**Business Continuity Considerations
and the IBM** @server **zSeries**

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Introduction

Make no mistake—the implications of downtime are considerable. Planned and unplanned system outages can negatively impact both customer loyalty and your business' bottom line. In the end, you have no choice but to keep your system up and running with disaster recovery, repair, upgrade, redundancy and geographical dispersal programs. It may sound melodramatic, but every day you ignore the implications of downtime is a day you gamble with the short- and long-term health of your business.

How much can downtime damage your business?

We've all heard the staggering downtime statistics: from tens of thousands of dollars to multiple millions per hour of downtime. While the financial impact is considerable, the damage done can extend well beyond the financial into key issues of customer loyalty and market competitiveness.

Downtime costs should continue to rise as significant changes take place in the e-marketplace and companies grow even more reliant on IT infrastructure. Also, customers may now access products via the Web, so the amount of time and effort it takes for them to switch loyalties and go to another supplier is minimal, to say the least. If your site isn't up when your customer needs it, they're likely to go somewhere else in the time it takes to click a mouse. Consequently, these assessments should serve as serious food for thought for IT decision-makers. The fact is, frequent system outages in today's highly competitive e-business environment could conceivably damage your business

Those companies that have not developed adequate business continuity plans often make the assumption that back office and manual processes will keep things running until computer systems are again available. Characteristics of these recovery models may allow critical applications to recover within 24 to 48 hours, with data loss potentially exceeding 24 hours, and full business recovery taking days or weeks. And while other systems may be recoverable in one to two hours, and other backup plans (e.g., rebooting on an alternate server) may take as little as 15 to 30 minutes, even that relatively short period of downtime can leave your business significantly exposed. As companies transform to compete in the e-marketplace, these processes simply may not be good enough. Continuity strategies and availability requirements must be re-evaluated to ensure that they are based on today's business requirements.

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In e-business, two of the most stringent demands for survival are continuous availability and near-transparent disaster recovery. Systems that are designed to deliver continuous availability combine the characteristics of high availability and continuous operations to deliver high levels of service (24x7). High availability is an attribute of a system that provides service at agreed-upon levels and masks *unplanned* outages from end users. Continuous operations, on the other hand, typify systems that can continuously operate and mask *planned* outages from end users. To attain the highest levels of continuous availability and near-transparent disaster recovery, the solution must be based on geographical clusters and data mirroring. These technologies are the backbone of IBM GDPS® technology. (See below for more.)

The built-in availability features of the zSeries

It is important to note that disasters are not the only cause of downtime. After all, some companies must shut down their systems to make scheduled updates or perform maintenance. The built-in availability features on the IBM @server™ zSeries® platform empower you to avoid both scheduled and unscheduled outages and aid in disaster recovery. How? By detecting potential problems at the earliest possible moment and taking the necessary actions to correct them, thereby minimizing the impact they might have on your applications.

The zSeries product line offers layer upon layer of *fault tolerance* and *error checking*. If a failure occurs, the *built-in redundancy* on the zSeries platform will shift the work over from failing components to ones that work to prevent the end-user service from being interrupted. The failed components may be removed and replaced while the processor is still active, so service may continue.

GDPS technology

There is more to availability than just the server being up—the application and the data must be available as well. zSeries platforms' availability features include the hardware, the operating system, application and database availability and the connection to disk.

At the heart of zSeries platform availability is IBM GDPS (Geographically Dispersed Parallel Sysplex™) technology, which is positioned to provide a total business continuity solution for the z/OS® platform. Based on geographical separation and automation, GDPS is a multisite application availability solution that provides the capability to manage remote copy configuration and storage subsystem(s), automate Parallel Sysplex® operational tasks and perform failure recovery from a single point of control.

GDPS provides the resource sharing, workload balancing and continuous availability benefits of a Parallel Sysplex environment. It also significantly enhances the capability of an enterprise to recover from disasters and other failures and to manage planned exception conditions, allowing businesses to achieve their own continuous availability and disaster recovery goals.

