GUIDE TO COMPUTER ARCHITECTURE

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WORKING WITH A PROFESSIONALS

There are situations when working with a professional in data recovery is simply the only way to go. It is not always possible to local files on your own, or through the aid of software. There are situations when the contents you are looking to recover are too valuable to risk further damaging the files, too.

In these situations, hiring a professional to help you to uncover the lost data is the right way to go. These professionals are readily available to work with you, in several different ways.

#1: Hire a professional to work with you over the Internet.

#2: Hire a local professional to handle the data recovery by coming to your home or you taking your computer or hard drive to them.

#3: Send your computer or hard drive to the service.

In any of these situations, your likelihood of having the data recovered is high. It is never possible to guarantee that data can be retrieved but in many instances, if it is possible, these data recovery services are the best way to go to find it.

Professional data recovery can cost more than software. Professionals may charge by the hour or by the project, depending on the complexity of the situation. Since every case is different, it is always best to ask for a quote upfront and then agree on the pricing prior to the project getting

started. If you are concerned that the company is not giving you a fair price, consider comparison-shopping with several companies, requesting quotes from several. Some allow you to obtain a quote through an email online.

POTENTIAL DATA RECOVERY SERVICES OFFERED

Each company is different. Large and small independent data recovery professionals often provide a list of the services they do offer. The following are some of the services you are likely to find available to you.

- **Hard Drive Data Recovery**:
  Hard drive data loss, usually from a hard drive failure, is one of the most commonly offered and needed services. This service often encompasses most of the situations we have discussed thus far. Technicians can work to alleviate the problem especially in situations when you cannot get into the hard drive any other way.

- **Server RAID or NAS Data Recovery:**
  When RAID server problems occurs in the storage system, there are services that can unravel these problems for you. A common problem here is a simple outage. In these situations, it is best to work with a professional service rather than trying to make these repairs on your own. Look for a Certified RAID recovery specialist. These services are often stated on the company's website.

- **Tape Media Data Recovery:**
  Often, companies use tape media as back up to other services they have. In addition, when those tape systems become a problem,

finding a data recovery specialist is critical. They can often handle any problem labeled as "inaccessible." Check what types of services the company offers including such storage elements as DAT and DLT.

- **Portable Device Recovery:**

   Portable devices are holding more and more of the important data of our lives, both business and personal. Items like USB, MP3, iPods and other portable devices are consistently used to store information and they too can wind up with a loss of data. Imagine having an all important conference call stored on a Smartphone, for example. Some data recovery specialists handle these types of circumstances. If you have an electronic digital device with any type of storage on it, it is best to use a professional service to access or repair that data.

- **Laptops and Notebooks**:

   Like personal computers, these systems have a hard drive where data can be lost. Failures and outages are common problems, but

most hard drives can be accessed. It is not hard to drop the laptop or to allow it to be exposed to the elements, all situations that could cause data to be permanently lost. Most professional data recovery companies offer laptop and notebook services. More are offer netbook solutions as well.

- **Database, SQL and Exchange Data Recovery:**
  For those who use these services, the most common problem is damage from a server failure or actual physical damage to the disk. The hard drive itself could be broken. These types of problems are significant and hard to repair yourself. Call a professional who can access locked files or suspect backup files. Data lost on these may be such things are backup data that is unrecognizable by the data engines or deleted records.

As you can see, the extensiveness of these professional services is definitely helpful. You can call a professional for any reason you have lost data.

IS WORKING ONLINE OKAY?

Many times, the fastest and most convenient method of getting data recovery from a professional company is with an Internet connection. In short, they can log into your computer from wherever they are located. This can be a benefit since it allows you to communicate with these professionals quickly to get the problem solved.

Keep in mind the importance of working with a professional company that you trust. You should go through the same review process listed in the last chapter for software. In other words, make sure you look for the right company, with the services appropriate for your particular need and one that is rated highly.

