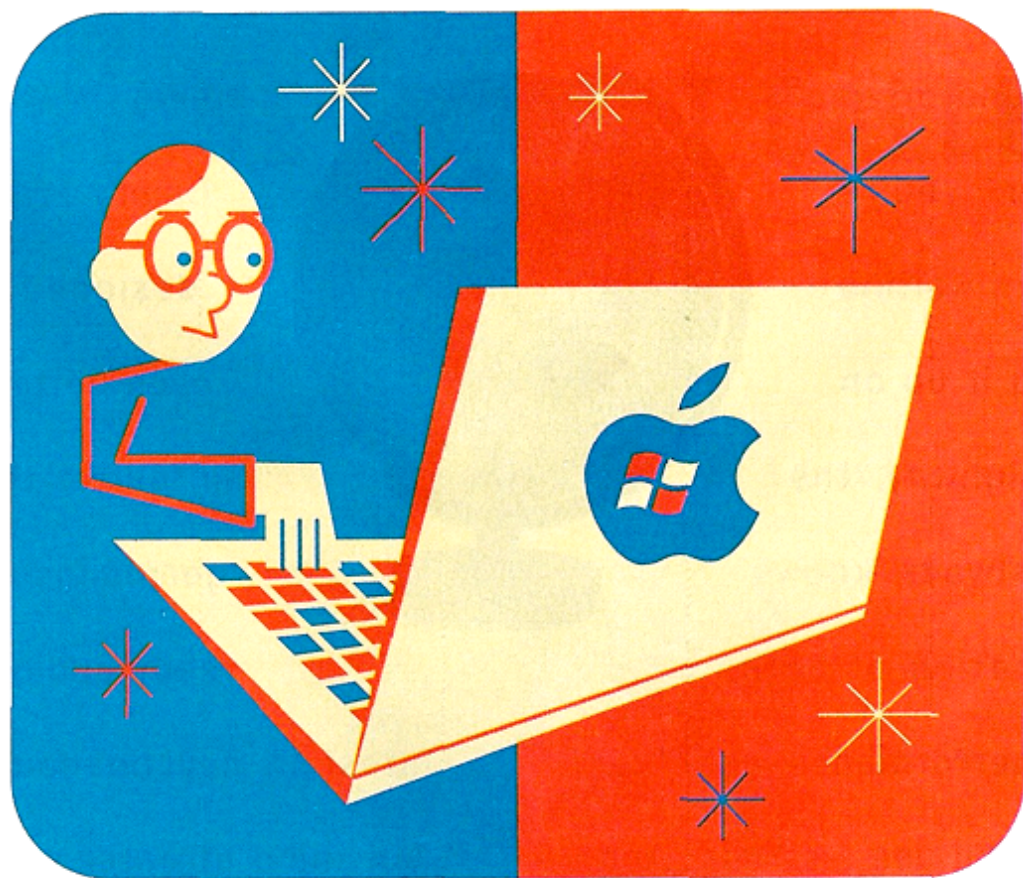


Win on Mac: A Sign Of the Apocalypse?



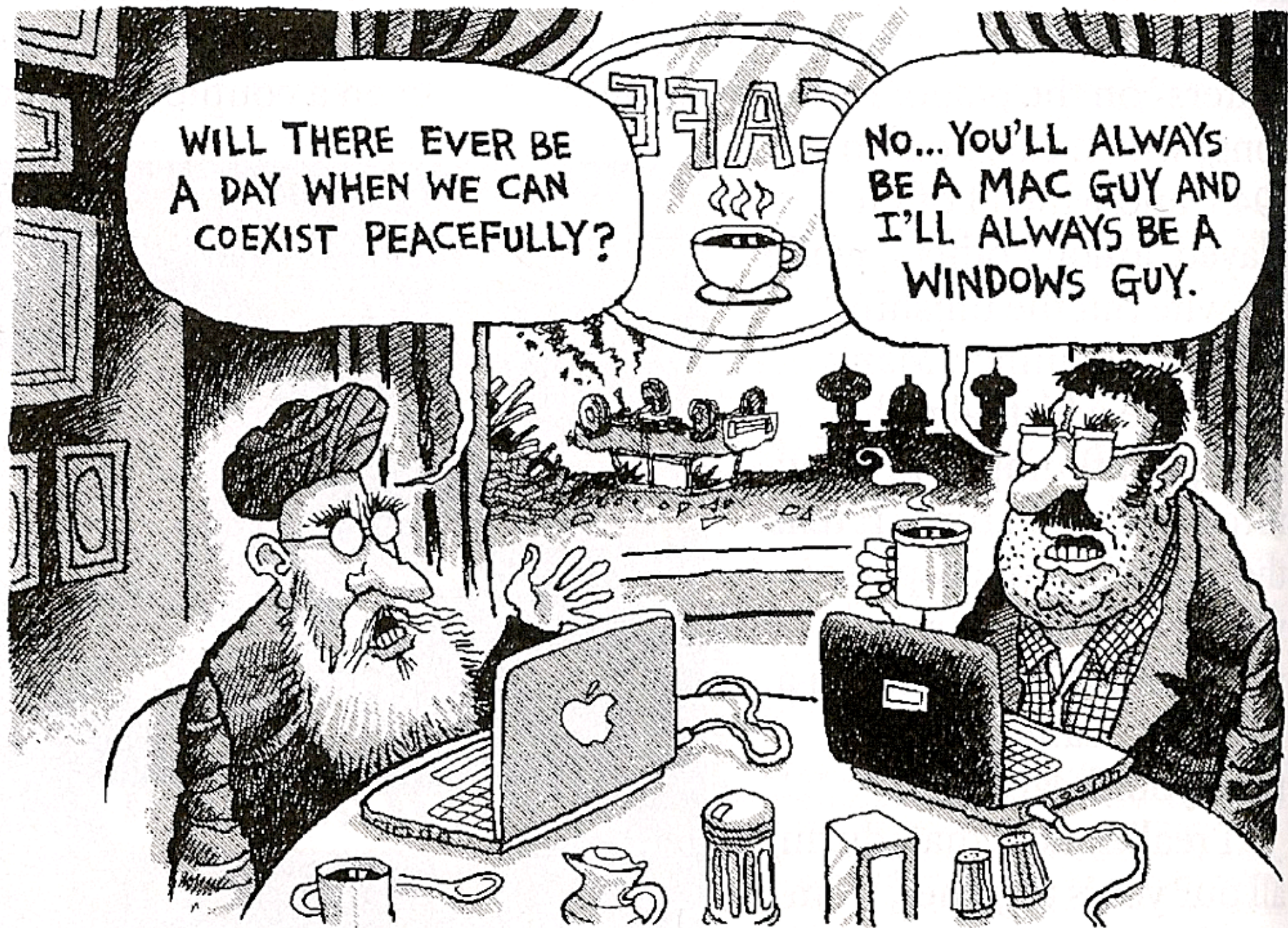
BY STEVEN LEVY

Win on Mac: A Sign Of the Apocalypse?

