

Business Continuity/Disaster Data Recovery

Data Protection, Backup, and Related Products and Services for the Enterprise and SOHO/SMB Sectors



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Section 1.

EXECUTIVE SUMMARY

1.1 A Necessary Market

Whether it is a mother uploading pictures of her children to a file on her personal computer, a small retailer storing information on an online ordering system, or a Fortune 100 company preserving detailed insights on thousands of customers, no one wants to lose their data.

Whatever other factors they may cite as market drivers, most vendors and users of Business Continuity/Disaster Recovery (BC/DR) products and services mention the “culture of fear” in which IT managers and other executives live, with regard to the potential for loss of data and their ensuing struggle to keep their businesses in operation in the event of a disaster.

Necessity also dictates IT managers follow government and industry directives that certain data be protected. Beginning in the 1980s, recognizing the growing reliance by enterprises on electronic data and the need for backup, storage, and security, federal agencies and industry authorizing bodies began issuing mandates requiring documented emergency preparedness, business continuity, and disaster recovery plans.

These mandates apply largely to highly regulated industries, notably financial services (with mandates from the US Treasury Department’s Office of the Comptroller of the Currency, and the interagency Federal Financial Institutions Examination Council, or FFIEC) and healthcare (e.g., the US Health Insurance Portability and Accountability Act [HIPAA], as well as standards issued by The Joint Commission, a nonprofit accrediting and certifying body).

Following the tragic events of September 11, 2001, a flurry of federal initiatives served to heighten the ever-present awareness of imminent disaster. These initiatives built upon the fear incited by the scope of those terrorist attacks and, since then, by the horrendous impact of Hurricane Katrina and other natural disasters on the national psyche.

1.2 Necessary, But...

While there is near-universal agreement about the need to save and recapture data in the face of disaster, even to the point of deeming some data as “mission critical,” not everyone acts on that need.

A consequence of the global economic recession that started in late 2008 and lingers still in 2010 is that many businesses have moved BC/DR from their “must have” to “nice to have” purchasing lists. Many potential customers of BC/DR products and services determined that they would have to get by with some type of “Band-Aid approach” to business continuity, at least until the economy picks up.

The same decision was being made at the consumer level, as even the \$50 that could purchase online backup products or services could not be accommodated within the budgets of individuals that had become unemployed due to the recession, or who were watching every penny in anticipation of losing their jobs.

1.3 The IT Response

In order to prevent data from being lost, a host of information technology companies provide hardware, software, and services that not only protect electronic data, but also allow users to retrieve it completely and in a timely fashion.

Business Continuity and Disaster Recovery products and services are very similar, but may be distinguished in this way:

- Products and services that protect the timeliness of retrieval fall under the heading of business continuity, as they permit business to proceed without interruption. For example, VMware Fault Tolerance promises “zero downtime, zero data loss continuous availability in the face of server hardware failures for any application running in a virtual machine.”
- Products and services that allow for the *completeness* of retrieval fall under the heading of disaster recovery, as they permit the restoration of business-critical data that was lost as a result of some form of disaster. For example, Carbonite offers SMB/SOHO users a software program that, once installed, performs a continuous backup of new input and changes to existing files that can be easily recovered from any online location.

This report focuses on the hardware, software and services that provide business continuity and disaster recovery. It is critical to remember that products and services are only components in the Business Continuity and Disaster Recovery Plans that determine how people will respond to disasters that threaten to interrupt business activities and disrupt private lives.

1.4 Signs of Recovery

A number of BC/DR vendors report that their sales had begun to climb in the last quarter of 2009, after having fallen quarter-to-quarter over the previous year. There is still disagreement as to the strength of the recovery and whether sales will continue to rise slowly over the next year or two, or whether they will bounce back and begin to soar again within that period. Either way, there is no doubt that the need for BC/DR products, services, and planning will continue.

1.5 A Paradigm Shift: Cloud Computing and Virtualization

In addition to the recovery of the economy, there is an increasing availability of BC/DR solutions that are actually more cost-effective than in previous years. This can be attributed to a shift taking place in the technology that is available for capturing, storing, and retrieving data. Information technology in general, and BC/DR in particular, increasingly will be positioned as a set of online services, rather than a set of products. These services will be delivered via the Internet, in what the industry has come to call Cloud Computing.

A key element within the Cloud is the use of virtualization, the replacement of physical components with virtual ones. Companies that in past years had owned dozens, hundreds, or even thousands of servers for data processing, storage, and retrieval will replace three in four of those servers with virtual storage at a remote site connected to the network; the resulting savings will be apparent in the reduced costs of equipment and software, as well as in auxiliary expenses for heating/air conditioning and for building or renting space to house this expansive collection of IT.

Within the shift to virtualization and the Cloud, competitors in the BC/DR arena are developing hardware and software products that promise faster and more comprehensive results, in terms of the ability to return a business to the point where the data flow was interrupted, with little or no gap between what was completed and what was saved.

The BC/DR market has long been characterized by a steady pattern of mergers and acquisitions. This will continue and probably intensify, as companies that have been focused on the SMB/SOHO market will be pressed by larger companies that have been serving the enterprise sector.

1.6 **The Outlook for Business Continuity/Disaster Recovery**

ABI Research projects that from 2009 to 2015, the overall Business Continuity/Disaster Recovery market will increase from \$24.3 billion to \$39.1 billion, at a CAGR of 8.23%.

Looking at the sector by category, ABI Research projects hardware revenues to grow at a CAGR of 5.11%, increasing from \$7.6 billion in 2009 to nearly \$10.3 billion in 2015. Software revenues, which totaled \$4.7 billion in 2009, will reach \$7.7 billion in 2015, growing at a CAGR of 8.58% from 2009 levels. The service segment is projected to increase from \$12 billion in 2009 to \$21.1 billion in 2015, with a CAGR of 9.86%.

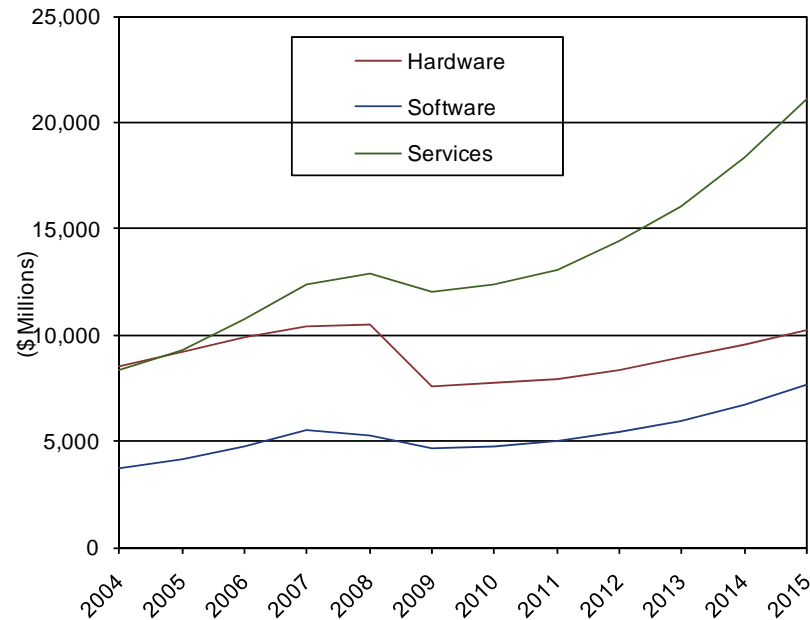
Comparing the 2004-2009 and 2009-2015 CAGRs for each BC/DR sector and the category as a whole, the growth and positive outlook of the marketplace is readily apparent.

Table 1.1 Global Business Continuity/Disaster Recovery Spending, World Market, Forecast: 2004 to 2015

Category	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)	2010	2011	2012	2013	2014	2015	CAGR (09-15)
Hardware	(\$ Millions)	8,500	9,200	9,900	10,400	10,500	7,600	-2.21%	7,750	7,900	8,400	8,950	9,600	10,250	5.11%
Software	(\$ Millions)	3,700	4,200	4,800	5,500	5,300	4,700	4.90%	4,800	5,050	5,450	5,950	6,700	7,700	8.58%
Services	(\$ Millions)	8,400	9,300	10,800	12,400	12,900	12,000	7.39%	12,400	13,100	14,400	16,100	18,400	21,100	9.86%
Total	(\$ Millions)	20,600	22,700	25,500	28,300	28,700	24,300	3.36%	24,950	26,050	28,250	31,000	34,700	39,050	8.23%

(Source: ABI Research)

Chart 1.1 Global Business Continuity/Disaster Recovery Spending, World Market, Forecast: 2004 to 2015



(Source: ABI Research)

The enterprise sector has been more advanced than the Small-Medium Business (SMB) or Small Office/Home Office (SOHO) sectors, in part due to governmental directives, but also as a result of the greater ability of large enterprises to cover the costs of BC/DR solutions, as well as large companies' greater fear of losing mission-critical data.

Enterprise BC/DR will grow from \$16.5 billion in 2009 to \$26.4 billion in 2015, demonstrating a CAGR of 8.15% over the forecast period.

Table 1.2 Enterprise Business Continuity/Disaster Recovery Spending, World Market, Forecast: 2004 to 2015

Category	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)	2010	2011	2012	2013	2014	2015	CAGR (09-15)
Enterprise BC/DR Total Spend	(\$ Millions)	12,500	14,100	16,100	18,200	18,800	16,500	5.71%	16,900	17,650	19,200	21,000	23,550	26,400	8.15%

(Source: ABI Research)

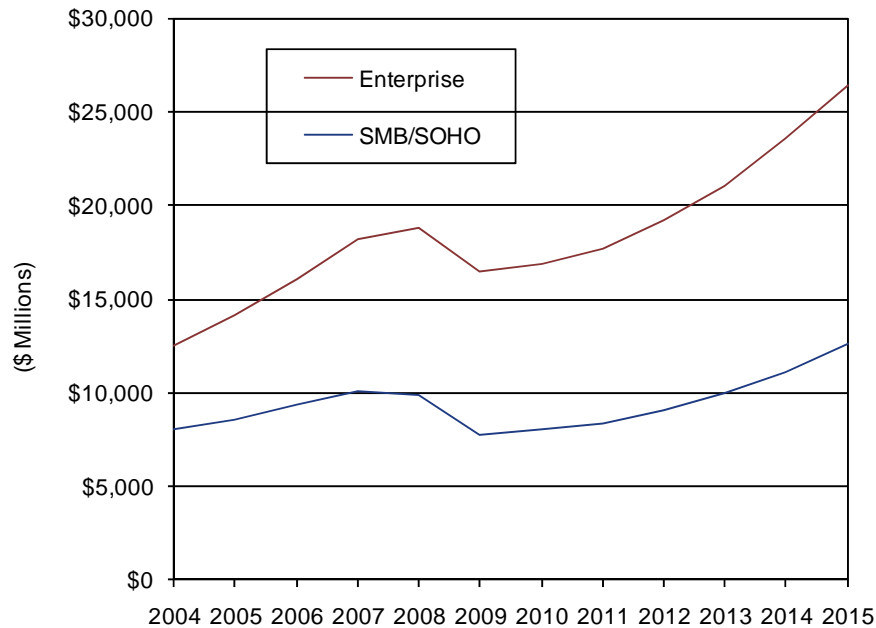
The coming years will see the SMB/SOHO arena (and the consumer market) expand its willingness to pay for BC/DR products and (especially) services. Over the forecast period, SMB/SOHO spending on BC/DR solutions will grow from \$7.8 billion in 2009 to nearly \$12.7 billion in 2014, amounting to a CAGR of 8.4%.

Table 1.3 SBM/SOHO Business Continuity/Disaster Recovery Spending, World Market, Forecast: 2004 to 2015

Category	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)	2010	2011	2012	2013	2014	2015	CAGR (09-15)
SBM/SOHO BC/DR Total Spend	(\$ Millions)	8,100	8,600	9,400	10,100	9,900	7,800	-0.75%	8,050	8,400	9,050	10,000	11,150	12,650	8.39%

(Source: ABI Research)

Chart 1.2 Business Continuity/Disaster Recovery Spending By Enterprise vs. SMB/SOHO Sectors, World Market, Forecast: 2004 to 2015



(Source: ABI Research)

Continuing growth in the utilization of Information Technologies, and the same awareness of the need for Business Continuity and Disaster Recovery solutions that has arisen in the United States and other advanced markets, will combine to spur expanded use of these solutions in all regions of the globe, especially in emerging markets like China. Helping to move that acceptance of BC/DR forward will be an increasing ability to make purchases as the global economy recovers.

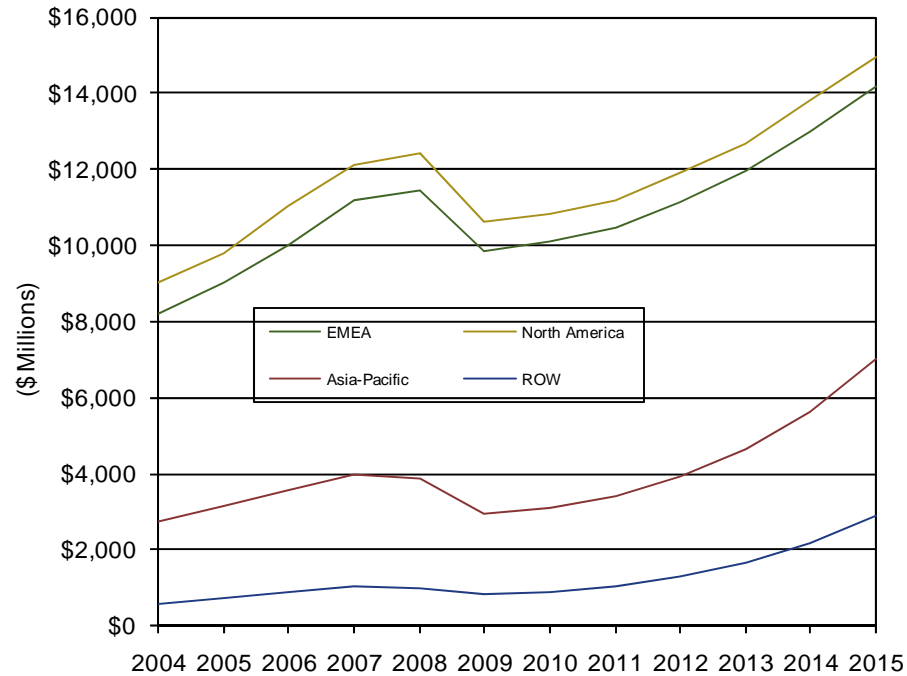
ABI Research projects that the Asia-Pacific region will grow at a CAGR of 15.4%, from \$3 billion in 2009 to \$7 billion in 2015. North America will see revenues increase from \$10.6 billion in 2009 to \$15 billion in 2015, for a CAGR of 5.9%. The Europe/Middle East/Africa (EMEA) region will see an increase in BC/DR revenues from \$9.9 billion in 2009 to \$14.2 billion in 2015, with an attendant CAGR of 6.2%. The projected CAGR for the rest of the world over the forecast period is 22.9%, as revenues will rise from \$845 million in 2009 to \$2.9 billion in 2015.

