BROCADE DATA CENTER FABRIC MANAGER

DATA CENTER

Unifying Management across the Data Center

HIGHLIGHTS

- Unifies management of Brocade FOS, M-EOS, and mixed multiprotocol fabrics within and across data centers, including support for FCoE and CEE

- Supports Virtual Fabrics and server virtualization, including visualizing and setting QoS for virtualized workloads

- Reduces operating expenses and maximizes productivity by automating tasks through easy-to-use, wizard-driven operations

- Helps organizations meet Service Level Agreements (SLAs) via monitoring, troubleshooting, diagnostics, and event notification capabilities

- Secures data flow from applications to storage across data center fabrics by managing user access controls and ensuring consistent security settings

- Delivers real-time and historical performance monitoring to enable proactive problem diagnosis, maximize resource utilization, and facilitate capacity planning

- Provides a holistic approach to data center management through seamless integration with leading partner automation solutions

As IT organizations consolidate, evolve, and operate more as service providers to their customers, they must deploy service-oriented infrastructures and management processes. Combined with the expansion of server, storage, and network virtualization, this trend has increased the pressure on these organizations to provide higher-quality service while reducing costs. Meeting this challenge in complex, growing environments requires easy-to-use, automated operations management.

Brocade® Data Center Fabric Manager (DCFM™) Enterprise is a comprehensive network management application that enables unified management of data center fabrics. It manages and secures the flow of data across multiple fabrics—empowering organizations to achieve their goals related to SLAs, security, and compliance while containing their operating expenses.

Midsized organizations or departments can use Brocade DCFM Professional Plus, which supports most of the features of Brocade DCFM Enterprise across four Brocade Fabric OS® (FOS), M-Enterprise OS (M-EOS), or mixed fabrics. It leverages a common architecture with Brocade DCFM Enterprise and provides a seamless upgrade path for growing environments.

Brocade DCFM Enterprise and DCFM Professional Plus provide impressive scalability and performance to maximize data availability. In addition, they feature easy-to-use administration tools that streamline or automate repetitive tasks, enabling organizations to achieve enhanced levels of productivity and efficiency.

As key components of the Brocade data center networking strategy, Brocade DCFM Enterprise and DCFM Professional Plus are designed for comprehensive management of data center fabrics—from storage ports all the way to the Host Bus Adapters (HBAs) and Converged Network Adapters (CNAs) in physical and virtual environments.

Brocade DCFM Enterprise configures and manages the Brocade DCX® Backbone, while both editions support the Brocade DCX-4S Backbone along with Brocade directors, routers, switches, HBAs, and CNAs (see Figure 1). Moreover, they support Brocade encryption capabilities for data-at-rest and emerging storage networking protocols (such as FCoE and CEE).

Brocade DCFM tightly integrates with Brocade FOS to leverage key features such as Advanced Performance Monitoring, Fabric Watch, and Adaptive Networking services.

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As part of a common management ecosystem, both editions integrate with leading partner data center automation solutions through frameworks such as the Storage Management Initiative-Specification (SMI-S).

EXCEED SERVICE LEVEL AGREEMENTS

In order to gain a competitive advantage, organizations must meet or exceed established SLAs with their internal and external stakeholders. These SLAs depend on an efficient data center fabric that provides critical connectivity from the applications running on physical or virtual servers to the corresponding storage.

Brocade DCFM Enterprise and DCFM Professional Plus seamlessly manage multiple data center fabrics to help optimize performance and maximize the availability of data and networked resources. They utilize leading-edge capabilities to:

- Monitor, troubleshoot, diagnose, and provide proactive event notification regarding critical fabric health information at varying levels of detail

- Configure Quality of Service (QoS) priorities for applications running on physical and virtual servers to optimize performance for high-priority applications (see Figure 2)

- Collect and display performance statistics in real time and utilize historical views for proactive problem determination

- Enable organizations to capture, back up, and compare switch configuration profiles through advanced replication capabilities

- Automatically collect support data and trigger Call Home notifications for easier fault isolation, diagnosis, and remote support operations

- Provide proactive alerts with real-time logging, diagnostic, and fault isolation capabilities to resolve issues before they impact SLAs (see Figure 3 and Figure 4)

- Integrate management of Brocade HBAs and CNAs across multiple fabrics from a central location

- Obtain virtual machine information from VMware ESX servers and correlate with fabric device information to simplify the management of virtualized environments

REDUCE ADMINISTRATION TIME

As demand for administrative resources continues to rise, Brocade DCFM provides time-saving tools that help automate repetitive tasks by using an intuitive wizard-driven approach. As a result, Brocade DCFM Enterprise and DCFM Professional Plus offer:

