A+ Guide to Managing and Maintaining Your PC

Fifth Edition

Chapter 15

Installing and Using Windows XP Professional

Windows XP Architecture

Uses same kernel architecture as Windows NT/2000;

Components operate in either user mode or kernel mode

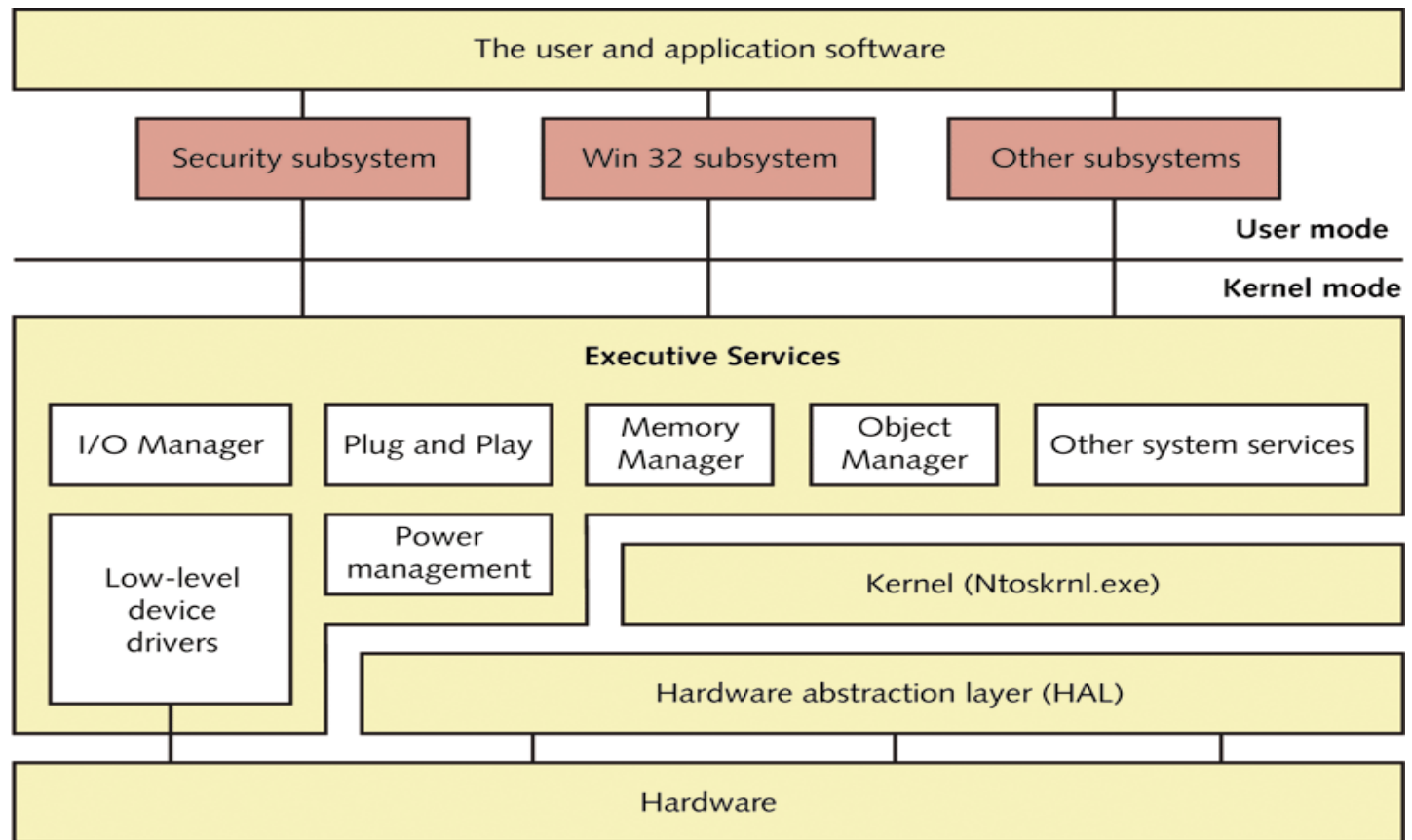Boot process and files needed for a successful boot are the same as for Windows NT/2000

Generally more stable than Windows NT/2000

Easier installation

Increased security

Windows XP Architecture (continued)

Figure 15-2 The Windows XP architecture uses the same basic structure and components as Windows NT and Windows 2000

Minimum and Recommended Requirements

Component or Device	Minimum Requirement	Recommended Requirement
One or two CPUs	Pentium II 233 MHz or better	Pentium II 300 MHz or better
RAM	64 MB	128 MB up to 4 GB
Hard drive partition	2 GB	2 GB or more
Free space on the hard drive partition	640 MB (bare bones)	2 GB or more
CD-ROM drive	12x	12x or faster
Accessories	Keyboard and mouse or other pointing device	Keyboard and mouse or other pointing device

Table 15-2   Minimum and recommended requirements for Windows XP Professional

Hard Drive Partitions and File Systems

Partitions on hard drive must be adequate to install Windows XP (at least a 2-GB partition for installation, with 1.5 GB of free space)

Supported file systems (same as Windows 2000)

FAT16

FAT32

NTFS (V1-NT, V2-2000, V3-XP) Backwards Compatible

More on NTFS - Wikipedia

NTFS has five versions:

v1.0

v1.1

v1.2 found in NT 3.51 and NT 4

v3.0 found in Windows 2000

v3.1 found in Windows XP, Windows Server 2003, and Windows Vista

These final three versions are sometimes referred to as v5.0, v5.1, and v6.0, after the version of Windows NT with which they ship. Each newer version added extra features, for example Windows 2000 introduced quotas while Windows Vista introduced Transactional NTFS, NTFS symbolic links, and self-healing functionality.[7]

General Guidelines for Selecting a File System

NTFS	FAT32	FAT16
File and folder security File compression Control over how much disk space a user is allowed File encryption	Setting up a dual boot with Windows 9x, and each OS must access all partitions	Setting up a dual boot with MS-DOS or Windows NT, and each OS must access all partitions