Table 1.4 Business Continuity/Disaster Recovery Spending by Major Global Region, World Market, Forecast, 2004 to 2015

Category	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)	2010	2011	2012	2013	2014	2015	CAGR (09-15)
EMEA	(\$ Millions)	8,210	9,040	10,030	11,165	11,455	9,875	3.76%	10,100	10,445	11,140	11,985	13,015	14,175	6.21%
North America	(\$ Millions)	9,050	9,800	11,025	12,130	12,400	10,615	3.24%	10,825	11,180	11,895	12,665	13,835	14,970	5.90%
Asia-Pacific	(\$ Millions)	2,750	3,130	3,575	3,975	3,855	2,965	1.52%	3,115	3,390	3,905	4,665	5,650	6,995	15.38%
ROW	(\$ Millions)	590	730	870	1,030	990	845	7.45%	910	1,035	1,310	1,685	2,200	2,910	22.89%

(Source: ABI Research)

Chart 1.3 Business Continuity/Disaster Recovery Spending by Major Global Region, World Market, Forecast: 2004 to 2015



(Source: ABI Research)

In addition, the partnering that now occurs among BC/DR providers at the high end, and between smaller BC/DR companies that look to the high-end companies to serve as distributors of their products, will evolve into mergers and acquisitions as the hardware, software, and service offerings of BC/DR providers at every level are blended into all-in-one solutions that best meet customer needs.

Section 2.

TECHNOLOGY OVERVIEW

2.1 Business Continuity and Disaster Recovery Defined

Business Continuity and Disaster Recovery are closely related, but not identical, terms. Business Continuity refers to the ability of a company to continue its operations despite an interruption, whether caused by a system failure, blackout, natural disaster, or human interference. Disaster Recovery is focused on the aftermath of some such catastrophic event, and the process of restoring systems and data that have been preserved through some method of duplication.

Business Continuity and Disaster Recovery technologies have existed apart from each other and still do, but increasingly the two are being joined together as a single solution. BC/DR includes hardware and software working together to record data generated by a company or an individual and provides it back to the data generator in the event that basic systems are interrupted or eliminated. The hardware and software can be sold or licensed to the users so that they can be responsible for maintaining their own BC/DR system or a vendor may provide the use of its own hardware and software as a BC/DR service to the end user.

2.2 Business Continuity Technologies

Business continuity is focused largely on creating back-up copies of key data; it encompasses the storage options available for protecting that data. The three main copying/storage media used are tapes, disks, and solid-state drives.

2.2.1 Storage Media Options

2.2.1.1 *Magnetic Tape*

Magnetic tape has been used for data storage dating back to the middle of the last century. Magnetic tape is made of plastic or metal (typically nickel), with a coating of a magnetizable material. Data is recorded on the coating as a series of marks that can be translated back as electric impulses.

Over the last 50-plus years, tapes have continually been improved, particularly in the area of density, allowing for greater quantities of storage per unit of tape. The first magnetic tapes used for data storage had a density of 128 characters per inch and were able to record about 7,200 characters per second. As technology evolved, moving from analog to digital recording, magnetic tapes capable of a density of 1 billion bits per square inch became standard. In 2006, scientists announced the development of new dual-layer magnetic tape that can hold nearly 7 billion bits of data per square inch.

In addition, data compression formulas built into storage hardware and software further expand tape capacity, typically doubling what can be stored.

Tapes packed in cartridges or cassettes can be stored as archives on-site for ready access, and also may be stored at off-site locations as part of a BC/DR program that anticipates the need for alternative sites in the event that a main business operations site becomes dysfunctional.

Less than a decade ago, tape was a less-expensive storage option than disk, considering costs for maintenance, storage space, and other factors, with some academic studies estimating disk storage to be three times the cost of tape storage. However, fast-paced improvements in disk storage, in terms of its flexibility, capacity, and price, have led to disks replacing tapes as the leading medium for backup and storage.

2.2.1.2 *Optical Tape*

Optical tape was developed as an alternative to both magnetic tape and optical disk, with the promise of greater storage capacity than either of those options. Data is written to a plastic medium and is read by lasers, instead of through physical contact with a magnetic head, as is the case with magnetic tape. Despite initial optimism about this storage medium, it does not appear to have achieved a commercial breakthrough to date.

2.2.1.3 *Disk Storage*

Disk storage is based around the magnetic or optical recording (or in some cases, a mix of the two) of data on disks that can be attached to the input source in a variety of ways and with a variety of proximities:

- A magnetic disk stores data in patterns on a magnetic surface, and reads them back using a magnetic reader.
- An optical disk stores information in marks etched into the surface of a disk; the information is read by laser beams that reflect the markings back to a reader.
- Magneto-optical storage combines magnetic and optical methods to write data to a magnetic surface on a disk and optical/laser technology to read the stored data.

Disk storage is rapidly replacing tape storage, as the volume of data needing storage increases along with the need for the rapid recovery of data. The costs of disk storage have dropped significantly in the last few years, taking away the key advantage of tape. In addition, disk storage provides random access rather than the slower linear access associated with tape, so the user can access specific bits of data without having to scroll through all material stored on a tape. However, for long-term archival storage where access is not an important issue, tape is still seen as having a cost advantage, especially in terms of maintenance-related costs.

2.2.1.4 *Solid State Drives*

Solid state drives use integrated circuits built with semiconductor memory chips to store information. Each chip contains millions of tiny transistors or capacitors. As a medium for data storage, solid-state devices are faster and more reliable than disks, tapes, and optical disks, but they are also more expensive, limiting their use to small-scale storage, such as external hard drives and memory sticks, rather than the massive storage capacities associated with tapes and disks used for full backups.

2.2.2 *Data Storage Configurations*

2.2.2.1 *Direct Attached Storage*

As it sounds, this simply refers to a storage device that is attached directly to a workstation or server, and usually is accessible only by that workstation or server. Users download data to the storage device. Direct Attached Storage (DAS) includes products as simple as a USB flash drive for the workstation; server solutions may include direct storage within a server or external to the server and connected through a non-networked interface.

2.2.2.2 *Storage Area Network:*

A Storage Area Network (SAN) is a high-speed network of computer storage devices (which may include tape drives, as well as disk drives) that is connected to computers on a network in such a way that they appear to be locally attached to each computer's operating system. The actual data storage devices may be local, or they may be in remote locations (which may be preferred for backup and archival storage).

The SAN architecture is more commonly found in large enterprises rather than small or medium businesses because they are typically made up of large numbers of multiple disk drives. SANs provides access at a very basic, "raw" level, leaving it to other systems on the network to manage the network's data or file systems so that users can retrieve specific files.

2.2.2.3 *Network-Attached Storage*

Network-Attached Storage (NAS) is hard-disk-based data storage attached to a network with its own network address, which allows computers to access stored data at the file level over a LAN, WAN, or over the Internet (in the case of online file storage). This allows computers and servers to run faster, since their processors are not being used for storage applications. The use of NAS via the Internet is becoming increasingly popular under the general label of "Cloud Computing," discussed below.

2.2.2.4 *RAID*

NAS systems typically contain one or more hard disk drives arranged in redundant storage containers termed RAID arrays. RAID stands for "redundant arrays of independent disks," although originally the "I" stood for "inexpensive" rather than independent. The change was made so that RAID would not sound "cheap" and thus of no value.

RAID provides redundancy for data storage by storing the same data in different places, and can be seen as a point at which Business Continuity connects with Disaster Recovery with methodologies that maximize backup while minimizing downtime. RAID spreads data storage across multiple disk drives, rather than limiting back up to a single disk, although the network's operating system reads the multiple storage devices as a single source. RAID technology uses four back-up methodologies:

- Mirroring backs up data simultaneously to separate hard drives or drive arrays, allowing for minimal downtime and a simplified data recovery process. However, because data is being recorded simultaneously to multiple drives, the impact may slow the system's performance.
- Shadowing and mirroring are often used interchangeably, but they are different. Mirrored storage is synchronous, with two storage devices saving exactly the same data at the same time. Shadowed storage refers to a slight lag in time between the storage at the point of production and the update to the remote storage unit.
- Striping breaks data into pieces which are distributed across all backup drives. As a result, the impact on system performance is lessened.
- Parity, usually used along with striping, provides an additional layer of duplication that offers a lower fault tolerance than mirroring. As data is stored across the drives, an extra "parity" drive backs up all the data.

There are nine RAID levels, with each level providing a different configuration of drives and methodologies. Levels RAID-1 and RAID-5 are reportedly the most popular levels for data redundancy. Some RAID levels support "hot swapping," allowing drives to be replaced while the system is operating without the need to shut the system down, even for a short period. This is especially important to companies that require their data to be at a "high availability" level.

2.2.2.5 *Clustering*

Clustering is the practice of backing primary servers with secondary servers that can automatically take over an application's workload without the intervention of personnel. Clusters are typically limited to local configurations, with a maximum of about 30 miles or so between primary and secondary sites. At a greater distance, there would be data gaps between the servers should the primary servers fail.

Clustering is positioned by some IT marketers as a Business Continuity solution, since it minimizes application downtime. In addition, some marketers state that clustering also allows for the testing of Disaster Recovery plans without disrupting operations. Virtualized clustering is also positioned as a Business Continuity solution.

2.2.2.6 *Virtual Tape Library*

A virtual tape library (VTL) is a data storage system in which hard disk storage is made to appear as tape storage through the use of "virtualization" software so that storage can interact with existing backup software in legacy systems. By backing up data to disks instead of tapes, VTL can increase the speed and capacity of BC/DR operations.

2.2.2.7 *Electronic Vaulting*

Electronic vaulting, also referred to as e-vaulting, simply means that data has been duplicated within a network from its primary or source location to a secure backup location, rather than having been moved physically. The backup location can be either tape- or disk-based.

2.2.2.8 *Journaling*

Journaling is an internal process in an electronic file system by which a record of changes is constantly being updated. Journaling actually records a change before the change is actually implemented on the user's file. In the event of a system failure, the journal provides the data – even unsaved data – needed for restoration to the point in time at which the failure occurred.

2.2.2.9 *Replication*

Replication refers to the copying and distribution of data from a database to one or more other databases, with a secondary result of synchronizing the databases so that the data remains identical from one to the other. Automatic and constant, replication reduces the chance of losing data that can occur with more random forms of data backup.

Replication is an essential element in online sales and other Internet-based services in which vendors cannot afford to lose a moment of communication that might contain details of an exchange.

2.2.2.9.1 *Snapshot Replication*

Snapshot replication is a method for saving data that is substantial in size but infrequently updated. Examples of data that lends itself to snapshot replication include price lists and online catalogs.

Snapshot data is typically read-only. Two advanced forms of snapshot replication are transactional (in which changes are made to a database on a periodic basis) and merge replication (in which both the creator of the database, as its 'publisher,' and the end-user, as the 'subscriber,' can make changes to the database).

2.2.2.10 *Continuous Data Protection*

Continuous data protection (CDP), also called continuous backup, is a storage system in which all the data in an enterprise is backed up every time a change is made in the original materials. Every time a user saves his/her data locally, it also is saved to the data backup in real time. If data loss occurs from human error, virus corruption or disk failure, a CDP platform can restore any number of protected files to any moment in time delineated in the transaction journal (the record automatically kept of each change made to the database). The process is usually termed true-CDP and it offers unparalleled granularity for data recovery. Restoration is quick because content is recovered directly from disk.

This type of “true” CDP must be distinguished from “near-CDP” which makes frequent, rather than continuous, backup files. A near-CDP system might only initiate a backup on an hourly basis, meaning that an hour’s worth of data updates could be lost if an error were to occur just before the next backup takes place.

CDP is a combined hardware and software solution. In some instances CDP software is installed and configured on an existing host server using existing disk storage resources. In other instances a new CDP system is installed that includes both new hardware and software.

2.2.2.10.1 *High Availability*

High availability refers to the need of a company to have its IT assets available as close to 100% of the time as possible. At its most effective, it equates to no more than a few minutes of downtime in a year. The goal of CDP is to provide high availability to users.

2.2.3 **Business Continuity and Disaster Recovery Software**

Business Continuity and Disaster Recovery software products focus on restoring data as completely and swiftly as possible, performing tasks that include sorting the data among backup devices and identifying the point at which recovery should begin in the event of a disaster. BC/DR software captures changes as they are input to files and replicates those changes to backup servers, switching between those servers so that the user can keep working without interruption should the primary server be disabled. The software typically provides continuous data replication, as well as replication of applications and operating systems.

An example of BC/DR software is Acronis Backup & Recovery 10 Agent for Windows, a software product that offers “disk-level data protection based on backing up either the disk or volume file system as a whole.” It also includes the information necessary for the operating system to boot. Users can recover disks or volumes as a whole, as well as individual folders or files. The file-level data protection allows the user to recover all files and folders that were backed up, or to select which of them to recover. In addition, the software allows the user to recover the selected backup to a new virtual machine for storage or immediate use.

The Acronis software’s backup and recover features include

- Compression to optimize storage space
- Exclusion of non-essential files and folders from backup files during backup, in order to save storage space and time
- Dual destination backup, which stores backups into two different locations — to a local disk and to a network drive
- Splitting backups into volumes to fit media automatically or manually
- A recovery manager to ensure system will reboot

- “Bare-metal restore” option that restores an exact copy of all software and files on a user’s computer to a new hard drive from scratch, in the event of a hard disk failure
- Backup management templates for backup rotation schemes
- Operational overview of the backup and restore processes on a single screen
- Password-protection
- Encrypted backup images

2.2.4 Business Continuity Planning Software

Business continuity software includes products that are focused on business continuity planning, as well as products that focus on business continuity activities. These products:

- Analyze the potential for, and potential impact of, disasters. An example is RecoveryPlanner.com’s RPX software, which can “identify risks that may affect your business and rank them by probability and impact.”
- Offer contingency planning and incident management programs. Disaster Recovery System (DRS) software from TAMP allows users to “manage and roll up documents, spreadsheets, inventory lists, graphics, and flowcharts into one plan.”
- Test continuity plans with simulated disasters. The Global AlertLink Business Continuity planning software allows users to create an “unlimited number of scenarios by department, location, or business unit.”
- Assess risks. The EverGreen Mitigator software measures “operational resiliency for each critical business application and its IT infrastructure.”
- Provide communication plans, as does the Phoenix 2009 software from KingsBridge Disaster Recovery.

