

Handover Protocols in Mobile WATM Networks: An Analysis of Hard and Soft Handover

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ABSTRACT

Mobile Wireless Asynchronous Transfer Mode (WATM) networks are the means by which the next generation will enable communication due to their high data rates and conformity. It is an extension of ATM networks. Handover is very important as it has the potential of enabling seamless uninterrupted communication over the entire globe for a mobile terminal. However, the various types of WATM networks are still in the protocol phase (i.e., not yet commercially implemented). The most popular handover protocol is the hard, backward, mobile terminal initiated handover. In this paper the analyses of these protocols were carried out via simulation. A virtual environment was created which was tailored to match the transfer rate of ATM networks, and narrow in on the effects of handover on the entire network in terms of parameters that enable reliable connectivity. The performance of handover protocols have been evaluated in terms of delays in communication due to the switching from one base station to the next. Further modification has been proposed and comparatively analyzed, which is based on a soft handover protocol. The algorithm developed had no need for buffering and this showed improvements in results obtained.

Keywords: Mobile WATM, Handover, Mobile Terminal, Base Station, Cross-Over Switch, Hard Handover, Soft Handover