Knowledge Based Resource Provision And Allocation In Cloud Using Auction Method

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Abstract: **Cloud computing is one of the fastest emerging technology. Cloud is a wide pool of resource, which provides resources based on the users request. As there were more resources there may occurs wastage. So the cloud providers enter in to the auctioning of resources. Allocation of resource is one of the most challenging issues in resource management for cloud computing. In this paper auction based approaches is presented to deal with a problem of resource allocation at IaaS layer of cloud among rational users and to incentivize selfish providers. The proposed mechanism calculates the usage of VM instance allocated to the user for a particular period of time and efficiently allocates the VM instance for future purpose.**

Key words-- **Resource allocation, Cloud computing, Task scheduling**

INTRODUCTION:

Cloud Computing is the type of computing that relives computing resources rather than having local Servers, personal devices to maintain the applications .In cloud computing the word cloud is used for the internet, so cloud computing means a type of internet based computing where different servers are delivered to an organizational device through the internet. In this it contains three standard models they are platform as a services, infrastructure as a service and software as a service. Switching over to the cloud computing reduces the installation cost of computing resources. Now a day's anything i.e. data, storage, monitoring, networking, etc…can be provide as a service via cloud computing which is denoted as XaaS(anything-as-a-service).
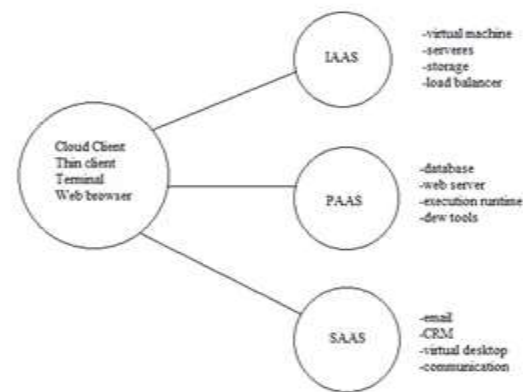

Fig: 1 types of service models

Cloud computing is a virtualized environment which provides services as virtual machine (VM) instances. These VM instances are distinct. Cloud users can choose which configuration or amount of instances they want. As there are many resources available, there may be some situations which lead to underutilization of these resources. So a proper resource allocation technique has to be done to increase the revenue of the cloud provider. In the market both commercial and open source cloud computing are available.

Deployment model are of three types
  1) Public cloud
  2) Private cloud
  3) Hybrid cloud

Service model is also of three types
  1) Infrastructure as a Service (IaaS)
  2) Plat form as s Service (PaaS)
  3) Software as a Service (SaaS)

Computational resources are offered to users through virtual machine which help them easy management of resources and praising them. The VM instances are charged by the cloud providers according to their size

they offer. Various VM instance differ in their computational resources like number of CPU, memory, size, bandwidth, storage, etc… according to the customer demand they will buy the VM instances. Customer can pay for resources by their long term contract and pay-as-you-go model. Cloud computing provide services over internet with advantages like flexibility, security that is when data is lost it can be taken from that of the cloud. Automated updating of software, Disaster recovery, increased collaboration, Environment friendly, Competitiveness.

1) *Flexibility*:

Since all the company needs more bandwidth than usual, a cloud-based service can promptly meet the demand because of the massive capacity of the service's remote servers.

2) *Security*:

Even though the system get crashes due to some problem data, applications, contents can be easily accessed when they have been stored in the cloud

3) *Automatic software updates:*

Software has to be update for the security purpose, but the cloud computing providers do the server maintenance including security, release up their customer's time and resources for other tasks automatically.

4) *Increased collaboration:*

It allows collaboration by allowing all the employees whether they can are to sync up and work on documents and shared apps simultaneously, and allow records to obtain serious updates in the real time.

5) *Work from anywhere:*

To access the cloud internet connection to the particular device is mandatory and so it can be worked from anywhere in the world from any users

EXISTING SYSTEM:

Cloud providers supply their various resources such as memory, storage in the form of VM instance and they are allocated to the user the users will be charged in the basis of pay-as-you-go model and their payment must be determined by considering the users and the cloud providers. In auction market not only the provider but also the user can quote their price for the requested VM instance. The online mechanism is invoked as soon as the user place the request or sum of the allocated resource are released and they will be available. The mechanism allocate VM instance to the selected users to the particular period of time the user have requested and ensures whether the user will continue using their VM instances for the requested whole period of time.

