Demonstration: Reading Room Prototype Emulation Based Object Access
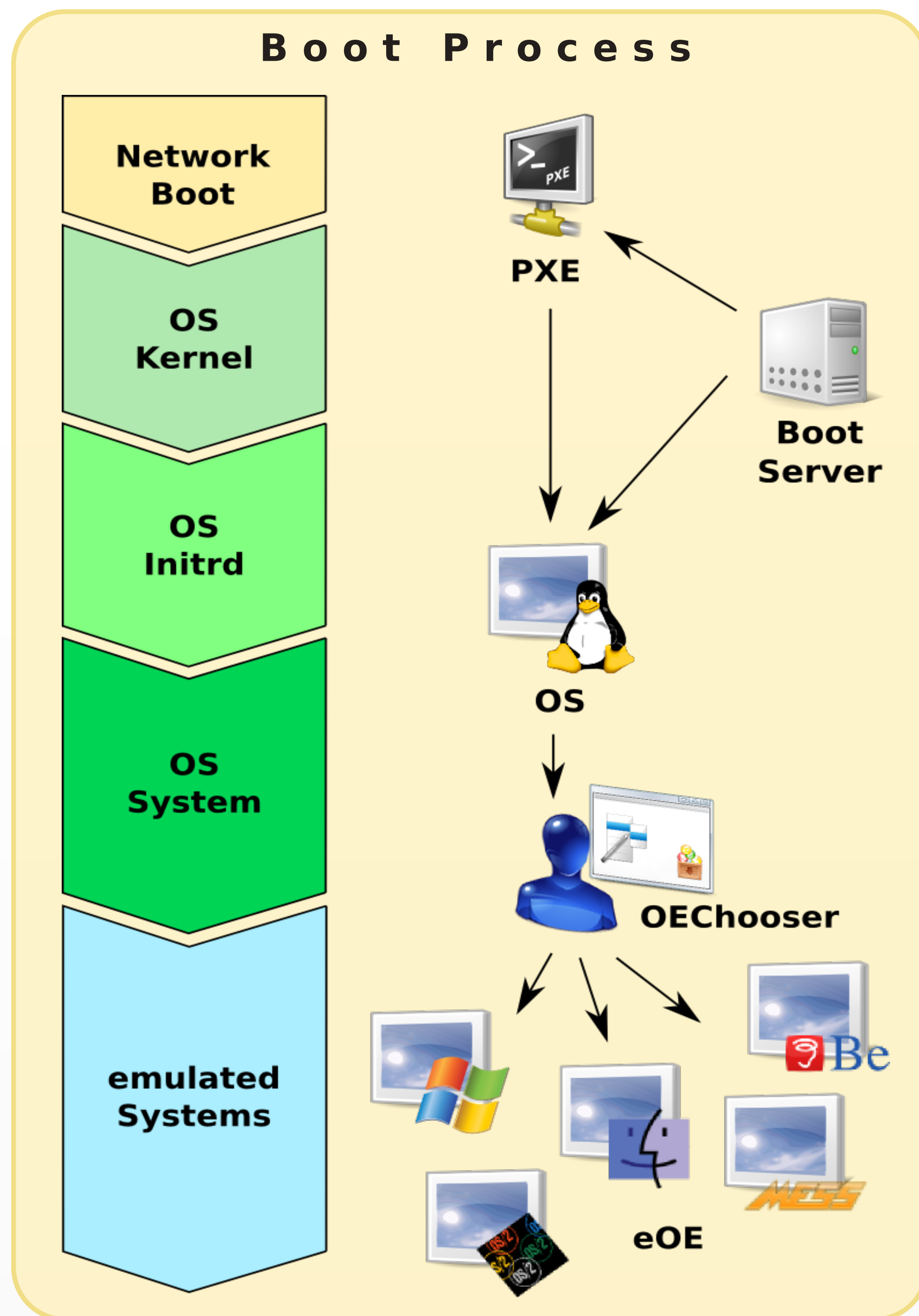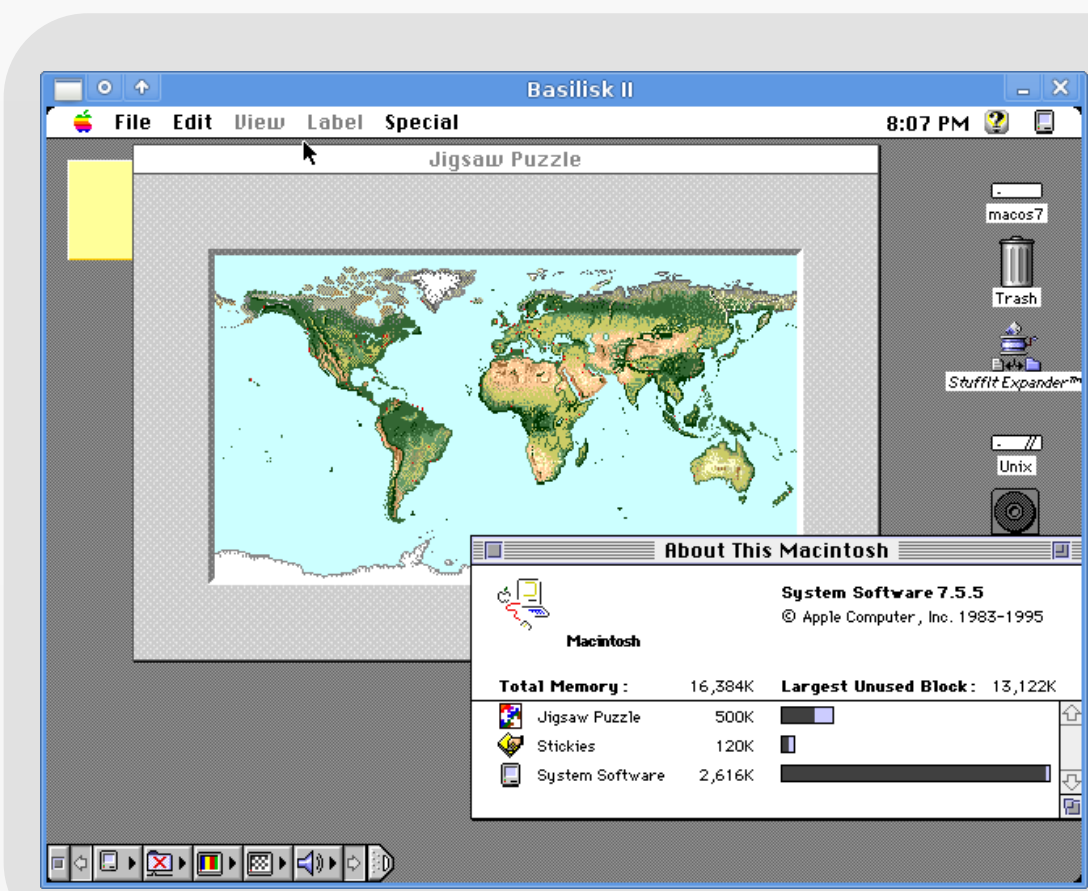
Open Planets Foundation

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The electronic collections of today's libraries, museums and archives are growing and increasingly have a more relevant role in the holdings. Memory institutions must address users' need to access a widening range of digital artefacts. Often the formats of those artefacts are outdated and they cannot be run or rendered on today's systems any longer. This is where emulation can provide the required digital environments suitable for a given object type. Practical research is being done at Freiburg University for the Open Planets Foundation on how to integrate different emulators for a number of original environments into a single graphical desktop. In this case study, options for future reading room systems like stateless Linux workstations are evaluated and prototypical implementations are implemented.

