



**High Reliability
Proven Experience
Exceptional Value**



VersaCache™ CX8000

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- ❖ *Accelerates Application Performance Many Times by Delivering up to 400,000 IOPS*
- ❖ *Provides SAN Caching and File Caching in the Same Subsystem*
- ❖ *Scalable Architecture Supports up to 1TB of Memory to Handle the Largest Applications*
- ❖ *Delivers Unparalleled Data Availability and Integrity*
- ❖ *Protects your Investment in Existing Server and Storage Infrastructures*

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Overview

Designed to accelerate mission-critical application performance, VersaCache is the largest, fastest external caching appliance in existence. While CPU processing power has doubled every 18 months, disk drive performance, as measured by mechanical and rotational latency, has only doubled once in the last 10 years. The performance gap between computers and external disk storage continues to widen. As a result, applications and users spend much of their time waiting for the retrieval of data from disk, lowering productivity and wasting CPU cycles. VersaCache is designed to alleviate the performance bottleneck omnipresent in today's Fibre Channel storage networks by using high speed DDR memory to provide up to 128 gigabytes of near-zero latency storage per subsystem.

VersaCache Flexibility

VersaCache can be directly attached to a server or can be deployed in a Fibre Channel storage area network (SAN) environment where multiple servers can share the system's caching resources. The system supports all Fibre Channel topologies and connection speeds up to 4Gb/s.

VersaCache is the industry's only caching appliance that can be partitioned as a block-level SAN cache and as a file cache (i.e. solid state disk). The subsystem can be used as all SAN cache, all solid state disk (SSD), or as a combination of both. This flexibility allows VersaCache to be configured and tuned to provide optimal performance for a given customer's application environment. By supporting both caching methods in a single subsystem, customer's can achieve the best possible price/performance.

Since VersaCache is designed with an industry standard disk interface, applications will run without modification protecting the customer's investment in application software.

The system's modular architecture supports field upgrades of memory capacity (in 16GB increments) and Fibre Channel links to easily scale both system capacity and performance.

VersaCache as a SAN Cache

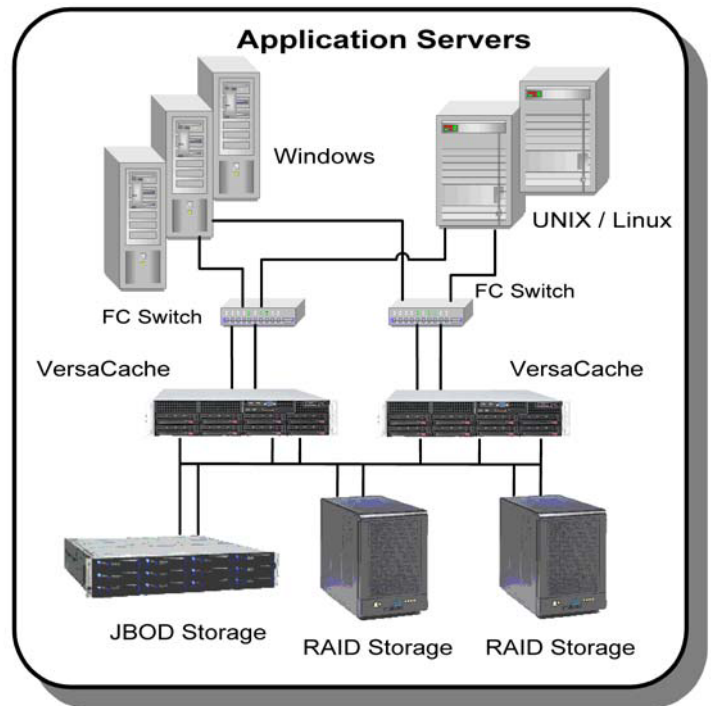
As a SAN cache, VersaCache improves application performance by automatically caching all blocks of data going to and from any Fibre Channel attached storage, including RAID arrays and JBOD. Installation is transparent - simply attach it between servers and storage and it automatically caches all host accessed data dramatically improving application performance by reducing access time to the storage. Its predictive caching is designed to improve both read and write performance by increasing the chance that read data will be in the cache when needed, and through buffered destaging of write data. The system's caching algorithms are built into firmware and are designed to overcome the high overhead associated with slow read/write performance across a large segment of data. Caching methods supported include write-through, write-back, and pass-through modes. The caching methods are user configurable per subsystem or per LUN.

VersaCache as a File Cache

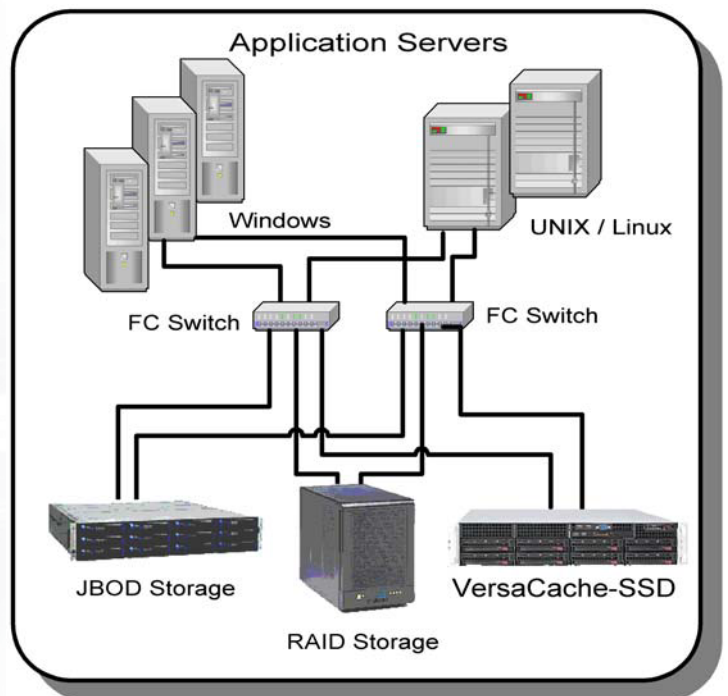
VersaCache's high-performance, solid state disk architecture is ideal for storing performance-demanding data and accelerating application performance. VersaCache is able to support dozens of servers while providing up to a 500x reduction in I/O response time when compared with the best mechanical disks. Reduced I/O response times translate to higher I/O rates and increased accessibility to critical data and hot files.

