Autonomous network selection strategy for telecardiology application in heterogeneous wireless networks

Abstract

Existing telecardiology systems are mostly relying on a high bandwidth wireless technology. However, in developing countries, the coverage of high bandwidth wireless network is still imperfect. Thus, the existing telecardiology systems are unable to guarantee users are always connected to the healthcare service provider at anywhere. To overcome this issue, an autonomous network selection strategy for telecardiology application in heterogeneous wireless networks is proposed. This strategy is aware of user velocity, network quality, and telecardiology service setting (e.g. image, vital signs, ECG, etc.). It performs handover from one network to another without disruption to the link. The simulation results show that the proposed strategy outperforms conventional bandwidthbased strategy in term of handover rate, ping-pong effect and handover failure. It has successfully reduced the handover rate up to 97%, eliminated the ping-pong effect and handover failure in both high and low speed scenarios.