ABSTRACT

In this Paper our algorithm works on Modification Minimum Migration Time Virtual Machine (VM) Selection Policy to help minimize overall execution time for every host machine. Entire result shows less execution time mean. These phenomena help to improve SLA Violation. That is also minimize number of Virtual Machine Migration (VMM) & Energy Consumption. My selection Policy based on cloudsim simulator 3.0 and provide best existing provision mechanism Like MadMnt.

Keywords – Virtual Machine Migration, Virtualization SLA, Eclipse IDE

1 INTRODUCTION

Cloud computing is a elevated acceleration and impressive technology in contemporary sketch. We are used that technology to betterment of charge and length of event or entity existence. This is formative over the convolution. Whole cloud data service provider capitalization the cloud computing that cooperate to constitute like cloud environment. It convey inconsiderable and expeditious preparation and structure through the Internet adopting personalized web browser. In cloud service providers to flotation IT insurgence and amount betterment for a company. Cloud service provider have assorted services

2 RELATED WORK

In [1] clarify adaptive heuristics for dynamic VM consolidation tackled some problem and stretches some good algorithm which is overwhelmed problems, but main problem is 1) Host Overloading Detection and 2) VM selection

2.1 Mean Absolute Value

The Median Absolute Deviation (MAD) is a measure of statistical distribution. It is a more healthy estimator of gauge than the model variance or standard deviation.

For a univariate data set \(X_1; X_2; \ldots; X_n\), the MAD is definite as the median of the absolute deviations from the data value for median:

\[
\text{MAD} = \text{median}(|X_i - \text{median}(X_j)|); \quad \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots [5]
\]

that is, starting with the residuals (deviations) from the data’s median, the MAD is the median of their absolute values.

We define the upper utilization threshold (\(T_u\)) as shown in

\[
T_u = 1 - s \_ \text{MAD}; \quad \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots [6]
\]
2.2 Minimum Migration Time

This policy to use in VM Selection in cloud data center. The Minimum Migration Time (MMT) policy migrates a VM $v$ that wants the minimum time to whole a migration comparatively to the other VMs billed to the host. The migration time is estimated as the amount of RAM exploited by the VM separated by the network bandwidth available for the host $j$. Let $V_j$ be a set of VMs currently allocated to the host $j$. The MMT policy finds a VM $v$ that satisfies conditions formalized

$$\exists v \in V_j \land \exists \forall v_j, (\text{RAM}_u(U) + \text{NET}_j) \leq (\text{RAM}_u(a) + \text{NET}_j) \quad \ldots \ldots \{6\}$$

where $\text{RAM}_u(a)$ is the amount of RAM currently utilized by the VM $a$; and $\text{NET}_j$ is the spare network bandwidth available for the host $j$.

2.3 SLA

Service level agreement is work to support to the customer provide cloud service by service provider. In 2010, Beloglazov and Buyya [1] proposed a VM merging mechanism using adaptive threshold. The adaptive threshold is dynamically resolute based on statistical investigation with historical data collected during the lifetime of VMs. In this study, the authors exposed that the average presentation poverty including service interruption or VM migration time for Web-based applications is around 10% of the total CPU utilization. It indicates that VM migration may trigger Service Level Agreement (SLA) violation; therefore, cloud service providers should minimalize the number of VM migrations. In 2012, Beloglazov and Buyya [1] showed inexpensive analysis among several heuristic VM provisioning mechanisms based on various application workload decorations. Based on simulation results, MadMmt provisioning mechanism is the best scheme among selected heuristic VM provisioning mechanisms. Two SLA violation metrics were familiarized in their study: the SLA violation time per vigorous host and performance degradation in terms of CPU exploitation percentage unpaid to VM migrations.

