



The Brocade SilkWorm 3800 provides high-availability, high-performance switching at the core of enterprise storage networks.

SILKWORM 3800

Highlights

- Simplifies enterprise SAN deployment by combining port density with exceptional scalability, performance, reliability, and availability
- Provides industry-leading port density with up to 16 ports in a single 1U enclosure and up to 384 ports in a single 42U rack, facilitating manageable SAN fabrics composed of thousands of ports
- Meets high-availability requirements with redundant, hot-pluggable components, automatic rerouting through the Fabric Shortest Path First (FSPF) algorithm, and self-healing features
- Employs Brocade Inter-Switch Link (ISL) Trunking™ to provide a high-speed data path between switches
- Leverages Brocade Secure Fabric OS™ to ensure a comprehensive security platform for the entire SAN fabric

Enterprise Fibre Channel Fabric Switch

The Brocade® SilkWorm® 3800 16-port, auto-sensing Fibre Channel switch significantly increases performance and functionality for Storage Area Networks (SANs). Based on third-generation Brocade ASIC technology, the SilkWorm 3800 combines 1 Gbit/sec and 2 Gbit/sec Fibre Channel throughput with new features that greatly enhance switch operation. As a result, organizations can leverage the advantages of higher security, availability, and performance, as well as centralized data management.

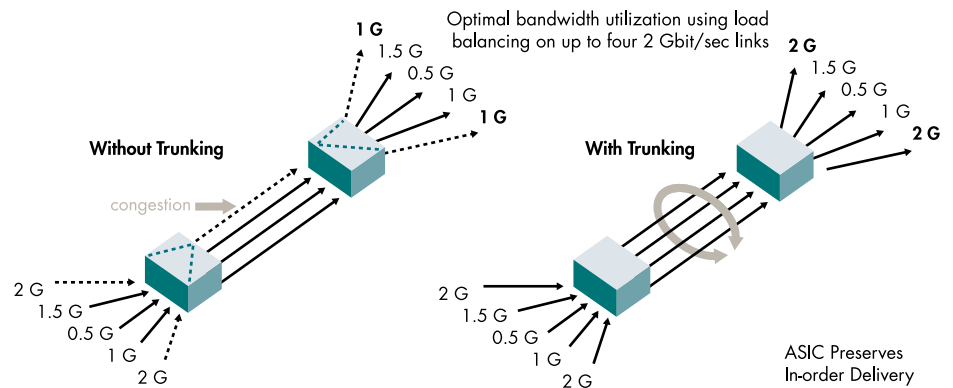
Designed for enterprise environments, the SilkWorm 3800 includes a variety of high-availability hardware and software features. The SilkWorm 3800 is especially useful for organizations that want to upgrade their existing environment with minimal disruption. The switch is fully interoperable with existing SilkWorm 1000 and 2000 series switches—enabling a Fibre Channel fabric consisting of up to 239 networked switches. When added to

existing fabrics, the SilkWorm 3800 automatically assigns individual switch addresses, establishes frame routes, and configures the internal name server.

To support high-speed data traffic, Brocade ISL Trunking technology combines up to four ISLs between a pair of switches into a single, logical high-speed trunk running at up to 8 Gbit/sec. Full-duplex throughput of 2 Gbit/sec enables 32 Gbit/sec of uncongested switch capacity.

The SilkWorm 3800 integrates with heterogeneous environments that include multiple operating systems such as Windows NT, UNIX, Linux, Solaris, AIX, and others. As a result, organizations have the flexibility to build cost-efficient, and easy-to-manage enterprise SAN fabrics. These capabilities make the SilkWorm 3800 ideal for applications such as LAN-free backup, server and storage consolidation, remote mirroring, and data replication.

Figure 1.
Trunking groups multiple ISLs to enable high-speed data traffic



HIGH AVAILABILITY THROUGHOUT THE FABRIC

The SilkWorm 3800 is designed to provide high-availability switching at the core of small to medium-sized storage networks. The edge-to-core SAN model features redundancy within the core fabric switch as well as a high-availability network approach for the entire fabric. Combining the proven reliability of the Brocade SilkWorm family with a wide range of availability features, the SilkWorm 3800 provides a SAN fabric with built-in redundancy and no single points of failure. This infrastructure is capable of delivering overall system availability greater than 99.999 percent—the “five nines” of availability.

In addition, Brocade FSPF enables the fabric to automatically isolate problems and reroute traffic around failed links onto alternate paths—ensuring availability for mission-critical enterprise applications.

INDUSTRY-LEADING PERFORMANCE

The SilkWorm 3800 provides high performance with all external Fibre Channel ports capable of operating at 1 and 2 Gbit/sec per port (inbound and outbound) at distances up to 10 km. Auto-sensing and speed matching of 1 and 2 Gbit/sec traffic ensures interoperability between today’s 1 Gbit/sec devices and next-generation

2 Gbit/sec devices. With the Brocade Extended Fabrics™ feature and Dense Wave Division Multiplexing (DWDM) technology, ISLs can span up to 100 km over Metropolitan Area Networks (MANs) at full bandwidth—significantly extending the reach of the SAN.

To provide even higher performance in the core, new Brocade ISL Trunking technology combines up to four ISLs between a pair of switches into a single, logical high-speed trunk running at up to 8 Gbit/sec (see Figure 1).