GDPS supports all popular transaction managers (e.g., CICS® TS, IMS™, WebSphere®) and database managers (e.g., DB2®, IMS, and VSAM) and is enabled by a number of key IBM technologies and architectures.

Managed exclusively through IBM GDPS is HyperSwap™, a new software technology that can substitute peer-to-peer remote copy (PPRC) secondary devices for PPRC primary devices. HyperSwap is designed to swap a large number of devices and to do it so fast, there is minimal impact to application availability (measured in seconds instead of hours). The HyperSwap function may be performed even if the primary disk subsystem is not operational, creating an opportunity to survive a primary disk subsystem—or even a complete site—failure without requiring systems to be recycled.

"Using the GDPS/PPRC HyperSwap technology is a significant step forward in achieving continuous availability," said Wolfgang Dungl, Manager of Availability, Capacity and Performance Management for iT-Austria. "The benefits in our GDPS environments are that a site switch by means of HyperSwap (i.e., dynamic switching of the disk configuration) takes only a few minutes without application outage. Without HyperSwap, we had to shutdown the GDPS/sysplex, switch the disk configuration and restart systems and applications. The elapsed time was almost two hours for our largest GDPS with 11 systems and over 11,000 PPRC volume pairs."

Capacity backup

Another important offering—Capacity Backup (CBU) for zSeries processors—can provide reserved emergency backup CPU capacity for situations in which you lose capacity in another part of your establishment, helping you recover by adding reserved capacity on a designated zSeries system. A CBU system normally operates with a "base" CPU configuration and with a pre-configured number of additional processor units reserved for activation in case of an emergency. IBM can remotely activate the emergency configuration upon your request. The activation is done electronically—and fast—eliminating time otherwise spent waiting for a technician to arrive.

zSeries products also support concurrent CBU downgrade. This function enables a CBU server to be returned to its normal configuration without an outage (i.e., power-on reset).

Business-level considerations

Forget the IT side of things for a moment. Why, from a business perspective, does your company need to have an effective business continuity plan in place? To satisfy increasingly demanding government regulations, to show proof of a plan to organizations with whom you do business, and to send a message to your customers that you are prepared for potential system outages.

IBM is uniquely qualified to help you—with everything from high-level business planning and prioritization to development of plan details and technical implementation. With the recent announcement of IBM Business Consulting Services (BCS), IBM has increased its already-considerable depth and expertise in business impact analysis, risk/threat assessment and strategy development.

IBM can leverage extensive knowledge relative to popular packaged applications (ERP, CRM, etc.) in developing effective and efficient recovery strategies. IBM software and hardware divisions supplement this management and application consulting expertise with the detailed technical knowledge and skills to implement and support your business continuity program.

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IBM can help you develop a strategy, build a plan and be there for the long-term to support and enhance it over time. Finally, as the world's largest service organization, IBM Global Services has developed a substantial skill base and expertise in delivering holistic business continuity strategies in heterogeneous computing environments. Why? Because we recognize that, while IBM systems support many mission-critical applications, most organizations also have critical applications running on non-IBM platforms.

Summary

The expanding scope of security threats and resultant continuing uncertainty serve to remind us just how critical it is for businesses to be prepared for disasters. Much work has been done by public and private interests to analyze the lessons learned and try to identify sound practices that can strengthen the resilience of the business infrastructure.

The core lessons learned—a need for geographically dispersed facilities and resources, having an up-to-date business continuity plan and a highly automated disaster recovery solution—are not lost on IBM. The zSeries platform, along with related IBM products and service offerings, puts you in a position to take advantage of new technologies and evolve along with the demands of your business. And it lets you do so without having to sacrifice the flexibility you so desperately need in these uncertain and rapidly changing times. Choose IBM @server™ zSeries and rest easy with the knowledge that it is designed to help you protect your business.

For more information on all IBM @server™ zSeries products, please visit the Web at **ibm.com**/servers/zSeries

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