

IT Challenges in the Business Continuity Market

December
2003



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Introduction

In a world that relentlessly conducts business around the clock, information system managers must be prepared to ensure continuous access to business-critical applications and data. Business Continuity is a relatively new term that is often thought of as another way to say "disaster recovery", but in reality means much more. Business Continuity represents the seamless, uninterrupted provision of operations and services.

An application or service that is "continuously available" must be able to tolerate virtually any cause of failure within the system. Geological events, severe weather, physical and cyber terrorism, strained or underdeveloped infrastructures – all may cause failure at a data center, regardless of its design. The only viable solution to these potential problems is to separate the data centers sufficiently (100 kilometers or more), as to ensure that a disaster at the primary location does not directly affect the secondary location(s). To ensure further protection, the continuity infrastructure must be designed to perform automatic failover in the event of disaster.

According to the market research firm Ovum, companies once exhibiting reluctance in establishing a central control facility for all their mission-critical applications will be proactively reviewing their options. There will be an increase in demand for linking these facilities together through telecom networks and for guaranteed data synchronization. The IT trend will be towards more data centers, backup and data continuity systems. This brings into focus the increasing importance of data distribution and synchronization, generally referred to as "replication", over the Wide Area Network (WAN).

This white paper will present the challenges that IT professionals face when implementing a geographically distributed data configuration in their network, and the features that a comprehensive replication solution must implement to answer these challenges.



Terminology

First, we will define some of the terms used throughout this document.

Application Server	A computer in a client/server environment that performs the business logic (data processing). The application server is part of a three-tier application, consisting of a graphical user interface (GUI) server, an application (business logic) server, and a database and transaction server.
Database Server	A computer dedicated to database storage and retrieval. It holds the database management system (DBMS) and the databases. Upon request from client computers, the database server searches the database for selected records and returns them over the network.
File Server	A computer attached to a network that stores the programs and data files shared by large number of users. It acts like a remote disk drive. The difference between a file server and an application server is that the file server stores the programs and data, while the application server runs the programs and processes the data.
Journaling	Keeping track of events by recording them in a journal, or log.
Master	The host computer on which original files reside and on which replication events start.
Production Server	See Master.
Recovery	The combination of manual and machine procedures that can restore lost data in the event of hardware or software failure.
Registry	The Windows NT/2000 configuration settings database. This database stores configuration data about the hardware and the system environment of the computer. This consists of the contents of the SYSTEM.DAT and USER.DAT files.
Replica	A host computer containing a copy of the Master data, created by the replication process.
Replication Tree	A unique definition of the replication procedure that maps replication flow between one Master and any number of Replica nodes.
Replication	The process of transferring changes that occurred on the Master, to the Replica(s).
Synchronization	The process that reconciles any data differences between servers at a certain point in time.



IT Challenges in the Business Continuity Market

There are many replication tools available on the market today, but not all of them have the same capabilities. When IT professionals approach the task of implementing an online replication solution over WAN that will provide them with 100% business continuity and peak performance, they encounter numerous technical challenges.

Heterogeneous Systems

Maintaining high levels of access to information across heterogeneous systems without compromising a quality user experience is a challenge for any IT organization.

The complexity of today's distributed applications – the large number of applications, servers, operating systems, databases and network components, – makes it more difficult to achieve high availability and automatic disaster recovery.

To understand the complexity of today's technology environment, let's look at a typical corporate data center.

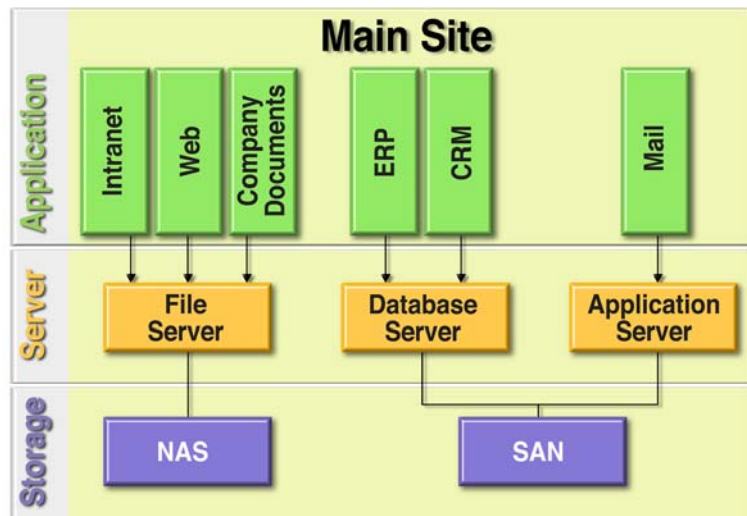


Figure 1: Heterogeneous System

Data centers typically consist of multiple tiers of systems that include Web servers, application servers and backend corporate database servers. Web servers (Internet/Intranet) handle incoming requests, routing them to the appropriate application server. Application servers implement the logic required to service requests. They execute the business logic and periodically query or update the corporate database as required by the business logic.

