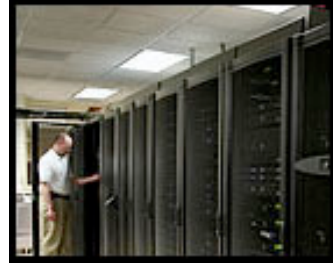




# The Impact of Data Loss



Disaster Recovery Solutions to mitigate the impact of Data Loss Events

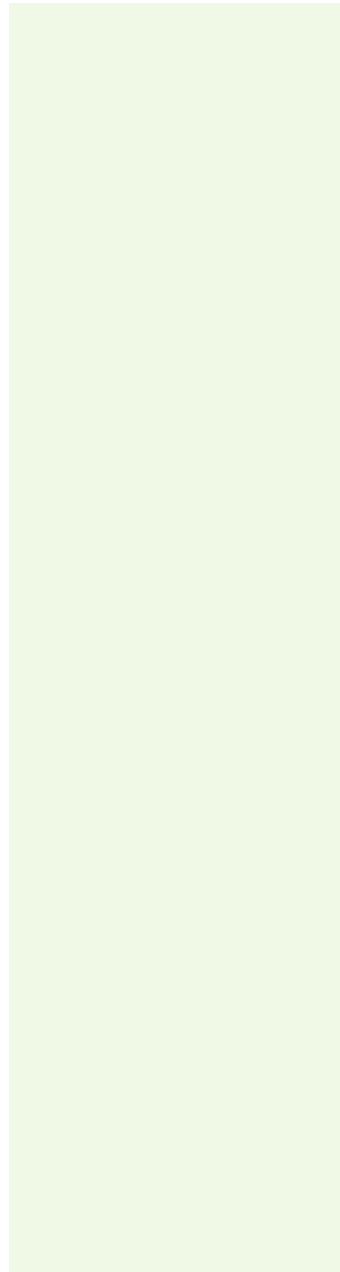


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## Defining Data Loss

### Definitions

How does your business define the value of Data? Most experts agree that Data's intrinsic value cannot be ascertained until it is not available, usually due to a *Data Loss Event*, which is an occurrence of data loss. Data Loss is distinguished from *Data Unavailability*, which can happen to a network or database being down. Although they have similar effects, *Data Unavailability* is temporary while *Data Loss* is permanent.

### Types of Data Loss

There are many different ways to have a Data Loss Event. Some types are:

- Intentional Actions
  - Intentional Deletion of File or program
- Unintentional Actions
  - Accidental Deletion of a file or program
  - Misplacement of removable storage such as CDs, USB Thumb drives, etc
  - Administration Errors
  - Inability to read unknown file formats
- Failure
  - Power failure - resulting in data in volatile memory not being saved to permanent memory
  - Hardware failure - such as a hard disk crash
  - Software failure - system crash or freeze, resulting in data not being saved in permanent memory
  - Data corruption - such as file-system corruption or database corruption
- Disaster
  - Natural disasters - Tornado, Hurricane, Earthquake, flood, etc.
  - Fire
- Crime
  - Theft, hacking - sabotage, etc.
  - A malicious act - such as a worm, virus, hacker or theft of physical media

Studies have shown that hardware failure and human error to be the most common causes of a *Data Loss Event*, accounting for roughly 75% of all reported incidents. A commonly overlooked cause is natural disaster. Although the probability is relatively small, the only way to recover from a Data Loss Event due to a natural disaster is to store the data in a physically separate and secure location.

Organizational Responsibility

Recent statistics show the number of publicized data loss events involving sensitive data is on the rise, in part due to recent legislation, including the landmark California civil code: SB 1386, requiring the notification of data loss. This and other legislation has forced organizations to notify victims that their identity has potentially been compromised.

## General Types of Data

In today's emerging Information Economy, the Data a business accumulates, either as a product, or in the operation of the business, is considered an asset and must be protected from loss.

