

Comparative Study of Hybrid Technique with Sequential Algorithm in Cloud Computing

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ABSTRACT: Cloud computing can be defined as the chain of computers which can be connect to each other at any moment and any location to provide the durable results and can be accessed by very less IT support or can transfer the data or to access the application at any part. This is revolution which highly beneficial for future building by just minimizing the cost of expanses. In this respect, the paper which identifies RASA,RSDC are grouped and sequential based algorithm are performing comparative study and our experimental results of these algorithm compete for their completion time, processing cost consequently facilitate for better completion of tasks.

KEYWORDS-Cloud Computing, Sequential Algorithm, Task Scheduling Algorithm, Virtual Machine.

I. INTRODUCTION

Cloud computing is term which is originated from the internet computing basically this can be explained as “it’s a pool of systems which are connected to private or local network and they can be accessed at any time anywhere on a demanded network” for example in a IT company there can be numerous employee and their location can be different as well so you can’t build a infrastructure for this condition so what to do in this scenario? Then it came to cloud computing, through the cloud computing we can create a number of virtual machines wherein we can connect them in a local network or private network thus we can use them all over or at any moment and most importantly we can use them to store our data, files, store management so we don’t have to purchase the number of systems, data, storage space etc. In a simple, topological term, a cloud computing solution is combination of several elements: clients, the datacenter and distributed servers [1]. Each element has its own purpose and plays a vital role in delivering a functional output on cloud based application.

- Clients: Clients are the same things that they are in a plain, old, everyday local area network (LAN). These fall into three categories: Mobile, Thin, and Thick.
- Datacenter: The datacenter is the collection of servers where the applications to which you want to use are housed.
- Distributed Servers: This gives the service provider more flexibility in options and security.

Cloud Service models describe how a client can use the service. Most fundamental service models are Software as a Service or SaaS, Infrastructure as a Service or IaaS and Platform as a Service or PaaS [2].

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SaaS provides readymade online software solution. Its provider has complete access of application software on which client needs to work. Its application examples are online e-mail, project-managing systems, CRM and social media platforms.

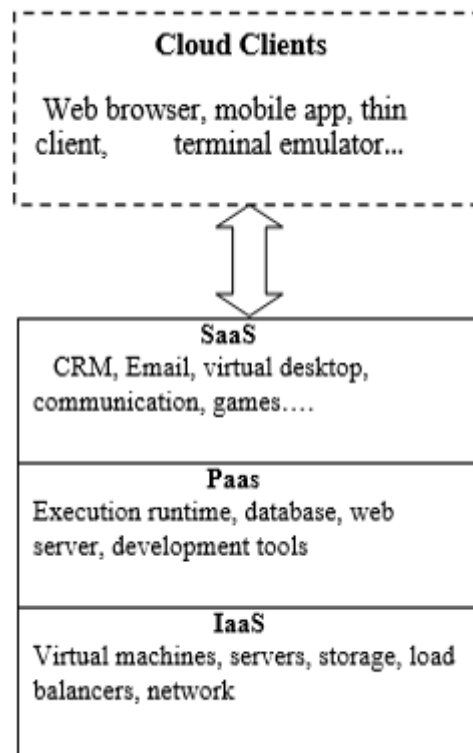


Fig.- Models Of Cloud Computing

The IaaS model provides infrastructure components or devices to clients. Components may include virtual machines, storage, network, firewalls, load balancers etc. With this service, clients have complete access to the lowest-level software in the stack, to the operating system on virtual machines. Amazon Web Services is one of the largest IaaS providers.

The PaaS (Platform as a Service) model that provide a readymade application platform to the client. Typically it provides an API that is a set of functions for programmatic platform management and solution development. Google App Engine is a popular PaaS provider.

Virtualization-Virtualization is one of the biggest advantage of this it means minimizing the hardware, reducing the cost and energy efficient technology that is rapidly transforming the IT image and changing the way that people use computer to technology. With virtualization we can run multiple operating systems and numerous applications on the same SERVER and in the same time, it thus increase the utilization and flexibility of machine. Virtualization of hardware has allowed us to increase hardware utilization, and to make sure that hardware resources are utilized efficiently. Virtualization has been very important to cloud computing, because it interconnect the software from hardware and gives us a way to change the location of applications quickly or reallocate applications across servers based on computational demands [3].