3. THE PROPOSED PROVISION MECHANISM

A shortened lined relationship between CPU exploitation and power consumption is embraced as the power model for cloud data center Commonly, VM migration is measured as methodical migration and animate migration. Systematic VM migration interactions a VM by stopping the VM inside the recent host, replication equivalent memory constituents of this VM to some impermanent buffer or hard disk, resurrecting the VM on the fresh host and then replenishing the memory substances mainstay to the VM from the temporary buffer. Live VM migration reaches the identical coherent migration practice while it does not essential to halt the VM through the evolution period. We approve alive migration manner is embraced for VM provisioning. The migration responsibility model is expressed as the presentation poverty proportion (i.e. 10% based on [1]) times the CPU exploitation ratio of the tormented VM through its sentient migration time period. The conscious migration interval is premeditated as the worth of the whole quantity of memory used by the VM separated by accessible network bandwidth. Operator SLA is demarcated as the whole computing resource pleaded by a VM, which is signified by the quantity of Million Instructions Per Second (MIPS). If obtainable MIPS quantity from a host cannot fulfill the MIPS requirements from VMs which exist in on it, we demand that a SLA destruction transpires.

The host overloading recognition scheme, the VM selection sketch and the VM appointment sketch. The host overfilling recognition sketch oversees when to migrate VMs from one host to another host. The VM selection sketch legalizes which VM(s) to be migrated from an overloading host. The VM expenditure sketch regulates to which host(s) the migrating VM(s) should be located. The CPU consumption ratio of a host is defined as the worth of the entire assigned MIPS for VMs separated by the whole MIPS volume in the host. If the CPU consumption ratio of the embattled host does not permit the pre-defined beginning, then this sketch will checked. The VM selection sketch will be initiated once a host is incoming the overloading admonitory status. Minimum Migration Time (MMT) policy [1]. These policy to help the reduce energy consumption, less no of VM migration and mean. Our mechanism is basic change inside the VM migrate function then give better output to exiting policy MadMmt.

**Algorithm 1 VM Selection Policy**

1. Input : HOST  Output: Vm ID to Migrate
2. getMigratableVms(host) $\rightarrow$ PowerVmList
3. if migratableVms.isEmpty() then return NULL;
4. assign Vm vmToMigrate = null;
5. assign minMetric = Double.MAX_VALUE;
6. foreach VM in migratableVms then
7. if vm.isInMigration() then continue;
8. assign metric = vm.getRam();
9. if metric < minMetric then
10. minMetric = (metric + mimMentric)/2;
11. vmToMigrate = vm;
12. return vmToMigrate;

4. SIMULATION EXPERIMENTS

CloudSim 3.0 is used to build the Recommended VM Selection provisioning mechanism and preform simulation experiments. In order to simulate our mechanism in cloud data center in eclipse IDE, we employ real data of power consumption delivered b. We are simulate in some host machine. We are takes Physical host machine is HP Proliant ML 110 G3. Inside machine “xeon” OS ,1*(3000 MHZ cpu with 2 core) and 4 GB RAM and Simulation machine is Dell .inside machine “window 8” OS ,2.40 GHZ cps with 2 core and 6 GB RAM

We gets Result as valuation exits provisioning mechanism in VM selection policy Mad Minimum Migration Time represent in figure

<table>
<thead>
<tr>
<th>Metrics</th>
<th>MadMmt</th>
<th>Our Mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>The no of VM Migration</td>
<td>5265</td>
<td>4795</td>
</tr>
<tr>
<td>Energy consumptions</td>
<td>45.61 kwh</td>
<td>44.80 kwh</td>
</tr>
<tr>
<td>Total Execution time mean</td>
<td>0.01234 sec</td>
<td>0.01093 sec</td>
</tr>
</tbody>
</table>

Table 1 Comparison of policy

![Figure 15 No of VM Migration](image)

![Figure 16 Energy consumptions](image)

![Figure 17 Total Execution time Mean](image)

1. Minimum Migration Time VM selection policy
2. Our mechanism
5. CONCLUSION AND FUTURE WORK

This paper embellish the concept of virtual machine selection and playing prominent role in accredit the chore in a cloud computing environment for equitable load distribution. Improve number of virtual machine migration and execution time of jobs in the system. Using over algorithm we get less execution time and reduce number of VM migration selection policy. Our algorithm provide less virtual machine migration to increase the storage capacity of MMT. In future work, improve the VM selection policy to get better advantages in cloud in cloud environment.

REFERENCES


