ISSN : 2455-9679
Impact Factor : 2.015

IJRTSM

INTERNATIONAL JOURNAL OF RECENT TECHNOLOGY SCIENCE & MANAGEMENT

"COMPUTATIONAL BALANCING IN CLOUD COMPUTING WITH ROUND ROBIN ALGORITHM"

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ABSTRACT

Load balancing in the cloud computing environment has an important impact on the performance. Good load balancing makes cloud computing more efficient and improves user satisfaction. This article introduces a better load balance model for the public cloud based on the cloud partitioning concept with a switch mechanism to choose different strategies for different situations. The algorithm applies the game theory to the load balancing strategy to improve the efficiency in the public cloud environment.Load balancing with cloud computing provides a good efficient strategy to several inquiries residing inside cloud computing environment set. complete balancing must acquire straight into accounts two tasks, one will be the resource provisioning as well as resource allocation along with will be task scheduling throughout distributed System. Round robin algorithm can be via far the Easiest algorithm shown to help distribute populate among nodes. Because of this reason it is frequently the first preference when implementing a easy scheduler. One of the reason for it being so simple is that the only information required is a list of nodes.The proposed algorithm eliminates the drawbacks of implementing a simple round robin architecture in cloud computing by introducing a concept of assigning different time slices to individual processes depending on their are priorities.

Key Words: *Cloud computing, load balancing, Task Scheduling, Round Robin*

I. INTRODUCTION

Yesteryear decade features seen your rise regarding cloud calculating,an arrangement where businesses in addition to individual users utilize hardware, storage space, and software program of 3rd party companies named cloud providers rather than running their very own computing commercial infrastructure. Cloud calculating offers customers the illusion of needing infinite calculating resources, of which they can use all the or less than they have to have, without being forced to concern themselves with exactly how those resources are offered or maintained operation of a full shielding capability. Cloud calculating encompasses many services in which vary using the degree to which they abstract away the details of your underlying computer hardware and software program from customers. At the lowest level regarding abstraction, also known as infrastructure being a service, the company only virtualizes your hardware in addition to storage whilst leaving users to blame for maintaining the entire software stack from operating system to programs. Degrees of such companies include Amazon EC2 in addition to competing offerings from IBM, In the opposite end on the spectrum, called software being a service, the company offers distinct applications like word finalizing, email, and calendaring on to end customers, usually via the internet, in addition to manages each of the necessary computer hardware and software program. Although this category typically refers to services intended to replace computer applications like Google Software in addition to Microsoft Place of work Live, it may cover

ISSN : 2455-9679
Impact Factor : 2.015

applications without any desktop analogs like social networking services such as Face e-book and Twitting . Cloud Computing could be the name provided to the latest trend in computing service provision. This kind of trend has seen this technological in addition to cultural adjust of computing service supply from being provided in your community to being provided remotely in addition to en ton, by third-party companies.

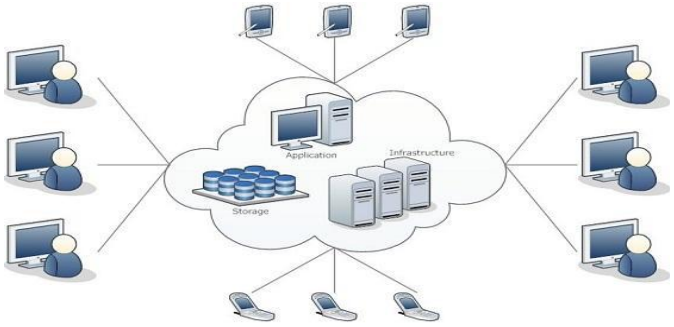

Fig: 1.1 Cloud Computing Model

II. RELATED WORK

Cloud computing helps to avail the resources to customer in an efficient way and today is considered in one of the most popular technique but apart from its benefits it has some crucial drawback. From all the major concerns related to cloud computing the most popular one is load balancing. It create a measure distribution during the process of cloud bursting that is sharing of resources between private and public cloud when capacity spikes in private cloud and it is unable to satisfy its user requirement

Since the number of cloudlets and timing of cloudlets is not fixed or limited in cloud computing so during run time or in dynamic environment the use of existing static load balancing algorithm are not sufficient because it can increase the problem of load balancing.To deal with problems related to static algorithm in cloud computing. We use the concept of dynamic load balancing in cloud computing. The major reason of choosing dynamic algorithms are that here the number of cloudlets and number of users are not fixed and the load balancer are able to deal with all possible problems such as increase in number of users, number of cloudlets ,number of resources and helps in maintaining fault tolerance by using the concept load sharing between virtual machines.

