

CS6504

Mobile Computing

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Introduction

Introduction

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Outline

- Introduction
- Network Models for Mobility
- Host Mobility Problem
- Host Mobility Problem Solutions

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Internet Layers

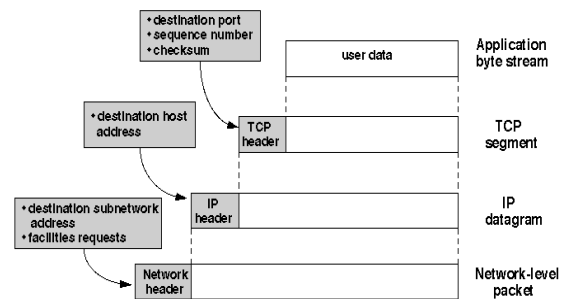
Application	Supporting network applications (HTTP, SMTP, FTP, DNS, ...)
Transport	Transporting application-layer messages between client and server sides of an application (TCP and UDP)
Network	Routing datagrams from one host to another (IP protocol: IPv4 and IPv6)
Data Link	Move entire frames from one network element to an adjacent network element (Ethernet, PPP, ...)
Physical	Move individual bits within the frame from one network element to an adjacent network element (coaxial cable, fiber optic, ...)

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TCP/IP Data Packet Transmission and Addressing



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Network Models for Mobility

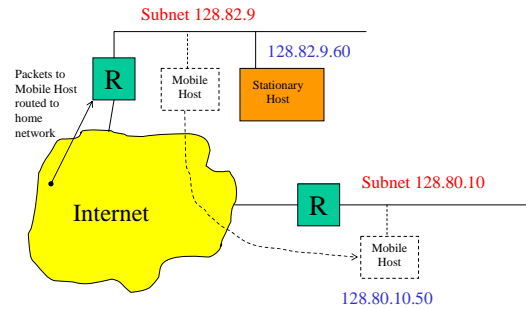
- *Nomadic* users with *wired* connectivity at access points
- A *cellular-like* network with a wired infrastructure and wireless connection between a mobile host and the network infrastructure (wireless LAN)
- A *mobile Ad Hoc Network* (MANET) with no wired infrastructure (all nodes are mobile and communication is over wireless links, each node should be capable of data forwarding)

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Host Mobility Problem



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Host Mobility Problem Solutions

•Network layer solutions

-IETF Mobile IP (MIPv4 and MIPv6)

- uses “Mobility agents”
- hides a change of IP address, when a mobile host is moving between IP networks.

•Application layer solutions

-Mobility support using “Session Initiation Protocol”

- used for real-time mobile communications
- problem with TCP connections, suggests using mobile IP for TCP connections

•End-to-End Host Mobility support

- Relies on DNS secure dynamic updates
- TCP option for connection migration (suspend TCP connection and reactivate it from another IP address)

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