Negotiation Strategies for Cloud Service Reservation System

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Abstract- *The consumer should provide both price and time slot for the service, while making reservations for Cloud services, The provider gives the price and time slot which are available, then the particular service will be provided to the user by negotiation of both price and time. Since there is a negotiation on price and time slot, the requested service may be unavailable. So, consumers can give multiple proposals for a service. To get a highest possible QoS assurance the negotiation uses a trade-off(Burst mode) algorithm which makes available of the resources to the services requested. When the task done by the consumer is over before the reserved time the QoS can't be obtained effectively because of the idle state. So there source will be given to other consumer to be utilized which improves the QoS of the Cloud.*

Keywords- Cloud Service Reservation, Cloud User agent, cloud service provider agent, burst mode algorithm, concession algorithm

I. INTRODUCTION

It presents a multi-issue negotiation mechanism to facilitate PTNs between Cloud agents and tradeoff between price and time-slot utilities. Another novelty of this project is formulating a novel time-slot utility function that characterizes preferences for different time slots. These ideas are implemented in an agent-based Cloud testbed. Cloud computing is an architecture for providing computing resources as a service. Cloud computing entrusts services with a consumer's data, software and computation over a network. The consumer of the cloud can obtain the services through the network. In other words, users are using or buying computing services from others In general, cloud provides application, computation power, storage, bandwidth, database etc. As the resource pool is very large, users can scale the application inthe cloud to any level. The cloud makes it possible for you to access your information from anywhere on demand basis. Cloud computing is a collection of parallel distributed, and web–accessible that should be dynamically composed and virtualized based on consumer requirements. Cloud participants, namely, service providers and consumers, are self interested, autonomous parties that should interact and coordinate among themselves to make an effective and efficient use of cloud resources. The distributed nature and inherent dynamism of cloud systems as well as the self–interested autonomy of cloud participants emphasized the need for agent–based solutions. An agent is a computer system that is capable of autonomous actions, that is, deciding for itself and figuring out what needs to be done to satisfy its design objectives. To successfully interact, agents require the ability to cooperate, coordinate, and negotiate with each other. There are no specialized search engines for the consumers who want to find the cloud services. In an agent-based cloud service discovery approach, a search engine that consults cloud ontology for reasoning about the relations of cloud services and retrieves the relevant service information. The cloud consumer thus reserves the required service. Even though the reservation manager can identify a common time slot that is acceptable to both consumer and provider agents, it did not provide a utility function for characterizing agents'preferences for different time slots. A tradeoff algorithm has been designed to enhance both the negotiation speed and the aggregated utility of price and time slot in a multi-issue negotiation. At the end of the negotiation process, provider and consumer commit to an agreement. This agreement in the SOA is referred to as a SLA. The objective of this work is to design an agent-based cloud system that implements cloud service discovery and PTN mechanism for cloud service reservation. Since this work explores the issue of designing an agent based system for the cloud service discovery and service reservation, areas related to this work include the cloud service discovery, Cloud service reservation and negotiation. Cloud service reservation using PTN mechanism is implemented in an agent-based cloud.

II. NEGOTATION

In negotiation mechanism, the consumer and the provider can negotiate over both contract price and commitment negotiation method for flexible price of Cloud resources, providers can gain from more efficient consumption of their resources, and consumers can gain from cost reduction in several situations and having more flexibility in scheduling the start and execution times for running their applications.

For accessing cloud resources, the consumer and the provider making deals within the cloud computing environment.

Identifying an agreement among the consumer and the provider to address the loss, the agreement specifying at least minimum service requirements. Exchanging the resources at a service level at least equal to the minimum service level and for a price does not exceed the maximum price specified in the agreement and identify the comprising agreement database for an agreement through negotiation by the provider. Toward scheduling a task to an adaptable resources for a negotiation in accord with adaptable time, which involves finding out an appropriate order which all the tasks can be executed such that execution time and execution cost can be minimized .A negotiation mechanism provides a means for consumers to begin contracts with providers to assurance that consumers can run their applications at the reserved time slots without interval. Besides, the negotiation method should also permit both providers and consumers to specify their preferences. For example, providers may charge a higher price for as long as services at peak time and a lower price at nonpeak time, and consumers may want to pay a higher (correspondingly, lower) price to use a service at more (correspondingly, less) desirable time slots. In this work, a price and time slot technique so as to enables both providers and customers to do the following:

1) Specify their preference on behalf of price and time slot and
2) search for mutually suitable prices and time slots.