- Simplified firmware downloads, backup/restore of switch configurations, and collection of diagnostic data across groups of switches

- The ability to edit zone information and preview its impact without affecting production fabrics

- Configurable fabric snapshot/compare capabilities to track changes to fabric objects and membership

- Reports for status changes, port usage, zoning activation, and more

- FICON® and cascaded FICON environment configuration and management along with powerful analysis and diagnostic facilities (DCFM Enterprise only)

- Configuration, monitoring, and optimization of Fibre Channel over IP (FCIP) tunnels across WAN links, including Brocade 7800 Extension Switch and Brocade FX8-24 Extension Blade support

- Comprehensive support for Fibre Channel Routing, including configuration, zoning, visualization, analysis, and troubleshooting tools

- Intuitive interface to manage Virtual Fabrics to help reduce the complexity of managing virtualized network environments
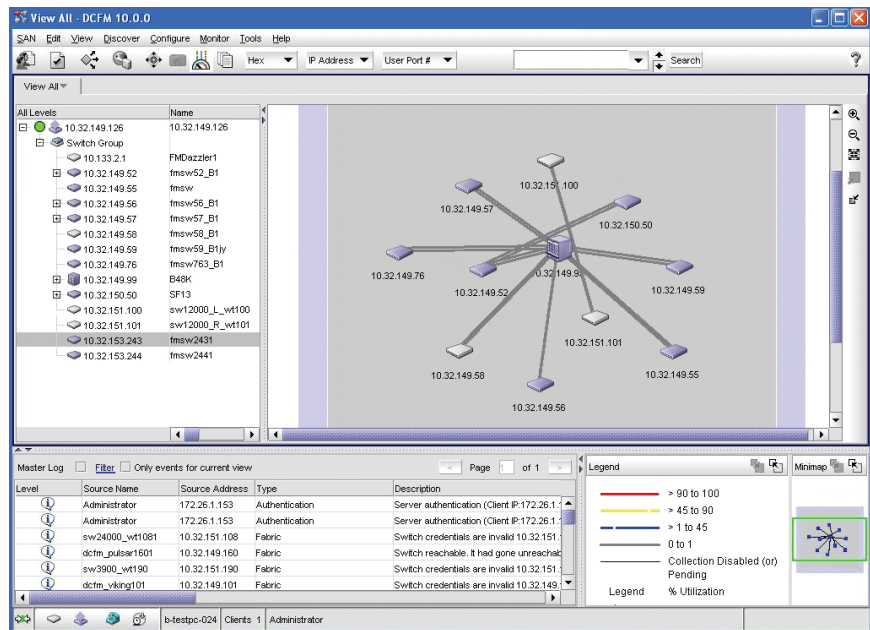

Figure 1. Brocade DCFM provides a topology-centric view of entire data center fabrics, from servers to storage.
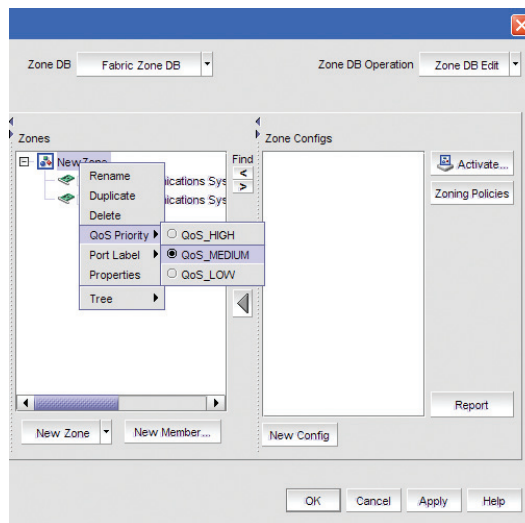

Figure 2. Brocade DCFM Enterprise and DCFM Professional Plus configure QoS rules to help ensure that critical applications receive priority in the event of network congestion.

- Management, discovery, and topology representation of FCoE/CEE environments, including Brocade 8000 Switch and Brocade FCOE10-24 Blade support

CONTAIN OPERATING EXPENSES

Whether IT budgets are increasing, declining, or remaining flat, organizations must maximize the utilization of their infrastructure resources. With unique asset tracking and reporting capabilities, Brocade DCFM provides detailed visibility into real-time and historical performance utilization of hardware and network bandwidth. Thus, it helps maximize the ROI of hardware purchases by better utilizing existing infrastructure resources and identifying new network requirements.