By far the most important consideration when working over the Internet should be that the company works over a secure server. Ask them about this. Most companies detail the security they offer to you on their website.

In addition, some companies will allow you to chat with professional data specialists over the Internet through their website. This works much like any other type of instant messaging. These professionals can help you to

understand what the problem is, offer some basic advice and even a quote for the data recovery needs. This is a simple and fast way to start the process.

DO YOU NEED THEM?

If you are spent some time using software or trying to locate the data you have lost on your own, without luck, call a professional. Here are some instances when you need their services.

1. You have failed to restore the lost data yourself.
2. Your hard drive is in a fragile state.
3. You cannot get into the hard drive at all.
4. You have a more complex problem that any of the above solutions have yet to help.
5. You need advice on what could be wrong.

Getting a quote for service is often the best first step. Not only do you learn what it will cost you to have the process completed, but it can also give you an idea of what could have been done to protect yourself from the problem in the first place.

We will provide more on that in just a few minutes.

REPAIR TIPS TO USE FIRST

There are some situations in which repairing your hard drive is something you can do on your own. The following is a guide to some of the methods of quick repair you can try first.

RECOVERING IMAGES AND REPAIRING FILES

If you have lost images or sounds from recordings, cameras or computers, these can often be found. Use a program to access those files specifically designed for use in this way. In other words, get a photo recovery service or software program.

REPAIR WORD AND EXCEL FILES

You may be able to recover some of these files. Microsoft has a built in file repair tool that you can use. To locate it, follow these steps:

- Go to File
- Click Open
- Select the damaged file from the list that pops up
- Click the area on the right side of the Open button (located at the bottom of the window that opened)
- Click "open and repair" from the drop down menu.

Another problem with Word and Excel is with the installation. If you have installed it, but when you open the program, it fails to work properly, you may need to repair the installation. You do not have to uninstall it, though. Rather, use the repair utility that Microsoft provides for you. Here is how to use it:

- Open the control panel, which is usually located under your start menu.
- Then, click "add or remove programs" (In Windows XP) or "uninstalled a program" in Vista.
- Locate the Word, Excel or Microsoft office program listed here. It may be called any of these names.
- Click on the "change" button.
- Here, it gives you the option of uninstalling the program or to repair it. Choose repair.
- It will take you through a series of prompts to ask you which programs you wish to repair.

Word and Excel files are the most commonly lost or error prone files since humans often name and label them. These steps can help with most errors.

LOST, MISSING OR DELETED FILES

One of the most common reasons people need data recovery services is to help them to recover files they have lost or accidently deleted. One of the first things you should do is to realize that you could make it worse. First, do not run any type of software that is designed to save files to the hard

drive. Or, if the files are saved on any other device, such as a USB flash drive or memory card, do not use those drives or run any files which may save to it.

The reason for this is simple: you could inadvertently overwrite the missing or deleted file. Instead, here are some tips to help you to get to the file.

1. Check your recycle bin first.
2. Another option is to use the "when was it modified option?" located under your Start menu, and under "Search". If you have Vista, follow this process: "Start" "Search" then click the down arrow next to "Advanced Search." Select the "dated modified" from the "Date" drop down menu.
3. Use the "undelete utility."

This will not work in all situations. For example, if the hard drive has been reformatted, it will not work. In these situations, or when the above tips do not work, it is best to use data recovery tools from a specialist or software program to further help you search.

LOST PASSWORD HELP

There are many reasons why you may lose your password. Often, computer programs allow us to "save" or "remember" the password and we rely on that feature. Then, one day, something changes and we need to verify it. Unfortunately, you have no idea what the password was.

Do you have a BIOS password? This is a good way to help protect your computer from other users (this feature does not allow anyone to use your computer unless they type in the password first.) However, what happens when you lose this password? Before you become frustrated, here is a tip for recovering this password.

To reset the BIOS password, located the small electrical switch that is located on the motherboard. This is often called the "jumper." You probably should spend some time checking your computer's owner manual before attempting to do this for the first time. It is critical you identify the jumper properly.

