

# Public Cloud Partition using Load Status Evaluation and Cloud Division Rules

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**Abstract**— with growth of cloud computing load balancing is important impact on performance. Cloud computing efficiency depends on good load balancer. Many type of situation occur that time cloud partitioning is done by load balancer. Different type of situation needed different type of strategies for public cloud portioning using load balancer. In this paper we work on, partition of public cloud using two type of situation first is load status evaluation and second is cloud division rules. Load status evaluation is measure in number of cloudlets arrives at datacenter and cloud divisions rules are based on cloudlet come from which geographical location. On the basis of geographical location we partition public cloud and improve performance of load balancing in cloud computing. We implement proposed system with help of cloudsim3.0 simulator.

**Key words:** Load Balancing, Public Cloud, Cloud Partition, and Round Robin

## I. INTRODUCTION

Cloud Computing has become the most viable solution for the problems that are computation intensive. Cloud provides the method of sharing resources and services to user on demand. Virtualized resource and services can be used without the knowledge of geographical differences. Cloud computing provides mechanisms that concentrate on run time demand of computing resources, like storage, availability, software etc.

The available Cloud platforms distinguish among the service type, the cost, the Quality of Service (QoS) as well as performance. This fact brings Cloud customers the flexibility of freely selecting target architecture from broad range of Cloud platforms. However at the same time, this raises the issue of the interoperability among the different Clouds [13].

Development of efficient service provisioning policies is the major issues in Cloud research. Modern Clouds exist in an open world characterized by constant changes occurring autonomously and unpredictably. In this context, game theoretic methods allow in-depth analytical understanding of the service provisioning problem [2]. The cloud computing mainly offers three types of services viz: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS).

## II. RELATEDWORK

- 1) Gaochao Xu, Junjie Pang, and Xiaodong Fu “ A load Balancing Model Based on Cloud Partitioning for your Public Cloud” [Tsinghua Science and Technological innovation, February 2013]. Load balancing from the cloud computing environment has an important impact on the performance. Good load balancing makes cloud computing more cost-effective and improves user satisfaction. This article introduces a far better load balance model for the public cloud good cloud-

partitioning concept with a switch mechanism to pick different strategies for different conditions.

- 2) Abhijeet G Purohit. ”Load balancing in public impair by division of cloud good geographical location”. Load balancing can be a method of controlling the traffic in a cloud environment. Cloud applications hunt for resources for execution. The resources is usually storage, processing, bandwidth, etc. Allocation these resources efficiently to all the competing jobs is named as load balancing. In this kind of paper, we describe load balancing in a public cloud by partitioning this cloud into several sub-clouds. This division of public impair into several sub-clouds is done good geographical location. In this approach we work with a central controlling system that monitors every one of the sub clouds. Here, every sub cloud carries a balancer system which monitors this resources in its sub impair and allocates the available resources towards the competing jobs. These balancer systems also speak with the central controlling system in regards to the status of the respective sub-contract cloud. Based on this information this central controlling system selects the optimal sub cloud.

- 3) Ms. Shilpa Deborah. More et. ”Reviews of Load Balancing Depending on Partitioning in Cloud Computing” [International Journal of Computer Science and Info Technologies, Vol. 5 (3), 2014 ]. Load Balancing Model Depending on Cloud Partitioning for the Public Cloud environment comes with a important impact on the effectiveness of network load. A cloud computing system which isn't going to use load balancing has many drawbacks. Now days the use of Internet and related resources has increased widely. Due to this there exists tremendous increase in workload. So there exists uneven distribution of this workload, which results in server overloading and may accident. In such systems the resources are not optimally used. Due to this kind of the performance degrades and efficiency reduces. Cloud computing efficient in addition to improves user satisfaction. This article introduces a far better load balance model for public cloud good cloud-partitioning concept with a switch mechanism to pick different strategies for different conditions. The algorithm applies the online game theory for load balancing technique to improve the efficiency in the general public cloud environment.

## III. EXISTING SYSTEM

Considering that the job arrival pattern isn't predictable and the capacities of each one node in the differ, for load managing problem, workload control is important to improve system performance and keep stability. Load balancing schemes determined by whether the system dynamics are essential can be either static as well as

dynamic. Static schemes do not use the system information and they are less complex while dynamic schemes brings additional costs for the system but can change because system status changes. A dynamic scheme can be used here for its freedom.

- Cloud computing environment can be a very complex problem along with load balancing receiving.
- The job arrival pattern isn't predictable and the capacities of each one node in the differ, for load managing problem, workload control is important to improve system performance and keep stability.

#### A. Load Balancing Algorithm

There are lots of simple load balancing algorithm methods for example the First Come First Served (FCFS), Round Robin algorithm, Equally spread recent execution algorithm and Throttled criteria. The FCFS and Throttled algorithms utilized here for their simplicity as well as provide good response time when compared to other algorithms.

**First Come First Served**

1. *Main Controller (Admin) maintains an index table of job requests.*
2. *The job requests are stored in the table on the basis of their arrival time. □ The Main Controller (Admin) scans the index table from top to bottom. □*
3. *The first job request according to the arrival time is allocated the grant by the Main Controller (Admin).*
4. *The HR receives the response to the request sent and then posts jobs by providing details about the interview.*

Fig. 1: First Come First Served.