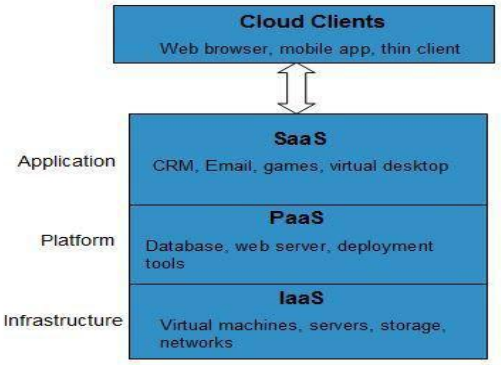

Fig 1.2 Cloud Service Structure

III. PROPOSED WORK

Cloud computing is efficient and scalable but maintaining the stability of processing so many jobs in the cloud computing environment is a very complex problem with load balancing receiving much attention for researchers. Since the job arrival pattern is not predictable and the capacities of each node in the cloud differ, for load balancing problem, workload control is.crucial to improve system performance and maintain stability. Load balancing schemes depending on whether the system dynamics are important can be either static and dynamic. Static schemes do not use the system

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information and are less complex while dynamic schemes will bring additional costs for the system but can change as the system status changes. A dynamic scheme is used here for its flexibility.

IV. PROPOSED METHODOLOGY

There are many simple load balance algorithm methods such as the Random algorithm, the Weight Circular Robin, and the Dynamic Circular Robin.The Round Robin algorithm is utilized here for its simplicity.
The Round Robin algorithm is amongst the simplest load balancing algorithms, which passes each new request to the next server in the queue. The algorithm does not record the status of each connection therefore it has no status information. In the regular Round Robin algorithm, every node comes with an equal opportunity to be preferred. However, in a public impair, the configuration and the performance of each node will be not similar; thus, this method may clog some nodes.

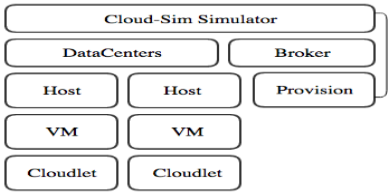

Figure 1.3 Block diagram of Components of Proposed System

4.1 Cloud Sim Simulator

Cloud Sim is the many efficient tool you can use with regard to modeling regarding Cloud. during your current lifecycle of an Cloud, Cloud Sim allows VMs for you to be managed coming from hosts that will inside turn are usually managed by data centers.

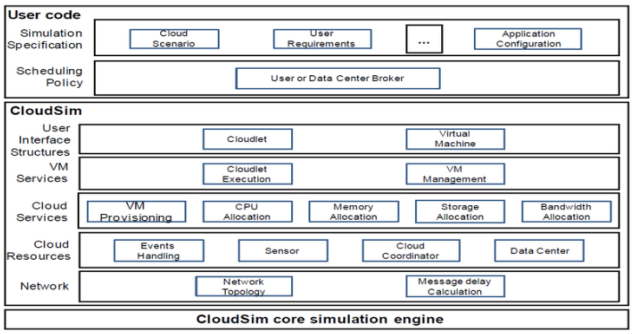

Figure 1.4 Cloud Sim Architecture

V. RESULTS ANALYSIS

Proposed system implemented in NetBeans using advanced JAVA. Cloud simulator is simulated for simulation with different configuration. Before simulation we configure many parameters like number of datacenters, number of cloudlets, VM configuration, bandwidth and MIPS.Round Robin and Modified Round Robin evolution with following configuration which show in below.

