

# OS for Mobile computing

Unit-V

# Introduction

- Smart phone – not used only for voice call
- Also used for – video call, multimedia message, take picture, play media files, browse web, run web apps etc.
- Sophistication requires run multiple tasks –need powerful OS
- Degree (sophistication) = function (OS)
- In mobile handset – 2 main function of OS:
  - Managing Resources
  - Providing different interfaces

# Managing Resources

- Important responsibility of OS:
- Facilitate efficient utilization of resources – performing multiple tasks
- OS manages resources – processor, memory, files, attached interfaces
- Mobile device runs – multiple applications -> each application runs multiple tasks -> each task runs multiple threads

## Contd...

- Mobile handset – handles multiple tasks concurrently
- Ex: listening to music, sends SMS and answer calls
- Multiple tasks shares common resources
- Different tasks should not interfere with each other

# Providing different interfaces

- OS provides two interfaces:
- To user of the device
- Several devices and networks
- Important complex interface – control, data and voice communication with Base station – need different protocols
- OS other interface related functions:
- i/p from keyboard and display screens
- Interfacing with peripherals – devices, computers, printers

## Contd...

- Interfaces of mobile is different from computers
- Touch screen based or/and keyboard based
- Different handsets, different sizes and screen resolutions
- OS should configure accordingly
- OS for mobile in market are:
- Symbian, Android, Windows mobile, Palm OS, iOS and Blackberry OS

# Basic Concepts of OS

- OS provides set of services to application programs
- OS has 2 layers – kernel, shell layer
- Shell – user interaction
- Kernel – runs in supervisor mode privileged application
- When booting – kernel first loaded, remains in main memory
- Paging not applied for kernel, Memory resident
- Kernel – interrupt servicing, process / memory / files management

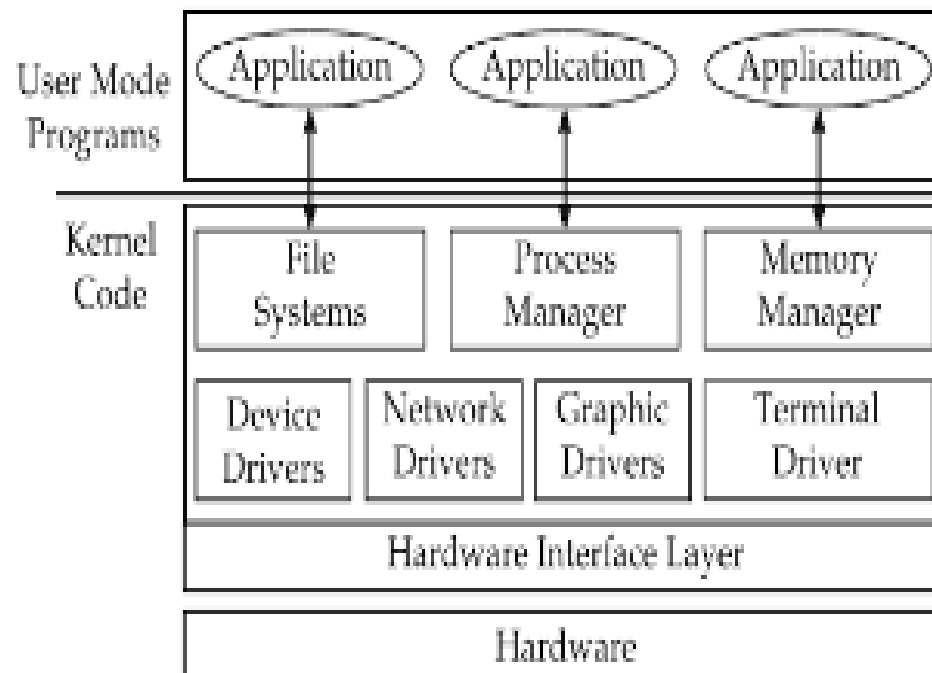
## Contd...

- Monolithic kernel – constitutes entire OS except shell
- Reason for monolithic – services run securely and efficiently
- Disadv. – massive, non-modular, hard to maintain, extend and configure
- Microkernel overcomes disadv. of monolithic – minimize size of kernel
- Microkernel – has critical & h/w dependent in kernel mode others in user mode
- So easy to port, extend and maintain
- Bugs in kernel code crash the OS, cant reboot



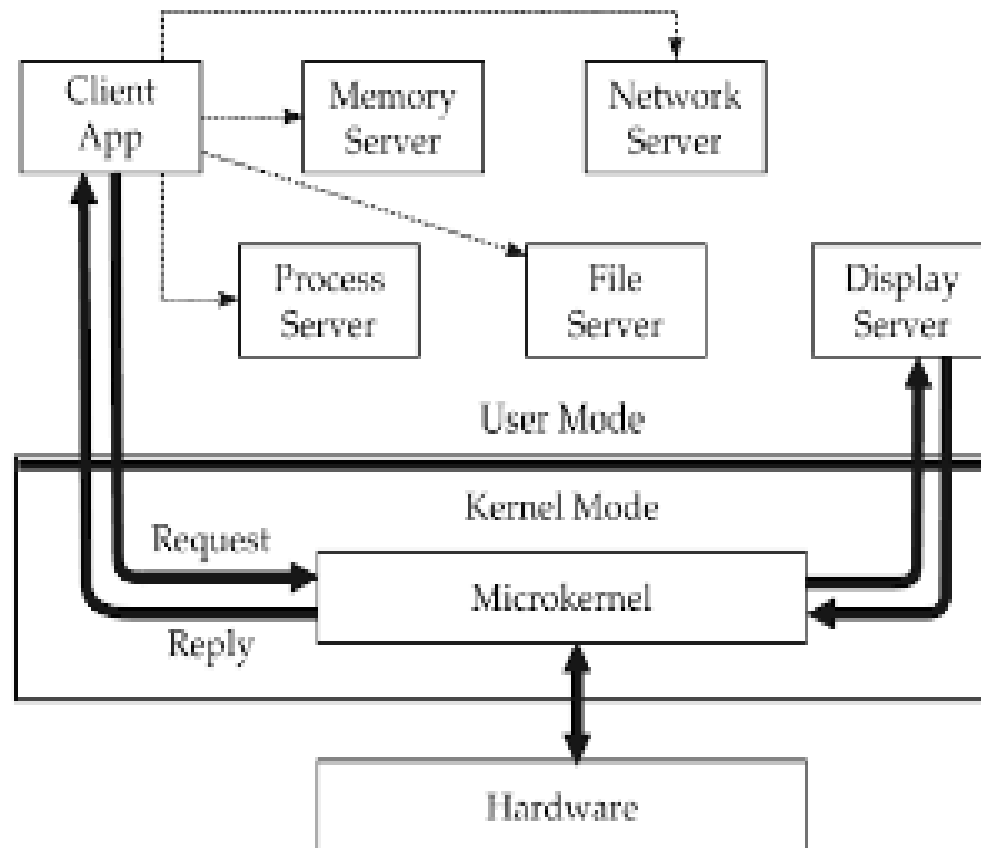
## Contd...

- But in microkernel even user mode application crashes, still OS can run



(a) Monolithic kernel

(a) Monolithic kernel



(b) Microkernel