Joining a Workgroup or Domain

Workgroup	Domain
Fewer than 10 computers networked together Each computer controls own resources; no centralized control of resources	More than 10 computers Resources controlled by a domain controller running on network operating system Used to administer and secure network from centralized location or if several centralized resources are shared by many users

After the Installation

Activate the OS

> *Product activation*: strategy used by Microsoft to prevent software piracy

Prepare OS for use

Back up hard drive in preparation for a disaster

Transferring User Files and Preferences to a New PC

User State Migration Tool (USMT)

Transfers user files and folders, display properties, taskbar options, and browser and e-mail settings from Windows 9x or Windows NT/2000/XP computer

Files and Settings Transfer Wizard

Transferring User Files and Preferences to a New PC (continued)

Scanstate command

Copies information to a server or removable media

Loadstate command

Copies information to destination computer

Multiple Logins and Remote Assistance

Multiple logins

More than one user can be logged on at the same time

Remote Assistance

Remote support technician can have full access to a user's desktop

Installing Hardware

Installation options

Automatic (Recommended)

From a list or specific location (Advanced)

Device Manager can help solve problems with devices

Automatically find an update for a driver

Roll back a driver if an update fails

Verify that the driver is Microsoft-certified

Verifying That Drivers Are Certified by Microsoft

File Signature Verification tool

Driver Query tool

Device Manager

Installing Applications

Methods

Add or Remove Programs icon in Control Panel

Run application's setup program from Run dialog box

Administrator privileges required to install software

Uninstalling Applications
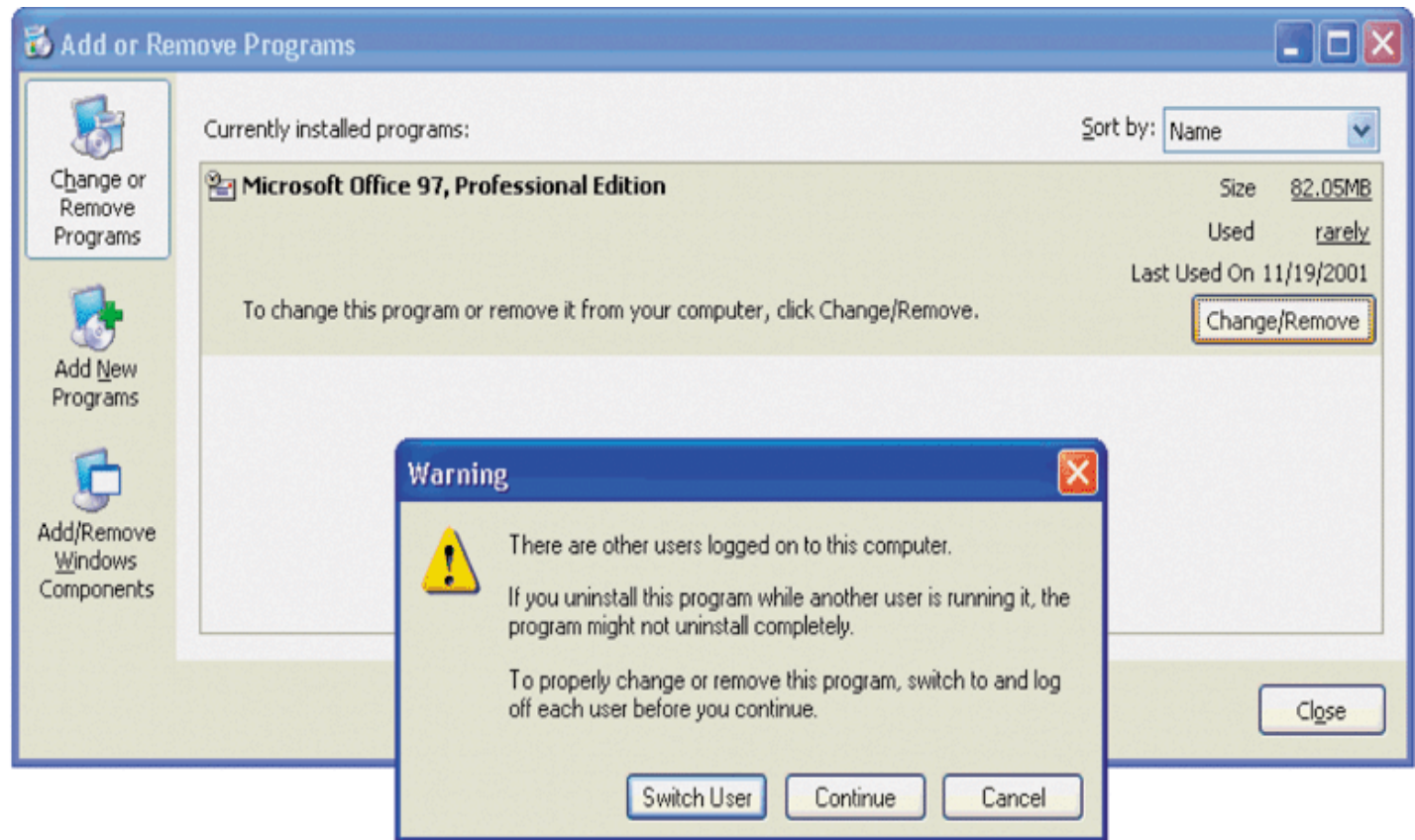
Figure 15-24 To uninstall software using the Add or Remove Programs applet, only one user, an administrator, should be logged on to the system

