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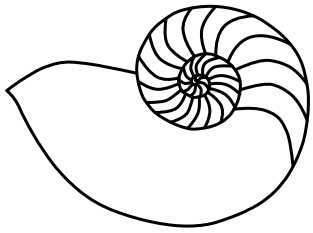

MUUGlines

The Manitoba UNIX User Group Newsletter

April 8, 2003: An Introduction to Python

Python is an object-oriented, interpreted, high-level, dynamic and easy-to-use programming language. It features high-level data types, a simple class model, a rich standard library, exception handling, an interactive shell to try out code "on-the-fly" and much more. Python runs on almost every platform you can think of from Linux to the Mac, and has even been ported to the Sony Playstation 2.

Brad Bollenbach will introduce you to this "other language that begins with P" and show you how it can make your life easier, your code simpler and how other people are putting the language to interesting use.

Next Month: Samba 3

Samba is a suite of programs that seamlessly provide SMB/CIFS file-and-print services to Windows clients. A robust and reliable implementation, it is now at version 2.2.8. What's in store for the future? In development now, and available for download for testing is version 3.0alpha.

This version has many enhancements to the 2.x versions, including Active Directory support (this release is able to join a ADS realm as a member server and authenticate users using LDAP/Kerberos), Unicode support, better Windows 2000 printing support including publishing printer attributes in Active Directory, support for migrating from a Windows NT 4.0 domain, support for establishing trust relationships with Windows NT 4.0 domain controllers, and lots of other changes!

Kevin McGregor will show you how to get started in testing this leading-edge technology.

Door Prizes

In addition to the usual Linux Journal issue, we have O'Reilly's "Mac OS X for Unix Geeks" to give away (reviewed in this month's newsletter)! Coming up in following meetings are copies of "Linux Server Hacks" and "The UNIX CD Bookshelf 3.0" (both also from O'Reilly). Stay tuned for more details and book reviews.

Red Hat Linux 9 CDs

Red Hat has announced version 9 (not version 8.1 as was expected after the prior 8.0 release) and released it March 31st to a select few – those who have subscribed to Red Hat's annual support service. The Manitoba UNIX User Group, as usual, is making available a limited number of copies (3 CDs each) of RH9 for sale at our April meeting, just one day after the general release date of April 7th. Get them while they're hot!

Why 9? From Red Hat's web site: "In the past, Red Hat has ensured compatibility and supportability within product families. With the recent introduction of Red Hat Enterprise Linux and that family of products, we are now able to integrate stable and mature new technology developments as they are released instead of having to delay their incorporation until the next major release, following a few point releases. The accelerated numbering reflects Red Hat's move to speed the adoption of open-source technology."

What's in RH9? Here's a quick overview:

- New threading technology: NPTL (Native POSIX Thread Library)
- OpenOffice.org office suite for creation of documents, spreadsheets and presentations
- Mozilla Web browser, email client, address book, HTML composer and authoring tool
- Ximian Evolution™ email client, calendar and contact manager
- CUPS for drag-and-drop printing capabilities
- Upgraded core components: Linux kernel 2.4.20, GCC 3.2.1, GNU libc 2.3 (with NPTL), Apache 2.0

New graphical configuration tools:

- Personal firewall tool for dynamically adjusting security settings
- Peripheral configuration tool for graphic configuration of devices
- Display configuration tool to adjust resolution and position

- Sound configuration tool for simplified sound control

Meetings are held at the IBM offices at 400 Ellice Ave. (between Edmonton and Kennedy). When you arrive you will have to sign in at the reception desk, then wait for someone to take you (in groups) to the meeting room. Please try to arrive by about 7:15 PM so the meeting can start promptly at 7:30 PM. Don't be late, or you may not get in.

Limited parking is available for free on the street, or in a lot across Ellice from IBM, for $1.00 for the evening. Indoor parking is also available nearby, at Portage Place, for $2.00 for the evening.

Review: Mac OS X for Unix Geeks

Mac OS X for Unix Geeks
Brian Jepson & Ernest E. Rothman
O'Reilly, 2003
216 pages
US$24.95, C$38.95
Reviewed by Kevin McGregor

My first question upon seeing this book was "What kind of UNIX geek does it assume I am?" While I am very curious about Mac OS X, I so far can't afford a computer on which I can run it, and with its subtitle, "Switching to Mac OS X", this looked to be a very academic exercise indeed.

However, I optimistically assumed that I would still get some value out of it. After all, I have some background in UNIX (mostly Linux, but some BSD variants as well). It turns out that what with the need for the writers to contrast Mac OS X with the forms of UNIX with which they were more familiar, it's still an interesting read.

