BROCADE FC4-16IP iSCSI BLADE

STORAGE AREA NETWORK

Extending the Value of the SAN throughout the Data Center

HIGHLIGHTS

- Enables iSCSI (Ethernet) servers to access storage in Brocade Fibre Channel SANs in a highly integrated, cost-effective manner for storage consolidation
- Provides high scalability, enabling up to thousands of iSCSI servers to connect to a single Brocade 48000 Director
- Improves the ROI of the SAN by enabling wider access to storage, optimizing resource utilization, and minimizing capital expenses
- Simplifies server administration and storage allocation while leveraging centralized storage to improve data security and control
- Extends new capabilities such as centralized backup or tape vaulting to existing servers in Direct Attached Storage (DAS) environments
- Enhances availability by leveraging enterprise-class SAN director services
- Increases productivity by utilizing familiar SAN management tools consistent with the overall SAN infrastructure

Today's IT organizations face numerous financial and operational challenges, such as the growing need to better protect data—not only for mission-critical applications, but also for second-tier servers such as e-mail servers. In addition, increased business demands now require faster provisioning of storage in a more service-oriented, granular fashion. The centralization of data has also become increasingly important for these organizations as they deploy new initiatives to comply with industry regulations.

Organizations can address all of these challenges by allowing lower-cost iSCSI servers to access valuable, high-performance Fibre Channel SAN resources. The Brocade® FC4-16IP iSCSI Blade for the Brocade 48000 Director is a cost-effective solution that enables this type of connectivity. The Brocade FC4-16IP provides a wide range of performance, scalability, availability, and investment protection benefits to help increase storage administrator productivity and application performance while continuing to reduce capital and operational costs.

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A HIGHLY INTEGRATED STORAGE SOLUTION

Fibre Channel SANs have traditionally been best suited for high-end servers and storage devices running high-performance applications in the data center. However, most enterprise organizations have a large contingent of lower-cost servers that are not connected to a consolidated SAN infrastructure, primarily because of cost constraints.

Although these servers typically run applications that are not data- or performance-intensive—such as DHCP servers, file servers, Web servers, e-mail servers, and development servers—there is still a business justification to consolidate their storage in order to better manage data and leverage established processes such as enterprise SAN backup and restore. In fact, the advantages of consolidation become even more noticeable as the number of servers and the amount of storage grows. For instance, SANs can significantly simplify storage management, improve resource utilization, and help increase availability.

With iSCSI gateway technology, such as that provided by the Brocade FC4-16IP, lower-cost servers can now access Fibre Channel SANs in a reliable, cost-effective manner. The blade features eight Gigabit Ethernet ports for iSCSI connectivity as well as eight full-speed 1, 2, and 4 Gbit/sec Fibre Channel ports. The Fibre Channel ports provide the same industry-leading performance features available in all Brocade switches.

INTEGRATED ISCSI SERVICES FOR THE BROCADE 48000

Designed to seamlessly integrate into Brocade SAN infrastructures, the Brocade FC4-16IP iSCSI blade is based on the same Brocade next-generation 4 Gbit/sec Fibre Channel ASIC technology and Fabric OS® used across the entire Brocade family. Combined with state-of-the-art Ethernet network processors, this implementation enables a highly effective way to integrate iSCSI-based devices with Brocade SAN environments.

COST-EFFICIENT, CENTRALIZED, AND SCALABLE STORAGE

The Brocade FC4-16IP enables organizations to integrate lower-cost Ethernet-connected servers into Brocade Fibre Channel SANs by using the iSCSI protocol. SAN access provides more granular scalability when additional storage is required, and low-cost Ethernet attachment avoids the cost of additional Host Bus Adapters (HBAs) and Fibre Channel switch ports for server connectivity. With support for up to four Brocade FC4-16IP blades in a single Brocade 48000 Director, this enterprise-class iSCSI solution can scale up to support the connectivity of thousands of iSCSI servers.

FAMILIAR SAN TOOLS AND MANAGEMENT CONVENTIONS

The Brocade FC4-16IP utilizes Brocade Advanced Fabric Services, including key features such as Inter-Switch Link (ISL) Trunking and Extended Fabrics on the Fibre Channel ports. To simplify administration, organizations can utilize the familiar Fabric OS and SAN management tools they already use: a command line interface, Brocade Web Tools, and Brocade Fabric Manager.

