

# BROCADE 7500 SAN ROUTER



## STORAGE AREA NETWORK

## An Integrated Platform for Enterprise Consolidation and Business Continuity

### HIGHLIGHTS

- Provides an enterprise building block for consolidation and business continuity solutions that drive efficiency and cost savings
- Significantly reduces the cost and effort of SAN design, implementation, and management
- Enables secure connections across IP WANs through IPSec encryption, and provides powerful hardware-assisted FCIP capabilities for line-rate performance
- Optimizes performance for SAN extension across suboptimal WANs with storage-optimized protocol enhancements and features such as Fast Write for FCIP, Tape Pipelining, and hardware-based compression
- Simplifies interconnection and support for mixed-vendor SAN environments

Many of today's IT organizations have implemented multiple Storage Area Network (SAN) islands to support specific applications, projects, and sites throughout their enterprises. With the Brocade® 7500 SAN Router, these organizations can now interconnect their SAN islands for greater resource utilization and long-distance extension. By providing this advanced level of connectivity without the associated risk and complexity of physically merging SAN islands into a single large fabric, the Brocade 7500 supports strategic business initiatives such as disaster recovery, data migration, and ongoing technology upgrades.

The Brocade 7500 combines the industry's first 4 Gbit/sec Fibre Channel routing capability with powerful hardware-assisted traffic forwarding for Fibre Channel over IP (FCIP). The switch features 16 Fibre Channel ports and two 1 Gigabit Ethernet ports—delivering high performance to run storage applications at line-rate speed with either protocol. By integrating these services in a single platform, the Brocade 7500 offers a wide range of benefits for inter-SAN connectivity, including long-distance SAN extension, greater resource sharing (either locally or across geographical areas), and simplified management.



# BROCADE

## **FIBRE CHANNEL ROUTING FOR ENHANCED OPERATIONAL EFFICIENCY**

Featuring a hierarchical Fibre Channel routing architecture for improved scalability and fault isolation, along with multivendor interoperability, the Brocade 7500 helps maximize the value of existing SAN investments while streamlining new SAN implementation. During deployment, organizations can easily interconnect individual SANs using their current addressing schemes. This approach helps minimize downtime and risk while lowering overall management costs.

Although the SANs are physically connected, organizations can control which devices are shared to ensure the appropriate level of SAN fabric isolation. As a result, the Brocade 7500 supports faster, easier topology changes that enable organizations to take advantage of new solutions that reduce costs or increase productivity. Moreover, simplified device sharing helps overcome the logistical challenges and organizational boundaries that often exist among departmental SANs.

By providing such a highly scalable approach for extending SAN infrastructures, the Brocade 7500 supports key business objectives such as:

- Migrating from old to new SANs
- Consolidating data centers and rebalancing storage resources
- Migrating from test to production networks
- Moving equipment on and off lease