The book starts briskly, with the first page of Chapter 1 containing references to the different shells available on Mac OS X and mentioning command-line switches for xterm. This is a good sign, since a book with less than 200 pages ought not spend much time on the basics of computing. Throughout the book, the authors find a reasonable balance between introduction and details.

The rest of Chapter 1, *The Mac OS X Command Line*, is fairly basic, but it's pretty complete, too, and not too long. It makes Part I of the book "Getting Around" a good introduction for someone not used to extensive command-line work. The other chapters, *Startup* and *Directory Services*, demonstrate the consistent editorial approach the O'Reilly series has with technical material. In a nutshell, I learned a few things!

Part II covers application development, including libraries, compiling and architectural issues. The highlight for me was the section on Fink. Put simply, Fink is a port of the Debian APT (Advanced Package Tool). Fink is also the German word for finch, which Fink's author was thinking about while musing on Charles Darwin's study of finches in the Galapagos. Darwin is the name Apple has given to the Mac OS X kernel.

Part III goes *Beyond the User Space*, with a chapter each on building the Darwin kernel, system management tools, and the X Window System. Throughout, there are well-explained examples which I could follow and understand without having a Mac on my desk.

I now have a new appreciation for what Apple's engineers have accomplished. The authors do a commendable job in targeting their audience, and managing the scope of the book. It may not be technical enough for some readers, but one can't fault them for straying from their purpose in a mere 200 pages! When I get a Macintosh, I'll buy this book.

OS News

OpenBSD 3.3 will be available May 1, and can be pre-ordered (http://www.openbsd.org/orders.html). The list of improvements is long. To wit:

- Integration of the ProPolice stack protection technology into the system compiler. This protection is enabled by default. With this change, function prologues are modified to rearrange the stack: a random canary is placed before the return address, and buffer variables are moved closer to the canary so that regular variables are below, and harder to smash. The function epilogue then checks if the canary is still intact. If it is not, the process is terminated. This change makes it very hard for an attacker to modify the return address used when returning from a function.
- W^X (pronounced: "W xor X") on architectures capable of pure execute-bit support in the MMU (sparc, sparc64, alpha, hppa). This is a fine-grained memory permissions layout, ensuring that memory which can be written to by application

programs can not be executable at the same time and vice versa. This raises the bar on potential buffer overflows and other attacks: as a result, an attacker is unable to write code anywhere in memory where it can be executed. (NOTE: i386 and powerpc do not support W^X in 3.3; however, 3.4 will make this change on those architectures as well).
- Still more reduction in setuid and setgid binaries, and more chroot use throughout the system. While some programs are still setuid or setgid, almost all of them grab a resource and then quickly revoke privilege.
- The X window server and xconsole now use privilege separation, for better security. Also, xterm has been modified to do privilege revocation. xdm runs as a special user and group, to further constrain what might go wrong.
- As usual, improvements to the documentation, notably the man pages and the Web FAQ. An increasingly large part of the website is available in several languages.
- More complete collection and better tested set of "ports". setuid/setgid ports have been significantly reduced as well. Many of the ones that remain setuid have been modified to revoke privileges as early as possible.
- Over 2000 pre-built and tested packages.
- Significant improvements to the pthread library.

An incredible amount of enhancements and stability improvements to the packet filter, pf, including spamd, a spam deferral daemon, which SMTP connections can be redirected to. This daemon handles connections based on black lists and white lists, tar-pits the connections, and ensures that the spammer knows why their mail has not been accepted.

The system includes the following major components from outside suppliers:

XFree86 4.2.1 (and i386 contains 3.3.X servers also, thus providing support for all chipsets); Gcc 2.95.3 (+ patches); Perl 5.8.0 (+ patches); Apache 1.3.27; mod_ssl 2.8.12, DSO support (+ patches); OpenSSL 0.9.7beta3 (+ patches); Groff 1.15; Sendmail 8.12.9; Bind 9.2.2 (+ patches); Lynx 2.8.2rel.1 with HTTPS support added (+ patches); Sudo 1.6.7; Ncurses 5.2; Latest KAME IPv6; KTH Kerberos 1.1.1; Heimdal 0.4e (+ patches); and OpenSSH 3.6.

