

Honey Bee Behavior based Load Balancing of Tasks in Cloud Computing

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Abstract— Cloud computing is the most popular technology in recent years. cloud computing defined as the practice of using a network of remote servers hosted on the Internet to store, manage, and process data, rather than a local server or a personal computer now a days users are using the cloud computing more and more when certain VMs are overloaded and that VMs will not able to performance any other tasks and other task will be sent to the under loaded VMs. For an effective time response balance the loads among the overloaded and under loaded virtual machine .This paper, based on the Honey bee behavior of load balancing based on cloud computing, which helps in achieving the task on balancing the load on the virtual machine and also helps in average execution timing, response rate will be faster, and reduction in waiting time of tasks.

Key words: Virtual Machine, Load Balancing, Cloud Computing, Honey Bee Behavior, Foraging

I. INTRODUCTION

Cloud computing is a computing paradigm, where a large pool of systems are connected in private or public networks, to provide dynamically scalable infrastructure for application, data and file storage. With the advent of this technology, the cost of computation, application hosting, content storage and delivery is reduced significantly.

The characteristics of cloud computing include on-demand self-service, broad network access, resource pooling, rapid elasticity and measured service. On-demand self-service means that customers (usually organizations) can request and manage their own computing resources. Broad network access allows services to be offered over the Internet or private networks. Pooled resources means that customers draw from a pool of computing resources, usually in remote data centers. Services can be scaled larger or smaller; and use of a service is measured and customers are billed accordingly.

Cloud Providers offer services that can be grouped into three categories.

The cloud computing service models are Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS). In a Software as a Service model, a pre-made application, along with any required software, operating system, hardware, and network are provided. In PaaS, an operating system, hardware, and network are provided, and the customer installs or develops its own software and applications. The IaaS model provides just the hardware and network; the customer installs or develops its own operating systems, software and applications. PaaS models are amazon, web load balancing is difficulty comes in many application they produce an effect a crucial role in the operation of distributed and parallel computing systems. Load-balancing deals in dividing a program into small tasks that can be executed paralleled and assigning each of these jobs to a

computational resource such a processor or computer. Load balancing will help in assign job to the VMs which is under loaded and tries to balance the load on the network.

In Gartners description, considered cloud computing as the first accompanied by peak 10 most important technologies and once a bigger prospect in successive years by companies and running and cloud will fine-impression to the IT industry.

Cloud computing is provides a on demand service that provides parallel and distribution and computing .In an cloud computing environment , the virtual machine will check whether the machine is under loaded or overloaded . If the machine is over loaded the task will not be assign to that VMs, will be going to assign the task to under loaded machine. This way we reduce the time of execution and make the processes work in faster rate. And the main thing will balance the load on cloud or VMs.

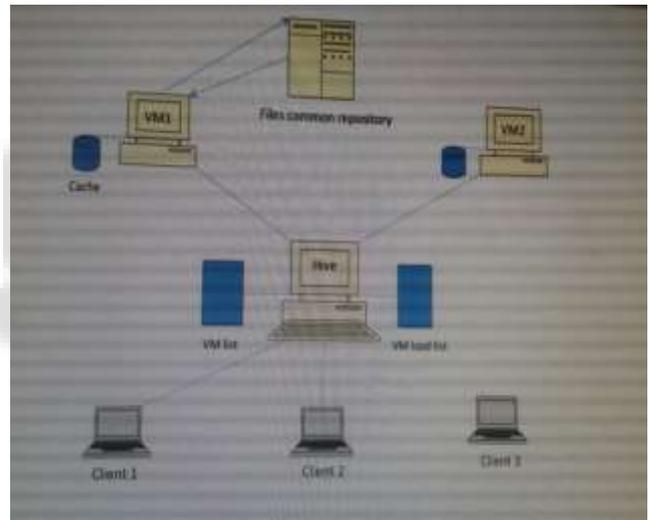


Fig. 1: Diagram showing load balancing of tasks requested by user over the file repository in cloud computing.

II. EXISTING SYSTEM

A. Existing Load Balance Approach in Distributed Network:

1) A Fast Adoptive Load Balancing Method

D. Zhang et al. proposed a binary structure tree, according to work load of the machine objective will maintain the load balancing from local area to global areas. Considering the local work load, main work load will only concentrate few vertices and the very long procedure and take more time consumption .This algorithm makes faster balancing rate and less time consumption. In this demerits are it can't maintain the neighboring node topology.

