides flexibility as a reliable foundation for entry-level SANs or as an edge switch in core-to-edge SAN environments

Increased Efficiency to Manage Business Growth

As the value and volume of business data continue to rise, organizations are constantly challenged to "do more with less." These organizations need technology solutions that are easy to implement and manage, that can grow and change with minimal disruption, and that offer dramatic operational efficiencies. Today, Brocade® Storage Area Network (SAN) solutions can help organizations simplify their IT management infrastructures, shrink data backup windows, improve system performance, and reduce overall storage costs.

The Brocade SilkWorm® 3850 16-port Fibre Channel switch significantly increases performance and functionality for SANs at an entry-level price. Based on third-generation Brocade technology, the SilkWorm 3850 provides auto-sensing 1 Gbit/sec and 2 Gbit/sec Fibre Channel throughput with new features that greatly enhance switch operation. As a result, organizations can enjoy the advantages of low-cost device connectivity and powerful capabilities that make SAN technology highly accessible and affordable.

PAY-AS-YOU GROW SCALABILITY

Designed for small and medium-sized organizations, the SilkWorm 3850 integrates innovative hardware and software features that make it easy to deploy, manage, and integrate into a wide range of IT environments. With these powerful yet flexible capabilities, the SilkWorm 3850 enables organizations to start small and grow their storage networks in a scalable, non-disruptive, and efficient manner. This is especially beneficial for organizations that need to upgrade their existing SAN environment with minimal disruption.

BROCADE

GREATER
EFFICIENCY

HIGH AVAILABILITY THROUGHOUT THE FABRIC

The SilkWorm 3850 is designed to provide high-availability switching at the core of small-to-medium-sized storage networks. The core-to-edge SAN model features high availability for the entire fabric through redundant network paths. Combining the proven reliability of the SilkWorm family with a wide range of optional Advanced Fabric Services, these switches provide a SAN fabric capable of delivering overall system availability greater than 99.999 percent. In addition, Brocade Fabric Shortest Path First (FSPF) enables the fabric to automatically isolate problems and reroute traffic around failed links onto alternate paths—increasing availability for mission-critical enterprise applications. Reliability is further enhanced with dual power supplies.

BACKWARD AND FORWARD COMPATIBILITY

The SilkWorm 3850 is fully interoperable with existing SilkWorm 1000 and 2000 series switches—supporting entry fabrics that serve a variety of purposes, such as easing e-mail storage growth and streamlining data backup. In addition, the SilkWorm 3850 is compatible with newer Brocade SAN switches and directors, providing the ability to seamlessly expand to more sophisticated core-to-edge network architectures as business needs dictate. As a result, these capabilities make it ideal for key SAN solutions such as 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 in an easy-to-manage infrastructure. This centralized approach helps increase operational efficiency and staff productivity, two critical requirements for small and medium-sized businesses. With fewer physical resources to manage, staff members can handle additional business growth or focus on other strategic initiatives.

The high-performance 2 Gbit/sec Fibre Channel capabilities of the SilkWorm 3850 switch 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. Consolidating e-mail applications on a SAN can increase data availability by greatly reducing backup and restore windows—in some cases by as much as 90 percent.
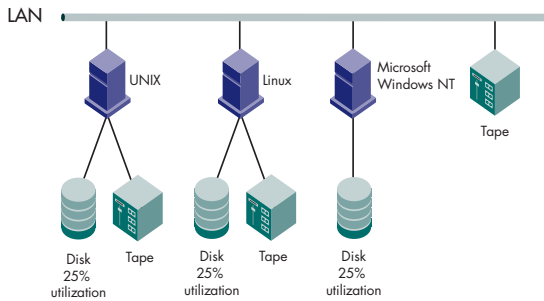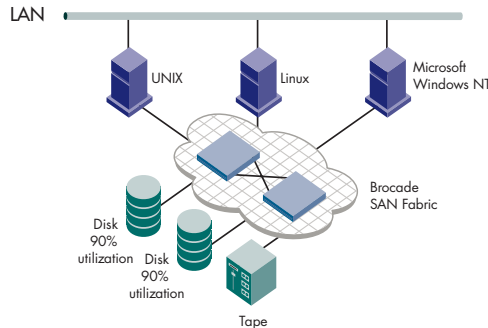
Figure 1. A Brocade SAN-based data backup solution can significantly improve data availability and resource utilization compared to traditional direct-attached storage environments.

BEFORE SAN

AFTER SAN

In addition, a SAN-based architecture enables LAN-free backup and more efficient storage resource management—increasing overall system performance and productivity (see Figure 1).

SUPERIOR NETWORK PERFORMANCE

The SilkWorm 3850 provides high performance with all ports capable of operating at 1 and 2 Gbit/sec (full-duplex) to enable up to 64 Gbit/sec of uncongested throughput. Auto-sensing and speed matching of data traffic ensures interoperability between 1 Gbit/sec and 2 Gbit/sec devices. To provide even higher performance, optional Brocade Inter-Switch Link (ISL) Trunking combines up to four ISLs between a pair of switches into a single, logical high-speed trunk running at up to 8 Gbit/sec.