If you want to get past the Windows XP log on password, you can do so fairly easily. If you have forgotten this password, restart your computer. During the start up process, just before Windows starts, press the F8 key. Then, check the Advanced Options Menu where you can select "Safe Mode." This will bring up a screen with a variety of icons, usually one for each of the users on the computer. Next, you should log into the "administrator" account. You can usually do this by leaving the password field for the account blank. This will allow Windows to run. Once open, locate the Control Panel and select the icon "User Accounts." You can then reset the password for the account quickly. Unfortunately, this will not work for Windows Vista since Microsoft repaired this breach before the operating system was released.

RECOVER WINDOWS FUNCTIONALITY

There are times when the amount of supposed data loss is incredibly, including the loss of functionality with Windows. This often shows itself at the worst times, but there can be some help for you. If you have turned

on your computer then saw a few bits of information run across your screen and that is it, no Windows logo being displayed, you may panic. The blank screen that follows is quite worrisome.

You may not have to reinstall Windows to return your system to health. Here are a few steps that can help you through this process.

1. Restart the operating system in Safe Mode. To do this, as the computer turns on and begins to run, hit the "F8" key.
2. The configuration screen will look like a black screen with white lettering (in most cases.) Click on "Last Known Good Configuration" in the menu. Press Enter to access it. This will allow all of the settings to reload from the last, successful launch of Windows.
3. That may get the Windows operating system up and running. If not, you can follow the same steps and open the "Advanced Options Menu" after hitting F8 during rebooting. Then, enter Safe Mode again. Not all of your operations will work in Safe Mode, but this is a good thing since if Windows loads that means one of the services or drivers not initialized during the start up process is to blame.
4. Locate the problem using the Windows System Configuration Utility. There is a wizard and guide to using it, located under Microsoft's Help and Support Pages online.

A similar problem will occur when Windows is working, but not working properly. You notice a change but you do not know what caused it. The best option here is to restore Windows to an earlier setting. The Windows System Resort will pull back your system to a previous setting, therefore fixing the problem you may have had.

To restore your system, you will need to choose a restore point, or a point where you wish to take your system back. As you will see in the next chapter, it is always good to back up your data. This would have created a restore point for you. If you have not done this yet, you can see restore the system using one of the restore points created by Windows. Note, you should always create restore points yourself whenever possible.

To do this, follow these steps:

1. Turn on the computer and click the Start menu. Then, choose "All Programs."
2. Under All Programs, you will find "accessories" and then "System Tools." Under the System Tools menu, you will find the "System Restore" link.
3. Then, click "Restore my computer to an earlier time." Then, click the "Next" button.
4. This pops open what looks like a calendar. Any of the dates that are bolded are points where you can restore your computer to since Windows has created them. If none are listed, click the previous month's calendar and select a date from that point.
5. Click the "next" button and follow the prompts to restore the computer. This process can take some time, and you may lose some settings. However, it should help to get Windows running properly.

After your system is restored from either of these situations, back it up.

PRODUCT KEY LOCATION

There are times when you need to access the product key to a software program or other application. Product keys are critical in any situation where you need to reinstall the software onto your system. The product key is often lost, though, since it is usually on a piece of paper that comes with the disk. Many people mistakenly throw them away. This could be costly.

Unfortunately, you will not be able to get the product key information from the software program on your computer. Very few programs will allow you to access this information directly.

