IPHV2I20008X
International Journal Of Advanced Research and Innovation -Vol.II, Issue .2
ISSN Online: 2319 – 9253
Print: 2319 – 9245

NOVEL DATA PRICING IN CLOUD CACHE

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ABSTRACT:

Cloud computing is the new era of service marketing, recently the cost of services are increased by cloud servers. The cost of service maintenance is hike due to the high costs of data storage devices and or individual users to frequently update their hardware. Instead of enterprise level or individual maintenance of data are out sourced to cloud servers. Cloud storage moves the user's data to large data centers, which are remotely located, on which user does not have any control. . The users can query the cloud data, paying the price for the infrastructure they use. Cloud management necessitates an economy that manages the service of multiple users in an efficient, but also, resource economic way that allows for cloud profit. Naturally, the maximization of cloud profit given some guarantees for user satisfaction presumes an appropriate price-demand model that enables optimal pricing of query services.

Keywords: *cloud servers, optimal pricing, services, SLA.*

INTRODUCTION

What is Cloud Computing

Cloud computing is a service that helps you to perform the tasks over the Internet. The users can access resources as they need them. The term "Cloud" refers the internet. Cloud computing consists of hardware and software available on the internet managed by third party services

The authorized user can reach the cloud for resources when they need it. The users can manage their data in cloud by storing it in various devices. It is one of the best way to run business.

The data stored in the cloud are accessed by the authenticated users via passwords or tokens The users just 'Plug in' and access the resources. The company or the individuals are paying for not using the system but now they can pay only for the computing power and services they use.

The online storage is safe and secured.

You just need the personal computer with internet connection. You need to have access to the cloud services to make use of it. Put whatever you want inside the cloud or make use of servers, software's, etc., you need. Disconnect it once you have done and release it back to the cloud.

Pay for the server utilized, processing power used and bandwidth consumed.

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Best Example for Cloud Computing

Electricity Bill

Turn on your lights and meter starts running. Once it is switched off, meter stops.

You will pay only for the power utilized.

The same concept applies in the Cloud Computing.“ Pay for what you use”

Types of cloud

Public Cloud- The cloud is available to all the users to utilize the resources. E.g., Google AppEngine, etc.

Private Cloud- The cloud will be available within the organization, not visible to external users.

Hybrid Cloud- Combination of both Public (External) and Private(Internal) Cloud

Levels of Cloud Computing

There are three levels of Cloud Computing and are as follows:

Applications in the Cloud
Platforms in the Cloud
Infrastructure in the Cloud

Applications in the Cloud

The applications hosted in the Internet are offered as a service

The user can sign up for and use without any concern about the computing power and storage capacity

Multi- users can access applications at the same time

No installation or Upgrades required

E.g., Gmail, Yahoo Mail, Wikipedia.etc.,

Platforms in the Cloud

The platforms are offered as a service in Cloud

Develop your own code through web browser and upload it into the cloud to deploy it.

The code will magically run somewhere in the cloud without any server, Operating System or even without databases

If the code grows, the cloud automatically scales up and down, to match the demand.

No infrastructure cost and can deploy the application instantly

Infrastructure in the Cloud

The Hardware and Data centers are offered as a services in the Cloud. With Cloud Computing, No need to spend time and costs to set up the Infrastructure. You can own your own Virtual data center for storage by keeping costs to a minimum. No physical location of the resources, no maintenance cost and no operating cost.

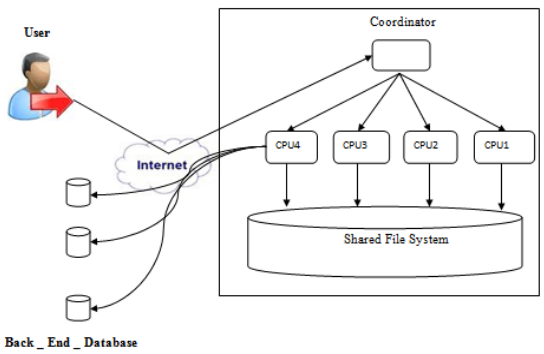
Advantages

It is highly reliable, stable and easy to use

It reduces the capital costs and operation costs for the company.

It increases the Productivity and improves Compliance. Finally, it reduces the overall cost and helps you to keep the upfront costs to a minimum.

