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A Unusual Approach to Profit Maximization Scheme with Guaranteed Quality of Service in Cloud Computing

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ABSTRACT:

An effective and efficient way to provide computing resources and services to customers on demand, cloud computing has become more and more popular. From cloud service providers' perspective, profit is one of the most important considerations, and it is mainly determined by the configuration of a cloud service platform under given market demand. However, a single long-term renting scheme is usually adopted to configure a cloud platform, which cannot guarantee the service quality but leads to serious resource waste.

In this paper, a double resource renting scheme is designed firstly in which short-term renting and long-term renting are combined aiming at the existing issues. This double renting scheme can effectively guarantee the quality of service of all requests and reduce the resource waste greatly. Secondly, a service system is considered as an M/M/m+D queuing model and the performance indicators that affect the profit of our double renting scheme are analyzed, e.g., the average charge, the ratio of requests that need temporary servers, and so forth.

Thirdly, a profit maximization problem is formulated for the double renting scheme and the optimized configuration of a cloud platform is obtained by solving the profit maximization problem. Finally, a series of calculations are conducted to compare the profit of our proposed scheme with that of the single renting scheme. The results show that our scheme can not only guarantee the service quality of all requests, but also obtain more profit than the latter.

INTRODUCTION:

An effective and efficient way to provide computing resources and services to customers on demand, cloud computing has become more and more popular. From cloud service providers' perspective, profit is one of the most important considerations, and it is mainly determined by the configuration of a cloud service platform under given market demand. However, a single long-term renting scheme is usually adopted to configure a cloud platform, which cannot guarantee the service quality but leads to serious resource waste. In this paper, a double resource renting scheme is designed firstly in which short-term renting and long-term renting are combined aiming at the existing issues. This double renting scheme can effectively guarantee the quality of service of all requests and reduce the resource waste greatly.

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EXISTING SYSTEM:

In Many existing research they only consider the power consumption cost.

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As a major difference between their models and ours, the resource rental cost is considered in this paper as well, since it is a major part which affects the profit of service providers. The traditional single resource renting scheme cannot guarantee the quality of all requests but wastes a great amount of resources due to the uncertainty of system workload. To overcome the weakness, we propose a double renting scheme as follows, which not only can guarantee the quality of service completely but also can reduce the resource waste greatly.

PROPOSED SYSTEM:

In this section, we first propose the Double-Quality-Guaranteed (DQG) resource renting scheme which combines long-term renting with short-term renting. The main computing capacity is provided by the long-term rented servers due to their low price. The short-term rented servers provide the extra capacity in peak period

ADVANTAGES:

In proposed system we are using the Double-Quality-Guaranteed (DQG) renting scheme can achieve more profit than the compared Single-Quality-Unguaranteed (SQU) renting scheme in the premise of guaranteeing the service quality completely.

SYSTEM ARCHITECTURE:

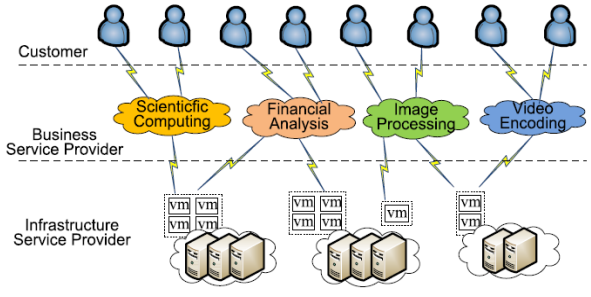

Fig. 1: The three-tier cloud structure.

IMPLEMENTATION

MODULES:

1. Cloud computing,
2. queuing model.
3. Business Service Module
4. Cloud customer Module.
5. Infrastructure Service Provider Module.

Cloud Computing:

Cloud computing describes a type of outsourcing of computer services, similar to the way in which the supply of electricity is outsourced. Users can simply use it. They do not need to worry where the electricity is from, how it is made, or transported. Every month, they pay for what they consumed. The idea behind cloud computing is similar: The user can simply use storage, computing power, or specially crafted development environments, without having to worry how these work internally. Cloud computing is usually Internet-based computing. The cloud is a metaphor for the Internet based on how the internet is described in computer network diagrams; which means it is an abstraction hiding the complex infrastructure of the internet. It is a style of computing in which IT-related capabilities are provided “as a service”, allowing users to access technology-enabled services from the Internet ("in the cloud")without knowledge of, or control over the technologies behind these servers.

Queuing model:

we consider the cloud service platform as a multiserver system with a service request queue. The clouds provide resources for jobs in the form of virtual machine (VM). In addition, the users submit their jobs to the cloud in which a job queuing system such as SGE, PBS, or Condor is used. All jobs are scheduled by the job scheduler and assigned to different VMs in a centralized way. Hence, we can consider it as a service request queue. For example, Condor is a specialized workload management system for computeintensive jobs and it provides a job queueing mechanism, scheduling policy, priority scheme, resource monitoring, and resource management. Users submit their jobs to Condor, and Condor places them into a queue, chooses when and where to run them based upon a policy.

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An M/M/m+D queueing model is build for our multiserver system with varying system size. And then, an optimal configuration problem of profit maximization is formulated in which many factors are taken into considerations, such as the market demand, the workload of requests, the server-level agreement, the rental cost of servers, the cost of energy consumption, and so forth. The optimal solutions are solved for two different situations, which are the ideal optimal solutions and the actual optimal solutions.

