

Veritas Storage Foundation™ for Sybase® ASE CE

Improved Manageability, High Availability, and High Performance for Sybase® ASE CE

Overview

Veritas Storage Foundation™ for Sybase® ASE CE offers a proven solution to help customers deliver and manage highly available Sybase® ASE CE databases. The solution leverages Symantec’s industry-leading Veritas Storage Foundation, Veritas Cluster File System, and Veritas Cluster Server solutions, and has been tightly integrated with Sybase® ASE CE to provide a reliable, easy-to-use storage and cluster management solution. Veritas Storage Foundation™ for Sybase® ASE CE enables IT organizations to select the most appropriate operating system and storage hardware for their environment, all without compromising management capabilities.

Veritas Storage Foundation™ for Sybase® ASE CE provides a single management view for all database related storage management tasks, enabling IT organizations to install, configure, manage, and perform tasks centrally, independent of hardware platform. Moreover, it increases flexibility, reduces system downtime, and increases scalability by performing tasks dynamically, and eliminates I/O bottlenecks through Dynamic Multi-pathing.

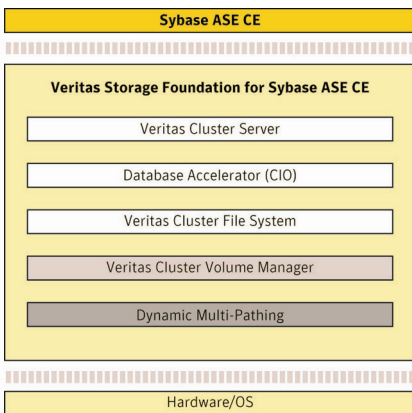


Figure 1. Veritas Storage Foundation™ for Sybase® ASE CE

Highlights

- **Simplify ongoing management**—Centralize multi-node management and make Cluster Edition as easy to manage as a single-node database
- **Achieve high availability**—Protect against interconnect failures, node hangs and other failure mechanisms. Also, protect the database from logical errors by providing point-in-time copies
- **Ensure data integrity**—With I/O fencing, eliminate the risk of data corruption in the event of a “split brain” condition
- **Scalable database performance**—Utilize database accelerators and multiple physical paths to disks, for storage devices that support this

Simplify ongoing management

While most application cluster implementations are intended to increase application availability, Sybase® ASE CE also attempts to improve application scalability by using multiple servers for the same workload. However, this scale-out approach to clustering introduces management complexity of server, database, and storage administration. Veritas Storage Foundation™ for Sybase® ASE CE minimizes this complexity by enhancing the native capabilities of Sybase® ASE CE with a highly available, scalable, non-disruptive storage and server management solution that is independent of operating system and storage hardware. The centralized management capability of Veritas Storage Foundation™ for Sybase® ASE CE enables users to add and remove nodes and storage

capacity without impacting application availability. Additionally, using Veritas Cluster File System, which is a part of Veritas Storage Foundation™ for Sybase® ASE CE, reduces user errors which arise from the lack of visibility with raw partitions. Veritas Cluster File System enables Sybase® ASE CE tablespaces to grow online without the need to pre-allocate storage capacity. A single cluster file system and volume management tool facilitates creation of a shared Sybase home that simplifies ongoing maintenance and patch management.

Achieve high availability

Veritas Cluster File System, which is a key part of Veritas Storage Foundation™ for Sybase® ASE CE architecture, is tightly integrated with Veritas Cluster Server, providing a comprehensive application failover solution minimizing both planned and unplanned downtime across all nodes in the cluster, up to 32. In the event of an application or node failure, which is detected using a Sybase agent built into Veritas Storage Foundation™ for Sybase® ASE CE, the application is dynamically migrated to an available node in the cluster without application or business interruption, and eliminates any single point of failure. Furthermore, cluster ownership is dynamically redirected in the event of the “primary node” failure. An additional benefit to a cluster file system architecture is that, as all nodes in the cluster have visibility to a shared storage pool, there is no need to manually mount storage to unique nodes in the event of application or node failures—minimizing application downtime, both planned and unplanned.

Storage Checkpoint technology, which is a part of Veritas

Storage Foundation™ for Sybase® ASE CE, enables efficient backup and recovery of Sybase® ASE CE databases.

Storage Checkpoint is a disk- and I/O-efficient snapshot technology for creating a “clone” of a currently mounted file system (the primary file system). Unlike a full file system copy that uses separate disk space, all Storage Checkpoints share the same free space pool where the primary file system resides, greatly reducing the need for extra storage. A direct application of the Storage Checkpoint facility is Storage Rollback. Because each Storage Checkpoint is a consistent, point-in-time image of a file system, Storage Rollback is the restore facility for these on-disk backups. Storage Rollback simply rolls back blocks contained in a Storage Checkpoint into the primary file system for very fast database recovery.

