OPTIMIZING THE WEB RESOURCES USING AN EFFECTIVE MECHANISM

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Abstract- **Cloud computing is a technology that furnishes the IT infrastructure and applications. Applications based on services dynamically recompose by their own to self-adapt while replacing the QoS needs. The existing framework uses the decentralized and continuous double auction mechanisms to allow applications to decide which services to choose among the many services offered. The proposed system's aim is to design a new market based model which is based on the posted offer and reputation mechanism. These mechanisms are used to find the optimal resource and also used for efficient allocation of resources. Internet is used only during allocation of resources so the net cost gets reduced and other processes are done in offline mode.**

Index Terms- **Decentralized mechanism, service level agreement, posted offer and reputation mechanism.**

I. INTRODUCTION

Cloud Computing resources are attractive for per-use pricing and elastic scalability. In software systems self-adaptation is that software which examine itself and the operating environment and take appropriate actions when circumstance changes. In web applications, service oriented architecture is used as a mechanism for achieving self-adaptivity. Web services give access permission for efficient incentive mixture of ingredients, which enables applications to switch services without going offline. A similar instance of using web services efficient incentive is applications living on the cloud, asking for computation, storage and bandwidth to be scaled up or down, that depends on demand. Operational flexibility is one of the cloud major selling points. It is of having a little use if applications (or organizations) have to indicate at sign-up time the kind of services that they represent to use. E.g. Amazon, for instance, a customer state during sign up time whether she needs a Hi-CPU instance or a Standard On-Demand instance or a Hi-Memory instance. This instance assumes that an application able to forecast its claim for computation and storage resources correctly. Public cloud current implementation mainly focuses on easily scale up or scale down computing power and storage.

The Continuous Double Auction (CDA) is a mechanism to match buyers and sellers of a specific good, and at which trades are executed to determine the prices. At any point of time, traders can locate limit orders in the form of bids (buy orders) and asks (sell orders). The important orders are maintained in an order book. Traders may place market order at any time to buy or sell immediately at the market price, which is resolute by the set of orders in the order book. Trades perform an action whenever a new limit order comes in and the highest bid exceeds or is equal to the highest ask price, or else when a new market order comes in and the order book contains orders with which the market order can be matched.

Posted offer mechanism is the exchange mechanism where sellers post their prices in take it or leave it basis as it is done in markets. Seller autonomously sets price for the products. Buyers make an offer for it on the basis of QoS parameters. Posted price is set so high that is not accepted and in another case posted price is so low which is not rejected. The seller decides to conduct auction for the posted prices. A bidder can either bid for auction or get the item for the posted price if no bid has been entered the auction closes immediately and the bidder buy it for the posted price.

A seller in the online market with an effective reputation mechanism should expect that misbehaviour results in higher payments while good behaviour results in higher reputation. Users give rating after the usage of resources whether it is good or bad. The main goal of reputation mechanism is to choose the optimal resources with the help of past ratings to compute. For e.g. eBay's feedback mechanism Buyers send money to the seller before receiving the goods. E-bay allows the traders to rate the transactions as "positive", "negative" or "Neutral".

In [1], Alrifai.M, Skoutas.D, Risse.T use the Constraint Optimization problem aims at discovering the composition which increases the overall utility value while fulfilling the requirements of all the global constraints. Detecting the best candidate web services from a set of functionally equal essential services is a multi-criteria decision making problem. The chosen services should optimize the overall QoS of the composed application, while fulfilling all the constraints specified by the client on individual QoS parameters. It evaluates the approach experimentally using both real and synthetically generated datasets. In this paper Buyya.R and

Pandey.S [2] uses vision of computing and identify various IT paradigms promising to deliver computing as a utility and defines the architecture for creating market-oriented Clouds and computing atmosphere by leveraging technologies such as virtual machines. The computational risk management to sustain existing SLA-oriented resource allocation and a new Cloud Computing initiative, called Cloudbus is proposed. In [3], Buyya.R., et al. discusses the 21st century vision of computing which identifies various computing paradigms assuring to deliver the vision of computing utilities. The existing approach is on interconnecting clouds for dynamically creating the computing environment. They proposed the architecture for market oriented allocation of resource within clouds.

In [4] Pan He., et al. discusses about the monitoring mechanisms. The main aim of this paper is to analyze the availability and performance of services with two kinds of monitoring mechanisms. Monitor allocation algorithm is proposed and is used to get the overall number of monitors and services to monitor in different scenarios. Based on the monitoring mechanisms two algorithms are proposed. These algorithms are used to allocate monitors in the composition aiming at minimizing the overall number of monitors while making sure the composition availability meet certain requirements. Honglong Chen Renfa Li Rui Li., et al. [5] discusses the research on Self-Adaptive evolution software. Component assignment model is proposed and proved that the problem is a NP and also find a heuristic algorithm to solve the NP. The experiment is compared with greedy and ILP. The experiments results show that this heuristic algorithm balance between the timing, resource cost object and reduce the times cost compared with the algorithm of ILP and Greedy. JiaJun Wang., et al. [6] proposed a novel scheme - MARDO for dynamic composite web services resources QoS optimizing using cooperative agents. QoS model of web service resources and its mathematical definitions are introduced in this paper. MARDO can monitor and optimize the runtime status of composite web services. The main aim of this paper is providing an efficient schema to help composite web services providers optimize their services dynamically according to on demand requirement.

