CLOUD COMPUTING METHODOLOGY INVESTIGATION WITH DYNAMIC RESOURCE ALLOCATION

Pravin Chavan [1] | Sagar Kokare [1] | Srinivas Dharawath [2]

[1] BE [Computer], GSMoze College of Engineering, Pune-411045.

[2] Prof. [Computer], GSMoze College of Engineering, Pune-411045.

ABSTRACT

Cloud Computing is one of the emerging areas in the various fields related to computer science and can be exercised for on demand dynamic resource allocation for providing reliable and guaranteed services to the consumer. Cloud systems are 'on demand' as they offer a way of providing required resources to consumers as and when they need it. It is pay-as-you-use manner service. In Cloud systems, a pool of resources is shared by several users. So making these resources available in most optimal way is a challenging task. Cloud computing provides opportunity to dynamically scale the computing resources for applications. These resources are shared among customers using virtualization technology. Using these resources efficiently is an open challenge. Since, cloud computing consists of large number of resources, testing application and resource policies on cloud computing environment may be time consuming and difficult. To ease the problem of modeling and testing policies, we use Virtual Machine, for cloud computing environment.

KEYWORDS: Cloud Computing, Dynamic Resource Allocation, Servers, Virtualization Technology, VM placement.

Introduction

Cloud computing is an approach of using computing as utility. Relatively new term for representing collection of resources which are shared, scaled dynamically. Based on "pay as you use" model, resources can be used or released whenever needed. This refers to both, applications as service to users and servers in datacenters which support those services. Cloud computing is a paradigm of distributed computing to provide the customers on-demand, utility based computing services. Cloud itself consists of physical machines in the data centers of cloud providers. Virtualization technology is used on this physical machines to run multiple operating systems simultaneously. We can define cloud computing as collection of resources (servers in datacenter), which are interconnected with each other and using virtualization technology can scale and adapt dynamically. Cloud computing provides customers, to start their business without purchasing any physical hardware, whereas service providers can rent their resources to customers and make their profit. Customers have the opportunity to scale up or down, the resources dynamically to provide QoS for demand varying.

Cloud computing can be divided into: a) cloud computing providers; b) cloud computing customers; c) end-users Cloud service providers owns the physical resources as datacenters and virtualization technology. Cloud computing customers, use this resources to provide service to customers. And end-users use those services. For example any online newspaper uses Amazon Ec2 for hosting their web site. Here Amazon Ec2 is the cloud computing provider and newspaper is the cloud customer. And newspaper readers are the end-users. During the morning period, number of end-users increases and load on hosting servers increases. As a result response time of website increases. Here cloud computing providers can increase the number of hosting servers and bandwidth of this website to maintain a certain response time limit. And when the end-users reduces over-allocated servers can be released.

Cloud computing delivers the computing capacity and storage as a service to a community of end user. Cloud computing entrusts services with user's data, software and computation over a network.

Remote accessibility enables the access to services from any location at any time. The cloud service provider can multiplex available virtual resources on to physical resources. Virtual Machine Monitor like oxen provide mechanism for mapping virtual machines. Mapping is kept hidden from users. I.e. end user will not know the location of physical resources. Virtualization is a core technology in cloud environment. Virtualization include VM placement. Cloud user requests for user request for resource. Resource may be software, operating system, applications which are integrated as VM. Service Provider provide the resource according to VM requirement. VM live migration technology makes possible to change mapping between VM and PM.

Existing System:

In the previous system, the cloud computing customers need to create their own cloud for their computations which may very costly. In the existing system the data is shared with server dynamically based on the application and demands but actually passed the values after executing the web application it is like the static data shared.

Disadvantages of the Existing System:

- The data is shared dynamically but they specify memory at run time.
- It requires more time for execution.

Proposed System:

As the existing system requires time to specify the memory for the execution which may time consuming. To overcome this we introduce a dynamic allocation system at run time according to server space the data will be shared if the data is more as compared to server automatically the data will be server passed to next server we no need to initialize the values. For this we used skewness algorithm to design this system and uses round robbin algorithm to calculate the server space.

- 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.

• 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.

Advantage of Proposed System:
• Distribution of data will be done automatically.
• System reduces the time.
• Manages the resource utilization when needed.

Modules:
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.

2. 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 de-pends 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 load balancing for efficient utilization of underlying resources.

Goal and Objective:
In this Paper we will develop new concept as per existing project. In that we shared the data in the system if system is full then shared with other systems. We use dynamic allocation at the run time according to server.

In this system at the software resources the data will be shared automatically if the system is full it will show the message the system is full please shared data with other system. At the hardware resources the pages will be divided and according to system memory the data will be shared between the systems.

Future Scope:
In the existing system communication between the resources are done through physical medium, the wireless medium is used for the same in future. So that it may improve the resource allocation as the resources are get invoked through the wireless medium.

With the wireless medium it is possible in future to create an Ad-hoc network for resources utilization.

Conclusions:
Cloud computing offers a way for using the available resources in an optimal manner. Resources can be made available to users in an on demand basis. Such emerging technologies are being progressively used in enterprise and business markets. The cloud computing offers business customers to scale up and down their resource usage based on need. The main advantages in the cloud model come from resource multiplexing through virtualization technology. Virtualization technology is used to allocate data center resources dynamically based on application needs and support green computing by optimizing the number of servers in use.

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