## **PERFORMANCE-OPTIMIZED SAN EXTENSION**

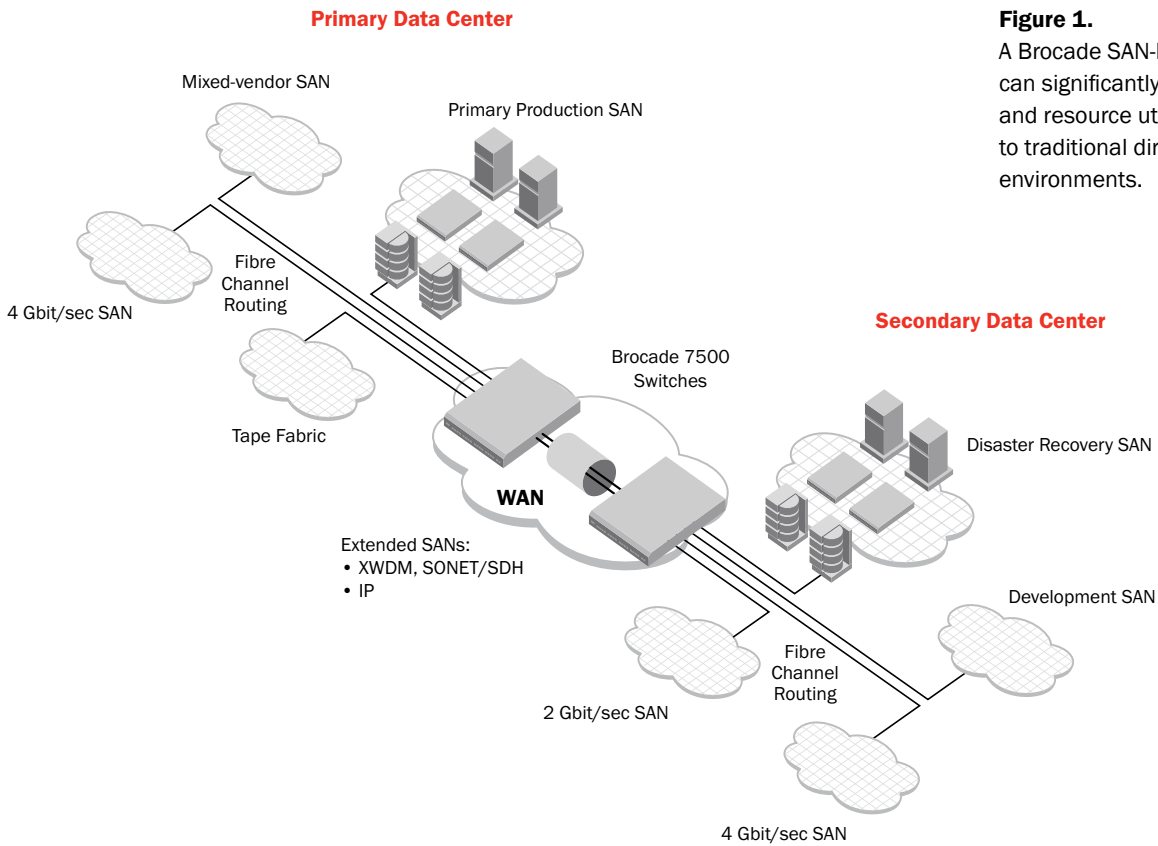
One of the key advantages of the Brocade 7500 is its ability to extend the benefits of existing SAN infrastructures across the enterprise. Combined with Fibre Channel routing, SAN extension enhances resource sharing and data movement between departmental SANs or local data centers while isolating SANs from IP WANs to minimize risk and potential disruption.

For SAN extension over native Fibre Channel, the Brocade 7500 utilizes Brocade Extended Fabrics capabilities. SAN extension can reach up to 100 kilometers at 4 Gbit/sec Fibre Channel speeds, 250 kilometers at 2 Gbit/sec speeds, and more than 500 kilometers at 1 Gbit/sec speeds.

For SAN extension over IP WANs, the Brocade FR4-18i provides unique bandwidth-maximizing FCIP features that optimize performance:

- Hardware-based compression and IPsec encryption
- Extensive port buffering
- Line-rate Gigabit Ethernet performance with support for jumbo packets
- Scalable fan-in of multiple distant SANs
- Write acceleration (Fast Write for FCIP) capabilities for synchronous applications
- Tape acceleration (Tape Pipelining) for maximizing performance over high latencies
- Extended WAN analysis tools for bandwidth, latency, and packet loss
- Eight virtual FCIP tunnels per port, each with its own unique traffic-shaping and QoS capabilities, for maximum scalability and utilization of WAN resources

The Brocade 7500 is also designed to support FICON® SAN extension over FCIP. This combined Fibre Channel routing and FCIP approach enables a more secure and reliable distance-connectivity solution for strategic initiatives such as business continuance, site mirroring, replication, and data migration.



**Figure 1.** A Brocade SAN-based data backup solution can significantly improve data availability and resource utilization compared to traditional direct-attached storage environments.

## INTEGRATED ARCHITECTURE AND MANAGEMENT

The Brocade 7500 supports interconnectivity through Logical SANs (LSANs) by utilizing familiar zoning methods and administration tools. A simplified management scheme means that organizations can implement a common configuration for device sharing through Fibre Channel routing regardless of whether that connectivity is across native Fibre Channel or FCIP links. Moreover, FCIP trunking behavior operates in the same manner as E\_Port functionality in existing SAN infrastructures.