2.2.4.1 *Online Backup Software*

SMB/SOHO businesses and individual computer users can take advantage of online backup services that install a small application on their computers; this software automatically copies new files and updates existing files as they change. Data is uploaded to secure remote locations and can be retrieved from any online computer in the event of a disaster disabling the main server. Crucial files can be restored in minutes, and complete data restoration can be completed in a relatively short period of hours or days, depending on the volume of data. Such online backup services are available from Carbonite, Mozy (a division of EMS), and under Symantec’s Norton brand, among others.

2.2.4.2 *Data Deduplication Software*

Data deduplication software removes duplicates of file copies and replaces them with instructions that take the user back to the original copy. Deduplication serves to free up storage space and reduce traffic.

2.3 Business Continuity/Disaster Recovery Services

Companies that provide BC/DR hardware and software often provide services as well, which can range from BD/DR planning to the complete management of BC/DR activities on an outsourced basis.

A leading example would be AdvancedHosting from SunGard Availability Services, which offers a “full range of collocation, managed collocation, and fully managed hosting solutions.” SunGard notes that AdvancedHosting is backed by SunGard’s “own ironclad infrastructure, IT

professionals with deep expertise, and more than 30 years of collective experience. So, your back-up systems, networks, virtual servers, e-mail, web operations or security can all be managed in our highly available environment.”

Whatever the degree of service provided, as BC/DR increasingly becomes a part of cloud computing and virtualization of storage becomes the norm, the need to have product vendors serve as managers of a company’s BC/DR planning and activities may increase, reflecting a decrease in on-staff IT personnel who could seem redundant as IT-as-a-Service becomes the more-common—and less-expensive—mode of satisfying information technology needs

2.4 Integrated BC/DR Solutions

Increasingly, BC/DR hardware and software vendors are working together to provide integrated BC/DR solutions in which continuity and recovery are joined with hardware, software, and services into a single offering that is referred to as a solution.

For example, NetApp, Cisco, and VMware have joined forces to produce a “Secure Multi-tenancy Design Architecture that provides enhanced security in cloud environments by isolating the information technology (IT) resources and applications of different clients, business units, or departments that share a common IT infrastructure.” The solution features NetApp’s storage and storage system software, VMware-virtualized servers, and Cisco’s Nexus storage.

This type of collaboration is increasing, but it is not brand new. For example, as far back as 2002, Citrix and EMC formed a strategic alliance to provide business continuity solutions.

2.5 Technology Drivers: Cloud Computing and Virtualization

2.5.1 Cloud Computing

Cloud computing is not a new technology, but rather a way of conceptualizing information technology as a series of services rather than products, for example as software as a service (SaaS). Users access applications or stored data via a web-based interface, rather than utilizing locally stored software or files.

Accessing software online has been available for several years. What is new is positioning cloud computing as a paradigm shift: a new way of understanding how online services represent a new phase of information technology. The cloud is about the commoditization of services, allowing users to buy what they need when they need it, and leading vendors increasingly will compete on price.

To a large degree, the cloud computing concept evolved organically as individuals and businesses used the Internet as a virtual store, a virtual meeting place, and increasingly as a virtual storage device. In recent years, however, manufacturers of IT products – both hardware and software – began a discussion promoting the idea that the cloud was a new concept.

In terms of BC/DR, the cloud allows users to download backup and recovery software to their computers that will create a virtual desktop and storage system at the vendor’s site or in cyberspace (i.e., the cloud) from which their data can be retrieved in the event of a disaster. Conversely, vendors can service applications or data in the cloud.

2.5.2 Private Cloud Computing

Users increasingly have the option of having vendors set up a “private cloud,” which follows the form of the public cloud in that IT support, applications, data, etc., are available as services, but from within a private network rather than over the Internet. Limited to the user and guests, the

private cloud is more secure, but it is questionable as to whether that security is worth the bother, since options within the private cloud are obviously rather limited as compared to the wide-open spaces offered by the public cloud.

While this is still evolving, vendors anticipate that the private cloud can be customized to users' specific IT needs. In addition, the private cloud will likely be managed internally, rather than depending on the vendor to provide services.

2.5.3 **Virtualization**

Virtualization refers to the transformation of a single physical server into multiple "virtual" servers, with each "virtual" device functioning as a completely independent entity. The goal of virtualization is to simplify user interaction with any of the individualized entities, while at the same time increasing capacities.

Storage virtualization differs from server virtualization in that physical storage from multiple network storage devices appear to be transformed into a single storage device that can be managed from a central server.

In simplest terms, virtualization serves BC/DR needs by replacing physical storage devices previously on a user's site with a remote storage space that is accessed through the Internet. The remote storage space is certainly a physical entity, but because it exists in cyberspace—the cloud—rather than in the physical world of the end user, it is virtual. Because the cloud and virtualization offer users dramatic savings, they have become a focal point of IT development.

Virtual storage has rapidly advanced in the last few years, going beyond record storage to include network applications and operating systems that can be centrally managed. Working together, software and hardware manufacturers have created virtual storage that can be expanded without interrupting the ongoing work of the network, i.e., without the user having to shut down.

In terms of BC/DR, virtualization has been oriented more toward disaster recovery than business continuity, focusing on capturing data up to the time of disruption rather than keeping systems going in the face of a disruption. New products are coming from leading companies like VMware that are increasingly focused on business continuity, improving the synchronicity of onsite and remote servers so that the latter can take over for the former in the instance of a disruption at the main site. Nevertheless, for the present the suite of tools involved in virtualization software is still more focused on disaster recovery.

Section 3.

BUSINESS AND REGULATORY ISSUES

3.1 **Market Background**

Beginning in the 1980s, recognizing the growing reliance by enterprises on electronic data and the need for backup, storage, and security, US federal agencies and industry authorizing bodies began issuing mandates requiring documented emergency preparedness, business continuity, and disaster recovery plans. These mandates applied largely to highly regulated industries, notably financial services (with mandates from the US Office of the Comptroller of the Currency and the Federal Financial Institutions Examination Council, or FFIEC) and healthcare (e.g., Health Insurance Portability and Accountability Act and The Joint Commission, a nonprofit accrediting and certifying body).

Meanwhile, Bill Gates' vision of "a computer on every desk and in every home" was coming to fruition, and enterprises and individuals became increasingly dependent on technology for their livelihoods and to enrich their personal lives. With the advent of the Internet, the need for 24/7/365 "uptime" became a competitive necessity. Online retailers in particular faced significant loss of customers and revenue if their websites went down. In addition, it became increasingly critical to protect credit card data and other sensitive information.

What turned the budding BC/DR industry into a burgeoning one was the emergent "culture of fear" fueled by catastrophic events, or the threat of them: examples include the dreaded Y2K bug, 9/11, Hurricane Katrina, blackouts, civil wars, pandemics, and cyber crime. Even climate change contributed to an overall anxiety about weather becoming even more unpredictable than ever.

Table 3.1 and Figure 3.1 provide details about the contingency plans and their relationships, within which BC/DR IT solutions operate.

Table 3.1 Types of Information Systems Business Continuity/Disaster Recovery Contingency Plans

Plan	Purpose	Scope	Plan Relationship
Business Continuity Plan (BCP)	Provides procedures for sustaining business operations while recovering from a significant disruption.	Addresses business processes at a lower or expanded level from COOP mission-essential functions	Functional continuity plan that may be activated with a COOP to sustain non-critical functions.
Continuity of Operations (COOP) Plan	Provides procedures and guidance to sustain an organization's mission-essential functions at an alternate site for up to 30 days; mandated by federal directives.	Addresses the mission-essential functions; facility-based plan; information systems are addressed based only on their support to the mission-essential functions.	Functional continuity plan that may also activate several business unit-level BCPs.
Crisis Communications Plan	Provides procedures for disseminating internal and external communications; means to provide critical status information and control rumors.	Addresses communications with personnel and the public; not information-system focused.	Incident-based plan often activated with a COOP or BCP, but may be used alone during a public exposure event.
Critical Infrastructure Protection (CIP) Plan	Provides policies and procedures for protection of national critical infrastructure components, as defined in the National Infrastructure Protection Plan.	Addresses critical infrastructure components that are supported or operated by an agency or organization.	Pre-incident-based risk management plan that supports COOP plans for organizations with CI/KR assets.
Cyber Incident Response Plan	Provides procedures for mitigating and correcting a system cyber attack, such as a virus, worm, or Trojan Horse.	Addresses mitigation and isolation of affected systems, cleanup, and minimizing loss of information.	System contingency plan that may activate an ISCP or DRP, depending on the extent of the attack.
Disaster Recovery Plan (DRP)	Provides procedures for relocating information systems operations to an alternate location.	Activated after major system disruptions with long-term effects.	System contingency plan that activates one or more ISCPs for recovery of individual systems.
Information System Contingency Plan (ISCP)	Provides procedures and capabilities for recovering an information system.	Location-independent plan that focuses on the procedures needed to recover a system at the current or an alternate location.	System contingency-based plan that may be activated with a DRP or on its own if relocation is not required.
Occupant Emergency Plan (OEP)	Provides coordinated procedures for minimizing loss of life or injury and protecting property damage in response to a physical threat.	Focuses on personnel and property particular to the specific facility; not business process or information system-based.	Incident-based plan that is initiated immediately after an event, preceding a COOP or DRP activation.

Source: National Institute of Standards and Technology, *Contingency Planning Guide for Federal Information Systems (Draft)*, October 2009

The figure below demonstrates the interrelationship of the different types of information systems contingency plans explained above.

Figure 3.1 Contingency-Related Plan Relationships



Source: National Institute of Standards and Technology, *Contingency Planning Guide for Federal Information Systems (Draft)*, October 2009

3.1.1 Federal Action

Following the tragic events of September 11, 2001, a flurry of US federal initiatives served both to heighten the ever-present awareness of imminent disaster and to offer guidelines and requirements for preparing for the worst potential events.

These included the Critical Infrastructures Protection Act of 2001, which sought to protect "systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health and safety, or any combination of those matters."

The US Department of Homeland Security (DHS) was formed to "prevent terrorist attacks within the United States; reduce the vulnerability of the United States to terrorism; and minimize the damage, and assist in the recovery, from terrorist attacks that do occur within the United States." In 2004, DHS established a Cyber Security R&D Center with the mission of developing "security technology for protection of the US cyber infrastructure" through "partnerships between government and private industry, the venture capital community, and the research community."

The Federal Emergency Management Agency (which proved ill-equipped in the wake of Hurricane Katrina, eliciting further anxiety) prefaces its Emergency Management Guide for Business & Industry with the following scenarios: "A hurricane blasts through South Florida causing more than \$25 billion in damages. A fire at a food processing plant results in 25 deaths, a company out of business and a small town devastated. A blizzard shuts down much of the East Coast for days. More than 150 lives are lost and millions of dollars in damages incurred." The Guide features a checklist of 45 potential emergencies, along with "step-by-step advice on how to create and maintain a comprehensive emergency management program" for "manufacturers, corporate offices, retailers, utilities, or any organization where a sizable number of people work or gather."

In its Business Continuity Planning booklet, the US Federal Financial Institutions Examination Council reminds users, "Changes in business processes and technology, increased terrorism concerns, recent catastrophic natural disasters, and the threat of a pandemic have focused even greater attention on the need for effective business continuity planning." The booklet was issued to provide "guidance to assist examiners in evaluating financial institution and service provider risk management processes to ensure the availability of critical financial services."

"In light of the new risks posed by the post-September 11 environment," the US Federal Reserve Board, Securities and Exchange Commission, and Office of the Comptroller of the Currency published a paper identifying Sound Practices to Strengthen the Resilience of the US Financial System. The document stresses that "The business continuity planning process should take into consideration improvements in technology and business processes supporting back-up arrangements and the need to ensure greater resilience in the event of a wide-scale disruption... The agencies expect that, as technology and business processes supporting back-up arrangements continue to improve and become increasingly cost effective, firms will take advantage of these developments to increase the geographic diversification of their back-up sites."

The Joint Commission's current Information Management standards require healthcare organizations to have BC/DR plans that "identify the most critical information needs for patient care, treatment, and services and business processes, and the impact on the hospital if these information systems were severely interrupted. The plan identifies alternative means for processing data, providing for recovery of data, and returning to normal operations as soon as possible."

3.2 Impact of the Global Economic Downturn

The global recession of recent years had a crushing impact on the BC/DR market. ABI Research estimates that across the span of BC/DR hardware, software, and service providers, revenues were down around the world by approximately 15% from 2008 to 2009.

The strength of the recovery has varied considerably around the world, just as the impact of the recession varied. While the economic issues of the recession have been pretty much the same everywhere, how different countries have dealt with them makes for differences in their recoveries. For instance, in Germany, substantial stimulus initiatives have supported BC/DR spending by local governments as well as in the healthcare, financial services, and education sectors. Similarly, government subsidies in Singapore have funded the implementation of such programs, often contributing as much as 75% to 80% of BC/DR planning costs.

3.2.1 Enterprise vs. SOHO/SMB Sectors

Despite the continuing success of some companies such as Carbonite in the SMB sector, the impact of the recession has been more severe for BC/DR sales to the SMB segment than to enterprise-level businesses.

Many smaller companies under financial pressure from the recession simply did not have the cash to spend and decided that BC/DR was in the non-essential, rather than essential, category. Still, costs remain a factor at the enterprise level as well, where budget concerns are just as real as they are for companies in the SMB sector. Despite being aware of the need for BC/DR, managers often have to make it a lower priority, because of other needs that come first.

Nevertheless, enterprises were advancing in their BC/DR efforts. In fact, the impact of the recession may be misleading; while revenues were down, shipments of BC/DR products were up. The drop in revenue reflected, in part, falling prices resulting from technology advances that make the latest storage solutions less expensive than earlier technologies, rather than prices discounted in order to make sales.

