Latest Linux distributions

THE NEW ONES

The arrival at our offices of Debian 2.2, SuSE 7.0 and Red Hat 7, not to mention the Caldera's Technology Preview and Mandrake 7.2, had our editorial team fighting each other over who got to look at them first. But how do these new distributions differ, and what can they offer users of previous version? Read on to find out.

The big distribution publishers refuse to be side tracked by the fact that kernel 2.4 has yet to be officially released. Shortly after SuSE made the leap to 7.0, Red Hat responded with its own version 7 and at the same time did away, possibly somewhat prematurely, with the 0 after the dot. Debian on the other hand, has taken a slightly more cautious set forward. You won't find the very latest versions and patches of everything in 2.2, but on the other hand you will find stability and very well designed package management.

Since the end of July, Caldera has been distributing a "Technology Preview" of its next distribution, which features a preliminary version of kernel 2.4, not to mention XFree86 4.0. Despite the fact that neither this version of Caldera nor our copy of Mandrake 7.2 were final release version we've still included them here, though you can expect the "real thing" to be at least slightly different. This is especially true of Caldera, which really is exactly what it says – a technology preview – and not anything else.

Red Hat 7

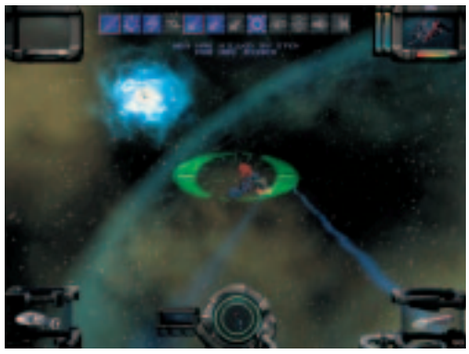
Red Hat's latest distribution comes bundled with huge amounts of software. Indeed, the Deluxe version we tested has no less than ten CDs in the box. As well as office productivity tools, which we'll cover a little later, demo versions of several games (such as Simcity

Unlimited, Descent 3 and Parsec) are included, as are commercial applications with limited run-time or functionality restrictions such as the PCB layout program Eagle. You even get a full version of Railroad Tycoon II, which practically justifies the price of the distribution itself. Additionally you get two printed manuals (totalling about 600 pages) and 30-day telephone support covering the installation of the product. Also worth noting is that version 7 supports automatic software updates, just like Debian distributions. To achieve this for all tools and applications, however, all Red Hat developers will need to convert to the new 4.0 RPM format that is used in version 7. Usefully, as a consequence of the move to this version o RPM the database format has been upgraded to Berkeley DB 3.1. No user intervention is required to make the database upgrades as they are migrated automatically during the installation process.

No distribution is complete anymore without an office suite or two, and with Red Hat 7 you get, amongst others, Abiword, Siag-Office and StarOffice. A demo version of Applixware is also included. Interestingly, StarOffice is actually included twice, both as part of the Red Hat RPM package and on the enclosed StarOffice CD. Databases such as MySQL and applications like Gimp 1.1.25 are also provided, as is the aspell package, the successor to the old ispell spell-checker.

Kernel and compiler

By deciding to use a patched version of the unofficial GNU Compiler Collection 2.96, Red Hat has provoked more than a little controversy, and the pros and cons of it have been endlessly discussed on the Internet. Supporters of the decision claim that Red Hat's patched compiler produces better optimised code. Opponents point out that the applications created by it can be incompatible with other distributions. Whether these either of these things matter to you or not, though, there's no escaping the very annoying fact that this compiler cannot be used for compiling the kernel. You need "kgcc", which is actually a front for egcs-2.91.66,as found in Red Hat 6.2.



In Red Hat 7 gamers will get their money's worth.

First Debian, then Red Hat: automatic updates.

Talking of kernels, Red Hat 7 makes use of version 2.2.16. As with almost all mainstream distributions, it comes with some very diverse patches, including one that provides some USB support. AGPgart is also included, this supporting 3D hardware acceleration on cards from companies like ATI and Matrox. More significantly, an optional "Enterprise-Kernel" is also provided. This offers enhanced support for the TUX kernel web server. Those who enjoy experimenting can also try out test version 3 of kernel 2.4, which is also included on one of the supplied disks.

Not ReiserFS ... or is it?

Surprisingly, especially considering all the other new features this distribution includes, Red Hat has not integrated the ReiserFS journaling files-system into version 7. This isn't really a significant issue, though, and in any case anyone simply can't do without ReiserFS can download an unofficial ISO-Image of a suitable patched Red Hat 7 CD 1 from *http://cambuca.ldhs.cetus.puc-rio.br/*. And if you feel that the wait and expense of downloading 650 Mbytes by modem or even ISDN is just too much for you, appropriate root/ boot diskettes can be downloaded from the ReiserFS homepage (*www.reiserfs.com*).

