

A vertical handover management for mobile telemedicine system using heterogeneous wireless networks

Abstract

Application of existing mobile telemedicine system is restricted by the imperfection of network coverage, network capacity, and mobility. In this paper, a novel telemedicine based handover decision making (THODM) algorithm is proposed for mobile telemedicine system using heterogeneous wireless networks. The proposed algorithm select the best network based on the services requirement to ensure the connected or targeted network candidate has sufficient capacity for supporting the telemedicine services. The simulation results show that the proposed algorithm minimizes the number of unnecessary handover to WLAN in high speed environment. The throughput achieved by the proposed algorithm is up to 75% and 205% higher than Cellular and RSS based schemes, respectively. Moreover, the average data transmission cost of THODM algorithm is 24% and 69.2% lower than the Cellular and RSS schemes. The proposed algorithm minimizes the average transmission cost while maintaining the telemedicine service quality at the highest level in high speed environment.