I AM EXPERIENCING THE computer equivalent of an out-of-body experience. In front of me is Apple's sleek new MacBook Pro laptop computer. And on the screen is a familiar sight in an unfamiliar setting: the rolling green hill and the blue sky spotted with clouds (and dotted with icons) that is the unmistakable Windows XP desktop. It's like Pepsi in a Coke bottle, DeLay as a Democrat, Johnny Damon in a Yankee uniform (oops, forget that last one).

Newsweek

April 17, 2006



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PC Emulators for Mac OS X on PowerPC G3, G4, and G5

Virtual PC	<p>The top Pentium PC emulator for Macs. Runs Windows 95/98/NT/2000/XP. Good compatibility with Windows business software and Windows networking software.</p> <p>VPC is the most full-featured PC emulator, and probably the fastest. Cut and paste between Mac and Windows environments, and drag and drop file copying between the two. Can run multiple instances of Windows or Linux at the same time.</p>
Guest PC	<p>X86 Emulator for Mac OS X. Guest PC supports every version of Windows from Windows 3.1 to Windows XP Professional. Comes with DOS preinstalled. Users need to install their own copy of Windows. The system comes with a Windows Setup Assistant to help users install Windows and setup modem, printer, and network connection.</p>
Bochs	<p>An open source PC emulator, now available for Mac OS X. . It includes emulation of the Intel x86 CPU, common I/O devices, and a custom BIOS. Currently, Bochs can be compiled to emulate a 386, 486 or Pentium CPU. Bochs is capable of running most Operating Systems inside the emulation including Linux and Windows.</p>
iEmulator	<p>Low-cost PC emulator, comes with a DOS operating system on a DOS boot floppy image and a DOS formatted hard disk image. iEmulator can run Windows 98, Windows 2000, and Windows XP; the developers recommend Windows 2000 as the fastest version of Windows. (Windows 2000 is also the fastest version of Windows to run in Microsoft's Virtual PC.) Like Virtual PC, iEmulator can have multiple virtual machines booted at the same time. Based on the QEMU engine.</p>
WinTel	<p>A commercial package based on the open-source Bochs emulator (see above). Runs Windows 95/98/NT/2000/XP and Linux/Unix operating systems. Available with DOS or with one of 10 Linux/Unix OS's preinstalled.</p>

Wine

Wine is a program which allows the operation of DOS and MS Windows programs (Windows 3.x and Win32 executables) on UNIX. It consists of a program loader, which loads and executes a Windows binary, and a library that implements Windows API calls using their UNIX or X11 equivalents. The library may also be used for porting Win32 code into native UNIX executables.

Wine is free software, and its license (contained in the file LICENSE in each distribution) is BSD style. Basically, this means that you can do anything with Wine except claim that you wrote it.

Darwine

The Darwine project intends to port and develop Wine as well as other supporting tools that will allow Darwin and Mac OS X users to run Windows Applications. There are two major phases to this project.

The first phase is the port of Wine to Darwin/PowerPC with X11 (XFree86).

While the basic compatibility is there as Darwin is largely FreeBSD, there is the hurdle of its Mach kernel which uses the Mach-O format rather than ELF. This part has been achieved with success. It means that WineLib is now working on Mac OS X, and that developers should be able to recompile their Win32 Apps using WineLib and make them work in Mac OS X.

The second phase is to then integrate in WINE the QEMU binary translator.

Additional supporting tools for launching Windows applications from the desktop and an integrated installer are desirable items for the package (like OpenOffice is doing).

This is distinguished from simply using QEMU to run Windows because there is no Windows here. Just WINE and QEMU to run Windows applications directly under X. That will enable vastly better performance, better integration, and easier administration.

QEMU

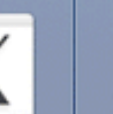
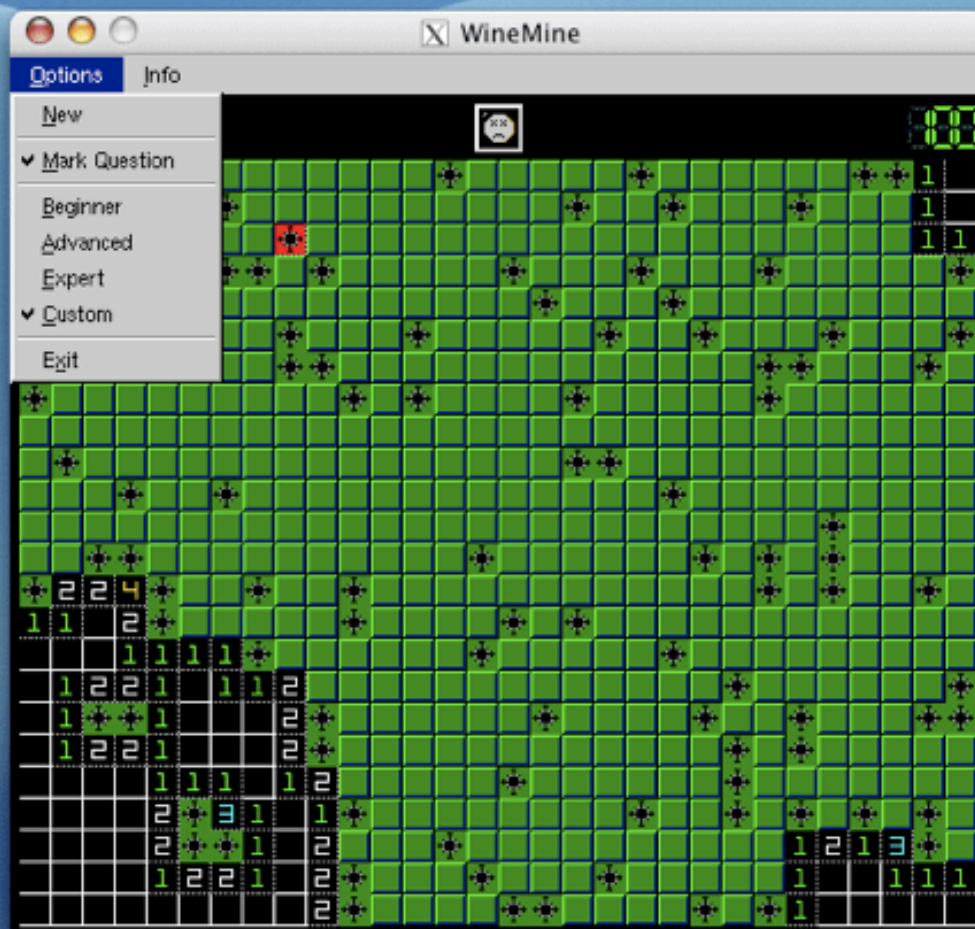
QEMU is a generic and open source processor emulator which achieves a good emulation speed by using dynamic translation.

