A Profit Maximization Scheme in Cloud Computing with QoS

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Abstract - Cloud computing offer services and resources on demand anyplace and anytime to client. In cloud service supplier profit is one among the foremost vital thought. Typically single future dealings theme is employed to configure cloud platform however those single future dealings theme doesn't offer guarantee service quality and resources waste. During this paper, firstly double resource dealings theme designed. And short term dealings theme and future dealings theme are combined, thus existing resources. M/M/m+D queuing model is employed in double dealings theme .In this paper profit maximization downside solved by victimization double quality guaranteed(DQG) theme, finally offer warranted service quality of all requests and scale back resource waste greatly, however additionally get additional profit than the latter. Associate in nursing effective and efficient thanks to offer computing resources and services to customers on demand, cloud computing has become additional and additional in style. From cloud service supplier's perspective, profit is one among the foremost vital issues, and it's principally determined by the configuration of a cloud service platform beneath given market demand. However, one semi-permanent dealings theme is typically adopted to configure a cloud platform that cannot guarantee the service quality however ends up in serious resource waste. During this paper, a double resource dealings theme is intended firstly within which short dealings and semi permanent dealings are combined aiming at the prevailing problems. This double dealings theme will effectively guarantee the standard of service of all requests and scale back the resource waste greatly. Secondly, a service system is taken into account as Associate in Nursing M/M/m+D queuing model and also the performance indicators that affect the profit of our double dealings theme are analyzed, e.g., the common charge, the magnitude relation of requests that require temporary servers. Thirdly, a profit maximization downside is developed for the double dealings theme and also the optimized configuration of a cloud platform is obtained by resolution the profit maximization downside.

Key Words: Single Quality guaranteed, Double Quality guaranteed, Service Level Agreement, First Come First Serve, Single Quality Unguaranteed.

1. INTRODUCTION

An effective and efficient thanks to give computing resources and services to customers on demand, cloud computing has become additional and additional common. From cloud service supplier's perspective, profit is one in all the foremost vital issues, and it's principally determined by the configuration of a cloud service platform beneath given market demand. However, one semi-permanent dealings theme is sometimes adopted to configure a cloud platform that cannot guarantee the service quality however ends up in serious resource waste. During this paper, a double resource dealings theme is intended firstly within which short dealings and semi-permanent dealings are combined aiming at the prevailing problems. This double dealings theme will effectively guarantee the standard of service of all requests and scale back the resource waste greatly. Secondly, a service system is taken into account as AN M/M/m+D queuing model and also the performance indicators that affect the profit of our double dealings theme are analyzed, e.g., the common charge, the quantitative relation of requests that require temporary servers. Thirdly, a profit maximization downside is developed for the double dealings theme and also the optimized configuration of a cloud platform is obtained by finding the profit maximization downside. Finally, a series of calculations are conducted to check the profit of our projected theme therewith of the one dealings theme. The results show that our theme cannot solely guarantee the service quality of all requests, however conjointly acquire additional profit than the latter.

2. SYSTEM DESCRIPTION

2.1 Functionality summary

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 services, 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 multi-server 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 compute intensive jobs and it provides a job queuing 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 they based upon a policy. An M/M/m+Dequeuing model is built 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.

Business Service Providers Module Service providers pay infrastructure providers for renting their physical ressources, 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.

3. LITERATURE SURVEY

1) **Profit Maximization Scheme with Guaranteed Quality of Service in Cloud Computing:**

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 analysed, e.g., the average charge, the ratio of requests that need temporary servers, and so forth.

2) **Leakage-Aware Multiprocessor Scheduling for Low Power:**

In this paper, we first show for which combinations of leakage current, supply voltage, and clock frequency the static power consumption dominates the dynamic power dissipation. These results imply that, at a certain point, it is no longer advantageous from an energy perspective to employ as many processors as possible. Thereafter, a heuristic is presented to schedule the tasks on a number of processors that minimizes the total energy consumption. Experimental results obtained using a public task graph benchmark set show that our leakage-aware scheduling algorithm reduces the total energy consumption by up to 24deadlines (1.5x the critical path
Length) and by up to 67for loose deadlines (8x the critical path length) compared to SS.

3) **Energy and Performance Management of Green Data Centres: A Profit Maximization Approach:**

In this they seek to tackle this shortcoming by proposing a systematic approach to maximize green data center's profit, i.e., revenue minus cost. In this regard, we explicitly take into account practical service-level agreements (SLAs) that currently exist between data centers and their customers. Our model also incorporates various other factors such as availability of local renewable power generation at data centers and the stochastic nature of data center's workload. They propose a novel optimization-based profit maximization

strategy required QoS as well as the typical capacities of the systems involved. As such, service differentiation may be more beneficial in lower capacity access networks than in high capacity core networks. We then focus on delay-sensitive and study flat-rate versus usage based pricing under overload conditions. Our results suggest that in overload scenarios usage-based pricing is advantageous both from the system perspective, i.e., reduces degree of overload, and individual users perspective, increases their perceived utilization.

4. CONCLUSION

Practical smart city use case of AN intelligent waste assortment cyber physical system. The system is based on an online of Things sensing epitome that measures the waste level of trashcans and sends this info over information superhighway to a server for storage and method. Supported this info, AN improvement technique permits creating the foremost efficient assortment routes, and these square measure forwarded to the workers. It's targeted on the efficiency and economic practicability of the system, thus on inspire the potential interested parties to deploy intelligent solutions for common city services. The experiments square measure distributed on a Geographic information Systems simulation setting, applying graph improvement algorithms and taking advantage of accessible Open info regarding city. The results indicate that beneath identical conditions, basing the waste assortment ways that on real time waste bin filling standing improves the waste assortment efficiency by guaranteeing that after trash cans become full, they are collected identical day, and by reducing by part of 4 the waste over flow which cannot be accommodated once trashcans square measure full. However, the gap required to drive is tripled, implying AN increment on the daily assortment price between 13–25.

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