



SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

AN AUTONOMOUS INSTITUTION



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UNIT 1

INTRODUCTION TO MOBILE COMPUTING

1. What is Mobile Computing?

Answer:

Mobile Computing refers to the ability to use computing devices while on the move. It involves mobile communication, mobile hardware, and mobile software, allowing users to access and transmit data via wireless networks from anywhere, at any time.

2. Name two primary models of Mobile Computing.

Answer:

The two primary models of Mobile Computing are:

1. **Client-Server Model:** Where mobile devices act as clients, requesting services from central servers.
 2. **Peer-to-Peer Model:** Where devices communicate directly with each other without a central server.
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3. What are the key considerations for the Data Link Layer in wireless communication?

Answer:

Key considerations for the Data Link Layer in wireless communication include:

1. **Error Detection and Correction:** To ensure data integrity in the presence of noise and interference.
 2. **Medium Access Control (MAC):** To manage how multiple devices share the same wireless channel and avoid collisions.
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4. Define Mobile IP.

Answer:

Mobile IP is a communication protocol that allows mobile devices to maintain a constant IP address while moving across different networks, enabling seamless connectivity and ongoing communication regardless of location.

5. What is the difference between Mobile IPv4 and Mobile IPv6?**Answer:**

Mobile IPv4 is designed for IPv4 addresses and relies on Home Agents and Foreign Agents for mobility management. Mobile IPv6, on the other hand, does not require Foreign Agents, utilizes a simpler architecture, and provides a larger address space, allowing for more devices and improved routing.

6. What are the goals of Mobile IP?**Answer:**

The goals of Mobile IP include:

1. **Seamless Connectivity:** Maintaining uninterrupted sessions during device movement.
 2. **Transparent Routing:** Hiding the mobility aspects from applications and users while providing continuous service.
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7. What are the key entities involved in Mobile IP?**Answer:**

The key entities in Mobile IP are:

1. **Mobile Node (MN):** The device that moves between networks.
 2. **Home Agent (HA):** A router in the home network that tracks the mobile node's location.
 3. **Foreign Agent (FA):** A router in the visited network that provides services to the mobile node.
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8. Explain the concept of agent advertisement and discovery in Mobile IP.**Answer:**

Agent advertisement and discovery involve foreign agents broadcasting messages that inform mobile nodes about their availability. Mobile nodes listen for these advertisements to discover foreign agents and learn about the services they offer for registration and packet delivery.

9. What is registration in the context of Mobile IP?**Answer:**

Registration is the process by which a mobile node informs its home agent of its current location (i.e., its care-of address) when it connects to a foreign network, allowing the home agent to route packets to the mobile node accurately.

10. Describe tunneling and encapsulation in Mobile IP.

Answer:

Tunneling and encapsulation in Mobile IP involve encapsulating packets meant for the mobile node's home address within another packet that is routed to the mobile node's care-of address. This allows the packets to be delivered to the mobile node regardless of its current location.

11. What are some optimizations used in Mobile IP?

Answer:

Optimizations in Mobile IP include:

1. **Route Optimization:** To reduce the number of hops by allowing direct communication between the mobile node and correspondent nodes instead of routing through the home agent.
2. **Fast Handoffs:** Techniques to reduce latency during transitions between different networks.