Boot Process

- Network Boot
- OS Kernel
- OS Initrd
- OS System
- emulated Systems

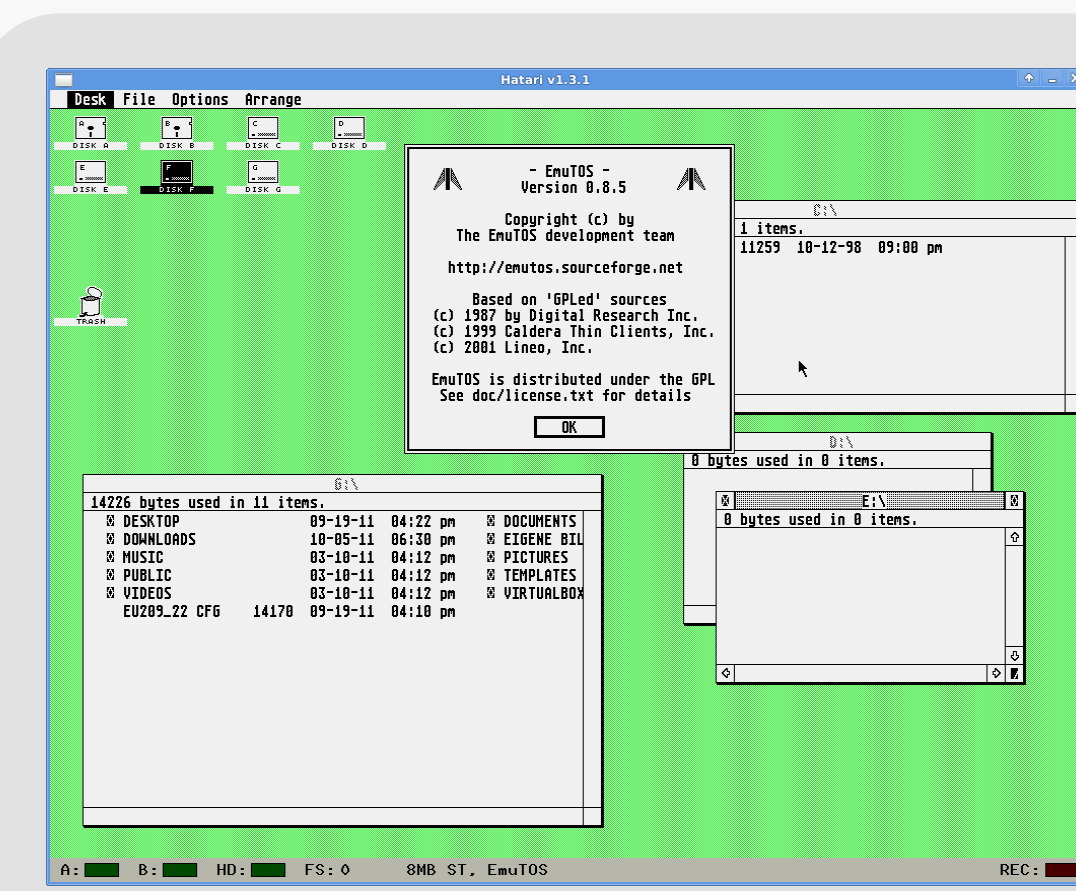PXE → Boot Server → OS → OEChooser → eOE

There is a large number of emulators, mostly programmed by enthusiasts available as open source. Often, more than one emulator could be used for a certain digital ecosystem of hardware and software. Especially for the x86 architecture, there exists a wide range of commercial and free emulators and virtualization tools like VMware, VirtualBox, QEMU, Dioscuri or DosBox. To offer the user easy access to the different combinations of original environments and emulated hardware, we produced a small application that reads the metadata from an XML file in order to provide a short description plus the machine and firmware information needed for the original environment to start. The application is executed on the Linux platform.
