Improved Community Aware Job Scheduling Algorithm in Cloud

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Abstract—**A variety of computing concepts that involve a large number of computers connected through a Real-time communication network such as the Internet. . In this paper, an improved community aware scheduling algorithm is proposed in which the resources are utilized effectively by minimizing the execution time. A task scheduling model is established for reducing the system power consumption of cloud computing and to improve the profit of service providers**

Keywords—: *Cloud computing, resource*

I. INTRODUCTION

Cloud computing," to put it simply, means "Internet Computing." The Internet is commonly visualized as clouds; hence the term "cloud computing" for computation done through the Internet. With Cloud Computing users can access database resources via the Internet from anywhere, for as long as they need, without worrying about any maintenance or management of actual resources. Besides, databases in cloud are very dynamic and scalable. The best example of cloud computing is Google Apps where any application can be accessed using a browser and it can be deployed on thousands of computer through the Internet

Cloud computing provides the facility to access shared resources and common infrastructure, offering services on demand over the network to perform operations that meet changing business needs. The location of physical resources and devices being accessed are typically not known to the end user. It also provides facilities for users to develop, deploy and manage their applications 'on the cloud', which entails virtualization of resources that maintains and manages itself. As a matter of fact, data is the most important part of cloud computing; thus, data security is the top most priority in all the data operations of cloud. Here, all the data are backed up at multiple locations. This astoundingly increases the data storage to multiple times in cloud compared with a regular system. Redundancy of data is crucial, which is a must-have attribute of cloud computing. In this paper a job scheduling algorithm is proposed in which the status of the job is known to the user periodically so the user can reschedule the job in case any failure occurs. The paper is organized as follows. In Section 2 related work is discussed, section 3 discuss about proposed model, section 4 discuss about results, conclusion is discussed in section 5.

II. RELATED WORK

In paper (1) a community aware scheduling algorithm developed but before execution the jobs are assigned to the suitable machine and that machine will continue executing the jobs with interpretation. In job scheduling main focus is to find approite reasons of the job that is used schedule the job. In paper(1) a community aware scheduling job scheduling proposed in which the user is unaware of status of the jobs cannot be rescheduled due to unique administrative management and system failure. In this algorithm, jobs are executed according to the order of job arriving time. The next job will be executed in turn. The FCFS algorithm [20] may induce a ''convoy effect''. The convoy effect happens when there is a job with a large amount of workload in the job queue. When this occurs, all the jobs queued behind it must wait a long time for the long job to finish. The RR algorithm [21] mainly focuses on the fairness problem The RR algorithm defines a ring as its queue and also defines a fixed time quantum. Each job can be executed only within this quantum, and in turn. If the job cannot be completed in one quantum, it will return to the queue and wait for the next round. The major advantage of RR algorithm is that jobs are executed in turn and do not need to wait for the previous job completion. Therefore, it does not suffer from a starvation problem. However, if the job queue is fully loaded or workload is heavy, it will take a lot of time to complete all the jobs. Furthermore, a suitable time quantum is difficult to decide.Job scheduling is most important task in cloud computing environment because user have to pay for resources used based upon time. Job scheduling has didn't overcome issues such as bottleneck, single point failure, and impractical unique administrative management. In Section [2] discuss about related work it led to the failure of total system. Its disadvantage is No Standard scheduling techniques is used, Deadlock and failure of job occurs, No rescheduling process is done Any

job gets failed the total system gets collapsed,User doesn't know job status.

III. PROPOSED MODEL

In the proposed system an improved community aware scheduling algorithm (ICSA) is proposed   in which the resources are utilized very productively.   The proposed scheduling algorithm allows all the users to access the server anytime.The advantages of the proposed system are If any job is delayed, rescheduling process is done on time. The time interval of the job is known to the user.The algorithm for job rescheduling is represented . Once a node is selected as the assignee node for delegated job's execution, numerous events such as newly arrived jobs and resources are able to keep changing the status of the overall cloud dynamically through time. Therefore, if the assigned job is still not executed yet after some time, the current assignee node may not remain an optimal choice for the assigned job's execution because some other nodes could offer a shorter job response time because of their volatile resource usages. In this case, each node of the cloud needs to check periodically whether some of the already queued jobs could be re-assigned to other nodes for obtaining better performance in terms of job execution and cloud resource utilization.

