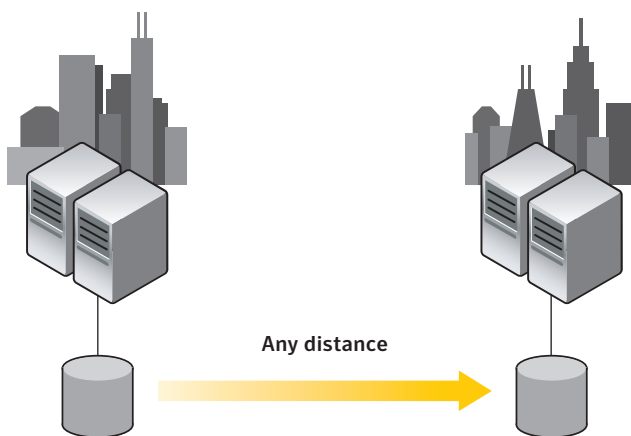


# Veritas™ Volume Replicator Option by Symantec

## Data replication for disaster recovery

The Veritas Volume Replicator Option by Symantec provides organizations with a world-class foundation for continuous data replication, enabling rapid and reliable recovery of critical applications at remote recovery sites. As an option to Veritas Storage Foundation™ by Symantec, Volume Replicator enables efficient replication of data over IP networks, giving organizations an extremely flexible, high-performance alternative to traditional array-based replication architectures. This flexibility lets organizations choose virtually any combination of storage devices on any major operating system, providing a consistent, easy-to-manage high availability/disaster recovery solution throughout the data center.

In addition to providing one of the most flexible replication architectures available, Volume Replicator is tightly integrated with the industry-leading application availability software of Veritas Cluster Server by Symantec for an automated disaster recovery solution that reduces recovery time for data and applications alike. This solution also enhances the reliability of an organization's disaster recovery strategy.



**Figure 1.** Based on Veritas Storage Foundation, the Veritas Volume Replicator Option enables high-performance data replication to remote data centers around the globe.

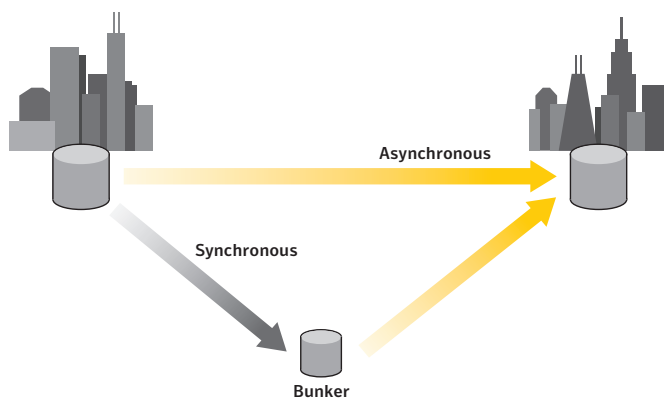
### Highlights

- **Replication over any distance**—Replicate data over any distance without performance impact to critical applications
- **Storage-independent replication**—Replicate between heterogeneous storage devices, enabling tiered storage strategies as a part of disaster recovery plans
- **Scalable performance to match any environment**—Scale to match the performance requirements of even the most demanding processing environments
- **Centralized management and reporting**—Centrally monitor and manage multiple replicated data sets across multiple sites
- **Data and database consistency protection**—Protect data consistency at all times through the use of persistent disk-based replication logs
- **Efficient use of bandwidth**—Minimize bandwidth utilization through efficient asynchronous replication and bandwidth throttling
- **Automated disaster recovery**—Automate site-to-site failover for quick, reliable recovery of critical applications

### Replication over any distance

Veritas Volume Replicator enables synchronous and asynchronous data replication over IP networks to provide disaster recovery capabilities over any distance without ever compromising performance or data consistency. And with support for up to 32 secondary targets per application or server, Volume Replicator makes it possible to concurrently

replicate the same data volumes locally in synchronous mode and remotely in asynchronous mode, giving organizations the ability to adapt replication strategies to match any number of data center locations. Volume Replicator also enables a unique Bunker Replication configuration that combines the zero data loss advantages of synchronous replication with the long-distance performance advantages of asynchronous replication. This gives organizations maximum protection for critical applications over any distance without the high costs and risks associated with traditional multi-hop replication architectures.