Installing Legacy Software

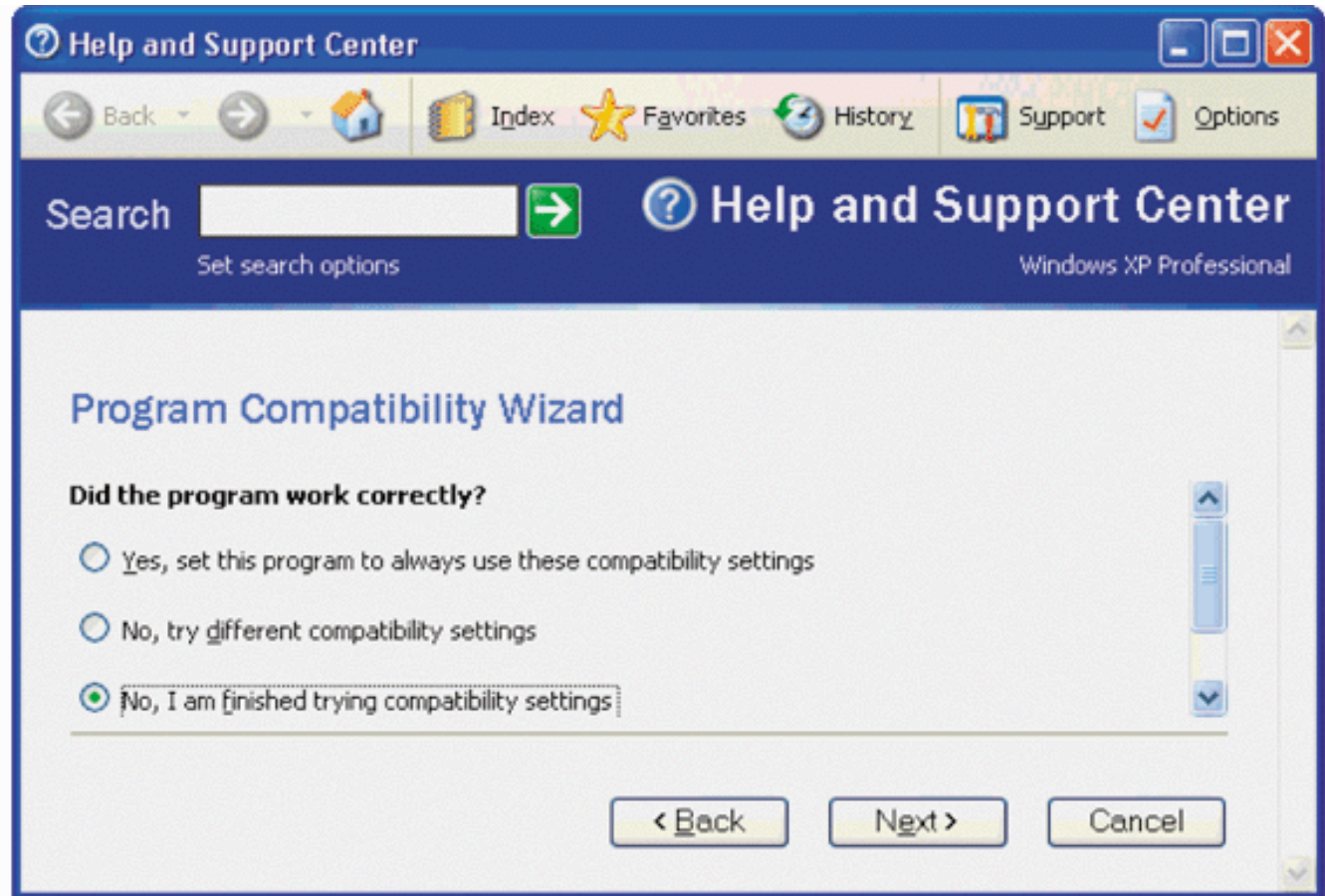Do not attempt to run older versions of

Antivirus software

Maintenance and cleanup utilities

Best to upgrade software to versions compatible with Windows XP
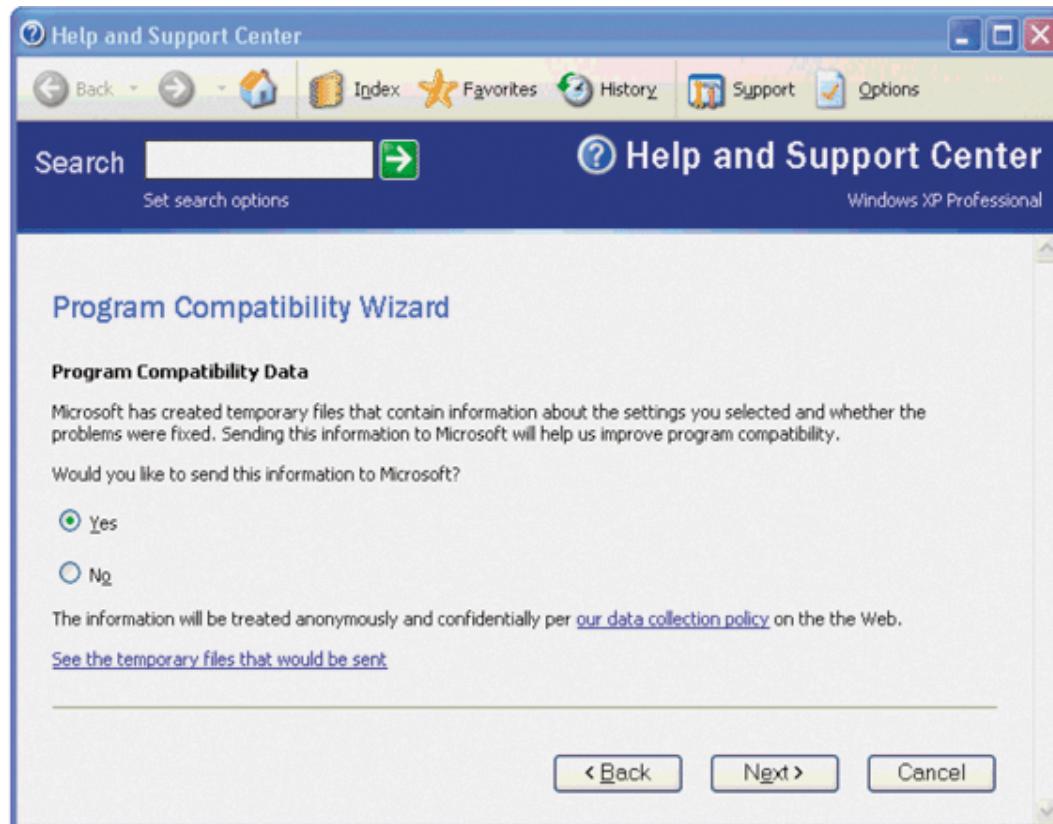
Compatibility Mode Utility
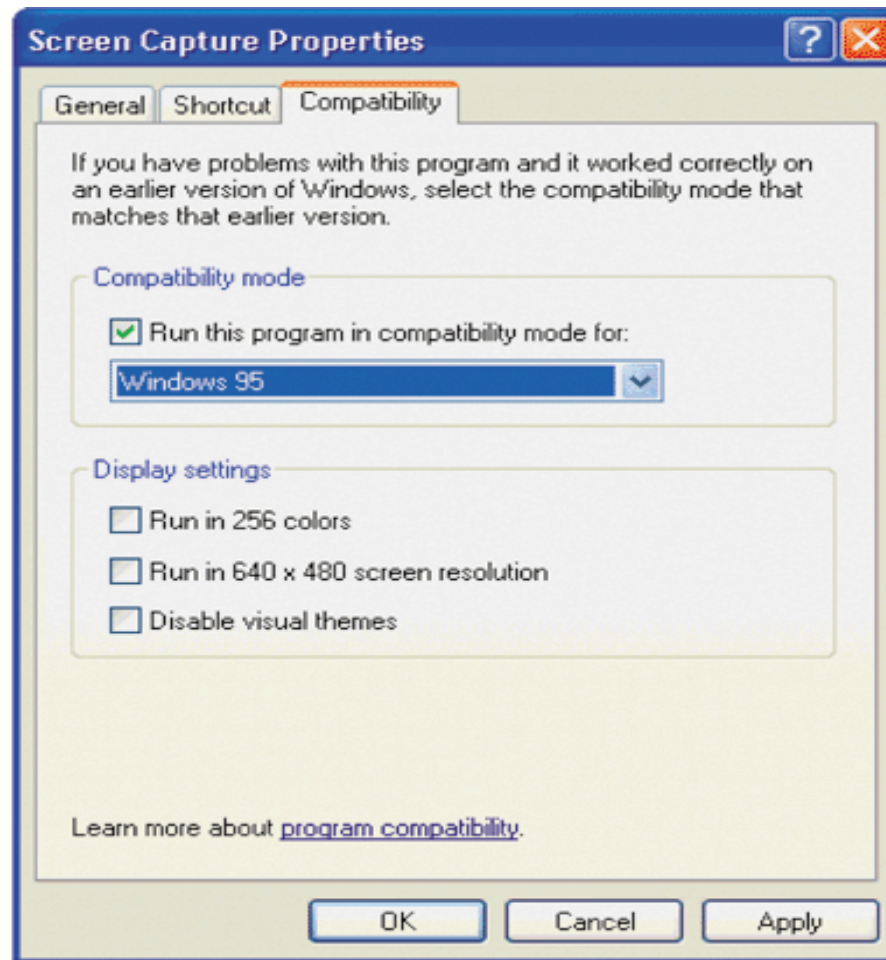
Figure 15-25 Setting Windows XP to run a legacy program in compatibility mode

