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INTERSYSTEMS CACHÉ® DATABASE MIRRORING

Providing a reliable infrastructure for rapid, unattended, automated failover…

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TECHNOLOGY OVERVIEW

Traditional availability and replication solutions often require substantial capital investments in infrastructure, deployment, configuration, software licensing, and planning. Caché Database Mirroring (Mirroring) is designed to provide an economical solution for rapid, reliable, robust, automatic failover between two Caché systems, making mirroring the ideal automatic failover high-availability solution for the enterprise.

In addition to providing an availability solution for unplanned downtime, mirroring offers the flexibility to incorporate certain planned downtimes on a particular Caché system while minimizing the overall SLA's for the organization. Combining InterSystems' Enterprise Cache Protocol (ECP) application servers with mirroring provides an additional level of availability. Application servers allow processing to seamlessly continue on the new system once the failover is complete, thus greatly minimizing workflow and user disruption. Configuring the two mirror members in separate data centers offers additional redundancy and protection from catastrophic events.

Traditional availability solutions that rely on shared resources (such as shared disk) are often susceptible to a single point of failure with respect to that shared resource. Mirroring reduces that risk by maintaining independent components on the primary and backup mirror systems. Further, by utilizing logical data replication, mirroring reduces the potential risks associated with physical replication, such as out-of-order updates and carry-forward corruption, which are possible with other replication technologies such as SAN-based replication.

Finally, mirroring allows for a special *Async Member*, which can be configured to receive updates from multiple mirrors across the enterprise. This allows a single system to act as a comprehensive enterprise data store, enabling – through the use of InterSystems DeepSee™ – real-time business intelligence that uses enterprise-wide data. The async member can also be deployed in a Disaster Recovery model in which a single mirror can update up to six geographically-dispersed async members; this model provides a robust framework for distributed data replication, thus ensuring business continuity benefits to the organization. The async member can also be configured as a traditional reporting system so that application reporting can be offloaded from the main production system.

Key Features & Benefits:

➢ *Economical high availability database solution with automatic failover*
➢ *Redundant components minimize shared-resource related risks*
➢ *Logical data replication minimizes risks of carry-forward physical corruption*
➢ *Provides a solution for both planned and unplanned downtime*
➢ *Provides business continuity benefits via a geographically dispersed disaster recovery configuration*
➢ *Provides Business Intelligence and reporting benefits via a centralized Enterprise Data Warehouse configuration*

EXAMPLE COST SAVINGS

Mirroring is designed to be an extremely economical solution. To illustrate the possible cost savings associated with Mirroring, three production configurations for a web-based hospital system were compared with and without Mirroring.

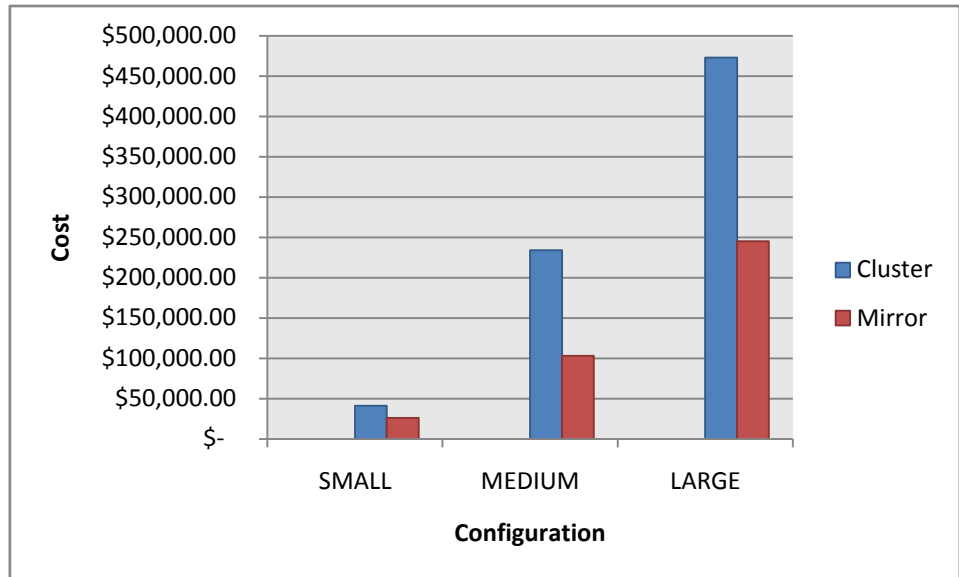Figure 1 illustrates the projected costs across the three configurations.

