An up-to-date overview of free software and its makers

Projects on the Move

This month is again jam packed with news from the world of free software. We picked the best of the bunch for you: OpenBSD 3.5, a GUI-based front-end for Subversion, and more trouble at Debian.

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The BASIC programing language turned 40 in May. Although there is no direct connection between BASIC and Linux, BASIC is a good example of a software product that can look back on amazing success stories, despite its lack of popularity in the early days. Most people thought of BASIC as restricted in every sense of the word. The language soon became well-known, and it formed the language basis on which a certain William Henry Gates founded his new company, Microsoft. You are probably familiar with the rest of the story.

OpenBSD 3.5

A new version of the hardened OpenBSD [1] operating system was released recently. In contrast to the previous version, OpenBSD 3.5 does not have much in the line of spectacular changes; at least for users with i386 architecture. The previous version caused quite a stir by introducing W^X buffer overflow protection (see [2]). What is really interesting about the new OpenBSD 3.5 version is the existence of an AMD 64 port.

As Opteron processors run in multiprocessor mode only, it does not make much sense to run OpenBSD on these systems – OpenBSD does not support SMP. This said, the developers have been working on an SMP implementation for quite a while.

The new OpenBSD 3.5 version also supports the Cats architecture. The port to ARM-based chips forms the basis for future ARM CPU support. The port code originates from NetBSD. This should make it possible to use OpenBSD on PDAs in future – following in the footsteps of Linux on the HP iPAQ.

The developers have also been busy producing device drivers. The Wi driver for WLAN cards based on the Prism chipset is a lot more stable, and the driver can now hide the SSID in HostAP mode. This provides useful protection against wardrivers. Also, there have been some enhancements to Intel PRO/1000 Gigabit Ethernet card support, SCSI drivers, ATA/SATA, and APM-based power management.

End users will also notice a few improvements. The developers have replaced some programs gleaned from the GNU project with BSD licensed equivalents. OpenBSD now generates PTY devices (pseudo-terminal interfaces) dynamically and uses a new interface called */dev/ptm*. Root privileges are no longer required to open a PTY. The new programs in version 3.5 include the BGP 4 daemon, bgpd, sensorsd (for parsing hardware information) and PXEBoot (for booting off a network).

OpenBSD 3.5 includes all kinds of security fixes, and a current version of OpenSSH. The application software is state of the art: XFree86 4.4 (in a modified version due to the recent license modifications [3]), Perl 5.8.2, GCC 2.95.3, and 3.3.2, Apache 1.3.29.

OpenBSD 3.5 does not have any truly innovative new features, but there are a few goodies that make the change worthwhile. Users wanting to install the new release should check out the FTP archive at [4]. The Upgrade Mini FAQ [5] provides tips for users wanting to update their installation.

RapidSVN

Free software is typically a combined effort by a group of programmers. Most projects use version control systems such as CVS [6], or the more modern Subversion [7] to coordinate and manage this effort centrally. These sys-

Figure 1: The BASIC programing language is extremely widespread, and this is reflected by the scope of the Wikipedia entry on BASIC.

tems can do more than just manage source code. In fact, they can handle all kinds of files. For example, you could use a version control system to release company documents to the complete workforce (or a selected group of staff).

This is fine for the geeks, but less experienced colleagues will need a user friendly GUI. In most cases, developers embrace this kind of system, as they have some experience of command-line tools. RapidSVN [8] may provide the solution you need.

RapidSVN is an extension of the Subversion file management system with a GUI-based front-end. RapidSVN is based on wxWindows, and runs on a variety of platforms.

The tool closely resembles the Windows Explorer. Its most important features are directly accessible via icons from within the program interface. This allows inexperienced users to quickly adapt to RapidSVN. More experienced users will appreciate the interface's more advanced features.

The project was released under the Apache Software License rather than the GPL. The developers refer to possible hitches in the readme file [9], including some issues under Linux. Although RapidSVN compiles okay, users may need to resort to a few workarounds at runtime. There is also a note to the effect that RapidSVN should work fine with other Unix derivatives such as MacOS.

The only problem with RapidSVN is the lack of a binary distribution with a matching installer. Compiling the source code on Windows, also requires the MS Platform SDK which weighs in at a hefty 400MBytes – not everyone's idea of a fun download. If you want to try out RapidSVN, you will need to download the sources from a SVN repository.