Because the Fibre Channel routing services on the Brocade 7500 are designed to be backward compatible with existing SAN environments, organizations can easily scale those environments without requiring significant changes. All services can be administered through Brocade management tools consistent with the rest of the overall SAN infrastructure. By leveraging these tools and Brocade Fabric OS®, the Brocade 7500 provides a consistent, centralized management platform that minimizes training and deployment time while significantly reducing overall costs.

## MAXIMIZING SAN INVESTMENTS

Brocade and its partners offer complete 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 technology investments. For more information, contact an authorized Brocade sales partner or visit [www.brocade.com](http://www.brocade.com).

**BROCADE 7500 SPECIFICATIONS**

<b>Systems Architecture</b>		<b>Management</b>	
Fibre Channel ports	18 ports: 16 Fibre Channel (E, F, FL, EX) and 2 Gigabit Ethernet (VE, VEx)	Management software supported	Telnet; RADIUS; SNMP (FE MIB, FC Management MIB); Web Tools; Fabric Manager; third-party applications utilizing the Brocade SMI Agent
Performance	<u>Fibre Channel</u> : 1.063/2.125/4.250 Gbit/sec line speed, full duplex; auto-sensing of 1, 2, and 4 Gbit/sec port speeds; optionally programmable to fixed port speed; speed matching between 1, 2, and 4 Gbit/sec ports <u>Ethernet</u> : 1.25 Gbit/sec	Management access	10/100 Ethernet port (RJ-45); serial port
Aggregate bandwidth	128 Gbit/sec full duplex end-to-end Fibre Channel	Diagnostics	POST and embedded online/offline diagnostics
Fabric latency	< 8 microseconds (FC-to-FC routed traffic) 30 microseconds (FCIP)	<b>Mechanicals</b>	
Maximum frame size	2112-byte payload for Fibre Channel, 2250-byte payload for Gigabit Ethernet, 2048-byte payload for Fibre Channel routed networks	Enclosure	Non-cable-side to cable-side airflow; power from cable-side; 1U, 19-in.-EIA-rack-compliant
Classes of service	Class 2 and 3	Size	Width: 16.88 inches (42.87 centimeters) Height: 1.69 inches (4.29 centimeters) Depth: 25.40 inches (64.56 centimeters)
Port types	FL_Port, F_Port, EX_Port, and E_Port; self-discovery based on switch type (U_Port); Gigabit Ethernet for VE and VEx	System weight	30.2 lb (13.7 kg) with two power supplies, no SFPs
Media types	Hot-pluggable, industry-standard Small Form-factor Pluggable (SFP), LC connector; Short-Wavelength Laser (SWL) up to 500 meters (1640 feet); Long-Wavelength Laser (LWL) up to 10 km (6.2 mi); Extended Long-Wavelength Laser (ELWL) up to 80 km (49.6 mi); distance depends on fiber-optic cable and port speed, CWDM SFPs (8 lambdas); RJ-45 Copper SFP for Gigabit Ethernet ports	<b>Environmentals</b>	
Fabric services	Simple Name Server, Registered State Change Notification (RSCN); Brocade FC-FC Routing Service, Brocade Advanced Zoning, and Brocade Web Tools; optional fabric services include the Brocade FCIP Tunneling Service and Brocade Advanced ISL Trunking	Temperature	Operating: 10° to 40°C; Non-operating: -25°C to 70°C
		Humidity	Operating: 20 to 85%, non-condensing Non-operating: 20 to 85%, non-condensing
		Altitude	Up to 3000 meters (9800 feet)
		Shock	Operating: 105 G, 2.5 ms, half-sine Non-operating: 40 G, 13 ms, trapezoidal
		Vibration	Operating: 0.5 G (5–500–5Hz) Non-operating: 2.0 G (5–500–5Hz)
		Heat dissipation	785 BTU per hour
		CO <sub>2</sub> emissions	846 kg per year
		<b>Power</b>	
		AC input	Nominal 2.2 A at 100–120 VAC; 1.1 A at 200-240 VAC
		Frequency	47 to 63 Hz

For information about supported SAN standards, visit [www.brocade.com/sanstandards](http://www.brocade.com/sanstandards)

For information about switch and device interoperability, visit [www.brocade.com/interoperability](http://www.brocade.com/interoperability)

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