In [7] Jia Rao, Yudi Wei, Jiayu Gong, and Cheng-Zhong Xu proposed novel fuzzy control approach for the allocation of virtualized resources. A self-tuning fuzzy controller with adaptive output amplification and flexible rule selection is developed. A two-layer QoS provisioning framework, DynaQoS supports adaptive multi-objective resource allocation and service differentiation is designed based on fuzzy controller. Mahmod Hosein Zadeh, Mir Ali Seyyed discusses [8] about QoS important issue for selecting and composing services. Time series forecasting approach is proposed in this paper. The current methods are used for continuos monitoring of non functional properties and for reciving up-to date information. They decrease the overhead of QoS monitoring. The Forecast approach optimizing the Qos monitoring and also find more efficiency. Michlmayr., et al. [9] presented a framework which that combines the advantages of client- and server-side QoS monitoring and builds the event processing to inform interested subscribers of current QoS values and possible violations of Service Level Agreements. QoS monitoring approach is integrated into the VRESCo service runtime environment, evaluate the accuracy of the monitoring techniques. Olivier Beaumont., et al. [10] shows that the degree constraint on the maximal number of clients that a server can handle is realistic in many contexts. The main aim is to prove the allocation problem is more difficult (NP-Complete) a very small additive resource augmentation on the server degree is enough to find in polynomial time a solution that achieves at least the optimal throughput.

II. SYSTEM OVERVIEW

The proposed mechanisms are posted offer mechanism and reputation mechanisms. The mechanism uses internet only at the time of checking the stock and allocate resources. So the net cost is reduced. It helps to avoid the usage of network bandwidth consumption also reliable. The proposed framework we mainly used to analyze the dynamic checking of resources updated in various sites for example weather report, Stock ratings etc., in offline mode using web services technology through posted offer and reputation mechanism.

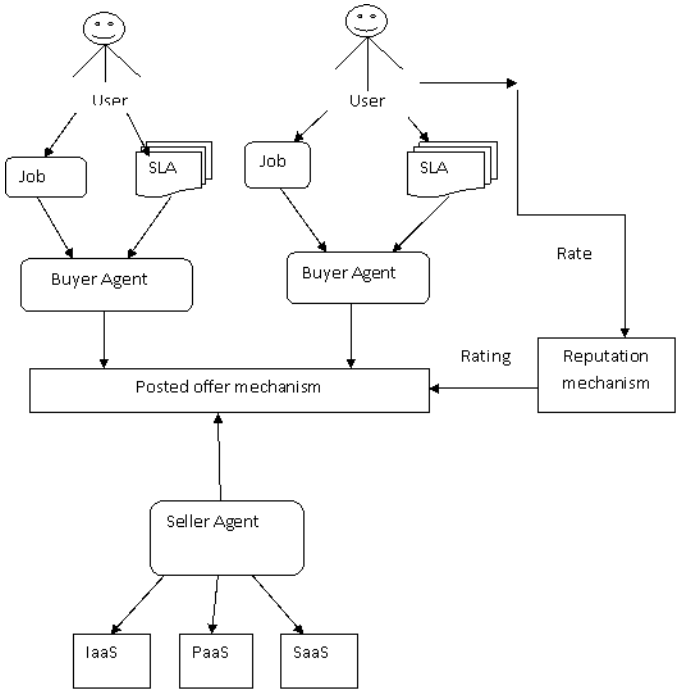

Fig. 1 System Architecture

In the typical scenario architecture consists of a user, buyer agent and the Seller agent, posted offer mechanism and the reputation mechanism. User needs to register in the website that buyer agent designed and then user need to login the website. Users need to submit their jobs and request resources which are specified in SLA to the buyer agent which we need to execute in the cloud. Buyer agent accepts the request and

allocates resource to user for executing their jobs by getting it from the seller agent. Each Seller agent owns resources that are available in the Cloud which is in the form of services such as Product as a Service (PaaS), Software as a Service (SaaS) and Infrastructure as a Service (IaaS). Seller agents fixed the price and post in the website by using the posted offer mechanism. The resource price is posted in the website and posted price is compared with each seller agent by the buyer agent. Low price posted is taken by the buyer agent and allocate it to the user. Each User used the allocated resources after the job completion allocated resource is returned to the seller agent. User Pay money to the buyer agent and buyer agent pays money to the seller agent. User can checks the website for stock added by the buyer agent we can add it to our cart. We can Pay and use the resources and return to the buyer agent. Posted offer mechanism is based on the Qos parameter cost. Reputation mechanism is also proposed in this framework. This framework is based on the rating, availability, low cost and reliability but it mainly focuses on rating rated by the users to the resources. In reputation mechanism user need to search for the resources with the help of rating, availability, reliability and cost. If we need a resource search for it searching results in 1…n resources. The 1….n resources are compared by the buyer agent and choose the best one and add to the buyer agent cart. User can add and use for completing their jobs and return it to the seller agent. Reputation mechanism is the best mechanism for finding the optimal web resource in Fig.1

The main aspect of our framework is:

- Buyer Agent
- User
- Seller Agent

2.1 Buyer Agent

Buyer agent add the best resource by buying and pay as you use basis from seller agent based on the posed offer mechanism in its cart and accepts request and jobs which is specified in SLA from the user and allocate the optimal resource for the user by reputation mechanism.

