An enhanced group mobility management method in wireless body area networks

ABSTRACT

Mobility management of wireless body area networks (WBANs) is an emerging key element in the healthcare system. The remote sensor nodes of WBAN are usually deployed on subjects' body. Certain proxy mobile IPv6 (PMIP) methods have been recommended, however, PMIP is relatively impractical in group mobility management pertaining to WBAN. It is likely to cause enormous registration and handover interruptions. This paper presents an approach aims at overcome these limitations using improved group mobility management method. The method emphasizes on incorporation of authentication, authorization, and accounting (AAA) service into the local mobility anchor (LMA) as an alternative to independent practice. Furthermore, proxy binding update (PBU) and AAA inquiry messages are merged. Additionally, AAA response and proxy binding acknowledge (PBA) message are combined. The experiment results demonstrate that the proposed method outperforms the existing PMIP methods in terms of delay time for registration, the handover interruptions and the average signaling cost.

Keyword: Handover operation; Wireless sensor network, Mobility management; Pmipv6; Low-power; Wireless personal area networks