Installation

Installation has not changed all that much in comparison with the previous version. Despite this, we found that the Anaconda installation tool gets

With Red Hat 7 setting up ISDN is simplicity itself thanks to *isdn-config*

confused too easily. If you first select Workstation Installation with automatic hard disk partitioning and then opt instead for a user-defined system, things can go badly wrong, for example – after spending ages selecting individual packages, which are then apparently correctly transferred to your disk, you'll find that the configuration options (network, X-server and s on) are missing. Since LILO is one such option, the system simply cannot be booted.

The main options provided by the installation routine are simply "Desktop", "Server" and "User-defined". As with earlier Red Hat versions, the last option allows manual package selection. Unfortunately applications and tools provided on any but the main CDs cannot be installed here, and instead must be installed manually once the system is up and running. Thanks to RPM doing so very easy, of course, but with ten CDs it can take ages to just find the application you want, let alone install it. One particular casualty of this somewhat limited installation procedure are the HowTo files, which have to be manually copied to your hard disk unless you don't refer to them very often.

Success: Configuration

As a result of an old Red Hat tradition, you'll find that of GNOME is the desktop installed as standard, the version provided being 1.2. KDE is also included in this distribution, however, and can be selected instead o GNOME during the distribution's installation. According to the Red Hat web-site, the distribution should also include a beta version of KDE2. According to one of the ready-made installation variants, though, only KDE 1.1.2 is on the disk.

For X configuration you are provided with XFree86-4.0.1. This supports the 3D capabilities of ATI graphics cards, the G400 from Matrox and the Intel i810/i815, and Nvidia drivers can be found on one of the extra CDs. Interestingly, although automatic monitor recognition via DDC worked in our tests, our CTX monitor being correctly identified, we found that no timing details for it were included in the supplied monitor database. On the brighter side, we had no problems with our PCI sound card and Ethernet adapter, these being automatically recognised and correctly configured.

ISDN at last!

ISDN support has been fairly based in previous versions, but this is no longer the case in version 7 thanks to *isdn-config* (see illustrations). This makes setting up ISDN absolute child's play. Indeed, we were able to make a dial-up Internet connection in under one minute, even though we'd never used this utility before. Things are supposed to work just as simply with ADSL (using *adsl-config*), but unfortunately we had no suitable equipment to test this out.

Conclusion

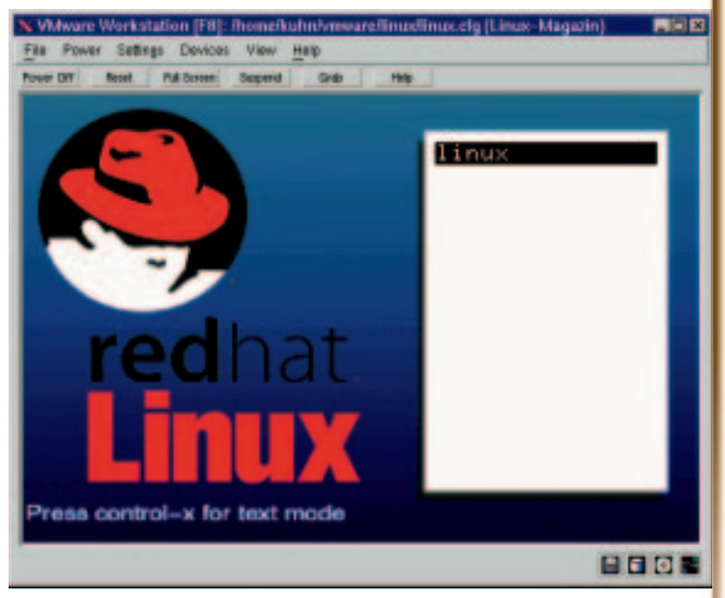
Traditionally, Red Hat is more oriented towards the professional customer. For this reason, the concessions made for the Joe Bloggs user (such as USB and AGP support) are particularly praiseworthy. However, some may argue that Red Hat 7 is just a tad too innovative. In the first week after its release more than 200 bugs were reported. This is Linux, though, and it won't be long before they are all put right.

SuSE Linux 7.0

The installation of SuSE Linux 7.0 is a very simple process indeed, and even beginners should find no insurmountable obstacles preventing them from getting a system up and running. Also helping to make installation that little bit easier is the fact that SuSE 7.0 comes with a sack of documentation. You won't be disappointed with the amount of extra goodies you get in the box, either. They consist of six CDs and a total of 1500 packages, the Professional Edition is one of the biggest distributions in the test.

Installation and configuration

We very much liked the way the installation process has been designed, ending as it does in the configuration of the most important hardware (see Figure 1). We were also pleased by the way that sound and ISDN cards were recognised an



[top, left] Red Hat 7, here with the disavowed, but well-eaned ".0".

[top, right] Nice: graphical boot selection menu

completely installed on our test system without a hint of a problem. What's more, the X-configuration during installation is, quite frankly, exemplary, with XFree86 3.3.6 or 4.0 being installed depending on your graphics card. Games freaks will also appreciate the fact that SuSE comes with quite a few 3D drivers. The only complains we really had was the fact that it isn't possible to reduce the size of an existing Windows volume during partitioning.

For many years now, SuSE has been supplying its proprietary YaST configuration tool with its distributions, a version with a graphical interface also being included since SuSE 6.3.