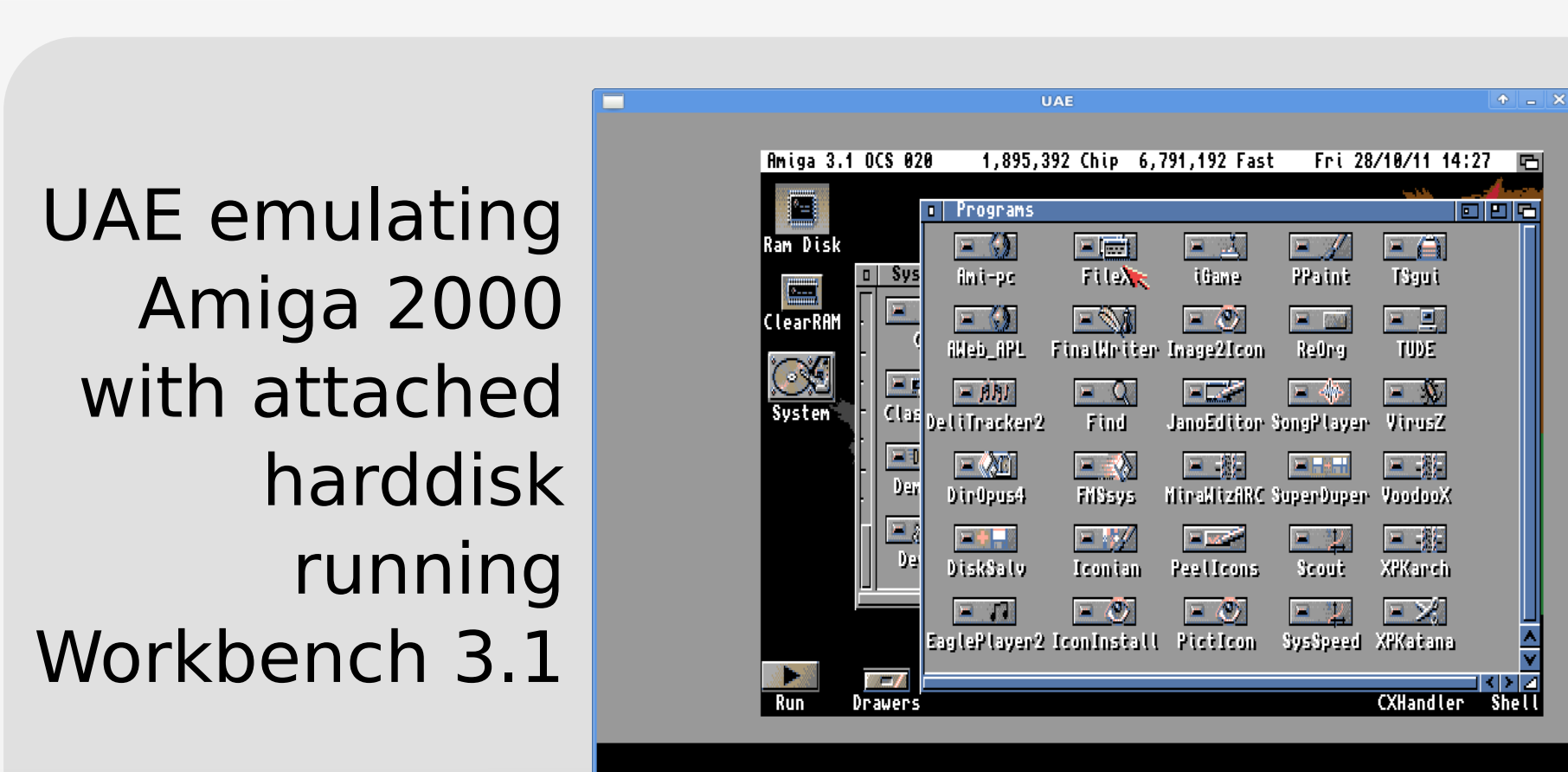
Basilisk II emulating Mac Classic or Mac II series machine running MacOS 7.5
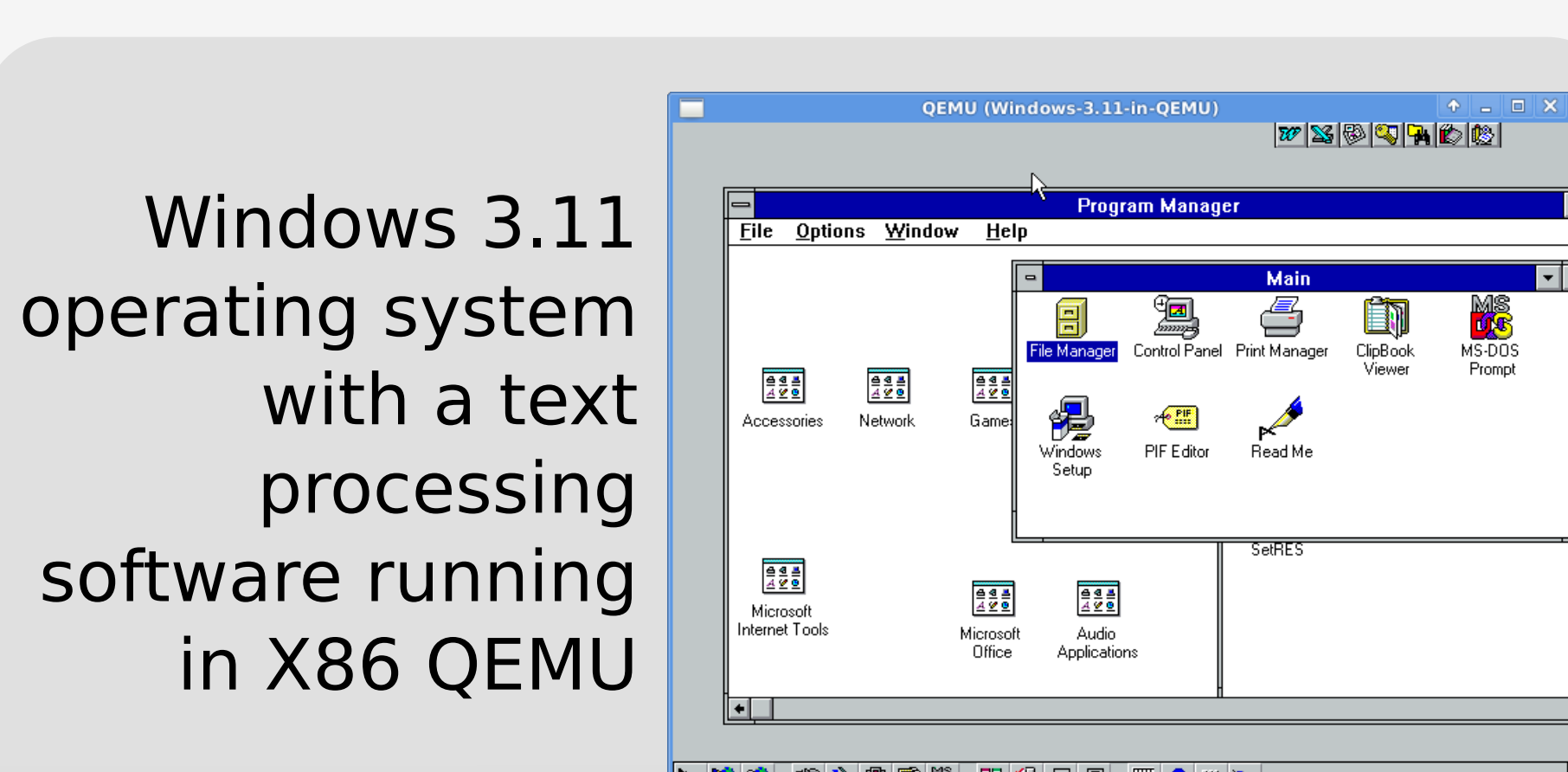
