IBM

IBM Storage Networking SAN50C-R

An optimized solution for departmental and branch-office SANs as well as large-scale SANs

IBM Storage Networking SAN50C-R is an optimized platform for deploying high-performance SAN extension solutions, distributed intelligent fabric services and cost-effective multiprotocol connectivity for both open systems and mainframe environments. With a compact form factor and advanced capabilities normally available only on director-class switches, SAN50C-R is an ideal solution for departmental and remote branch-office SANs as well as large-scale SANs in conjunction with the IBM Storage Networking SAN384C-6.

Highlights

- Provide 16 Gbps connectivity in a high-density Fibre Channel switch
- Enable SAN consolidation with integrated multiprotocol support
- Deliver high-performance Fibre Channel over IP and fast disaster recovery
- Support hardware-based virtual fabric isolation with virtual SANs (VSANs)
- Support Fibre Channel routing with Inter-VSAN routing (IVR)
- Enable Fibre Channel and FCIP connectivity for open systems and mainframe
- Data Mobility Manager (DMM) as a distributed fabric service

SAN50C-R offers up to 40 16-Gbps Fibre Channel ports, two 10 Gigabit Ethernet IP storage services ports and eight 10 Gigabit Ethernet Fibre Channel over Ethernet (FCoE) ports in a fixed, two-rack-unit (2RU) form factor. SAN50C-R connects to existing native Fibre Channel networks, protecting current investments in storage networks.

Main features and benefits

SAN50C-R provides unique multiservice and multiprotocol functions in a compact 2RU form factor. Some of its features and benefits are:[1]

- *SAN consolidation with integrated multiprotocol support:* SAN50C-R is available in a base configuration of 20 ports of 16 Gbps Fibre Channel for high-performance SAN connectivity, two ports of 10 Gigabit Ethernet for FCIP and iSCSI over IP storage services, and eight ports of 10 Gigabit Ethernet for FCoE connectivity.

- *High-density Fibre Channel switch with 16 Gbps connectivity:* SAN50C-R scales up to 40 ports of 16 Gbps Fibre Channel in a fixed configuration switch. The base configuration comes with 20 ports of 16 Gbps Fibre Channel-enabled, for high-performance SAN connectivity; it can be upgraded onsite to enable 20 additional ports of 16 Gbps Fibre Channel by adding the SAN50C-R On-Demand Port Activation license. Additionally, SAN50C-R cost-effectively scales up for IBM FICON mainframe environments.

- *Intelligent application services engine:* SAN50C-R includes as standard a single application services engine that enables the included SAN Extension over IP software solution package to run on the two fixed 10 Gigabit Ethernet storage services ports. The SAN Extension over IP package provides an integrated, cost-effective and reliable business-continuance solution that uses IP infrastructure by offering FCIP for remote SAN extension, along with a variety of advanced features to optimize the performance and manageability of FCIP links.

- *Remote SAN extension with high-performance FCIP:* Remote SAN extension simplifies data protection and business continuance strategies, optimizes utilization of wide area network (WAN) resources for backup and replication, and preserves enhanced capabilities.

- *High-performance Inter-Switch Links (ISLs):* SAN50C-R supports up to 16 Fibre Channel ISLs in a single port channel. Links can span any port on any module in a chassis for added scalability and resilience. Up to 256 buffer-to-buffer credits can be assigned to a single Fibre Channel port to extend storage networks over long distances.

- *Advanced FICON services:* SAN50C-R supports FICON environments, including cascaded FICON fabrics, VSAN-enabled intermix of mainframe and open-systems environments, and N-port ID virtualization (NPIV) for mainframe Linux partitions.

- *Sophisticated diagnostics:* SAN50C-R provides intelligent diagnostics, protocol decoding and network analysis tools as well as integrated Call Home capability for added reliability, faster problem resolution and reduced service costs.

Virtual storage area networks

VSANs are ideal for efficient, secure SAN consolidation, enabling more efficient storage network utilization by creating hardware-based isolated environments with a single physical SAN fabric or switch. VSANs allow the cost of SAN infrastructure to be shared among more users, while helping ensure complete segregation of traffic and retaining independent control of configuration on a VSAN-by-VSAN basis.

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Inter-VSAN routing

In another step toward deploying efficient, cost-effective, consolidated storage networks, SAN50C-R supports IVR, the industry's first routing function for Fibre Channel. With IVR, data can transit VSAN boundaries while maintaining control plane isolation, thereby maintaining fabric stability and availability. It eliminates the need for external routing appliances, greatly increasing routing scalability while delivering line-rate routing performance, simplifying management and eliminating the challenges associated with maintaining separate systems. Deploying IVR can mean lower total cost of SAN ownership.