Almost all system adjustments are performed in SuSE via YaST, from name-server control to printer installation and network card and Internet access configuration. YaST cannot configure absolutely everything, though. A new facility added in this distribution is the amalgamation of all masquerading and firewall settings into the file */etc/rc.config.d/firewall.rc.config*. This makes the configuration of a firewall comparatively easily, but YaST is totally ignorant of the facility.

Administration without YaST

YaST does have its finger in most parts of the configuration pie, though. This makes it an obvious choice as an administration tool even if you can't manage absolutely all configurations possible. Indeed, anyone wanting to work without YaST to any great extent is going to have to deal with problems at every turn. Most settings are actually stored by YaST in its own files and not in the configuration files of the programs themselves. For example, when calling up *SuSEconfig* after the installation of a package using YaST (or after a minor alteration to its configuration, for that matter), reference is made only to the data from SuSE's own files, and any modifications made by hand in the configuration files of the services and programs are simply overwritten. Luckily, though, it is possible to specify which files YaST should deal with and which it must keep its hands off.

False sense of security

Another issue we have with SuSE 7.0 is in its security profiles. The problem is that */etc/permissions* contains of list privileges, users and groups for files that do not necessarily exist on the system. */usr/lib/majordomo/wrapper*, for example, is registered in */etc/permissions* with rwsr-x-r-x and user and group *root* although it is not usually installed at all. One possible, though admittedly highly improbable, consequence of this is that a user could install their own *wrapper* in a system without one and with an unprotected */usr/lib/majordomo*. This would then be placed in SUID root the next time YaST was launched, thereby serving as a back door entry way into the system.

As we said before, though, it is possible to run SuSE without *YaST* and *SuSEconfig*. However, if you do so, you must remember */etc/permissions* when there are changes to ownership conditions and service privileges.

Conclusion

For beginners in particular SuSE Linux 7.0 is highly recommended. As is the case with all the other distributions, though, SuSE does have its idiosyncrasies, and users migrating from another distribution may well find themselves stumbling on the occasional hitch because of them. This is only likely to occur if you attempt to dispense with YaST and SuSEconfig and forget the far reaching tendrils of both programs, however, in which case you can end up spending hours doing configuration work but achieving absolutely nothing.

Debian GNU/Linux 2.2 "Potato"

Debian GNU/Linux 2.2 "Potato" comes in many forms. For our tests we used the six CD set (three of which contain source code), though smaller and larger distributions are also available.

Installation

We very much liked the fact that during installation you are kept informed at all times of what's going to happen next, and can skip sections or even perform them repeatedly if need be. As can be seen in Figure 1, you are even offered useful alternative options in many places, and can clearly see all of the steps to come during the entire installation process.

The installation process is not perfect, however Kernel module selection proved to be a fiddly and time-consuming process, and one that could be improved greatly by simply listing related items together, rather than all over the place as is currently the case.

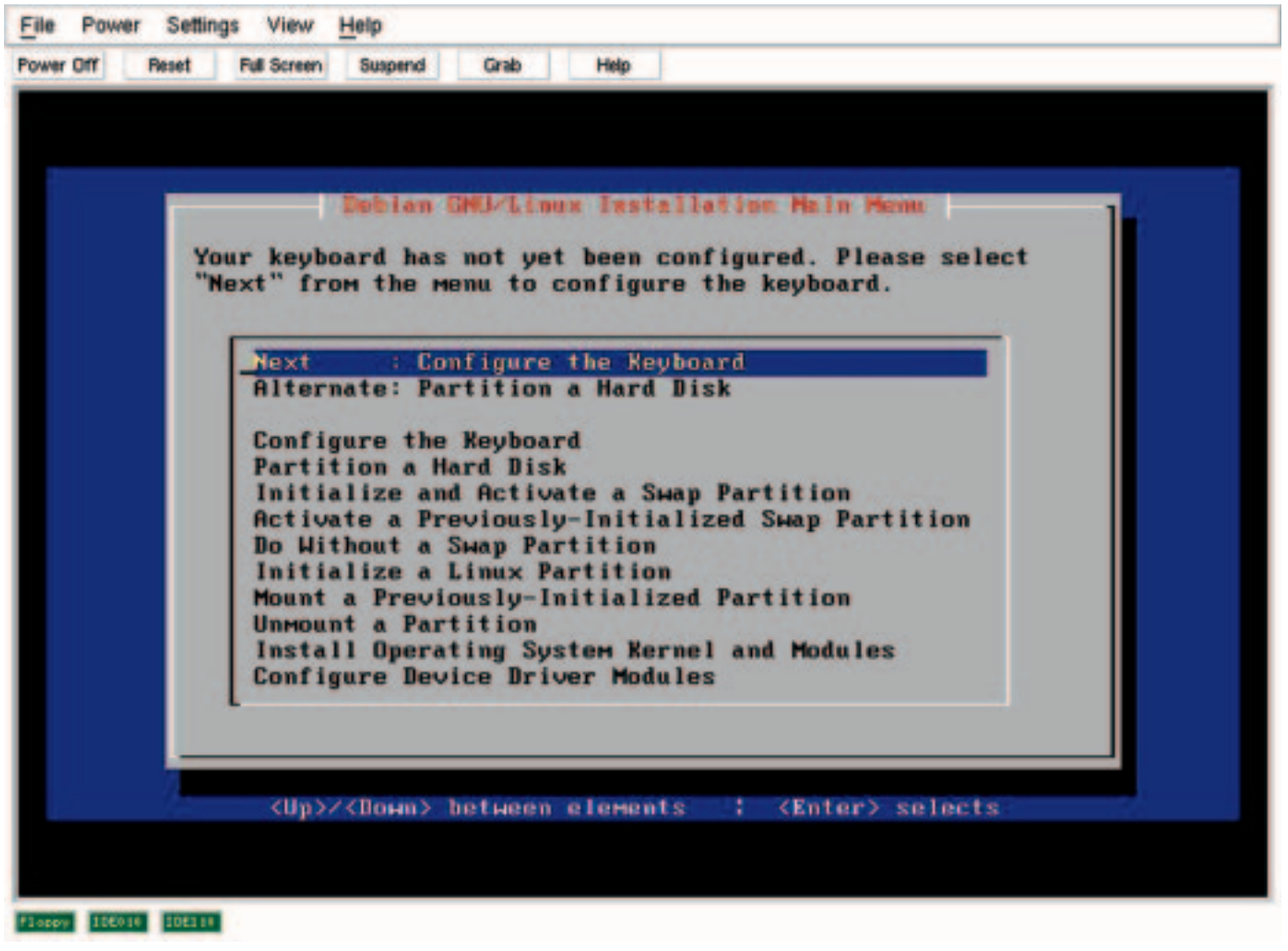
PC Card support for Notebooks superfluous?

