

# Veritas™ Cluster Server—Supported Disaster Recovery Architectures

Real-time disaster recovery over any distance

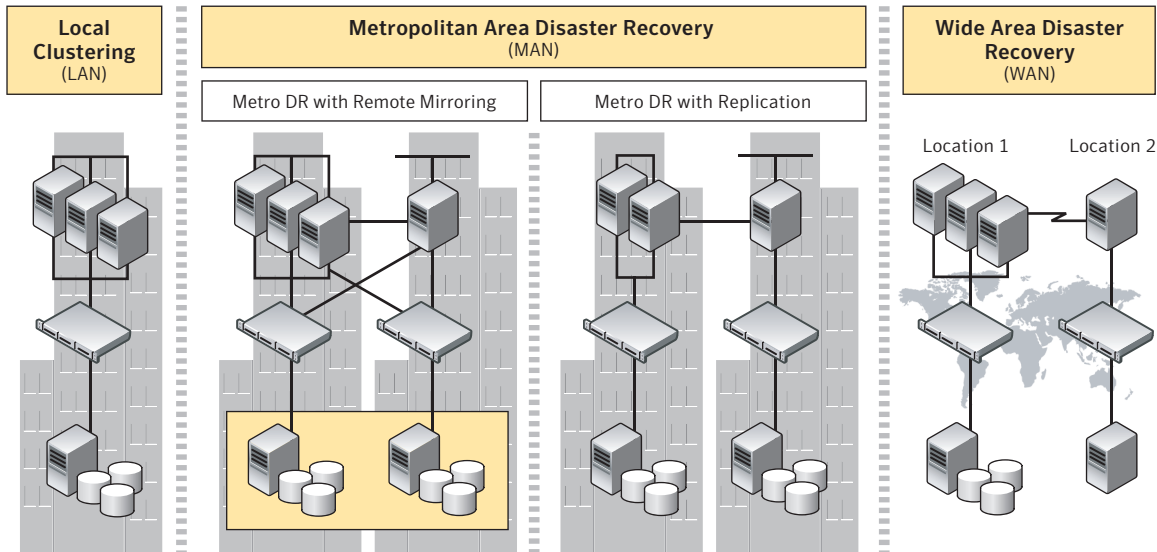
## Key benefits

- Flexible cluster architecture supports local high availability through global area disaster recovery.
- Integration with Veritas storage management and replication technology helps ensure protection of not only applications and databases but also data.
- Support for third-party storage management and replication technologies leverages current investment.

Veritas Cluster Server, the industry's leading open systems clustering solution, is ideal for reducing planned and unplanned downtime, facilitating server consolidation, and

effectively managing a wide range of applications in heterogeneous environments. With support for up to 32 node clusters, Veritas Cluster Server provides the power and flexibility to protect everything from a single critical database instance to the largest, globally dispersed multi-application clusters.

Veritas Cluster Server delivers unparalleled automation, enabling system administrators to test production disaster recovery plans without disruption. It offers intelligent workload management that maximizes resources by moving beyond reactive recovery to proactive management of application availability.



### Supported architectures

Symantec recognizes that not all data centers are alike. Building an infrastructure for high availability at a local site may meet many business availability requirements, while other requirements may involve greater protection that spans multiple locations. By using Veritas Cluster Server as a stand-alone solution or in combination with other Symantec products, organizations can achieve availability in almost any open system environment. Symantec delivers real-time protection to the enterprise through support of several cluster architectures:

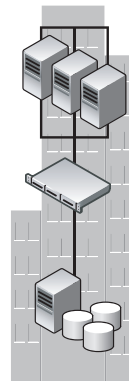
- Local clustering for high availability
- Metropolitan area clustering for disaster recovery
- Wide area (global) clustering for disaster recovery

Symantec can provide high availability (HA) and disaster recovery (DR) for any enterprise requirement, be it single-site local HA or DR scenarios, including short-haul metropolitan area network (MAN) and full wide area network (WAN) support. Regardless of data center infrastructure and availability of SAN and network connections, Symantec has a proven HA/DR architecture built around its high availability and storage management products.

#### Local clustering

A single Veritas Cluster Server cluster consists of multiple systems connected in various combinations to shared storage devices. Veritas Cluster Server monitors and controls applications and databases and can fail over or restart applications and databases in response to a variety of hardware or software faults. A cluster is defined as a set of systems connected by redundant network interconnects.

This solution provides local recovery of UNIX, Windows®, and Linux® servers in the event of application, operating system, or hardware failure at a single site.



#### Environment

- Single cluster; one or more subnets; up to 32 servers support any cluster configuration.
- Server, network, and storage architecture is redundant.
- Each system in the cluster can access application data as necessary on shared storage.
- All servers in the cluster are in a single location (single data center).