Take for example, a graphic arts company specializing in internet media, sign printing, marketing media and book services. What data types would these particular companies possess? Here are some examples:

- Client Data - Artwork in digital format, usually backed up on removable media such as DVD or CD
- Internal Process Data - Internal forms, from general applications for employment to work requests, usually on a local server or machine
- Customer Accounting Data - Invoicing, general accounting of receivables and payables, includes tax documents, usually kept on a local server or machine
- Customer Relationship Management - Who your customers are, where they are located and how they interact with you, usually kept on a local server or machine
- Marketing Materials - Brochures, flyers, print advertisements, web-site originals, usually kept on a local server or machine
- Correspondence – Email storage, usually kept on a local server or machine.

Imagine the impact to your business if only some of this information was unavailable for 24 hours. Now imagine a permanent loss, would your business survive? Losing data can lead to your business to cease to function, in some cases, such as the loss of a file, is an inconvenience resulting in lost productivity while you recreate the file. The loss of a customer database could potentially put your business out of business.

## Cost of Data Loss

### Cost

What is the cost of a *Data Loss Event*? The cost of a *Data Loss Event* is directly related to the value of the data and the length of time that it is needed, but unavailable. Consider the following:

- The cost of continuing without the data lost
- The cost of recreating the data
- The cost of notifying users in the event of a compromise

The high cost of a *Data Loss Event* cannot be overlooked; every business must face this inevitability and put preventative procedures in place to mitigate this cost.

Computers have become ubiquitous in business, with laptop sales rising above that of desktop sales; the rise in their use means a greater chance for malfunction, theft or loss. Laptops are also more likely to lose data from accidental damage, such as dropping. In addition, more data is being stored in smaller spaces as hard drive capacity increases, meaning an enormous amount of business data can be stored on a single machine.

### Facts and Figures

"70 percent of small firms that experience a major data loss go out of business within a year." - *Contingency Planning, Strategic Research Corp*

"93% of companies that lost their data center for 10 days or more due to a disaster filed for bankruptcy within one year of the disaster. 50% of businesses that found themselves without data management for this same time period filed for bankruptcy immediately." - *National Archives & Records Administration in Washington*

"Companies that aren't able to resume operations within ten days (of a disaster hit) are not likely to survive." - *Strategic Research Institute*

"Without a plan, would you survive? Of those businesses that experience a disaster and have no emergency plan, 43 percent never reopen; of those that do reopen, only 29 percent are still operating two years later." - *The Hartford's Guide to Emergency Preparedness Planning*

## Disaster Recovery

### Definition

The definition of Disaster Recovery is "The ability of an infrastructure to restart operations after a disaster." A business can reduce the cost of a *Data Loss Event* by utilizing Disaster Recovery Solutions, such as online storage and an effective backup strategy.

The most convenient backup system would have duplicate copies of every file and program that were immediately accessible whenever a *Data Loss Event* was noticed. However, in most situations, there is an inverse correlation between the value of a unit of data and the length of time it takes to notice the loss of that data. Taking this into consideration, many backup strategies decrease the granularity of restorability as the time increases since the potential *Data Loss Event*. By this logic, recovery from a recent *Data Loss Event* is easier and more complete than recovery from a *Data Loss Event* that happened further in the past.

Recovery is also related to the type of *Data Loss Event*. Recovering a single lost file is going to be substantially different than recovering a whole system that was destroyed in a flood. An effective backup regimen will have some proportionality between the magnitude of *Data Loss* and the magnitude of effort required to recover. For example, it should be far easier to restore the single lost file than to recover the whole system destroyed in a flood.

### Government Mandated Disaster Recovery Solutions

Implementing a remote data replication policy is the first step toward a comprehensive disaster recovery plan, which is no longer an option but a necessity for many IT computing environments. The government has recognized the enormous risk represented by the loss of critical data and is stepping up its efforts to mandate certain requirements across industries such as healthcare, banking, brokerage and insurance. For example, all healthcare-related industries were required to comply with the U.S. Department of Health and Human Services' Health Insurance and Portability Act of 1996 (HIPPA) by the end of 2003. Among the many mandates of this act are data availability requirements to ensure that information is available at all times.

In response to the recovery deficiencies that surfaced in the aftermath of the September 11th terrorist attacks, the SEC has published new disaster recovery requirements for banks and brokerage houses mandating both off-site requirements and recovery time limits. The Enron fiasco resulted in the Sarbanes-Oxley act that imposes new records retention standards for corporate governance.