SIMPLIFIED MANAGEMENT

All SilkWorm switches are based on the intelligent Brocade Fabric OS®, which provides the integrated building blocks for highly reliable and scalable SAN environments. To manage their switch configurations, organizations can use a command line interface, the Brocade WEB TOOLS Java application, or the Brocade Fabric Manager multifabric management application. In addition, Brocade offers the following advanced software solutions to further enhance business operations:

- Brocade Advanced Zoning permits only authorized devices and applications to access data, thereby increasing security and control.
- Brocade Advanced Performance Monitoring enables end-to-end performance monitoring of the entire SAN fabric.
- Brocade Fabric Watch enables organizations to proactively monitor the health of the network with comprehensive thresholds and alerts that help prevent outages.
- Brocade Secure Fabric OS® helps ensure that all of these management capabilities are available in a secure environment.
- The Brocade Fabric Access API enables the integration of a broad range of powerful Brocade SilkWorm switch functions into popular third-party management tools, enabling organizations to continue using their storage management tools of choice.

SEAMLESS UPGRADES TO PROTECT INVESTMENTS

To help protect existing investments, the SilkWorm 3850 provides a seamless upgrade path with SilkWorm entry, midrange, and director-class offerings. The switch is designed to integrate with heterogeneous environments that include multiple operating systems such as Windows 2000 and NT, UNIX, Linux, HPUX, Solaris, AIX, and others. As a result, organizations have the flexibility to build cost-efficient, easy-to-manage SAN fabrics.

MAXIMIZING SAN INVESTMENTS

Brocade and its partners offer complete, cost-effective 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**.

Systems Architecture

Fibre Channel ports	16 universal ports
Scalability	2-switch fabric, 4-switch fabric, up to a full-fabric architecture with 239 switches maximum
Certified maximum	50 switches, 7 hops with optional full-fabric license; larger fabrics certified as required
Interoperability	SilkWorm II, SilkWorm Express, any SilkWorm 2000 family switch, any SilkWorm 3000 family switch, SilkWorm 4100, SilkWorm 12000, and SilkWorm 24000
Performance	2.125 Gbit/sec line speed, full duplex
Aggregate bandwidth	64 Gbit/sec end-to-end
Fabric latency	<2.1 μ sec. with no contention, cut-through routing at 2 Gbit/sec
Maximum frame size	2112-byte payload
Classes of service	Class 2, Class 3, Class F (inter-switch frames)
Port types	FL_Port, F_Port, and E_Port; self-discovery based on switch type (U_Port)
Data traffic types	Fabric switches support unicast, multicast (256 groups), and broadcast
Media types	Hot-pluggable, industry-standard Small Form-Factor Pluggable (SFP), LC connector; Short-Wavelength Laser (SWL); Long-Wavelength Laser (LWL); distance depends on fiber optic cable and port speed
Laser	Short-wave up to 500 m (1,640 ft); long-wave up to 10 km (6.2 mi)
Fabric services	Simple Name Server, Registered State Change Notification (RSCN), Alias Server (multicast), and Brocade Zoning Optional fabric services include: Fabric Watch, Extended Fabrics, Advanced Performance Monitoring, ISL Trunking, Secure Fabric OS, and Remote Switch
Options	SFP Media

Management

Management software	Telnet; SNMP (FE MIB, FC Management MIB); Brocade WEB TOOLS; Brocade Fabric Manager (optional)
Management access	10/100 Ethernet port (RJ-45); Serial port (RS-232); in-band through Management Server
Diagnostics	POST and embedded online/offline diagnostics

Mechanical Specifications

Enclosure	Non-port to port side airflow. 1U, 19-in EIA compliant
Size	Depth: 30.7 cm (12.1 in) Width: 42.9 cm (16.9 in) Height: 4.3 cm (1.7 in) Dual power supplies, no media Weight: 4.2 kg (9.4 lb)

Environment

Temperature	Operating: 10°C to 40°C (50°F to 104°F) Non-operating: -25°C to 70°C (-13°F to 158°F)
Humidity	Operating: 20 to 85 percent non-condensing at 40°C (104°F)
Altitude	Up to 3,000 meters (9,800 feet)
Shock	80 g, 2.5 ms, half sine
Vibration	Operating: 0.5 g sine, 0.4 grms random, 5 to 500 Hz Non-operating: 2.0 g sine, 1.1 grms random, 5 to 500 Hz

Power

AC input	Nominal: 100 to 240 VAC, 0.5 A for each power supply
Frequency	47 to 63 Hz

Safety

Underwriters Laboratories, UL60950; Canadian Standards Association, CSA60950; TUV Rheinland of North America, EN60950; Nemko, EN60950; Low Voltage Directive (73/23/EEC) for CE Marking in European Union

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

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