

BROCADE EDGE M3000

STORAGE AREA NETWORK

HIGHLIGHTS

- Interconnects global enterprises for improved data availability
- Optimizes application performance over any distance
- Accelerates backup and recovery with read and write Tape Pipelining
- Accelerates remote disk performance with Fast Write and XRC emulation
- Saves money through efficient use of bandwidth capacity
- Saves time and money by leveraging existing Fibre Channel, FICON, and IP resources

Improve Data Access, Streamline Management, and Improve Efficiency

As organizations expand their global enterprises, they need storage routing solutions that help them improve data access, simplify storage management, and increase their overall operating efficiency. To address these issues, the Brocade® Edge M3000 interconnects Fibre Channel and FICON® Storage Area Networks (SANs) over IP or ATM infrastructures.

As a result, it enables many of the most cost-effective, enterprise-class data replication solutions—including disk mirroring and remote tape backup/restore to maximize business continuity (see Figure 1). Moreover, the multipoint SAN routing capabilities of the Brocade Edge M3000 provide a highly flexible storage infrastructure for a wide range of remote storage applications.

STRATEGIC APPLICATIONS

The Brocade Edge M3000 enables the extension of mission-critical storage networking applications in order to protect data and extend access to the edges of the enterprise. The ability to extend both mainframe and open systems tape and disk storage provides cost-effective options for strategic storage infrastructure plans as well as support for the following applications:

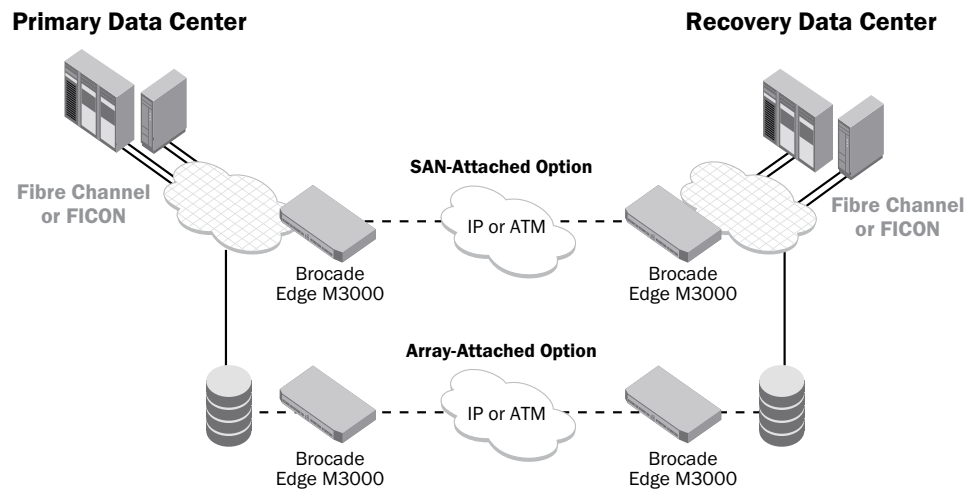
- Synchronous or asynchronous disk mirroring
- Data backup/restore, archive/retrieval, and migration
- Extended tape or virtual tape
- Extended disk
- Content distribution
- Storage sharing



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Figure 1.

To enhance business continuity, the Brocade Edge M3000 can extend Fibre Channel or FICON disk mirroring applications at any distance using IP or ATM infrastructures.



KEY BUSINESS BENEFITS

The architecture of the Brocade Edge M3000 does much more than simply move data across the network. It provides the intelligence for predictable throughput, efficient bandwidth utilization, and data integrity across any distance.

Interconnects Global Enterprises to Improve Data Availability

The unique buffered architecture and flow control capabilities of the Brocade Edge M3000 help interconnect remote facilities, regardless of location, to create unified storage networks. Whether it is used for data sharing, content distribution, or disaster recovery, the Brocade Edge M3000 helps ensure access to data, where and when it is needed.

Saves Money through More Efficient Use of Bandwidth

The unique compression capabilities of the Brocade Edge M3000 can significantly reduce the amount of money spent on telecom lines. Depending upon the compressibility of the data, the Brocade Edge M3000 can significantly reduce bandwidth costs.

In addition, the same infrastructure can be used for synchronous disk mirroring by day and asynchronous tape backup at night when the bandwidth is underutilized. Using the Brocade Edge M3000 WAN segmentation and adaptive rate limiting capabilities provides quality of service

even in a shared network environment. Combining disk and tape in this way can result in significant cost savings and operational efficiencies.

