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Bidding for Service Provisioning in Cloud

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Abstract: Cloud computing is an internet based computing whose services can be accessed via on demand invocation. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources (e.g., computer networks, servers, storage, applications and services),), which can be rapidly provisioned and released with minimal management effort. Distributed computing and capacity arrangements give clients and venturer different abilities to store and process their information in either exclusive,or outsider information centers that might be situated a long way from the user–ranging in separation from over a city to over the world. In the present service provisioning mechanism both the ends doesn't meet their monetary benefitswhich lead to dissatisfaction of both the parties. We present a mechanism for service provisioning in distributed clouds where users compete for resources and it is based on sealed bid auction coupled with cloud resourceallocation algorithm and map reduce algorithm.For analysis purpose we have used HIVE and SQOOP in Hadoopframework. It provides feasibility, end to end satisfaction, efficiency, QoE.

Keywords: Cloud resource allocation algorithm , Hadoop, map reduce algorithm, QoE, sealed bid auction.

1. INTRODUCTION

Distributed computing has been extremely effective, conveying applications what's more, Administrations in a versatile way through on-request invocation. It has permitted applications to flexibly adapt with changing interest. Such a conveyed cloud definitely lessens RTT to clients and enormously unwinds the end-to-end bottleneck data transmission prerequisites between end clients and these restricted cloud purposes of nearness. In this paper we gift a useful resource allocation mechanism for service provisioning in distributed clouds in which computation resources are made available much in the direction of users, in all likelihood within routers themselves. This can storeBandwidth, offer higher user QoE and probably comply with regulatory frameworks that call for offerings to run in particular regions. We advise an auction- based resource allocation technique that allows cloud carriers to offer computation ability in a centralized way, while at the same time allowing cost benefit tradeoffs. We take as given the well-known properties of the Sealed-bid auction and focus on their use as a vehicle to implement on demand invocation of services.

This paper is organized as follows. In segment 2 we give an overall description of our system. In segment 3 we describe the principle actors of our proposed mechanism. In segment 4 we explain the analytical foundations of our cloud resource allocation mechanism. In segment 5 we gift the outcomes of our proposed mechanisms through simulation in a huge type of situations. Finally, we gift an outline of the associated work in section 6.

2. SYSTEM OVERVIEW

In our proposed system we simultaneously manage both the resource manager and the user side. The resource manager is in charge of uploading the services, framing the auction rules and handling the transaction. The users who are interested and wants to utilize the services participate in the auction process. This auction is a sealed bid auction where all bidders concurrently post sealed bids, in order that no bidder is aware of the bid of any other participant. The service provider selects the highest bidder and he pays the price he bids for. In our proposed system we hold two types of transaction, one transaction involves transferring an initial participation fee to the resource manager through which he can reap his monetary benefits. The second transaction involves transferring the highest bid price to the service provider. The services are held in cloud. We have coupled Hadoop for analysis purpose.

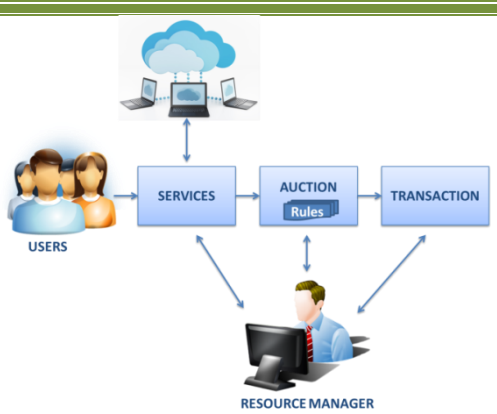

Fig.2.1 Overall system architecture

3. PRINCIPLE ACTORS OF OUR SYSTEM

3.1 User Interface

User interface design is the preliminary module of our system. User Interface Login performs a crucial role for the user to interact with the venturer. This module has been created for user authentication purpose. In this login page, authorized users can login with their valid credentials like name, password, mail-identification, contact number, address. And henceforth the registered credentials would be stored into database and may be used for authentication purpose while log in. It validates every user information. If the credentials don't match against the database it throws an exception prompt and redirects to the registration page. This helps us to filter malicious entries.

3.2 Auction Based Scheduling

In our proposed system we have a forward auction mechanism where the providers sell their products to the potential buyers. It uses a sealed bid mechanism, where each user can bid for a service only once and that his ask price is unknown to the other users. The users after the registration phase, will be redirected to the Pandora 's Box of services. The user selects the appropriate service that he wants to utilize from the options available. The user can add his service of interest to the cart and a time of two minutes is scheduled for the user to fill in the credentials like bid price and the participation fee. In case of timeout, it redirects to the home page.

3.3User Transaction

A transaction symbolizes a unit of work performed against a database. We hold two types of transactions; one involves transferring an initial participation fee to the resource manager through which he can reap his monetary benefits. In the second transaction phase, the winner alone is involved, where he transfers his bid amount to the service provider.

3.4 Price Matching

Once the auction validity for a specific service expires, the resource manager will fetch the bidding details from the database. The provider will select the winner who has bid the highest amount for a specific service .If there is a conflict between two users with the same bid price ,the winner is selected based on the the date and time prioritization.

3.5 Data integration with SQOOP

SQOOP acts an intermediate between MYSQL and HADOOP. It is used for transferring the dataset from MYSQL into Hadoop (HDFS). SQOOP is a command-line interface for transferring data. Using SQOOP we can fetch a particular column or the dataset with specific conditions and the data will be stored in Hadoop (HDFS). Only MAP process is executed in this phase.