If you do lose the product key, but you have registered the product at the time of purchase (or any time thereafter), you can call customer service of the product manufacturer and request the product key. This is usually no problem if you have registered.
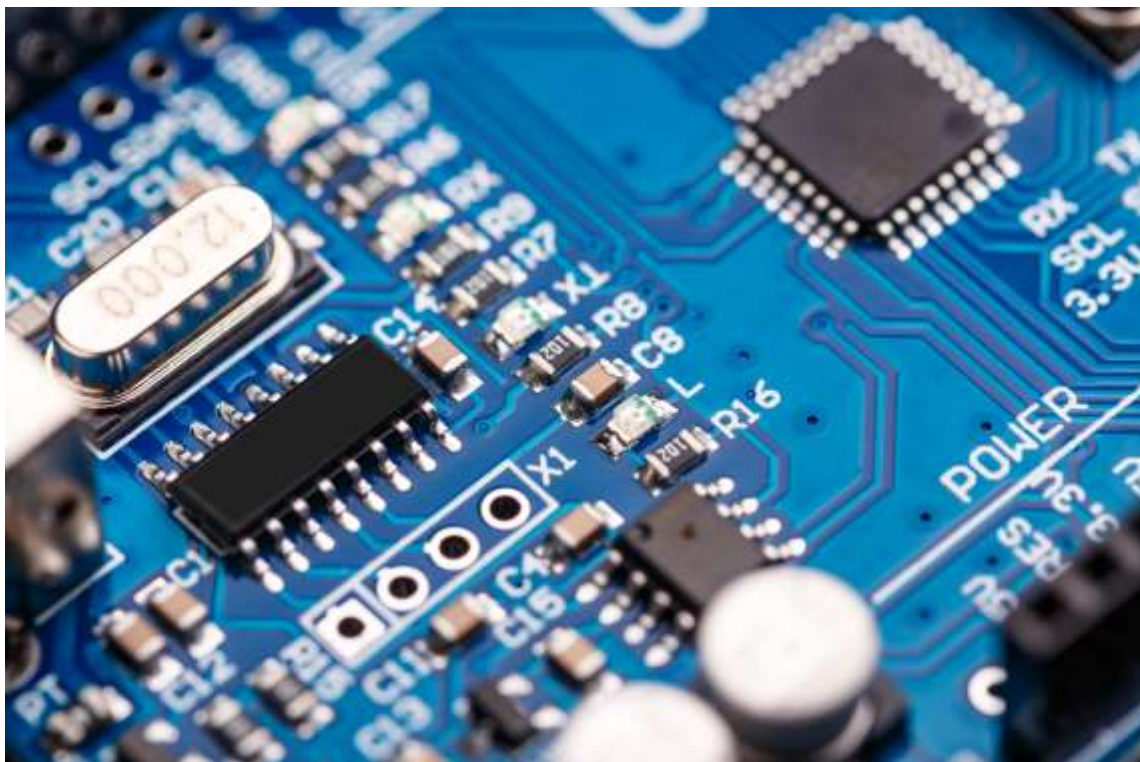
If you did not register the product key, things get a bit more difficult. Some companies will allow you to get the product key (or a new one) if you can show proof that you purchased the item. This may be the original installation disk or a receipt of purchase. Even if you have this information, you will likely have to take various steps to prove that the product was purchased by you.

A tip for you to avoid this problem: When you purchase and install any type of new software to your computer, use a black permanent market and write the product key directly on the top of the installation CD. This way, you will have it with you at any time.

SUMMING UP

Data recovery software tools can help you to locate much of what you need, as can professionals, even if these tools listed here do not work for you.

These tips can help you to restore much of your lost data from your computer or hard drive. There are no guarantees that you will be able to pull this information from your computer, though. It is often a better option to protect your data beforehand, on a regular basis, so that you never have to be worried about losing it completely.

PREVENTING DATA LOSS

FOR NEXT TIME

Sure, at this point, you have data that is lost and the last thing you want to hear is that you could have prevented losing that data in the first place. There is nothing like an all important file that goes missing to be a good reason to get your data storage and back up in check again. In this chapter, we look at the various ways you can prevent any data loss in the first place.

There are various methods you can use to prevent data loss from occurring again. Let's take a look at some of them.

USING A SECOND HARD DRIVE

One of the best ways to prevent losing your data from your computer is to protect it from the evil viruses and problems that commonly lead to the data loss in the first place. You can do this through using a second hard drive.

