

BROCADE FS8-18 ENCRYPTION BLADE

DATA CENTER

HIGHLIGHTS

- High-performance, scalable fabric-based encryption enforces data confidentiality and privacy requirements
- Unparalleled encryption processing at up to 96 Gbps using industry-standard AES-256 encryption algorithms
- Choice of industry-leading key management solutions that help reduce operational costs and simplify management
- A single, centralized security platform for both disk and tape SAN environments supporting heterogeneous enterprise data centers
- Frame Redirection technology enables easy, non-intrusive deployment of fabric-based security services
- Plug-in encryption and compression services available to all host servers, including Virtual Machines (VMs), attached to data center fabrics
- Scalable performance with on-demand encryption and compression processing power meets regulatory mandates for securing data

The Brocade One™ strategy helps simplify networking infrastructures through innovative technologies and solutions. The Brocade FS8-18 Encryption Blade supports this strategy by allowing organizations to secure their data to meet regulatory and internal compliance requirements.

A High-Performance Encryption Blade for the Brocade DCX Backbone Family

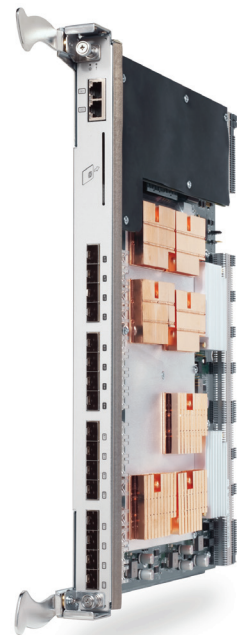
Managing operational risk by protecting valuable digital assets has become increasingly critical in today's enterprise IT environments. In addition to achieving compliance with regulatory mandates and meeting industry standards for data confidentiality, IT organizations must also protect against potential litigation and liability following a reported breach.

In the context of data center fabric security, Brocade provides advanced fabric services for Storage Area Networks (SANs) with the Brocade® FS8-18 Encryption Blade for use in Brocade DCX® 8510 and Brocade DCX Backbones. The blade is a high-speed, highly reliable hardware device that delivers fabric-based encryption services to secure data assets either selectively or on a comprehensive basis.

The Brocade FS8-18 scales non-disruptively, providing up to 96 Gbps of encryption processing power to meet the needs of the most demanding environments with flexible, on-demand performance. It also provides compression services at speeds up to 48 Gbps for tape storage systems. Moreover, it is tightly integrated with industry-leading, enterprise-class key management systems that can scale to support key lifecycle services across distributed environments.

FABRIC-BASED ENCRYPTION

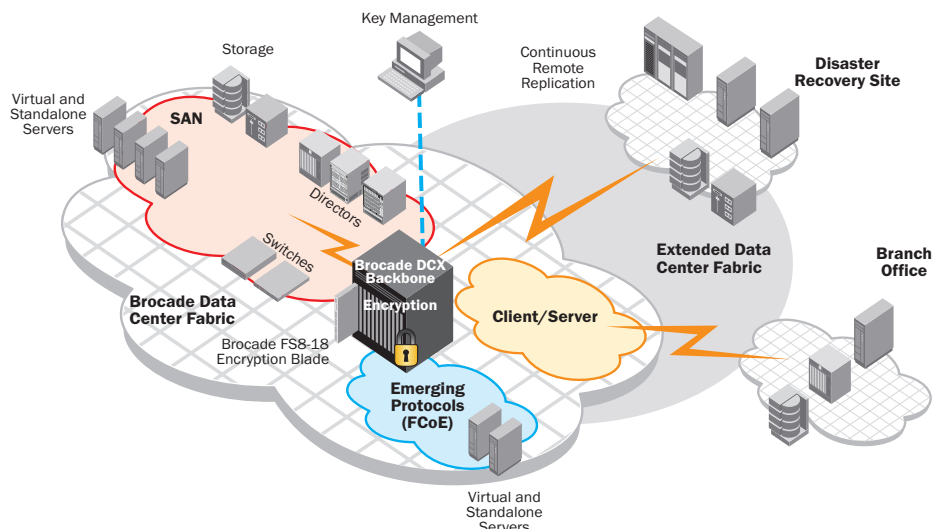
Most sensitive corporate data is stored in the data center, and the vast majority of data from critical applications resides in a SAN—enabling organizations to leverage the existing intelligence layer in the storage fabric. This layer provides a centralized framework in which to deploy, manage, and scale fabric-based data security solutions.



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Figure 1.

The Brocade FS8-18 Encryption Blade plays a vital role in the Brocade One strategy.



The storage fabric enables centralized management to support nearly every aspect of the data center, from server environments and workstations to edge computing and backup environments. As a result, it is an ideal place to standardize and consolidate a holistic data-at-rest security strategy. Organizations can also implement this type of best-practice methodology in other parts of the data center, helping to protect data throughout the enterprise.

