

## chapter 5



# Network Operating Systems

# CHAPTER OBJECTIVES

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- Identify common features of network operating systems.
- Discuss the historical development of network operating systems.
- Describe the four major network operating systems and provide a brief discussion of their histories.
- Describe other network management tools.

# NETWORK OPERATING SYSTEMS – AN INTRODUCTION

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- A **network operating system** is: , ios
  - software that interfaces between server hardware and the network to which the server is attached.
  - software that runs on a server computer and which provides users with controlled access to shared services on a network.

# NOS – COMMON FEATURES

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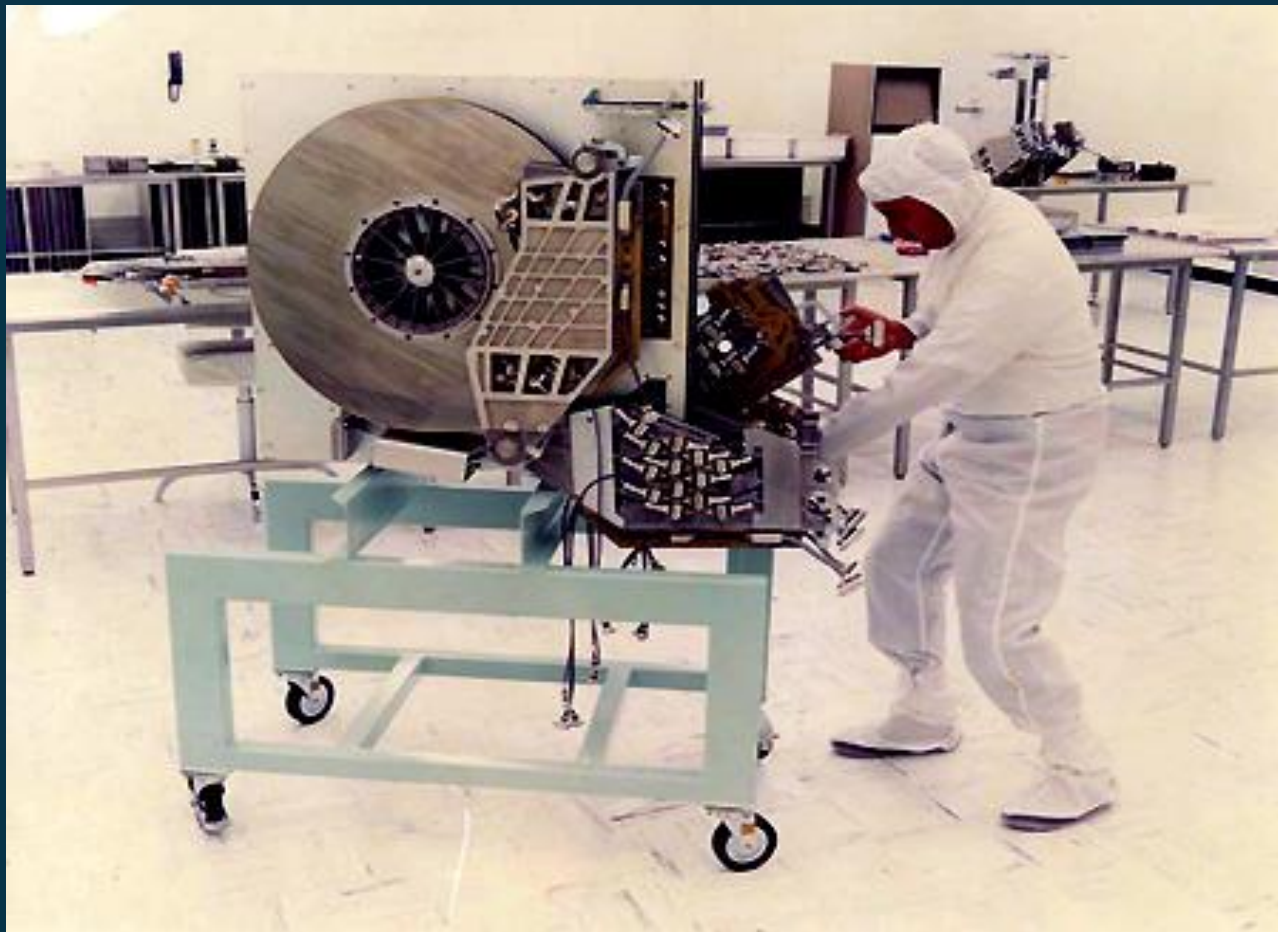
- Common features of modern NOSs include:
  - File system services
  - Printing services
  - Application services
  - Web folder sharing
  - Web-based management
  - Server clustering
  - Directory services
  - Advanced security services
  - Internet and Web services

# NOS – RECENT HISTORY

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- NOSs evolved for business reasons.
  - In the early 1980s, hard drives were expensive to install in each individual PC.
  - Users were developing growing needs to store increasing numbers of files.
  - With the implementation of PCs, organizations had need to easily and cost effectively share files between departments.
  - Distributed processing could be cheaper for a department than accessing a mainframe or developing an application for a corporate mainframe.

# What is this?



# Is this real?



# NOS – Novell NetWare

- Novell history dates back to 1979.
- Company went public in 1983. go public: , 3 가
- Track record of innovative operating systems that met business needs.
- Missed the boat with the public launch of the Internet in the mid-1990s – slow to migrate from IPX protocol to IP.
- Introduced Directory Services with NetWare 4.0.
- Over time has launched NetWare 2.x, 3.x, 4.x, 5.x, and 6.x versions of their NetWare NOS.
- Today, much of their NOS functionality is based on Linux and open source technologies.



# NOS – Microsoft Windows

- Microsoft didn't get into the NOS game until the late 1980s with the introduction of Windows NT.
- Windows NT went through several iterations including versions 3.1, 3.5, and 4.0.
- Windows NT was initially adopted for application services in a networked environment.
- Windows NT introduced the concept of domains.
- Microsoft incorporated IP into Windows NT early on.
- Windows 2000 Server introduced Active Directory as Microsoft's new directory service.
- Windows 2000 Server fully integrated Internet services and Internet access.

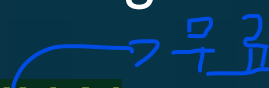
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# NOS - Linux

- Linux has its roots in UNIX.
- Linux as a separate operating system dates back to 1991 with development work performed by Linus Torvalds.
- Linux version 1.0 was released in 1994.
- It is based on **open source** technology.
- It provides most of the services of Novell's NetWare or Microsoft's Windows Servers.
- Large percentage of Internet Web servers are powered by Linux.
- Fewer trained and skilled technicians than are available for Novell or Microsoft networks.
- IBM, HP, and Novell are big supports of Linux.

# NOS - UNIX

- UNIX history dates back to the 1960s with work performed at MIT, General Electric, and AT&T Bell Labs.
- Ultimately the first version of UNIX was released by AT&T Bell Labs in 1971.
- Several updated versions were released throughout the 1970s, and AT&T gave it away for free.
- Another popular version, known as **BSD UNIX** was developed using AT&T source code. The BSD version was the first to include a word processing/text editing program. 
- Other versions of UNIX were released in the 1980s, namely SCO UNIX, Sun Microsystem's Solaris, HP-UX, and IBM's AIX.