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Optimized Cost based approach for Cloud Cache Using OCRP

Muntaj Begum Shaik[1], K. Rama Krishnaiah [2]

[1]Student, Nova College of Engineering and Technology for Women, Ibrahimpatnam,Krishna Dist, Andhra Pradesh, India

[2] Professor, Nova College of Engineering and Technology for Women, Ibrahimpatnam,Krishna Dist, Andhra Pradesh, India

Abstract: In recent day's resource provisioning of cloud computing for long term relationship planning is the main research concept. Because every cloud service provider provides various types of services with cache resources. Traditional cloud caching service optimally decrease the service cost with high profit machineries. This traditional 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. But existing approach can be developed only cost decreasing with high profit assurances, there is a problem for using more number of resources for developing those cloud services. So optimized resources is another problem for cloud cache services. In this paper we propose to extend our traditional work with resource optimization using OCRP (Optimization of Cloud Resource Provisioning). In our proposed approach we are estimating cloud usage of each user for taking services from cloud service provider. Our experimental results show the efficient calculation of resources in two ways i.e. both reservation plan and On Demand plan.

Index Terms: Cloud Cache, OCRP, Price on-demand modeling, stochastic modeling, Correlations, Adaptability.

I. INTRODUCTION

Cloud computing constructs that allows user to access services for actual resides with locations. Cloud computing assumes user interaction with service provider.

Figure 1: Cloud computing architecture with different services

As shown in the above figure different services are accessed by the cloud provider. Recently cloud computing provide services based on their internet accessing. Example cloud management services are Amazon web service, and Microsoft azure. These web organizations provide literal services on client requirement. The final issue behind this working procedure is our cloud provider provides efficient query processing between behind cloud with low cost services. In these services they are following the efficient data processing results. In bellow figure shows user pose queries to the cloud through coordinator module. The cloud caches data and builds data structure in order to accelerate query execution.

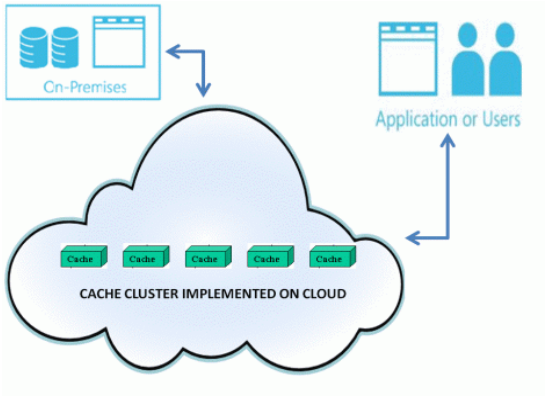


Figure 2: Cloud Cache services

In that each cache acts as an operating system. Basically two major aspects can be present in the cloud cache. Firstly we are designing simplified enough model for construction after that we will calculates the feasible pricing solution for unwanted services. A representative model for the cloud cache should take into account that the cache structures (table columns or indexes) may compete or collaborate during query execution. A consumable product may cost to maintain depending on the stored amount, whereas the maintenance cost of a cache service depends only on time. Moreover, a cache service may have a setup cost each time it is loaded in the cloud. A big challenge for the cloud is to optimize the set of offered services, i.e. decide which services to offer and when, depending on their demand while they are available. Traditional cost based approach was worked efficiently in optimization every service in cloud cache.

In this paper we propose Stochastic programming with optimized cloud resource provisioning. These are accessed in cloud cache environment. To overcome the problems such as under provisioning and over provisioning an algorithm is used called optimal cloud resource provisioning (OCRP) algorithm. It is proposed to minimize the total cost for provisioning resources in a particular time period. In order to the cost of the resource provisioning in cloud computing, the demand uncertainty from cloud consumer side and price uncertainty from cloud providers are considered to adjust the trade-off between on-demand plan and oversubscribed costs.

II. RELATED WORK

Emerging clouds such as the Amazon Simple 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. 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. Pricing schemes were proposed recently for the optimal allocation of grid resources in order to increase revenue, or to achieve equilibrium of grid and user satisfaction, assuming knowledge of the demand for resources or the possibility to vary the price of a resource for different users. These works are orthogonal to ours, as we do not assume that service demand is known a priori and all users are charged the same for the consumption of the same service. Similarly, dynamic pricing for web services focuses on scheduling user requests. This work is orthogonal to ours, as we require that users' requests for service are satisfied right away. Research on the identification of non-correlated indexes using the query structure does not determine the negative and positive correlations. In proposed access of OCRP algorithm in this paper which achieves many improvements. The problem is generalized into the multiple stage formulation first. Second the different approaches to obtain the solution of computing resource provisioning are considered. To analyze the Sample Average Approximation (SAA) to be calculated in the under and over provisioning level to be calculated.