Saves Time and Money by Leveraging Existing Resources

By leveraging existing Fibre Channel, FICON, and IP infrastructure and skill sets, organizations can avoid the costly and time-consuming task of adding dedicated infrastructure. In turn, they can take advantage of lower-cost IP bandwidth, an easier-to-manage environment, and faster deployment of new storage applications.

Provides Reliable Data Delivery over Distance

When moving, storing, accessing, or backing up business-critical information, organizations must ensure that the information reaches its destination reliably and correctly. Like an insurance policy against corrupted data, the Brocade Edge M3000 performs Cyclical Redundancy Checking (CRC) at the network level to help ensure a constant mirror without interruptions.

Moreover, the Brocade Edge M3000 delivers dependable, distance-independent application performance. It combines Fibre Channel switch buffer credit negotiation with its unique flow control and pipelining techniques across the network so application performance remains at optimal levels whether over 10 miles or 10,000 miles.

Enables Read and Write Tape Pipelining

The unique Brocade read and write Tape Pipelining capability, available for both Fibre Channel and FICON tape and virtual tape devices, minimizes the impact of latency on the sustainable throughput of tape backup and recovery over distance.

The Brocade Edge M3000 emulates a buffered device controller and queues up write operations remotely to ensure that the next operation is available to send to the device controller as soon as the previous operation completes. Operations and data in the pipeline are retained in the buffer until successful completion. As a result, the remote tape backup system appears local to the server and is able to sustain performance over thousands of miles. The read Tape Pipelining capability works the same way, significantly reducing recovery times over extended distances (see Figure 2).

Provides Disk Acceleration

Industry-leading Brocade Fast Write capabilities dramatically reduce the impact of latency to deliver maximum disk write performance over distance. For FICON IBM Global Mirror (XRC) environments, Brocade provides intelligent emulation assists to help manage command and data transmissions, accelerating data flows while maintaining the integrity of command and acknowledgement sequences.

Automates Failover

In the event of a link failure in the primary storage network, the Brocade Edge M3000 automatically and seamlessly reroutes traffic to an alternate route, such as a production IP network. This is a significant business advantage in environments where minutes of downtime can translate into thousands or even millions of dollars in fines or lost revenue.

Supports Dynamic Load Leveling

In redundant configurations, the Brocade Edge M3000 can split the data load to increase the amount of data moving across the network. For instance, during third shift when production networks are underutilized,

the Brocade Edge M3000 can route a percentage of the data across that link to increase storage application performance. Another advantage of splitting the load is to avoid investing in a dedicated link, thereby saving thousands of dollars every month.

Provides Configuration Flexibility for a Variety of Requirements

The Brocade Edge M3000 provides organizations configuration flexibility that enables connectivity to Fibre Channel or FICON protocols; use of IP or ATM network services; connectivity to SAN fabrics or directly to servers and storage; and point-to-point or multiple-destination SAN routing configurations (see Figure 3).

This flexibility supports a variety of storage networking infrastructures with different connectivity requirements, providing a strategic foundation for the future.

SYSTEM AND NETWORK MANAGEMENT

The Brocade Edge M3000 software management tools include an easy-to-use graphical configuration utility and a Web-based SNMP element manager for monitoring and controlling Brocade routing nodes from any PC with an Internet connection.

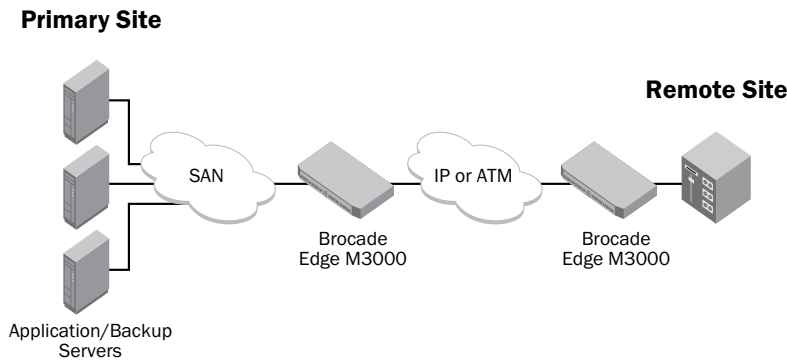


Figure 2.

In this remote tape backup/recovery solution, Brocade read and write Tape Pipelining enables faster backups and recoveries to meet shorter backup windows and recovery objectives.