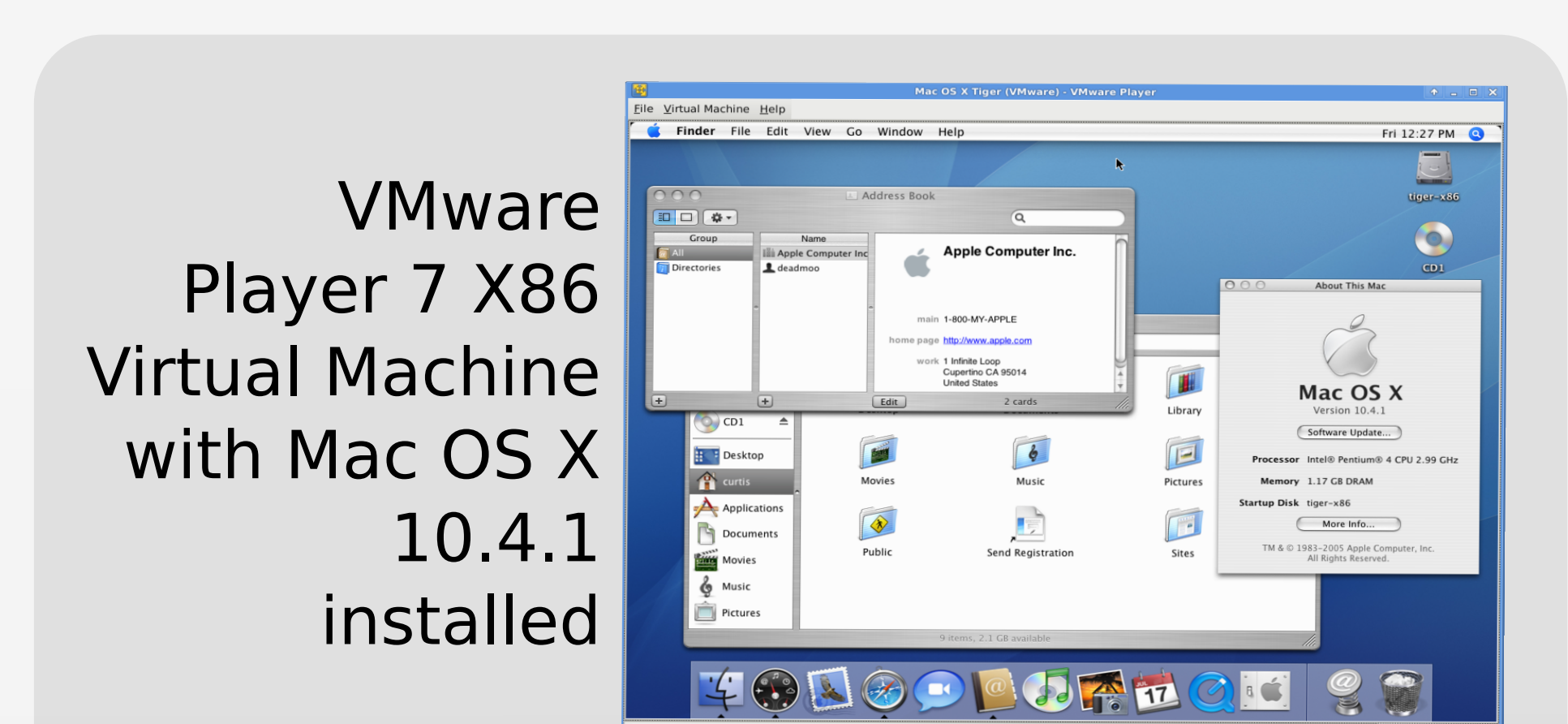Hatari emulating Atari ST machine with 8MB RAM running emuTOS

SheepShaver running Mac OS 9 on emulated PowerPC hardware

UAE emulating Amiga 2000 with attached harddisk running Workbench 3.1

Windows 3.11 operating system with a text processing software running in X86 QEMU

VMware Player 7 X86 Virtual Machine with Mac OS X 10.4.1 installed