SYBASE®

HIGH AVAILABILITY OPTION
FOR SYBASE® ADAPTIVE SERVER® ENTERPRISE

Sybase Adaptive Server Enterprise (ASE) is designed to support the demanding requirements of transaction-intensive, mission-critical OLTP and decision support applications. ASE's efficient query optimization delivers unsurpassed levels of performance and scalability. ASE builds on Sybase's leadership in low-cost, high-performance data management. Improved self-management capabilities make Sybase ASE easier to deploy and maintain, and enhanced operational scalability supports increased workloads with fewer resources. Sybase ASE ensures highest operational efficiency and throughput on the broadest range of platforms, from low-end Linux/Intel to high-end SMP systems.

The High Availability (HA) Option for Adaptive Server Enterprise provides near continuous database access. Critical business applications and sensitive data transactions are maintained in the event of unexpected system failures and scheduled downtime. By leveraging cluster architecture, the HA Option allows two ASE databases to work as companions to each other. Client connections and database operations can instantly move from one server to the other without interruption to end-users. This strategy is designed to counter the ramifications of database downtime.

THE NEED FOR HIGH AVAILABILITY

The database management system is perhaps the most crucial component in today's heavily distributed computing environment. Few applications can function without access to underlying databases. And it's these applications that bring together businesses, customers, and partners. But, if a database system fails, applications go offline and business processes across the enterprise are affected.

The most immediate cost of database failure is reduced revenue. A busy e-commerce site can lose between $10K and $100K, depending on the volume of sales. Telesales operations—such as airline reservations and home shopping networks—can expect to lose in excess of $100K. Revenues flow through business applications, and they can't be sidelined by system failures.

In addition to lost revenue, other intangible costs come into play. Business applications provide customers and partners with access to database information they require. For example, one application may give customers their account details. And another application may give business partners inventory and production details. When these applications are unavailable, business relationships fail because of a perceived lack of dependability, and it's that ill-perception that drives down stock market performance, affects share prices, and negatively influences market evaluations.

HIGH AVAILABILITY OPTION SUPPORTS THESE FEATURES

CLUSTER ARCHITECTURE

- Allows for the creation of a two-node hardware cluster.
- Permits two ASE databases to run as companion servers.
- Offers active/active hot standby server configuration.
- Leverages hardware investment.
- Supports disaster recovery solutions, such as the Sybase Disaster Recovery Package.

AUTOMATED FAILOVER AND FAILBACK

- Connects users to a companion server by using Sybase OpenClient™.
- Supports seamless migration back to an original database configuration.

THIRD-PARTY INTEGRATION

Designed to work in concert with existing hardware and software HA solutions from third-party vendors:

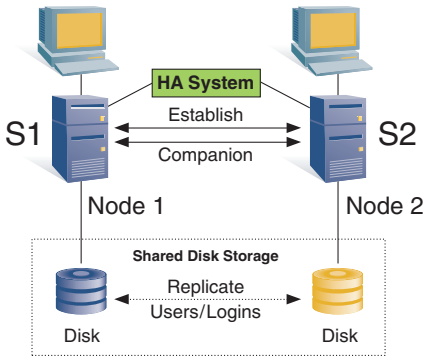
- Compaq TruCluster
- Hewlett-Packard ServiceGuard
- IBM HACMP
- Microsoft Windows NT MSCS
- Sun Microsystems Sun Cluster
- Veritas Cluster Server
- Veritas Database Edition for Sybase

A single, well-publicized outage, especially for businesses operating largely on the Internet, tarnishes a company's name.

With so much at stake, leading-edge businesses are leveraging the power of Sybase Adaptive Server Enterprise and the High Availability Option to avoid the consequences of database downtime.

THE POWER OF CLUSTER ARCHITECTURE

The HA Option supports the creation of a two-node hardware cluster. Each node runs ASE. In this configuration, each of the servers is actively working and running applications. If one server fails, the other server automatically picks up its database operations and client connections. One node does not sit idle waiting for the other to fail. In this way, the total hardware investment is leveraged. The two ASE servers can be configured in either asymmetric (master-slave) or symmetric (active/active) companion configuration. With the latter option, a hot standby in active/active configuration is created to reduce unplanned downtime. Hot standby capability provides instantaneous and seamless failover. And, since clusters use the same physical copy of the data, there is no loss of information or transactions during the failover process. In other words, hot standby provides fast failover with minimal latency.



[DIAGRAM 1] *Cluster Availability*

THE COMFORT OF SEAMLESS FAILOVER

The HA Option makes failover as painless as possible by delivering an error message stating that a failover has occurred and that the current transaction must be resubmitted. The error message is delivered in exactly the same way as a deadlock error which allows programers to trap the error and resubmit the transaction without requiring end-users to reconnect.

Likewise, end-users do not have to disconnect and restart in order to re-establish the original database configurations. Once the failed companion database server is up and running again, client connections are transparently failed back to the server.

A commercial airline's ticket reservation application, for example, can be supported by Sybase ASE running on Sun Cluster. The inherent robustness of ASE and Sun Cluster offers a high level of database availability. But, if one server is brought down, the time to complete failover can take several minutes with the existing set-up. The airline can improve performance and reduce failover to less than a minute by implementing the HA Option for ASE in a symmetric companion configuration. The difference of a few minutes saves revenue and maintains customer relationships.

LEVERAGING HA AND DISASTER RECOVERY SOLUTIONS

The HA Option can be complemented with existing Sybase disaster recovery solutions. For example, the Sybase Disaster Recovery Package leverages the power of Replication Server® to create a warm standby server in a geographically remote location. If the primary cluster is lost to a rolling blackout or a natural disaster, the secondary server, acting as the warm standby, can be serving client requests almost immediately. Replication software working in conjunction with clustered hardware achieves near continuous database availability.

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