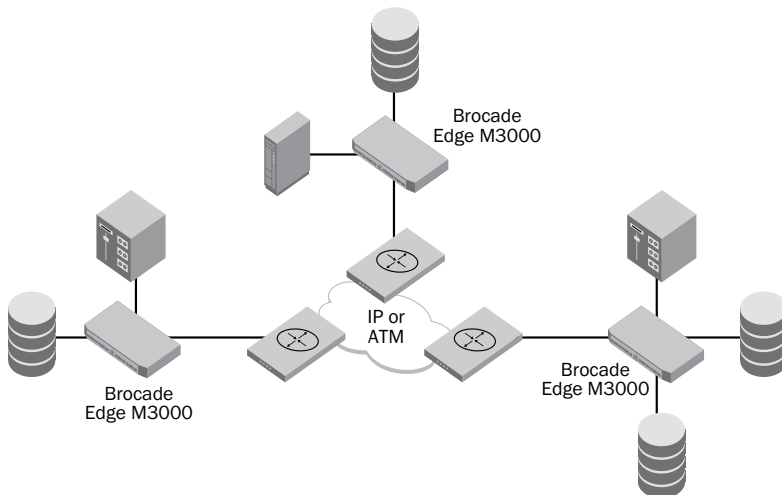


Figure 3.

Multipoint routing enables concurrent data replication to multiple geographically separated sites for consistent information sharing.

MAXIMIZING SAN INVESTMENTS

Brocade and its partners offer complete SAN solutions to meet a wide range of technology and business requirements. These solutions include education and training, support, and services to help optimize SAN investments. For more information, contact an authorized Brocade sales partner or visit www.brocade.com.

BROCADE EDGE M3000 SPECIFICATIONS

System Architecture	
Ports	2 Gbit/sec Fibre Channel (auto-sensing); supports E_Port and F_Port
WAN ports	1 Gbit/sec Ethernet (with compression); OC-3 ATM (with compression); 10/100 Ethernet (with compression)
Classes of service	Class 2, Class 3
Management access	RS-232; 10/100 Ethernet (RJ-45)
Warranty	1-year limited warranty
Physical Specifications	
Enclosure	1U rack-mountable or tabletop (allow clearance for maintenance and cable access)
Height	1.8 in. (4.5 cm)
Width	17.5 in. (44.5 cm)
Depth	14.5 in. (36.8 cm)
Weight	15.7 lb. (7.1 kg)
Operating temperature	40° to 104°F (5° to 40°C)
Humidity	5 to 90% (non-condensing)
Input power requirements	90–240 VAC, 47–63 Hz, 2.5 Amps
Airflow	60 CFM
Heat dissipation	844 BTU per hour
Fibre Channel Specifications	
Designed to meet FCIP, FC, FC-2, and FC-BB-2 standards/emerging standards	
Cable type	Optical multimode
Core diameter	62.5 microns and 50 microns
Cladding diameter	125 microns
Numerical aperture	0.275
Attenuation (max.)	1.5 dB/km at 1300 nm 3.75 dB/km at 850 nm
Operational wavelength	50 nm
Bandwidth (min.)	160 MHz/km
Fiber count	Duplex

Maximum length	50 microns = 500 meters at 100 MB/sec
	50 microns = 300 meters at 200 MB/sec
	62.5 microns = 250 meters at 100 MB/sec
	62.5 microns = 120 meters at 200 MB/sec
Connector type	Duplex LC connector

Gigabit Ethernet Specifications

Supports full-duplex Ethernet on each port and is designed to meet these standards:

- IEEE 802.3z/802.3ab Gigabit Ethernet Standard
- IEEE 802.3x flow control
- IEEE 802.1p packet priority

Cable types	Multimode, single-mode, and CAT5 UTP
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Ethernet 10/100 Specifications

Supports IEEE 802.3 and ANSI 8802-3 Ethernet 10/100 standards; uses CAT5 UTP cable

OC-3 ATM Specifications

Designed to meet the following standards:

- ATM Forum UNI 3.0 and 3.1
- ATM Forum AAL-5
- ATM Forum UBR, VBR, and CBR
- ATM Forum af-phy-0062.000
- ITU Recommendation I.432
- ITU Recommendation G.704, G.704, G.707

ATM Physical Characteristics

	Optical multimode	Optical single-mode
Core diameter	50 or 62.5 microns	9 microns
Cladding diameter	125 microns	125 microns
Bandwidth	Up to 155 Mbps	Up to 155 Mbps
Reach	2 km	40 km
Connector type	Duplex LC	Duplex LC

Regulatory Compliance

- FCC/EMC
- Conforms with FCC Part 15 Class A subpart J, (U.S.A) EN55022 Class A, EN55024, 1998, EN61000-3-2/3
- Safety: CUL 1950, EN6950 – IEC950

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