Review on Guaranteed Quality of Service for Maximizing Profit in Cloud Computing

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Abstract— Cloud Computing is system for distributed computing, storing, allocating and accessing data over the Internet. It provides shared resources to the end users available on the basis of pay as you go service, means that users need to pay for those services which are used by him according to their access times. Profit is the most important point of considerations for cloud service providers which provides service under given market demand. Existing system provides a single long-term renting scheme is adopted to configure a cloud platform, which cannot guarantee the service quality. We have presented double rented scheme in order to provide guaranteed service. In addition we have provided authentication scheme using SHA to provide better security to for authentication.

Key words: Cloud Computing, Service-Level Agreement, Guaranteed Service Quality, Profit Maximization, Waiting Time, Response Time, SHA

I. INTRODUCTION

Cloud computing is an evolving area that allows users to organize, store and access resources over the internet, in addition with enhanced scalability, availability and fault tolerance. It describes a diversity of computing concepts.

Cloud Architecture can be divided into two sections- Front end and back end. Client is a computer or application program to connect to the back end Bach End is a computer or servers, data center or data storage unit. The two are connected by the network called as Internet; there is a central manger to monitor the traffic for efficient performance of the system.It is immaterial for its design in disparity to this the dynamic system accumulate the current system information and works according to what is the current status of the system.

Cloud computing provides effective and efficient way to access computing resources and computing services which has become more and more popular. The resources such as databases, information hardware and software provided to consumers on-demand [1].

In a cloud computing environment, there are there are always three levels i.e., infrastructure providers, services providers, and customers which is shown in figure. Basic hardware and software facility are provided by an infrastructure provider. A service provider rents resources from the infrastructure providers and provides services to customers. A customer request for particular service by requesting to a service provider and pays for it based on the amount and the quality of the provided service [2].

In all business, the profit is calculated by using cost and the revenue. The profit of a service provider in cloud computing is calculated by using cost and the revenue. For a service provider, the cost is the renting cost paid to the infrastructure providers and the electricity cost caused by consumption of energy and revenue is the charges of service to customers. In general, a service provider rents a certain number of servers from the infrastructure providers and builds different multiserver systems for different application domains. Each multiserver 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 multiserver system [3].

In this paper, we consider the cloud service platform as a multiserver system with a service request queue. Figure gives the schematic diagram of cloud computing.

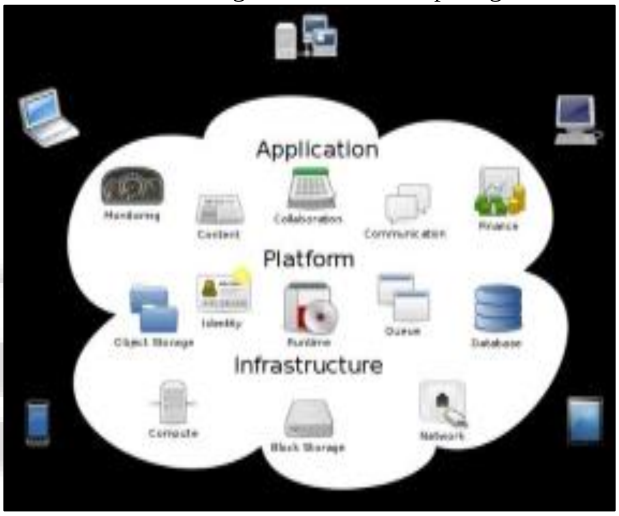

Fig. 1: The schematic diagram of cloud computing.

In Cloud Computing, a service provider regularly adopts a single renting scheme that means the servers in the service system are all long-term rented. Because of the availability of 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. For better quality of service, the waiting time of each incoming service request should be limited within a certain range, which is determined by a service-level agreement (SLA). If the quality of service is guaranteed, the service is fully charged, otherwise, the service provider serves the request for free as a penalty of low quality. To obtain higher revenue, a service provider should rent more servers from the infrastructure providers or scale up the server execution speed to ensure that more service requests are processed with high service quality. By doing such implementation would lead to sharp increase of the renting cost or the electricity cost. Such increasing cost may counterweight the gain from penalty reduction [1]. In this paper, we propose a novel renting scheme for service providers, which satisfy quality-of-service requirements and can obtain more profit as well. In addition to that we have provided authentication scheme with Secure hash Function (SHA) for secure authentication.

