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RESEARCH ARTICLE

REVIEW ON LOAD BALANCING IN CLOUD COMPUTING

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ABSTRACT

Cloud computing is storage on internet which is accessible from anywhere. The data can be shared with anyone and cannot be lost. Cloud environment user have to pay for the service they used. Energy efficient cloud computing is the hot research area now a day. Due to unmanaged load, system performance can be slow load. Load balancing stands for distributing a load among various nods. Balancing is ensure that no single node is overloaded. Previous research on load balancing introduced many scheduling algorithm which conclude optimum results. This paper discuss those load balancing algorithm and there result comparison in cloud based environment.

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INTRODUCTION

Cloud computing is a newly introduced technology which provides online storage according to user requirement at cost efficient manner. Cloud computing is very flexible technology for user because user access his data from anywhere through internet. The concept of cloud computing is similar to distributed computing in which many connected systems runs one application at the same time. A large number of organizations is turning towards the cloud service including advertisement service. Cloud have a services like online games, and market activities and many other. Load balancing is a technique which decides how much load contain by one node and there are various nodes connected in the load balancing system which chooses what scheduling algorithm should be used for load balancing for more appropriate result.

1. Performance monitoring system
2. Security problems
3. Make efficient load balancing
4. Needed fast internet connection
5. Need resource scheduling

Load balancing in cloud environment

Cloud computing is virtualization. Cloud contains three major component first is data centers which is collection of hosting servers second is distributed servers and third is clients. The cloud systems is provides four types of services:

1. Software as a Service (SaaS)
2. Platform as a service (PaaS)
3. Infrastructure as a Service (IaaS)
4. Hardware as a Service

Load balancing is the key issue of cloud computing .load balancing is used for distributing big loads to small nodes for improving overall system performance. It helps high user satisfaction and proper resource utilization. Load balancing helps in reduced resource consumption. It also helps network to provide maximum throughput and minimum response time.

Load balancing algorithms

A large and complex network systems contains huge load on network and in cloud system there are many servers and distributed nodes in system so that load balancing is needed for those system for less energy consumption is also done, due to load balancing more energy release due to overloaded systems. There are two kind of load balancing algorithm:

1) Static algorithm

Static load balancing algorithm divides the traffic among the servers the traffic on servers will be Despicadleeasy. Static algorithm assumes that arrival time of task will be zero.

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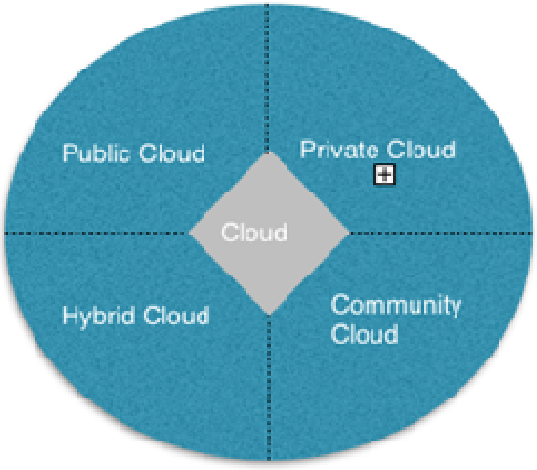

Figure 1.Cloud Deployment Models

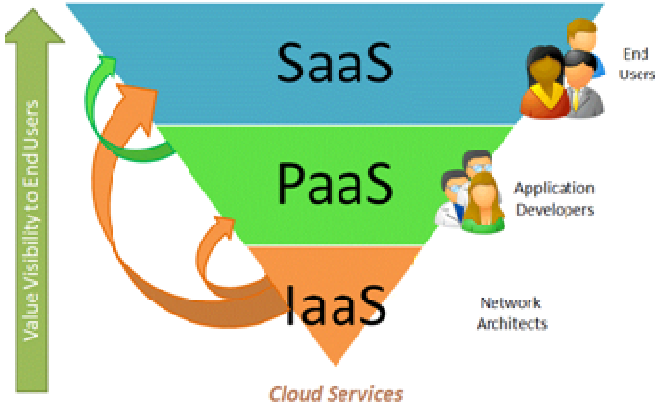

Figure 2.Cloud Service Models

very important because if the time slice is very large then it makes no difference between round and first come first serve (FCFS). If the time slice is too small then it is called processor shearing algorithm and the quantity of context switches is very large.

B. Shortest job algorithm

Shortest job first is scheduling algorithm in which the job selected to be first execute is must be shortest among all the jobs. It can be like priority shorting and shortest job have high priority. the disadvantage of this algorithm is the lowest priority job executes after long time and it takes long time to be execute and other tasks waits for execution for long time.