We also had a surprise in store during the second part of the installation procedure, which occurs after the main installation process and the system has been re-started. Although we were working on a notebook with network card and modem PC cards installed, the installation program asked us if the PCMCIA package should be uninstalled, as, the program claimed, it would certainly not be needed. Hmm…

Finally, we had huge problems getting our sound card working, as Debian doesn't seem particularly good at hardware detection in general. In some cases you'll find that you even have to recompile the kernel in order to get things up and running properly.

dselect takes some getting used to

Even more irritating than selecting the kernel modules is *dselect*, the program used to select and install of individual Debian packages. Again the way the options are listed is the problem; instead of grouping the programs by task, with all XFree86 programs under *XFree86* and the network tools under *Network*, for example, you'll find that such things as the cdrecord package is grouped with "Available Extra packages in section otherosfs" at the bottom of the list. Having said that, it is possible to search for packages, and doing so can help a great deal.



Crystal ball gazing: With Debian you can see in advance what to expect

Distributions				
Distribution	Mandrake 7.2	Red Hat 7	Debian 2.2	SuSE 7.0
CDs	2 (Powerpack: 7 CDs)	10	9	6
Packages	1536	o	4590	1990
Manuals	2	2	1	4
Pages in manuals	o	~700	362	~1000
Goodies	-	Sticker	-	3 Sticker, Tux Badge
Support	100 day e-mail	30 days phone	90 days e-mail	30 days phone and e-mail
XFree86	3.3.6/4.0.1	4.0.1	3.3.6 (Source from 4.0.1)	3.3.6/4.0.1
KDE	1.94 (Beta)	1.1.2	1.1.2 (Beta 2.0)	1.1.2/1.9.2 (KDE2 Beta 2)
GNOME	1.2.1	1.2.1	1.2.1	1.2.1
Installation				
Installation modes	3	3	2	6
Exotic installation media				
ftp	+	+	+	+
nfs	+	+	-	+
samba	+	-	-	-
from DOS partition	+	+	-	+
Configuration during installation				
XFree86	+	+	+	+
ISDN, Modem	+	-	+ (not ISDN)	+
Sound	+	+	-	+
Network	+	+	+	+
Printer	+	-	-	+
USB	+	o	-	+
ZIP/JAZ	o	-	-	-
Scanner	o	-	-	-
Partitioning				
Resising of Windows partition	+	-	+	-
Default partitions	"/boot (10 Mb); / (250 Mb); 50:50 /usr and /home"	o	-	"/boot 23 MB; /swap 133 MB, / (Rest)"
Choosable file systems				
ext2	+	+	+	+
lvm	+	-	-	-
reiserfs	+	-	-	+
Graphical Installer				
Back button	+	+	-	+
Online help	+	+	+	+
Boot Loader	"LILO; Grub"	"LILO; Grub"	LILO	LILO
Add-ons	-	Graphical LILO	-	-
Boots beyond cylinder 1024	+	-	-	-
Dual boot prepared	+	+	+	-
Security				
Services activated	all installed	all installed	all installed	all installed
Security profiles	5 (crackers playground ... paranoid)	-	-	2
Runtime configuration				
Remote configuration	+	+	-	+
ISDN, Modem	+	+	+	+ (ADSL)
ISDN channel bundling	+	+	-	-
Provider data base	o	+	-	+
Sound	+	+	-	+
Joystick	+	+	-	-
Network	+	+	-	+
Printer	+	+	+	+
USB	+	+	-	-
ZIP/JAZ	o	o	-	-
Scanner	o	o	-	+
Firewall	+	+	-	+

