In this paper, the mobility-dependent predictive resource reservation (MDPRR) scheme is proposed to provide flexible usage of scarce resource in mobile multimedia wireless networks. An admission control scheme is also considered to further guarantee the QoS of real-time traffic. The area of a cell is divided into non-handoff, pre-handoff, and handoff zones so that bandwidth is reserved in the target/sub-target cell as mobile stations move into the pre-handoff zone and leave the serving base station. The amount of bandwidth to be reserved is dynamically adjusted according to the location, the instantaneous variation of velocity and direction of mobile stations. Two scenarios of the MDPRR scheme are compared by considering the velocity threshold in the calculation of the weight of direction. A number of designs are investigated to further enhance the performance of the proposed scheme. The results show that employing the velocity threshold in the MDPRR scheme can indeed reduce connection dropping probability, and make better usage of the reserved bandwidth.


**KEY WORDS**: probing time; pre-handoff zone; admission control; direction weighting; velocity threshold; preemptive services; dynamic resource reservation