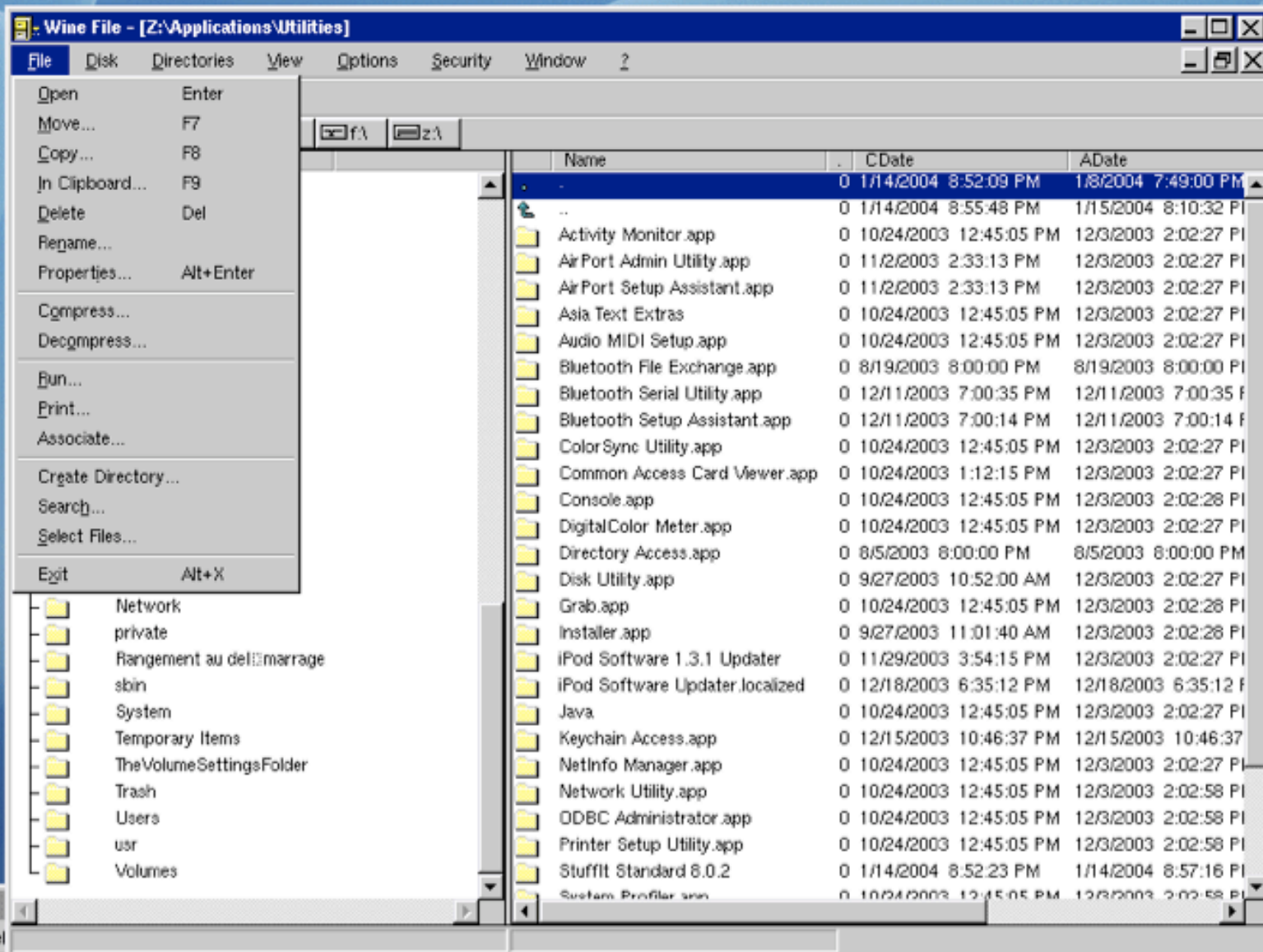
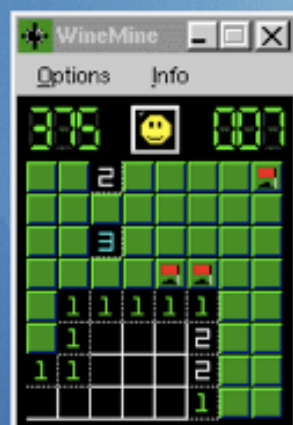
QEMU has two operating modes:

- * Full system emulation. In this mode, QEMU emulates a full system (for example a PC), including a processor and various peripherals. It can be used to launch different Operating Systems without rebooting the PC or to debug system code.

