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High availability solution

Solución de alta disponibilidad

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Abstract

High Availability (High availability) is a system design protocol and associated implementation that ensures a certain absolute degree of operational continuity during a given measurement. Availability refers to the ability of the community of users to access the system, submit new work, update or alter existing work, or collect the results of previous work. If a user cannot access the system is said to be unavailable. The term downtime (downtime) is used to define when the system is not available.

High availability, Downtime

Resumen

La alta disponibilidad (High availability) es un protocolo de diseño de sistemas y su implementación asociada que garantiza un cierto grado absoluto de continuidad operativa durante una medición determinada. La disponibilidad se refiere a la capacidad de la comunidad de usuarios para acceder al sistema, presentar nuevos trabajos, actualizar o modificar los existentes, o recoger los resultados de trabajos anteriores. Si un usuario no puede acceder al sistema se dice que no está disponible. El término tiempo de inactividad (downtime) se utiliza para definir cuándo el sistema no está disponible.

Alta disponibilidad, Tiempo de inactividad

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Introduction

High availability

High availability is essential for any organization interested in protecting its business against the risk of a system outage, loss of transactional data or incomplete data. Whatever the reason, when a server goes down, the applications and business processes that depend on those applications come to a halt. For a business interested in being available at all times, HA clustering is a practical solution.

Two or more servers are joined or clustered to back up each other. If the primary server goes down, the clustering system restarts the application on one of the other servers in the cluster, allowing the business to continue operating normally.

Servers are connected via a network or serial interface so that they can communicate with each other. Scheduled downtime events can include patches to system software that require a reboot or system configuration changes that only take effect on a reboot. Unscheduled downtime events typically arise from some physical event, such as a hardware or software failure or environmental anomaly. High availability cluster (HA cluster) implementations that attempt to use redundancy of cluster components to eliminate single points of failure.

HA cluster implementations attempt to build redundancy into a cluster to eliminate single points of failure, including multiple network connections and data storage that is redundantly connected across storage area networks.

Load balancing is a computer networking method for distributing workloads across multiple computing resources, such as computers, a cluster of computers, network links, central processing units or disk drives.

This is implemented with a high availability cluster and incorporated with the load balancing infrastructure of servers. This technology not only improves availability, but also affects requests security and performance of application services. (Katterman, 2013)

Most of today's tricks and techniques for extending service availability originated in the telecommunications industry. Over the years, telecom equipment manufacturers devised multiple schemes to provide uninterrupted service despite hardware and software failures. Unfortunately, most of these schemes are expensive to maintain, and difficult to upgrade as requirements evolved. They also require long development cycles. (Webb, 2008) The advantage of this approach is that subsystems are hot-swappable, just like blade servers or hot-swappable disk drives. One system cannot be easily replaced while the other continues to operate and the replacement now becomes the slave or hot-swappable. It usually takes some time to get the new system in a condition to be the slave since it minimally has to boot up.

Another advantage of this approach is that while the subsystems should run the same applications and have the same I/O, internally there may be hardware differences. That said, most systems tend to be very similar or identical. In contrast, software-based solutions provide greater flexibility in the implementation of different synchronization and error checking systems. (Saggurti, 2015)

Node failures of a high availability cluster are not visible from clients outside the cluster. Combines with load balancing and shared storage technology (Moniruzzaman & Hossain, 2014).

Increasingly unstructured data is being produced and consumed over the network. How to maintain this data and improve the availability and scalability of storage systems has become a considerable challenge. (Jiang, Zhang, Liao, Jin, & Peng, 2014)

In today's competitive business world, companies are open 24 hours a day, seven days a week and increasingly rely on technology to do business and to help sustain profits. As business dependence on technology increases, so does the cost of downtime. With technology so strongly related to business processes and escalating outage costs, companies today are demanding the shortest downtime and rapid recovery for critical applications. Information is a company's strongest business asset, and business success is tied directly to continuity and reliable access to information.

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E-business and ERP systems are simple examples where any significant disruption will directly affect a company's operations and revenues and, worse, possibly lead to its own demise.

Conclusions

Implementing a high availability (HA) solution can protect your business from costly downtime. (Dolewski, 2010)

Virtualization is booming. But as an increasing number of companies incorporate the technology, it's important to remember that consolidating servers onto fewer physical machines comes with certain risks. Yes, companies of any size may realize the benefits of fabulous resources, but the cost of server failure can be high.

Since the server can become quite valuable as it has more and more virtual machines (VMs): if it goes down or experiences problems, business operations can be severely affected. For this reason, you need a powerful high availability/disaster recovery solution.

Disaster recovery solution. Microsoft and VMware offer this functionality within their industry-standard products, and those features provide good, basic protection. However, for ease of use or more granular functionality, you should consider third-party products such as those covered in the Buyer's Guide. (Bovberg, 2010)

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