ABSTRACT

With the development of cloud computing, a computing resource might be provided, and then people will be able to lower the amount of calculation required on mobile systems to save available energy. As a result, mobile cloud computing helps mobile users stores energy by processing the tasks to the cloud. Conversely, though, the effort and expenditure to transfer a big volume of data across a low-resourced network will require a significant quantity of energy. The technique of offloading computation is applied where computations can be moved to an offloading platform from a mobile device that has limited computational resources.

To reduce resource constraints on devices, computing offloading techniques are offered, in the hope that complex calculation works can be moved to powerful machines. Instead of reducing the execution time of devices, task scheduling and offloading is simpler that results in a lot of power consumption. Though current offloading studies does not address the energy usage that goes into transporting data, other offloading technologies that do incorporate this usage are being tested in the lab. All of the offloading strategies are geared towards reducing the amount of local CPU resources needed to carry out a task to reduce energy spent on processing.

Computation offloading is the act of delivering components of an application that are more computation-intensive to a remote server. Recently, a number of computation offloading frameworks have been presented, all of which include a few application design techniques for mobile devices. This process of distributing and dispatching individual components of an application to remote servers while they are running on mobile devices in order to extend and expand the capabilities of the device is referred to as partitioning.

In this study, we use offloading based scheduling that increases the computational efficiency of task offloading in mobile cloud computing using

meta-heuristic task scheduling by limiting the battery usage and other resource usage. It efficiently executes the task for offloading in cloud from smart devices model via meta-heuristic algorithms through the process of priority scheduling. It considers various factors while offloading and scheduling the task to mobile cloud computing that includes processor utilization, task execution time, task upload time, memory usage, offload time, network bandwidth, local execution parameters, allocation time and scheduling time.

The study used Particle Swarm Optimization (PSO) algorithm to obtain reduced makespan thereby enabling reduced schedule length and time restriction of a task with least storage capacity. The study used Artificial Immune System (AIS) to reduce the time scheduling in smart devices that even reduces the makespan. Gossip algorithm is used to find the Virtual Machine idle status and it is protected from suspicious user or attacks and further enables the prevention of system overloading due to smart device offloading. The performance evaluation is conducted on various performance metrics to test the efficacy of the model. The results of simulation show that the proposed method achieves higher rate of efficiency with improved scheduling of task with hybrid meta-heuristic algorithms than other methods.