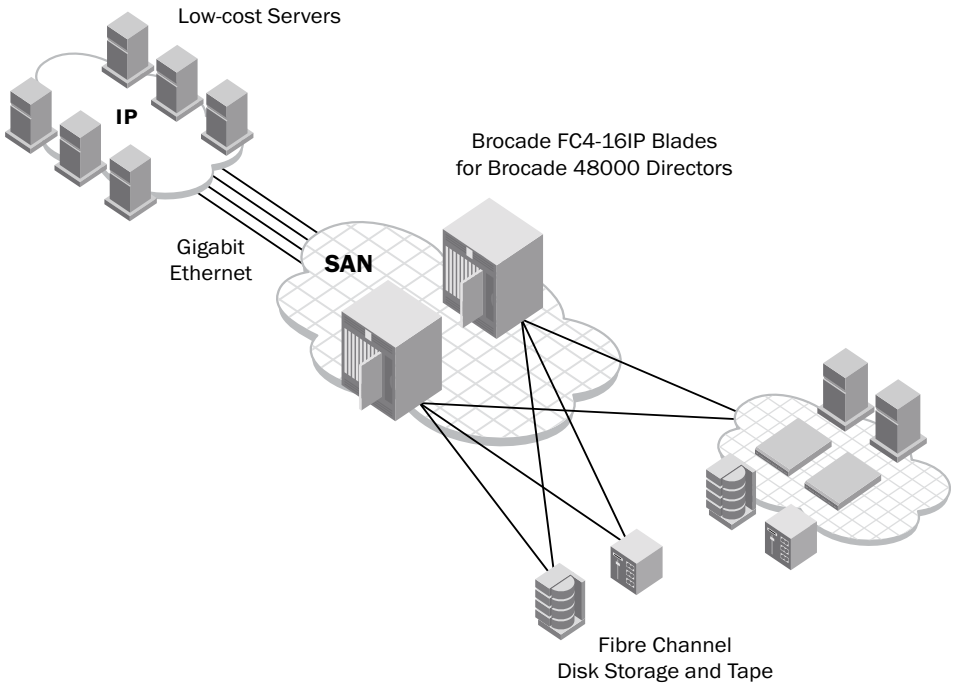

Figure 1.
The Brocade FC4-16IP provides high performance, availability, and scalability to extend SAN benefits throughout the enterprise.

A FAST ROI

A SAN infrastructure includes not only the investment in the physical hardware, but also the expertise and training across the data center staff. The Brocade FC4-16IP is fully compatible with existing Brocade SAN implementations, leveraging the investment in both hardware and organizational knowledge. It integrates non-disruptively into Brocade 48000 Directors, providing lower-cost iSCSI servers with the same high-availability features already found on that industry-leading enterprise platform. As a result, organizations are better positioned to meet their rapidly evolving SAN and storage requirements for years to come.

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, and services to help optimize technology investments. For more information, contact an authorized Brocade sales partner or visit www.brocade.com.

BROCADE FC4-16IP iSCSI BLADE SPECIFICATIONS

Systems Architecture	
Ports	16 ports: eight 4 Gbit/sec Fibre Channel (E, F, FL) and eight Gigabit Ethernet for iSCSI connectivity Up to four Brocade FC4-16IP iSCSI blades per Brocade 48000
iSCSI initiators per Gigabit Ethernet port	Up to 64 iSCSI initiators per port
Performance	Fibre Channel: 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 Ethernet: 1.25 Gbit/sec
Fabric latency	< 2 microseconds: FC-to-FC Layer 2 switched traffic 22 microseconds: iSCSI-to-FC traffic
Maximum frame size	2112-byte payload for Fibre Channel, 1518-byte payload for Gigabit Ethernet
Classes of service	Class 2 and 3
Port types	FL_Port, F_Port, EX_Port, and E_Port; self-discovery based on switch type (U_Port); Gigabit Ethernet for for iSCSI ports
Media types	Fibre Channel ports: 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) Gigabit Ethernet ports: Fixed RJ-45 Copper ports
Fabric services	Simple Name Server, iSNS Client, Registered State Change Notification (RSCN). Brocade FC-FC Routing Service. Brocade Advanced Zoning, Brocade Advanced ISL Trunking, and Brocade Web Tools

Management	
Supported management software	Telnet; RADIUS; SNMP (FE MIB, FC Management MIB); Web Tools; Fabric Watch; third-party applications utilizing the Brocade SMI Agent
Management access	Dual 100 Mbps Ethernet (RJ-45), serial port on Director Control Processor
Diagnostics	POST and embedded online/offline diagnostics

Mechanicals	
Size	Width: 3.60 cm (1.41 in) Height: 42.06 cm (16.56 in) Depth: 29.89 cm (11.77 in) Occupies one slot in a Brocade 48000 Director chassis
System weight	2.7 kg (6.0 lb)

Environmentals	Operating	Non-Operating
Temperature	10° to 40°C	–25°C to 70°C
Humidity	20 to 85%, non-condensing	20 to 85%, non-condensing
Altitude	3 km	3 km
Shock	105 G, 2.5 ms, half-sine	40 G, 13 ms, trapezoidal
Vibration	0.5 G (5–500–5Hz)	2.0 G (5–500–5Hz)

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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