- * User mode emulation (Linux host only). In this mode, QEMU can launch Linux processes compiled for one CPU on another CPU.

An optional proprietary QEMU Accelerator Module is available to optimize the case where a PC is emulated on a PC. This module enables QEMU to run most of the target application code directly on the host processor to achieve near native performance.



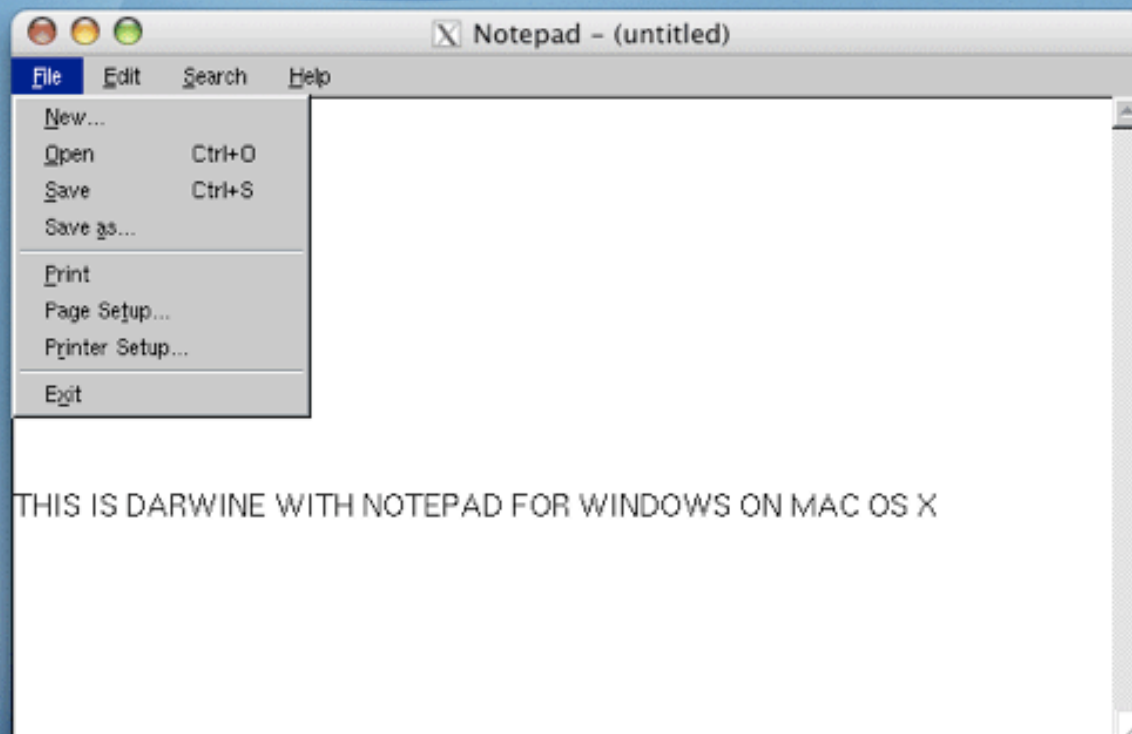


Notepad - (untitled)

File Edit Search Help

WINE's NOTEPAD in Mac OS X.

