Midwest Software Specialists, Inc.

Training and Consulting

How to Protect Your Computers and data from Power Failure.

Dear Jennifer,

As a newcomer in Miami, I was unprepared for the summer storms that bring frequent power outages. I quickly realized I had to take specific action to protect my computer and data. Surge protectors and uninterruptible power supplies are the two main tools that can shield you from unnecessary hardware damage and data loss from power outages.

Let's begin with surge protectors. A surge protector is an appliance designed to protect electrical devices from voltage spikes. A surge protector attempts to limit the voltage by either blocking or by shorting to ground any unwanted voltages above a safe threshold. Many power strips have basic surge protection built in; these are typically clearly labeled as such. However, power strips that do not provide surge protection are sometimes erroneously referred to as "surge protectors." All good surge protectors guard against small to moderate surges. What should you look for in a surge protection?

A power strip with surge protector and multiple outlets

Lower clamping Voltage

In general, a lower clamping voltage is better. Also known as the "let-through voltage", this specifies what voltage will cause the protective components inside a surge protector to divert unwanted energy from the protected line. A lower clamping voltage indicates better protection, but can sometimes result in a shorter life expectancy for the overall protective system. The lowest three levels of protection are 330, 400 and 500 volts. The standard let-through voltage is 330 volts.

Joules Rating

This number defines how much energy a surge protector can theoretically absorb in a single event, without failure. A lower rating may indicate longer life expectancy if the device can divert more energy elsewhere and thus absorb less energy. In other words, a protective device offering a lower clamping voltage while diverting the same surge current will cause more of the surge energy to be dissipated elsewhere in that current's path. Better protectors exceed peak ratings of 1000 joules and 40,000 amperes.

Uninterruptible Power Supply

An uninterruptible power supply provides a cushion against a computer losing power. Computer users know that it's a bad idea to turn off a computer abruptly without allowing it to go through its normal shut-down process. A power outage, by definition, will shut everything down in an instant. If you're in the middle of working on something, a basic uninterruptible power supply can give you a few critical minutes to save your work and shut down your computer. More advanced models work with specific software to facilitate a proper shutdown even when you aren't there. Most uninterruptible power supply models also serve as surge protectors. You should also make sure a uninterruptible power supply provides enough wattage to support your systems and enough time for you to bring it down. Nothing will protect against a direct hit of lightning.

After a storm- your PC does not start up...

Before assuming the worst case, check to make sure other devices in the same room or connected to the same outlet are working. If your computer shows no signs of life whatsoever- (nothing on-screen, no lights, no fans), then the power supply is most likely ruined. With luck, the power supply blew prior to the surge damaging any other components. You can replace the power supply pretty easily and cost effectively, but you won't know for sure if other damage lurks beneath. If the power supply fans are working but the machine emits a series of beeps, strange messages on the screen, the motherboard most likely has been damaged. On the other hand, if everything starts up normally for the first few seconds, but gets hung up when the operating system normally loads, (you may see an error message from the BIOS [Basic Input /Output Systems]}, the hard drive is probably fried. It's also possible that one of these devices is damaged but not destroyed, which would result in unreliable performance or random crashes, as opposed to an inability to launch.

Recovery from this kind of situation depends on having automatic or manual backups, stored on an external or network drive and verifying that they are running successfully. If so, you have a lot less to worry about. A hard drive is much easier to replace than a year's worth of work.

As you follow the troubleshooting steps explained here and identify affected hardware, add each component to your shopping list. If you suspect that multiple components have been damaged, you can replace them one at a time, starting with the power supply, and testing

to see what is still working. In a best case scenario, you'll be able to start up and use the hard drive long enough to extract any data that wasn't already backed up. Alternatively, especially if your backups are current, it may be more cost-effective and faster to replace the entire system.

We hope this article explains the important role that surge protectors and uninterruptible power supplies play in protecting your computer and data from loss due to power failure.

We are always happy to hear from you and assist in advancing your maintenance program.

Best Regards,

Jennifer

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