3.3 Market Drivers

3.3.1 The Fear Factor

Whatever other factors are driving the market, primary among them is the “culture of fear” in which IT managers and other executives operate, with regard to the potential for loss of data and the ability to keep their businesses in operation in the event of a disaster. That fear of data loss spiked after both 9/11 and Hurricane Katrina, and though down from those peaks, news of earthquakes, terrorist threats, and other disasters still drives a substantial portion of BC/DR sales.

In the interest of maximum security, even enterprises with established BC/DR programs are investing in additional data centers for backup and upgrading to the latest technologies to shield them from multiple disaster scenarios.

3.3.1.1 *Geographies of Fear*

Concerns about downtime and disasters drive consumers and enterprises all over the globe, but certain geographical distinctions have been observed by BC/DR vendors.

For example, within the United States, people who are not located in a disaster-prone area (like California, periodically the site of earthquakes) or an area where disaster has occurred (e.g., New Orleans, southern Florida) are less likely to be worried about disaster-related data losses, and so are less likely to act to prevent them.

International organizations generally are more apprehensive about data backup failures than those in the United States. Companies in the Far East in particular are more driven by fear of disasters such as tsunami and earthquakes, having experienced them.

3.3.2 Competitive Advantage

On the other hand, compliance with regulations and standards is a positive driver in this market, as BC/DR increasingly is recognized as a matter of competitive necessity. Companies need to assure their customers and business partners that they will be able to continue providing products and services in the event of a disaster, or those customers will take their business elsewhere.

That need is increasingly becoming universal, as customers in China are becoming as sophisticated and demanding as customers in the United States, and companies increasingly will be held to the standard of being able to access information 24 hours a day, seven days a week, 365 days a year.

At the same time, businesses are becoming increasingly aware that the implementation of BC/DR technologies can save them money, through the increased efficiency of their hardware and other savings in energy and space requirements.

3.3.3 **Appreciation Supplanting Apprehension**

While the ever-present fear of losing data may remain the single most compelling motivator for BC/DR purchases, more customers are recognizing the appeal of BC/DR solutions on their own merits. In addition to the competitive advantage noted above, factors supporting the growth of this sector include:

- Easier to use—and understand—technology via virtualization and cloud computing
- A consumer base that is increasingly tech savvy, better educated on technology, and more aware of the value of digital assets
- More advertising is creating greater awareness of BC/DR solutions
- Pricing continues to drop
- Improved ROI (as pricing drops and the service remains the same or improves, ROI soars)

3.3.4 **Ramped-up Regulation?**

Regulatory compliance will be a major force for future growth, especially for the more highly regulated industries, such as healthcare and financial services. In other industries, it is likely that there will be greater calls for regulations requiring BC/DR plans to be put in place, and that they be tested on a regular basis.

Europe is more compliance-driven than the United States in terms of Business Continuity and Disaster Recovery, but compliance with emerging standards and regulations is gaining importance as a market driver in the United States.

3.3.4.1 ***The Role of Compliance***

While some see compliance with regulations and standards as a driving force in the market to come, historically this has not been the case. The importance of compliance depends on the industry, with HIPAA and Sarbanes-Oxley as examples of regulations that do not allow companies to backslide. Both require risk management and auditing initiatives.

The Health Insurance Portability and Accountability Act (HIPAA), enacted in 2001, requires health plans, providers who conduct electronic transactions, and other covered entities to implement administrative, technical, and physical safeguards to protect patients' health information. Among these safeguards is a contingency plan detailing policies, procedures, and processes for responding to a disaster or emergency that damages information systems.

The Sarbanes-Oxley Act of 2002, implemented in response to the Enron, WorldCom, and other corporate scandals, contains provisions affecting the corporate governance, auditing, and financial reporting of public companies, including provisions intended to deter and punish corporate accounting fraud and corruption. In addition, notes FFIEC, all financial institutions are required to establish a comprehensive BCP regardless of whether they process their work internally or outsource their processing to a service provider.

Regulation can be vague (Sarbanes-Oxley doesn't clearly define "corporate governance," for instance) and compliance with BC/DR standards is often voluntary, as in FEMA's DHS Voluntary Private Sector Preparedness Accreditation and Certification Program (PS-Prep) and guidelines developed by the Business Continuity Institute, American Society for Industrial Security/British Standards Institution, and Disaster Recovery Institute International, among other certifying bodies.

3.3.5 Technology Becomes Ever User-Friendlier

BC/DR products and services are becoming less expensive and easier to use. In part, this is due to the integration of BC/DR into larger IT systems (which themselves are coming down in cost). As the economic recovery goes forward, more and more companies will re-architect from legacy systems to newer technologies in which BC/DR will be included. In addition, as cloud computing becomes more common, enabling the offering of IT as a service (ITaaS), the responsibility for BC/DR increasingly will be outsourced to large service providers.

There is a tremendous amount of interest in SaaS and cloud storage solutions today. The fundamental issues – the explosion of data and the heightened requirements when it comes to protecting that data – continue, while IT budgets and staffs shrink. Any way that the issues can be addressed through a “pay-as-you-go” approach is attractive to customers.

The increasing number of offsite workers and sales people working from their laptops on the road is another factor making outsourced BC/DR increasingly attractive. Virtualization is a game changer. It makes everything about the tech side of BC/DR easier and cheaper to do.

In addition, as a standardization of the infrastructure evolves, it will become easier for companies to swap out their vendors. This is the commoditization of BC/DR.

Just as ease of use will be the technology element that attracts customers who want to outsource their IT, enterprises and a portion of the SMB market will appreciate the increased availability of feature-rich products, more varieties, more resilience, and retention options.

The enterprise segment is reaching a tipping point in its demand for BC/DR because of the overall improvement in the technology. In addition, younger, more tech-savvy consumers in both enterprises and SMBs want granularity.

BC/DR solutions marketers are not leaving the discovery of the virtues of virtualization to chance. Companies like Carbonite and Mozy have achieved leadership in offering BC/DR in an SaaS format to the SMB/SOHO segment in good part through their investment in tens of millions of dollars in advertising.

Companies focused further up the enterprise scale, such as NetApp, are going through rebranding efforts to establish their names and make their offerings known to a wider audience through advertising in trade publications and other venues. In addition, NetApp has been testing new descriptors with focus groups that move away from the segmentation of applications into categories like ‘Business Continuity’ and ‘Disaster Recovery,’ into an all-encompassing description such as ‘data protection.’ The new effort will be more customer-focused, centering on what the company can do for the customer, rather than on the technological aspects of its offerings.

The increased use of advertising is a change from the previous “word-of-mouth educational process,” in which peers tell each other about what they are doing in BC/DR.

3.3.6 Untapped Markets

Companies in the BC/DR arena are looking internationally for future growth, and most agree that China holds the greatest promise, with its 340 million Internet users, ubiquitous broadband, and economic growth of 10% per year.

Some also are looking to South America, which has offered little opportunity for BC/DR vendors to date. However, there is a sense in the industry that the markets of South America – Brazil and Chile in particular – are about to enter a period of strong growth favorable to BC/DR vendors.

In the Asia-Pacific region, some vendors mention opportunities that are emerging in Japan, while others are looking to India and Russia for growth. Other potential hot spots for strong future growth discussed in industry circles include Singapore and Nigeria.

3.4 Factors That May Slow Future Growth

It is still unclear, as of February 2010, how quickly a full economic recovery will arrive. Although most companies in this field were optimistic that the recovery was under way, there was the suggestion that if the economy drags, then the negative impact on the development of the BC/DR market will be significant, especially at the low end of the SMB/SOHO market.

Even as the economy does begin to grow again, the increase of BC/DR revenues may be retarded as the delivery of BC/DR as a service within "the cloud" expands. As noted above, this will tend to "commoditize" the market, with vendors increasingly competing on price.

Further, spending on BC/DR will go down as the products and services are bundled into broader IT virtualized solutions. It will become increasingly common to see BC/DR software bundled with virus protection and other applications, resulting in a reduction of revenues as prices come down for the broader software packages. While this is a plus for the buyer, it does imply smaller revenues recognized for BC/DR as a unique category of hardware, software, and services.

Additional factors that could impede growth include:

- The SMB segment of the US market is seeing a decline in entrepreneurship. Small business growth depends on entrepreneurs who create new products and innovations that people want. However, students today who might have been entrepreneurs in previous generations are increasingly going to Wall Street and banks and large enterprises.
- In addition, foreign students finishing their education in the United States are going home to become entrepreneurs in their own countries, instead of staying in the United States as in years past.

Finally, as small/medium businesses move to virtualization technologies they are, in essence, putting all their eggs in one basket and creating a circumstance in which there is more of a chance for a total breakdown than with older, less integrated systems. This increases the need for BC/DR solutions, but also creates a situation in which they may not be available.

3.5 Barriers to Growth

3.5.1 Continued Cost Concerns

Although aware of the need for BC/DR, many companies continue to put off any significant investment in this area because they do not want to – or cannot – deal with the costs.

Their alternatives include minimalist options, such as having the company receptionist take the backup tapes home at the end of the week and store them in her basement, or doing nothing at all – the "crossing your fingers" or "hope nothing bad happens" strategy.

In a tight economy, smaller SMBs working on razor-thin margins feel that they simply cannot implement a BC/DR solution because the thousands of dollars for hardware, software, and licensing fees that are part of the initial implementation cost, and the thousands more required to maintain such a system on an ongoing basis, may be too much to bear. Smaller companies tend to compromise by choosing "low cost" or "good enough" BC/DR solutions as a means of controlling costs.

3.5.2 **Aversion to New Technologies**

As BC/DR is increasingly incorporated into larger solutions, the growth of the category becomes dependent on the acceptance of new technologies. There is a lack of awareness or confusion about new products and about “the cloud,” which results in a reluctance to become involved.

For example, despite the significant savings generated by virtualization, customers are still risk-averse about migrating to such new technologies. Potential users of virtualization, or related services, will want to be sure their web host will always be available before they commit to the new technology.

Vendors need to simplify their offerings and provide customers the broadest possible response in order to reduce the complexity that could be a challenge to the acceptance of new technologies.

Section 4.

MARKET OUTLOOK

4.1 Forecast Methodology

Below are some general comments about the sources and processes involved in conducting the research and generating the data used in this study. The step-by-step process used to develop the forecasts presented in the report is also described.

4.1.1 Primary and Secondary Sources of Information

The overall methodology used for this study relied on a combination of primary and secondary research. With regard to forecasts, ABI Research analyzed data points from a multitude of sources, including interviews with people in the following positions in Business Continuity/Disaster Recovery vendors, service providers, and clients:

- Chief Executive Officers and company founders
- Chief Marketing Officers
- Directors of Business Continuity Solutions, and of Data Protection Solutions Market Groups
- Business Development executives
- Product Marketing managers
- Product managers
- Replication/Technology specialists
- IT Analyst Relations managers

ABI Research also conducted secondary research using our own internal databases, government databases, reports and regulatory/legislative pronouncements, vendor product data sheets, white papers, press releases, trade journals, industry organization presentation materials, syndicated opinion pieces, vendor and NGO corporate presentations, audit reports provided by environmental engineering firms, data from financial and commodity market exchanges, and commentary from social networking websites.

The total BC/DR market revenue figure was derived through discussions with key BC/DR vendors and an analysis of publicly available financial documents and presentations. It factors in an estimate of the relative size in the market of key vendors for which financial data is available.

4.1.2 Forecast Segmentation

ABI Research segments Business Continuity/Disaster Recovery revenue forecasts into the following categories:

Region:

- North America (United States and Canada)
- Europe, the Middle East, and Africa (EMEA)
- Asia-Pacific
- Rest of World (ROW)

The regional breakout was derived from examining the regional revenue split of the leading BC/DR vendors in the market and estimating their shares of the overall market.

ABI Research has segmented the market, in terms of Size of Business, as follows:

- Enterprise
- Small-Medium Businesses, Small Office/Home Office

For the purposes of this study, ABI Research defines an Enterprise as a business with more than 500 employees, and Small-Medium Businesses (SMB) and Small Office/Home Office (SOHO) businesses as those with 500 or fewer employees.

The breakout of the market by size of business was derived from data gathered by the US Census and the European Union. Although the US Census does not officially recognize an “enterprise” level of business, it does break out the number of enterprises in that country in terms of employee counts of 20+, 100+, and 500+. The European Commission in recent years has sought to synchronize the different definitions of enterprise size used by its member nations, and appears to have settled on that 500-employee figure as the top count for a medium-sized business.

The market is also segmented into Categories:

- Hardware – This primarily comprises storage equipment – including tapes and disks – that are largely intended to support backup, network-efficient disaster recovery and remote office data protection, as well as customer high availability needs. Hardware for long-term archiving and the support of content management applications is not included.
- Software – This primarily comprises software for BC/DR planning, online backup software, and software for replication, deduplication, remote office data protection, integration between storage systems and backup software, etc.
- Services – This includes BC/DR planning, design of systems and solutions, and ongoing maintenance and support. Services are provided as both support to in-house staff and as an outsourcing of some or all BC/DR responsibilities to a third party.

The breakout of the market by category was derived primarily from our interviews with industry participants, who shared their estimates of sales of hardware and software used for business continuity and disaster recovery purposes, as well as their estimates of market shares by company within each category. That data was compared with revenue data from public companies in the sector, including IBM, EMC, NetApp, Symantec, etc.

BC/DR software was the most clearly defined segment, with products identified as being specifically for those purposes.

Hardware was less specifically defined as strictly for BC/DR. Here, the derivation of market size relied heavily on insights shared by market participants — especially those who worked in the areas of Business Continuity Solutions, Data Protection Solutions, and High Availability and Storage Management — on the percentage of hardware being sold with an orientation toward business continuity and disaster recovery.

The market size for Services was derived in part from information obtained from industry participants, but relied more heavily on data reported by the publicly-owned companies.

Forecasts of future growth were based in large part on estimates from industry participants, who provided rationales for their opinions based on their experiences during the earlier months of the recession and the changes in sales they experienced in the latter part of 2009 and the first months of 2010, as well as their thoughts on the overall growth of the IT industry and the changes taking place within the market in terms of product development, consolidation, etc. Also taken into consideration were forecasts for general economic development in the United States and other regions, especially in terms of the pace of recovery from the global recession as anticipated by representatives of the United States, and the ongoing reaction to, and commentary on, government forecasts by the financial community.