Distributions				
Masquerading	+	+	-	+
XFree86	"Xdrake; XF86Setup"	o	anXious, XfreeSetup	"Sax; Sax2, XF86Setup"
3D support	+	+	-	+
Commercial drivers	o	"Nvidia; tdfx"	-	nvidia, FireGL1
Display detection	o	+	-	+
Wheel mouse support	+	+	-	-
Multihead support	+	+	-	-
Grahical login				
KDM/GDM/XDM	+/+/+	+/+/+	+/+/+	+/+/+
Software:				
ALSA	-	-	+ (Version 0.4.1)	+
OSS free	+	Within Kernel	-	+
Commercial OSS	-	-	-	+
Office packages	o	"StarOffice 5.2; Abiword; Applixware Demo"	Applixware Office 5.0 (30 days), StarOffice 5.2	"StarOffice 5.2; Word Perfect 8"
Web browser	"Netscape 4.71; Lynx"	"Netscape; Mozilla; Lynx"	Netscape 4.71, w3m, Lynx	Netscape 4.74, Lynx, w3m
Full versions	freeciv	o	o	o
Demos:	o	Railroad Tyccon, Descent 3, Simcity Unlimited	Civilisation: Call To Power, Eric's Ultimate Solitaire, Heretic II, Heroes III, Myth II, Railroad Tycoon II	o

On the bright side, beginners and migrating users in particular will find using *tasksel* quite painless. This program allows you to select and install package groups such as C-development or GNOME, but without any fine control over exactly what individual applications to install. This means you can easily glog up your hard disk with programs you don't actually need.

If you've opted to have XFree86 installed, the menu-driven *aniXious* configuration utility will have to be used to configure your system at some point. This is easy enough to use, though depending on the exact options you've installed you may have to spend some time to get everything correctly configured.

APT: Powerful package tool

If you want to see Debian's best and most useful feature, we recommend you start by installing the most basic system possible. Once you've done so, remaining programs such as XFree86, GNOME or whatever applications you need can be installed with the excellent APT, ask *apt-get*. Using this any desired programs, including all dependencies can be installed at with a few button pushes.

DJ Debian

The drawback of opting for this type of installation method is that you'll probably find yourself turning into a DJ, swapping disks over and over again like there's no tomorrow. You can avoid this problem completely if you have a handy CD server with plenty of free drives and a fast network connection of course!

Disk swapping aside, APT is so well written than even updating an old version of Debian is child's play. You needn't even stick to the command line program, wither, as several new graphical front-ends for APT are available, including *gnome-apt*. Though most of these are still in the alpha-test state, they are already good enough to work with. Best of all, though, in most cases it is not even necessary to modify the configuration files when using APT, a feature most other RPM-based distribution would do well to emulate.

Conclusion

At first glance Debian looks uncouth and awkward. But once you have a system up and running it's easy to get used to and, of course, you get absolutely problem-free updates, Debian being more than just a nose ahead of most other distributions in this area. We have to admit that sometimes you do get the feeling that anything graphical and user friendly is somehow tantamount to blasphemy with this distribution though. This situation is slowly changing, so it won't be too long before Debian becomes at least a little bit more migrating-user-friendly.

Mandrake 7.2

The final Mandrake 7.2 distribution is already available. We'll take a look at it here.

Although only a minor release revision, Mandrake 7.2 gives us a taste of some fairly big changes about to take place in the Linux world; you get KDE beta 1.94 for example, and XFree86 4.01 is provided as an optional X-Server.

Quite apart from new features brought in from external developers, the Mandrake developers

themselves have once again sat down and polished up the installation routine a little. There's little change in the user-interface compared to that of 7.1, so anyone who has already installed Mandrake will find themselves in familiar territory. But you'll find that, for example, there's a new dialog box in which the user has to confirm that he accepts the licence.

New features

Apart from support for modems and ISDN adapters, Mandrake 7.2 also comes with tools to help you make use of xDSL Internet connections, which will be handy if you are lucky enough to have an ADSL connection. And along with Lpr, the time-honoured print system, Mandrake has integrated the UPS print system in the new distribution. In addition to this the new distribution offers a sensibly pre-configured Apache web-server with PHP and MySQL support. Postfix is installed as the Mail Transport Agent, and a remote configuration via Webmin is possible.

