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Cloud-assisted Data Management in Wireless Body Area Networks

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Abstract: This paper presents an efficient large scale data collection in Wireless Body Area Network (WBANs) in the presence of cloudlet-based prototype system. The key contribution of this paper is to collect the observed data of WBANs in a large scale and convey it in consistent manner to the other end of service providers. A model of WBANs is proposed in this work including virtualized machines and Cloudlet in order to characterize the efficient WBANs data collection. A scalable storage and processing infrastructure have been proposed to support large scale WBANs system, which is efficiently capable to handle the big data generated by large number of WBANs users. The proposed model supports effective cost communication technologies through Wi-Fi technology. Performance results of the proposed prototype are evaluated using advanced CloudSim simulator. The performance results show that the consumed power and packet delay of the collected data is decreased by increasing the number virtualized machine and cloudlets in the monitored area. The results show also that the performance depends on the way of the virtualized cloudlet distribution in the target area for a given number of users.