II. LITERATURE REVIEW

In this section, we have presented reviews on recent works which is relevant to the profit of cloud service providers. There are many factors such as price, demand of the market, the system configuration, the customer satisfaction and many more. Service provider naturally wishes to price to get a higher profit margin; but doing so would decrease the customer satisfaction, which leads to a risk of discouraging demand in the future. Hence, selecting a reasonable pricing strategy is important for service providers [1]

Static pricing and dynamic pricing are the two strategies i.e. Static pricing [3, 4,5] means that the price of a service request is fixed and known in advance, and it does not change with the conditions.

Ghamkhari et al. [4] adopted a flat-rate pricing strategy and set a fixed price for all requests, but Odlyzko in [6] argued that the predominant flat-rate pricing encourages waste and is incompatible with service differentiation. Other kind of static pricing strategies are usage-based pricing. Dynamic pricing a service provider delays the pricing. Dynamic pricing emerges as an attractive alternative to better cope with unpredictable customer demand [7]. Mac´ıas et al. [8] used a genetic algorithm to iteratively optimize the pricing policy.

Deepak Mishra, Manish Shrivastava [9] proposed a novel estimating request plan which is intended for a cloud 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, dynamic adjustment to the genuine conduct of the cloud application, while the improvement process is in advancement.

The revenue model is determined by the pricing strategy and the server-level agreement (SLA). In this paper, the usage based pricing strategy is adopted, since cloud computing provides services to customers and charges them on demand. The SLA is a negotiation between service providers and customers on the service quality and the price [8]. Because of the limited servers, the service requests that cannot be handled immediately after entering the system must wait in the queue until any server is available [16]. However, to satisfy the quality-of-service requirements, the waiting time of each service request should be limited within a certain range which is determined by the SLA. The SLA is widely used by many types of businesses, and it adopts a price compensation mechanism to guarantee service quality and customer satisfaction.

III. PROPOSE WORK

The first step includes in is to create user database(DB) which consist of number of registered customers to access the cloud services which is stored in hash value using Secure Hash Function (SHA) for authentication then perform confirmation Service level Agreements (SLAs).

After service level agreement is over, business service provider (BSP) then processes the request. If request is processed within stipulated time mentioned in service level agreement, single rented charge is applied. In other hand, If request is not processed within stipulated time mentioned in service level agreement, double rented charges is applied. Finally total revenue generated after all request are processed.

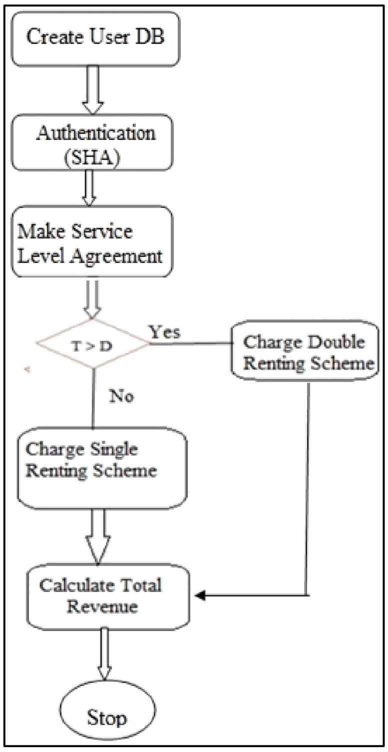

Fig. 2: Flow of proposed work

IV. CONCLUSION

This paper has proposed a Double-Quality-Guaranteed (DQG) renting scheme with secure authentication for service providers. This scheme combines short-term renting with long termrenting, which can reduce the resource waste greatly and adapt to the dynamical demand of computing capacity. By taking into consideration many factors such as such as the market demand, the workload of requests, the server-level agreement, the rental cost of servers, the cost of energy consumption and etc. Double renting scheme can produce more profit than single renting scheme with guaranteed service. Future scope includes we can extend study to a heterogeneous environment.

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