

Enhanced Minimum Utilization VM Selection Mechanism for Clouds

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Abstract— Now these days many organizations are work with cloud environment to enhanced resources utilize for customer /company. Every service provider provide service at rate of time. this paper are introduce Virtual Machine policy which is used in cloud data canter. In side Paper update Minimum Utilization VM selection policy to help CPU utilization of machine and less time consume to selection of virtual machine in runtime. In term of time energy & resource etc. like MadMuu.

Keywords— CloudSim 3.0, Eclipse IDE, SLA

I. INTRODUCTION

Cloud Computing is technology to help latest scenario for updating different platform. It is used in networks, memory, storage etc[1]. Cloud in IT world can be observed as a package of resources which can run any application in this whole world. It provide service on demand and the user has to pay for the amount of time it has used those services.Cloud environment used in different area as per requirement with less cost. Its provides mainly Infrastructure as a Service (IaaS), Platform as a Service (PaaS) and Software as a Service (SaaS). Clouds also define other service but cloud computing also works as area like Public, Private, Hybrid & Community. It put own benefits reduce energy consumption, less time taking to providing service in network with less cost requirement. Cloud service is dynamically, consistent over other service provider. It helps to accuracy of service provider. Cloud environment depend cloud data centers which is makes with Host, Virtual machine & Cloudlets(task) in Fig 1.Clouds to increase numbers of service at a time for customer and faster also.

In this paper we are explain own mechanism which is introduce section wise. Section second explain relative discuss between previous paper and about relative field, section third explanation about own implement mechanism, section forth analysis and result in cloud environment and last section is conclusion of paper and future work.

II. RELATIVE WORK

In Paper [3] Ts`epoMofolo, R Suchithrais shown the minimum migration time as well as minimizing numbers of VM migration. Host allocation policy in best fit algorithm to modification in the selection to allocate to use vm creation

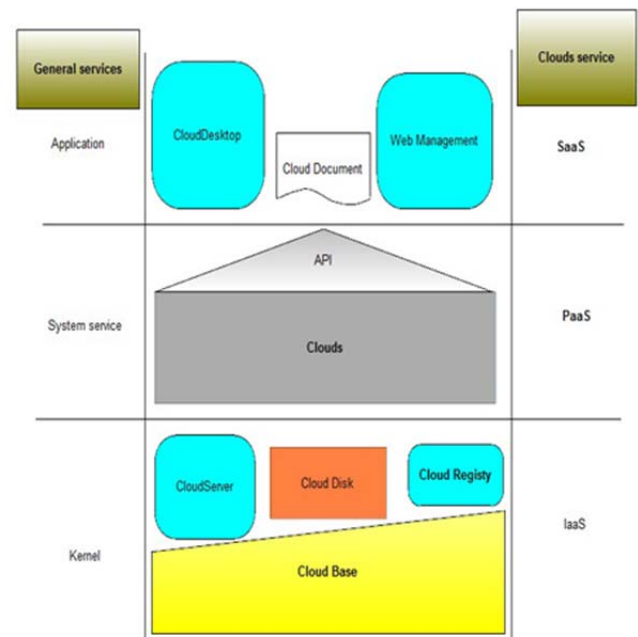


Fig. 1 Architecture of cloud computing

. That reduce VM migration but some factor increased like SLA

R. N. Calheiros, Rajiv Ranjan, Anton Beloglazov, C.A.F De Rose, RajkumarBuyya [2] defined about the Simulation techniques and the CloudSim. They described the numerous features of CloudSim like it supports for modelling and simulation for great scale of cloud computing infrastructure counting data centers on a single physical computing node.

In paper [4] Anton Beloglazov, and RajkumarBuyya, discuss adaptive heuristics for dynamic Virtual machine alliance gives some policy. To resolve host allocation and vm selection which is define allocation of physical machine.

A. Mean Absolute deviation

This policy used for Virtual Machine allocation policy in cloud data center [4]. Its decide to migration of machine upper and lower threshold and adjust between that .when utilization threshold below the lower the host utilization to be switched mode in order to obliterate idle power consumption.

If the utilization overdoes the upper threshold then some machine have to be migrate and then utilization reduce to causes of overdoes. & also prevent potential SLA violation

Few technology to announce utilization thresholds to be help of statistical [5] analysis historical data collected in session of VMs. It find the variance or deviation.

Mean Absolute deviation (MAD) collected data set is $X_1; X_2; X_3; \dots; X_n$ then MAD is find the

$$MAD = \text{Median}_i(|X_i - \text{Median}_j(X_j)|) \dots\dots\dots [6]$$

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

$$T_u = 1 - s_MAD; \dots\dots\dots [7]$$

B. Minimum Utilization

This policy is used in clouds environment. Policy is work inside the cloud data center. Minimum utilization(MU)to use migration of VMs that's best utilization as comparatively other migration policy of VMs .Minimum utilize CPU that cause system have some relief and host free very frequently.

III. PROPOSED MECHANISM

In based on [2,3] explain relationship between power consumption and CPU utilisation. Generally VM migration is animate and systematic migration. Where systematic migration is exchanging a VM by stopping the VM not work insufficient memory, hard disk failure and Host not allocate in the request of cloudlets. This mechanism can be support prevent of system failure and resource relief to better work.