Let's say you are using a word processing program to write up a report for your college professor. When you save that report, it will likely save under your "My Documents" location in the file folder system. This seems like a good place to save the information but it can be treacherous, especially if this is the only place that you are saving data. There are several reasons

why this is not the right place to put all of your saved files: software failures and virus problems.

In both of these situations, and others that affect your operating system, having your data in these files simply locks them away from you. In some situations, the only thing that can be done is to reformat the hard drive which also means reinstalling the operating system. As you can assume, this also means anything on the hard drive prior to the reformatting will be gone.

The best option, then, is to install a second hard drive on your computer. The good news is this is not a costly solution. Now does this help if it is located within your computer?

- A virus attacks your operating system and files. Anything on your initial hard drive is wiped out, but the secondary hard drive is untouched.
- The operating system fails or the hard drive fails itself. The second hard drive is still working and protecting your data.
- The files on your hard drive are corrupted. The second hard drive is not affected by the corruption.

If you end up with a situation where the hard drive, operating system and even the computer itself fails, you can remove the second hard drive and put it into your new computer. As you can see, having a second, internally installed hard drive is one of the best solutions.

Some may not want to buy or install an internal hard drive. If you are unfamiliar with working on computer hardware, this is not a problem. You can instead purchase and use an external hard drive. Most of these

external hard drives can be installed to your computer (or removed) quickly, usually through a USB port.

When buying an external hard drive, it is best to look for one that will have scheduled backups planned for it. You can also find hard drives that allow you to back them up quickly, with a one-touch sensor.

When buying an external hard drive, be sure to consider the size you need. A larger size can help to ensure all of your data is easily stored on the hard drive. And, like any other type of computer hard drive, you do need to maintain it as external hard drives can be overwritten accidently as well.

BEWARE OF DISK BACKUP

Five to eight years ago, it was common to insert a floppy disk into your computer (or even a CD version) and allow the data on your computer to be copied to it, as a form of backup. You can still do this, but before you count on this method, it is important to note that some computer manufacturers are not including floppy drives on computers anymore. This may be an add on feature, though expensive, that can be added.

TRY THIS BACKUP

One of the best ways that you can backup your data is to use a company's product that is well known and trusted. One of the best on the market right now is Netgear's NAS line. NAS, or Network Attached Storage, is an award-willing device that many businesses and personal users take advantage of.

here are actually several products here, all of which can be quite beneficial to the right people. In short, these products are storage systems. You can store your data here, share it with others and protect it from any type of data loss or from other people. This system also allows you to centralize files, from various locations. The files can then be shared from one computer to the next and even can be accessed offsite.

There are several products to choose from:

- **ReadyNAS Pro Pioneer Edition**:
  This is a great choice for those who are looking to for top quality at home storage. For home users, this is a very fast system and it is highly reliable.

- **ReadyNAS Pro**:
  This is a good option for both the small business and the at home user. It is a smaller version than the Pioneer Edition.

- **ReadyNAS NVX**:
  This system is the company's fastest. It is probably the best option for those looking for ultra protection and efficiency. This very capable device offers a four bay storage system.

You can find out more about Netgear's line at their website: www.Netgear.com.

PREVENTION METHODS

Having backup storage as we mentioned previously is incredibly important. It is the single most important method to protecting your data from any type of loss. Having two copies, one on your hard drive and one on a second storage device is optimal. It protects you from not only losing your data but also paying large fees to have that data located and restored for you.

In addition, there are several things you can do to improve your computer's ability to protect data. Not only are you protecting your data from being lost, but also the computer as a whole. For example, a surge to your computer could burn more than just the data, potentially requiring a replacement of your entire computer.

The following are some tips to help you to avoid any of these costly problems.

BACKUP YOUR FILES

We have talked about how to backup your data, now you just need to do so. There are two options here. First, you could elect to use a manual system. Here, you would need to log into your system and tell the device to backup your data. For example, in some cases, after you finish a project you may want to back up your data. Therefore, you manually execute the backup method. This may be as simple as turning on the external hard drive (or connecting it) and requesting it to backup the data.

