WHY DO HARD DRIVES FAIL?

Anyone who owns a computer has to ponder this question and prepare for it, else risk losing all their data.

The first thing to consider is that a hard drive is essentially a spinning disk or platter – much like the tire on your car. Actually, most hard drives contain several platters and your data is stored magnetically on the platters by read/write heads.

Without getting into more technical jargon, please consider the following:
1) Average Platter size is 3.74 inches – common known as a 3.5" drive
2) Average Revolutions-Per-Minute is 7200
3) Average Circumference is approx. 12" or 1 foot

Given the above info, we can calculate the "mileage" an average hard drive might accumulate in a year:
A) 8 hours per work day = 2000 hours per year = 168,000 Miles
B) 16 hours per work day = 4000 hours per year = 336,000 Miles
C) 24 hours per day * 7 days per week = 8760 hours per year = 735,000 Miles

Many folks have asked me should I leave my computer on or shut it down? The short answer is it depends on the application. Most servers run 24/7 because we need access to the data or applications all the time. Desktops and workstations are typically used by an individual for X hours per day. In my case – it's always on. Thus, I'm one of those high mileage folks and replace my drives about every 1.5 years.

How many miles should I get out of my hard drive? If you done any research on the Vendors of hard drives you will see MTBF or Mean-Time-Between-Failure numbers that seem incredible. One major Vendor says 500,000 hours MTBF or 57 Years!!! After you look at the fine print – this large number is an average calculation over a large number of drives.

What really counts is the drive's service life and/or warranty length and a general rule of thumb is approx. 20,000 hours or 1,680,000 miles or 5 years. Actual mileage will vary depending on many factors with heat being one of the top ones. Having been at this for some time, I've seen drives fail in less than a year and seen some still running after 5 years. Currently, if your at or about the three year point I would suggest replacing it.

Hard drives are also like tires when it comes to quality, speed, performance, etc. -- which also plays a major factor in price. There are basically three grades of hard drives known as IDE, SATA, and SCSI. IDE drives are typically known as desktop drives while SATA drives are working hard to take over this space as well as the Server arena. SCSI has been the king of drives for many, many years and is still considered the "safe" bet.

Sooner or later – much like tires – your hard drive is going to go flat or blow-out. The more rigorous terrain (jolts, dust, heat) the more tread wear you going to get. A typical

flat might mean the loss of a few blocks of data while a blow-out would be considered a head-crash. Either one can spell disaster for you – if it hits at the wrong time and/or in the wrong place. Hard drive failure is not a matter of "if" it will fail – it is only a question of when. Another way to look at this is "100% of all hard drives will fail 100%, eventually."

OK Chief – you've convinced me, hard drives will fail. What can I do to protect my data? The standard answer is backups – however for one reason or another backups fail, do not get done, or simply won't work when you need them the most. I'm not saying don't backup – please do on a regular basis. You might also consider storing or archiving critical documents/files off-site.

CTA's answer to hard drive failure is to store your data on at least two hard drives. This means spending an extra $100-$200 on your computer. Wait just a minute and give me one good reason why I should spend the extra $$$? The extra money spent on the second hard drive is about what if will cost you to recreate a single lost document.