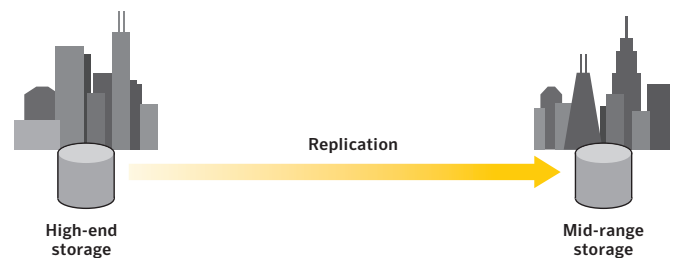


**Figure 2.** In addition to standard synchronous and asynchronous modes of replication, Veritas Volume Replicator includes the Bunker Replication feature, a zero RPO alternative with no distance limitations.

### Storage-independent replication

Unlike proprietary inflexible storage hardware replication approaches, the volume-based replication of Volume Replicator provides a reliable data replication solution that works with virtually any SAN-attached storage device. Volume Replicator enables replication between any major storage hardware platforms, eliminating vendor-specific storage limitations and allowing organizations to choose appropriate storage investments based on application priority, not storage compatibility. For example, organizations can

employ tiered storage strategies replicating data from a high-end production storage device to a mid-range storage device at a recovery location where performance is less critical. Extending tiered storage capabilities, Volume Replicator even allows organizations to leverage the Dynamic Storage Tiering feature of Storage Foundation, enabling replicated data sets for the same application to be housed on multiple storage tiers.



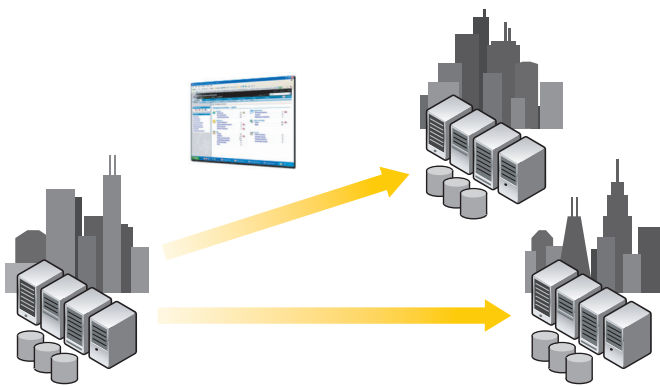
**Figure 3.** Veritas Volume Replicator supports replication between dissimilar storage devices, facilitating tiered storage strategies as a part of disaster recovery plans.

### Scalable performance to match any environment

Based on the architecture of Veritas Storage Foundation, Volume Replicator is capable of scaling to any number of applications or servers, regardless of the size or activity of replicated applications. Leveraging the high-performance write capabilities of Veritas Storage Foundation, Volume Replicator is capable of providing fast, efficient replication even in the most demanding processing environments. And as an integral component of Storage Foundation, Volume Replicator scales just as well. Use Volume Replicator to replicate a small number of critical applications to a single remote site or to replicate dozens of servers within a data center to multiple locations around the globe. Volume Replicator provides organizations with a solution that is not limited by capacity or processing resources of physical storage devices.

### Centralized management and reporting

For organizations that require the replication of a large number of critical applications, Symantec provides centralized management of all replication instances to ensure that replication manageability scales with data center environments. Leveraging the Veritas Storage Foundation Management Server, Volume Replicator can be configured, monitored, and managed across multiple data sets and multiple operating systems through a single interface. This capability reduces the time required for initial replication configuration and deployment and improves efficiencies of ongoing management of a large number of replicated applications.



**Figure 4.** With centralized management through Veritas Storage Foundation Management Server, all Volume Replicator instances can be managed and monitored from a single console.