III. EXISTING APPROACH

The cloud computing cache can maximize its profit using optimal pricing assurance. These techniques have following models.

Simplistic Pricing Demand Model: This model was designed on the price model dependency employing with second order differential equations for representing flexible variety of demands as a function price.

Price adaptively to time changes: This considers sequential non-overlapping intervals that allow for scheduling structure availability.

Modeling structure correlations: Correlations of cache structure as a dependency demand for each structure on the price of available one.

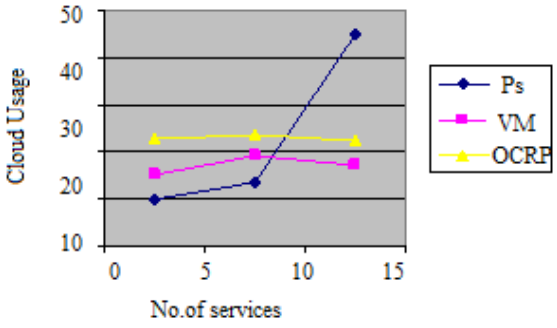
Query Results: This section presents results on the dynamic pricing scheme assuming that all structures are constantly available (i.e. fixed caching), and, therefore built once in the cache at the beginning of pricing and maintained ever since, i.e. $\delta i = 1$, i=1, ..,m always. The problem boils down to pricing the structures so that the cloud gains maximum profit while ensuring that the demand is not drastically reduced because of the pricing.

IV. PROPOSED SYSTEM

In this paper we propose to extend our traditional work with resource optimization using OCRP (Optimization of Cloud Resource Provisioning). In our proposed approach we are estimating cloud usage of each user for taking services from cloud service provider. Our experimental results show the efficient calculation of resources in two ways i.e. both reservation plan and On Demand plan.The OCRP algorithm can provision computing resources for being used in multiple provisioning stages as well as a long term plan, e.g., four stages in a quarter plan and twelve stages in a yearly plan. The demand and price uncertainty is considered in OCRP. In this paper, different approaches are measured including deterministic equivalent formulation, sample-average approximation, and Benders decomposition in OCRP algorithm.

V. EXPERIMENTAL RESULTS

Balance of costs: We observe that the cloud broker with OCRP will minimize on-demand cost rather than the oversubscribed cost. Since resource pricing in the on-demand plan is higher and possibly increased by cloud providers, the reservation plan is more attractive by the cloud broker. However, reserving too many VMs may not be optimal.



Benders Decomposition: The main aim of this algorithm is to split down the optimization problem into number smaller problems which can be solved separately and simultaneously. Because of this benders decomposition algorithm the time can be reduced to obtain the solution of the OCRP algorithm. The Benders decomposition algorithm can decompose integer programming problems with complicating variables into two major problems: one is master problem and another one is sub problem.

Step 0: Start
Step 1: Initialize the problem of resource provisioning
Step 2: Splits the resource provisioning problem into number possible server resource sub problems.
Step 3: Load checking with individual client
Step 4: Check each client relevant cost with convergence cost.
Step 5: Store results of every cloud client
Step 6: Step.

Algorithm steps for constructing OCRP services in cloud computing.

Virtual machine outsourcing: The VM outsourcing from a private cloud to a public cloud provider (or public cloud) shows interesting result. In the experiment, the private cloud fully utilizes its own

resources. Then, extra VMs can be spilled over to public clouds. Purchasing and deploying new hardware to a private cloud may not be an optimal solution, since the total cost of ownership (TCO) must be considered. To reduce this TCO, workload outsourcing is the attractive choice which is shown from our evaluation.

As consider the above implementations we will do the efficient data resource provisioning in cloud computing.

VI. CONCLUSION

We are discussed qualitative aspects of the solution and a variation of the problem that allows the consideration of user satisfaction together with profit maximization. The viability of the pricing solution is ensured with the proposal of a method that estimates the correlations of the cache services in an time-efficient manner. we have proposed an optimal cloud resource provisioning (OCRP) algorithm to provision resources offered by multiple cloud providers. The optimal solution obtained from OCRP is obtained by formulating and solving stochastic integer programming with multistage recourse. We have also applied Benders decomposition approach to divide an OCRP problem into sub problems which can be solved parallels. Furthermore, we have applied the SAA approach for solving the OCRP problem with a large set of scenarios. The OCRP algorithm can be used as a resource provisioning tool for the emerging cloud computing market in which the tool can effectively save the total cost.

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