

# **MOBILE COMPUTING**

## **Unit-1**

### **Introduction**

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## Source & References:

**The materials presented in this lecture has been taken from internet sites and books. This can be used only for academic purpose only.**

- 1. J. Schiller, Mobile Communications, Pearson, 2<sup>nd</sup> Ed**
- 2. Asok K. Talukder, Mobile Computing-Technology, Applications & Service Creation, TMH**

## Course Title: Mobile Computing L T P C: 3 0 0 3

**Course Outcomes:** At the end of the Course, the student will be able to

CO1: Understand the principles of mobile computing framework and mobile communication technologies.

CO2: Explain the wireless network architecture and associated protocols.

CO3: Differentiate the services that GSM network offers to people, employees, and businesses.

CO4: Analyze the performance of various adhoc network routing protocols.

CO5: Understand the data management issues in mobile computing environment.

CO6: Develop routing algorithm for mobile computing application.

## Introduction

- **Mobile Computing** is a framework/ technology, where mobility and computing task is being performed side by side.
- It requires a wireless enabled device without a fixed physical communication channel.
- Use a computing device while in transit. Mobile computing implies wireless transmission, but wireless transmission does not necessarily imply mobile computing. Fixed wireless applications use satellites, radio systems and lasers to transmit between permanent objects such as buildings and towers.

## Mobile computing device

- Acts as a terminal
- Have wireless connectivity to the network
- Whatever application we run is executed on a remote server.
- Mobile computing device acts as remote terminal.

## Issues in mobile computing networks

- Nature of medium
- Mobility
- Portability

## Wireless Characteristics

- Variant in Connectivity
  - Low bandwidth and reliability
- Frequent disconnections (predictable/ sudden)
- Asymmetric Communication
  - Broadcast medium
- Monetarily expensive
  - Charges per connection or per message/packet
- Connectivity is weak, intermittent and expensive

## What is Mobility

- Mobility means different things to different people. Some people are quite happy being able to get around town. Others view the world in terms of time distance-Obviously, range of motion is an important aspect of mobility.
- Another factor in mobility is ease of access. What might be considered mobile in one context is quite immobile in another.

## What is Mobility Cont..

- Initially the word "**mobile phone**" which can be transported in a vehicle. The continuing decrease in size and weight of handsets has greatly increased the mobility of cellular subscribers.
- Mobility can be defined as the ability to send and receive communications anytime anywhere. Mobility means that both source and destination devices, applications and people can move freely.



## Mobility Characteristics

- Location management - cost to locate is added to communication
- Heterogeneity in services - bandwidth restrictions and variability
- Dynamic replication of data - data and services follow users
- Querying data - location-based responses
- Security and authentication
- System configuration is dynamic

## Mobility

- **Two aspects of Mobility**
  - **User Mobility** : A user communicates, anytime, anywhere using any access technology
  - **Device Portability** : A device can connect to the network anytime and anywhere.
- The demand for mobile communication creates the need for integration of wireless networks into existing fixed networks:
  - In local range: IEEE 802.11 standard (Wireless LAN, WLAN)
  - In Wide area range: Internetworking of GSM and ISDN
  - IN the Internet protocols: Mobile IP as enhancement of normal IP

**Thank You**

**Questions ?????**