In minimum utilization count the total utilization CPU at Million Instruction Per Second (MIPS). Proposed mechanism can also that but is better to MU. If obtainable MIPS requirement quantity from a host cannot fulfil the MIPS requirement from VMs which exist in on it. We are request to Service Level Agreement (SLA) destruction transpires. Proposed mechanism can help to buffers who's use in VM migration

1. Get the list of VMs to migrate & hosts list.
2. If migratableVms list is empty then return nullandSetvmToMigrate is equals to null.
3. Set variable minMetric is equals to MAX_VALUE
4. Else if vm.isInMigration then getTotalUtilizationOfCpuMips(CloudSim.clock()) / vm.getMips()value of VM and allocate it to variable Metric.
5. If value of Metric is less thanminMetric then setminMertic is equals to value of average of Metric &minMetric
6. vmToMigrate isequal to value of vm
7. Return vmToMigrate

IV. RESULT AND ANALYSIS

CloudSim toolkit [8] has been preferred as a simulation platform, as it is a contemporary simulation framework embattled at Cloud computing environments. We have another simulation toolkits (e.g. SimGrid,GridSim), but its allow the modelling of virtualized environments, subsidiary on demand resource provisioning, and their management. It

has been stretched to enable energy aware simulations, as the coreframework does not provide this ability. Apart from the energy consumption modelling and accounting tothe capability to simulate service applications with dynamic workloads has been derived. The implementedextensions have been included in the 3.0 version of the CloudSim toolkit. In our experiment, we haveworked with just one datacenter. We took up with 50 host on this datacenter which in turn is running 50 virtual machines on those hosts.We are takes Physical host machine is HP Proliant ML 110 G. Inside machine "xeon 3040" OS ,1*(1860 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

TABLE 1

COMPARATIVE RESULTS OF POLICIES UNDER 50 HOSTS

Energy consumption		MadMU	Proposed policy
		47.36 kWh	44.80 kWh
Number of VM migrations		5628	4795
Number of host shutdowns		1632	1470
Execution time	VM selection mean	0.00029 sec	0.00011 sec
	HOST selection mean	0.00163 sec	0.00145 sec
	total mean	0.01547 sec	0.01055 sec

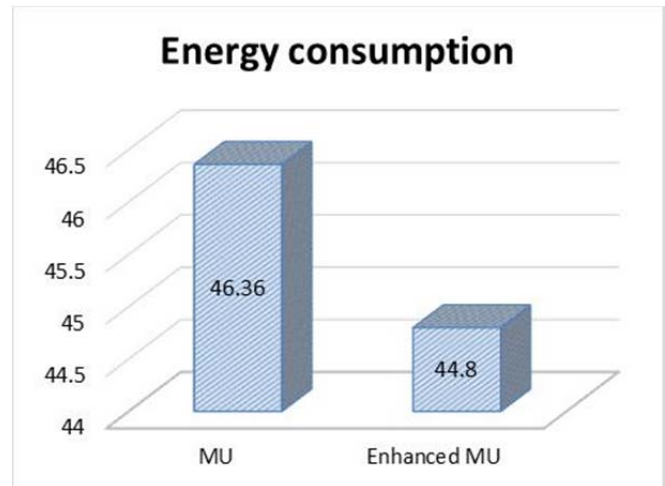


Fig. 2 Energy consumption

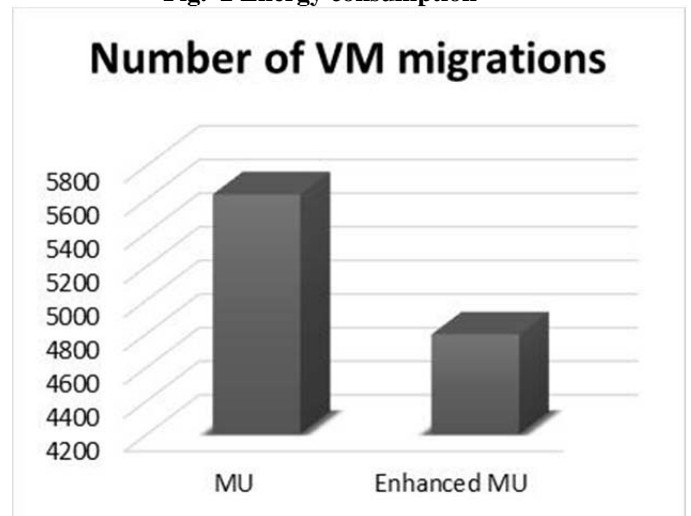


Fig. 3 No. of VM Migrations

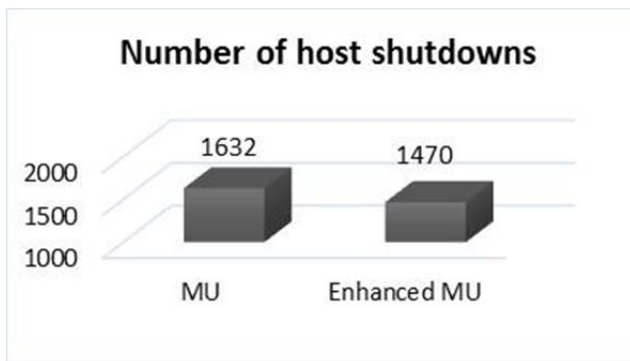


Fig. 4 No. of host shutdown

In this policy less time taken for VM selection and host selection as per Table 1. In Fig 2 shown less energy consumption over the exiting policy that energy to system processing. Fig 3 shown less number of VM migration in cloud data center.

V. CONCLUSION

To development of virtual machine selection and provisioning mechanism in cloud data center to achieving clouds environment load balancing. That algorithm improve response time and minimize no of virtual machine migration. it also increased Utilization of CPU in clouds. In future work, we have some improvement left like SLA violation and active host at a time. It also work in VM allocation policy to improve approx. 70% in bigger machine.

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