### Remote versus Local

How your business protects its valuable data should be an important question to answer. You should weigh its value versus its cost and determine an effective Disaster Recovery Solution that fits your needs and budget. Some Disaster Recovery Solutions to consider are the following:

- Remote backup
  - Online Storage, provided by a Managed Services Provider (MSP) or Value-added Reseller (VAR)
  - Off-site storage for removable media, such as a business owners home
- Local backup
  - Server with a tape backup solution installed
  - Redundant array of independent disks (RAID) solution
  - Removable media, such as DVD or CD

### Storage Media

Regardless of what Disaster Recovery Solution you consider, a type of Storage Media will need to be chosen. Here are a few examples and some basic details of each:

- Magnetic Tape
  - Magnetic tape has long been the most commonly used medium for bulk data storage, backup, archiving, and interchange.
  - Tape has typically had an order of magnitude better capacity/price ratio when compared to hard disk, but recently the ratios for tape and hard disk have become a lot closer.
  - Tape is a sequential access medium, so even though access times may be poor, the rate of continuously writing or reading data can actually be very fast.
  - Some new tape drives are even faster than modern hard disks.
- Hard Disk
  - The capacity/price ratio of hard disk has been rapidly improving for many years. This is making it more competitive with magnetic tape as a bulk storage medium. The main advantages of hard disk storage are low access times, availability, capacity and ease of use.
  - External disks can be connected via local interfaces like SCSI, USB, FireWire, or eSATA, or via longer distance technologies like Ethernet, iSCSI, or Fibre Channel.
  - Some disk-based backup systems, such as Virtual Tape Libraries, support data de-duplication which can dramatically reduce the amount of disk storage capacity consumed by daily and weekly backup data.

- Optical Disk
  - A recordable CD (CDR) can be used as a backup device. One advantage of CDs is that they can be restored on any machine with a CD-ROM drive. In addition, recordable CD's are relatively cheap.
  - Another common format is recordable DVD. Many optical disk formats are WORM (Write Once Read Many) type, which makes them useful for archival purposes since the data can't be changed.
  - Other rewritable formats can also be utilized such as CD-RW or DVD-RAM.
  - The newer HD-DVDs and Blu-ray Discs dramatically increase the amount of data possible on a single optical storage disk, though, as yet, the hardware may be cost prohibitive for many people.
- Solid State Storage
  - Also known as flash memory, thumb drives, USB flash drives, CompactFlash, SmartMedia, Memory Stick, Secure Digital cards, etc.
  - These devices are relatively costly for their low capacity, but offer excellent portability and ease-of-use.
- Remote Backup Service
  - As broadband internet access becomes more widespread, remote backup services are gaining in popularity. Backing up via the internet to a remote location can protect against some worst-case scenarios such as fire, flood, earthquake or nuclear strike which would destroy any backups in the immediate vicinity along with everything else.
  - A drawback to a remote backup service is that an internet connection is usually substantially slower than the speed of local data storage devices, so this can be a problem for people with large amounts of data.
  - It also has the risk associated with putting control of personal or sensitive data in the hands of a third party.

## **About 85under and PCnet**

85 Under is a state-of-the-art data center offering secure data storage, data backups, leased hardware and collocation services to businesses throughout the country. Operating out of Springfield, Missouri in the Springfield Underground, 85 Under offers clients one of the most secure and unique facilities available anywhere in the U.S.

PC Net, Inc. has been providing best-in-class IT services to the Springfield community for more than 20 years. The company's new Pulse IT Management offers growing businesses a cost-effective yet highly responsive way to outsource IT services that feel like they're in-house.

For more information, contact us at 877-85UNDER(86337) or visit us online at [www.85under.com](http://www.85under.com), and [www.pcnetinc.com](http://www.pcnetinc.com) locally at (417) 831-1700.

## Conclusion

What is your data worth to you in the case of a *Data Loss Event*? Can your business risk being offline or down for an extended period of time? There are no perfect answers, but choosing to ignore the impact of a *Data Loss Event* and not having a Disaster Recovery Solution in place could have a dramatic and potentially fatal impact to your business; when, not if a *Data Loss Event* happens.

There are other industries where we “insure” against loss, such as auto and health insurance. “An ounce of prevention can equal a pound of cure”, that old saying has never been more true than it is today in regards to the impact of Data Loss.