4.2 Global Market Dynamics: Enterprise Sector

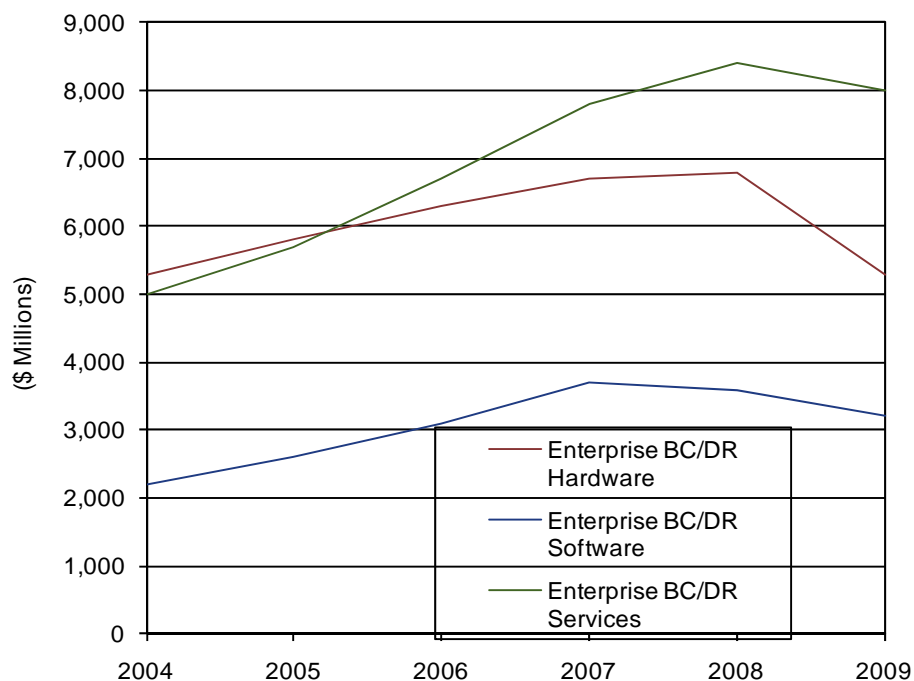
ABI Research analysis has found that, in the enterprise sector, the BC/DR category had a CAGR of 5.71% from 2004 through 2009, growing from \$12.5 billion to \$16.5 billion. Growth was steady through 2008, but suffered a drop of about 12% from 2008 to 2009 as the global economic crisis hit in full.

Growth from 2004 to 2009 was uneven among the three segments of hardware, software, and services. Services, the largest of the segments at \$8 billion, showed the greatest advance through the period with a CAGR of 9.86%. Software was second, with a CAGR of 7.78%, while the hardware segment was flat, suffering the greatest decline in revenues from 2008 to 2009.

Table 4.1 Enterprise Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2004 to 2009

Category	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)
Enterprise BC/DR Hardware	(\$ Millions)	5,300	5,800	6,300	6,700	6,800	5,300	0.00%
Enterprise BC/DR Software	(\$ Millions)	2,200	2,600	3,100	3,700	3,600	3,200	7.78%
Enterprise BC/DR Services	(\$ Millions)	5,000	5,700	6,700	7,800	8,400	8,000	9.86%
Total	(\$ Millions)	12,500	14,100	16,100	18,200	18,800	16,500	5.71%

(Source: ABI Research)

Chart 4.1 Enterprise Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2004 to 2009

(Source: ABI Research)

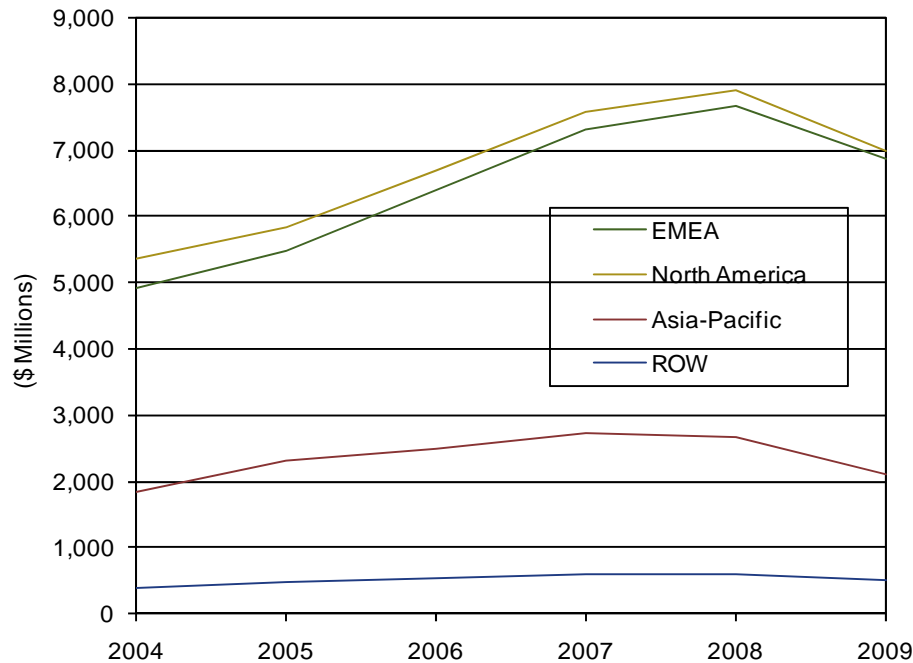
In terms of regional activity, the enterprise segment of the BC/DR market in the EMEA region grew most quickly, with a CAGR of 6.94% from 2004 to 2009, while North America's enterprise segment saw a CAGR of 5.52% for the same period. The Asia-Pacific region's BC/DR enterprise segment grew at a CAGR of 2.71% between 2004 and 2009, while the CAGR for the enterprise segment in the Rest of World (ROW) was 5.85%.

Table 4.2 Enterprise Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2004 to 2009

Region	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)
EMEA	(\$ Millions)	4,920	5,470	6,380	7,300	7,655	6,880	6.94%
North America	(\$ Millions)	5,350	5,830	6,700	7,580	7,900	7,000	5.52%
Asia-Pacific	(\$ Millions)	1,850	2,325	2,480	2,725	2,655	2,115	2.71%
ROW	(\$ Millions)	380	475	540	595	590	505	5.85%
Total	(\$ Millions)	12,500	14,100	16,100	18,200	18,800	16,500	5.71%

(Source: ABI Research)

Chart 4.2 Enterprise Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2004 to 2009



(Source: ABI Research)

Individual companies experienced different results at the end of the period, but in general there was an upturn at the end of 2009 that appeared to bode well for future growth.

4.3 Global Market Dynamics: SMB/SOHO Sector

ABI Research analysis found an overall negative CAGR of -0.75% from 2004 to 2009 for BC/DR sales into the Small-Medium Business/Small Office-Home Office sector, with the market standing at \$7.8 billion in 2009, down from \$8.1 billion in 2004. This negative growth is the result of a tumultuous 21% drop in revenues from 2008 to 2009.

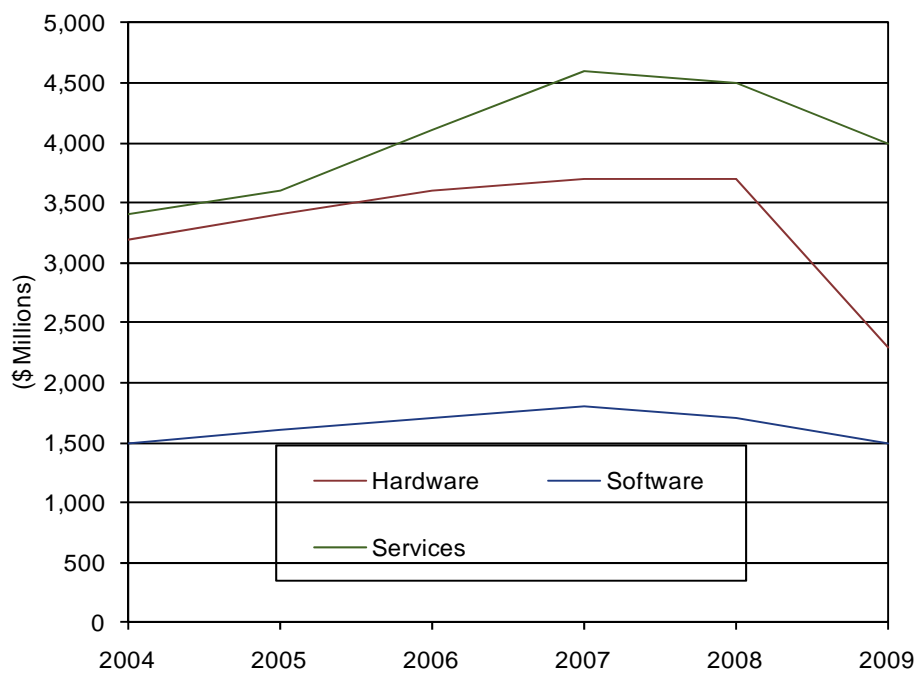
As with the enterprise sector, growth among the three segments of hardware, software, and services was uneven in the SMB/SOHO sector from 2004 to 2009. Services, the largest of the segments at \$4 billion, showed the greatest advance through the period with a CAGR of 3.3%, while the decline in 2009 software revenues wiped out any advances made in that category, and the SMB/SOHO BC/DR hardware segment plummeted, with a negative CAGR of -6.39%. As was the case in the enterprise sector, all categories, including hardware, had a positive CAGR through 2008 before experiencing the severe economic downturn at the end of 2008 into 2009.

Table 4.3 SMB/SOHO Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2004 to 2009

Category	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)
SMB/SOHO BC/DR Hardware	(\$ Millions)	3,200	3,400	3,600	3,700	3,700	2,300	-6.39%
SMB/SOHO BC/DR Software	(\$ Millions)	1,500	1,600	1,700	1,800	1,700	1,500	0.00%
SMB/SOHO BC/DR Services	(\$ Millions)	3,400	3,600	4,100	4,600	4,500	4,000	3.30%
Total	(\$ Millions)	8,100	8,600	9,400	10,100	9,900	7,800	-0.75%

(Source: ABI Research)

Chart 4.3 SMB/SOHO Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2004 to 2009



(Source: ABI Research)

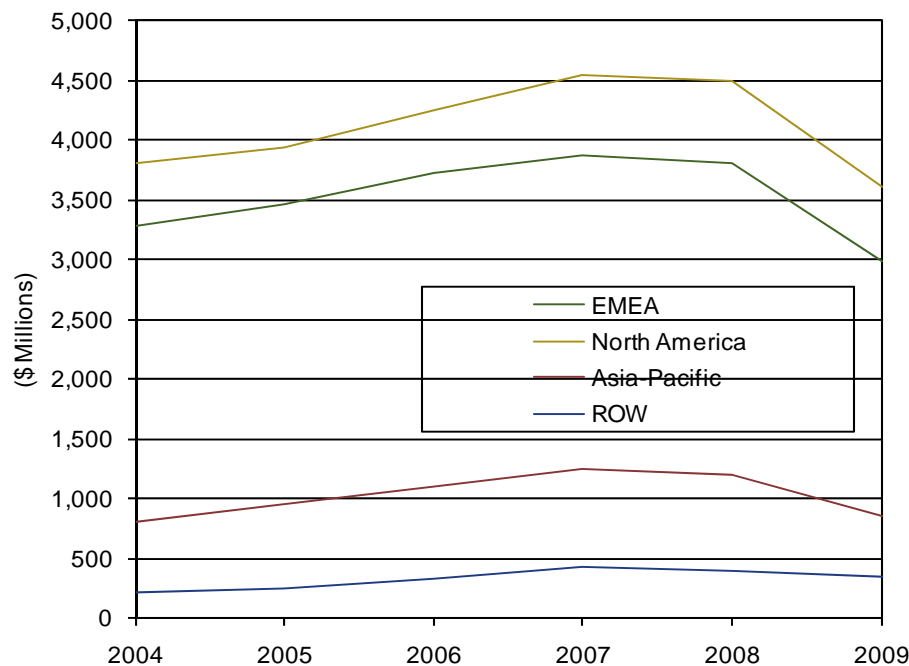
In terms of regional activity, the SMB/SOHO segment of the BC/DR market in the Europe/Middle East/Africa (EMEA) region saw a negative CAGR (-1.86%) from 2004 to 2009, while North America's SMB/SOHO segment experienced a CAGR of -1% for the same period. In contrast, sales of BC/DR products and services in the SMB/SOHO segment of the Asia-Pacific region grew at a CAGR of 1.22%. The CAGR for the SMB/SOHO segment in the Rest of World (ROW) was extremely high in comparison to all other areas, suggesting that much of the growth there was first-time adoption of BC/DR products and services that was not being offset by a lack of renewal of licenses or upgrades to new technologies, which slowed growth in the more developed regions.

Table 4.4 SMB/SOHO Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2004 to 2009

Region	Units	2004	2005	2006	2007	2008	2009	CAGR (04-09)
EMEA	(\$ Millions)	3,290	3,460	3,725	3,865	3,800	2,995	-1.86%
North America	(\$ Millions)	3,800	3,930	4,250	4,550	4,500	3,615	-0.99%
Asia-Pacific	(\$ Millions)	800	955	1,095	1,250	1,200	850	1.22%
ROW	(\$ Millions)	210	255	330	435	400	340	10.12%
Total	(\$ Millions)	8,100	8,600	9,400	10,100	9,900	7,800	-0.75%

(Source: ABI Research)

Chart 4.4 SMB/SOHO Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2004 to 2009



(Source: ABI Research)

4.4 Global Market for BC/DR Products and Services, 2009-2015

Forecasting the future growth of BC/DR products and services is complicated by the anticipated surge of virtualization, which will subsume BC/DR within multifunction offerings, as well as the transition through cloud computing technologies to a more service-oriented approach to IT.

Developments in virtualization and cloud computing are game-changers for IT in general, and for BC/DR in particular. While it is uncertain how quickly customers in both the enterprise and SMB/SOHO sectors will accept the new technologies, given the need to adjust legacy systems as well as the need to make the intellectual transition to the new environment, the transition will happen eventually.

Added to technological concerns are concerns about the recovery of the economy. Despite the

fact that many BC/DR companies reported an upturn in the last quarter of 2009, the pace at which economic recovery will take place remains unclear.

Taking these developments into account, ABI Research projects that from 2009 to 2015, the overall BC/DR market will increase from \$24.3 billion to \$39.1 billion, at a CAGR of 8.23%.

