

Ubuntu Linux: Free, legal, and safe from viruses

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In February, computers- both school district servers and some workstations and notebooks- in the Vancouver School System (SD#39) were infected with a worm. While the District's IT department has not named the infection, the symptoms closely resembled the win32.downadup worm, also known as conficker. Probably not coincidentally, downadup/conficker- spread both online and via USB memory keys- infected an estimated 10-12 million other computers world-wide at about the same time.

Upon learning of the infection, which was preventing some users from logging on to VSB network servers, the IT department requested that computers throughout the school system- in school and school board offices, classrooms, libraries, and computer labs- be shut off until IT staff could check each system to ensure that it was infection-free and make sure that it was running up-to-date anti-virus software to ensure that it remain infection-free.

With about 10,000 computers to check and a relatively small IT staff, it took a while to get to every computer- some schools were without the use of their computers for about three weeks. Some school computers were unable to run the licensed anti-virus software – which runs on Windows 2000/XP/Vista, but not, for instance, Windows 98; with the anti-virus software running, even compatible systems run noticeably slower.

What I haven't mentioned up to now: the infection- and the resulting shut-down order- only affected systems running one or another version of Microsoft Windows. Macs and systems running some version of Linux were not vulnerable to the infection and could continue running without problem. Unlike many other BC school districts, however, Vancouver has only a small minority of systems running anything other than Windows.

My elementary school computer lab has been running Windows XP. As a teacher based in a computer lab, my job would be drastically affected if I couldn't let students use computers or go online for an extended period of time.

So it was time for an experiment- it would have cost a lot of money to convert my lab from Windows to Macs. But there was another option- a free one. Linux is a free, non-Windows operating system that runs on the same sort of hardware as Windows. Typically, it comes with a set of (also free) applications- web browser, word processor, and on and on- letting users get right to work.

I've been watching Linux for a long time now- at first, Linux was difficult to install, lacked support for lots of popular hardware, and required lots of specialized knowledge to customize or configure. That's much less the case now. In fact, in many ways, Linux may be easier to install and use- and may even support a wider range of hardware- than the latest versions of Windows.

New comers to Linux can be easily overwhelmed or confused though- while there are a relatively few versions of Windows, Linux comes in literally hundreds of packages, known as distributions. While each has its adherents, I limited myself to Ubuntu, which is currently the most popular Linux distribution for use on desktop and notebook computers.

Ubuntu can be obtained as a free download from www.ubuntu.com; doing that gets you a 700 MB '.iso' image file; burning that to a blank CD gives you a disc that can be used to install Ubuntu. (Hint: check your burning software's help for 'image file'- you don't want to simply burn the .iso file onto the CD; instead, you want to use the image file as if it was a virtual CD, copying its contents onto the CD).

Alternatively, Canonical, the company that maintains Ubuntu (and makes its money selling technical support) will send you one or more copies of it, on CD... but that will take a while. Whether you download a copy or get an 'official' one from Canonical, you can install it onto as many computers as you like and make copies of the CD and give them away to students or colleagues.

A new version of Ubuntu is released twice a year; as I write, the latest version is 8.10, meaning it was released in 2008-October. A new version is expected 9.04: April 2009.

The Ubuntu install CD is what Linux-users refer to as a Live CD. That makes it especially useful- you can boot to it, running Ubuntu without having to install anything onto your computer. Especially nice if your school district's IT department doesn't like you installing anything onto your computers!

This install CD is very handy- you can verify that Ubuntu recognizes and works with your computer's hardware and to verify that you can work with Ubuntu, all without having to commit yourself.

Faced with the VSB's "shut down Windows systems" order, that's what I did: copied a bunch of Ubuntu CDs and used them to boot my computer lab's IBM NetVista Pentium 4 systems to Ubuntu.

On my lab systems, they booted and ran just fine, recognizing the display adapter, network card, sound card, and so forth. Running that way, I had Internet access- with no danger of infection- with the Firefox web browser installed. I also installed- the free OpenOffice.org office suite, with Microsoft Office-compatible word processor, spreadsheet, and presentation software. Students were even able to access their network shares on my school's server.