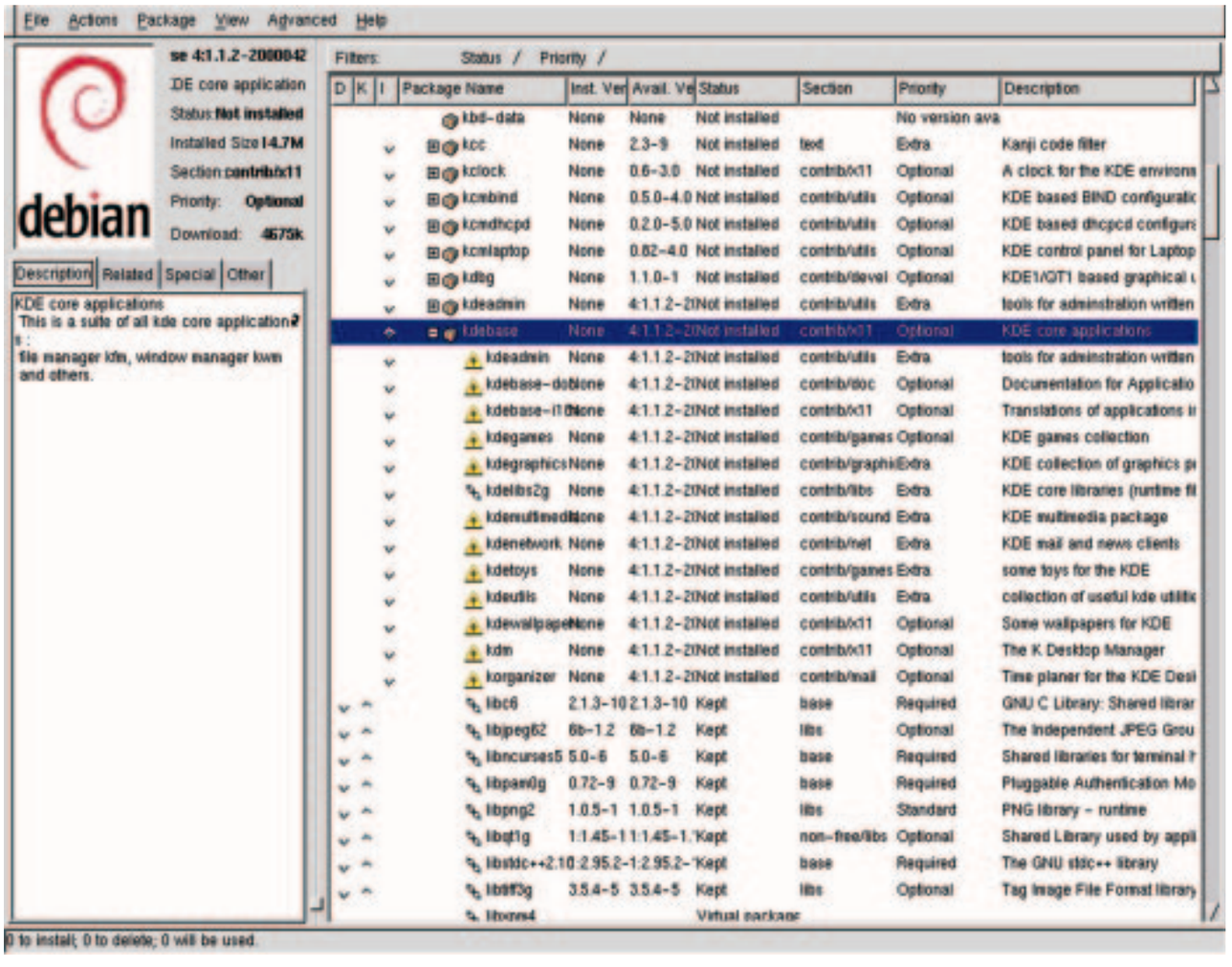
As in older versions, Mandrake is aiming this version at users migrating from Windows. As such, the simple and graphical installation routine is designed to help you end up with a system on which KDE is installed as standard so that the look and feel is very similar to that of a Windows desktop. Important services are also started automatically and are therefore available immediately.

Games

Linux no longer means just developing, and is slowly becoming a regular desktop operating system. This means it has to provide some form of entertainment for the user, of course, so you'll find a range of games installed as standard. These are not the proprietary classics but rather open source games such as "freeciv", a free clone of Civilisation II, and Maelstrom and Clanbomber.

On security

Still not properly documented online in Mandrake 7.2 are its "Security levels", which can be configured during installation. The on-line help does, however, refer to the printed manual regarding this. Unfortunately we did not have this during the test, so can't comment on how well it explains things.



GNOME-APT is still in its infancy, but can already be used for package installation

The various classifications range from "Cracker playground" to "paranoid", with the latter being expressly intended only for server operation. With this latter security level the user can't log in as root on the console, first having to log in with a normal user ID and then changing using *su*.

The best choice for general use is "Medium", which means you won't be overly constrained but your computer won't be sitting there with all ports open just inviting unwelcome guests to drop in.

Partitioning

In both the user-defined and expert installation modes you can opt to have DiskDrake, Mandrake's partitioning utility, automatically create your partitions for you. On the 30Gbytes drive fitted to our test system, selecting this option resulted in 10 megabytes being allocated to */boot* and 250Mbytes each for */* (root directory) and the swap partition, the rest of the drive being was divided into */home* and */usr*.

DiskDrake also allows existing Windows partitions to be reduced in size, which is very handy indeed. We did have some problems with DiskDrake failing to recognise the partition table on one of our drives.