18

Program Compatibility Wizard

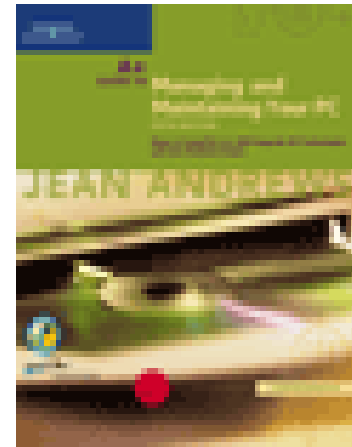

Figure 15-26   Using the Program Compatibility Wizard

Program Compatibility Wizard (continued)

Figure 15-27   If running a legacy program in compatibility mode does not solve the problem, you can send helpful information to Microsoft

A+ Guide to Managing and Maintaining Your PC

Fifth Edition

Chapter 13

Understanding and Installing Windows 2000 and Windows NT

You Will Learn…

About Windows NT/2000/XP architecture

How to install Windows 2000 Professional

How to install hardware and applications with Windows 2000

How to install and support Windows NT Workstation

Windows NT/2000/XP Architecture

| Windows NT	Introduced a new file system – NTFS – that is also used by Windows 2000/XP
Windows 2000	Culmination of evolution of Microsoft OSs from 16-bit DOS OS to a true 32-bit, module-oriented OS Includes four operating systems (Windows 2000 Professional, Windows 2000 Server, Windows 2000 Advanced Server, and Windows 2000 Datacenter Server)
Windows XP	Additional support for multimedia, PnP, and legacy software

Windows NT/2000/XP Modes
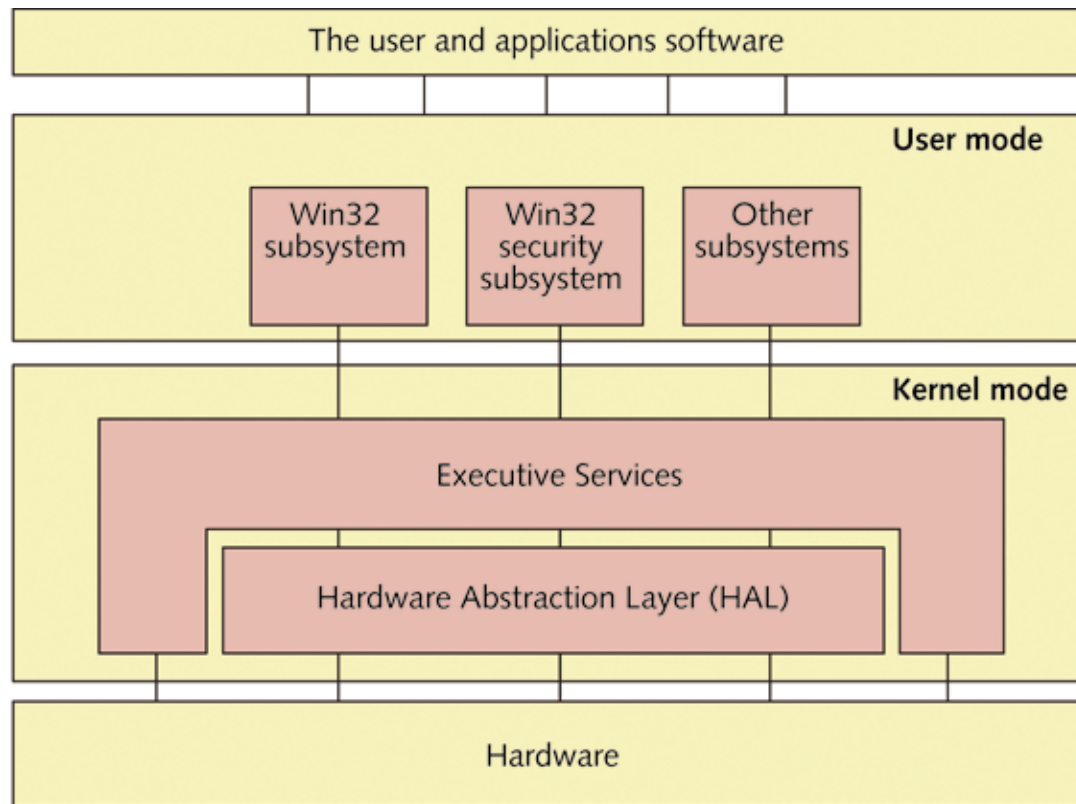
Figure 13-1   User mode and kernel mode in Windows NT/2000/XP and how they relate to users, application software, and hardware