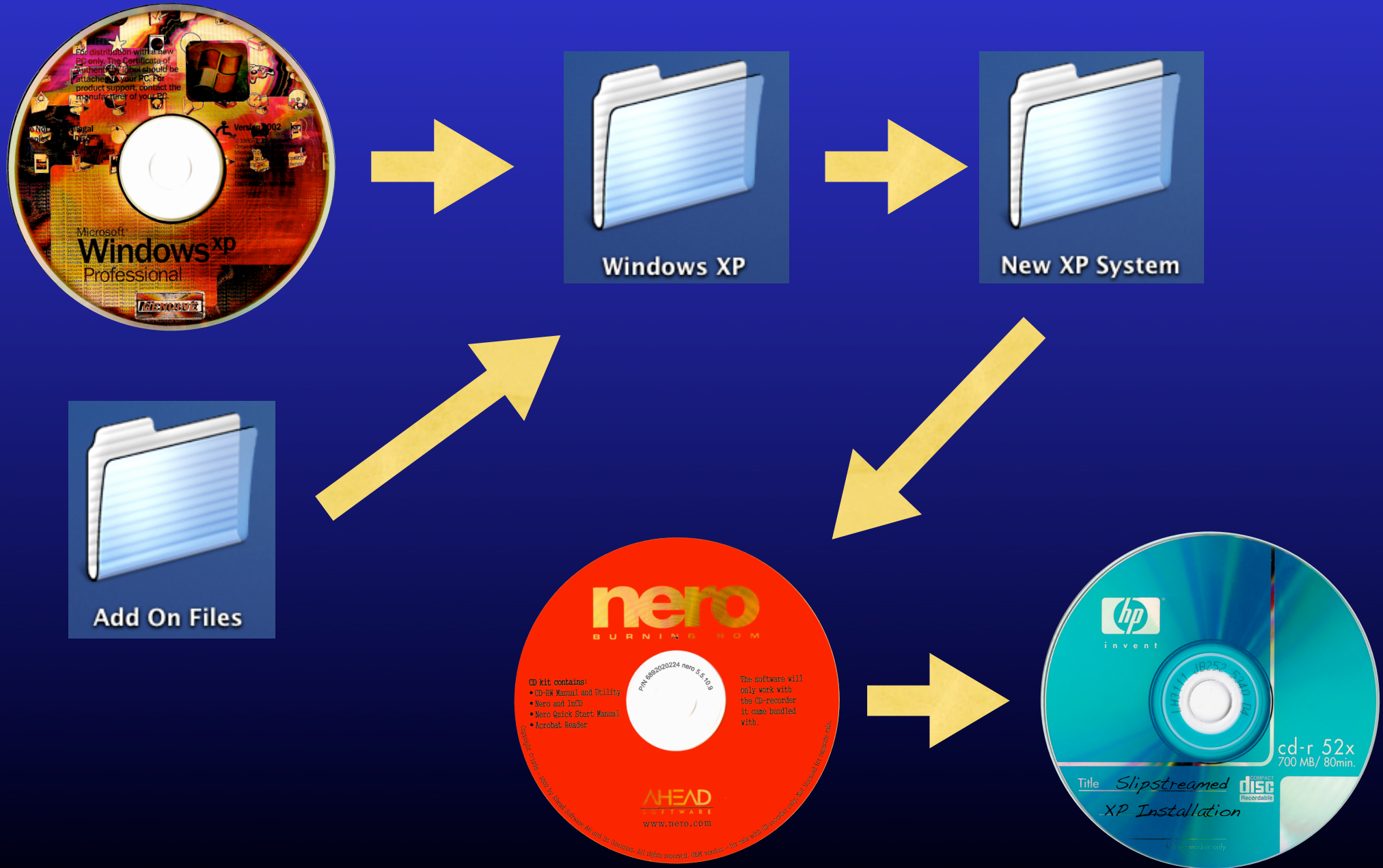




Three “New” Ways To Run Windows XP On Intel Macs

- The \$14,000.00 Solution
- Boot Camp from Apple
- Parallels Workstation from Parallels, Inc

The \$14,000.00 Solution



The \$14,000.00 Solution (cont)

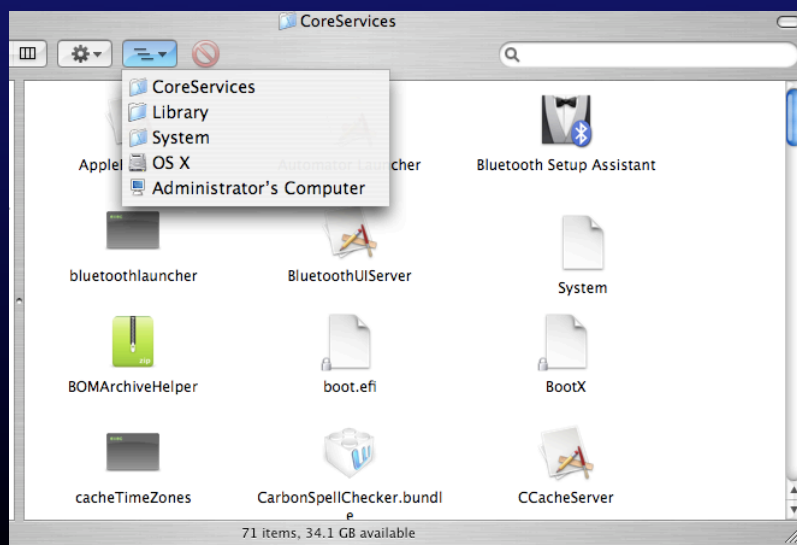
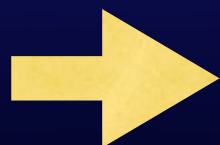


Quick instructions for those knowing what they're doing

1. Partition the disk in two using the OSX CD: FAT and HFS+
2. Install OSX on the HFS+ partition.
3. Copy xom.efi (from xom.zip) into the hard disk
4. cd to the directory where you put xom.efi and type
`sudo bless --folder . --file xom.efi --setBoot`
5. Reboot, insert the XP CD, select windows using the arrows and wait about 3 minutes
6. Choose the FAT partition you previously created.
(choose, not create! it should prompt for filesystem)
7. Install. Make sure to remove the CD on subsequent boots, otherwise you'll start the process over again.

Note: The "press any key to boot from CD" prompt doesn't work yet

8. Done!



The \$14,000.00 Solution (cont)

Drivers, drivers where are the drivers?

	iMac 17" ↗	iMac 20" ↗	Mac Mini ↗	MacBook Pro ↗
Backlight	N/A	N/A	N/A	None ¹
Bluetooth	Click ↗	Click ↗ ⁸	Click ↗	Click ↗
Chipset	Click ↗	Click ↗	Click ↗	Click ↗
Ethernet	Click ↗	Click ↗	Click ↗	Click ↗
Fan control	None ²	None ²	None ²	None ²
HFS+ Support	Click ↗ ³	Click ↗ ³	Click ↗ ³	Click ↗ ³
IR Receiver	None	None	None	None
iSight	None	None	N/A	None
Keyboard	N/A	N/A	N/A	Click ↗ ⁴
Mouse	N/A	N/A	N/A	Click ↗
Remote	None	None	None	None
Sound	Click ↗ ⁵	Click ↗ ⁵	Click ↗ ⁵	Click ↗ ⁵
Video	None ⁶	None ⁶	Click ↗	None ⁶
Wireless	Click ↗	Click ↗	Click ↗ ⁷	Click ↗ ⁷

<http://wiki.onmac.net/index.php/Users/Drivers>

Boot Camp From Apple



Boot Camp Assistant



To use Boot Camp Beta, you need:

