

Mobile IP

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The Internet is growing exponentially, both in the amount of traffic carried, and in the amount of hosts connected. IP technology is becoming more and more important, in company networks (Intranets), and also in the core networks for the next generation mobile networks. Further, wireless access to IP networks is becoming mature (e.g., IEEE 802.11 networks, Irda, Bluetooth). At the same time, the existing generation of mobile (cellular) networks is evolving from voice services to networks with a rich mixture of services (e.g., GPRS and 3rd generation networks). These developments demand for mobility in IP-based networks. A first solution to this problem has been proposed as Mobile IP. This solution makes use of Home Agents and Foreign Agents to allow mobile hosts to move freely between subnetworks while communicating.

The tutorial will describe and explain the approaches taken to provide mobility for hosts in the Internet and IP-based networks. The tutorial will start with expanding on the need for Mobile IP. It will briefly explain the main Internet principles relevant to Mobile IP. The problems Mobile IP is trying to solve will be explained. After an overview of the general operation of Mobile IP, the principal mechanisms will be discussed in more detail. The tutorial will describe the operation of advertising care-of addresses, mobile host registration, tunneling, and proxy- and gratuitous ARP. Special attention will be paid to the main problems related to Mobile IP, such as triangle routing and smooth hand-off. The tutorial will finally explain how mobility can be supported in IPv6.