Wikipedia Pic + Gray Paint
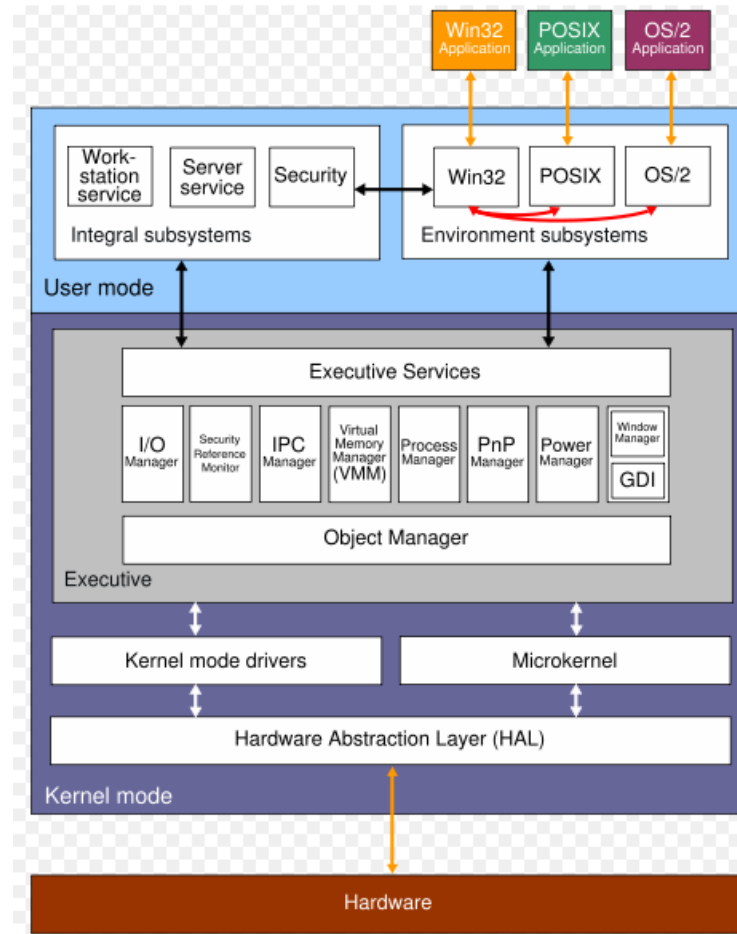
User Mode

Processor mode in which programs:
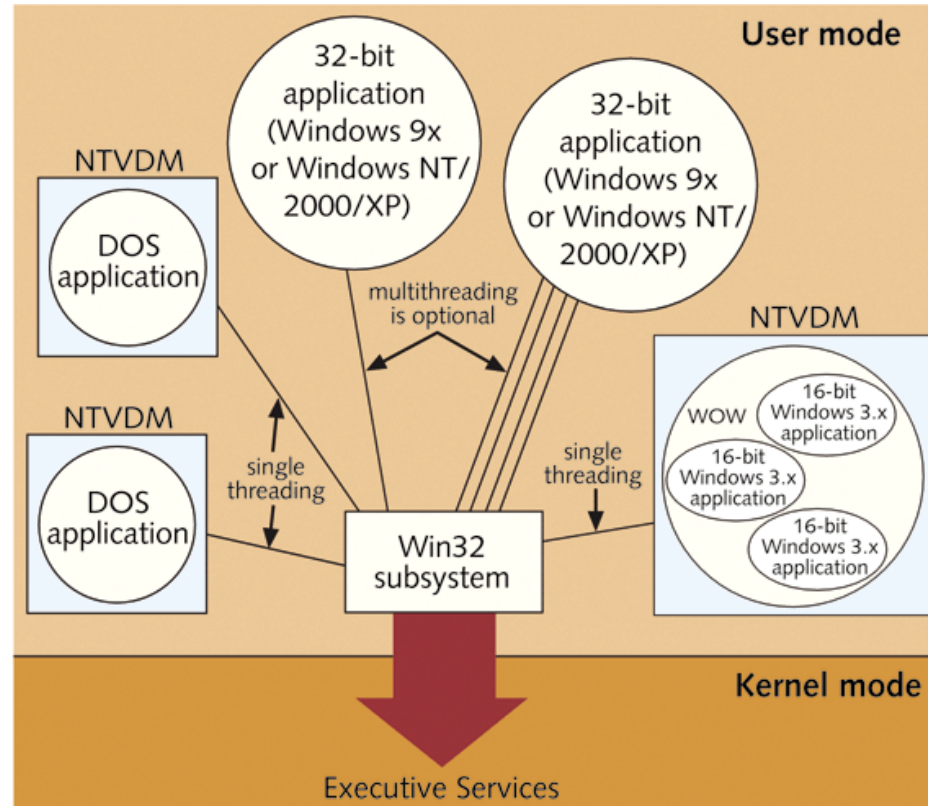
Have only limited access to system information