Figure 1: Example costs – Clustering vs. Mirroring

Further examination of each of the components of the configurations reveals that the majority of the savings can be attributed to the reduction in the storage costs as well as a reduction in the OS licensing and software costs related to clustering and/or replication. Figure 2 illustrates relative costs in the various categories across the three configurations.
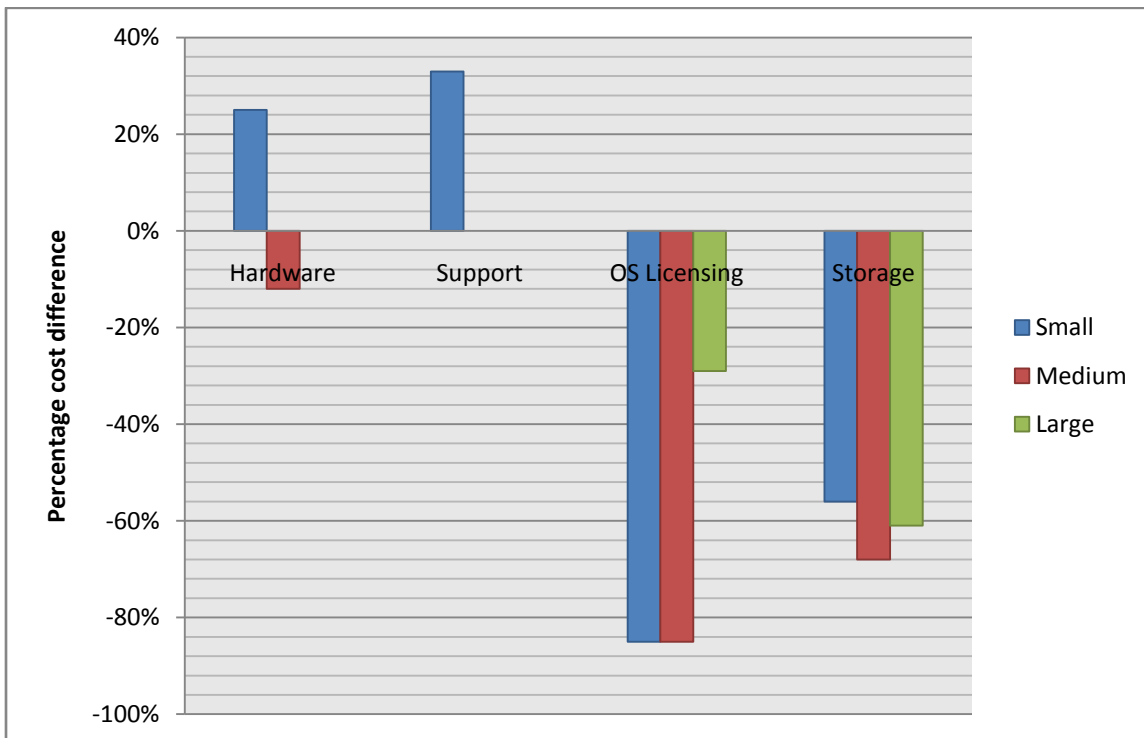
Figure 2: Cost reductions realized with Caché Mirroring in each component category for three configurations

ABOUT CACHÉ

InterSystems Caché® is a new generation of ultra-high-performance database technology. It combines an object database, high-performance SQL, and powerful multidimensional data access – all of which can simultaneously access the same data. Data is only described once in a single integrated data dictionary and is instantly available using all access methods. Caché provides levels of performance, scalability, rapid programming, and ease of use unattainable by relational technology.

But Caché is much more than a pure database technology. Caché includes an application server with advanced object programming capabilities, the ability to easily integrate with a wide variety of technologies, and an extremely high-performance runtime environment with unique data caching technology.

Caché comes with several built-in scripting languages: Caché ObjectScript, a powerful yet easy to- learn object-oriented programming language; Caché Basic, a superset of the widespread Basic programming language, including extensions for powerful data access and object technology; and Caché MVBasic, a variant of Basic used by MultiValue applications (sometimes referred to as Pick applications). Other languages, such as Java, C#, and C++, are supported through direct call-in and other interfaces, including ODBC, JDBC, .NET, and a Caché-provided object interface that allows accessing the Caché database and other Caché facilities as properties and methods.

Caché also goes beyond traditional databases by incorporating a rich environment for developing sophisticated browser-based (Web) applications. Caché Server Pages (CSP) technology allows the rapid development and execution of dynamically generated Web pages. InterSystems Zen™ technology is an implementation of AJAX (Asynchronous Javascript and XML) that is tightly coupled to the Caché database, enabling extremely fast runtime execution for rich Web interfaces. Thousands of simultaneous Web users can access database applications, even on low-cost hardware.

For non-browser based applications, the user interface is typically programmed in one of the popular client-user interface technologies, such as Java, .NET, Delphi, C#, or C++. Best results (fastest programming, greatest performance, and lowest maintenance) are usually obtained by performing all of the rest of the development within Caché. However, Caché also provides extremely high levels of interoperability with other technologies and supports all of the most commonly used development tools, so a wide range of development methodologies are available.

ABOUT INTERSYSTEMS

InterSystems Corporation is a global software technology leader with headquarters in Cambridge, Massachusetts, and offices in 25 countries. InterSystems provides advanced software technologies for breakthrough applications. **InterSystems Caché**® is a high performance object database that makes applications faster and more scalable. **InterSystems Ensemble**® is a seamless platform for integration and the development of connectable applications. **InterSystems HealthShare™** is a platform that enables the fastest creation of an Electronic Health Record for regional or national health information exchange. **InterSystems DeepSee™** is software that makes it possible to embed real-time business intelligence in transactional applications.

For more information, visit InterSystems.com.