Abstract

The development of mobile communication will base on the 3rd generation communication system (3G), which can provide boardband wireless data communication and voice service. The integration of Internet protocol and mobile communication will totally change our future life. In comparisons with previous mobile communication systems, the coverage of 3G base station is much smaller, which will cause Mobile Host (MH) execute handoff procedure more frequently.

Our goal is to reduce handoff dropping rate, new call blocking rate and at the same time satisfy all QoS requests, increase resource utilization supporting seamless handoff. In the past, handoff procedure is executed by assessing signal strength of base stations. Here we consider user location and base station geographical pattern to support a location-aware handoff procedure. We invent a resource reservation scheme according to the traffic characteristics and environment of the base station and predict user location to optimize system performance.

To compare the system performance between different schemes, we developed a handoff simulation tool (3GHOSim) suitable for 3G mobile communication system. The system could import electronic map, create different user behavior (direction, speed, etc.), generate different user requirements and traffic loads trying to get more realistic simulation results.