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## Modified HEFT Algorithm for Task Scheduling in Cloud Environment

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### Abstract

Cloud computing is now dominated in the area of high performance distributed computing and it provides resource pooling and on demand services through internet. Therefore task scheduling becomes an important research area in the field of cloud environment because user's services demand change dynamically. Heterogeneous Earliest Finish Time (HEFT) unable to distribute the task efficiently. We modify HEFT algorithm that distribute the workload among the processor in effective way and reduce the makespan time of applications. Computational results (Fig. 4-5) shows that modify HEFT algorithm perform better than existing HEFT, Heterogeneous Earliest Finish Time (CPOP) algorithm.

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*Keywords:* Cloud computing, NP hard, Task Scheduling, HEFT

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### 1. Introduction

Cloud Computing model has appeared with the growth of internet and its services which provided by internet to its user. Cloud model is based on distributed computing and consisting of collection of various virtualized computers

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that can be dynamic in nature and inter connected to form computing resources. Globally vacant resources need to be utilized for increasing the utilization rate and earning from resources by increase the economic efficiency of these resources; cloud model is best suited for this purpose. The main aim of cloud computing model is sharing of resources and data to the users. It is a platform to provide the services and applications to its users. Cloud computing provided three types of Services software as a service (SaaS), platform as a service (PaaS) and infrastructure as a service (IaaS) [7]. These services is available to the users on the basis of pay per-Use-Demand, in which Shared computing resources, Servers, Data Storage, application and network. In SaaS service licensed of software is provided to the user on the basis of services subscription. These services can be access from any machine through the web browser. In PaaS user can create his own services with the use of available services of cloud and then deploy their services to own machine. In IaaS organizational Infrastructure is available to customer over the internet. Customer does not need to understand the internal architecture of infrastructure for using this. Instead of buying the whole infrastructure for business requirement customer take is as a rent basic when they required and when the requirement of infrastructure has no more the amount has paid for the services is used by the customer. In recent year the number of cloud users increased so the amount of tasks has need to manage propositionally for this task scheduling is required.

## 2. Task Scheduling

Task Scheduling is a technique of finding the order in which tasks or activity should be completed. It is mapping the resources to the appropriate task which is submitted for their completion to the cloud it's come in the category of NP hard problem because of large number of solution space and takes longer time for determine the optimal solution. It is a technique for management of resources in cloud. Task scheduling is solved the problem of which resources is to be allocated to which task so that increase the resource utilization and decrease the execution time. For a better performance scheduling algorithm need to be efficient and it consider load balancing of the overall system, interruption handling, fault tolerance, decrease the total execution time.

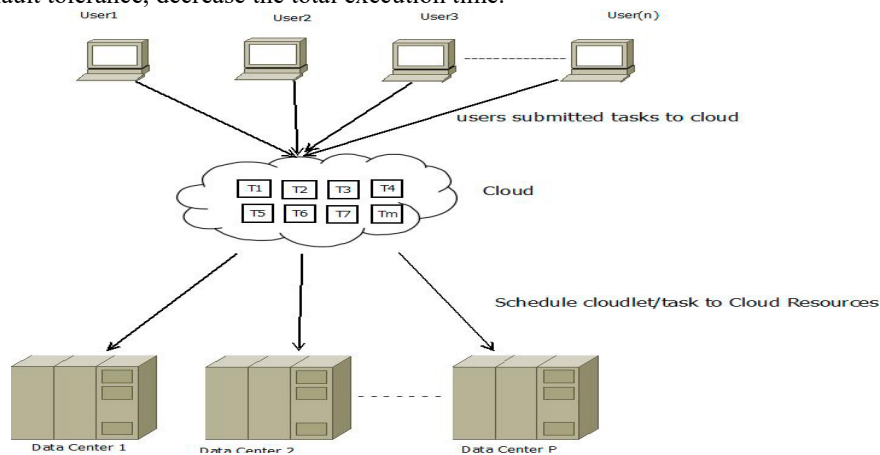


Figure 1 Scheduling in Cloud Computing

Users submitted their tasks for completion to cloud, these task need to assign to the processor for their execution. Now the concern is that how the tasks are assigned to processor so that minimum execution time and maximum profit is earned by the cloud owner. So here the task scheduling resolve the problem of assigning the tasks to the best suitable processor which considering the other factor. Task scheduling is best methods for better utilization of resource and achieving the economic efficiency. Various tasks scheduling method has been proposed and implemented in different scenario.

Based on the work of literature [2-3][6-13][16-17], we classified task scheduling methods in two groups in cloud environment. Distributed scheduling where the tasks assignment on different resources which are not located geographically on same place and the centralised scheduling where all the resources is on same place but the

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