Can access hardware only through other OS services

Used by several subsystems

Windows tools run primarily in user mode

Applications relate by way of the Win32 subsystem

Programs Interacting with Subsystems

Figure 13-2 Environment subsystems in Windows NT/2000/XP user mode include NTVDMs for DOS and Windows 3.x applications and optional multithreading for 32-bit applications

Kernel Mode

Processor mode in which programs have extensive access to system information and hardware

Used by two main components

HAL (hardware abstraction layer)

Executive services

Networking Features

Workgroups

Domains

Native mode and mixed mode (Windows 2000)
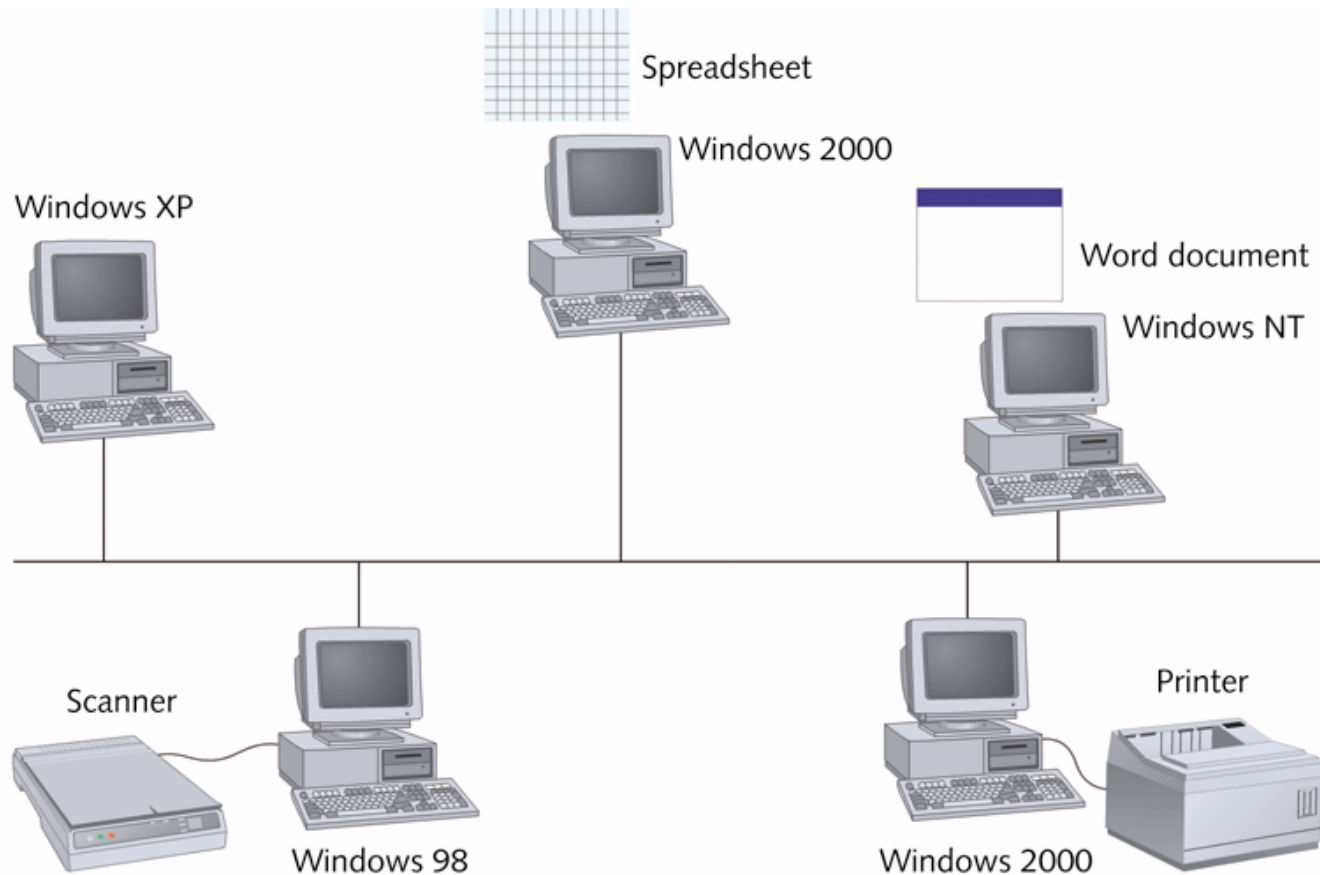
Active Directory (Windows 2000)