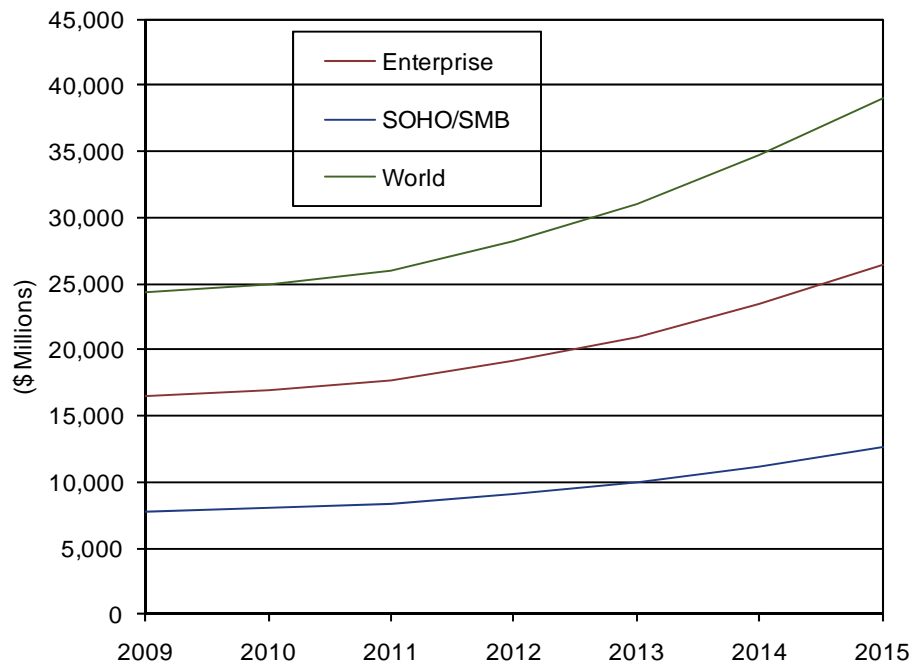
Enterprise BC/DR will grow from \$16.5 billion to \$26.4 billion over the forecast period, at a CAGR of 8.15%, while the SMB/SOHO sector will see growth from \$7.8 billion to \$12.7 billion, at a CAGR of 8.4% over the forecast period.

Table 4.5 Business Continuity/Disaster Recovery Revenues, Enterprise vs. SMB/SOHO , World Market, Forecast: 2009 to 2015

Category	Units	2009	2010	2011	2012	2013	2014	2015	CAGR (09-15)
Enterprise	(\$ Millions)	16,500	16,900	17,650	19,200	21,000	23,550	26,400	8.15%
SOHO/SMB	(\$ Millions)	7,800	8,050	8,400	9,050	10,000	11,150	12,650	8.39%
Total	(\$ Millions)	24,300	24,950	26,050	28,250	31,000	34,700	39,050	8.23%

(Source: ABI Research)

Chart 4.5 Business Continuity/Disaster Recovery Revenues, Enterprise vs. SMB/SOHO, World Market, Forecast: 2009 to 2015



(Source: ABI Research)

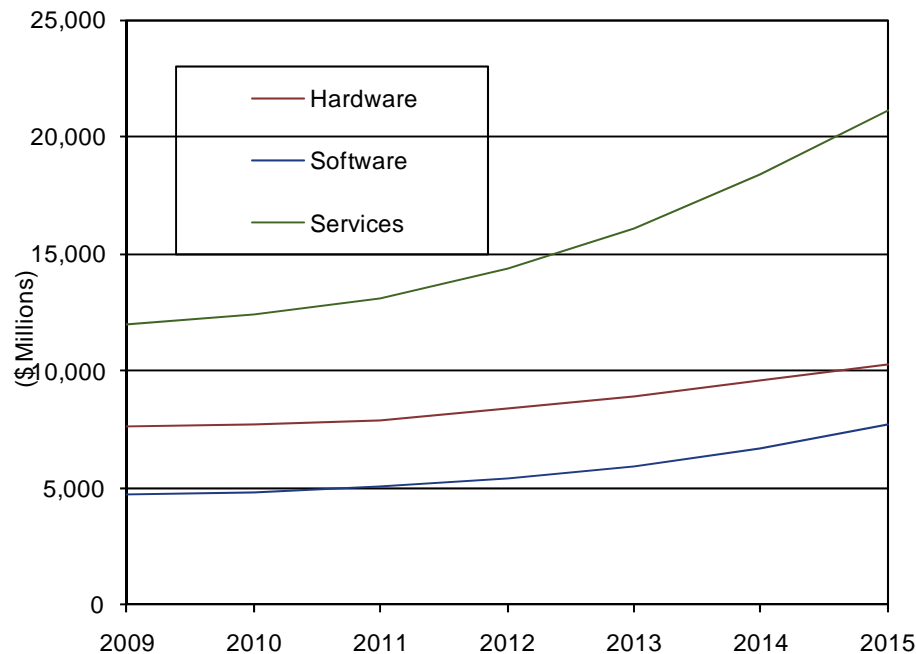
Looking at the global market by category, ABI Research projects that hardware revenues will grow at a CAGR of 5.1% over the forecast period, increasing from \$7.6 billion in 2009 to \$10.3 billion in 2015. Software revenues will grow from \$4.7 billion in 2009 to 7.7 billion in 2015, while the services segment is projected to increase from \$12 billion in 2009 to \$21.1 billion in 2015.

Table 4.6 Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2009 to 2015

Category	Units	2009	2010	2011	2012	2013	2014	2015	CAGR (09-15)
Hardware	(\$ Millions)	7,600	7,750	7,900	8,400	8,950	9,600	10,250	5.11%
Software	(\$ Millions)	4,700	4,800	5,050	5,450	5,950	6,700	7,700	8.58%
Services	(\$ Millions)	12,000	12,400	13,100	14,400	16,100	18,400	21,100	9.86%
Total	(\$ Millions)	24,300	24,950	26,050	28,250	31,000	34,700	39,050	8.23%

(Source: ABI Research)

Chart 4.6 Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2009 to 2015



(Source: ABI Research)

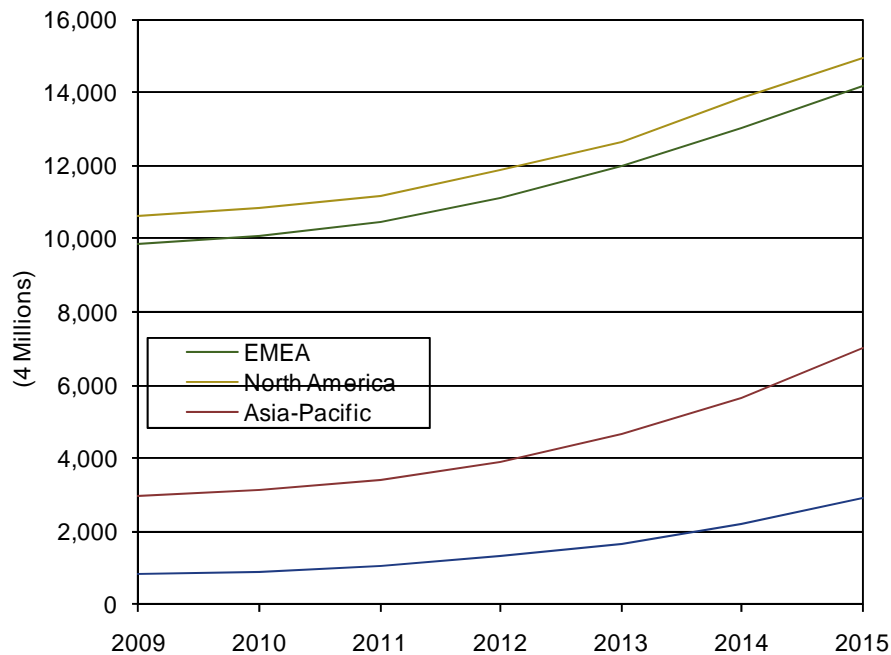
In terms of regional growth, ABI Research projects that North America will see revenues increase from \$10.6 billion in 2009 to \$15 billion in 2015, for a CAGR of 5.90%. BC/DR revenues in the Europe/Middle East/Africa region (EMEA) are projected to increase from \$9.9 billion in 2009 to \$14.2 billion in 2015, at a CAGR of 6.2%. Growth in the Asia-Pacific region is projected by ABI Research at a CAGR of 15.4% over the forecast period, from \$3 billion in 2009 to \$7 billion in 2015. The Rest of World (ROW) will see absolutely stellar growth of nearly 23% over the forecast period, from \$845 million to \$2.9 billion.

Table 4.7 Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2009 to 2015

Region	Units	2009	2010	2011	2012	2013	2014	2015	CAGR (09-15)
EMEA	(\$ Millions)	9,875	10,100	10,445	11,140	11,985	13,015	14,175	6.21%
North America	(\$ Millions)	10,615	10,825	11,180	11,895	12,665	13,835	14,970	5.90%
Asia-Pacific	(\$ Millions)	2,965	3,115	3,390	3,905	4,665	5,650	6,995	15.38%
ROW	(\$ Millions)	845	910	1,035	1,310	1,685	2,200	2,910	22.89%
Total	(\$ Millions)	24,300	24,950	26,050	28,250	31,000	34,700	39,050	8.23%

(Source: ABI Research)

Chart 4.7 Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2009 to 2015



(Source: ABI Research)

4.5 Competition and Key Players

In assessing the market as a whole, ABI Research estimates that IBM is the leading provider of BC/DR solutions, based on its combined offerings of hardware, software, and especially services. EMC and Oracle/Sun Microsystems are the second- and third-largest BC/DR solution providers. These three are the only companies with double-digit shares in the market. Other leading solution providers include VMware, Citrix, SunGard, and Cisco.

As information technology passes through its transition to virtualization and cloud computing, the relationship of the competitors is also in transition. It is increasingly common to see strategic alliances formed between and among companies that identify each other as both competitors and partners. The aim is to provide the best solutions for customers, as well as to insure that it is not squeezed out by other strategic alliances.

NetApp describes this strategy as “staying true to our agnostic market position,” noting that it has fostered successful partnerships with Citrix and with VMware.

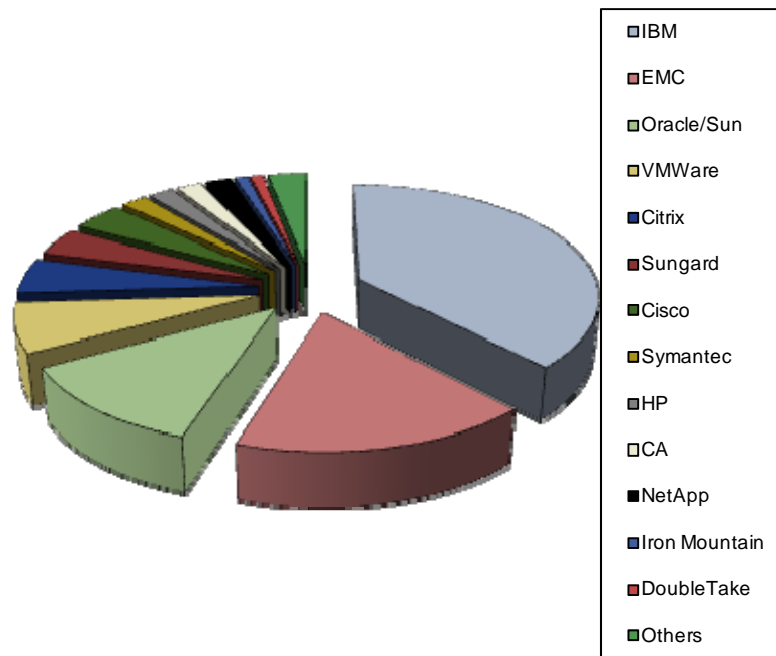
A product manager at EMC reports that the company “is integrated with IBM and other competitors making it easier for customers to include BC/DR as they move to virtualization.”

In its annual report, Symantec identifies VMware as a competitor, but within a few paragraphs also notes that its new backup and recovery solutions provide support for VMware.

Looking ahead, there is a strong possibility that these strategic alliances will lead to more mergers at the high end of the market (such as that between Oracle and Sun Microsystems), and more acquisitions or partial acquisitions (like EMC’s investment in a majority ownership of VMware or its acquisition of Mozy at the low end of the SMB market).

As the economy recovers in the next two to three years, there is the increasing likelihood that some of the smaller privately held players will be launching their own IPOs, while others will become acquisition targets for the market leaders.

Chart 4.8 Business Continuity/Disaster Recovery Solution Provider Market Shares, World Market, 2009



(Source: ABI Research)

Section 5.

COMPANY PROFILES

5.1 Acronis

Acronis, founded in 2002, is a global company with offices in the United States, Europe, and Asia. The company provides advanced, scalable storage management and disaster recovery software. Acronis' flagship product, True Image, is a leading commercial disk-imaging and bare-metal restore solution for Windows and Linux servers, as well as being an automated system portability and migration tool. The company's patented disk imaging and disk management technology provides data protection, backup and recovery, system deployment, and server migration for both physical and virtual machine servers,

True Image is a consistent award winner and a highly rated selection by industry publications. For example, True Image was voted WindowsNetworking.com Readers' Choice Award Winner in 2009. In 2010, Acronis True Image Home 2010 won the PC Advisor Awards 2010 - Best PC Utility Of The Year award.

Acronis employs both direct sales and enterprise resellers. Customers range from small and mid-sized businesses to Fortune 500 enterprises in the banking, professional services, healthcare, technology, retail, government, and manufacturing markets. About 65% to 70% of its sales are to the SMB sector, with 10% to 15% coming from the enterprise segment and 20% from consumers.

Acronis is highly committed to new product development. While it is pursuing online delivery, it continues to provide onsite versions of its products that may be used internally by its clients, pursuing a strategy of hybrid product offerings that the company believes will be a competitive advantage going forward.

In October 2009, Acronis Inc. was ranked number 130 on the Technology Fast 500 index, Deloitte LLP's ranking of 500 of the fastest growing technology, media, telecommunications, life sciences, and clean technology companies in North America. Rankings are based on percentage of fiscal-year revenue growth during the five-year period 2004-2008, when Acronis achieved 1,170% growth in revenues.

5.2 CA, Inc.

CA was launched in 1974 as Computer Associates International, Inc. The initial four-person operation has since grown to become a global IT management software company that today serves the majority of the Forbes Global 2,000, with revenues close to \$4.3 billion in 2009.

Much of its growth has come through acquisitions and mergers, which have come at a rate of better than one per year since its founding. CA boasts product development locations in Australia, China, the Czech Republic, Germany, India, Israel, Japan, the United Kingdom, and the United States, which has led to its holding over 600 patents.