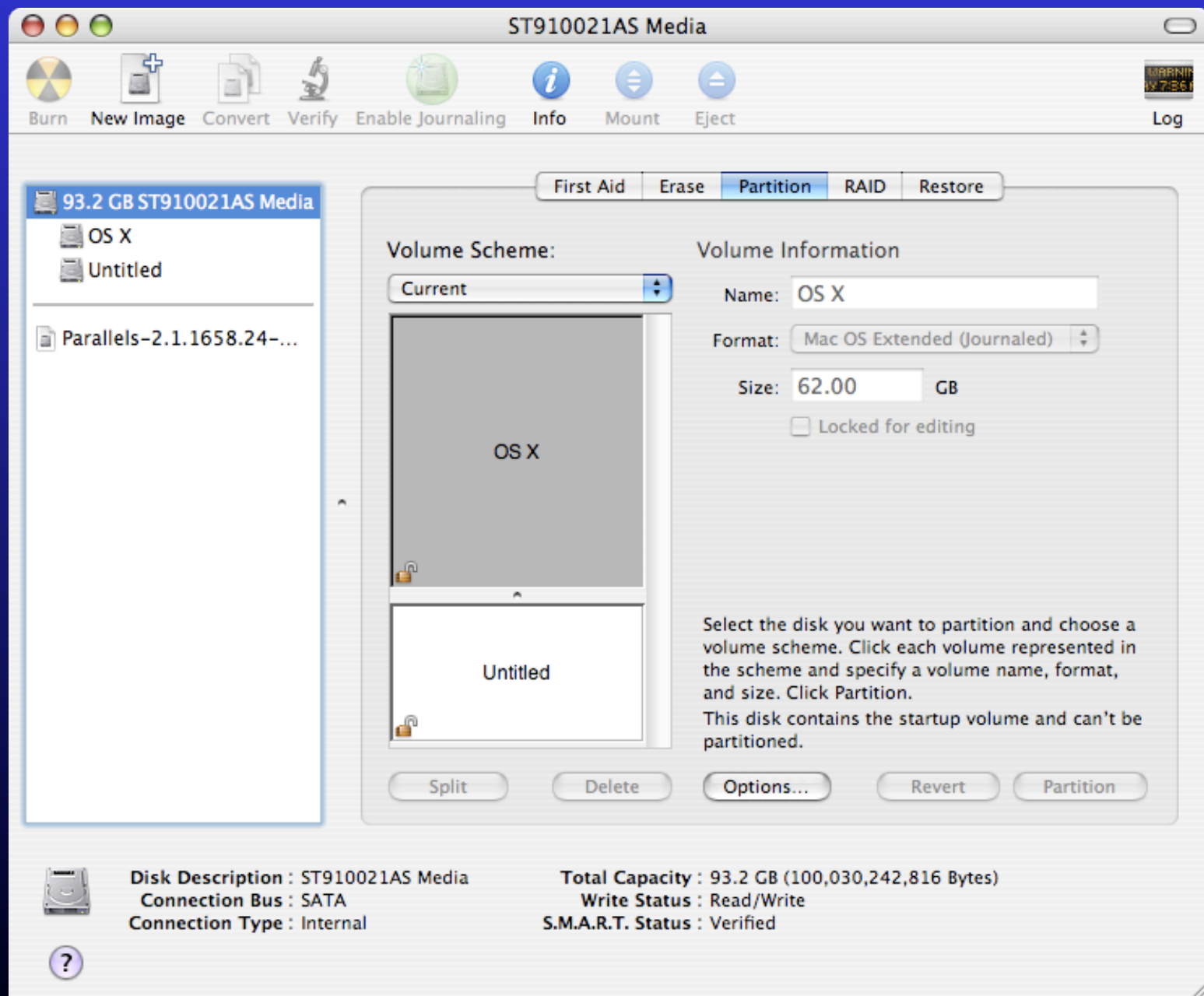
- * An Intel-based Macintosh computer with a built-in or USB keyboard and a built-in trackpad or USB mouse
- * Mac OS X 10.4.6 or later
- * **The latest firmware update available for your Intel-based Mac**
- * At least 10 GB of free space on your startup disk (single partition)
- * A full, single-disc version of Windows XP Home Edition or Professional with Service Pack 2 or later

Important: Your Windows XP installation disc must include Service Pack 2 (SP2). You cannot install an earlier version of Windows and upgrade it to Windows XP, nor install an earlier version of Windows XP and update it with SP2 later.

