

A NEMO-HWSN solution to support 6LoWPAN network mobility in hospital wireless sensor network

Abstract

IPv6 Low-power Personal Area Networks (6LoWPANs) have recently found renewed interest because of the emergence of Internet of Things (IoT). Mobility support in 6LoWPANs for large-scale IP-based sensor technology in future IoT is still in its infancy. The hospital wireless network is one important 6LoWPAN application of the IoT, it keeps continuous monitoring of vital signs of moving patients. Proper mobility management is needed to maintain connectivity between patient nodes and the hospital network. In this paper, first we survey IPv6 mobility protocols and propose a solution for a hospital architecture based on 6LoWPAN technology. Moreover, we discuss an important metric like signaling overload to optimize the power consumption and how it can be optimized through the mobility management. This metric is more effective on the mobile router as a coordinator in network mobility since a mobile router normally constitutes a bottleneck in such a system. Finally, we present our initial results on a reduction of the mobility signaling cost and the tunneling traffic on the mobile PAN.

Keyword: 6LoWPAN; NEMO; Handoff; Mobility; Wireless sensor networks; Healthcare