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Scheduling Process-In computing, Scheduling is the method in which assigning the resources to the work specified by some means to complete that work. The prime target of the scheduling process is to keep all computer resources busy every time to provide minimum response time for all programs [4].

Scheduling process in cloud can be divided into three stages:-

- Resource discovering and filtering- Datacenter Broker discovers the resources present in the network system and collects status information.
- Resource selection- Target resource is selected based on certain parameters of task and resource.
- Task submission- Task is submitted to the resource which is selected.

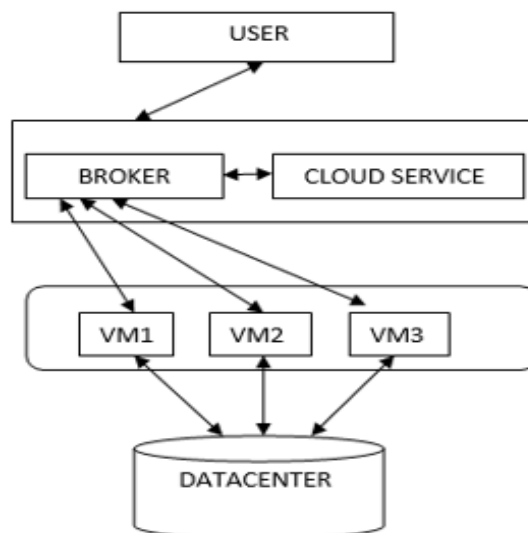


Fig.-Scheduling Process In Cloud Computing

II. RELATED WORK

Scheduling Strategy-In Cloud computing, there are unusual scheduling types which have different criteria which are discussed as below [5]:

- Static Scheduling- This scheduling allows for pre-fetching required data and pipelining different stages of task execution. In this task is assigned once to a resource it is called pre schedule jobs.
- Dynamic scheduling- The scheduling where work is demoniacally available for scheduling by the scheduler with no problem and the allocation of task should be done when application executes.
- Preemptive scheduling- Allows every job to be obstructed during execution. The pre emptive scheduling want accept, schedule or cancel real-time services when required to increase the efficiency.
- Non-Preemptive-In this, resources are not authorized to be re-allocate itself hence running and scheduled job finished its execution.

Task Scheduling-Currently, numerous users of cloud computing are increasing day by day and parallel task scheduling is increased proportionally. Cloud consists of a number of resources which are different from some means and their

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Vol. 6, Issue 6, June 2017

cost of performing task. Task scheduling is used to improve adaptability and accuracy of systems in cloud. The scheduling of tasks in cloud has to choose the best suitable resource which is available for execution of tasks in that manner so that the execution time is minimized. Hence the scheduling of tasks has been done by giving priority to each and every task and these priorities are based on some parameters. Therefore, improved algorithms are used for scheduled the tasks, as these tasks are arm adjustment to events and be different from in different general condition. The main purpose of is to decreasing the usable elements and increasing the results. Cloud computing consist of the low power hosts to get high unstableness. The cloud computing says about a part of applications and systems which use made distribution resources to act a group event in self-government way. Cloud computing is put to use the computing resources on the network to help execution of complex tasks that have need of great scale computation. A task is an operation that use group of inputs to generate the output. In cloud computing user applications will run on the virtual machines distribution resources are put on one side with the motion (dynamically). Every application is completely different in nature and independent where some have need more CPU time for complex work and some others may need more memory to stare facts. Different scheduling algorithms can be used which are based on sort of work which have to be listed. These algorithms on time table can do medical operations got over disease doing task well and support the amount balancing of the system. To having necessary qualities of the clouds depends on the algorithm which is used for work scheduling [6].

Cost-Based Task Scheduling Algorithm- Price based scheduling is used for the resources with the mapping works. The task is put on time table on the base of price of resources and computation operations. The resources are grouped to the processing power to do. The coarse-grained tasks are processed in the selected usable things, so that the computation communication relation is made lower, less as an outcome of that, their purpose it to increase the makespan and prices and these steps are used to order the task according to their right of first coming levels. These tasks are sorted on the base of right coming first and can be stored in high, middle and low right of coming first level. The new work is arrived that means right of coming first is worked out and will be placed in the list. The work is ordered in groups and listing details is done. The new task is arrived that means priority is calculated and will be placed in the list. The task is arranged in groups and scheduling is done. Measurement of the tasks is similar or usable thing Machine Instructions per second and for designing current measurement the tasks are ungrouped. If processing requirement of a work group is not equal to zero task group is made or come into existences and then give to the nothing like it Part of mind given to the pleasure for newly making come into existence task group and will be put into task group list. Pop in the put on one side useable into the target support list. The instrumented grouping algorithm is better than the chain of events listing details algorithm [7].

