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A CLOUD COMPUTING AMBIANCE OF PROGRESSIVE SOURCE PORTION THROUGH VIRTUAL MACHINE

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ABSTRACT: Today Cloud computing is on demand as it offers dynamic flexible resource allocation, for reliable and guaranteed services in pay-as-you-use manner, to Cloud service users. So there must be a provision that all resources are made available to requesting users in efficient manner to satisfy customer's need. The emerging cloud computing paradigm provides administrators and IT organizations with tremendous freedom to dynamically migrate virtualized computing services between physical servers in cloud data centers. Virtualization and VM migration capabilities enable the data center to consolidate their computing services and use minimal number of physical servers. VM migration offers great benefits such as load balancing, server consolidation, online maintenance and proactive fault tolerance. However, in cloud computing environments the cost of VM migration requires thorough consideration. Each VM migration may result in SLA violation, hence it is essential to minimize the number of migrations to the extent possible. Failure to do so will result in performance degradation and the cloud provider will have to incur the cost in monetary terms. We develop a set of heuristics that prevent overload in the system effectively while saving energy used. Trace driven simulation and experiment results demonstrate that our algorithm achieves good performance.

KEYWORDS: **CloudComputing, ResourceManagement, Virtualization, GreenComputing**.

I.INRODUCTION

Olden days we are not using any cloud-computing concept. But now a days the use of cloud computing has increased step by step in many organizations. Cloud computing is a general term used to describe a new class of network based computing that takes place over the internet. In other words this collection/group of integrated and network hardware, software and internet infrastructure (called platform). Using the internet for communication and transport provides hardware, software and networking services to clients. "A cloud computing ambiance of progressive source portion through virtual machine" accordingly this paper small and medium companies use cloud computing services for various reasons including because these services provide fast access to their application ad reduce their hardware costs, it also save on electricity which contributes to a significant portion of the operational expenses in a large centers.

A recent Microsoft survey found that "58% of the public and 86% of business leaders are excited about the possibilities of cloud computing. But more than 90 percent of them are worried data as it rests in the cloud. Studies have found that servers in many existing data centers are often severely underutilized due to over provisioning for the peak demand. The cloud model is expected to make such practice unnecessary by offering automatic scale up and down in response to load variation. Besides reducing the hardware cost, it also saves on electricity which contributes to a significant portion of the operational expenses in large data centers. Virtual machine monitors (VMMs) like Xen provide a mechanism for mapping virtual machines (VMs) to physical resources. This mapping is largely hidden from the cloud users. Users with the Amazon EC2 service, for example, do not know where their VM instances run. It is up to the cloud provider to make sure the underlying physical machines (PMs) have sufficient resources to meet their needs. VM live migration technology makes it possible to change the mapping between VMs and PMs while applications are running. However, a policy issue remains as how to decide the mapping adaptively so that the resource demands of VMs are met while the number of PMs used is minimized. This is challenging when the resource needs of VMs are heterogeneous due to the diverse set of applications they run and vary with time as the workloads grow and shrink. The capacity of PMs can also be heterogeneous because multiple generations of hardware coexist in a data center.

We aim to achieve two goals in our algorithm: A cloud computing ambiance of progressive source portion through the virtual machine.

Cloud service providers should entire the security of the customers data and should be responsible if any security risk affects their customers service infrastructure. A cloud provider offers many services that can benefit its customers such s fast access to their data from any locations scalability pay-for-user, data storage, data recovery,

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protection against hackers, on-demand, security controls, and use of the network and infrastructure facilities.

Reliability and availability are other benefits of the public cloud, in addition to low cost-users of online data sharing or network facilities are aware of the potential loss of privacy.

II. EXISTING SYSTEM

Virtual machine monitors (VMMs) like Xen provide a mechanism for mapping virtual machines (VMs) to physical resources. This mapping is largely hidden from the cloud users. Users with the Amazon EC2 service, for example, do not know where their VM instances run. It is up to the cloud provider to make sure the underlying physical machines (PMs) have sufficient resources to meet their needs. VM live migration technology makes it possible to change the mapping between VMs and PMs while applications are running. The capacity of PMs can also be heterogeneous because multiple generations of hardware coexist in a data center cloud Computing promises lower costs, rapid scaling, easier maintenance and service availability any where any time, a jey challenge is how ti ensure and build confidence that the cloud can handle user data securely a recent Microsoft survey found that "58% of the public 86% of business leaders are excited about the possibilities cloud computing. But more than 90% of them are worried about security, availability and privacy of their data as it rests in the cloud". Cloud providers should address privacy and security issues as matter of high urgent priority. Dealing with single cloud providers is becoming less popular with customers due to potential problems such as service availability failure and the possibility that there are malicious insiders in the single cloud.

Disadvantages of Existing System

1.A policy issue remains as how to decide the mapping adaptively so that the resource demands of VMs are met while the number of PMs used is minimized.