Business Service Providers Module:

Service providers pay infrastructure providers for renting their physical resources, and charge customers for processing their service requests, which generates cost and revenue, respectively. The profit is generated from the gap between the revenue and the cost.In this module the service providers considered as cloud brokers because they can play an important role in between cloud customers and infrastructure providers ,and he can establish an indirect connection between cloud customer and infrastructure providers.

Infrastructure Service Provider Module:

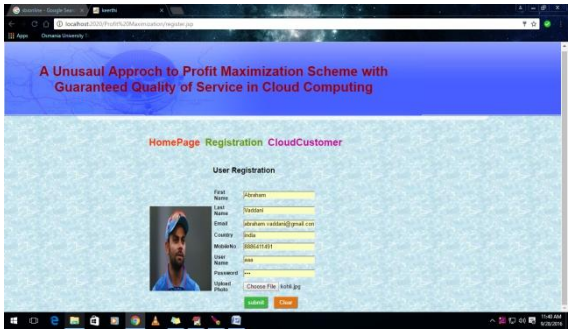
In the three-tier structure, an infrastructure provider the basic hardware and software facilities. A service provider rents resources from infrastructure providers and prepares, a set of services in the form of virtual machine (VM). Infrastructure providers provide two kinds of resource renting schemes, e.g., long-term renting and short-term renting. In general, the rental price of long-term renting is much cheaper than that of short-term renting.

Cloud Customers:

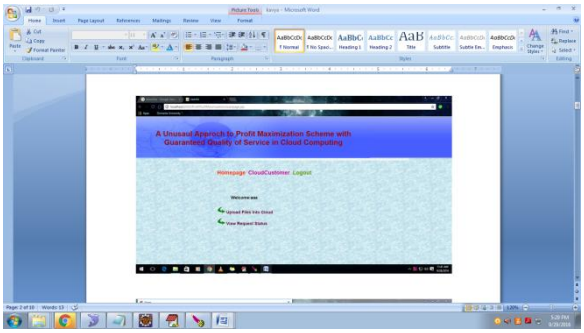
A customer submits a service request to a service provider which delivers services on demand. The customer receives the desired result from the service provider with certain service-level agreement, and pays for the service based on the amount of the service and the service quality.

Screen Shot

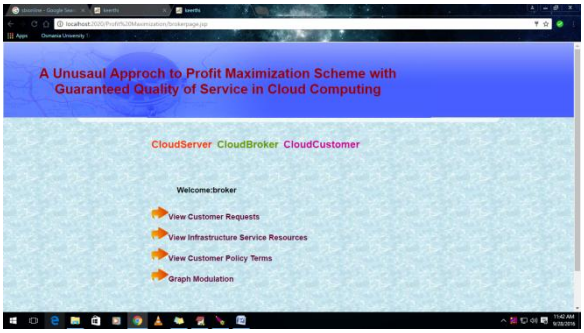
User Registration



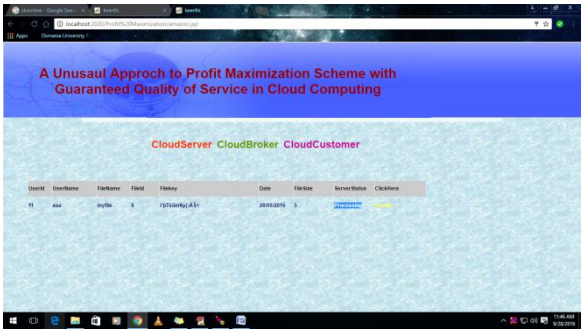
Customer Home Page



Broker Home Page



Server Home Page



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CONCLUSION:

Maximize the profit of service providers, this paper has proposed a novel Double-Quality-Guaranteed (DQG) renting scheme for service providers. This scheme combines short-term renting with long-term renting, which can reduce the resource waste greatly and adapt to the dynamical demand of computing capacity. An M/M/m+D queueing model is build for our multiserver system with varying system size. And then, an optimal configuration problem of profit maximization is formulated in which many factors are taken into considerations, such as the market demand, the workload of requests, the server-level agreement, the rental cost of servers, the cost of energy consumption, and so forth. The optimal solutions are solved for two different situations, which are the ideal optimal solutions and the actual optimal solutions. In addition, a series of calculations are conducted to compare the profit obtained by the DQG renting scheme with the Single-Quality-Unguaranteed (SQU) renting scheme. The results show that our scheme outperforms the SQU scheme in terms of both of service quality and profit.

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B.Tech College:NOVA COLLEGE OF ENGINEERING & TECHNOLOGY I hereby declare that the project work entitled "**A Unusual Approach To Profit Maximization Scheme With Guaranteed Quality Of Service In Cloud Computing"** submitted to the JNTU Hyderabad, is a record of an original work done by me under the guidance of **Mr. CH.BALAKRISHNA**, Department of Computer Science & Engineering, **Swami Ramananda Thirtha Institute Of Science & Technology,** and this project work is submitted in the partial fulfillment of the Requirements for the award of the degree of Master of Technology in Computer Science& Engineering. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree.

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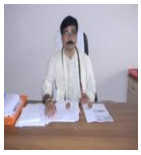
Received the B.Tech degree in Information Technology and M.Tech degree in Computer Science and Engineering from J N T U Hyd-University. He is working as a Assistant Professor in Swami Ramananda Tirtha Institute of Science and technology, Nalgonda,Telangana, India. He has having 8 years of teaching Experience.



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