



## High Availability in a Global Marketplace: Round-the-Clock Businesses Require Round-the-Clock Technology

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The best technicians, the best managers, and the best documented procedures are only as good as the infrastructure and the software before them. If the infrastructure is unable to meet the production needs and project demands, downtime becomes a problem, resulting in loss of productivity, loss of sales, and loss of information. The Internet creates a global marketplace, making the issue of high availability no longer an option. It is a necessity. Downtime, planned or unplanned, has become the evil of the business world, stopping the clock in a world of 24-hour businesses. A highly available company needs to always be highly available technologically.

Whether your software freezes or your hardware fails, every company must have an immediate plan of action to attack the outage, not only to restore the hardware functionality but also to ensure data retention and integrity. Company losses double and triple due to loss of productivity during the downtime, and the need to verify or recreate lost data. More importantly, in the e-business world, customers can be lost from avoidable downtime. From these shortfalls, planning for and implementing individualized High Availability solution easily gives you a return on your investment by lessening risk and increasing company-wide technological availability.

### **Multi-Server Clustering**

As one of the most popular high availability solutions, clustering takes the concept of teamwork and applies it to IT infrastructure. Possible in UNIX, Linux, or Intel platforms, each node of the server cluster is connected to the others with "heartbeat" software to monitor each other's performance. When one server fails, the others immediately recognize it. The work will seamlessly be taken over by another node in the cluster. This "fail-over" can eliminate downtime and prohibit the loss of data. In some technologies, the take-over of operations occurs so smoothly that a user will not even recognize the switch.

The benefits of clustering also appear in the manageability of the environment. Through remote management of the cluster and load balancing software, the ease of use remains a key advantage. In a UNIX environment, High Availability Cluster Multi-Processing (HACMP) software automatically detects system failures and provides the capability of recovering system hardware, applications, data, and users while keeping recovery time to an absolute minimum. This capability is available through planned or unplanned downtime, allowing hardware and software upgrades to be enabled without disrupting the cluster.

### **Single-Server Fault-Tolerant Hardware**

A clustering solution makes sense for either a larger scale enterprise company or to ensure e-business 24x7 availability for smaller companies. The investment of multiple servers may not initially outweigh the costs, yet high availability is important to every enterprise. For a smaller organization, a combination of fault-tolerant hardware and back-up and disaster recovery software may prove more cost-affordable. At one point in the recent past, this solution could be purchased for no less than \$150,000; however, with the explosion of the Intel platform and compatible software, companies nationwide can now often deploy solutions for under \$20,000.

Through IT Optimization and virtualization technologies, high availability can at times be accomplished through merely a software reconfiguration. The use of redundant systems and logical partitioning can make even a single server better manage its workload, distributing an application to a second partition if necessary, and reducing the risk of unplanned downtime. Meanwhile, through Dynamic Logical Partitioning



(DLPAR), memory or CPU can be redistributed without interruption to the server or the need to reboot.

The technology developments of the past five years have lead the nation into a world where email never goes down. Advancements such as Active PCI-X and third generation Chipkill memory in IBM's xSeries Intel servers are examples of the machine's ability to self-diagnose and self-heal the problems which a decade ago would have resulted in downtime. This progress translates into software developments as well. The automation traits of the Tivoli storage products protect the integrity of your shared data and storage management.

High Availability is necessary to all companies facing the technological success of the 21st century. Entering an age of e-business, an age of a global marketplace and constant communication, a modern day business does not close when the front doors lock, nor shut down when the lights go off. A High Availability solution allows a company to maintain its data, its web presence, and its email delivery. It has become a necessary process implementation—highly planned and organized in case of any disturbance.

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