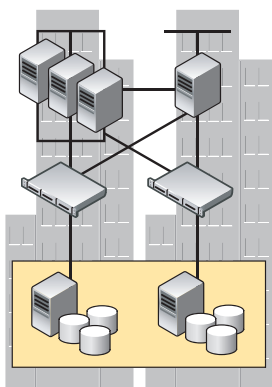
#### Metropolitan area disaster recovery with remote mirroring

Metropolitan area disaster recovery with remote mirroring (also known as a campus cluster) is a single cluster that stretches over two sites using Fibre Channel connectivity—typically with dense wavelength division multiplexing (DWDM) technology—to provide SAN connections for data mirroring and network connections for cluster communication. Additionally, this architecture provides continuous

## Data Sheet: Server Management

### Veritas Cluster Server—Supported Disaster Recovery Architectures

availability for expanding data centers faced with limited space for growth and allows for dissimilar storage hardware at the two sites. If Fibre Channel is not available but IP is, please refer to the section “Metropolitan area disaster recovery with replication.”

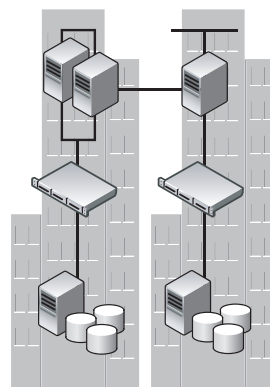


#### Environment

- Single cluster stretches between multiple buildings, data centers, or sites connected via dedicated Fibre Channel. The public network should span sites.
- Up to 32 servers are distributed freely among buildings.
- Local storage is mirrored (synchronized) with Veritas Storage Foundation™ v5.0.

#### Metropolitan area disaster recovery with replication

Metropolitan area disaster recovery with replication is similar to metropolitan area disaster recovery with remote mirroring; however, it doesn't require an extended SAN for mirroring data. Rather than writing data synchronously at both sides using remote mirroring, data is replicated synchronously using Veritas™ Volume Replicator over IP or the customer's choice of hardware replication platforms. This architecture requires dedicated communication links between sites for cluster communication.



#### Environment

- Single cluster stretches between multiple buildings, data centers, or sites connected via redundant communication links for cluster communications. The public network should span sites.
- Up to 32 servers are distributed freely among buildings, data centers, or sites supporting any cluster configuration.
- Local storage is replicated (synchronously) using Veritas Volume Replicator or hardware-based replication solutions.

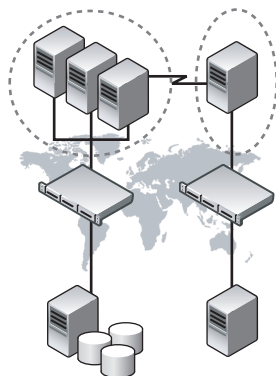
#### Wide area (global) disaster recovery

Wide area disaster recovery provides the most protection for data and applications in the event of a disaster. The architecture supports the deployment of two or more data centers, clusters, and subnets separated by any distance. In the event of a single site outage, all of the services and data are moved to the designated “hot site,” which then becomes available to users. By definition, wide area disaster recovery is typically deployed when distances greater than those that can be supported by a synchronous mirror solution are required (over 100 kilometers). The sites can be configured as active/hot standby or as active/active, with each site providing protection for the opposite site in case of disaster.

## Data Sheet: Server Management

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The cluster heartbeat connection between the sites is typically over IP.



#### Environment

- A local cluster is deployed at each site with data replicated to one or more secondary sites.
- Cluster-to-cluster communications are over IP. Data replication is typically over IP due to the distances involved.

#### Conclusion

Best practices for disaster recovery start with tape backup and offsite storage of tapes. Companies can deploy a local high availability solution using shared storage and application clustering and easily extend this architecture to a real-time disaster recovery plan that facilitates metropolitan or wide area data center migration. In this way, as business needs evolve, enterprises can add corresponding layers of availability, building upon a backup strategy that is already in place. By deploying tightly integrated Symantec products that enable high availability and disaster recovery, organizations can protect data and applications in their data center environment while leveraging an IT architecture that best fits the requirements of the business.

#### More information

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#### About Symantec

Symantec is a global leader in infrastructure software, enabling businesses and consumers to have confidence in a connected world. The company helps customers protect their infrastructure, information, and interactions by delivering software and services that address risks to security, availability, compliance, and performance. Headquartered in Cupertino, Calif., Symantec has operations in 40 countries. More information is available at [www.symantec.com](http://www.symantec.com).

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