Workgroups

Logical groups of computers and users that share resources

Each computer maintains a list of users and their rights on that particular PC

Use peer-to-peer networking model

A Windows Workgroup

Figure 13-3 A Windows workgroup is a peer-to-peer network where no single computer controls the network and each computer controls its own resources
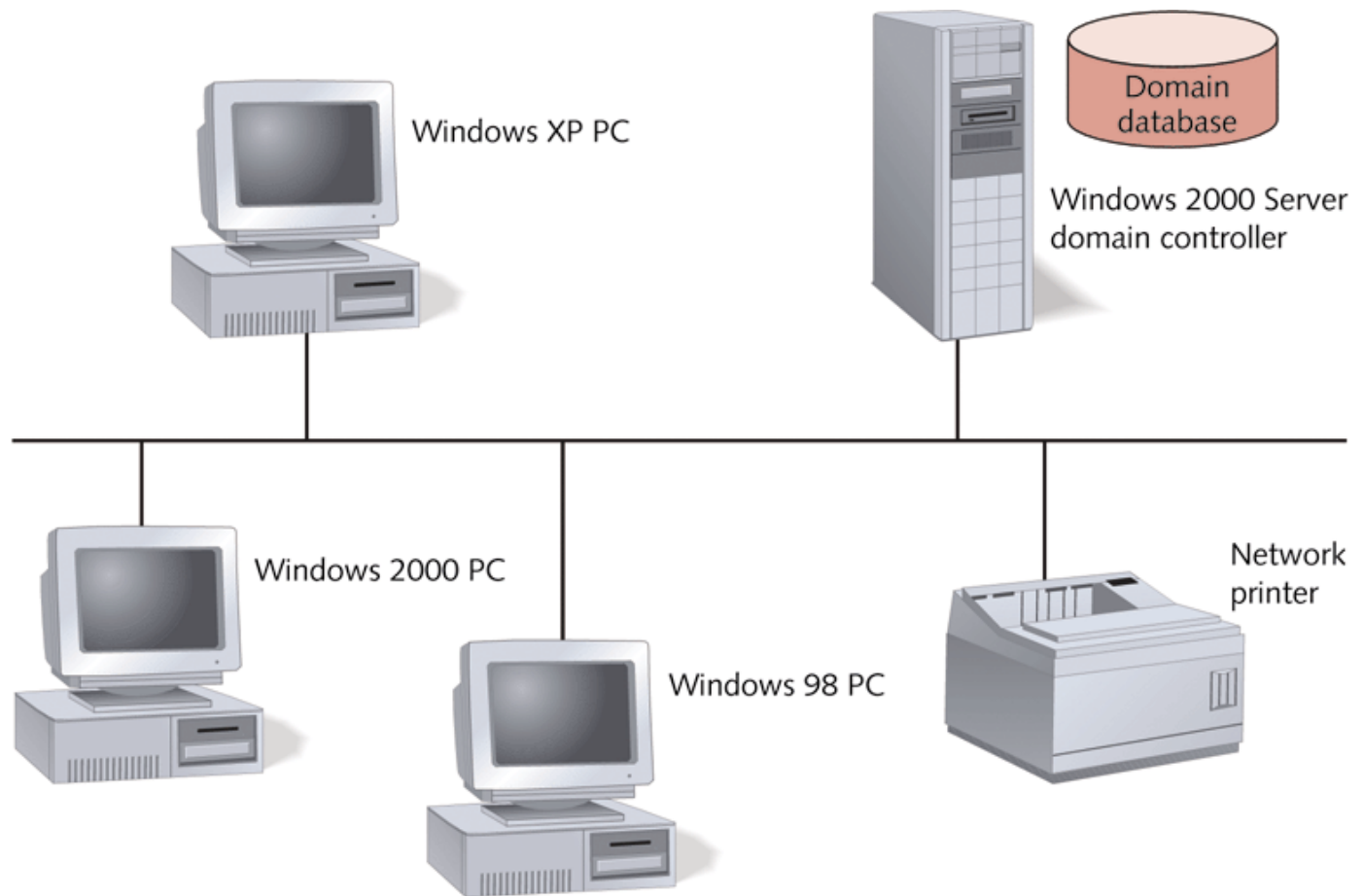
Domains

Groups of networked computers that share a centralized directory database of user account information and security

Use client/server model

Have a domain controller which stores and controls the SAM database (user, group, and computer accounts)

A Windows Domain

Figure 13-4 A Windows domain is a client/server network where security on each PC or other device is controlled by a centralized database on a domain controller
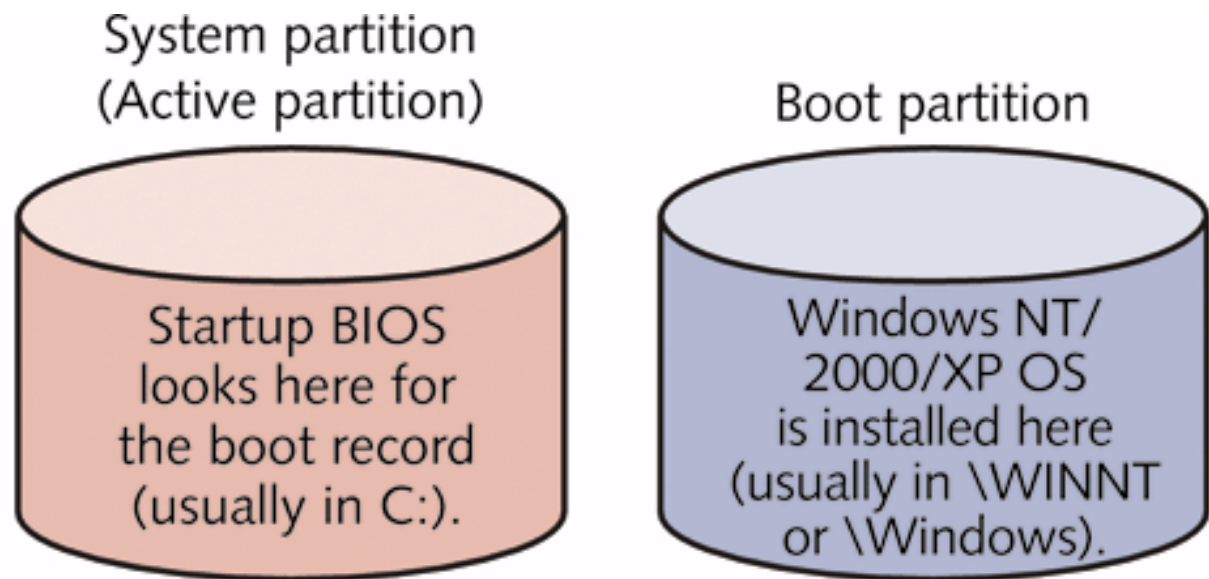
Windows NT/2000/XP Logon

Default administrator account

Has the most privileges and rights

Can create user accounts and assign them rights

How Windows NT/2000/XP Manages Hard Drives

Figure 13-5 Two types of Windows NT/2000/XP hard drive partitions

A Choice of File Systems

	DOS	Windows 95	Windows 98	Windows NT	Windows 2000	Windows XP
FAT16	X	X	X	X	X	X
FAT32		X (for OSR2)	X		X	X
NTFS				X	X	X

Table 13-1 Operating system support for file systems

A Choice of File Systems (continued)