Architecture:



Existing System

A static pricing scheme cannot be optimal if the demand for services has deterministic seasonal fluctuations. The

second challenge is to define a pricing scheme that is adaptable to
(i) Modeling errors, (ii) time-dependent model changes, and (iii) stochastic behavior of the application. The demand for services, for instance, may depend in a non predictable way on factors that are external to the cloud application, such as socioeconomic situations.

Static pricing cannot guarantee cloud profit maximization. In fact, as we show in our experimental study, static pricing results in an unpredictable and, therefore, uncontrollable behavior of profit. Closely related to cloud computing is research on accounting in wide-area networks that offer distributed services. Mariposa discusses an economy for querying in distributed databases.

Disadvantages

- A static pricing scheme cannot be optimal if the demand for services has deterministic seasonal fluctuations.
- Static pricing results in an unpredictable and, therefore, uncontrollable behavior of profit.

Proposed System

One of the important concerns that need to be addressed is to assure the customer of the integrity i.e. correctness of his data in the cloud. As the data is physically not accessible to the user the cloud should provide a way for the user to check if the integrity of his data is maintained or is compromised. In this paper we provide a scheme which gives a proof of data integrity in the cloud which the customer can employ to check the correctness of his data in the cloud. This proof can be agreed upon by both the cloud and the customer and can be incorporated in the Service level agreement (SLA). It is important to note that our proof of data integrity protocol just checks the integrity of data i.e. if the data has been illegally modified or deleted.

Price adaptively to time changes:

Profit maximization is pursued in a finite long-term horizon. The horizon includes sequential non-overlapping intervals that allow for scheduling structure availability. At the beginning of each interval, the cloud redefines availability by taking offline.

Modeling structure correlations:

Our approach models the correlation of cache structures as a dependency of the demand for each structure on the price of every available one. Pairs of structures are characterized as competitive, if they tend to exclude each other, or collaborating, if they coexist in query plans.

Advantages

- A novel demand-pricing model designed for cloud caching services and the problem formulation for the dynamic pricing scheme that maximizes profit and incorporates the objective for user satisfaction.
- An efficient solution to the pricing problem, based on non-linear programming, adaptable to time changes.

- A correlation measure for cache structures that is suitable for the cloud cache pricing scheme and a method for its efficient computation.

Query Execution:

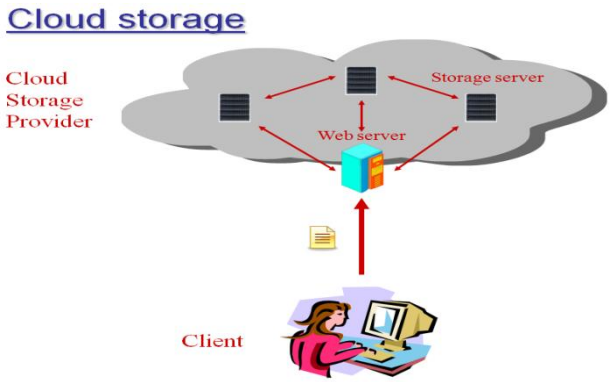
The cloud cache is a full-fledged DBMS along with a cache of data that reside permanently in back-end databases. The goal of the cloud cache is to offer cheap efficient multi-user querying on the back-end data, while keeping the cloud provider profitable.

Optimal Pricing:

We assume that each structure is built from scratch in the cloud cache, as the cloud may not have administration rights on existing back-end structures. Nevertheless, cheap computing and parallelism on cloud infrastructure may benefit the performance of structure creation. For a column, the building cost is the cost of transferring it from the backend and combining it with the currently cached columns. This cost may contain the cost of nte grating the column in the existing cache table. For indexes, the building cost involves fetching the data across the Internet and then building the index in the cache.

Cloud Storage:

Data outsourcing to cloud storage servers is raising trend among many firms and users owing to its economic advantages. This essentially means that the owner (client) of the data moves its data to a third party cloud storage server which is supposed to - presumably for a fee - faithfully store the data with it and provide it back to the owner whenever required.



CONCLUSION

This work proposes a novel pricing scheme designed for a cloud cache that offers querying services and aims at the maximization of the cloud profit. We define an appropriate Price-demand model and we formulate the optimal pricing problem. The proposed solution allows: on one hand, long-term profit maximization, and, on the other, dynamic calibration to the actual behavior of the cloud application, while the optimization process is in progress.

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