Simulation Parameters	
Parameters	**Values**
Number of users	4
Number of VMs	5
Number of Cloudlets	30

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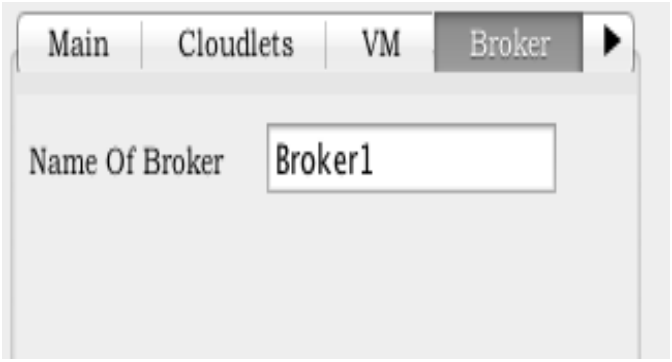
Cloudlets Details	
Parameters	**Values**
Cloudlets Length	40000
File Size	300
Output Size	300
PES	1

VM Details	
Parameters	**Values**
Name of VM	Xen-VM
RAM	512
MIPS	250
BW	1000

Datacenter Details	
Parameters	**Values**
Number of Datacenters	2
MIPS	1000
RAM	16384
Storage	1000000



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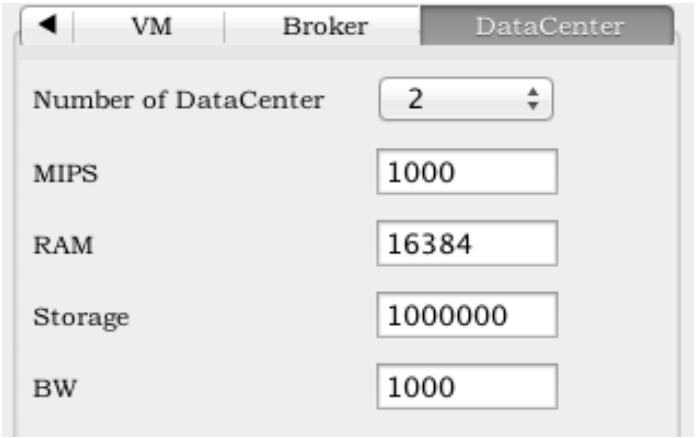

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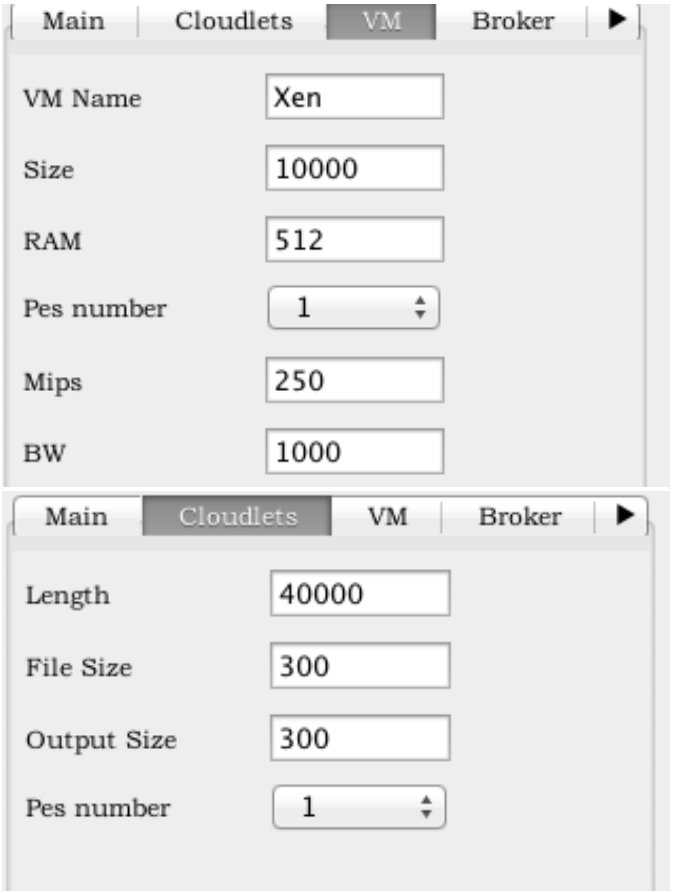

Figure 5.1: Configuration Details of Cloud-Sim Simulator

V. CONCLUSION

This paper presents a concept of Cloud Computing along with research challenges in loadbalancing. It also focus on merits and demerits of the cloud computing. Major thrust is given onthe study of load balancing algorithm, followed by a comparative survey of these abovementionedalgorithms in cloud computing with respect to stability, resource utilization, static ordynamicity, cooperative or non-cooperativeness and process migration. This paper aims towardsthe establishment of performance qualitative analysis on existing VM load balancing algorithmand then implemented in CloudSim and java language

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