A. Job Rescheduling

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and resources are able to keep changing the status of the overall cloud dynamically through time. Therefore, if the assigned job is still not executed yet after some time, the current assignee node may not remain an optimal choice for the assigned job's execution because some other nodes could offer a shorter job response time because of their volatile resource usages.

B.JobQueue

A job queue is a data structure maintained by job scheduler software containing jobs to run. Users submit their programs that they want executed, "jobs", to the queue for batch processing.

C.The architecture of cloud computing

Cloud computing is Internet-based development and use of computer technology. The cloud is a metaphor for the Internet (based on how it is depicted in computer network diagrams) and is an abstraction for the complex Infrastructure it conceals. The architecture behind cloud computing is a massive network of "cloud resources" interconnected as if in a grid running in parallel, always using the technique of virtualization to maximize the computing power per server Applications of users work on the virtual operation systems.
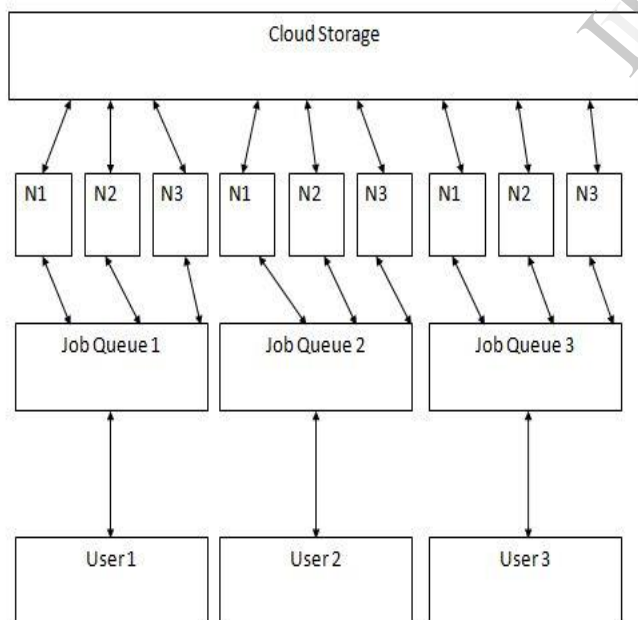

FIGURE1: ARCHITECTURE DIAGRAM OF THE PROPOSED SYSTEM

TABLE1:THE NOTATION USED IN ALOGRITHM

THE ALGORITHM IS AS FOLLOWS

Symbols	Description
nα	Requester node
jα,θ	Which needs to be allocate
reqα,θ	Estimation message generated for job
xnβ	Length of the known node.an arbitrary node from list
Ecpue1 Ememe2 Ediske3 Enwe4	Estimation cpu Estimation memory Estimation disk Estimation network
Ex	Ex taking the values $0 \leq Ex \leq 100$ and e1, e2, e3, e4 are basis vectors.
Estimation time	User for confirmation message to proceed job or not

ALGORITHM

Step 1:
Request is submitted.

Step 2:
Authentication is done for each request

Step 3:
Authenticated request is placed in job queue

Step 4:
Estimation time is calculated based on job traffic and confirmation message is sent to the user.

Step 5:
Job is executed successfully and periodic update is given every 15 minutes
.
Step 6:
If job is not executed successfully, the request is rescheduled .

FIGURE 2: PROPOSED ALOGRTHIM

IV. RESULTS

The simulation is based on the cloud simulation tool kit.. The heterogeneous environment is build by various resource specification according to the cloud computing..The resources in the cloud differ by operating system, cpu speed, memory and bandwidth.
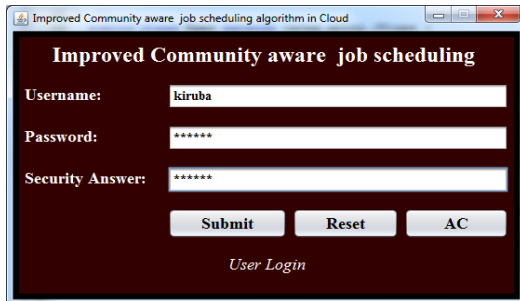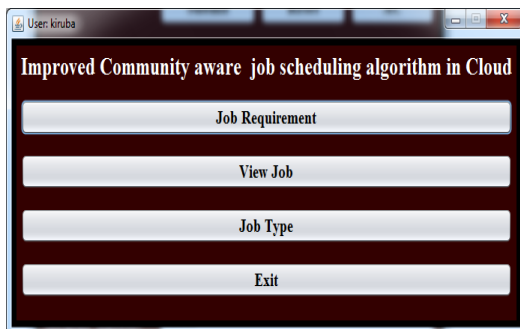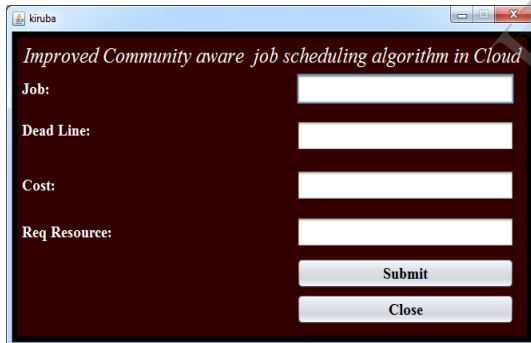