The resource allocation problem in cloud computing is investigated by considering the multiple type of resource as like storage in the cloud, CPU and the processor in the cloud. In allocation of virtual machine these terms are to be considered. The FUGA algorithm considers these resource in allocation of the virtual machine to the user. Fair and efficient resource utilization of each physical server is achieved using the FUGA algorithm.

LITERATURE SURVEY:

Several researchers investigated various resource allocation problems in cloud

Truthful greedy mechanism has been proposed by Mahayar et al [10] [11], in which critical value allocation and pricing is followed with single service provider. We propose resource allocation mechanism with multiple service providers. Li et al [12] proposed double sided auction in grid computing. This mechanism supports multiple resources provisioning to users who competes for the resources. This mechanism lets the users to bid in the form of XOR relationship i.e., the users are interested in obtaining only one bundle of the resources from the service provider. This mechanism is incentive compatible and does not consider scarcity of resources. We introduce truthful allocation with multiple service providers and users are allowed to request for resources in bundle. Sharukh et al [13] proposed combinatorial auction based mechanism for efficient virtual machine provisioning. The mechanism ensures that a maximum possible number of resources are allocated and no virtual machine instance is allocated for less than a reserve price. This mechanism still lacks in the notion of scarcity of resources. We have commenced a novel idea of scarcity of resources in bidirectional bidding allocation mechanism. Daniel et al [14] proposed combinatorial auction based resource allocation in Grids. This mechanism finds a combination of users and sellers for allocation. Though this mechanism allocates multiple resources to users the allocation mechanism is not efficient as greedy mechanism. Chichin et al [15] [16] proposed double sided auction for allocation of resources using sorted candidates based on critical value. Though this mechanism is efficient in allocation the mechanism presumes that the resources such as CPU, memory and storage will be at the same level of availability in each auction. We have proposed BBA mechanism which describes that either of the resources can be available or can be scarce or can be highly demanded. The bidirectional bidding allocation mechanism for provisioning multiple resources in bundle to the users based on sorted critical value and pricing is discussed further.

PROPOSED SYSTEM:

Existing mechanism makes no assumptions about future demand of virtual machines, which is the case in real cloud settings. This system analysis about the resource allocation each user is allocated with separate virtual machine instances. The virtual machine has all data and resource allocated by the provider to the user and the data will be collected and analyzed by the algorithm and the statistics about the user's utilization is maintained by the cloud providers. Suggestions about the future allocation of resources to the user is provided by the algorithm. In the beginning they will be provided with the login and usual settings. Then the user is back logged with the resource utilization. The resource utilized by the user is calculated every time and saved for future analytics.

The data collected in the data collection module is analyzed by the algorithm and the statistics about the user's utilization is maintained. Suggestions about the future allocation of resources to the user is provided by the algorithm for the allocation. The data provided by this algorithm gives the assumption about the future demands of resource by the existing customers.

Thus the future demands and the additional resource can be added to the cloud or the additional user can be achieved by the user's feedback. Implementation of different virtual machine policies like best fit, first fit, worst fit etc. and also we can implement different virtual machine schedulers like chip aware, non-chip aware and dynamic virtual machine schedulers.

MODULE DESCRIPTION:

I. *Login*

Each user is allocated with separate virtual machine. The virtual machine has all data and resource allocated by the provider to the user. Separate login is created for each user to utilize the cloud resource and allocation for data collection. These login are created to separate the storage and the personal files of the customers.

II. *Data collection*

The recourse utilized by the user is calculated every time and saved for future analytics. These resource utilization about the user is used for the analytic process. The data in the collection part are utilized to analysis and provisioning the virtual machine allocation.

III. *Data analysis*

The data provided by the algorithm is used for the future resource and virtual machine allocation in the physical server and the cloud. The data collected in the data collection module is analyzed by the

algorithm and the statistics about the user's utilization is maintained.

IV. *Future allocation*

The demands of the user are calculated and the future demands of the user are fulfilled by adding the additional resource to the cloud.

CONCLUSION AND FUTURE ENHANCEMENT:

Cloud computing is a growing technology offers good service policies, to achieve that number of resources are needed. So users are compelled to utilize the resources in very efficient manner. The problem of dynamic VM provisioning and allocation in the market of multiple service providers and users are solved by SSSV-mechanism. This mechanism considers the usage of the resources for the particular period of time. The result analysis proves that the resource is allocated to the user in efficient way.

In future this mechanism can be used in open cloud exchange to maximize the resource.

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