

# The Open Pitt



What's cooking in Linux and Open Source in Western Pennsylvania

Issue 4

September 2004

www.wplug.org

## Flirtin' With Disaster

With the memories of Hurricanes Frances and Ivan fresh in our minds, this might be a good time to take up the issue of disaster preparedness and recovery. It is tempting to think that you won't have a data problem. After all, perfect copies of billions of bytes fly around inside your computer every day. But anyone who has experienced a problem will tell you that things can go very wrong, very quickly.

The first thing to assess is just what is valuable to you. This will help determine what level of effort you will

put into your plans. If the most important item is your Frozen-Bubble high score file, you'll likely need to do less than if you're protecting a customer database. Let's look at some potential trouble areas and common countermeasures.

### Software failures

All software has bugs. While most popular software is pretty stable, if you like to run bleeding-edge or developer releases you are at increased risk of causing data corruption.

Factor this into your backup strategy. Also worth considering is setting up a different partition, hard drive, or even a whole separate machine for running experimental code. Keep user errors in mind as well; a mistyped `rm` command can wreak havoc. Only use the superuser account when necessary, and run servers as separate users so they can't stomp on each others' data.

### Hardware failures

Hard drives are perhaps the most common point of failure. In the last three PCs I have owned, I have had two hard drives go south. It does little good to backup your data from one partition to another—when errors start showing up, they're likely to be spread across the entire disk. Copy your data to another drive, or even better some form of removable media.

See **DISASTER**, p. 2

### Hardware Failure Hits Close to Home

The machine penguin.wplug.org which serves WPLUG's website and mailing list was down for about 10 days. This was the first extended outage since moving to the Computer Science machine room of Carnegie Mellon University in February 2003.

On September 2 around 4PM, the entire campus lost power for well over an hour. Without air conditioning, the machine room temperature rose to 80°F. Penguin stayed up for 20 minutes with the help of a UPS, but in the chaos was not shut down cleanly.

With power and sanity restored later that evening, penguin was booted and all seemed well. But the machine crashed unexpectedly the

morning of the 3rd. The hard drive and its data were never the same since. After a filesystem check that took several days, we were able to recover all of the important data.

To help prevent a similar event from occurring, WPLUG bought an IDE RAID card and two 160 GB disks for redundancy. Total cost \$225.

During the outage, a temporary web server displayed a simple page for visitors to www.wplug.org. It included a plea to give to the hardware fund via Paypal, netting \$75. We hope to recover the rest of costs by auctioning off the replacement disk we received from RMA and some other hardware.

—Beth Lynn Eicher

## August Roundup

*Aug. 8 Open Source Picnic:* Held in Whitehall's Snyder Park, WPLUG's third annual picnic attracted about 25 people, from tall to small. Games and balloon animals provided amusement throughout the day. A true feast was laid out, including a brain-shaped jello mold! Photos of the event are available on the Web.

*Aug. 14 General User Meeting:* **Bill Moran** of **Potential Technologies** spoke on Samba. Most Windows systems use the Server Message Block (SMB) protocol for file and printer sharing, and Samba allows UNIX-like systems to speak the SMB protocol. He covered the major concepts and gave some examples to get up and running quickly.

Picnic Photos - <<http://www.wplug.org/picnic/>>

Samba Slides - <<http://www.potentialtech.com/wmoran/>>

### Coming Events

**Sep. 18:** Installfest. 10AM to 5PM, 1507 Newell-Simon Hall, CMU

**Sep. 25:** General User Meeting, Topic: Using Open Source to Solve E-Mail Problems. 10AM to 2PM, 1507 Newell-Simon Hall, CMU

**Oct. 2:** Ohio LinuxFest. 10AM to 6PM, Columbus, Ohio: see article this issue

**Oct. 9:** General User Meeting, Topic: Voice Over IP Using Asterisk. 10AM to 2PM, 1507 Newell-Simon Hall, CMU

**Oct. 16:** New User Tutorial, Topic: Linux Basics. 10AM to 2PM, 1507 Newell-Simon Hall, CMU

*The public is welcome at all events*

**DISASTER**, from p. 1

The good news is that most modern hard drives incorporate Self-Monitoring, Analysis and Reporting Technology (SMART). SMART can give notice of impending failures and provides extensive self-checking features. The *smartmontools* utilities are a good way to perform a check-up.

