"It's the latest innovation in office safety. When your computer crashes, an air bag is activated so you won't bang your head in frustration."

I frequently find that confusion exists as to the difference between a computer's memory and a computer's disk or hard drive.

A computer's memory is technically known as volatile memory or volatile storage, because it requires power to maintain the stored information. The best known form of computer memory is random access memory (RAM). RAM looks like this:

Computer memory varies greatly depending on the type of computer you have, but always comes in some multiple of 256 (e.g., 256 megabytes (MB), 512MB, 1 gigabyte (GB), which equals 1024MB).

A disk or hard drive is non-volatile storage because it does not require power to maintain stored information. An internal hard drive looks like this:

Today's hard drives come in a variety of sizes, typically in hundreds or even thousands of gigabytes. A fairly common size is either about 250GB or 500GB. 1024GB equals 1 terabyte (TB).

So, you are probably saying that this is all very interesting, but what is the significance of this as far as my computer is concerned? When you power on your computer, something called the BIOS (which is permanently stored on the flash memory of your computer's motherboard) starts running and loads the operating system (e.g. Windows XP or Windows 7) from your hard drive into the computer's memory and allows it to begin operation. You might notice a quick screen appears when you first start your computer before you see the Windows logo appear. This quick screen is coming from your BIOS. Once the operating system begins operation, it is in control of everything that happens on your computer. Here is the key point as far as memory is concerned: just like the operating system has to be loaded from the hard drive into your computer's memory to run, so does everything else. So for instance when you want to run Internet Explorer, the operating system finds it on your hard drive, loads it into memory, and executes it. The larger your computer's memory, the more the computer can run efficiently in parallel. Computer memory is much faster than a hard drive, which is fundamentally why everything gets loaded into memory to execute. If you don't have enough memory to run everything you want to at the same time, then the operating system will begin to move data in and out of memory using the hard disk. This is called paging and if it starts to happen, it really slows down your computer. When you do a Save or a Save As, you are copying data from memory (which remember is volatile) to the hard drive, which is not volatile. It is this action that allows you to retain information after you power off your computer.

I frequently find that older computers do not have adequate memory for today's most recent operating systems, which if true, significantly slows down your computer. As an absolute minimum, you should have at least 1GB of memory for Windows XP, although 2GB is much better. For Windows 7, 2GB or 3GB is ideal. Memory is fairly inexpensive (about $35 for 1GB) and often easy to install. If you would like me to do this for you, please contact me.

As always, I hope you have found this information useful. If you do not wish to receive these emails in the future, let me know.

All the best!
Steve (650-222-4140)