3.6 Data analytic purpose with HIVE

Hive is a data ware house system for Hadoop. It runs HQL (Hive query language) which gets internally converted to map reduce jobs. Supports Data definition Language (DDL), Data Manipulation Language (DML) and user defined functions. Analysis of the dataset is done using HIVE tool. Using hive we perform Table creations, joins, Partitions, Bucketing concept.

4. FIGURES

4.1 User Interface Design

Created for user authentication purpose.

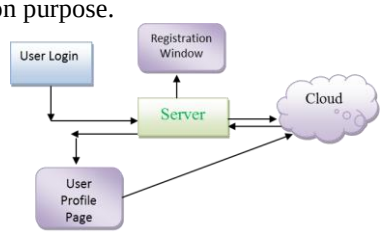

Fig.4.1 UI design

4.2Auction-based scheduling

Minimizes the average completion time of tasks.

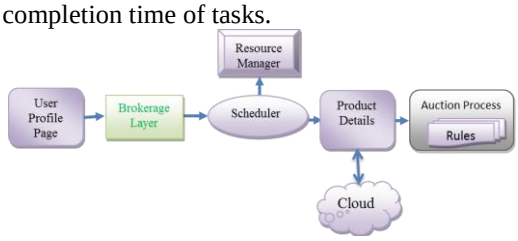

Fig.4.2. Scheduling process

4.3User transaction

There are two types of transaction. The first transaction involves each user transferring the participation fee to the service provider. In the second transaction, the winner alone is involved, where he transfers his ask price to the service provider.

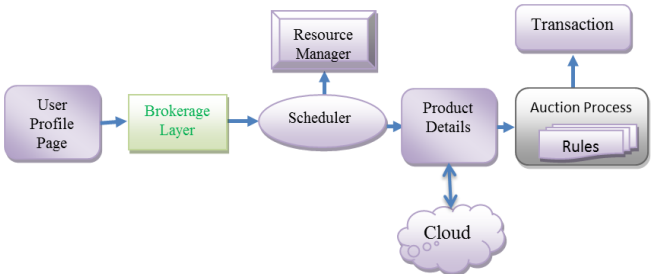

Fig.4.3 Transaction

4.4Price Matching

The service provider finds the highest bidder and prompts him to pay his ask price.

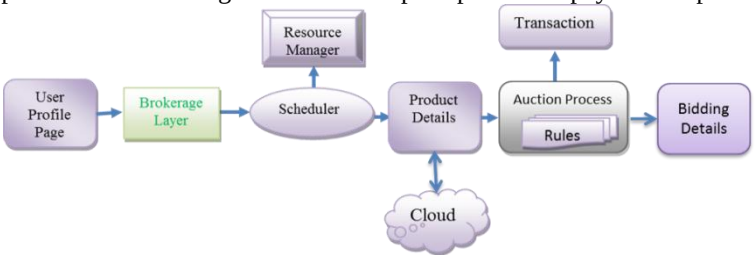

Fig.4.4. Identifying highest bidder

4.5 Data Integration with SQOOP

It is used to transfer the dataset from MYSQL to HADOOP(HDFS)

Fig.4.5. Transferring dataset into HDFS

4.6 Data Analysis using HIVE

It is used to analyze the given dataset to retrieve specific records.

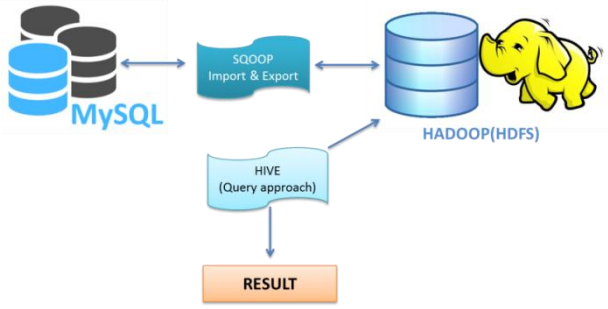

Fig.4.6. Retrieving results

5. CONCLUSIONS

In the existing system, we don't employ the concept of auction for commercial websites. In our proposed system, we have the concept of forward auction mechanism. In this mechanism the sellers sell their products to the potential buyers. We have specifically employed the sealed bid auction where all bidders simultaneously submit their sealed bids to the auctioneer, so that no bidder knows how much the other auction participants have bid. The highest bidder is usually declared the winner of the bidding process. In our system, we maintain the service provider and the user portal simultaneously. The service provider registers himself as a potential seller, uploads the services along with the product specifications and the price for each service. The user registers himself as a potential buyer, and he has access to a Pandora 's Box of services. The user can choose the service he wants, and once he adds them to his cart, he is given a time schedule of 2 minutes within which he should participate in the bidding process. The user can enter his participation fee and his bid price along with his credentials. The first transaction involves each user transferring the participation fee to the required service provider. The service provider can check the bid details for his launched services and he can choose the highest bidder. The service provider sends the message to the highest bidder. The second transaction involves the winner alone, where he transfers his ask price to the service provider. Thus our proposed system satisfies both the service provider and the user simultaneously, in a way the service provider earns through the participation fee and the users can access the services at a price much lower than the proposed one by participating in the auction process. We have used Hadoop for analysis purpose, for easy retrieval of specific records. The advantage of our proposed system is that the resource provider need not be constantly aware of the updates. We have employed the resource allocation in such a manner that the services are available much closer to the users via cloud. In our proposed system, we hold a single database, whereas in real time each resource provider will have their private datacenters for storage. In our proposed system, we employ a centralized server but it can be extended to decentralized servers in real time scenario.

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