III. NEGOTATION ALGORITHMS

A. Tradeoff Algorithm (Burst Mode)

Tradeoff Algorithm called a “burst mode” proposal, which is designed to enhance both the negotiation speed and the aggregated utility. In the burst mode, agents are allowed to concurrently make multiple proposals, with each proposal consisting of a different pair of price and time slot that generates the same aggregated utility. These concurrent proposals differ from each other only in terms of the individual price and time-slot utilities. The consumer can choose from the available proposals. If the consumer is satisfied with the given proposal the resource will be allocated to the consumer. If the consumer is not satisfied with the available proposals, then the consumer will be making some proposals with their preferred price and time.

B. Concession Algorithm

The concession making algorithm will generate concessions when the new proposals can be made. The consumers who are not satisfied with the given proposals can give their preferred proposals. The given proposals will be compared with the condescend proposals; if it is acceptable then the service will be given the consumer. Else the negotiation takes place. If the consumer is not satisfied with the available proposals, then the concession making algorithm is used by the provider to make the compromise on the price. And the consumer will provide with the preferred time and price.

IV. PROPOSED SYSTEM ANALYSIS

A. User Registration (User Login)

This part is helpful for user to join with our services and it is user friendly. User can login to this page for join in our service. User can get unique username and password. Once they get the registration id and password they can use the resources provided by our service.

If the registration id and password matches then only user can use our resources. Only authorized user can use our resources. Unauthorized user cannot able to use our resources. If they are successfully login they can further access the resources provided by our service.

B. Cloud Service Provider Login

Cloud is environmental friendly and promotes telecommuting techniques. Cloud provides a platform where three elements such as Infrastructure as a service (IaaS), Platform as a Service (PaaS) and Software as a service (SaaS) to provide the requirements of the customer in most efficient manner. In cloud shared resources, software, and information are provided to computers as a metered service.

IaaS providers give a virtual server to start, stop, and access and configure an online storage. This allow a company to pay only as much capacity as needed. PaaS providers host a set of software and product development tools as online infrastructure, to allow the developers the ability to create applications on platform. SaaS provides no investment in servers or software licensing. Desktop as a Service (DaaS) is an emerging service which deals with providing a whole desktop experience over the internet. It is also referred as desktop virtualization. Elasticity means that platform can handle sudden, unanticipated and extraordinary loads. Scalability is a planned level of capacity with ability to scale in a quick and easy manner when need more or less resources. Data integrity is a property that ensures that the data is of high

quality, correct, consistent and accessible. Reliability is the ability to perform and maintain its function in routine as well as unexpected circumstances. Resource allocation is very important for virtualization platform. Resource allocation can be done based on the information from different domains. It depends on bandwidth and time. In the method of weighted allocation, all the domains are of same weight. It provides a better scheduling and performance. Resource allocation considers the factors such as resource cost, resource.

C. Cloud User Agent Login

Cloud User Agent is responsible for collecting users' cloud service requirements, for creating and updating the SLAs in order to grant always to best QoS. User agent is mediator between the user and the cloud provider agent, he selects appropriate algorithm for negotiation and sent back best proposal to user

D. Cloud Provider Agent Login

Cloud Service Provider Agent is responsible for collecting information about the cloud resources from various cloud service for, for creating and updating the SLAs in order to grant always to best QoS. Provider agent is mediator between the user agent and the cloud provider, he selects appropriate algorithm for negotiation and sent multi proposal or single proposal according algorithm to user agent

E. Cloud Provider Backup Agent Login

Cloud Provider's Backup Agent is active when the provider's agent is overloaded and he is having too much pending request of negotiation so to help the provider's agent & to decrease the load of the provider agent the backup agent handle the excess request from the cloud service user.

V. EXPECTED OUTPUT SCREENS

A. User Registration (User Login)

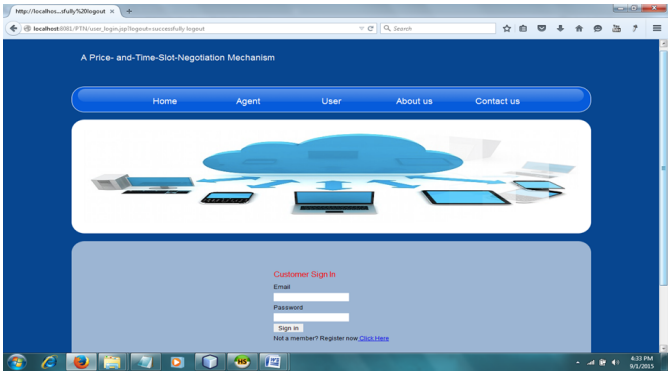

Figure 1.