COMPLY WITH SECURITY STANDARDS

To support robust corporate security standards compliance, Brocade DCFM also handles the configuration, settings, and ongoing management of Brocade fabric-based data-at-rest encryption products. In addition, Brocade DCFM:

- Allows multiple levels of user access and views with flexible definitions of administrator roles and responsibilities

- Establishes consistent security settings across multiple switches

- Supports standards-based security features for access controls, including support for IPv6, wizards to enable security mode, policy editors, and end-to-end HTTPS secure connectivity

- Integrates with leading Authentication, Authorization, and Accounting (AAA) solutions such as RADIUS, Active Directory, and LDAP

PROTECT EXISTING INVESTMENTS

Brocade DCFM Enterprise provides a non-disruptive path and functional continuity for organizations that are upgrading from Brocade Enterprise Fabric Connectivity Manager (EFCM) or Brocade Fabric Manager. Brocade DCFM Enterprise and DCFM Professional Plus provide comprehensive management of FOS, M-EOS, and mixed fabrics.

Organizations that need to manage smaller SAN environments can utilize Brocade DCFM Professional, an application included with Brocade switches that contains a subset of Brocade DCFM Enterprise and DCFM Professional Plus features. Brocade DCFM Professional enables the centralized management of up to 1000 ports in a single FOS-based fabric—performing key functions (such as firmware downloads and configurations) for groups of switches while accessing device-level information.

BROCADE DCFM ENTERPRISE SERVICES

Brocade Professional Services help organizations implement and fully utilize the benefits of Brocade DCFM Enterprise. These services leverage best-practice methodologies to configure an optimal management environment.

Brocade experts will install Brocade DCFM Enterprise, perform a SAN discovery, and set up users, groups, zones, and access controls. After the engagement, they will provide installation reference documentation and a knowledge transfer for IT staff. Brocade also offers migration services to help organizations move data managed by Brocade EFCM or Fabric Manager.

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.
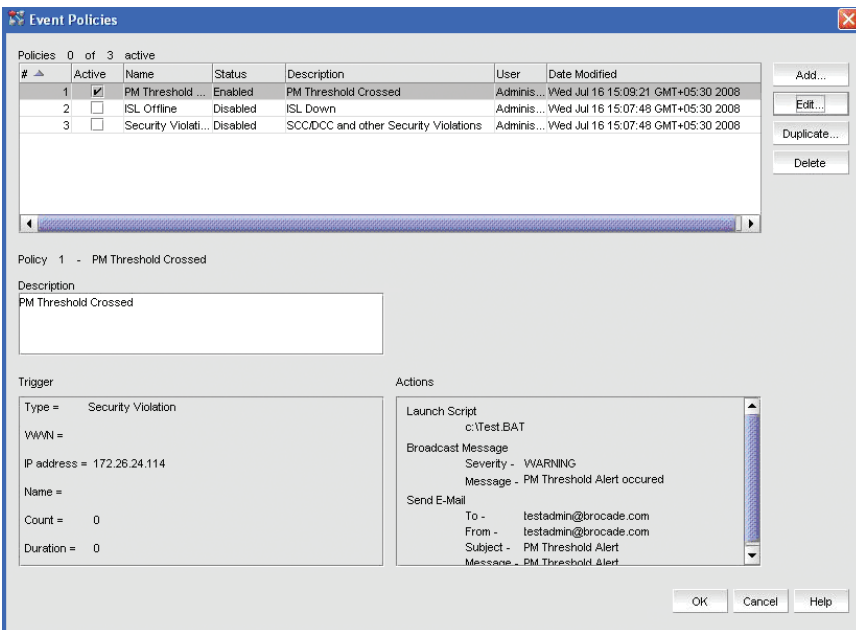
Figure 3. Brocade DCFM Enterprise and DCFM Professional Plus monitor user-defined events and take proactive action—from alerts to corrections—to maintain network availability and health.
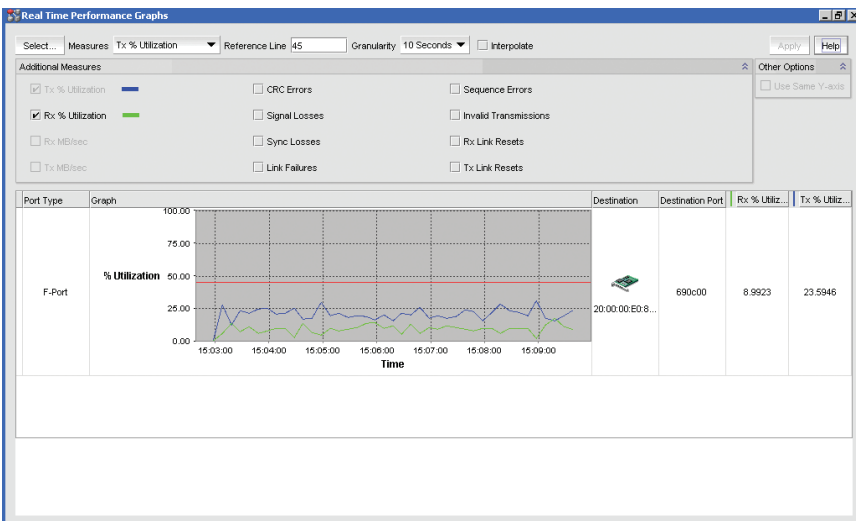
Figure 4. Brocade DCFM provides detailed monitoring of port and link utilization against predefined thresholds to optimize network performance and maximize application availability.