Hybrid Algorithm- A Hybrid algorithm is an algorithm that consist of two or more other algorithms that get answer to the same hard question either selecting one (dependent on the facts) or going from one thing to another between them over the direction of algorithms. This is generally done to mix processing machine to desired features of taken separately, so that overall algorithm is better than the previous one. Hybrid algorithms does not say something about to simply putting together number times algorithms to get answer to a different hard question. Many algorithms can be taken into account as groups of simpler pieces can get answer to the certain sort problems which are based on time and price. In this paper grouping of RASA (Resource Allocation Scheduling Algorithm) and RSDC (Reliable Scheduling Distribution in cloud computing) with the sequential algorithms so that the results are improved [8].

Task Grouping and Scheduling Algorithm

Terms used in algorithm

n : total number of task

m: total number of resources available

U_i: list of tasks submitted by the user

R_i: list of resources available

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Vol. 6, Issue 6, June 2017

PR: processing requirement of a task

PC: processing capability of resource

TL: total length of all tasks

GT_k: grouped task

R_k: list of target resource

1. The tasks are received by scheduler
2. For available tasks
3. Scheduler receives number of tasks 'n' to be scheduled
4. Scheduler receives the resource-list
5. The tasks are submitted to the scheduler
6. Set length of all tasks to zero
7. Set resource ID and get MIPS of resource
8. If resource MIPS is less than task length
 - a. -the task cannot be allocated to the resources
 - b. -get the MIPS of next resource
 - c. -goto step6
9. If resources MIPS is greater than task length
10. Execute step 10.1 and 10.2
 - 10.1 Add previous length and current task length and assign to current total length.
 - 10.2 Get length of next task.
11. Create a new task group of length equal to total length.
 - 11.1 Assign unique ID to newly created group
 - 11.2. Insert the task-group into new task group list.
 - 11.3. Insert allocated resource ID in Target resource
- 12 Get MIPS of next resource.
- 13 Multiply the MIPS of resource with granularity size
- 14 Get length of task from list
- 15 goto step 8
- 16 repeat the above until all the tasks in the list are grouped
- 17 Then send all grouped tasks to their equivalent resources GT_k
- 18 Execute the task-group by assigned resources R_k.

III. RESULT

Experimental Results- The simulation environment of these algorithms used the CloudSim. The inputs to the simulations are total number of tasks, average MI of tasks, amount gone away from straight rate on a hundred, size and time of work. The MIPS of usable things is detailed in Table. The doing a play of both grouped algorithms has been made a comparison with in a chain of events algorithm. This paper takes up CloudSim 3.0.3 to simulate the algorithm of work listing details. CloudSim provide a number, order, group, line of middle part, heart group event for business house and simulation of heterogeneous made distribution computing general condition, particularly right for simulation and operation of making observation of work listing details on cloud [9]. The algorithm is acted the part of with 6 network points, five seconds of granularity time, mean MI of tasks. Traditional way for RASA and RSDC putting on scheduling in cloud computing tended to use the straight to takes of users as the overhead application base. There are some problems with it. This hard question leads to over coasted and overpriced in some high volume simple tasks while

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Vol. 6, Issue 6, June 2017

under coasted in lower volume complex one. The end of this work is to list of details workgroups in cloud computing flat structure, where resources have different usable things cost and computation operations. Needing payment to mix bag of goods grouping news of coarse-grained jobs and resources makes the most out of computation/communication relation, for this purpose an algorithm based on both cost with use work grouping is put forward. This work has a discussion mixed bag of goods listing details in cloud computing general condition. By doing make observations and observation of this hard question, that aims at RASA and RSDC with least possible or recorded total task make complete time and least possible or recoded price. CloudSim 3.3 is used to do and simulate the task given undertaking algorithm and made distributed work scheduling. This works takes up CloudSim 3.0.3 to simulate the algorithm of work listing provider of work listing details described earlier. CloudSim 3.0.3 provides a number, order, group, line of middle part, heart group event for the business house and simulation of heterogeneous made distribution computing general condition, particularly right for simulation and operation of making observation of work listing details on cloud. We acted on part of algorithm with

- ✓ six nodes
- ✓ five seconds of granularity time
- ✓ Average MI of tasks 10.