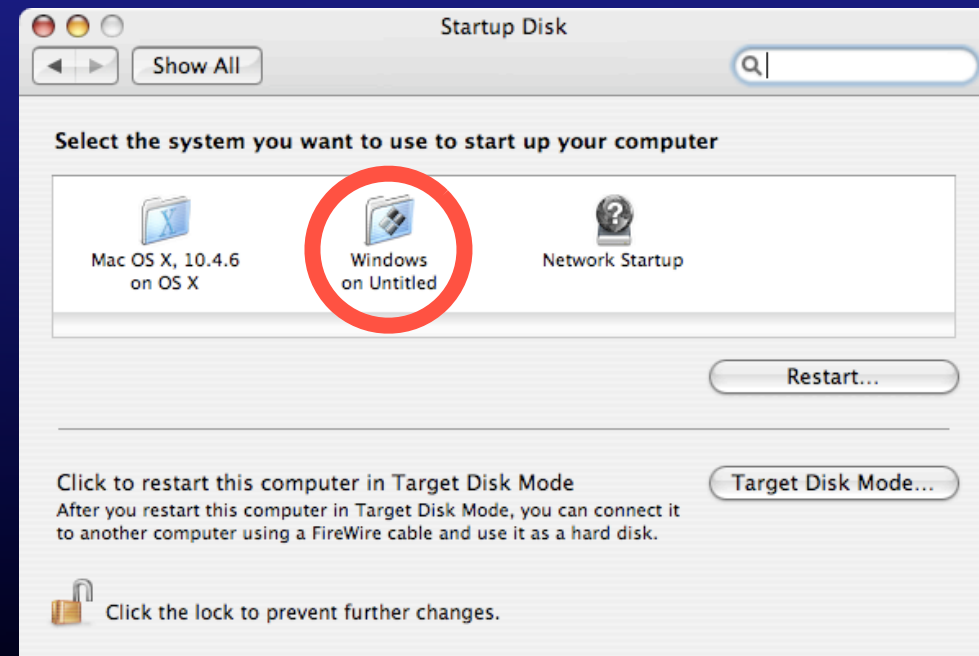
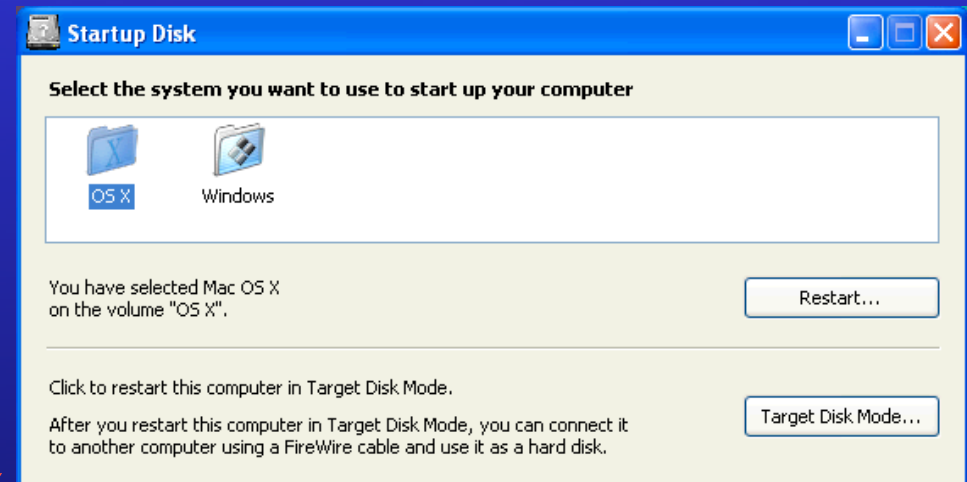
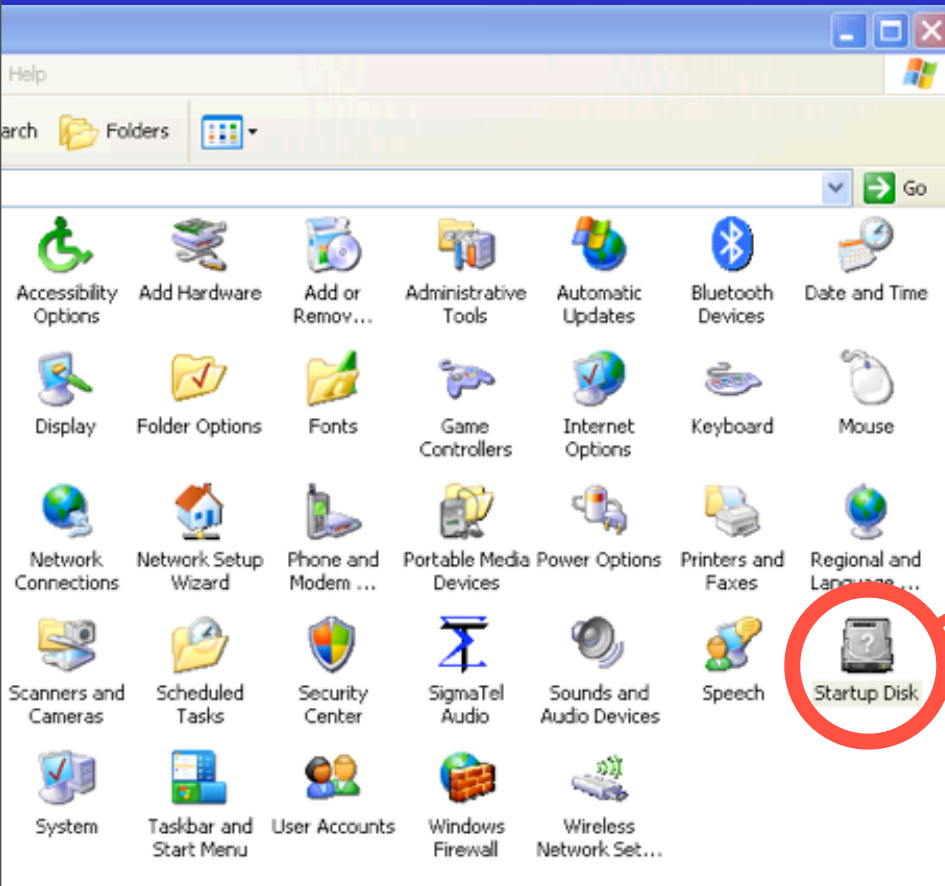
Note: Boot Camp Beta does not include Windows XP. You must provide your own, properly licensed, Windows XP Service Pack 2 installation disc.

- * Boot Camp Assistant (will be installed in /Applications/Utilities/)
- * A blank, recordable disc (to create the Macintosh Drivers CD)