The second option is to set up automatic backups. Some systems will allow you to backup daily, such as after the day's business has been completed. Other systems will back up whenever you want them to. You simply set up a schedule for the system and it will follow this schedule for you, each schedule time activating and backup your data.

It is understood that using an automatic system is the best route to go so that you avoid the human error of forgetting to backup or running out of time to do so. Many external hard drives make this process very simply and you do not have to pay much extra for this type of service.

Once the data has been backed up, consider the importance of storing it. If you have a very important piece of data, you may want to store it in a fire
safe box, for protection.

AVOID THE SURGE

How is your computer plugged into an electrical outlet? Is it plugged right into the outlet on the wall? If so, you are setting your computer up for incredibly risk. Should your home be struck by lightning, or you experience a power surge of another type, the result will be devastating to your entire system.

You can avoid this potential damage by using a power surge protector. You can pick up a computer surge protective outlet inexpensively. You simply plug that into your outlet and then plug each of your computer related electrical supplies into the surge protector. If there is a surge, the protector stops it from traveling to your computer directly, helping you to avoid any type of failure with the system.

USE GOOD ONLINE PROTECTION

The web is full of potentially worrisome events that could cause a data loss. One of the most potent is the virus. Should a virus infect your computer, this could lead to a loss of data or even worse difficulty using your computer at all.

Here is what you can do to protect yourself:

- Use virus protection. Virus protection should scan your computer often to remove anything that may have gotten into the system. In addition, it should be used as a shield, to prevent anything from getting through. The sooner it is able to stop the data from getting in, the less likely there will be damage.

- Be careful opening emails and especially email attachments from people online. Unless you know them, and trust them, this could cause a number of problems for your computer's safety.

- Be careful when downloading anything to your computer. You know that it is safe, but even then, you could overwrite data on your computer. For example, the document being sent to you uses your name as its file name. You download it, but you already have a file name with your name. This data could overwrite whatever is currently at that location. A good way to avoid this problem is to ensure that documents downloaded are automatically downloaded to a different folder on your system, rather than the same one you store data on.

By doing these things, it will help protect your computer from data loss and damage from those who would try to damage your system, or those who may inadvertently cause a problem for you.

BE A GOOD USER

Most of the problems with data loss come from humans themselves. If you make end user mistakes, this could lead to the data loss you are worried about. You can do a few simple things, though that would help to avoid these problems:

1. Use word processing features and versions that track changes for you.
2. When editing a document, be sure that you take steps to avoid data loss. For example, open the document, then, click "Save As" on the document and change the name. This way, the original of the file is still safe on your computer if you need to further change it.
3. Use F12 to save a file as a different name. This is the same as using the "save as" feature, but in a simpler process.
4. Keep your files organized. This way, you can easily find whatever you need when you need it.

STILL WORRIED?

If even after all of these methods of protecting your computer you are still worried about your data, there is one more thing you can do. Keep a hard copy of the data you need to save the most. Yes, you will need to input the data back into your computer should there be an event, but at least you have the contents to work with!

Your data is incredibly important to you. Take whatever steps you need to retrieve it, but perhaps the most important thing you can do for it is to protect it in the first place. It is not expensive, nor does it take a long time. However, it can be one of the key benefits to protecting your data long term.

If you have any questions about how to protect your computer, your hard drive, or other forms of data, contact your manufacturer and inquire. You can also use any of the data recovery specialists to help you to find the right solution for your particular needs. Be sure to do this so that the next time you find yourself with lost data, you will know just where to look to find it!

One last source I would like to mention again is Carbonite. This online backup service will store our valuable data off site at their location in a secure datacenter. This is one of the cheapest and most secure options for you to fully backup your data. Find them at http://www.JeremyBurns.com/a/carbonite