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Abstract

Efficiency Improvement of Micro-mobility with Intra-domain Multicast-based Mechanisms

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The fast development and deployment of the Internet and mobile communication has boosted personal computing and communication. The ever-increasing number of personal devices accessing the Internet demands IP mobility support ubiquitously; however, the current protocol suite is not able to fully support IP mobility. The fundamental problem of mobility of IP based networks is that the IP address is identified by both the network and host address, which is location dependent. This problem needs to be overcome by the mobility concept.

The handover performance is especially important at the micro-mobility access networks. If not performed efficiently, handover delays, jitters and packet loss directly impact application performance.

The existing protocols like Mobile IP, Cellular IP, HAWAII and Hierarchical Mobile IP developed to solve problems of handoff latency and control overhead applying to a single domain; however the existing approaches cannot help to achieve seamless IP mobility. In this thesis, the multicast-based mobility is adopted to overcome that, intra-domain multicast-based mechanisms are

proposed to provide efficient handover for micro-mobility. As the case study, the functional requirements analysis of mobility detection and the design of handoff mechanism and bi-casting handoff mechanism, packets destined for the MN are transmitted to the old and new access points at the same time, are presented.