In recent activity, CA in 2009 acquired NetQoS, a monitoring specialist, and Cassatt, known for its data center automation and policy-based optimization expertise. The acquisitions are in line with CA's strategic goal of becoming a leader in cloud computing, boosting the functionality of the company's Spectrum Automation Manager to let it manage network and systems traffic in both public and private cloud computing environments.

In addition to its mergers and acquisitions, CA has pursued its growth strategy through strategic partnerships with other leaders in the BC/DR space. For example, CA has a multi-year solutions partnership with NetApp to develop management solutions for public and private cloud environments. The companies extended that partnership in February 2010, a move that will lead to the integrating of CA's virtualization, automation, and service assurance offerings with NetApp's storage management solutions, providing customers with needed tools for automating their cloud infrastructure. Other significant strategic partnerships include those with salesforce.com and Acxiom.

5.3 Carbonite

Carbonite was founded in 2005 and launched its online backup service in May 2006. The privately held company offers an unlimited-backup-space product to the SMB/SOHO market, as well as to consumers for a flat low price of \$54.95. Carbonite claims to have backed up and protected more than 39 billion files and restored more than 3.2 billion lost files for customers in more than 120 countries.

The company markets its services through numerous channels, including its corporate website, major US retailers and international distributors. In 2009 Carbonite announced a consumer education effort and distribution program with Sun Microsystems that provided a free 30-day trial of Carbonite Online Backup to Sun customers who upgrade to the latest version of Java or download it for the first time. Carbonite does not pursue the enterprise sector, but reports that it has Fortune 500 clients who have come to it, and expect more to in the future.

A key element in Carbonite's success has been its extensive marketing campaign on talk radio and TV news networks. Radio endorsements are the biggest aid to sales, with endorsements coming from commentators on the Left and the Right, including Rachel Maddow and Rush Limbaugh telling listeners they use and trust Carbonite. Competitors estimate that Carbonite spends as much as \$40 million a year on advertising.

Carbonite's simple-to-use service has proven extremely successful, with revenue growth reported to be between 30% and 40% quarter-to-quarter, even during the recession. The company's growth has been supported by venture capital financing of approximately \$67 million; it is expected to make an IPO in the near future.

The company reports that it is targeting China as its next major market, noting that there are 340 million Internet users there. Japan is also a leading market being targeted by Carbonite.

5.4 Cisco Systems, Inc.

Cisco Systems, which claims the title of "worldwide leader in networking for the Internet," was founded in 1984 and went public in February 1990. The company has 65,874 employees worldwide and revenues of about \$40 billion.

Cisco product and service offerings span the full range of network systems and services, collaboration, voice and video, and security to all levels of the SMB and enterprise sectors. Cisco's combinations of networks and systems make it one of the most sought-after partners by other leaders in the BC/DR market, such as EMC, NetApp, and VMware. The company reports that it spends nearly \$5.2 billion a year in R&D, making it one of the top R&D spenders in the world.

Cisco has become one of the leading providers in the developing cloud computing market. It has also been working to develop solutions for the consumer market, the only area in IT where it has not had a strong presence.

5.5 Citrix Systems, Inc.

Citrix Systems, founded in 1989, offers a broad array of products and services that “centralize, virtualize and minimize the complexity of traditional computing” through desktop virtualization, application virtualization, server virtualization, application networking, cloud computing, and SaaS offerings. Based in Florida, Citrix employs over 5,000 people and has annual revenues of approximately \$1.6 billion, more than double its revenues in 2004.

Citrix customers include the world’s largest Internet companies, 99% of Fortune Global 500 enterprises, and hundreds of thousands of small businesses and consumers worldwide. In addition, Citrix partners with over 10,000 companies worldwide in more than 100 countries. A key partner is Microsoft, with which Citrix has had a partnership for over 20 years.

Citrix has been an IT innovator for almost two decades, reporting that it has gone through three waves of innovation beginning with the virtualization of the Windows desktop in the mid-1990s, continuing on from the late 1990s to the early 2000s focused on bringing the advantages of application virtualization and IT centralization to businesses, and since 2004, focusing on development of on-demand service solutions for businesses looking toward operating in cloud computing mode. Citrix’ pivotal position in the development of virtualization solutions could make it attractive to larger IT companies that would prefer to own, rather than partner with, this innovator.

5.6 Double-Take Software, Inc.

Massachusetts-based Double-Take Software was founded in 1991, and originally operated under the name NSI Software, changing to its current name in 2006. Double-Take provides data-replication-and-storage and disaster recovery software for a variety of systems as well as support services, achieving revenues of about \$83 million in 2009, down from about \$96 million in 2008 (with the decrease attributed to the recession).

Double-Take has some 20,000 customers worldwide. Its business is largely with SMBs, but includes some enterprise-level companies as well. Double-Take typically sells direct, but also sells through VARs that package a solution for the end user. In addition, Double-Take partners with OEMs that bundle the company’s software into larger solutions.

Double-Take has been developing cloud-oriented BC/DR products, leveraging the advantages of cloud computing for disaster recovery applications. The company is looking to SMBs for acceptance of the concept of being able to protect data without having to build an infrastructure, but without a rapid recovery by the economy, Double-Take could be facing stiff resistance to its plans.

5.7 EMC Corporation

Founded in 1979, EMC began as a manufacturer of memory boards, but quickly expanded to manufacturing disk drives and networked storage platforms, becoming the largest provider of data storage platforms in the world. Since about 2000, the company has been shifting its focus to software and services through a series of acquisitions including, most prominently, VMware. By 2008, more than half of its revenues of about \$15 billion were generated from its software and services operations.

EMC is focused currently on the rapidly developing markets for virtualization and cloud computing. The company has partnerships with other major companies like IBM, Symantec, and SunGard; these partnerships among high-end vendors could serve to limit opportunities for smaller companies and start-ups by presenting customers throughout the SMB and enterprise sectors with solutions that smaller vendors will be hard pressed to match. EMC has also positioned itself for the potential boom in demand for cloud computing and virtualization at the low end of the SMB sector through its acquisition of Mozy, one of the leaders in providing online backup services to consumers and small businesses.

Despite its size and reputation, EMC is faced with challenges from its sometime-partners like IBM, which are even larger and more deeply embedded in the consciousness of customers at all levels of the SMB and enterprise sectors. The company is actively working with VARs to expand its reach. In addition, EMC continues to leverage the virtualization leadership of its VMware subsidiary to enhance the scalability of storage, making it more attractive to the high end of the SMB sector while at the same time seeking to expand the offerings of Mozy at the low end of that sector.

5.8 **Forsythe Solutions Group Inc.**

Skokie, Illinois-based Forsythe Solutions Group, founded in 1971, offers its customers technology and business consulting services, technology leasing, and products from all leading IT infrastructure manufacturers. The company, which has more than 50 offices worldwide, was privately held until 2007 when it became employee-owned. Annual revenues in 2008 were \$700 million.

Forsythe was No. 109 on the 2009 VAR500 list of the IT industry's largest consultants, solution providers, value-added resellers (VARs) and vendor services arms. It was named top VAR by both Symantec and EMC in 2009, and is banking on the ability of those and other market giants to promote virtualization and cloud computing to the tipping point where demand will spill over to VARs.

Forsythe appears to be committed to slow but steady growth, acquiring companies that have proven track records, solid partnerships and customer bases. In 2007, it acquired Information Security Technology (IST), a St. Paul, Minnesota-based security solutions provider with an extensive customer base in Canada. In 2008, Forsythe acquired the assets of More Group, a data storage management integrator, and in July 2009 it acquired another VAR, Denver-based Paragon Solutions Group. Earlier, Forsythe had acquired Denver-based Enterprise Computing, as well as the security integrator National Business Group (NBG) and the security and consulting services assets and contracts of Telenisus, a Chicago-based Internet security company.

5.9 **Hewlett-Packard Company**

Hewlett-Packard Company (HP) is one of the oldest and largest companies in the IT field. Founded in 1939, the company reported 2009 revenues of \$114.6 billion. HP competes in the computer systems and peripherals market and also offers software, consulting, and IT services.

Despite its huge presence, HP has not taken an independent lead in the BC/DR category, although it is, by virtue of its position, a frequent partner to companies that are aggressively pursuing competitive advantage in this category. This is not to say that it is not involved in BC/DR. For example, HP offers a combination of storage products, technologies and services under such labels as Business Continuity and Availability Storage Solutions and HP StorageWorks Disaster Recovery Solutions through its Large Enterprise Business Group.

It is possible that HP may advance in BC/DR through its HP Enterprise Services group. HP Enterprise Services was, until September 2009, the company EDS, which HP acquired one year earlier. EDS, established in 1962, provides infrastructure services, including data center services, workplace services, networking services and managed security; applications services; and business process outsourcing that included payroll, call centers, and insurance claims processing. In addition to the EDS name change, HP's Technology Solutions Group has been renamed the HP Enterprise Business. This group is focused on business and government organizations of all sizes. In addition to enterprise services, its portfolio includes servers, storage, software, networking, and technology services.

HP is directing its customers toward an awareness of the coming convergence in IT under the virtualization and cloud computing banners and, as such, is likely to pay greater attention to the incorporation of BC/DR in its solutions, especially on the technical services side. Nevertheless, it may be playing catch-up with many of its major competitors for some time to come.

5.10 IBM Corporation

IBM's Global Technology Services is a huge component of the global IT leader's total operations, and its Business Continuity and Resiliency Service, which it launched in 1989, is a key segment of that component. IBM notes that its Business Continuity and Resiliency Services "helps ensure the continuity of business operations and assists with regulatory compliance, improved systems availability, protection of data, and the integration of IT operational risk management strategies. Our services take you from planning and design through implementation and management, with a strong commitment to understanding your ever-changing business requirements."

IBM is not resting on its laurels as a leader in BC/DR. It is advancing its offerings as it develops its presence in cloud computing, an effort that dates to November 2008 when the company announced a formal entry into cloud computing services. In March 2009, IBM added Tivoli Continuous Data Protection for Files as a new component to its cloud services.

Despite their increasing efforts in BC/DR, it could be a long time before any of IBM's competitors, large or small, will draw anywhere close to the share that Big Blue has in this category.

5.11 Iron Mountain, Inc.

Founded in 1951, Boston, Massachusetts-based Iron Mountain offers records management, information destruction and data backup services to more than 120,000 customers throughout North America, Europe, Latin America, and Asia, with revenues topping \$3 billion in 2008.

Over the last three decades, the company has achieved significant growth, largely through acquisitions (picking up more than 200 companies during that time). Two of the most significant acquisitions in terms of BC/DR were of Connected Corporation, a manufacturer of PC backup software, and LiveVault, an online backup software for server vendors.

Iron Mountain is highly regarded for its leadership in storage as a service, and for its rapid move to the cutting edge in cloud computing for back-up and recovery services, with the two acquisitions mentioned above, has only served to boost its profile. Another step towards increasing its prominence came in October 2009 when Iron Mountain announced that it was extending its Archive Services Platform to application providers, including corporate developers and independent software vendors (ISVs), so that they could offer cloud storage with their applications. Through the new Iron Mountain Developer Program, the company will offer developers the tools and resources necessary to integrate Iron Mountain's secure enterprise-class cloud archiving services.

The company says that, “when it comes to cloud storage, corporate customers are quickly learning what it means to have truly enterprise-class cloud storage. They are also looking for secondary benefits when it comes to storing their data in the cloud. Beyond the cost and operational savings, they are appreciating that this new storage paradigm allows them to be in a position to extract more value from their data.”

5.12 NetApp

Founded in 1992 in Sunnyvale, California, NetApp has grown to become a major enterprise network storage and data management solutions provider, with 2009 revenues of \$3.4 billion and over 130 offices around the world. Over the past decade, it has broadened its offerings to include software and services as well as hardware, and has frequently partnered with other global industry leaders, including Microsoft, Citrix, and VMware. In 2009, Microsoft named NetApp its Storage Solutions Partner of the Year.

NetApp’s partnering has included its efforts in BC/DR, where the company offers several software products within overall solutions that match NetApp with Symantec and VMware. This partnering is part of NetApp’s self-described “agnostic market position as a best-of-breed storage infrastructure provider.”

The company’s strategy is to grow through the broad-based solutions that develop from these partnerships. Growth areas identified by the company for 2010 include expanding its presence among major storage users, establishing market leadership in international geographies, and “becoming the vendor of choice for more key partners.”

5.13 Oracle Corporation

Oracle Corporation, founded in 1977, specializes in database management software for the enterprise. The company, which has well over 100,000 employees, achieved revenues of more than \$23 billion in 2009 by developing new products and making strategic acquisitions, most recently its purchase of Sun Microsystems.

Oracle claims the titles of the world's leading supplier of software for information management, and the world's second-largest independent software company. The acquisition of Sun led Oracle to announce that it is developing complete systems based on hardware from Sun and software from Oracle.

Through its massive presence in the database management category, Oracle is a leader in BC/DR and High Availability. The company offers a suite of BC/DR and High Availability solutions through its continually evolving database products. Oracle also offers services to its clients that include analysis and design by teams of Disaster Recovery Solution project managers, architects, and engineers.

Oracle has advanced in the BC/DR competition through its acquisition of Sun, which brings its StorageTek data protection software and data management software to the table. Despite these efforts, however, Oracle may be vulnerable to inroads from other market leaders and smaller companies that are moving more quickly to position themselves in the cloud computing arena.

5.14 SunGard Data Systems Inc.

SunGard, founded in 1983, is composed of four businesses that provide IT services, software, processing, and infrastructure. The businesses are Availability Services, Financial Systems, Higher Education, and Public Sector. The company had revenues of more than \$5.6 billion in 2008, as well as some 20,000 employees. SunGard is known for its growth through acquisition, having acquired more than 150 companies over the past 20 years. SunGard itself was acquired by a consortium of investment firms in 2005.

The company's name originally stood for Sun Guaranteed Access to Recovered Data, a reference to the disaster recovery business that SunGard helped pioneer. The company's Availability Services business provides integrated disaster recovery, managed services, IT consulting, and business continuity management software solutions. SunGard touts the group's 2,500 professionals with extensive Information Availability experience; 40 mobile facilities staged in strategic locations; and a 100% recovery record. BC/DR software and services products include AdvancedRecovery Business Continuity/Disaster Recovery solutions; AdvancedHosting Managed and Collocation Services; Consulting Services; and Business Continuity Management Software.