2.2 User

User need to register their personal details like user name, password, email id, phone number and nationality in the User registration. Once the user completed the user registration they can login whenever needed. The user can able to add required resources in the cart from the available list created by the buyer agent. User can also rate about the resources available in the site it will update the overall rating value in the site user community. The rating can be given in the form of bullish and bearish. Bullish means the resource available is very good. Bearish means resource is poor. It can be viewed in offline mode also by the registered user. It helps to avoid the usage of network bandwidth consumption also reliable.

2.3 *Seller Agent*

Every seller agent owns resources that are available in the Cloud which is in the form of PaaS, SaaS and IaaS. A seller agent fixed the price for the use of their resources. Each Seller agent posts the cost of resources in the website.

III. RESULTS

TABLE I

PERFORMANCE OF OPTIMAL WEB RESOURCES

Webservice Resources	Posted offer Mechanism	Reputation Mechanism
Google	1022	1400
Apple	525	680
Microsoft	50	170
Amazon	60	150

In Table I, the performance of optimal web resources is compared with the two mechanisms posted offer mechanism and Reputation mechanism. Here Reputation mechanism is more efficient than posted offer mechanism in finding the optimal web resources.

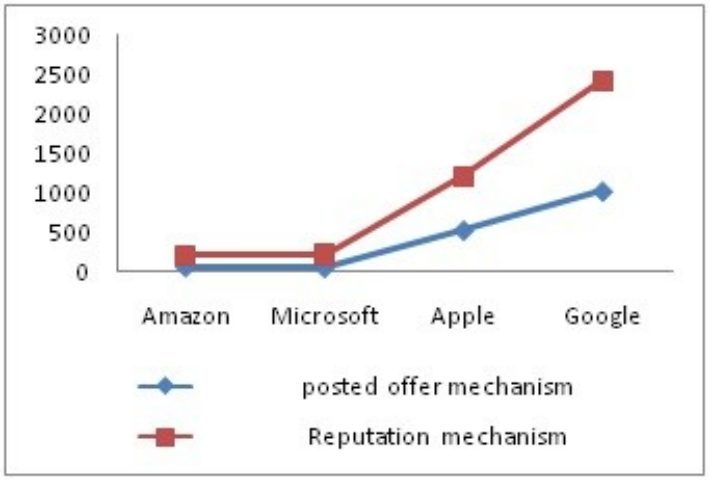

Fig.2 Comparisons of Posted offer mechanism with Reputation mechanism.

TABLE II

USER RATINGS FOR WEB RESOURCES

Web resources	Bullish	Bearish
Amazon	66	44
Microsoft	55	45
Apple	73	36
Google	83	5

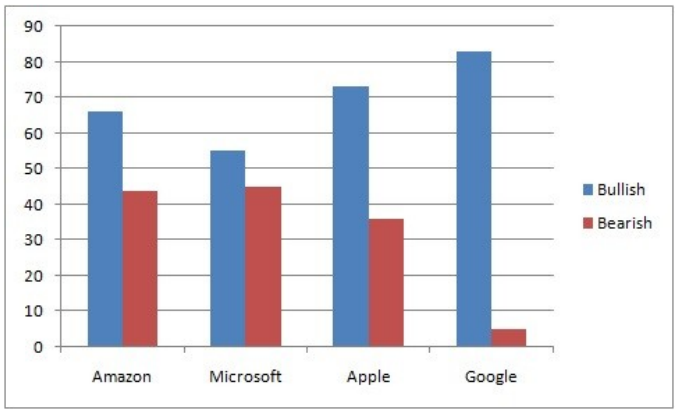

Fig.3. Ratings given by the user to web resources in the form of bullish and bearish. Bullish means good. Bearish means poor.

In Table II, Web resources are rated by rating in the form bullish or bearish. Bullish means good and Bearish means poor. With the help of it the resources are allocated to users for completing their jobs in the cloud.

IV. CONCLUSION AND FUTURE WORK

Thus the Reputation mechanism checks web resources and find out the optimal resource. These mechanisms are used to find the optimal resource and also used for efficient allocation of resources. Internet is used only during allocation of resources so the net cost gets reduced and other processes are done in offline mode. Using this approach Reputation mechanism is efficient than the posted offer mechanism.

Several future research directions can be investigated. As these approaches are reducing the net cost, it can be considered in the future work. Some other mechanisms can also be considered, and also many QoS may also be compared it also be taken as another consideration.

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