Free or Non-Free, Part I

In last month's Projects on the Move, we noted a trend toward more Linux support among hardware manufacturers. This may sound like a good thing, but closer inspection often reveals a lame duck. In many cases, hardware manufac-
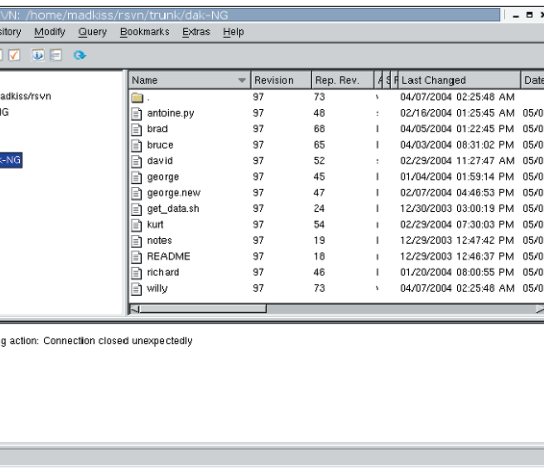
Figure 2: The RapidSVN program provides a GUI-based front-end for the Subversion file management system. RapidSVN is based on wxWindows and runs on a variety of platforms.

turers often hire developers to write a free driver, but at the same time make the driver dependent on binary-only modules. These drivers may be "free" but in a very limited sense of the word.

A discussion within the Debian project illustrates the issue. It is quite easy to identify drivers or programs such as the nVidia modules, as nVidia does not supply a single line of source code. Things start to get complicated when there is a mixture of source and binary files, as is the case for some drivers for so-called Winmodems.

It may have been easy enough to identify free and non-free so far, but things are starting to become more complicated. Some drivers are free, but depend on proprietary firmware files or drivers where the binary firmware is hard coded in the sources. The Prism54 driver is just one example. What Herbert Xu, the Debian maintainer for most of the kernel packages, did just recently caused quite a stir. Herbert simply removed all the kernel modules that used binary firmware from the Debian packages.

Less Drivers under Debian

Users are now missing modules like the TG3 driver for Broadcom Gigabit NICs, or the Qla2xxx driver for QLogic SCSI adapters. The DRM driver for R128 and Radeon chipsets is also missing from the new kernel packages. Users with these graphics adapters will have to do without X11 hardware acceleration facilities.

Herbert's approach provoked tumultuous reactions in the *debian-devel*

mailing list. There are clearly two lobbies, one of which agrees with Herbert Xu that proprietary firmware is irreconcilable with the Debian Free Software Guidelines [10]. Thus, integrating this kind of software in the *main* Debian tree contravenes the Social Contract.

The other camp, quote user-friendliness as their main argument. Users needing drivers of this kind would have a lot of work to do, to procure the drivers independently of Debian. These users could not be expected to download updates across a network, as the network card would not work without the TG3 driver. Interestingly, they also cited the Social Contract. Paragraph 1 of the Contract states that Debian GNU/Linux should comprise free only software; but paragraph four attests to Debian's user orientation.

Debian developer, Erich Schubert added a new aspect to the discussion. He stated that in his opinion, firmware files contain only data, just like any other software. He demanded a fundamental decision on the issue of how to deal with any kind of data in the context of free software. In Erich's opinion, any distinction between different data types could cause a number of issues

Solutions

In the meantime, Herbert Xu is happily going about removing more drivers from the kernel packages. The maintainers of other packages, such as XFree86, have also started to remove some parts of their source code from the Debian version. The effect on XFree86 has been minimal. The old firmware files are not required by any recent graphics adapters.

There does not seem to be an immediate solution. Some developers suggested using the current kernel's hotplug architecture to plug-in non-free binary files if required. Many drivers only need firmware blobs in the source code on rare occasions and for arcane hardware. It would be quite simple to separate firmware and drivers. The firmware component could then reside in Debian *non-free*.

This suggestion seems to be making waves. A patch that separates the TG3 driver from the firmware has already been released on the Linux-Kernel mailing list. Some users have tested the patch and report that the TG3 chipset on their motherboards continued to work without any hitches. Jeff Garzik, who is responsible for this driver, refused the patch, however, preferring to implement a similar mechanism using the hotplug system in the near future.