C. min-min algorithm

It is a static load balancingalgorithm in which the parameters associated to job are known previously. The cloud manager identified all waiting jobs completion time and execution time. It begins with set of all pending jobs. Firstly cloud manager calculate the time taken to be complete. the maximum execution time job is assigned first to execute to the processor, so that is the reason the task is complete in given time and the Job with minimum completion time is selected and the ready time is updated and task with maximum execution time is wait for longer to be assigned to processor. Disadvantage of this algorithm is it leads for starvation.

D. Min-Min algorithm

It is same as previous (min-min) algorithm, where the maximum job selected. Only once minimum jobs are completed. It is also static algorithm and it is work as opposite strategy with min-min algorithm.

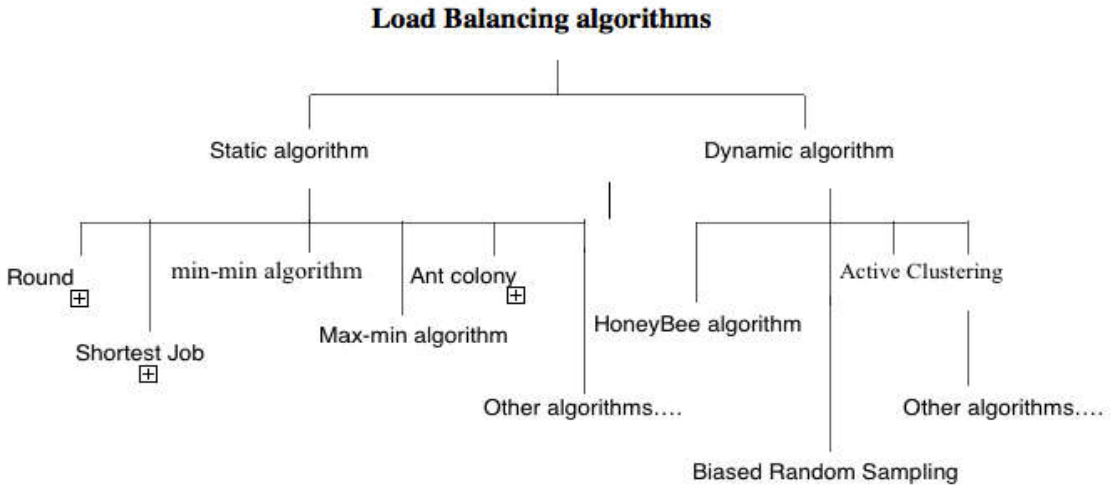

Figure 3.Types of Load Balancing Algorithm

These are some static load balancing algorithms:

A. Round Robin algorithm

Round robin is one of the static load balancing algorithm .it is use job allocation for round robin algorithm. It follow time slice while data is processing. Each process executes with in time segment or time slice and then switch to other process. And follow the circular manner. Round robin time quantum is

E. Ant colony algorithm

This approach is Meta heuristic for load balancing system. This approach is based on real concept of ant nature and network which process the job. His main goal of this algorithm is distribute the load among the server in proper appropriate manner. Whenever the request will be sent the ants starts moving through the top.

2) Dynamic algorithms

Dynamic load balancing algorithm is selects the proper load on server it search all network and find the lowest waited server or light waited server to control the traffic. But while selecting it needs proper communication within network it leads extra traffic. T Some of among dynamic load balancing algorithms are given below:

A) Honeybee Foraging Load Balancing Algorithm

This is one of dynamic load balancing algorithm which is based on the natural behavior of honeybees. Honeybee slotted into two categories first is finders and second is reapers. Finders helped in finding honey when find they indicate the quality of available honey and then reapers collect honey from source. In load balancing concept servers are bonded as a virtual servers where each virtual server has a queue once the request is accepted to be in queue it calculates the profit quantity as a bee.

B) Biased Random Sampling Algorithm

Biased random sampling is also dynamic load balancing algorithm. Random sampling is used for getting the load balancing among the nodes. In this algorithm each server is noted as vertex in the directed graph. Whenever the request coming from client to load balancer, and load balancer assign the job to node which have minimum of one in - degree.

C) Active Clustering load balancing Algorithm

It is betterment of random sampling as can say it is improved biased random load balancing algorithm. The clustering concept is used in this algorithm. The algorithm working on clustering so main principle is grouping similar type of nodes together and working on those groups. By the grouping node thing to improve throughout of the system.

Conclusion

Cloud computing has a wide area and load balancing is plays important role for cloud computing environment. There are number of algorithm in static and dynamic types of algorithm above some of them shown and clarify the type of algorithm, is this static ordynamic. So by the above comparison the ant colony gives better result than other.

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