Abstract

Mobile cloud computing (MCC) is the blend of cloud computing, mobile computing and wireless network to solve resource limitations of mobile devices by providing virtualized computing resources and services in a shared and scalable environment through network on a pay per use model to mobile clients. The availability of these active services- storage, google mail etc- in the mobile cloud keep the mobile cloud active and relevant. Research reveals that battery plays a major role in the provisioning of a service in a mobile cloud. However, Mobile Ad-hoc Network (MANET) as a platform that support local mobile cloud exhibits battery problems that pose greater challenges to the availability of a service as users move from one node to the other. Hence, this work aims at reducing the energy requirement of the monitoring service system in a local mobile network using a push and update technique.

A push and update service monitoring model was developed and simulated on ns-3 to monitor service availability and necessary device status parameters such as energy level, processing power and storage capacity of mobile devices (nodes) in MANET. The push and update table
was used to hold necessary device information by the service monitoring system which enables it to rest (come up at set time intervals) and alternate between two modes (Hibernation and Activation), and by so doing it saves computing resource and energy for other computation tasks. The model was evaluated by comparing it with the existing framework using service availability and battery consumption.

The simulation results revealed on average 96.86% and 676.73mAh, of service availability and battery consumption respectively, for the developed PUP model, against 95.93% and 895.43mAh of average service availability and battery consumption respectively, for the existing framework.

References


Index Terms

Computer Science

Information Sciences

Keywords

Local Mobile Cloud, Push and Update