Spoilt for choice

After partitioning the hard disk you will be presented with a selection of packages to install. A menu allows you to select from various items, such as *KDE*, *Gnome* or *Communication Facilities*, then select or deselect each individual package listed within the main option directly.

Dependencies are automatically taken care of for you doing your package selections, but sometimes things go slightly awry. When deselecting Lynx, for example, the HTML help pages are flagged for deselection too, even when another browser was installed. The individual packages are, however, well organised and the tree structure used to display them makes locating everything you want very easy.

Mandrake's new installation routine shows no sign of the annoying bug that managed to slip into version 7.1. Previously, in the size details associated with each package the words kilobyte and megabyte had been swapped around. This was of course obvious for packages apparently billed as being, for example, 11530Mbytes in size. Still, this is now all history, 7.2 now showing the correct sizes for everything.

The total package size is still expressed as a percentage when you select more options than can be accommodated in the available disk space, though. Because of this it just isn't clear what precisely is going to be installed and what isn't in this situation. You might find yourself having to choosing to install "30%" of the packages, for example, which is virtually meaningless. You can, of course, activate the *Individual package selection* option in order to check the selection again and see exactly what's going on, but this shouldn't be necessary.

Once you have selected everything and complied with all dependencies, the next step is

Mandrake and ADSL

As we mentioned elsewhere, as well as modem and ISDN adapter support, Mandrake also supports ADSL. The developers have not thought things through properly, however. The problem is that many forms of ADSL adapters aren't directly connected to a PC at all, instead having their own Ethernet ports through which they must be accessed. In such situations a network card must obviously be installed on your PC, but the Mandrake installation procedure for ADSL access only checks whether a network card has even been installed in the system right at the end. If it finds you don't have one, all your efforts will have been in vain, as the routine stops then, forgets everything you've told it about your ADSL connection, and moves on to the next installation step. Almost as annoyingly, if you first try to install a network card with a (fake) IP address, having let you do so the installation routine then jumps straight to the next item on the list, without giving you the chance to configure your ADSL connection. This is where Mandrake 7.2's flexible installation routine, which allows you to jump back to a previous setup comes in handy. All you have to do is jump back to the ADSL option and chose the appropriate country from the listed options. Next you'll probably be asked whether pppoe (PPP-Over-Ethernet) should be used. The necessary packages are now installed for you, after which some more information must be provided:

- *Name of the ISP:*
- *first DNS of the ISP:*
- *Second DNS of the ISP:*
- *ID (Login):*
- *Password:*

Finally, you can decide whether the ADSL connection should be activated immediately on booting (DialOnDemand) or if you would prefer to start the connection manually.

Unfortunately we found that even having done all this our ADSL connection still didn't work. Some detailed investigation revealed the reason why.

Although all values (Login-ID, password, Ethernet card used, and so on) had been correctly entered in the pppd configuration files, they had not been transferred into the rp-pppoe configuration file (/etc/ppp/pppoe.conf). This isn't actually necessary for making a connection using your own scripts, but Mandrake insists on using the scripts provided with rp-pppoe, adsl-start and adsl-stop, and for this a correct configuration file is vital. The user must therefore revise this file manually, or else call up the setup script provided with rp-pppoe, "adsl-setup".

Another problem we discovered was that even though we told Mandrake not to automatically connect at boot time, this choice was ignored. Resorting to deleting the corresponding links in the run levels was the only way we could solve this problem.

All in all, then, in the beta version of 7.2 the ADSL installation routine can only be described as a total flop. If you run into similar problems and can't seem to solve them, a thorough read of the many ADSL HowTos on the Internet may we very worthwhile.

simply to select the *Install* option. Depending on your option selections and the speed of your computer, you can now either go for a quick cup of coffee or redecorate the whole house.

Conclusion

Mandrake has gone to some trouble to make installation simple, and in general it has succeeded. Indeed, even a fairly inexperienced user should be able to cope with it, while more experienced users will find it easier than ever to perform quite advanced tasks.

Caldera Technology Preview

A pre-release products we looked at is the Caldera Technology Preview. In return for living with potential instabilities, anyone trying this out will get the newest of the new: a 2.4 series kernel, KDE 2.0 Preview, JAVA Software Development Kit 1.3 and, of course, XFree86 4.0. You will, however, have to do without all the third-Party and commercial packages included in the normal OpenLinux distribution, as these aren't included. Also missing are some of the more interesting and useful features provided by most distributions as standard. The likes of ReiserFS and XFS are missed out, for example, but while this is understandable, we did find it puzzling that such basics as *ssh* and *GNOME* are also left out.

As a result of its leanness, all you get in the box are two CDs (one for installation and one containing source code) and a black and white booklet, illustrated with lots of screen-shots to guide you though the installation routine. The usefulness of the "Installation Guide" is somewhat hindered by fact that it isn't very detailed, but for a beta version the mere existence of a printed manual is unusual enough. Also worth noting is that although beta versions are normally free, the Technology Preview will actually cost you around 20 dollars. You can get you money back via a discount voucher, however.

