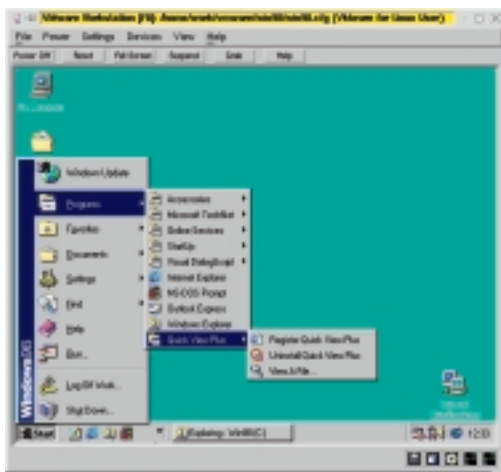## So many possibilities
WINDOWS-EMULATION
BY HANS-GEORG EßER

Be honest, even as a fully-fledged Linux devotee, you are bound to miss one program or another from the world of Windows. Some manufacturers are still stubbornly refusing to port their software, so in many cases the only option is to keep on booting Windows.

It doesn't have to be that way. When it comes to using your favourite Windows programs under Linux you have a range of options. Consequently, the Windows partition can disappear from your computer once and for all.

There are broad variations in the techniques used for emulation: The free project Wine is one example. This makes libraries available that directly convert Windows function calls into the corresponding Linux calls. It is not necessary to have a version of Microsoft Windows installed. VMware and Win4Lin take an alternative approach. Both emulate a complete PC and allow you to install an original Windows package on it. VMware goes one better, and provides support which makes it possible (in principle) to run just about any operating system you like in the virtual machine.

Windows 98 in the VMware window under Linux

The VMware virtual machine comes up with a BIOS opening message and possible BIOS set-up. Windows can be installed just as on any "normal" PC, simply insert the Windows installation CD, boot the virtual machine and run through the installation procedure. Windows 95, 98, Millennium Edition, NT 4.0 or 2000 will all run optimally, in principle. The installation of any preferred Windows programs (such as Microsoft Office 2000) is no problem at all. But for the latest versions of Windows you will need a faster guest computer. Windows 2000 struggled with the installation for an hour and a half in VMware using a dual Pentium III 500. Even then, it was not particularly fast. By comparison, NT 4.0 runs perfectly smoothly on the same computer under the same version of VMware.

On the other hand, Wine offers less compatibility. It's still in the Alpha stage and has serious problems with many current Windows programs. But it *does* offer seamless integration into the Linux environment. Any Windows program executed under Wine can be executed in a normal Linux window. These windows can also share a desktop with other programs. VMware opens a big Windows desktop window containing all Windows programs. Windows programs also run noticeably faster under Wine, since they are not running on simulated hardware. If the programs you need are compatible with Wine, then Wine is the best choice – especially since you don't need a Windows licence to run it.

Whichever way you look at it, it's possible to use *any* program which has not yet been ported onto Linux. Never reboot again!