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WHITE PAPER

Data Elimination

*The Importance and Methodology
of Proper Data Elimination*

The Importance of Proper Data Elimination

Your company is in possession of data that criminals would love to have. You probably spend a lot of time protecting your network from outside attacks and ensuring that there are no vulnerabilities in your system. You also must take this level of protection with data that exists on storage devices that are being phased out or removed.

Your customers, partners, and employees trust you with a lot of sensitive data. Be it credit card information, banking account information, or social security numbers, you have information about them that criminals are hoping to obtain. Failure to properly eradicate this data during disposal of an IT asset or storage device is not only a breach of their trust, but can also involve legal actions and fines against your company.

Here are some examples of existing legislation in place relating to proper protection and erasure of sensitive data:

Fair and Accurate Credit Transactions Act (FACTA) - mandates that all information (including electronic information) containing customer information be properly destroyed upon end of life.

Health Insurance Portability and Accountability Act (HIPAA) – establishes accountability limits on companies in possession of health records. This extends to those providing services for such companies.

Gramm-Leach Bliley (GLB) - federal law that requires banking institutions to detail how they protect confidential and secure customer data.

California Information Practice Act (SB1386) – the first state law that required companies in possession of sensitive personal information to publicly disclose any security breaches that may have exposed personal information to criminals or the general public.

Since it's passing in 2003, most states have followed suit with similar laws setting this public disclosure mandate. This extends to data that is found on IT assets and storage devices through their entire lifecycle, including disposal.

Myths of Data Elimination - Techniques that DO NOT Work

There are still a large number of myths regarding successful ways to eliminate data from hard drives. There are two techniques for data elimination that definitely do not work. The first is simply “deleting” the data. The second is running an operating system based reformat of a hard drive.



Why Deleting Data From a Hard Drive Does Not Work

When an operator chooses data on a hard drive and performs a “delete” function on the chosen data, the hard drive simply allocates the space on the drive that contains this data for future use. This data is not gone until it is overwritten by other data. Deleted data (that has not been overwritten) can easily be recovered. There are many software products readily available on the market for performing just such a task.

Why Reformatting a Hard Drive Does Not Work

When a high level (operating system driven) “reformat” command is run on a hard drive, the hard drive’s file allocation table (FAT) and base root directory are changed. This simply destroys the hard drives ability to determine

where the data resides on the platters. It does not erase the data. Software utilities readily available can be used to reorganize the data for use.

Reformatting often confuses users into believing that it is erasing the data found on the drive because it typically also involves an evaluation of each sector on the drive to determine which sectors are no longer usable. This is a

slow process, fooling users into believing that the data is being erased during this process.

Best Known Methods of Successful Data Elimination

There are currently three main methods used for destroying data on a hard drive. These are physical destruction of the drive, degaussing of the drive, and using software tools to overwrite the data on the drive. Each of these methods has strengths and weaknesses.

Physical Destruction of the Hard Drive

Physical destruction of a hard drive can take many forms, but always involves damaging the hard drive in such a way as to make it impossible to operate. This can range from bending the hard drive into a “V” shape to shredding the hard drive into small pieces.



Advantages

- It is very fast, taking only seconds to minutes per hard drive
- If done correctly, is very thorough

Disadvantages

- Drives are completely destroyed and must now be disposed of properly.
- It can be a difficult process to audit, as “finished” drives are often times in small pieces. This can make it challenging to count the drives or pull serial numbers from the drives that have gone through the process.
- Requires large equipment to perform the process (shredders).
- Not a green solution.
- Requires disposal with EPA certified electronics recycler.

Degaussing of Hard Drives

When hard drive is degaussed, it is subjected to heavy electromagnetic fields. This destroys any magnetically recorded data on the drive platters, making data recovery impossible.

Advantages

- It is a very fast process.
- Involves the purchase of a degaussing appliance, which is a one time cost.

Disadvantages

- Drives are destroyed and can not be reused.
- Drives must then be disposed of properly.
- Effective degaussing units can be expensive.
- Care must be taken to avoid damage to nearby equipment and individuals using pacemakers must remain a safe distance from the unit when it is running.
- Not a green solution. The drives can not be reused.

Software Overwriting Tools

The use of software overwriting tools simply replaces all of the critical data on a hard drive with “white” data. Each sector on the drive is replaced with a new character, either a “1”, a “0” or a random character. This process can be run multiple times with different characters to ensure no traceability of data on each sector.

Advantages

- This is the only choice that allows the hard drives to be reused. It does not destroy them.
- There are many effective ways to deploy the software, most times not requiring that the target hard drive be removed from its native host.
- It is a highly auditable process, as electronic records of drive serial numbers is created by the software package used.
- Green solution. Drives can be reused.
- Allows for recovering of IT asset value, as drives can be sold or reused.

Disadvantages

- It is a slower process than destruction or degaussing.
- Many software products on the market are not fully secure and do not erase hidden/locked directories, and remapped sectors. Freeware packages available typically do not have this capability.

Things to Consider in Choosing a Method for Data Elimination

Choosing the best erasure method is often times based on the situation at hand. Here are some questions to ask your self when making the decision.

- Are the hard drives in question valuable on the market?

- How much time will it take to remove the drives from their hosts for destruction?
- Do you want to reuse the hard drives?
- Do you want to sell or donate the hard drives or storage equipment?
- Is this hardware containing the hard drives leased?

Some notes on things to consider:

If you plan to reuse, sell, or donate the hard drives in question, the only choice is to use overwriting software to perform the data elimination. Other options will render the drives useless.

Removing the drives from the host equipment can often be very labor and time consuming. If this time or labor is an issue, evaluate options for erasing the hard drives inside their host equipment.

Many times lease contracts have large penalties for components (including hard drives) that are not returned after end of lease. A hard drive can have up to a \$1000 fee if not returned. Work with your lease provider before deciding on a method that could cost you a lot of unexpected money.

If you plan on crushing or degaussing the drives, have you determined an ecologically acceptable method for disposing of the destroyed drives? Most crushing companies can provide this service, but ensure that they properly recycle and dispose of the waste. Most do this properly. Some illegally fill landfills.

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