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**PONDICHERRY – VILLUPURAM – CUDDALORE - CHENNAI**

## **Prioritization of Overflow Tasks to Improve Performance of Mobile Cloud**

### **ABSTRACT:**

Mobile devices may offload their applications to a virtual machine running on a cloud host. This application may fork new tasks which require virtual machines of their own on the same physical machine. Achieving satisfactory performance level in such a scenario requires flexible resource allocation mechanisms in the cloud data center. In this paper we present two such mechanisms which use prioritization: one in which forked tasks are given full priority over newly arrived tasks, and another in which a threshold is established to control the priority so that full priority is given to the forked tasks if their number exceeds a predefined threshold. We analyze the performance of both mechanisms using a Markovian multiserver queuing system with two priority levels to model the resource allocation process, and a multi-dimensional Markov system based on a Birth-Death queuing system with finite population, to model virtual machine provisioning. Our performance results indicate that the threshold-based priority scheme not only performs better, but can also be tuned to achieve the desired performance level.

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### **Existing System:**

The tension between resource-hungry applications such as face recognition, natural language processing, interactive gaming, and augmented reality, and resource- and energy-constrained mobile devices poses a significant challenge for current and future mobile platform development. Mobile cloud computing, where mobile devices can offload some computational jobs to the cloud is envisioned as a promising approach to address such a challenge . The characteristics of mobile devices and wireless network makes the implementation of mobile cloud computing more complicated than stationary clouds.

### **Disadvantages:**

- This model is not appropriate for on-demand job requests in mobile cloud system as all the tasks in a job are supposed to start getting service at the same time.
- However, if the PM running the parent (primary) VM has no spare capacity for a secondary one, the secondary task will not be immediately blocked.

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- Instead, it will be returned to the RAM as an overflow task; these tasks are routed through a dedicated queue, separately from the newly arrived primary tasks and first-time secondary tasks.

### **Proposed System:**

The proposed solution manages these two types of tasks as two service classes using a queuing model based on integration of multi-dimensional Markov system and Birth-Death queuing systems with multiple servers and finite population (M/M/L//L), inspired by the Birth-Death queuing systems developed . We consider soft bounds on completion times and limit the number of secondary tasks in order to prevent resource hogging. We also consider priority differentiation between the tasks, which are implemented using two mechanisms. In the first mechanism, overflow tasks are always serviced before any regular tasks, be they primary or secondary. In the second, we impose a threshold for the number of overflow tasks in the input queue. As long as the number of overflow tasks is below the threshold, a probabilistic selection similar to Weighted Fair Queuing is used; otherwise, only overflow tasks are serviced until their number drops below the threshold.

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### **Advantages:**

- The model proposed is based on the wireless network cloud (WNC) concept and a multi-objective linear optimization approach using an event-based finite state model and dynamic constraint programming method has been used to determine the appropriate transmission power, process power, cloud offloading and optimum QoS profiles.
- The work has presented a task scheduling and resource allocation scheme which used the continually updated data from the loosely federated General Packet Radio Service (GPRS) to automatically select appropriate mobile nodes to participate in forming clouds.
- The work has proposed two different mechanisms, which reflect two different classical economic approaches for fairly allocating resources: the Nash Bargaining (NB) mechanism and the Lexicographically Max-Min Fair (LMMF) mechanism.

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### SYSTEM SPECIFICATION

#### Hardware Requirements:

- System : Pentium IV 2.4 GHz.
- Hard Disk : 40 GB.
- Floppy Drive : 1.44 Mb.
- Monitor : 15 VGA Colour.
- Mouse : Sony.
- Ram : 512 Mb.

#### Software Requirements:

- Operating system : Windows 7.
- Coding Language : ASP.Net with C#
- Data Base : SQL Server 2005.

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