**Throttled Algorithm:**

1. *The Main Controller (Admin) maintains an index table of job requests. □*
2. *The job requests are stored in the table based on the arrival time. □*
3. *The Main Controller (Admin) scans the index table from top to bottom. □*
4. *The Main Controller (Admin) grants the permission to post jobs and changes the REQUEST\_NEED flag to GRANTED.*
5. *The HR receives the response to the request sent and then posts jobs by providing details about the interview.*
6. *□ In this way only one job interview details is posted by a company at a time and if a Company HR wants to post another job then he should send job request again.*

Fig. 2: Throttled Algorithm

#### IV. PROPOSED SYSTEM

If cloud partition is idle, many computing resources can be found and relatively few jobs usually are arriving. In this situation, this cloud partition has the ability to process jobs as quickly as you possibly can so a simple load balancing method can be employed.

There are many simple load balance algorithm methods such as the Random algorithm, the Weight Circular Robin, and the Dynamic Circular Robin[12]. 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. Thus an improved Round Robin algorithm is utilized, which called "Round Robin based on the load degree evaluation"

- 1) Foreign division rules: Cloud division isn't a simple problem. Thus, the framework needs a detailed cloud division methodology. By way of example, nodes in a cluster may be far from other nodes or there will be some clusters in the same geographic area which can be still far apart. The division rule should simply be based on the geographic location.
- 2) How to put the refresh period for files statistics analysis, the main controller and the cloud partition balancers need to refresh the details at a fixed period. Should the period is too short, the high frequency will influence the device performance. If the period is an excessive amount long, the information will be too old to create good decision. Thus, tests and statistical tools are needed to set reasonable refresh times.
- 3) A load status evaluation: A good algorithm is required to set Load degree high along with Load degree low, and the particular evaluation mechanism comprehensive. There are various cloud computing categories with this work devoted to a public cloud. A public cloud will depend on the standard cloud computing type, with service provided by a site provider [10]. A large public cloud will incorporate many nodes and the nodes in several geographical locations. Cloud partitioning is needed to manage this large impair. A cloud partition is a subarea of the public cloud with divisions while using geographic locations. The architecture is usually shown in Figure 1.

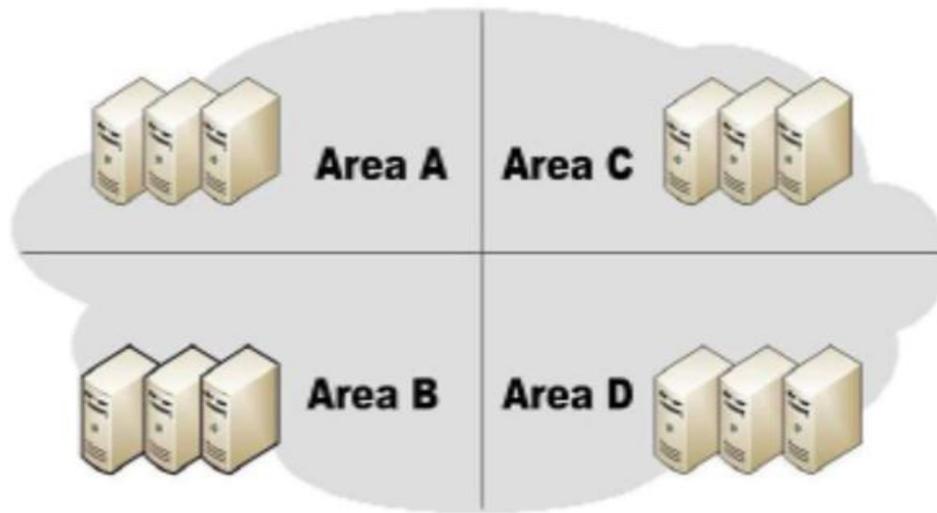


Fig. 3: Typical Cloud Partitioning.

Best partition bases of geographic location and load status evaluation 1.number of cloudlets come at datacenter for execution. Datacenter find the location of each cloudlet from request. After find the location datacenter calculate the requirement of resources for cloudlet and check it with

location based partition if it is available the assign these partition to cloudlet.

*A. Algorithm 1: Best Partition Bases of Geographic Location and Load Status Evaluation*

```

Cloud partition algorithm (cloudlets[n])
{
//cloudlets is array of jobs
//loc point location of each job;
// n is number of cloudlets
for i=1 to n
{
    loc[i]=find_location(cloudlets[i]);

    if{loc[i]=loc_of_partition1 and no_of_resources_cloudlet[i]< partition1_resources}
    {
        Assign cloudlet[i] to partition1;
    }

    if{loc[i]=loc_of_partition2 and no_of_resources_cloudlet[i]< partition2_resources}
    {
        Assign cloudlet[i] to partition2;
    }
}
}
    
```

**V. CONCLUSION**

The number of strategies lack efficient scheduling as well as load balancing resource allocation techniques leading to increased operational cost and give less client satisfaction. Load balancing in the cloud-computing environment comes with a important impact on the functionality. Good load balancing makes cloud computing more effective and improves user satisfaction. In this paper we have proposed a better load balance model for the job Seeker's Web Portal

based on the cloud-partitioning concept with a switch mechanism to settle on different strategies for different predicaments. Thus, this model divides the general public cloud into several cloud partitions. When the environment is large and complex, these divisions simplify the strain balancing. The cloud has a main controller that chooses the ideal partitions for arriving jobs dependent on arrival date. Thus with cloud partitioning concept you possibly can provide good load balancing thus improving the overall performance of cloud environment and user achievement.

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