Most current industry solutions include either host-based software encryption, device-embedded encryption, or edge encryption—all of which provide isolated services to specific applications but typically cannot scale across extended enterprise storage environments. In contrast, Brocade delivers fabric-based encryption for both disk- and tape-based storage devices as part of the industry-leading Brocade One strategy and innovative Brocade Adaptive Networking services (see Figure 1).

Based on industry standards, Brocade encryption for data-at-rest provides centralized, scalable encryption and compression services that seamlessly integrate into existing Brocade Fabric OS® (FOS) and Brocade M-Enterprise OS (M-EOS) environments¹.

The Brocade fabric-based approach to data encryption scales to meet performance requirements, provides a centralized

point of management for both disk and tape storage security as well as key management, and supports heterogeneous storage environments. Deployment is simple and non-disruptive: Organizations can encrypt data from any switch port without reconfiguring the fabric.

In addition, organizations can implement provisioning without shutting down applications or changing the Logical Unit Number (LUN) mapping and LUN masking configurations on the target storage arrays. The Brocade FS8-18 is managed and configured using familiar Brocade management tools—including Brocade Network Advisor, Brocade Data Center Fabric Manager (DCFM®), and CLI management tools—and is easily integrated into existing network infrastructures.

Key advantages of the Brocade FS8-18 include:

- The ability to encrypt data at wire speed
- Central management of storage and fabric-based security resources
- Concurrent support for both disk and tape encryption operations from a single device
- Transparent, online encryption of “cleartext” LUNs and rekeying of encrypted LUNs without disruption
- Data compression and integrity authentication for tape backup data
- Simplified, non-disruptive installation and configuration

HIGH-VALUE APPLICATIONS AND SOLUTION AREAS

Two of the greatest business benefits of the Brocade FS8-18 are increased productivity and reduced risk of data exposure. Other key benefits include improved backup performance while deploying encryption/compression and investment protection for existing resources.

The Brocade FS8-18 is ideal for applications such as:

- Highly sensitive IT applications with secure data-at-rest requirements
- Secure data backups for offsite tape storage and long-term archiving
- Support for heterogeneous disk and tape storage environments from a single device with centralized management
- Decommissioning of disk arrays that require legal validation of the irrecoverable destruction of data (The Brocade FS8-18 enables secure decommissioning of storage devices by encrypting an entire LUN and permitting deletion of data encryption keys.)
- Secure replication of Virtual Tape Library (VTL) backups to remote facilities
- Scaling data center encryption services by implementing up to four Brocade FS8-18 blades in a Brocade DCX 8510 or Brocade DCX chassis

¹ Brocade M-EOS fabrics are McDATA switches and directors running McDATA Enterprise OS in McDATA Fabric mode or McDATA Open Fabric mode.

The Brocade FS8-18 is designed for use in the following SAN environments:

- Large-scale encryption in new data center deployments
- Plug-in storage security services for existing SAN fabrics
- Heterogeneous disk and tape storage environments
- Standalone data center backbones with encryption and compression in Brocade FOS and Brocade M-EOS fabrics
- Secure fabric-based environments that integrate with existing enterprise key management systems
- Expanding encryption environments that require protection for current data security and key management investments

INVESTMENT PROTECTION AND EFFICIENCY

The Brocade FS8-18 is the industry’s most effective encryption platform in terms of power efficiency and system performance. In fact, it provides several times the encryption and compression processing power of competitive offerings while delivering a significant advantage in rack space utilization.

To help organizations protect their technology investments, the Brocade FS8-18 integrated into the Brocade DCX Backbone family chassis features forward and backward compatibility with Brocade B-Series and M-Series fabrics. By adopting an evolutionary strategy rather than a “rip-and-replace” approach, organizations can save significant time, money, and effort while minimizing disruption and risk.

Moreover, strategic relationships with Brocade Partners provide the broadest choice of integrated, best-in-class key management and security solutions. This integration enables organizations to leverage existing key management infrastructure investments and maintain current policies, procedures, and training efficiencies.

BROCADE ENCRYPTION PROFESSIONAL SERVICES

Brocade Professional Services helps organizations deploy and address their management, encryption, and security processes in a holistic approach to meet compliance and regulatory requirements for encryption of data-at-rest. A unique end-to-end approach considers the solution design from an architectural, policy, and operational perspective.

Following the design phase, Brocade experts will install and configure the hardware into a new or existing fabric in a highly effective and timely manner according to best practices. Upon completion of the engagement, organizations receive full documentation of the solution. This transfer of information educates IT staff so they can better understand and assume responsibility for the solution.

