Troubleshooting Strategies

The immediate goal of troubleshooting any particular problem should be to restore functionality as quickly as possible. This presents a problem since many problems can be more quickly fix with a whack and hack philosophy; a situation where you can fix a problem without ever researching why the problem occurred in the first place. With this mentality you will be limiting the amount of knowledge you can acquire and could prevent yourself from permanently fixing a reoccurring problem. We will examine three strategies, all of which have the same first step, which are applied by people of varying levels of experience:

Step One

Define the Problem. It seems easy, but you would be surprised at how hard this is for people to articulate; this is actually one of the biggest complaints/obstacle that tech support personal face. You don't fully understand a problem until you can fully describe the symptoms and possible causes to someone who knows nothing about computers. "My computer doesn't start", "It doesn't boot", or "It keeps crashing" are not good examples of explaining a problem. A decent explanation will have: the activity you were doing right before it happened, any warning messages that come up, any other programs (version numbers too) that may have been running at the same time, and hardware specifications. Most importantly, if the problem is reoccurring, you need to be able to completely define the steps needed to evoke the problem again.

Theory #1: Research, Research, and More Research

This is probably the most comfortable strategy for beginners. This involves getting on the internet (hard if your computer will not start), and going to various sites researching your problem. The fact there are so many tech support people in the world should allude to the fact that you are not the only person to ever experience a problem. In fact, chances are that your problem has been experienced before and is documented somewhere on the internet. This strategy can be a little time consuming, and requires a little bit of experience in order to know where and when to look for specific information. Here are some good places to go to research problems:

- **Hard Copy Product Documentation** - This is the most tedious of places to look for solutions, but, if your computer won't start this might be your only resource. Often, there is a troubleshooting section in manuals.
- **Electronic Help Files** - Most programs have a Help menu where you can learn specifics about your particular program and/or open their help file. In the help file you can usually search for problems by typing in keywords or looking through indexes. Of particular use to a novice with a system problem is the Windows Help and Support section. Go to Start → Help and Support to open the program; this area of Windows has troubleshooting wizards that will walk you through steps that will narrow down problems and hopefully fix them.

- **Google** - Google (or any search engine for that matter) is a great place to solve problems because you can type in keywords of the problem that you are having and Google will respond with, potentially, hundreds of sites. Knowing which keywords to type in is a skill that can only be developed through practice.
- **Product Web Sites** - Often problems can be resolved by visiting the manufacturer's web site. Product web sites usually have driver/program updates (these fix known problems), troubleshooting guides, and visitor discussion forums to browse through posts of people who may have had similar problems (or, if you are bold, you can post a question yourself).

Theory #2: Process of Elimination a.k.a. Build from scratch

This is the "recommended" and most reliable troubleshooting method, and it can be applied to hardware or software. When using this method you strip the machine/os down to the bare essentials. Motherboard, CPU, RAM, Video Card if hardware is your concern, or removing all of the third party software that starts up if you are dealing with a software problem. This should either result in a working machine or a beep code. If the machine works at this point start adding components until the problem occurs. The last component you installed is the one causing the problem/conflict. If you think it might be a conflict issue, try installing just the bare bones architecture and the part causing the problem; then add parts back until you see the problem again, the last device you added is the device that is in conflict with the other part. With this strategy you can easily determine the part/program that is causing your problem, and from there you can begin to make sure that that part/program is configured properly, or go straight to the company's web site and begin research.

Theory #3: Guess and Replace

More for the more experienced troubleshooter and not the "recommended" path to take. Often experienced troubleshooter's will be able to identify and fix a problem simply by experiencing it. They are able to do this because they either have experienced the exact problem before and know the exact answer, or they know enough about how a computer operates to be able to significantly narrow down the source of the problem.

The main use for theory #2 is for when the problem seems really obvious. i.e. You have a fully functional machine, after installing a new video card the machine fails to POST. In this case going through the entire list of possible problems and breaking down the machine to the bear components will probably just be a waste of time. We know that the video card is that is responsible for the problem, and can simply try putting in the old card to test our theory. Even if the old card does not work, we still have a frame of reference that something changed in between taken out the old video card and putting in a new one. All you would have to do is trace your steps backward to restore the machine.