BROCADE 7600 APPLICATION PLATFORM

STORAGE AREA NETWORK

A High-Performance Platform for Fabric-Based Storage Applications

HIGHLIGHTS

- Provides a high-performance platform for tightly integrated storage applications that leverage the Brocade Storage Application Services (SAS) API—an implementation of the T11 FAIS standard

- Delivers intelligence in SANs to perform fabric-based storage services, including online data migration, storage virtualization, and continuous data replication and protection

- Leverages a fully pipelined, multi-CPU RISC and memory system; up to 64 Gbps throughout; and up to 1 million IOPS to meet the most demanding data center environments

- Performs split-path hardware acceleration using partitioned port processing and distributed control and data path processors, enabling wire-speed data movement without compromising host application performance

- Helps ensure highly reliable storage solutions through failover-capable data path processors, and redundant power and cooling

- Connects to existing Brocade SANs using 16 auto-sensing 1, 2, or 4 Gbps Fibre Channel ports in a 1U rack-mountable frame, with two auto-sensing 10/100/1000 Mbps Ethernet ports for LAN-based management

Delivering intelligence in Storage Area Networks (SANs), the Brocade® 7600 Application Platform provides a high-speed, highly reliable hardware device for performing fabric-based services throughout heterogeneous data center environments. The Brocade 7600 is tightly integrated with a wide range of enterprise storage applications that leverage Brocade Storage Application Services (SAS) to provide wire-speed data movement and offload server resources.

These applications include:

- **Brocade Data Migration Manager (DMM):** Brocade DMM provides an ultra-fast, non-disruptive, and easy-to-manage solution for migrating data in heterogeneous server and storage environments. It helps organizations reduce overhead while accelerating data center relocation or consolidation, array replacements, and Information Lifecycle Management (ILM) activities.

- **EMC RecoverPoint:** EMC RecoverPoint on Brocade is designed to provide continuous remote replication and continuous data protection across heterogeneous IT environments, enabling organizations to protect critical applications from data loss and improve business continuity. (EMC sells the Brocade 7600 for RecoverPoint solutions under the EMC Connectrix Application Platform brand.)

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- **EMC Invista:** EMC Invista on Brocade is designed to virtualize heterogeneous storage in networked storage environments, enabling organizations to simplify and expand storage provisioning, and move data seamlessly between storage arrays without costly downtime. (EMC sells the Brocade 7600 for Invista solutions under the EMC Connectrix Application Platform brand.)

BROCADE STORAGE APPLICATION SERVICES

The Brocade 7600 delivers fabric-based services through integration with high-performance applications that utilize Brocade Storage Application Services (SAS) and the SAS API. Based on the T11 Fabric Application Integration Specification (FAIS) standard, the SAS API removes a layer of application complexity to streamline performance in SAN fabrics and reduce development and test cycles.

Key capabilities of Brocade SAS include:

- Wire-speed hardware acceleration for data movement features such as mirroring, snapshots, write splitting, block copy, and Logical Block Address (LBA) remapping

- Reliability and security through error handling, data integrity, and Logical Unit Number (LUN) masking services

- Granular statistics for performance management

- Scalability and availability through dual Data Path Processors (DPPs) and port- or DPP-level availability with no single points of failure

BUILT FOR PERFORMANCE, RELIABILITY, AND EXTENSIBILITY

The compact 1U, rack-mountable Brocade 7600 can be readily implemented in thousands of Brocade SANs across the world using its 16 4 Gbps E_Ports for Inter-Switch Link (ISL) connections. The ports can also act as F_Ports and auto-negotiate slower 1 and 2 Gbps port speeds.

The Brocade 7600 scales to support the most demanding data center environments, achieving up to 64 Gbps data transfer speeds and up to 1 million server-storage IOPS. Two 10/100/1000 Mbps Ethernet ports enable LAN-based system and application management. In addition, dual failover-capable DPPs as well as redundant power and cooling help ensure that fabric-based services remain highly available.

The Brocade 7600 is also an extensible platform. Through integration with the Brocade SAS API, Brocade OEM and ISV Partners can convert point-level host- and array-based storage applications into higher-performance fabric-based services with broad heterogeneous support.

MAXIMIZING INVESTMENTS

To help optimize technology investments, Brocade and its partners offer complete solutions that include education, support, and services. For more information, contact a Brocade sales partner or visit www.brocade.com.

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BROCADE 7600 APPLICATION PLATFORM SPECIFICATIONS

Systems Architecture

Ports	18 ports: 16 Fibre Channel (E, F) ports and two 10/100/1000 Mbps auto-sensing Ethernet ports
Scalability	Full-fabric non-blocking architecture
Performance	Fibre Channel: 1, 2, and 4 Gbps line speed, full duplex; auto sensing of 1, 2, and 4 Gbps port speed
	Ethernet: 10/100/1000 Mbps
Aggregate bandwidth	Can achieve up to 1 million IOPS and 64 Gbps of throughput
Fabric latency	Depends on storage application
Maximum frame size	2112 bytes for Fibre Channel, 1518 bytes for standard Gigabit Ethernet, 2250 bytes for networks supporting Jumbo Packets
Classes of service	Class 2, 3
Port types	F_Port and E_Port; self-discovery based on switch type (U_Port); Gigabit Ethernet
Data traffic types	Fabric switches supporting unicast and broadcast
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
Fabric services (network)	Standard services include Simple Name Server and Registered State Change Notification (RSCN).
	Optional fabric services include Brocade Advanced Zoning, Brocade Fabric Watch, Brocade Extended Fabrics, Brocade Advanced Performance Monitoring, Brocade Web Tools, and VT/VI support.
Fabric services (storage applications)	Brocade Data Migration Manager 3.0; EMC RecoverPoint 2.4.2; EMC Invista 2.0 SP2
Options	SFP media, redundant power supplies (2) and fans (3)

Management

Management software supported	Telnet; SNMP (FE MIB, FC Management MIB); Brocade Advanced Web Tools (AP edition) and Brocade Fabric Manager; third-party applications utilizing SMI-S
Management access	Dual 10/100/1000 Mbps Ethernet ports (RJ-45); serial port (RS-232); in-band through Management Server
Diagnostics	POST and embedded online/offline diagnostics

Mechanicals

Enclosure	Non-cable-side to cable-side airflow; power from cable side; 1.0U, 19-inch EIA-compliant
Size	Width: 16.88 in (42.87 cm) Height: 1.69 in (4.29 cm) Depth: 25.40 in (64.56 cm)
System weight	30.2 lb (13.7 kg) with two power supplies, no SFPs

Environmentals

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: 20 to 85%, non-condensing Non-operating: 20 to 85%, non-condensing
Altitude	Up to 3000 meters (9842 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

Power

AC input	Nominal 2.2 A at 100–120 VAC; 1.1 A at 200–240 VAC
Frequency	47 to 63 Hz

Safety

The Brocade 7600 complies with the following safety certifications:

- UL 60950-1: 2003, First Edition (Underwriters Laboratories)
- CSA 60950-1-03 (Canadian Standards Association)
- Nemko EN60950: 2000
- TUV EN60950: 2000 / IEC60950: 1999 (TUV "GS" for Germany, TUV "S" for Argentina)
- GOST (Russia)
- Low Voltage Directive (73/23/EEC) for CE Marking in European Union

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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