Browser News

Mozilla 1.3 Out on March 13

In the browser world, we have still more news about Mozilla. If for no other reason, it's a worthwhile upgrade for the spam-management functions. It also includes the usual fixes and performance improvements accumulated since November. From the announcement:
- Mozilla Mail has junk-mail classification. With some initial "training" the client can identify and segregate spam messages from good messages. To see more about Mozilla's junk-mail classification, visit the Mozilla Spam Filtering page.
- Newsgroup filters have been implemented.
- An initial implementation of Mozilla Midas, rich text editing controls, has landed in Mozilla for 1.3. See the Midas page for more information.
- Image auto sizing allows a user to toggle between full-sized images and images sized to fit the browser window. To give it a try, load a large image into the browser window or size the window to be much smaller. Now clicking on the image will alternate between auto-sized and full-sized. The feature can be disabled (or enabled) from the Appearance panel in Preferences.
- Users can now 'dynamically' switch profiles. To give it a try, from the tools menu select "Switch Profile..."
- Find as you type, formerly known as type ahead find, has a new preferences panel (Advanced: Keyboard Navigation).
- When installed, Chatzilla now has a normal Mozilla preferences panel.
- Mozilla 1.3 also includes fixes for performance, standards compliance and site compatibility.
- Mozilla has a new splash screen. We already know. Please don't report this to Bugzilla. Thanks.
- The RPMS for Red Hat 8.x are compiled with GCC 3.2

Mozilla 1.4alpha Imminent

In trying to catch up with their stated goal of a release every quarter, Mozilla 1.4alpha is coming

soon. Numerous manufacturers are looking for this to be up to snuff for inclusion in their products, so there's a big push on for bug-fixes and correctness instead of features.

KHTML Chosen for Safari

It may be old news by now, but Apple has chosen KHTML, the HTML rendering component of the K Desktop Environment, to be the basis of their new web browsing application, called Safari. There has been quite a lot of discussion about what this means for Mozilla, as well as other browsers, and much heated discussion about the relative merits of each, and the quality of Apple's decision.

I'll save you all that with my editorial summary: The KHMTL folks will find that the last 10% of compatibility takes about 95% of the code in a modern browser. Sure, KHTML is smaller and faster, but it doesn't yet render all web pages as correctly as the more "mature" browsers. If nothing else, it will require more web designers to consider something other than Internet Explorer.

Desktop News

Gnome 2.2.1

The GNOME Project announced the availability of the GNOME 2.2.1 Desktop and Developer Platform. The 2.2.x series is devoted to bugfixes, translations, and general polish of our major 2.2 stable release. We strongly recommend upgrading to 2.2.1 in particular, as it contains the Best Nautilus Release Ever. Faster and more stable than ever before, the Captains of Nautilus have done it again.

You'll find plenty of information about GNOME 2.2 in the 2.2 start page (http://www.gnome.org/start/2.2/).

KDE 3.1.1

Not to be outdone, the KDE Project announced on March 20th the availability of KDE 3.1.1, a maintenance release "for the third generation of the most advanced and powerful *free* desktop for GNU/Linux and other UNIXes". KDE 3.1.1 ships with a basic desktop and seventeen other packages (PIM, administration, network, edutainment, utilities, multimedia, games, artwork, web development and more). KDE's award-winning tools and applications are available in **51 languages**.

KDE, including all its libraries and its applications, is available *for free* under Open Source licenses. KDE can be obtained in source and numerous binary formats from the KDE http or ftp mirrors, and can also be obtained on CD-ROM or with any of the major GNU/Linux - UNIX systems shipping today.

KDE 3.1.1 provides some new translations (Croatian (hr), Icelandic (is), Northern Sami (se) and Swati (ss)), as well as corrections of problems reported using the KDE bug tracking system. For a more detailed list of improvements since the KDE 3.1 release in late January, please refer to the KDE 3.1.1 Changelog (http://www.kde.org/announcements/changelogs/changelog3_1to3_1_1.php).

For additional information about the enhancements of the KDE 3.1.x release series, please see the KDE 3.1 New Feature Guide (http://promo.kde.org/3.1/feature_guide.php) and the KDE 3.1 Announcement (http://www.kde.org/announcements/announce-3.1.php).

Evolution 1.4 Preview Release 1

The plan for Evolution 1.3 is to not add any new major features compared to Evolution 1.2. The aim of the upcoming stable release is to just provide the same functionality as Evolution 1.2, but with better integration with the GNOME 2 desktop, as well as to take advantage of the features of the new platform, such as better font support. Of course, a bunch of 1.2 bugs have also been fixed during the process of porting Evolution to GNOME 2. Read more at http://developer.ximian.com/projects/evolution/release_notes/1.3.1.html

OpenOffice.org 1.1 Beta

The next OpenOffice.org version has reached an important milestone and is now available for download as OpenOffice.org 1.1 Beta. It represents a significant advance in the application and incorporates the features and changes introduced in the developer builds over the past year. The highlights are: Many new import/export formats like PDF, Macromedia Flash, DocBook, several PDA Office file formats, flat XML and XHTML; Support for Complex Text Layout (CTL) and vertical writing languages, such as Thai, Hindi, Arabic, Hebrew; Enhanced integration with Java, with up to 10 times better performance; Support for Accessibility throughout the entire suite and more. For a more complete list of features visit http://www.openoffice.org/dev_docs/source/1.1beta/features.html