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Fedora Core 6 Test Drive

NEW HATS

See what's new in Fedora Core 6 – the latest release of the Red Hat-based Fedora project.

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The latest release of Red Hat's Fedora Core community distribution appeared at the end of October. Fedora Core 6 provides optical improvements, and some interesting developments inside, like optimization of dynamic libraries and enhanced integration of the Xen virtualization solution.

You don't need to finish installation to find some of Fedora's new features: the Anaconda installer, which has been around since the early days of Red Hat, has a few changes. Anaconda started using the Yum API in Fedora Core 5, but now users can integrate third-party repositories at the install stage. This feature is useful for professional administrators, as it lets you integrate customized repositories. End users will be interested in other features of the new Fedora, such as support for Intel Macs.

Now with Compiz

As Fedora is the testing ground for the Red Hat Enterprise distributions, the more interesting new features are in the server area. The noticeable changes to the desktop include new artwork, such as the login and background images (Figure 1). You'll find some interesting desktop effects, such as the rotating 3D cube for paging virtual desktops, but most of the changes are under the hood. Whereas the last Fedora release relied on Metacity as the compositing window manager, Red Hat has now integrated the Novell Compiz compositing manager. Red Hat has achieved its proclaimed goal of following an "evolutionary strategy" (in comparison to XGL) of integrating hardware accelerated compositing based on AIGLX; this has now become part of Xorg 7.1, and it adapts much better to LCD and laptop screens. Our lab revealed a couple of issues with Java GUIs with desktop effects enabled. For example, the Netbeans Java IDE simply refused to display a GUI.

Underneath the desktop, kernel 2.6.18 is at the heart of the distribution; the kernel not only has excellent support for current hardware, but it also supports single and multiple CPU systems. The days when admins needed an SMP kernel for multiple CPU machines are gone. At the same time, the new kernel accelerates access to Ext3 filesystems. The network filesystems, NFS and AFS, benefit from improved caching provided by Cache FS in the background. The new kernel gives Fedora users a chance to use Jeff Garzik's SATA optimizations for the mainline kernel.

We encountered a slight problem with the kernel when the Anaconda installer detected the wrong architecture, opting for i586 instead of i686. This led to more issues when installing drivers, and with CPU frequency scaling. This seems to be a known issue, as a Bugzilla entry documents. The workaround is to install the correct packages manually and to remove the incorrect packages.

Faster Libraries

Thanks to work on the dynamic linker and the GNU Binutils, applications now launch more quickly – the Fedora developers say the speed boost can be up to 50 percent. The patch [1] implemented by Red Hat's Binutils specialist, Jakub Jelinek, accelerates resolution of the symbols provided by the dynamic libraries, thus reducing load times. In contrast to previous pre-linking approaches, this mechanism also works with programs that use the C library's *dlopen()* func-

Figure 1: Fedora Core 6 comes with a new login page and new background art.

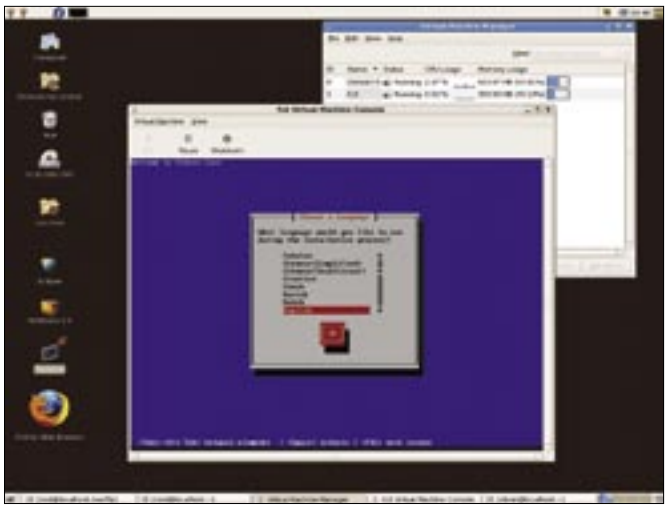

Figure 2: Red Hat has given Fedora Core 6 a GUI-based management environment for Xen machines.

tion, instead of leaving the job to the dynamic linker.

One particular focus has been improving the way the linker implementation collaborates with caching mechanisms. Of course, applications and libraries have to be recompiled and linked to use a new *DT_GNU_HASH* algorithm. The new linker option, *--hash-style*, does the trick. Apart from this, it's pretty much business as usual for developers, for example: the Frysk profiling tool, Eclipse Version 3.2 with plugins such as the CDT developer environment, and the Graphical Editing Framework, GEF.

The GUI testing framework Dogtail is new. It builds on the Gnome accessibility framework and supports scripted control of graphical applications. In our lab, we actually managed to script a couple of Gnome applications, however, Dogtail failed with OpenOffice.

PKI to come

Security has long been a big topic with Red Hat and Fedora, and SELinux has been the recommended approach for high security environments. Whereas Fedora 5 gave security-conscious users the reference policies, Red Hat is now looking to improve the much-criticized usability of its security framework in the new Fedora. To this end, the distribution includes the SELinux troubleshooting tool, which gives administrators specific tips on solving SELinux problems.

Table 1: Fedora Core 6 Highlights

Component	Version
Kernel	2.6.18
Gnome	2.16
KDE	3.5.4
Xorg	7.1
Apache	2.2
MySQL	5.0
PostgresSQL	8.1

The smartcard manager is another new addition; in the future, it will be handling coolkey (that is, key) management within a PKI infrastructure [2]. The website has both a Java implementation and the source code for a Windows CSP (Cryptographic Service Provider) to improve integration in heterogeneous environments, and a PKCS#11 module. The Fedora Directory Server is at the heart of the planned PKI infrastructure; although the server has not made its way into the current release, the plan is to introduce it in Fedora 7.

Mandatory: Xen

The general trend towards virtualization, especially the Xen hype, is something that not even Red Hat can avoid. The Xen virtualization solution was included with Fedora Core 5, but this time, Fedora adds a GUI-based management tool called Virt-Manager (Figure 2); however, development on the tool is still incomplete. Although the tool can manage local Xen machines, management of remote instances is still at the planning phase. Security is also a major concern.

The new implementation of the printer manager is unspectacular but useful. It's high time for the change, too, if you consider that the previous manager harks back to the LPRng era. The new manager is also better equipped to manage CUPS servers, as it uses the CUPS protocol, IPP, natively. It also supports granular printer sharing control, including user-defined printers. The new printer support also includes the latest Gtk 2.10 print dialog.

En Route to 7

Fedora development continues to progress quickly. Each release gives users a handful of innovations, which will enter Red Hat Enterprise eventually. If you do not need a certified distribution for a specific software package, Fedora is a good choice; it is a mature Linux version, which offers users the advantage of short release cycles, and thus the advantages of more recent kernel versions.

The close ties to Red Hat, whose staff still bear the lion's share of the development work, is still a bone of contention. Following the Fedora Core 6 release, a group of core developers met to discuss the future of the distribution. The central topic was if and how Fedora could ever become anything but a test vehicle for Red Hat Enterprise Linux. Thus far, the developers have agreed to disagree, so watch this space [3]. ■

INFO

[1] DT_GNU_HASH email: *http://sourceware.org/ml/libc-alpha/2006-06/msg00095.html*

[2] Coolkey: *http://directory.fedora.redhat.com/wiki/CoolKey*

[3] The Future of Fedora: *http://fedoraproject.org/wiki/FedoraSummit*