Boot Camp From Apple

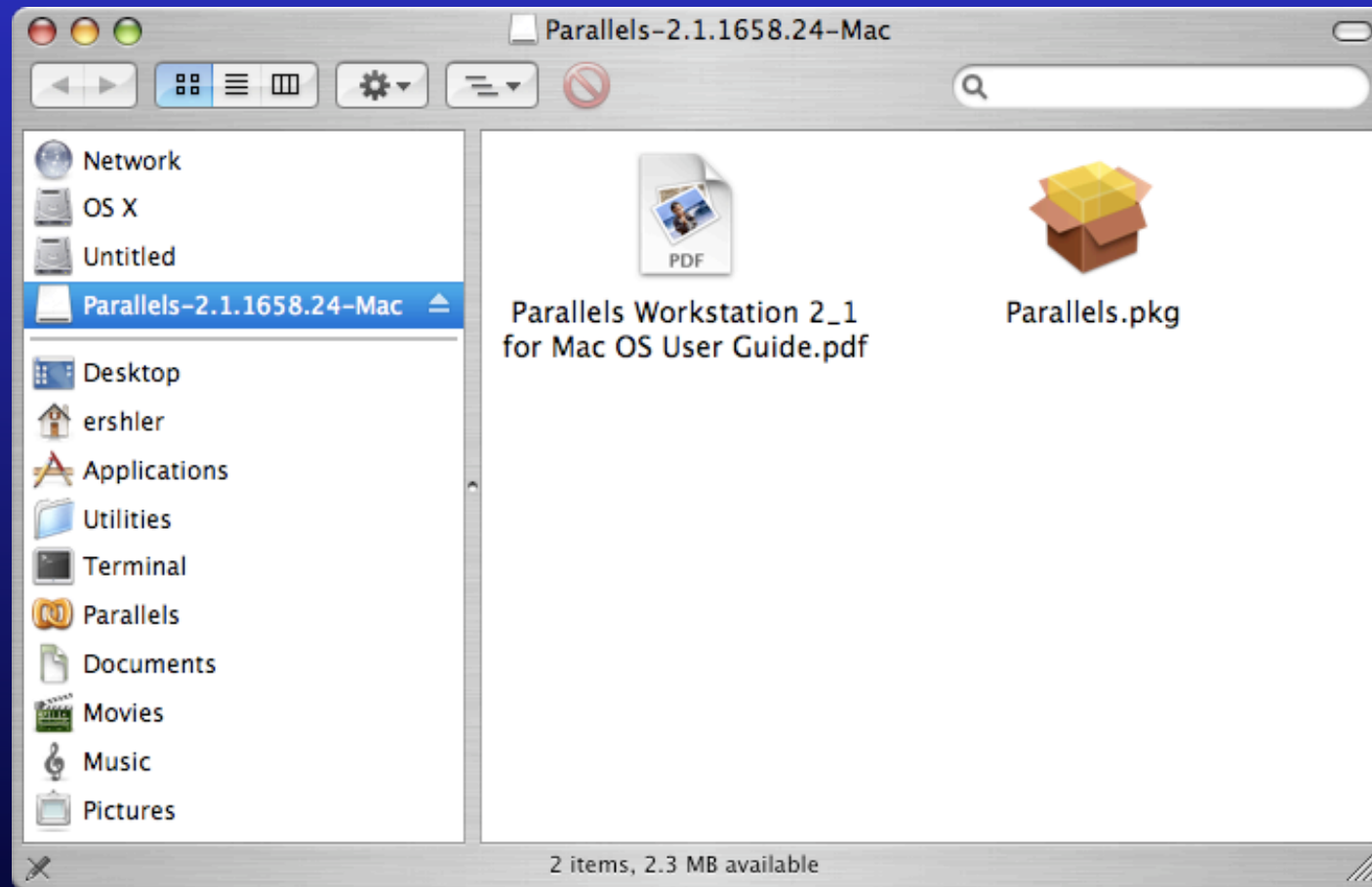


Boot Camp From Apple

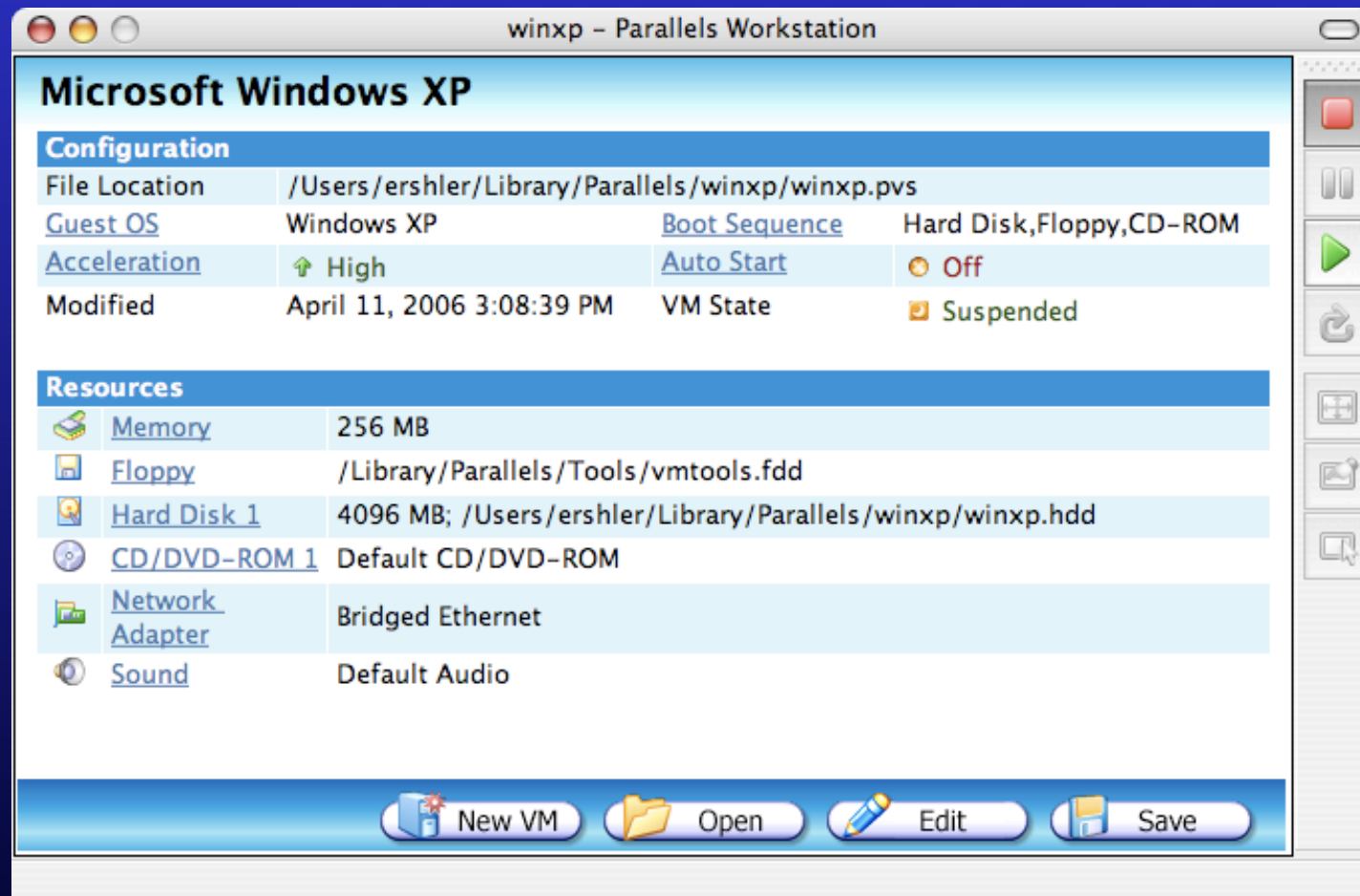


Selecting The
Startup Disk

Parallels From Parallels, Inc.



Parallels From Parallels, Inc.



Comparisons On A MacBook Pro

Pros

Cons

The “\$14,000” Solution	The first system to boot Windows XP on Intel Macs.	Cumbersome Installation Drivers need to be gathered from the Web. Only suitable video driver very slow. No hardware acceleration available,
Boot Camp	Boots natively into Windows. Almost all appropriate device drivers are provided. Good performance. Straightforward Installation. Triple boot possible (OS X, XP, and Linux).	Changing OS systems requires rebooting. Not all MBP functions available (Keyboard Illumination, Display Dimming).
Parallels	Simple installation. Runs multiple OS's and even multiple copies of the same OS concurrently. Switch among OS's without rebooting. Can use hardware virtualization.	Currently still in beta. Not yet fully functional (sound, bluetooth, modem ...). Performance still a bit slow.