B. User Home Page

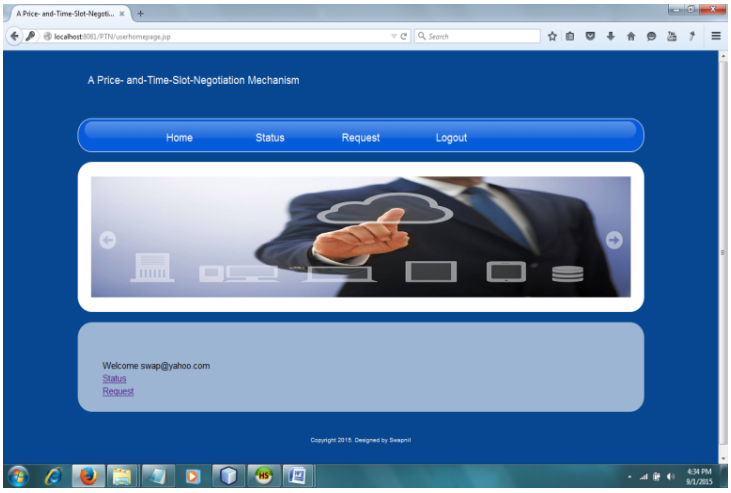

Figure 2.

C. New Cloud Reservation Request

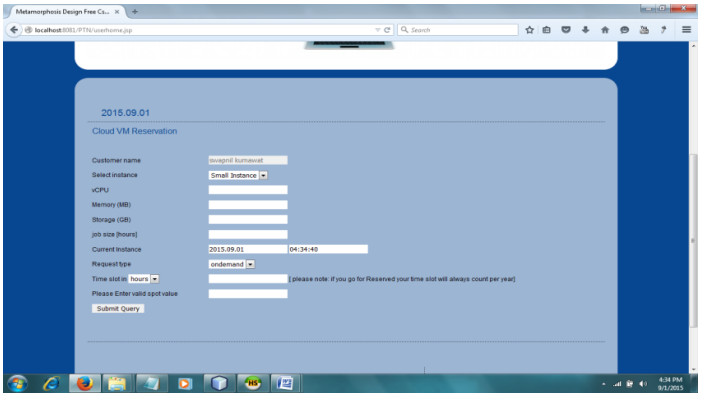

Figure 3.

D. User Agent Home Page

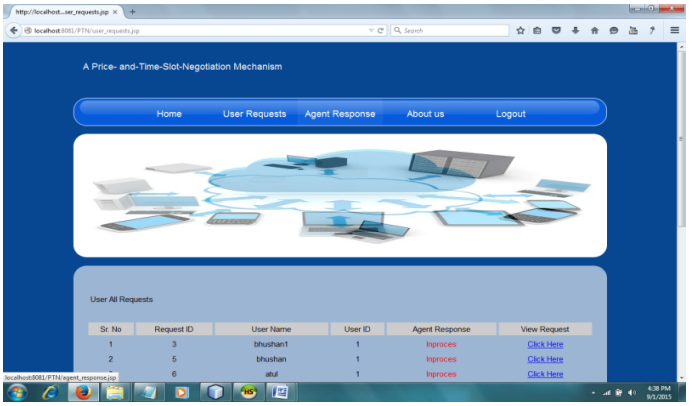

Figure 4.

E. CSP Agent Home Page

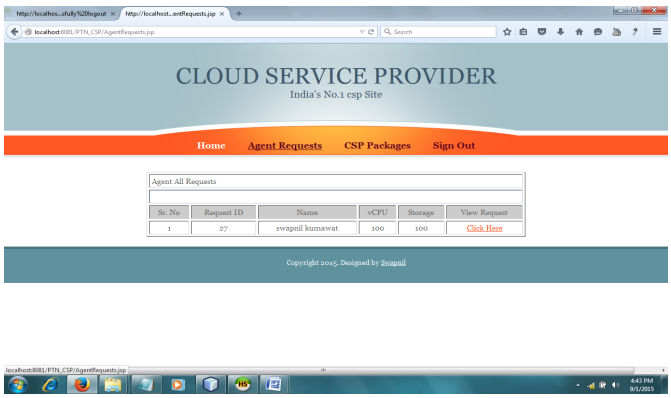

Figure 5.

VI. CONCLUSION

We have presented negotiation techniques is capable to prevent the loss in price for both providers and customers. The final negotiation result will be either the compromised QoS requirements or a failed submission of the cloud workflow instance. A Scientific Workflow System provides mechanism to gracefully handle the resource negotiation. This paper discussed the negotiation techniques in cloud computing and focus on scientific workflow based on price and time utility functions and simulation of cloud computing systems .An enhanced tradeoff algorithm, known as the "burstmode" proposal, is used to increase both the negotiation speed and the aggregated utility. In existing agent can only make one proposal at a time, PTN agents can concurrently make multiple proposals. Thus the effectiveness of PTN mechanism with QoS is improved. Using the PTN mechanism, not only consumers can benefit by paying a lower price but also providers can have more flexibility in allocating consumers' applications to other available time slots, hence achieving more efficient resource utilization.

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