Memory errors are less common, but can be particularly tough to track down. You can give your x86 PC's memory a thorough workout with *memtest86*. If a server is handling mission-critical data, you will want to use parity memory, which can detect errors, or ECC memory, which can also correct some errors. Support for this memory must be built into your motherboard for it to work.

**Environmental factors**

In case of fire or flood, your entire site may be ruined. That's why off-site backups are important.

**In brief...**

An interview with WPLUG's Tom Rhodes was featured in *Daemon News*, discussing his work on the FreeBSD Handbook. Though perhaps not as widely known as Linux, the BSD-derived operating systems are robust, actively maintained, and have roots nearly as old as that of UNIX itself. And of course they're Open Source. <http://ezine.daemonnews.org/200408/trhodesinterview.html>

Construction of the Carnegie Mellon's Collaboration Innovation Center has caused parking and access problems for WPLUG meeting attendees for over a year now. Just when it is nearing completion, CMU will soon break ground on yet another building.

On September 14, the Bill and Melinda Gates Foundation donated \$20 million to help fund a new building. It will be just east of WPLUG's meeting space, Newell-Simon Hall. [http://www.cmu.edu/cmnews/extra/040914\\_gates.html](http://www.cmu.edu/cmnews/extra/040914_gates.html)

Mr. Gates visited CMU on February 25 to give a lecture to computer science students. During the time for

While a UPS can keep your system up and running during a power outage, keep in mind that heating, cooling, and communication systems may lose power as well. Many UPSes can tell your PC to shut down when its battery runs low. See the *apcupsd* and Network UPS Tools projects.

**Backups and recovery**

While good old *tar* can be used for archiving, there are more sophisticated options like *Amanda*, *Arkeia*, and *BRU*. For backing up over a network, *rsync* saves time and bandwidth by only sending changes, not entire files. Be sure you practice restoring files before disaster strikes; a backup does no good if it can't be read.

A live CD distribution like *Knoppix*, *PLAC*, *MkCDrec*, or *SystemRescueCd* can help in recovery.

Sources of information online include the *Linux Complete Backup and Recovery HOWTO* and the *Red Hat Linux System Administration Primer*.

questions, one student offered him one of the free Knoppix Linux CDs donated by Potential Technologies being distributed outside the event. He accepted, yet asked: "How much is it worth?" <http://www.tcpulse.com/2004/02/27/news/billgates/>

Maybe \$20 million?

CMU's Robotics Institute will celebrate its 25th Anniversary with an event titled "Robots and Thought"

**Ohio LinuxFest 2004**

Just a few hours' drive away, the Hyatt Regency Columbus Hotel will host Ohio LinuxFest 2004 on October 2.

WPLUG's own Bill Moran will be giving a presentation on handling e-mail with Open Source. Other speakers slated to appear are Paul Ferris of KeyCorp; Rich Bowen of the Apache Software Foundation; Colin Walters of Red Hat; Deryck Hodge of the Samba team; Dan Rusek, Mark Richards, and Brian Maseck of Novell; Charles Peck, Josh Hursey, and Josh McCoy from Indiana University; and Greg Boehnlein of N2Net.



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Editors:

Elwin Green  
Vance Kochenderfer

*What is Linux?*

Linux is a *kernel*, the core of a computer operating system, created by Linus Torvalds. It is typically packaged as a *distribution*, which includes the extra programs necessary to make a computer functional and useful. Since 1991, it has grown from a one-man project which ran on one computer to one with thousands of contributors running on everything from personal organizers to million-dollar supercomputers.

*What are Open Source and Free Software?*

Open Source and Free Software provide you, the user, with the opportunity to see the source code of the programs you use. You are free to use it, share it with others, and even make changes to it if you wish. While the Free Software and Open Source communities differ in their philosophical approach, in practical terms they share nearly identical goals. Learn more at <http://www.opensource.org/> and <http://www.gnu.org/>.

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<http://www.ri25.org/> from October 11-14. It will showcase a number of robots built at CMU, many of which use Linux.

*Beth Lynn Eicher contributed to this article.*

The day will be filled with sessions on the Apache web server, Security Enhanced Linux (SELinux), mathematical modeling using Beowulf clusters, desktop Linux, Open Source telephony, and more.

Jon "maddog" Hall, a long-time Linux backer in the computer industry and executive director of Linux International, will give the closing address. Other special guests are Scott Collins of the Mozilla Foundation and Jeremy Cole of MySQL. For more details on the event or to register, see <http://www.ohiolinux.org/>.