VersaCache appears as a Fibre Channel compatible disk to the host server(s) facilitating plug-and-play installation. The unit is compatible and interoperable with virtually every host operating system including IBM AIX, Sun Solaris, Linux, and Windows. It is also fully tested and compatible with Fibre Channel host bus adapters and switches from QLogic, Emulex, Cambex, Brocade, and Cisco.

When the appropriate 'hot' files are placed on the appliance, VersaCache can accelerate numerous applications across many industries. Real-world application performance improvements of up to 25-times can be achieved by VersaCache users when running on-line transaction processing (OLTP), batch processing, e-mail, database, and other I/O and bandwidth-intensive operations.



VersaCache Deployed as a SAN Cache



VersaCache Deployed as a File Cache (SSD)

Performance

VersaCache's state-of-the-art architecture and DDR RAM memory are optimized for I/O intensive applications. Built for speed, VersaCache is capable of delivering up to 400,000 I/Os per second (IOPS) and up to 3 gigabytes per second of sustained bandwidth for random data transfers.

Each VersaCache subsystem supports up to 8 high-speed 4Gb/s Fibre Channel ports. All ports can serve data simultaneously without any performance degradation.

RAS Features

To ensure the highest level of reliability, all critical components within the VersaCache subsystem are redundant. In addition, power supplies and back-up disk drives are hot-swappable.

Internal memory used for data storage is protected by ECC memory error correction which corrects single-bit data errors in the memory chips.

Host-based failover software is available to provide full data availability in the event of an HBA, cable, switch, or other storage path failure in high-availability configurations.

Manageability

VersaCache supports HTTP management and can be monitored, managed and configured remotely and locally via an intuitive browser interface.

Protecting your IT Investment

By accelerating application performance through intelligent caching, VersaCache increases the useful life of existing server and storage infrastructures.

In many instances, IT organizations have been forced to deploy additional server and storage resources to achieve acceptable application response times.

Deploying VersaCache in a storage network environment dramatically increases the number of simultaneous users that can access mission-critical data without experiencing unacceptable wait times.

In addition, customers can fully utilize their existing disk storage capacities without application performance degradation. Striping data over many disk drives to boost performance is no longer necessary - a method that often left up to 50% of the disk storage capacity unused.

SAN Optimization Services

Application performance mainly depends on the performance of the servers and storage subsystems and the availability of network bandwidth in the SAN. Of these factors, the storage is most often responsible for poor performance primarily due to the I/O wait times associated with mechanical disk drives and the relatively small size of disk array cache.

Cambex provides SAN performance and productivity optimization services to identify bottlenecks caused by the server, network and storage components resident in a SAN. In the past, we have solved performance issues by upgrading the memory in specific servers, modifying storage network infrastructure and data paths, and optimizing the placement of data on the storage subsystems.

In many cases, adding a VersaCache subsystem will be the most cost-effective way to increase your application performance. We have the tools and expertise to identify the 'hot' files to place in file cache as well as the appropriate SAN caching algorithms to use for your application.

Cambex's optimization services provide you with a lower total cost of ownership (TCO) than adding more servers and raw storage or migrating your applications to expensive monolithic RAID storage.

SPECIFICATIONS

Fibre Channel Connections

- ❖ Supports 2GB or 4Gb Fibre Channel
- ❖ 2 - 8 ports per subsystem
- ❖ Supports point-to-point, arbitrated loop, and switched fabric topologies
- ❖ Interoperable with all major Fibre Channel host bus adapters, switches, and operating systems

Caching

Supports three distinct caching methods, configurable per system or per LUN:

- ❖ Write-through caching: the server is not notified that a write is completed until it is written to the disk array's internal write-back cache
- ❖ Write-back caching: all writes are to the VersaCache system. In the background, the system uses available bandwidth to destage writes to the external storage
- ❖ Pass-Through: all reads and writes for the LUN bypass cache and go directly to the storage.

LUN Support

- ❖ 1 to 64 LUNs with variable capacity per LUN
- ❖ Flexible assignment of LUNs to ports
- ❖ Software LUN masking

Reliability and Availability

- ❖ ECC memory error correction
- ❖ Redundant hot-swappable power supplies
- ❖ Hot-swappable RAID internal backup disk drives
- ❖ Active/Passive Fibre Channel failover (optional)

Data Backup Options

- ❖ SSD data is saved to internal disk drives on shutdown and restored on power-up

Management

- ❖ Browser enabled system monitoring, management and configuration
- ❖ Telnet management

SPECIFICATIONS			
Capacity per Subsystem	16 - 128 GB	Power Consumption	1200 Watts Peak
I/Os per Second	400,000	Dimensions	19" x 35" x 3.5" (2U)
Disk Drives	2 Mirrored	Weight	80 lbs
Power Supplies	N + 1 Redundant		



❖ *For over 3 decades, Cambex has supplied the storage industry with advanced hardware and software products.*

❖ *Cambex engineers have developed high-availability hardware and software storage solutions for over ten years.*

❖ *Service and support are the hallmarks of the Cambex commitment to enterprise-class customer satisfaction and 24/7 availability.*

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