No installation required. Pretty neat. (The fine print: you'll need at least 384 MB of RAM in order to boot to Ubuntu's Live CD. With less than that, but at least 256 MB of RAM, you can boot to the CD to install it, but not run it 'Live').

Still, there were some things missing. While Ubuntu could find and work with my lab's networked printer without problem, in order to actually use it meant taking a moment or two to configure it. And booting to the CD meant that when I shut down over night, I would have to do it (on each of 32 work stations) again the next day.

Same thing with browser bookmarks ('favorites' to Internet Explorer users). Same thing with any additional software I might want to install- there's a whole world of free and useful Linux applications out there, but less useful if you have to reinstall it every day because you're booting to a Live CD.

After a week of working with the Live CD, I decided that it was time to recognize that this was going to be a long-term relationship, time to install it for real.

Nicely, Ubuntu (and most other Linux distributions) recognize that even if we want to install Linux, most of us will also have to run Windows too- at least some of the time. So the installer makes it possible to install Ubuntu onto a system that has Windows installed without losing the Windows installation. At boot time, you'll get to choose whether to boot into Windows or Ubuntu.

In fact, Ubuntu now offers two different ways of installing itself alongside Windows. The traditional way involves booting to the CD, and running the installer. It offers to create new hard drive partitions after shrinking the existing Windows partition to free up space. It then installs Ubuntu onto the new partition and creates a boot menu letting you choose one or the other.

This generally works well, but is a pretty permanent commitment. If you decide Ubuntu isn't really for you, you can get the space back- but it's a bit of work.

In recent Ubuntu versions, though, there's another way. Boot to Windows and insert the Ubuntu CD; a dialogue box pops up offering to install Ubuntu. Fill in a few fields- user name and password, language, etc, and away you go. This time, though, there's no messing with your hard drive's partitions. Ubuntu is installed within the existing Windows partition, and Ubuntu is listed as an application in the Windows Add/Remove Programs control panel. You can use this to remove Ubuntu if you decide it's not for you. That's what I recommend.

After Ubuntu's installed, there's still some fussing- but that's true for any computer system I've tried, Windows, Mac, or Linux. You may want to change the desktop wallpaper or colour scheme. Set up your printer. Customize the browser bookmarks. (Nicely, if you have Firefox running on a Windows or Mac, you can export the bookmarks from that system onto a USB memory key and import them into Firefox on another computer- Windows, Mac, or Linux). Add Flash to your browser. That sort of thing.

While the exact steps for doing these sorts of things are different in Ubuntu than you may be used to with Windows or a Mac, the nice thing is that they're discoverable. Click on menus; right-click for properties. You'll figure them out. Really. If you want, check: <http://tinyurl.com/afd8ht> for a presentation I gave about installing and configuring Ubuntu in my school's computer lab. If you need more help, Google is your friend; Ubuntu has a very active online user community and almost any question you might ask has already been answered.

Two big differences between Ubuntu and either Windows or the Mac: on those two traditional operating systems, while some software comes with the operating system, you have to look around to find additional applications. Maybe you're used to downloading additional software from wherever.

Canonical maintains a series of 'repositories' of Ubuntu-friendly software; instead of downloading something from the Internet (and hoping its not spyware-infested), in most cases you can find whatever you need by using Ubuntu's handy Add/Remove Programs menu item. (Unlike the similarly-named Windows control panel, this one is actually useful for adding software). There's even lots of educational stuff.

And unlike software for Windows or the Mac, it's free and legal. No more 30-day trial versions.

Now, post-virus crisis, my computer lab systems can either boot to Windows- and run slowly under the added burden of the antivirus software or boot to Ubuntu and run full-speed while still allowing students to get their work done, go online,

save, and print.

Ubuntu Linux: Free, legal, safe from viruses, easy to use- and it will (probably) run on your school's PCs. What's not to like?