SYSTEM REQUIREMENTS

SUPPORTED OPERATING SYSTEMS

- Microsoft Windows 2003 Server, XP, Vista, and 2008 Server
- Red Hat Enterprise Linux ES 4, AS 4, 5, and 5 Advanced Platform
- SUSE Linux Enterprise Server 10

- VMware ESX Server 3 and 3.5
  (Guest OS supported: same as those listed above)
- Sun Solaris 10

HARD DRIVE STORAGE

	DCFM Professional	DCFM Professional Plus	DCFM Enterprise (1 to 2000 Ports, 1 to 20 Domains)	DCFM Enterprise (2001 to 5000 Ports, 21 to 60 Domains)	DCFM Enterprise (5001 to 9000 Ports, 61 to 120 Domains)
Server/Client	2.5 GB	5 GB	7 GB	7 GB	40 GB
Client	N/A	500 MB	500 MB	1 GB	2 GB

NOTE: Additional disk space is required to use DCFM as a firmware repository or trace dump location for managed switches, or to perform periodic collections of support data.

SERVER SYSTEM REQUIREMENTS

Operating System	Installation Type	DCFM Professional	DCFM Professional Plus or DCFM Enterprise (1 to 2000 Ports, 1 to 20 Domains)	DCFM Enterprise (2001 to 5000 Ports, 21 to 60 Domains)	DCFM Enterprise (5001 to 9000 Ports, 61 to 120 Domains)
Windows, Linux	Server/Client	Intel Core2 Duo 2 GHz or equivalent CPU 2 GB RAM	Intel Core2 Duo 2 GHz or equivalent CPU 3 GB RAM	Dual Intel Core2 Duo 2.4 GHz or equivalent CPU 4 GB RAM	Dual Intel Core2 Duo 2.4 GHz or equivalent CPU 4 GB RAM
	Client	N/A	Intel Core2 Duo 2 GHz or equivalent CPU 1 GB RAM	Intel Core2 Duo 2 GHz or equivalent CPU 2 GB RAM	Intel Core2 Duo 2 GHz or equivalent CPU 2 GB RAM
Solaris	Server/Client	4 Core 1.0 GHz UltraSPARC T1 or equivalent CPU 2 GB RAM	4 Core 1.2 GHz UltraSPARC T2 or T2 Plus or equivalent CPU 3 GB RAM	4/6/8 Core 1.4 GHz UltraSPARC T2 or T2 Plus or equivalent CPU 4 GB RAM	4/6/8 Core 1.4 GHz UltraSPARC T2 or T2 Plus or equivalent CPU 4 GB RAM
	Client	N/A	4 Core 1.0 GHz UltraSPARC T1 or equivalent CPU 1 GB RAM	4 Core 1.0 GHz UltraSPARC T1 or equivalent CPU 2 GB RAM	4 Core 1.0 GHz UltraSPARC T1 or equivalent CPU 2 GB RAM
VMware*	Server/Client or Client		Requirements same as Guest OS listed above	Requirements same as Guest OS listed above	Requirements same as Guest OS listed above

* Modem-based Call Home is not supported under VMware. All other Call Home mechanisms are supported.

QUALIFIED BROCADE FIRMWARE VERSIONS

- Fabrics exclusively composed of FOS require version 5.0 or higher.
- Fabrics exclusively composed of M-EOS require version 9.6 or higher (M-EOS 9.9.2 recommended).
- Fabrics composed of both FOS and M-EOS require FOS version 6.0 or higher and M-EOS version 9.6 or higher.

REQUIRED FABRIC OS FEATURES

Some Brocade DCFM Enterprise features might require specific FOS licensed features:

- Fabric Watch for port fencing and performance thresholds
- Advanced Performance Monitoring for end-to-end monitors and Top Talkers
- Adaptive Networking for QoS zones
- Integrated Routing (on available platforms) for Fibre Channel Routing management and LSAN zones
- FCIP (on available platforms) for FCIP tunnel management
- FICON CUP for PDCM Matrix and other FICON-related features

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