2) An Adaptive and Dynamic Load Balancing Algorithm for Concurrent File System

Based on the distributed architecture, B. Dong el proposed a dynamic file migration load balancing algorithm. This algorithm is based only on centralized system. Due to large

file size dynamic file migration problem arises. In dynamic load balancing algorithm, the variation in the workload takes place continuously .So decision making algorithms are required. In this central node who is decision maker, so no other decision maker expect central node. So if central node fails, the total system fails giving less reliability. Next the organization decision maker in which the total system should be not speaking in to groups hence that the communication cost becomes shortened. The disadvantage is due mass effect degradation of the mass system occurs.

3) Heat Diffusion Based Dynamic Load Balancing

Distributed virtual environments are becoming very popular in recent years. One of the main research problem in DVEs is on how to balance the work load when a lot of concurrent users are accessing it .in this algorithm we propose a dynamic load balancing approach for DVEs based on the heat diffusion approach .which as been proved effect and efficient dynamic load balancing .first it had an efficient cell selection scheme to identify and select appropriate cell for load migration .second it uses two heat diffusion based load balancing that is local and global diffusion. Advantage is communication over head is less and tiny calculation. And disadvantage is because of several iteration time as been wasted.

III. PROPOSED SYSTEM

A. Honey Bee Behavior Algorithm

A colony of honey bees go in search of food resources such as flower patches and these bees harvest nectar or pollen from these resources from a long distances. A small part of colony find food resources such as flower patches. When the food resources for honey bees are encountered then the scout bees will go in search of efficient and effective food. Then the scout bees will return to the hive and will harvest the collected food. And then there is an area where the bees will perform the “Waggle dance” in the “Dance floor” specifying the presence of qualified food. Through this waggle dance the scout bees will help the idle spectator bees to search for flower patches. The duration of dance will be according to the scout’s rating for the food source to harvest the best rated food source and more foragers will be recruited. After the dance is done, the scout bees will return to the food resources then it found to see for more food. Still the qualified food is profit to the bees, the scouts bees, the food resources will be posted by the scouts bees when they are back to the hive.

IV. PROPOSED FLOW CHART

This flow chart is proposed by inspiring the behavior of honey bee. All the VMs will balance with proper loaded by considering there Max and Min rate of work. If the task computed by VMs is more than the Max, it’s called overloaded VMs so it will stop assigning the task to that machine. Under loaded virtual machines will be assigned by the task, since other VMs will be overloaded in the network. The process of assigning the job to the VMs will be based on the concept of the VMs which is able to perform more job the VMs machine will be assigned first. The VMs perform less job will assign with tasks.

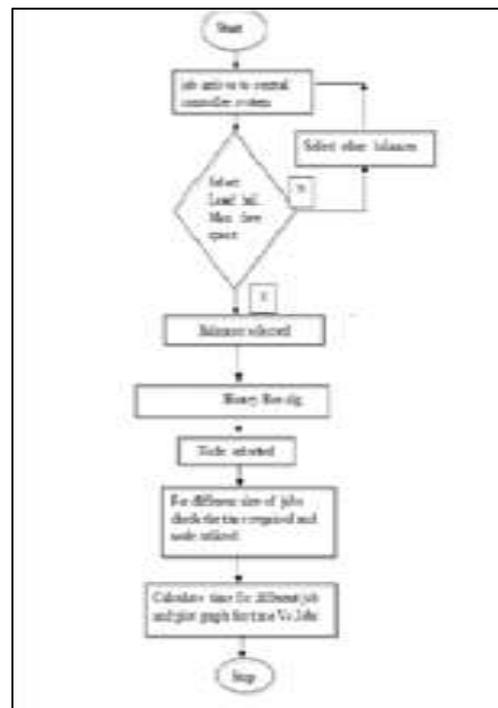


Fig 2: Flow Chart of Honey Bee Behavior based Load Balancing in Cloud Computing

V. CONCLUSION AND FUTURE WORK

In this paper the flow chart for a load balancing tasks in cloud computing using honey bee behavior has been proposed. The task are sent to the under loaded machine and next tasks are sent to that VMs still the machine gets over loaded like foraging bee. This algorithm improves the throughput of processing and also parallel processing based on priority scheduling .Hence, the response of time of VMs will be reduced. The comparison with other existing algorithm has been done. This algorithm shows the increased throughput.

The future enhance are the client at a time can access the more files from the server and the more clients will be able to access the same file.

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