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A PROFIT MAXIMIZATION SCHEME WITH GUARANTEED QUALITY OF SERVICE IN CLOUD COMPUTING

S.Jaya Bharathi, PG Scholar, Dept Of Computer Science Engineering,Mailam Engineering College, Villupuram.

Dr.T.Priyaradhikadevi, Professor And Head Of Computer Science Engineering,Mailam Engineering College,Villupuram.

Abstract:

From cloud administration suppliers' point of view, benefit is a standout amongst the most imperative contemplations, and it is for the most part dictated by the arrangement of a cloud administration stage under given business sector request. Be that as it may, a solitary long haul leasing plan is typically embraced to design a cloud stage, which can't promise the administration quality yet prompts genuine asset waste. In this paper, a twofold asset leasing plan is outlined firstly in which transient leasing and long haul leasing are consolidated going for the current issues. This twofold leasing plan can viably ensure the nature of administration of all solicitations and lessen the asset squander enormously.

Keywords: Imperative, Outline, Enormously, Leasing.

1. INTRODUCTION

Cloud computing is rapidly turning into a successful and effective method for figuring assets. By brought together administration of assets and administrations, Cloud computing conveys facilitated administrations over the Internet. Cloud computing can give the most practical and vitality effective method for processing assets administration. Cloud computing transform's data innovation into common wares and utilities by utilizing the pay-per-use evaluating model. An administration supplier rents assets from the foundation sellers, constructs suitable multi server frameworks, and gives different administrations to clients. A buyer presents an administration solicitation to an administration supplier, gets the sought result from the administration supplier with certain administration level assention. At that point pays for the administration in view of the measure of the administration and the nature of the administration. An administration supplier can assemble distinctive multi server frameworks for various application areas, such that administration solicitations of various nature are sent to various multi server frameworks.

In Cloud computing security is enormously enhanced in view of a prevalent innovation security framework, which is presently effectively accessible and moderate. Applications no more keep running on the desktop Personal Computer however keep running in the cloud. This implies the PC does not require the preparing power or hard circle space as requested by conventional desktop programming. Effective servers and so forth are no more required. The figuring force of the cloud can be utilized to supplant or supplement interior registering assets. Associations no more need to buy registering assets to handle the limit crests.

2. LITERATURE SURVEY

Existing clouds focus on the provision of web services targeted to developers, such as Amazon Elastic Compute Cloud (EC2) [4], or the deployment of servers, such as Go Grid [1]. Emerging clouds such as the Amazon Simple DB and Simple Storage Service offer data management services. Optimal pricing of cached structures is central to maximizing profit for a cloud that offers data services. Cloud businesses may offer their services for free, such as Google Apps [2] and Microsoft Azure [3] or based on a pricing scheme. Amazon Web Service (AWS) clouds include separate prices for infrastructure elements, i.e. disk space, CPU, I/O and bandwidth. Pricing schemes are static, and give the option for pay as-you-go. Static pricing cannot guarantee cloud profit maximization. The cloud caching service can maximize its profit using an optimal pricing scheme. This work proposes a pricing scheme along the insight that it is sufficient to use a simplified price-demand model which can be re-evaluated in order to adapt to model mismatches, external disturbances and errors, employing feedback from the real system behavior and performing refinement of the optimization procedure. Overall, optimal pricing necessitates an appropriately simplified price-demand model that incorporates the correlations of structures in the cache services.

3. RELATED WORK

This work proposes a novel estimating request plan intended for a cloud reserve that offers querying administrations and goes for the expansion of the cloud benefit with prescient interest value solution on monetary method for client benefit. The proposed arrangement permits: on one hand, long haul profit amplification with value minimization on solicitation of same interest, and, on the other, dynamic adjustment to the genuine conduct of the cloud application, while the improvement process is in advancement. Cloud computing is the technology of the next generation which unifies everything into one. It is an on demand service because it offers dynamic flexible resource allocation for reliable and guaranteed services in pay as you- use manner to users. The review shows that SaaS is very important layer in cloud computing because all the allocation of resources to the application is done by SaaS providers. This paper focused on the review of customer requests for SaaS providers with the explicit aim of cost minimization or to increase the profit with dynamic demands handling. An effective strategy is required for achieving user satisfaction and maximizing the profit for cloud service providers. This paper discusses just about the review of SaaS layer in cloud computing based on the QoS parameter and SLA.

In general, a service provider rents a certain number of servers from the infrastructure providers and builds different multi-server systems for different application domains. Each multi-server system is to execute a special type of service requests and applications. Hence, the renting cost is proportional to the number of servers in a multi-server system. The power consumption of a multi-server system is linearly proportional to the number of servers and the server utilization, and to the square of execution speed. The revenue of a service provider is related to the amount of service and the quality of service. To summarize, the profit of a service provider is mainly determined by the configuration of its service platform. To configure a cloud service platform, a service provider usually adopts a single renting scheme.