2.This is challenging when the resource needs of VMs are heterogeneous due to the diverse set of applications they run and vary with time as the workloads grow and shrink. The two main disadvantages are overload avoidance and green computing.

III. PROPOSED SYSTEM

In this paper, we present the design and implementation of an automated resource management system that achieves a good balance between the two goals. Two goals are overload avoidance and green computing.

Overload avoidance: The capacity of a PM should be sufficient to satisfy the resource needs of all VMs running on it. Otherwise, the PM is overloaded and can lead to degraded performance of its VMs.

Green computing: The number of PMs used should be minimized as long as they can still satisfy the needs of all VMs. Idle PMs can be turned off to save energy.

PROPOSED ALGORITHAM

1) The Skewness Algorithm.
2) Load Prediction Algorithm.

IV. ADVANTAGES

We develop a resource allocation system that can avoid overload in the system effectively while minimizing the number of servers used.

We introduce the concept of "skewness" to measure the uneven utilization of a server. By minimizing skewness, we can improve the overall utilization of servers in the face of multi-dimensional resource constraints.

We design a load prediction algorithm that can capture the future resource usages of applications accurately without looking inside the VMs. The algorithm can capture the rising trend of resource usage patterns and help reduce the placement churn significantly.

V. MODULES DESCRIPTION

- ✓ **Cloud Computing Module.**
- ✓ **Resource Management Module.**
- ✓ **Virtualization Module.**
- ✓ **Green Computing Module**

1. Cloud Computing Module:

Cloud computing refers to applications and services offered over the Internet. These services are offered from data centers all over the world, which collectively are referred to as the "cloud." Cloud computing is a movement away from applications needing to be installed on an individual's computer towards the applications being hosted online. Cloud resources are usually not only shared by multiple users but as well as dynamically re-allocated as per demand. This can work for allocating resources to users in different time zones

Resource Management Module:

Dynamic resource management has become an active area of research in the Cloud Computing paradigm. Cost of resources varies significantly depending on configuration for using them. Hence efficient management of resources is of prime interest to both Cloud Providers and Cloud Users. The success of any cloud management software critically depends on the flexibility; scale and efficiency with which it can utilize the underlying hardware resources while pro-viding necessary performance isolation. Successful resource management solution for cloud environments, needs to provide a rich set of resource controls for better isolation, while doing initial placement and

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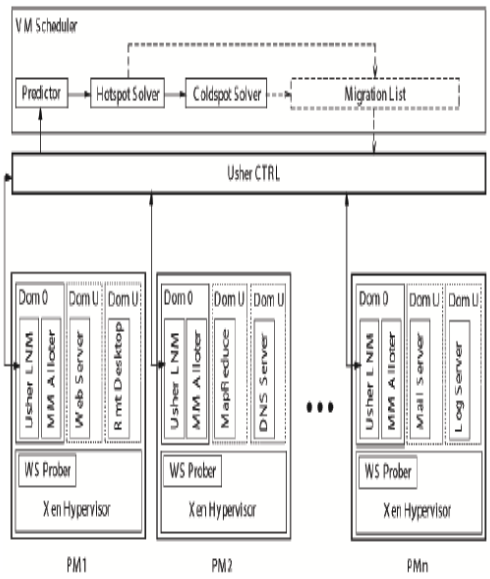
load balancing for efficient utilization of underlying resources

Virtualization Module: Virtualization, in computing, is the creation of a virtual (rather than actual) Version of something, such as a hardware platform, operating system, and a storage device or network resources.VM live migration is a widely used technique for dynamic resource allocation in a virtualized environment. The process of running two or more logical computer system so on one set of physical hardware. Dynamic placement of virtual servers to minimize SLA violations.

Green Computing Module:

Many efforts have been made to curtail energy consumption. Hardware based approaches include novel thermal design for lower cooling power, or adopting power-proportional and low-power hardware. Dynamic Voltage and Frequency Scaling (DVFS) to adjust CPU power according to its load in data centers. Our work belongs to the category of pure-software low-cost Solutions. It requires that the desktop is virtualized with shared storage. Green computing ensures end user satisfaction, regulatory compliance, telecommuting, virtualization of server resources.

VI. ARCHITECTURE



System Architecture

The architecture of the system is presented in Figure 1.Each PM runs the Xen hypervisor (VMM) which supports a privileged domain 0 and one or more domainU. Each VM in domain U encapsulates one or more applications such as Web server, remote desktop, DNS, Mail, Map/Reduce, etc. We assume all PMs share a backend storage.

VII. CONCLUSION

We have presented the design, implementation, and evaluation of a resource management system for cloud computing services. Our system multiplexes virtual to physical resources adaptively based on the demand. We use the skewness metric to combine VMs with different resource characteristics appropriately so that the capacities of servers are well utilized. Our algorithm achieves both overload avoidance and green computing for systems with multi-resource constraints.

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