Disk Imaging is Not a Total Backup Solution

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Disk imaging utilities can be extremely useful tools that duplicate disks. However, there are some issues and limitations that must be kept in mind when relying on disk imaging as a backup solution.

What is Disk Imaging?

Disk Imaging is where an exact copy of a disk is made. It is different from copying files because it is actually reading the disks contents directly (bit-by-bit), instead of using the file system. This means it also copies non-file related data, e.g. the boot block.

Wikipedia defines a disk image as:

> … a computer file containing the complete contents and structure of a data storage medium or device, such as a CD. The term has been generalized to cover any such file, whether taken from an actual physical storage device or not…

The Drawbacks of Disk Imaging

Because of the way disk imaging works, a disk imaging utility must read every part of a disk (or a partition of a disk). It must do this because the image it is creating is an exact duplicate of the disk's contents. More advanced disk imaging utility software may be able to skip empty areas of a disk, but it must still read every part of a disk that is being used. Clearly this means it could take a very long time to make an image of a drive, especially with today's increasingly larger drives. When a backup takes a long time it quickly becomes a chore and something to be avoided. This may result in backups being made less frequently, or not at all.

Disk imaging utilities must read all parts of a disk (or at a minimum all the used parts of a disk), so the resulting image will be at least as large as all the files (and non-file data) on the disk. A disk imaging utility may use compression, but the resulting copy will still be a considerable size.

By definition an image must contain every single file and folder on the disk. That includes files and folders that you may not want included in the backup, e.g. temporary files, cache files, junk, etc.

As the disk image definition stated earlier, **an image is a single file**. This file may be accessible on a single drive, or "spanned" over several disks. That single file contains the complete disk image. If the file becomes corrupted, or is deleted, then **you may lose the entire file** (the entire image). A further consideration you should make is that you will need the disk imaging software to restore your files from the disk image.

What about viruses, spyware, malware, and rootkits? A disk image contains all the files on a disk, and that includes infected files. When a drive is restored from an image that has been compromised, that drive is immediately re-infected. You cannot replace the infected files in an image file.

As many people discover, over time a Windows installation becomes cluttered with old programs no longer used, registry entries for programs that aren't installed, left-over files from incomplete, or failed installations, etc. This can lead to problems like reduced system performance and annoying errors that you just cannot solve. This is the reason many people do a "spring clean", i.e. they make a backup of their files, reinstall Windows and the programs they use, and restore their files. However, if you restore from a disk image then you are right back to where you started. All the junk and problems are restored along with your more valuable data files.

What happens if a disk image is restored onto a different computer? First, the disk must be large enough to restore the image to. You cannot "partially" restore, it is all or nothing. Once the image is restored the new computer may fail to boot, or serious problems may occur once Windows starts. This is because the disk image contains all the settings and device drivers for the hardware on the computer the image was made on. For example, the old computer may have a very different motherboard, graphics card, network card, etc.

The Benefits of Disk Imaging

There are a lot of drawbacks to using disk imaging technology, but there are also considerable benefits. A disk image can be used to quickly (re)install Windows on a new system. For example: after formatting the drive, installing Windows, installing applications, and configuring the system, an image can be made of the drive. In future that image can be used as a time-saver if a re-install is required.

A disk image can also be very useful for duplicating an installation across several identical computers. Many businesses also use disk imaging technology to provide a standard installation.

Combining Disk Imaging with File Backup

Although they appear similar, disk imaging and file backup are different and are often used for very different tasks. For example, file backup products, like SyncBackSE, can also be used to synchronize files (between computers or disks). They can also be used to backup files to FTP servers, detect file changes and make immediate backups of the files, be run from USB keys, etc.

Most people who use disk imaging also use file backup and synchronization software. They rarely rely on disk imaging as their only backup solution. Combining the two gives the best of both worlds and the greatest peace of mind.

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