We have proposed a pricing model for cloud computing which takes many factors into considerations, such as the requirement r of a service, the workload λ of an application environment, the configuration (m and s) of a multiserver system, the service level agreement c, the satisfaction (r and s0) of a consumer, the

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quality (W and T) of a service, the penalty d of a low-quality service, the cost (β and m) of renting, the cost (α,ϒ,P*, and P) of energy Consumption, and a service provider's margin and profit a. By using an M/M/ m queuing model, we formulated and solved the problem of optimal multiserver configuration for profit maximization in a cloud computing environment. Our discussion can be easily extended to other service charge functions. Our methodology can be applied to other pricing models.

4. PROPOSED SYSTEM

To configure a cloud service platform, a service provider usually adopts a single renting scheme. That's to say, the servers in the service system are all long-term rented. Because of the limited number of servers, some of the incoming service requests cannot be processed immediately. So they are first inserted into a queue until they can handle by any available server. In this paper, we propose a novel renting scheme for service providers, which not only can satisfy quality-of- service requirements, but also can obtain more profit. A novel double renting scheme is proposed for service providers. It combines long-term renting with short-term renting, which can not only satisfy quality-of-service requirements under the varying system workload, but also reduce the resource waste greatly. the ratio of requests that need short term servers, and so forth. The optimal configuration problem of service providers for profit maximization is formulated and two kinds of optimal solutions, i.e., the ideal solutions and the actual solutions, are obtained respectively. A series of comparisons are given to verify the performance of our scheme. The results show that the proposed 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. Using our resource renting scheme, temporary servers are rented for all requests whose waiting time are equal to the deadline, which can guarantee that all requests are served with high service quality. Hence, our scheme is superior to the traditional resource renting scheme in terms of the service quality.

5. ANALYSIS

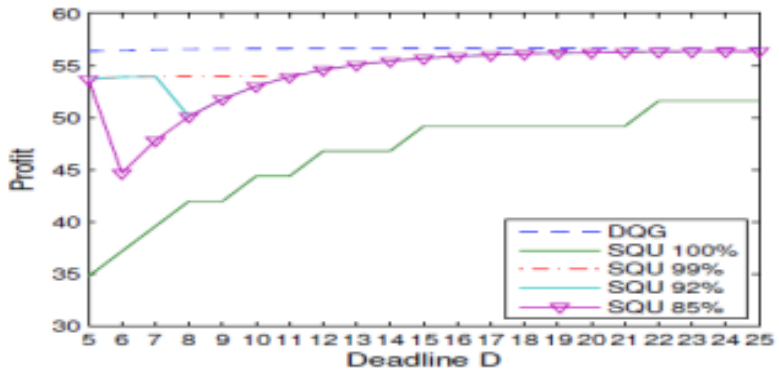

Fig.1. Fixed speed analyse

Using our resource renting scheme, temporary servers are rented for all requests whose waiting time are equal to the deadline, which can guarantee that all requests are served with high service quality. Hence, our scheme is superior to the traditional resource renting scheme in terms of the service quality. The figure shows the trend of profit when the server speed is increasing from 0.1 to 2.9. From the figure, we can see

that the curves increase firstly and reach the peak at certain speed, and then decrease along with the increasing speed on the whole. The figure verifies that our proposed scheme can obtain more profit than the SQU renting scheme. Noticed that the changing trends of the curves of the SQU renting scheme with 100%, 99%, 92%, and 85% quality-guaranteed ratio are interesting they show an increasing trend at the beginning and then decrease during a small range of speed repeatedly

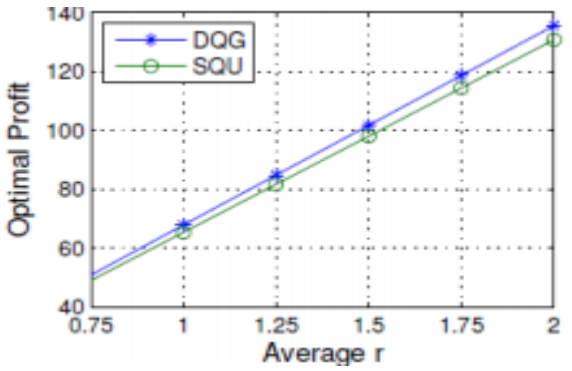

Fig.2. Comparison of profit

This shows that our scheme outperforms the SQU renting scheme in terms of both of quality of service and profit. the server size and speed of the two schemes. The figures show that using our renting scheme the capacity provided by the long-term rented servers is much less than the capacity using the SQU renting scheme. That is because a lot of requests are assigned to the temporary servers using our scheme, and less servers and slower server speed are configured to reduce the waste of resources in idle period. In conclusion, our scheme can not only guarantee the service quality of all requests, but also achieve more profit than the compared one.

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. Dqueuing model is build for our multi-server 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.

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