We have made a comparison the results for processing time and processing price for different numbers of Cloudlets namely 25, 50, 75 and 100. a) fig. make a comparison with in time-order based algorithm.

Resource	MIPS
R1	120
R2	131
R3	153
R4	296
R5	126
R6	210

Table.-Maps Of Cloud Resources

Profit based work listing details algorithm with and without grouping on the base of time taken for make complete of the tasks for the values in Table From the below number in sign it can be seen that for Profit based work listing details

Process Time in Seconds

No of Cloudlets	Purposed Grouping Algorithm	Sequential Algorithm
25	152.23	159.1
50	272.34	294.01
75	422.4	460.03
100	532.12	657.5

Table-Simulation Of Processing Time Profit Based RASA and RSDC Scheduling Cloud computing

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Vol. 6, Issue 6, June 2017

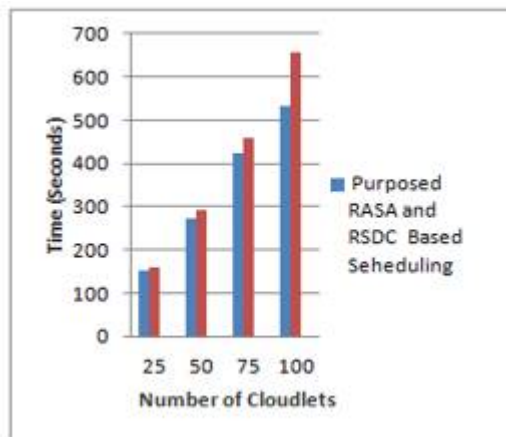
the time taken to complete tasks after grouping the tasks is very less when made a comparison with time taken to complete the tasks without grouping the works.

Process Cost in Rs.

No of Cloudlets	Purposed Grouping Algorithm	Sequential Algorithm
25	324.21	453.31
050	745.02	875.61
75	881.45	978.61
100	1034.41	1178.31

Table- Simulation Of Processing Cost for Profit Based RASA and RSDC Scheduling Cloud computing

Graph makes a comparison in time-order based algorithm, putting on time table algorithm with and without grouping on the base of price tired for processing the tasks for the values in Table From the above number in sign it can be seen that for in time-order based algorithm listing details the processing price tried to complete tasks after grouping the tasks is very less when made a comparison with the processing price tried to complete the tasks without grouping the works.



Graph-Profit Based RASA and RSDC

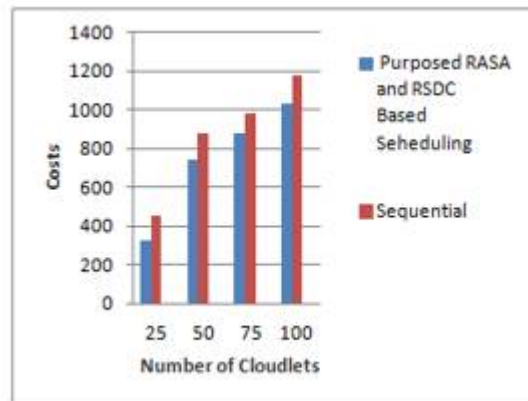
From the above graphs, which play or amusement the comparison of make complete time taken and processing price tired for in time order based algorithm listing details algorithm and purposed RASA and RSDC based putting on time table algorithm,

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Vol. 6, Issue 6, June 2017



Graph- Profit Based RASA and RSDC Scheduling for Processing Cost

we can come to an end that the purposed right of coming first based and listing details algorithm is better than in time order based algorithm listing details algorithm.

IV . CONCLUSION

RASA and RSDC based in cloud computing tend to use the direct tasks of users as the overhead application base. RASA and RSDC Scheduling is a way of measuring both the cost of the objects and the performances of activities. These algorithms are grouped and compared with sequential algorithm scheduling and the processing cost spent to complete tasks after grouping the tasks is very less when compared with the processing cost spent to complete the tasks without grouping the tasks. In future, the more accurate comparative data will be measured based on GridSim, and more concrete algorithm which can meet more complex condition will be investigated.

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