SunGard continues to aggressively pursue a leading position in BC/DR. In December 2009, it introduced its new Continuity Management Solution (CMS), a centralized platform that unites SunGard's full suite of business continuity management software, to the North American market. In addition, SunGard has partnered with VMware, strengthening its position within the growing market for virtualized services.

5.15 Symantec

Symantec Corporation is a leading provider of IT software and services, notably in the storage and security segments, with an acknowledged position as the leader in security software. Founded in 1982, the company reported revenues in excess of \$6 billion in 2009. Symantec's consumer division, Norton, accounts for about a third of the company's revenue.

Symantec has been aggressive in pursuing strategic acquisitions and partnerships. In 2004, it acquired Veritas; in 2005, Sygate; in 2007, Altiris; and in 2008, MessageLabs. In each instance, Symantec expanded its suite of offerings and entered into new categories where it had not had a strong position or any position prior to the acquisition. Strategic partners include Dell, Fujitsu, HP, IBM, Intel, Microsoft, Sun, and VMware.

Symantec is leveraging its leadership in security software to become a more significant presence in BC/DR. In January 2010, the company announced the launch of two BC/DR-related products: NetBackup 7, targeted to enterprise sector companies, which "delivers complete virtual machine protection to increase backup and recovery speeds of data within virtual environments and adds new backup replication for fast, cost-effective disaster recovery;" and Backup Exec 2010, targeted to mid-sized businesses, which offers "fully integrated data deduplication and archiving technologies and is the first backup and recovery solution to offer granular recovery of Microsoft Exchange, SQL and Active Directory in VMware and Hyper-V environments from a single pass backup."

Symantec's challenge is to convince customers that it is not a one-trick pony that can only be counted on for security, but is not necessarily the best choice in BC/DR. The company notes that the backup market is intensely competitive and that it is up against a number of major competitors, including CA, EMC, HP, IBM, Microsoft, Sun Microsystems, and VMware, Inc.

5.16 VMware

VMware, founded in 1998 and based in Palo Alto, CA, is the leading provider of virtualization software; its products support virtualization on desktop computers and servers. EMC acquired a majority ownership of VMware in 2003, but the company reports its financial results separately and has its own stock listing. VMware had revenues of \$2 billion in 2009 and employs more than 6,700 people. The company serves all 100 of the Fortune 100 and approximately 95% of the Fortune 1000.

As the virtualization leader with a share of the market reported to be 80%, VMware is a highly desired strategic partner among the other leaders in the BC/DR category as the push continues to make cloud computing and virtualization the standard concepts for IT. In November 2009, for example, EMC and Cisco, along with VMware, introduced the Virtual Computing Environment Coalition to help customers accelerate pervasive virtualization and a transition to private cloud infrastructures.

Despite its current position, the competition is heating up for VMware. The company identifies Microsoft as a growing challenge in the data center environment and Citrix as a growing challenge in the desktop arena. In both instances, VMware expresses confidence that its products are superior, but it further notes that there may be new entrants to market in the coming years as the technology develops.

It also has expressed concern that working relationships between some vendors and their customers may close some potential market opportunities to VMware. Nevertheless, for the foreseeable future, the company should continue to be the key player in virtualization.

Section 6.

COMPANY DIRECTORY

Acronis Inc.www.acronis.com/**Agilysys Inc.**www.agilysys.com**APX S.A.**www.apx.be**Atos Origin Iberia S.A.E.**www.atosorigin.com/en-us/**AZION Corp. (6148)**www.azion.com.tw/**Binomial International**www.binomial.com**Business Protection Systems
International**www.businessprotection.com**Carbonite Inc.**www.Carbonite.com**Citrix**www.citrix.com**Comdisco Recovery Services**www.comdisco.com**Compellent Technologies Inc.
(CML)**www.compellent.com**COOP Systems**www.coop-systems.com**CPACS LLC**www.cpacsweb.com**Crawford Communications Inc.**www.crawford.com**CYA Technologies Inc.**www.cya.com**Digital China**www.digitalchina.com.hk**Disaster Management Inc.**www.disastermgt.com**Docudata**www.docudata.com**Double-Take Software**www.DoubleTake.com**DRS Technologies Inc.**www.drs.com**eBRP Solutions**www.ebrp.net**eHosting Datafort**www.ehdf.com**El Camino Resources
International Inc.**www.elcamino.com**EMC**www.emc.com**Environmental, Safety and Health
Inc.**www.eshinc.com**Equinix**www.equinix.com**Forsythe**www.forsythe.com**Fred R. White Company Inc.**www.fredrwhitecompany.com**GDS**www.gdsinfo.de

Giant Group PLC
www.giantgroup.com

GlassHouse Technologies
www.glasshouse.com

HeiTech Padu Bhd. (HTPADU)
www.heitech.com.my

Hitachi Data Systems
www.hds.com/

HP Enterprise Services
<http://h10134.www1.hp.com/>

**IBM Business Continuity
Resiliency Services**
www.ibm.com/services/continuity

IDrive
www.idrive.com

Intronis eSureIT
www.intronis.com

Iron Mountain
www.ironmountain.com

Kingsbridge Disaster Recovery
www.disasterrecovery.com

LBL Technology Partners
<http://www.lblco.com/index.php/services/lbl-technology>

Mainline Information Systems Inc.
www.mainline.com/

Marathon Technologies
www.marthontechologies.com

Microsoft
www.microsoft.com

MozyHome
www.Mozy.com/Home

NaviSite
www.NaviSite.com

NetApp
www.netapp.com

NETCONN Solutions
www.netcsc.com

NeverFail
www.neverfailgroup.com

Office-Shadow
www.office-shadow.com

Phoenix IT Group PLC (PNX)
www.phoenixitgroup.com

Rentsys Recovery
www.rentsysrecovery.com

SOS Online Backup
www.sosonlinebackup.com

SRS Inc.
www.srsincorp.com

SunGard
www.sungard.com

Symantec
www.Symantec.com

Systemat
www.systemat.com

TAMP Computer Systems
www.drsbytamp.com

VeriCenter
www.vericenter.com

VMware Inc. (VMW)
www.VMware.com

Associations / Organizations

**Association of Contingency
Planners**
www.acp-international.com

British Standards Institution
www.bsigroup.com

**Business and Industry Council
for Emergency Planning and
Preparedness**
www.bicepp.org

**Business Continuity Planners
Association**

www.bcpa.org

**Business Recovery Managers
Association**

www.brma.com

**Contingency Planning and
Disaster Recovery**

www.disasterplan.com

**DRI, the Institute for Continuity
Management**

www.drii.org

**Federal Emergency Management
Agency Continuity of Operations
(COOP) Programs**

www.fema.gov/government/coop/index.shtm

**Information Systems Security
Association**

www.issa.org

**International Disaster Recovery
Association**

www.idra.com

**National Institute of Standards
and Technology**

www.nist.gov

The Business Continuity Institute

www.thebci.org

**The International Consortium for
Organizational Resilience**

www.theicor.org

Table of Contents

Section 1.	2
Executive Summary	2
1.1 A Necessary Market	2
1.2 Necessary, But...	2
1.3 The IT Response	3
1.4 Signs of Recovery	3
1.5 A Paradigm Shift: Cloud Computing and Virtualization	3
1.6 The Outlook for Business Continuity/Disaster Recovery	4
Section 2.	10
Technology Overview	10
2.1 Business Continuity and Disaster Recovery Defined	10
2.2 Business Continuity Technologies	10
2.2.1 Storage Media Options	10
2.2.1.1 Magnetic Tape	10
2.2.1.2 Optical Tape	11
2.2.1.3 Disk Storage	11
2.2.1.4 Solid State Drives	11
2.2.2 Data Storage Configurations	11
2.2.2.1 Direct Attached Storage	11
2.2.2.2 Storage Area Network:	12
2.2.2.3 Network-Attached Storage	12
2.2.2.4 RAID	12
2.2.2.5 Clustering	13
2.2.2.6 Virtual Tape Library	13
2.2.2.7 Electronic Vaulting	13
2.2.2.8 Journaling	13
2.2.2.9 Replication	13
2.2.2.9.1 Snapshot Replication	13
2.2.2.10 Continuous Data Protection	14
2.2.2.10.1 High Availability	14
2.2.3 Business Continuity and Disaster Recovery Software	14
2.2.4 Business Continuity Planning Software	15
2.2.4.1 Online Backup Software	15
2.2.4.2 Data Deduplication Software	15
2.3 Business Continuity/Disaster Recovery Services	15
2.4 Integrated BC/DR Solutions	16
2.5 Technology Drivers: Cloud Computing and Virtualization	16
2.5.1 Cloud Computing	16
2.5.2 Private Cloud Computing	16
2.5.3 Virtualization	17
Section 3.	18
Business and Regulatory Issues	18
3.1 Market Background	18
3.1.1 Federal Action	20
3.2 Impact of the Global Economic Downturn	21
3.2.1 Enterprise vs. SOHO/SMB Sectors	21
3.3 Market Drivers	22
3.3.1 The Fear Factor	22

3.3.1.1 Geographies of Fear.....	22
3.3.2 Competitive Advantage.....	22
3.3.3 Appreciation Supplanting Apprehension	23
3.3.4 Ramped-up Regulation?.....	23
3.3.4.1 The Role of Compliance	23
3.3.5 Technology Becomes Ever User-Friendlier.....	24
3.3.6 Untapped Markets	24
3.4 Factors That May Slow Future Growth.....	25
3.5 Barriers to Growth.....	25
3.5.1 Continued Cost Concerns	25
3.5.2 Aversion to New Technologies	26
Section 4.	27
Market Outlook	27
4.1 Forecast Methodology	27
4.1.1 Primary and Secondary Sources of Information.....	27
4.1.2 Forecast Segmentation.....	27
4.2 Global Market Dynamics: Enterprise Sector.....	29
4.3 Global Market Dynamics: SMB/SOHO Sector	31
4.4 Global Market for BC/DR Products and Services, 2009-2015	33
4.5 Competition and Key Players	36
Section 5.	38
Company Profiles.....	38
5.1 Acronis.....	38
5.2 CA, Inc.	38
5.3 Carbonite	39
5.4 Cisco Systems, Inc.	39
5.5 Citrix Systems, Inc.	40
5.6 Double-Take Software, Inc.	40
5.7 EMC Corporation	40
5.8 Forsythe Solutions Group Inc.	41
5.9 Hewlett-Packard Company	41
5.10 IBM Corporation.....	42
5.11 Iron Mountain, Inc.	42
5.12 NetApp.....	43
5.13 Oracle Corporation	43
5.14 SunGard Data Systems Inc.	44
5.15 Symantec.....	44
5.16 VMware.....	45
Section 6.	46
Company Directory	46
Scope of Study	52
Sources and Methodology	52
Notes	52

Please be aware that an Excel worksheet containing all market forecasts accompanies this document. When downloading this report as a PDF from the ABI Research Web site, please check to see if the Excel worksheet is also available for download. If you have any questions regarding this, please contact our client relations department.

Tables

Table 1-1. Global Business Continuity/Disaster Recovery Spending, World Market, Forecast, 2004 to 2015

Table 1-2. Enterprise Business Continuity/Disaster Recovery Spending, World Market, Forecast, 2004 to 2015

Table 1-3. SBM/SOHO Business Continuity/Disaster Recovery Spending, World Market, Forecast, 2004 to 2015

Table 1-4. Business Continuity/Disaster Recovery Spending by Major Global Region, World Market, Forecast, 2004 to 2015

Table 3-1. Contingency Planning Guide for Federal Information Systems, October 2009

Table 4-1. Enterprise Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2004 to 2009

Table 4-2. Enterprise Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2004 to 2009

Table 4-3. SMB/SOHO Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast: 2004 to 2009

Table 4-4. SMB/SOHO Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast: 2004 to 2009

Table 4-5. Business Continuity/Disaster Recovery Revenues, Enterprise vs. SMB/SOHO, World Market, Forecast, 2009 to 2015

Table 4-6. Business Continuity/Disaster Recovery Revenues by Category, World Market, Forecast, 2009 to 2015

Table 4-7. Business Continuity/Disaster Recovery Revenues by Global Region, World Market, Forecast, 2009 to 2015

Table 4-8. Business Continuity/Disaster Recovery Solution Provider Market Shares, World Market, 2009

SCOPE OF STUDY

This report examines the market for Business Continuity and Disaster Recovery solutions, segmented by the markets for such solutions for consumers and the Small-Medium Business (SMB) and Small Office/Home Office (SOHO) sectors, and for enterprises. The report examines the overall market for Business Continuity and Disaster Recovery solutions through an examination of the relevant factors from a global, regional, and organizational level, as well as considering key trends, drivers, and challenges within the market. The report considers the components of Business Continuity and Disaster Recovery solutions, including hardware, software, and services, and looks at the market historically, from 2004 through 2009, as well as providing a five-year forecast for each of those categories, for the period of 2009 through 2015, segmented by major global region and category. Finally, key vendor profiles are provided.

SOURCES AND METHODOLOGY

An analyst was assigned to coordinate and prepare this Research Report. Research and query specialists helped lay the data and information groundwork for the analyst, who also developed a focused interview strategy.

ABI Research teams follow a meticulous process when examining each market area under study. The three basic steps in that process are: information collection, information organization, and information analysis.

The key element in ABI Research's information collection process is developing primary sources, that is, talking to executives, engineers, and marketing professionals associated with a particular industry. It is from these conversations that market conditions and trends begin to emerge, free from media hype.

Analysts use secondary sources as well, including industry periodicals, trade group reports, government and private databases, corporate financial reports, industry directories, and other resources.

Analysts' conclusions take several forms. The text addresses hard data and well-defined trends and is supported by forecast tables and charts. The text also addresses issues and trends that are difficult to quantify and present in neat, tabular form. Lying at the margins of an industry, they are often precursors of the next technology wave.

NOTES

CAGR refers to compound average annual growth rate, using the formula:

$$\text{CAGR} = (\text{End Year Value} \div \text{Start Year Value})^{(1/\text{steps})} - 1.$$

CAGRs presented in the tables are for the entire time frame in the title. Where data for fewer years are given, the CAGR is for the range presented. Where relevant, CAGRs for shorter time frames may be given as well.

Figures are based on the best estimates available at the time of calculation. Annual revenues, shipments, and sales are based on end-of-year figures unless otherwise noted. All values are expressed in year 2009 US dollars unless otherwise noted. Percentages may not add up to 100 due to rounding.

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