Secure Erase

A Faster and Higher Level of Security

Part 2

While the highest level of security for data destruction can be achieved by perforating or shredding the hard drive, this procedure significantly decreases the sustainable value of the computer and may impose an additional cost if the computer is leased.

The next level of security below physical destruction is "purging." Until recently, "degaussing" – the act of subjecting a hard drive to intense magnetic fields - was the only option for eradicating data with this level of security. A major problem with degaussing is that it renders the drive inoperable once subjected to the magnetic fields.

A new option for purging data from a hard drive is to engage a firmware feature found in hard drives that have been manufactured after 2004. This feature, called "Secure Erase," destroys all data on the hard drive once selected. "Secure Erase" itself is a standard that has been adopted by the ANSI T13 committee that defines the interface standards on how modern PC/Mobile (ATA) hard drives work. The bottom line is that data destruction capabilities are already built into modern-day hard drives.

One of the first Secure Erase software solutions available has been created by the University of California at San Diego's Center for Magnetic Recording Research ("CMMR"). The program "HDERASE.EXE" under the direction of Dr. Gordan Hughes is currently being maintained by Daniel Commins and Logan Straatemeier. .

There are several business and technical advantages to employing Secure Erase:

Faster – In LifeSpan's tests of the "Secure Erase software package created by CMMR, we found this method to be ***twice as fast*** as using disk block overwrite software.

Preservation of end of life value and sustainability – "Secure Erase" affords the same level of security as degaussing, but allows the drive to be reused. This is particularly important for lease returns and the reuse of computers containing hard drives.

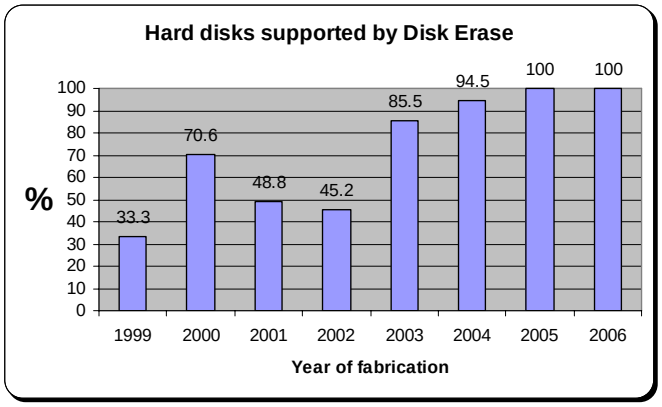
Total Destruction – Secure Erase destroys data in three additional areas that are not typically addressed with overwriting:

- Bad blocks (areas of the disk that have been essentially turned off by the drive controller yet may contain data),
- Host Protected Area (a hidden area that is frequently used to restore an operating system,
- Disk/Drive Configuration Overlay (a hidden area that can reset the number of sectors or essentially reset the size of the drive).

LifeSpan Technology Recycling has partnered with researchers at Temple University under the direction of Jonathon Latko, in order to evaluate the efficiency of Secure Erase process using HDErase. In addition, during a recent visit to the CMMR, LifeSpan learned of the Royal Canadian Mounted Police (RCMP)'s evaluation of HDERASE.EXE. Both evaluations have rendered similar positive results.

Our summary of these findings are as follows:

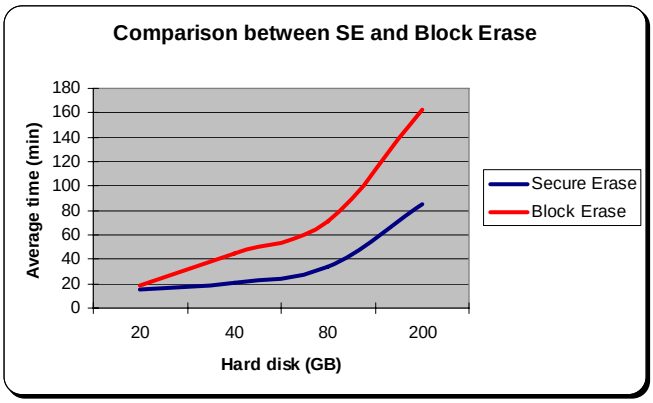
- The testing of 84 hard drives at Temple University and the 317 hard drives tested by the Royal Canadian Mounted Police demonstrated that 73% and 74% of the drives, respectively can be purged using a secure erase command.
- In instances where drives were manufactured in 2004 or after, nearly 95% of the drives were purged using Secure Erase. As more modern machines are retired, there is an increased likelihood that SecureErase will be the desired tool:



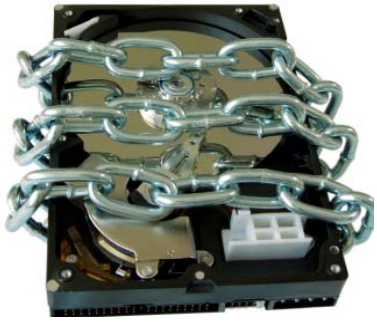
Source: Industry Canada

- The bigger the drive, the bigger the time advantage of using Secure Erase vs. Block Erase (up to two times as fast):

Source: Industry Canada



Note: This is a comparison of single pass block erase – triple pass would be significantly slower.



The Future of Hard Drive Security

In addition to Secure Erase, another technology called "Enhanced Secure Erase", that uses public key encryption (PKE) is making its way to the market place. Manufacturers such as Hitachi Data Systems uses encryption on the hard drive controller in order to safeguard data. When a security professional wants to eliminate data, they merely delete the key and all data is instantly rendered unrecoverable. The CMRR has demonstrated that a 200 GB hard drive can be completely erased in less than one second using Enhanced Secure Erase.

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