Business as usual

By and large not much has changed in the installation procedure – but not was there any need: Caldera was the first Linux distributor to boast a graphical installation, and this experience shows. Additional hardware support has been added, however, though these include obscure items such as Japanese keyboards.

As usual with Caldera's setup routine, in the Technology Preview an area on the screen is reserved for displaying online help. Although this provides plenty of information, further details can be displayed at the click of a help button on the lower right hand margin.

Patience is something that anyone using the Caldera installer "Lizard" will need plentiful supplies of. If you press too often on the "More" button because nothing seems to happens when you press it the first time, the Lizard will jump through the next few installation steps. This is especially annoying because, unlike the Mandrake installation routine, you cannot backtrack with Caldera's Lizard. The problem has been in existence since the very first version of the program, and it is really about time it was fixed.

On the bright side, Lizard's network installation is superb, most configuration being automatically entered for you – even the name of the NIS domain is determined. Amusingly, as is now pretty much the custom with Caldera, there is still a little game at the end of the configuration section for you to play in order to pass the time during the inevitably long-winded file copying that occurs once you've made all your installation selections. After Tetris and Pacman this time its Mah Jong – no doubt it'll be a 3D flight simulator by version 20.

Configuration

The distribution's own configuration tool, COAS, is unfortunately as complicated and annoying to use as ever. The *root* password has to be entered each and every time before you can access each individual configuration sub-item, or example. However, configuration tools have now been integrated into the KDE control centre, in a manner similar to the Corel Linux distribution, and these are very easy to use.

Conclusion

This distribution is obviously not suitable to everyone and indeed it was never meant to be. As its name quite firmly tells you, this is a technology preview, nothing more and nothing less. As such it is totally unsuitable for beginners, and even a typical Linux geek who likes to experiment will be dissatisfied because too many features and programs are missing. The installer is still ahead by of the competition in many areas, but no great advances or innovations have taken place.

A look into the crystal ball

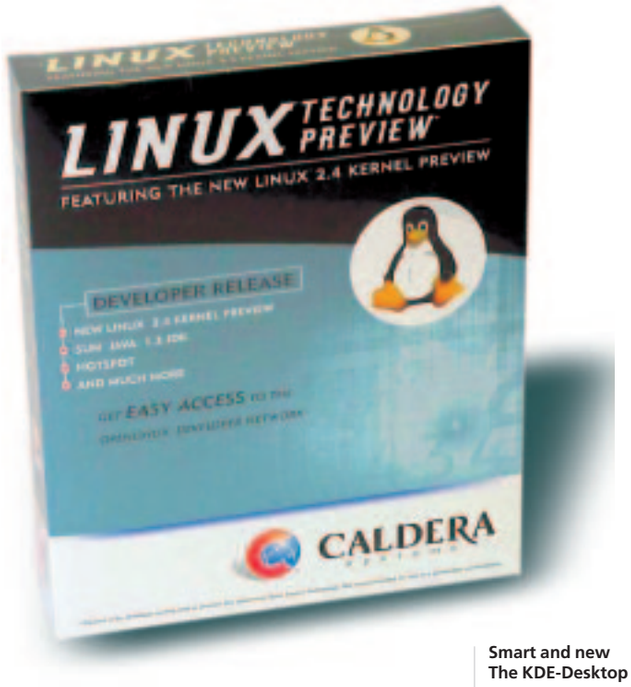
In the recent past, commercial distribution publishers have mainly been directing their efforts towards easier installation, the only other improvements made mostly being quite minor. This is all for the good, and means installation is now much less painful than ever before. But things are likely to change before too long, as distributors will soon have to face a new challenge. Instead of being judged by how new the kernel is or whether it needs seven or ten mouse clicks to complete the installation, distributions will be judged by how well

they match up to the standards laid down in the Linux Standard Base (LSB). The LSB is a sub-group of the "Free Standards Group", and was established only very recently. The File Hierarchy Standards can be found at http://www.linuxbase.org/test/lsbtestnws.html. If the LSB manages, as is predicted, to get a reference implementation up and running, although the world of distributions won't be changed at a single stroke, there will be a much greater hope of a "split-free" future.

Of course, Kernel 2.4 will be included in future releases, but this will scarcely deliver any surprises for normal users, since all the important drivers are already installed as back ports in the 2.2 series kernel.

It can get quite exciting when it comes to file systems, though. This is where freedom of choice will certainly increase in future. At SGI and IBM they are working all-out to port their journaling file systems. In addition, ReiserFS has proven itself as a very practicable proposition, and ext3 will be finished one before long. Users can therefore expect to find an additional menu in the installation routine of the future, with a list of five or more file systems for them to select.

Fans of the well-groomed appearance will also be delighted with KDE 2.0 ad KOffice, but on the other hand it could take ages before the monolithic StarOffice is taken apart and reassembled as OpenOffice and finds its way into the standard distributions. But, as always, when it comes to reading the tea leaves, we will leave it on Wilhelm Busch who said "Things will turn out differently, no matter what you expect." ■



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