Computation Offloading Strategy for Multi User Mobile Data Streaming

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Abstract— **In the mobile cloud environment, computation offloading provides a feasible solution for mobile intelligent devices to run those complex applications that require a large amount of computing resources. But most of the existing computation offloading algorithms are based on a single user's point of view and assume that the cloud resources are sufficient at any time. The scenario considered in this paper is multi-user with limited cloud resources, when there are a lot of components to be migrated to the cloud. But the cloud will not be able to handle all components in real-time, hence the need to find a solution to effectively reduce the energy consumption of mobile devices while simultaneously ensuring the performance of each user's mobile application. As an effort to solve this problem, a four-stage multi-user offline computation offloading algorithm (FMOCO) is proposed in this paper. FMOCO takes into account the offloading requests submitted by all users over a specific period of time and derives the best possible offloading strategy based on each individual user's computing power, bandwidth, as well as available cloud resources. Experimental results show that FMOCO can consider the performance of the applications as well as power consumption of all users under the condition of limited cloud resources.**

Keyword—**Mobile Data Streaming, Computation Offloading, Application Performance, Energy Consumption**

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