INTELLIGENCE WITHIN THE SWITCH

To improve security and manageability, advanced Brocade Frame Filtering™ intelligence is built directly into the SilkWorm 3800 ASIC technology. This design enables new capabilities such as fabric zoning based on Logical Unit Number (LUN), World Wide Name (WWN), or protocol. Administrators can improve end-to-end performance analysis by measuring resource utilization on a fabric-wide basis. They can also track port traffic levels based on source and destination IDs—simplifying the reporting of, and adherence to, service level agreements.

OPEN SAN MANAGEMENT

The SilkWorm 3800 simplifies management by networking core and edge switches under Brocade Fabric OS™, the embedded real-time operating system. This enables heterogeneous device connectivity, automatic data routing and rerouting, and scalable connectivity. The Brocade Fabric Access™ layer (the Fabric OS API) provides critical functions for integrating applications within the SAN environment. The API enables the development of feature-rich management applications that leverage the distributed intelligence in Brocade SANs.

SEAMLESS UPGRADES, COST-EFFECTIVE MIGRATION, AND INVESTMENT PROTECTION

To help protect existing investments, the SilkWorm 3800 provides a seamless upgrade path in addition to backward and forward compatibility with SilkWorm entry, midrange, port aggregation, and core fabric offerings.

A NEW LEVEL OF SAN SECURITY

The SilkWorm 3800 supports Brocade Secure Fabric OS, the most comprehensive SAN security architecture available. Based on state-of-the-art networking security

technology, this architecture addresses a wide variety of vulnerabilities within the SAN fabric and supports the need to safely accelerate SAN growth. Advanced security features give administrators powerful tools for securing SAN access and supporting multiple customer environments such as those deployed by Storage Service Providers. In addition, software- and hardware-enforced Brocade Zoning™ helps administrators secure data by preventing unauthorized access.

SUPERIOR RELIABILITY, AVAILABILITY, AND SERVICEABILITY

Advanced SilkWorm 3800 reliability features include the following:

- Highly reliable components and continuous monitoring of environmental components help reduce service costs.
- Power-On Self-Test (POST) and online diagnostics enable administrators to monitor and test ports while the switch is operating.
- Per-port statistics help administrators diagnose and isolate problem ports without disrupting switch operations.
- Error detection and fault isolation facilities automatically disable failing ports and restart them when the problem has been resolved.

INTELLIGENT SAN MONITORING

To simplify SAN monitoring and maintenance, the SilkWorm 3800 provides the following functions:

- Fabric OS enables value-added Brocade SAN fabric monitoring and management applications.
- Industry-standard Management Information Base (MIB) support enables SNMP-based interfaces to access switch information.
- Network administrators can manage switch configurations by using a command line interface or Web-based administrative functions.
- Self-learning features allow the fabric to automatically discover and register host server and storage devices.

For more information, visit www.brocade.com.

For more information about Brocade white papers and offerings, visit the SAN Solution Center at www.brocade.com/SAN.

For information about Brocade training and education, visit www.brocade.com/education_services.

FIBRE CHANNEL STANDARDS AND REVISIONS

FC-FG Rev 3.5	FC-AL Rev. 4.5	FC-FLA Rev 2.7	FC-PLDA Rev 2.1	FC-VI Rev 1.5
FC-PH-2 Rev 7.4	FC-GS-2 Rev 5.3	FC-PH-3 Rev 9.4	FC-SW Rev 3.3	IPFC RFC 2625
FC-AL-2 Rev. 7.0	FC-PH Rev 4.3			

Systems Architecture

Fibre Channel ports	16 universal ports
Scalability	Full fabric architecture with 239 switches maximum
Certified maximum	32 switches, 7 hops; larger fabrics certified as required
Interoperability	SilkWorm II, SilkWorm Express, or any SilkWorm 2000 family switch
Performance	2.125 Gbit/sec line speed, full duplex
Switch core	Non-blocking
Fabric latency	<2 μ sec. with no contention, cut-through routing
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	Small Form-Factor Pluggable (SFP)
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 (RSN), Alias Server (multicast); and Brocade Zoning, WEB TOOLS™, QuickLoop™, Fabric Watch™, Extended Fabrics, and Remote Switch™
Options	Redundant power supply, SFP media, and rack-mount kit

Management

Supported software	Telnet, SNMP, WEB TOOLS, Brocade Zoning, SES (optional), Fabric Watch, Extended Fabrics, Remote Switch
Management access	10/100 Ethernet (RJ-45), serial port
Diagnostics	POST and embedded online/offline diagnostics

Mechanical Specifications

Enclosure	Back-to-front airflow, power from rear 1 u, 19-in.-EIA compliant
Size	Depth: 45.0 cm (17.72 in.) Height: 4.36 cm (1.71 in.) Width: 42.86 cm (16.87 in.)
Weight	Single power supply weight: 11.59 kg (25.6 lbs) Double power supply weight: 12.94 kg (28.5 lbs)
Environment	
Temperature	Operating: 10° C to 40° C (50° F to 104° F) Non-operating: -35° C to 65° C (-31° F to 147° F)
Humidity	Operating: 5% to 85% non-condensing at 40° C (104° F)
Altitude	Up to 3,000 m (9,800 ft)
Shock	4 G, 11 ms_sine low impulse
Vibration	Operating: 5 G, 0-3 kHz Non-operating: 10 G, 0-5 kHz
Power	
Supported power	Nominal: 100 to 230 VAC contiguous
Range	Operational: 85 to 264 VAC
Frequency	47 to 63 Hz



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