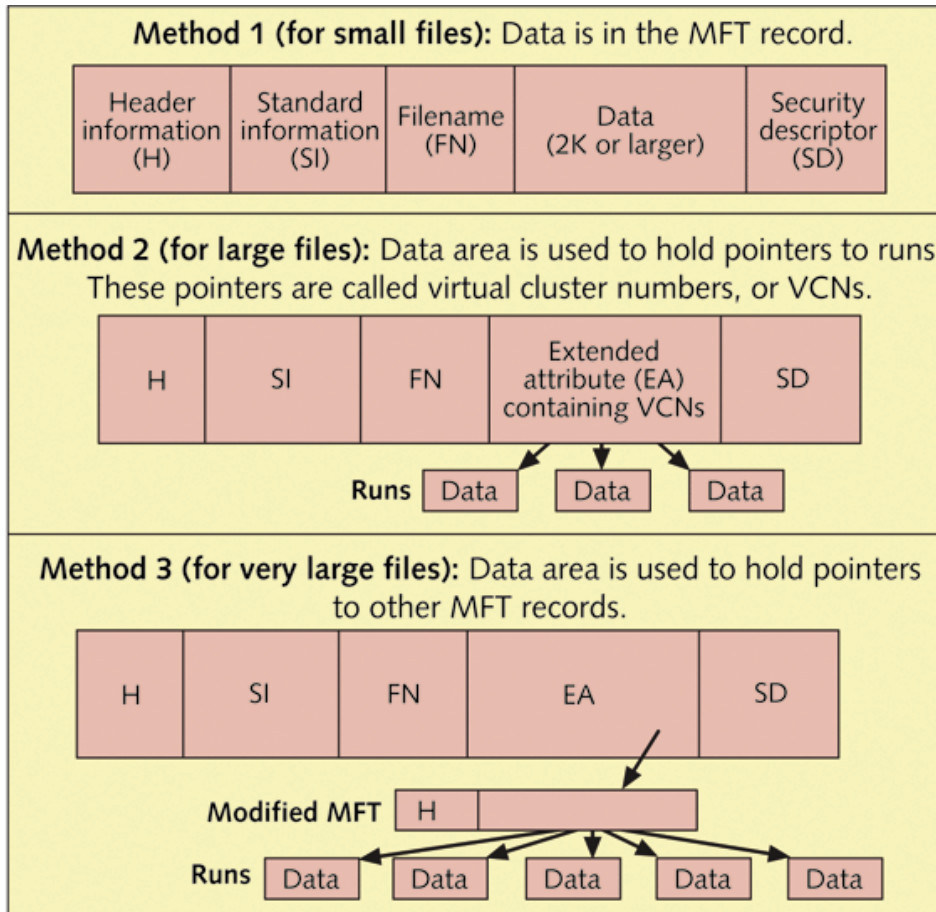FAT uses three components to manage data on a logical drive
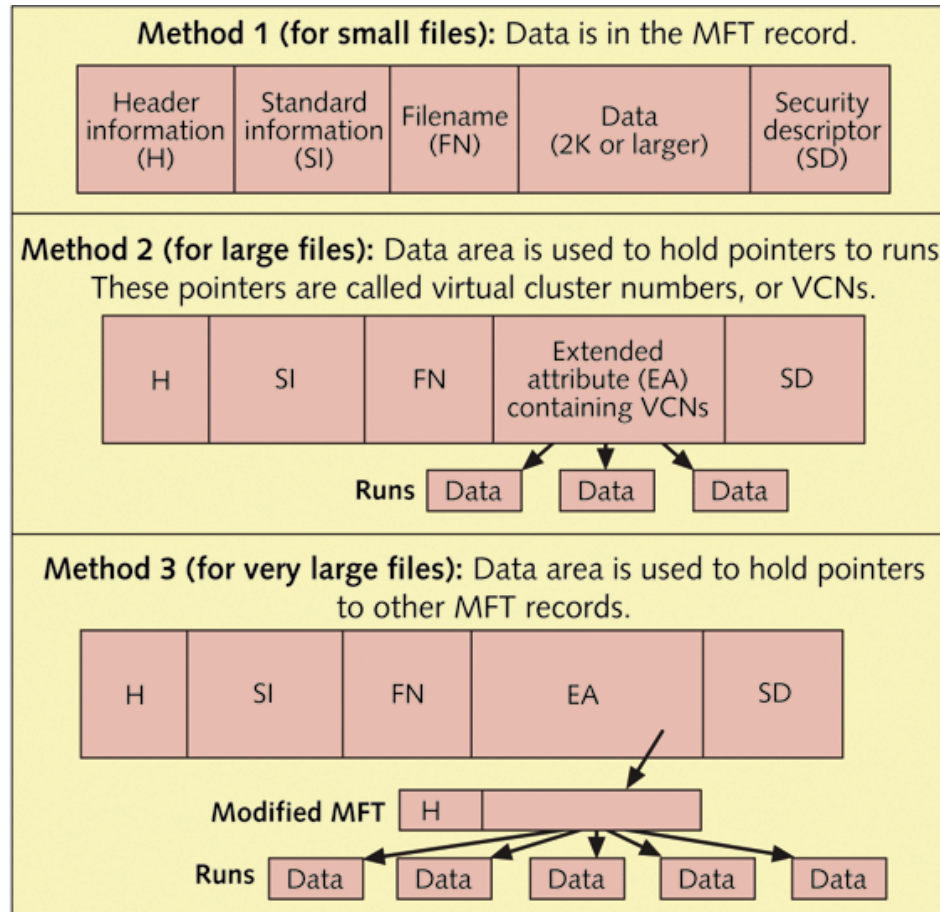
FAT

Directories

Data files

NTFS uses a database called the master file table (MFT) as its core component

Master File Table (MFT)

Figure 13-6 The Windows NT/2000/XP file system Master File Table uses three methods to store files, depending on the file size

Master File Table (MFT)

Figure 13-6   The Windows NT/2000/XP file system Master File Table uses three methods to store files, depending on the file size

Advantages of NTFS over FAT

Recoverable

Supports encryption and disk quotas (Windows 2000/XP only)

Supports compression, mirroring drives, and large volume drives

Provides added security when booting from floppy disks

Uses smaller cluster sizes

Advantages of FAT over NTFS

Less overhead; best for hard drives < 500 MB

Backward-compatibility with Windows 9x and DOS OSs

Allows booting from a DOS or Windows 9x startup disk to access the drive