FIGURE3: LOGIN PAGE
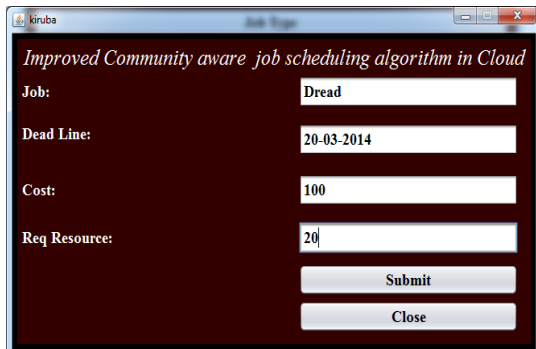

FIGURE4: FIELDS

FIGURE5: JOB SUBMISSION

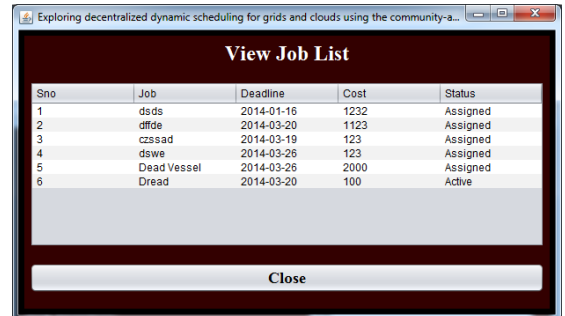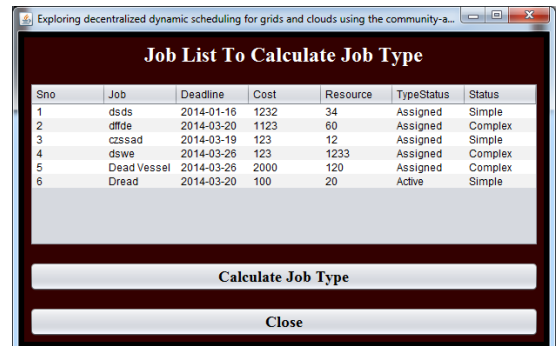FIGURE6: DISPLAYING JOB

FIGURE7:VIEW JOB

FIGURE8:JOB ASSIGN

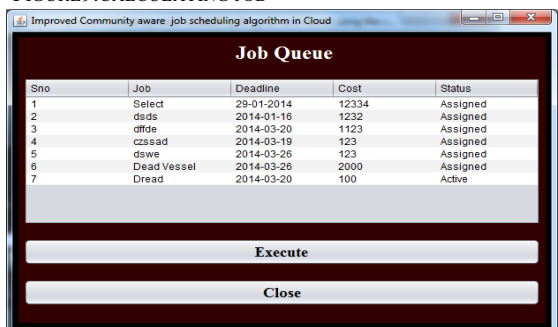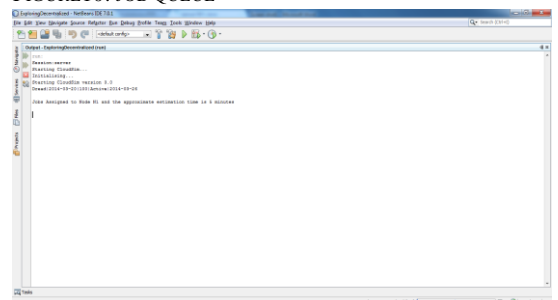FIGURE9:CALCULATING JOB

FIGURE10: JOB QUEUE

FIGURE11:NODE CREATION

V. CONCLUSION

In this paper an improved community aware job scheduling algorithm is proposed in which the resources are scheduled very effective. Mainly we have to reduce traffic. Finally we got good job scheduling.

VI. ACKNOWLEDGMENT

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