Ensure data integrity

When multiple systems/nodes have access to data via shared storage, the integrity of the data depends on internode communication ensuring that each node is aware when other nodes are writing data. When the coordination between the nodes fails, it results in a “split brain” condition—a situation in which two servers try to independently control the storage, potentially resulting in application failure or even corruption of critical data, which can then require days to recover, if recovery is even possible. I/O fencing is Symantec’s method of choice for ensuring the integrity of critical information by preventing data corruption. Veritas Storage Foundation™ for Sybase® ASE CE has implemented I/O fencing using the industrystandard SCSI-3 persistent group reservation technology, allowing a set of systems to have temporary

registrations with the disk and coordinate a write-exclusive reservation with the disk containing the data. With I/O fencing, Symantec ensures that errant nodes are “fenced” and do not have access to the shared storage, while the eligible node(s) continue to have access to the data, virtually eliminating the risk of data corruption.

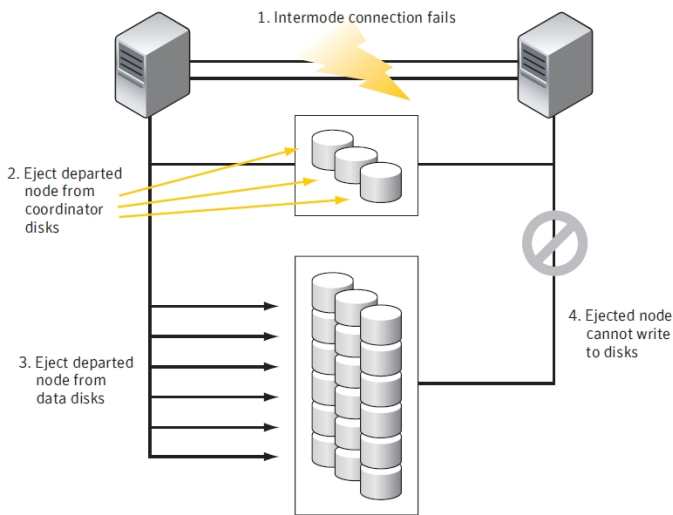


Figure 2. Implementing I/O fencing

Scalable database performance

There is a strong movement toward the consolidation of multiple disparate database systems onto even larger Sybase® ASE CE clusters. The major concern in any consolidation effort is maintaining respectable performance and/or meeting committed performance service-level agreements (SLAs). Veritas Storage Foundation™ for Sybase® ASE CE improves the overall performance of database environments by providing extensions to Database Accelerator (CIO), enabling OLTP

performance equal to raw disk partitions, but with the manageability benefits of a file system. It delivers the same performance benefits as Veritas Quick I/O, but also provides tight database integration for easier manageability. Moreover, with the Dynamic Multi-pathing feature of Veritas Storage Foundation™ for Sybase® ASE CE, performance is maximized by load-balancing I/O activity across all available paths, from the server to all major hardware RAID array products. Moreover, with this feature, there is no need for third-party multi-pathing software, reducing the total cost of ownership.

Other Product Highlights

- **Storage capacity planning**—Simulate various Storage Checkpoint creation and retention models in a production environment
- **Flexible management**—Offer intuitive Web or command line interface options for local or remote
- **Hot relocation**—Automatically detect a failed disk and replace the disk from the available free disk pool
- **Intelligent workload management**—Increase automation of cluster administration, maximize application uptime, and improve utilization of server resources
- **Cluster membership integration**—Seamless interface between Sybase® ASE CE clusters and Veritas Storage Foundation™ for Sybase® ASE CE clusters
- **Cluster-wide logical device naming**—Simplify management of SAN-based storage

Related products

- **Veritas Storage Foundation™ for Databases**—All the features of Storage Foundation plus special database accelerators and manageability options, providing raw performance with the manageability of a file system. Available as both standard and enterprise versions.
- **Veritas Storage Foundation™ Cluster File System**—All the features of Storage Foundation plus a cluster file system and cluster volume manager for concurrent data access from multiple servers. Available as enterprise version only.
- **Veritas Cluster Server**—Monitors the status of applications and automatically moves them to another server in the event of planned or unplanned outages.

Supported operating systems

- Sun™ Solaris™ 9 and 10 (SPARC)
- Red Hat® Enterprise Linux 4/5 (64-bit)
- Novell® SLES 10 (64-bit)

More information

Visit our website

<http://enterprise.symantec.com>

To speak with a Product Specialist in the U.S.

Call toll-free 1 (800) 745 6054

To speak with a Product Specialist outside the U.S.

For specific country offices and contact numbers, please visit our website.

About Symantec

Symantec is a global leader in providing security, storage

and systems management solutions to help consumers and organizations secure and manage their information-driven world. Our software and services protect against more risks at more points, more completely and efficiently, enabling confidence wherever information is used or stored.

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