Separating the kernel from firmware has some advantages, but it would mean linking *non-free* components into the new installation system, the Debian Installer. At present, simply removing drivers from the kernel does not seem to be a solution, as it would confront users with unsolvable problems. Incidentally, Herbert Xu does not seem to be entirely consistent. After removing the DRM driver for cards with R128 and Radeon chipsets, the number of bug reports increased so dramatically that Herbert was forced to reinstate the driver.

Free or Non-Free, Part II

Debian developers are currently pondering another drastic change. In this case, a change to the Social Contract, first drawn up by Bruce Perens in 1997. Some developers regard the phrasing of the Contract as faulty. One of them is Andrew Suffield, who put forward a modification of the Social Contract in the form of a so-called General Resolution.

The "editorial amendments" [11] were put forward to the developers for discussion and voting. It was not until the Contract had been modified that Release Manager Anthony Towns saw just how far-reaching they were.

This replaced "software" with "works", thus making it possible to apply the terms of the contract to other areas of the Debian project.

The GNU FDL

The GNU Free Documentation License, (GFDL), was designed as a license for texts and other documents that could not be regarded as software in a strict sense

Figure 3: Excerpt from the TG3 kernel driver. It contains proprietary firmware and will not be included in the Debian distribution in future.

of the word. Because the GFDL contains a contestable paragraph, the Debian developers decided that it did not comply with some of the conditions laid down in the Debian Free Software Guidelines. Thus, GFDL licensed software is non-free from Debian's point of view.

Much of the documentation that accompanies the official GNU packages is GFDL licensed. Removing the documentation would mean leave the main Debian tree without any documentation for major libraries such as glibc or GCC.

To postpone this issue until after Sarge had been released, Anthony Towns recently used a trick. As the Social Contract only refers to software, he stated that documents, and thus the firmware in the main part of the distribution, are not software. The files would continue to be non-free, the problem, and an answer to it, could be ignored until after the Sarge release.

As the Social Contract now refers to works, Anthony recently mailed the developers [12] to state that his workaround would not work. The term "works" covers both documentation and firmware.

Anthony Towns is pessimistic about the planned Sarge release, stating that it may be impossible to release Sarge this year, due to the new Social Contract. One change would be the requirement to modify the new Debian Installer to support *non-free.*

Just a few hours after Anthony's message became public, a number of new proposals for a General Resolution removing the changes appeared.

Steve Langasek suggested postponing the amendment to the Social Contract, and reinstating it as of 01.09.2004. Duncan Findlay's proposal is similar but avoids setting a strict deadline. Colin Watson proposed an addition to the Social Contract that clearly states that Debian GNU/ Linux 3.1 will not uphold the guidelines of the Social Contract and promising to resolve the issues in the next version. The fourth proposal, by Craig Sanders, is quite simple and would remove any changes made by the last General Resolution. Check out [13] for the results of the vote as of May 31.

That's all folks…

… for this month at least. Why not mail me with your suggestion for a program to be featured [14]? I look forward to your comments!

INFO

[1] Martin Loschwitz, "Projects on the Move": Linux Magazine, Issue 39, February 2004 p86

[2] OpenBSD: *http://www.openbsd.org/*

[3] Martin Loschwitz, "Projects on the Move": Linux Magazine, Issue 43, June 2004 p88

[4] OpenBSD FTP Archive: *ftp://ftp.openbsd.org/*

[5] OpenBSD Upgrade Mini FAQ: *http:// openbsd.org/faq/upgrade-minifaq.html*

[6] CVS: *http://www.cvshome.org*

[7] Subversion: *http://subversion.tigris.org/*

[8] RapidSVN: *http://rapidsvn.sourceforge.net/*

[9] RapidSVN Readme: *http://rapidsvn. sourceforge.net/README.txt*

[10] Social Contract and DFSG: *http://www. debian.org/social_contract*

[11] Andrew Suffield's proposal: *http://www. debian.org/vote/2004/vote_003*

[12] Anthony Town's email message: *http:// lists.debian.org/debian-devel/2004/ debian-devel-200404/msg06588.html*

[13] Voting page for Social Contract vote: *http://www.debian.org/vote/2004/ vote_004*

[14] Tips and suggestions: *projects@linux-magazine.com*