FACULTY OF ENGINEERING AND TECHNOLOGY
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Computer System and Programming in 'C'
CS-101/201

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Operating System

Operating System Definition

- OS is a **resource allocator**
  - Manages all resources
  - Decides between conflicting requests for efficient and fair resource use

- OS is a **control program**
  - Controls execution of programs to prevent errors and improper use of the computer

- *"The one program running at all times on the computer" is the kernel.* Everything else is either a system program (ships with the operating system) or an application program

Operating System Services
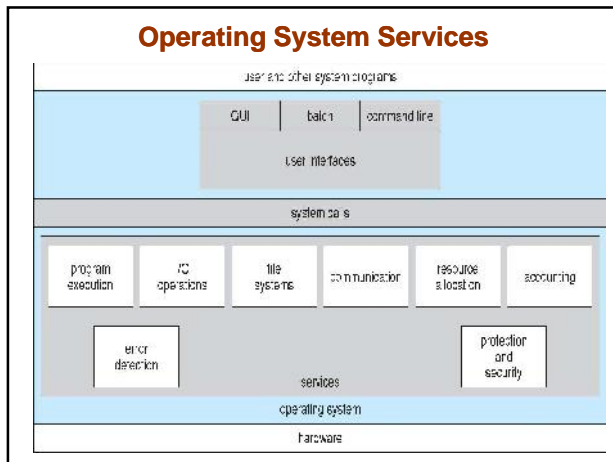
Types of OS

- **Real Time Operating Systems**
- **Single user / Single Task**
- **Single user / Multitask**
- **Multi User / Multitask**
- **Network Operating Systems**
- **Distributed Systems**
- **OS for Mobile Devices**

Real-Time Operating Systems

- Systems with a specific purpose and a certain result
- Uses include:
  - Industrial machines
  - Robotic equipment
  - Automobiles
  - Video game consoles
  - Home appliances

Single-User Operating Systems

Single-task systems
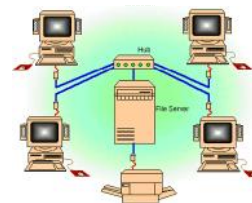- Perform one task at a time
- PDAs:
  - Pocket PC
  - Palm OS
- MS-DOS

Multitask systems
- Perform simultaneous tasks
- Windows
- MAC OS
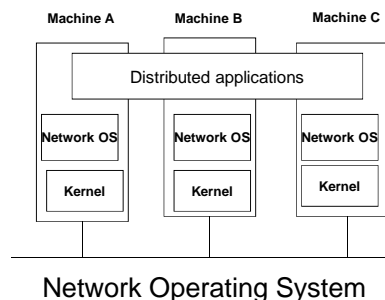- Linux

Multi-user Operating Systems

- Known as network operating systems
- Allow access to the computer system by more than one user
- Manage user requests
- Systems include:
  - UNIX
  - Novell Netware
  - Windows Server 2003

Characteristics of NOS

- Runs on a loosely coupled collection of independent computers, where no node has direct control over any other.

- Supports non-transparent communication and resource sharing (telnet, UNIX rlogin, FTP, etc.)

- Users are aware of the existence of multiple processors in the system.
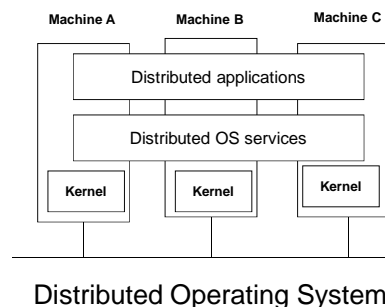
NOS

Machine A   Machine B   Machine C

Distributed applications

| Network OS | Network OS | Network OS |
| Kernel | Kernel | Kernel |

Network Operating System

Characteristics of Distributed OS

- Goal: to give the appearance of a centralized operating system – tightly coupled software on a loosely coupled computer system

- Ideally, processes run transparently on any node, using local and remote resources interchangeably.

- Pure distributed systems are rare.

DOS

Machine A   Machine B   Machine C

Distributed applications

Distributed OS services

| Kernel | Kernel | Kernel |

Distributed Operating System

OS for Mobile Devices

- Symbian
- Windows Mobile => Pocket PC
- Nokia OS
- Palm OS
- Operating System Embedded
- Android

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Thank You.

BTQ

BTQ: Brain Teaser Question

A doctor gives you three pills and tells you to take one every half an hour. How long will the pills last?

☺