### Data and database consistency protection

Through the use of persistent disk-based replication logs, Volume Replicator maintains data consistency between primary and secondary data sets in synchronous and asynchronous modes of replication. By maintaining write-order fidelity, Volume Replicator ensures consistent restarts of critical applications and databases in virtually any operating environment. Tightly integrated with the database

functionality of Veritas Storage Foundation, Volume Replicator maintains consistency of Oracle,<sup>®</sup> Oracle RAC, DB2,<sup>®</sup> Sybase, Microsoft<sup>®</sup> SQL Server, Microsoft Exchange, and other enterprise database management systems throughout replication. Volume Replicator even protects data consistency during temporary or extended network outages—which is an absolute requirement for long-distance replication over wide area networks. With uninterrupted consistency protection, organizations can have confidence that replicated data sets will provide the high levels of business continuity required for critical operating environments.

### Efficient use of bandwidth

Volume Replicator includes controls to reduce the impact that replication can have on scarce network resources. Through efficient volume-level replication based on actual application writes, Volume Replicator keeps WAN traffic to a minimum by replicating only the data that actually changes instead of replicating arbitrary blocks of data or disk tracks. Volume Replicator increases existing bandwidth efficiencies through asynchronous replication with robust logging capabilities, allowing organizations to model bandwidth requirements based on average application activity rather than peak activity. Bandwidth efficiencies include differential-based resynchronization to reduce the time and bandwidth required to migrate back to a primary site following a disaster. For the most critical environments, Volume Replicator also includes bandwidth throttling capabilities on a per-application basis to reduce application contention for limited network resources. This ensures that critical applications have necessary network resources even in a bandwidth-constrained environment.

### Automated disaster recovery

The full integration of Volume Replicator and Veritas Cluster Server provides the most powerful disaster recovery automation available for data center applications. This solution enables organizations to monitor all applications and associated replication jobs in a multisite framework as well as automate the process of failover/failback between sites. In the event of a failure at any of the monitored sites, disaster recovery software will automatically alert administrators, control the shift of replication roles to the secondary site, mount data volumes, restart critical applications, and redirect client traffic, drastically reducing total recovery time for maximum business continuity. In addition to automated recovery, Cluster Server and Volume Replicator enable the non-invasive disaster recovery Fire Drill feature that enables disaster recovery testing without ever bringing primary production systems offline, allowing organizations to test disaster recovery more frequently and completely than ever before.

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### Additional Product Highlights

- **Integrated snapshots**—Using in-band-control messaging, initiates remote snapshots based on local replication controls
- **Flexible management**—Offers intuitive Web, Java,™ or command line interface options for local or remote management
- **Replication of database systems**—Supports database management systems such as Oracle, DB2, Sybase, Microsoft SQL Server, and Microsoft Exchange
- **Replication of Oracle RAC**—Supports replication of shared storage resources in conjunction with Oracle RAC and Cluster File System implementations
- **Planning and bandwidth modeling**—Includes VRAdvisor, a tool for data collection and analysis to determine appropriate bandwidth and storage requirements for multiple recovery scenarios
- **Simple configuration**—Enables easy setup of synchronous and asynchronous replication, including synchronous-override mode for online mode changes
- **Auto-tuning**—Maximizes application performance throughout replication through automated performance tuning
- **Cross-host consistency**—With a cross host consistency module offered by Symantec Global Services, organizations can maintain consistency among replicated applications on multiple servers.
- **OS platform migrations**—Supports OS platform migrations of replicated data sets through Storage Foundation Portable Data Containers



### Related products

**Veritas Storage Foundation**—Provides a complete solution for heterogeneous online storage management. Based on the industry-leading Veritas Volume Manager and Veritas File System, it provides a standard set of integrated tools to centrally manage explosive data growth, maximize storage hardware investments, provide data protection, and adapt to changing business requirements.

**Veritas Cluster Server**—Monitors the status of applications and automatically moves them to another server in the event of planned or unplanned outages. Veritas Cluster Server includes a Centralized Management Console for site-to-site application monitoring and management, Global Cluster Option for automated remote application failover, and Fire Drill for non-invasive disaster recovery testing.

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### Supported operating systems

- IBM® AIX®
- HP-UX
- Sun™ Solaris™
- Red Hat® Linux
- SUSE Linux
- Microsoft Windows®

### More information

*Visit our Web site*

<http://enterprise.symantec.com>

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