BROCADE GLOBAL SERVICES

Brocade Global Services has the expertise to help organizations build scalable, efficient cloud infrastructures. Leveraging 15 years of expertise in storage, networking, and virtualization, Brocade Global Services delivers world-class professional services, technical support, network monitoring services, and education, enabling organizations to maximize their Brocade investments, accelerate new technology deployments, and optimize the performance of networking infrastructures.

MAXIMIZING INVESTMENTS

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

BROCADE FS8-18 ENCRYPTION BLADE SPECIFICATIONS

Systems Architecture			
Fibre Channel ports	16 ports, universal (F/FL/E/EX/M)	Fibre Channel performance	1.063 Gbps line speed, full duplex; 2.125 Gbps line speed, full duplex; 4.25 Gbps line speed, full duplex; 8.5 Gbps line speed, full duplex; auto-sensing of 1, 2, 4, and 8 Gbps port speeds; optionally programmable to fixed port speed; speed matching between 1, 2, 4, and 8 Gbps ports
Ethernet ports	Two redundant 1000BaseT Ethernet ports for clustering and I/O synchronization during rekeying operation	System scalability	Up to four Brocade FS8-18 blades per Brocade DCX Backbone family chassis
Smart cards	Master key recovery, quorum authorization, and system recovery operations	ISL Trunking	Frame-based trunking with up to eight 8 Gbps ports per ISL trunk; up to 64 Gbps throughput per ISL trunk
Compression for tape	Hardware-based data compression prior to encryption	Maximum frame size	2112-byte payload for Fibre Channel
Compatibility	IEEE 1619 standard-based mode (disk and tape) DataFort-compatible mode (disk and tape)	Classes of service	Class 2 (unencrypted traffic), Class 3 (encrypted and unencrypted), and Class F (inter-switch frames)
Data rekeying	Online or offline conversion of data from cleartext to ciphertext; manual or automated rekeying sessions	Data traffic types	Fabric switches supporting unicast, multicast (255 groups), and broadcast
Crypto scalability	Up to 256 target devices and initiators per encryption engine		
Crypto engine	Maximum 96 Gbps hardware processing for disk* Maximum 48 Gbps hardware processing for tape with compression*		

BROCADE FS8-18 ENCRYPTION BLADE SPECIFICATIONS (CONTINUED)

Media types	8 Gbps: Utilizes Brocade hot-pluggable SFP+, LC connector; Short-Wavelength Laser (SWL); distance depends on fiber-optic cable and port speed
Fabric services	Simple Name Server (SNS), Registered State Change Notification (RSCN), NTP v3, Reliable Commit Service (RCS), Dynamic Path Selection (DPS), Brocade Advanced Zoning (default zoning, port/WWN zoning, broadcast zoning), N_Port ID Virtualization (NPIV), FDMI, Management Server, FSPF, Enhanced Group Management, IPFC, Frame Redirection, Port Fencing, BB credit recovery Optional fabric services: Brocade Fabric Watch, Extended Fabrics, ISL Trunking, Advanced Performance Monitoring, Adaptive Networking (per-data flow QoS, Ingress Rate Limiting, Traffic Isolation, Fabric Dynamics Profiling, and Integrated Routing)
FIPS certification	FIPS 140-2 Level-3 Validated Cryptographic Module

Management

Administrator roles	Administrator, fabric administrator, security administrator, recovery officer
Key management	NetApp Lifetime Key Manager (LKM) 4.0; SafeNet KeySecure k460; RSA Key Manager (RKM) Appliance; HP Secure Key Manager (SKM)/ Enterprise Secure Key Manager (ESKM); Thales Encryption Manager for Storage (TEMS); IBM Tivoli Key Lifecycle Manager (TKLM)

Mechanicals

Size	Width: 3.60 cm (1.41 in) Height: 41.11 cm (16.19 in) Depth: 27.98 cm (11.02 in) Occupies one slot in a Brocade DCX Backbone chassis
System weight	5.5 kg (12.0 lb) without 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)
Altitude	Operating: Up to 3000 meters (9842 feet) Storage: Up to 12 kilometers (39,370 feet)
Shock	Operating: 20 g, 6 ms half-sine Non-operating: 33 g 11 ms half-sine, 3/eg Axis
Power	
AC input range	40 to 50 VAC
Maximum power	235 watts
Configurations	
Base crypto model	Brocade FS8-18 Encryption Blade: 16 Fibre Channel ports, 48 Gbps* maximum encryption processing
Crypto engine performance upgrade	96 Gbps* maximum disk encryption processing upgrade for all Brocade FS8-18 Encryption Blades in a Brocade DCX Backbone family chassis

* Actual encryption performance levels vary based upon user configuration and environment.

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

For information about switch and device interoperability, visit www.brocade.com/interoperability.

For information about hardware regulatory compliance, visit www.brocade.com/regulatorycompliance.

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