FCIP for remote SAN extension

Data distribution, data protection and business continuance services are significant components of today's information-centric businesses. The capability to efficiently replicate critical data on a global scale not only helps ensure a higher level of data protection for valuable corporate information, but also helps increase utilization of backup resources and lower the total cost of storage ownership.

I/O Accelerator Services

SAN50C-R supports I/O Accelerator (IOA) Services, an advanced software package that can significantly improve application performance when storage traffic is extended across long distances. When Fibre Channel and FCIP write acceleration are enabled, WAN throughput is optimized through reduced latency for command acknowledgments. Similarly, SAN50C-R supports Fibre Channel and FCIP tape write acceleration, which allows operation at nearly full throughput over WAN links for remote tape backup and restore operations.

IOA can be deployed in conjunction with disk data replication solutions to extend the distance between data centers or reduce the effects of latency. It can also be used to enable remote tape backup and restore operations without significant throughput degradation.

Mainframe support

SAN50C-R is mainframe ready and supports IBM zSeries FICON and Linux environments provided with Mainframe advanced software package. SAN50C-R switches support transport of the FICON protocol in both cascaded and non-cascaded fabrics, as well as an intermix of FICON and open-systems Fibre Channel Protocol traffic on the same switch. VSANs simplify intermixing of SAN resources among IBM z/OS, mainframe Linux, and open-systems environments, enabling increased SAN utilization and simplified SAN management. FICON VSANs can be managed using the standard Data Center Network Manager (DCNM), the command-line interface (CLI) or IBM control unit port (CUP)-enabled management tools. The Mainframe package is required for all SAN50C-R integrated FICON channel extension features.

Comprehensive solution for robust network security

To address the need for failure-proof security in storage networks, SAN50C-R includes as standard an extensive security framework to protect highly sensitive data crossing today's enterprise network. This framework includes smart zoning, intelligent packet inspection and extended zoning capabilities. Additional advanced security-management capabilities also are available on SAN50C-R with the Enterprise advanced software package.

Advanced diagnostics and troubleshooting tools

Management of large-scale storage networks requires proactive diagnostics, tools to verify connectivity and route latency, and mechanisms for capturing and analyzing traffic. The IBM Storage Networking c-type Family integrates outstanding analysis and diagnostic tools, which are included as standard on SAN50C-R.[1] IBM delivers a comprehensive toolset for troubleshooting and analysis of storage networks.

Ease of management

To meet the needs of all users, SAN50C-R provides three principal modes of management: the Command Line Interface (CLI), Data Center Network Manager (DCNM) for SAN, and

integration with third-party storage management tools.[1]

Advanced software packages

SAN50C-R can be further enhanced through additional optional licensed software packages that offer advanced intelligence and functions. Currently available software packages include the Enterprise package, DCNM SAN Advanced Edition, IO Accelerator, 20-port Fibre Channel Port-On-Demand license, and the Mainframe Package.

[1] For more information, please refer to the IBM SAN50C-R Redbooks Product Guide.

SAN50C-R Specifications

Model	8977-R50
Hot-swappable components	Power supplies, fan modules, small form-factor pluggables
Warranty	One-year, customer-replaceable unit (CRU), IBM On-Site Limited, 9x5 Next Business Day; 24×7 sameday maintenance service options are available
Dimensions	975 mm (3.84 in.) H x 437 mm (17.22 in.) W x 543 mm (21.4 in.) D, 2RUs; all units rack-mountable in standard 19-inch Electronic Industries Alliance [EIA] rack)
Weight	Fully configured chassis: 10.2 kg (22.4 lb)
Airflow	Front to back
Ports	40 ports of 16 Gbps Fibre Channel and 10 ports of 10 Gigabit Ethernet
Link speeds	Port speed: 4/8/16 Gbps autosensing, optionally configurable
Optional features	Enterprise Package (#AJJ4), I/O Accelerator (#AJJ5), Mainframe Package (#AJJ6), DCNM SAN Advanced Edition (#AJJ7), 20-port Fibre Channel Upgrade License (#AJJ8)
Recycling parts	BM does not recommend the removal of its product batteries due to safety reasons. Please utilize the IBM Product Collection and Recycling Take Back Programs.

Why IBM

IBM offers a vast portfolio of hardware, software and services that can help organizations of all sizes address their IT infrastructure requirements in a comprehensive and integrated way. With IBM, organizations can create a more flexible, robust and resilient infrastructure to support critical business operations.

For more information

To learn more about IBM Storage Networking SAN50C-R, please contact your IBM representative or IBM Business Partner, or visit the following website:
ibm.com/systems/storage/san/ctype/9250i/

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