Dynamic Expansion Geo-Dispersed in Cloud Data Centers for Maximization in Financial Benefits

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Abstract— Cloud computing has emerged in recent years as one of the most interesting developments in technology. The adoption and deployment of cloud computing platforms have many attractive benefits, such as reliability and robustness geographically distributed datacenters. Now a day's cloud users are increasing rapidly. In existing system single data center is there. Each and everyone can store their data in that datacenter means it is very difficult to maintain and the user don't have a required resources. Due to this one user and csp both are not silicified. To overcome this problem we move to proposed model. In this paper, we present a cloud system model for the cloud provider to dynamically expand the scale of geo-distributed date centers. In our model, the cloud provider rents hardware resources from other resource owners (ROs), who have redundant resources and are willing to lease them. We propose an optimization problem for the cloud provider to maximize the profit, and carefully solve it in different conditions.

Keywords: Geo-Distributed Clouds, Dynamic Expansion, Resource Owner, Cloud Data Centers, Maximizing Re: Venues

I. INTRODUCTION

Cloud computing makes computer system resources, especially storage and computing power, available demand without direct active management by the user. The term is generally used to describe data centers available to many users over the Internet. Large clouds, predominant today, often have functions distributed over multiple locations from central servers. If the connection to the user is relatively close, it may be designated an Edge server. Clouds may be limited to a single organization (enterprise clouds,) be available to many organizations (public cloud,) or a combination of both (hybrid cloud.) The largest public cloud is Amazon AWS. Cloud computing relies on sharing of resources to achieve coherence and economies of scale. With people paying more attention to internet services, the scale of cloud applications becomes tremendous, due to a growing number of users in an increasing number of regions and abundant data to be stored and transmitted. Most of them need to be geo-distributed, which means they are deployed across multiple data centers around the world. Thus, a single cloud data center cannot supply the demands of applications. To support these large-scale applications, in cloud computing platform, e.g. Amazon EC2 and Google Cloud Platform, a lot of cloud data centers are distributed all over the world and the number of them is continuing to grow. With the fast development of cloud computing, the cloud data centers become larger in scale and are distributed over more areas. The geo-distribution allows a user to be served by a nearby data center, thereby reducing user's response latency and bandwidth consumption. However, there also exists many limitations in most modern cloud systems, such as limited capacity of the data centers and small area covered by cloud service. Google expands its data centers by adding more servers every year. These limitations may lead to the slow development of geo-distributed clouds in the following years. A natural method to solve them is to purchase enough servers to expand and build cloud data centers. Nevertheless, this method will cost a great deal of financial resources. For example, Google has spent nearly $11 billion on servers and data centers in 2015. In addition, in order to satisfy more cloud users' VM demands, there are many literatures that investigate the technologies of cloud resource provisioning, using the scarcity of cloud resources. By considering offering the most flexible dynamic VM assembly, Zhang et al have proposed an efficient randomized auction mechanism based on a novel application of smoothed analysis and randomized reduction, for dynamic VM provisioning and pricing in geo-distributed cloud data centers. Chaisiri et al. have proposed an optimal cloud resource provisioning algorithm to provision resources offered by multiple cloud providers. The algorithm can be used as a resource provisioning tool for cloud computing market to save the total cost. However, these studies also exist a lot of issues for cloud users to deploy their applications. For example, the cloud users' VM requests may be refused, due to the deficiency in cloud resources. It is well known that the network latency is proportional to the transmission distance. If there are many uncovered areas, many cloud users will select the farther cloud data centers, leading to high response latency. When the cloud users require VMs, the cloud provider rents appropriate quantity of resources from ROs such that they can be packed in enough VMs. It will not only improve the flexibility and extensibility for cloud system and save the cost of expanding data centers, but also provide better services to more cloud users. Note that the ROs' resources and rentals are different, the cloud provider can carefully select appropriate resources to decrease the total rental.

II. LITERATURE SURVEY

Before developing the tool it's necessary to work out the time issue, economy n company strength. Once this stuff area unit happy, ten next steps are to determine which operating system and language can be used for developing the tool. Once the programmers begin building the tool the programmers want heap of external support. This support will be obtained from senior programmers, from book or from websites. Before building the system the on top of thought area unit taken into consideration for developing the planned system. Distributed redundancy and robustness in complex systems The uptake and increasing prevalence of Web 2.0 applications, promoting new large-scale and complex systems such as Cloud computing and the emerging Internet of

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Services/Things, requires tools and techniques to analyze and model methods to ensure the robustness of these new systems.

This paper reports on assessing and up advanced system resilience victimization distributed redundancy, termed degeneracy in biological systems, to endow large-scale complicated computer systems with the same robustness that emerges in complex biological and natural systems.

However, so as to market associate organic process approach, through emergent self-organization, it is necessary to specify the systems in an 'open-ended' manner where not all states of the system.

In particular associate observer system is employed to pick sturdy topologies, within system components, based on a measurement of the first non-zero Eigen value in the Laplacian spectrum of the components' network graphs; also known as the algebraic connectivity.

It is shown, through experimentation on a simulation, that increasing the average algebraic connectivity across the components, in a network, leads to an increase in the variety of individual components termed distributed redundancy; the capacity for structurally distinct components to perform an identical function in a particular context.

The results area unit applied to a selected application wherever active bunch of like services is employed to help load equalization in an exceedingly extremely distributed network. Using the delineate procedure is shown to enhance performance and distribute redundancy. Online migration for geo-distributed storage systems.We consider the problem of migrating user data between data centers. We introduce distributed storage overlays, a simple abstraction that represents data as stacked layers in different places. Overlays can be readily used to cache data objects, migrate these caches, and migrate the home of data objects. We implement overlays as a part of a key-value object store known as wanderer, designed to span several information centers.

Using Nomad, we compare overlays against common migration approaches and show that overlays are more flexible and impose less overhead. To drive migration decisions, we propose policies for predicting the location of future accesses, focusing on a web mail application. We evaluate the migration policies using real traces of user activity from Hotmail.

III. PROPOSED MODEL

In this paper, we present a cloud system model for the cloud provider to dynamically expand the scale of geo-distributed date centers. In our model, the cloud provider rents hardware resources from other resource owners (ROs), who have redundant resources and are willing to lease them. In this condition the cloud provider provides required resources to our customers automatically both are satisfied. In this condition both can get profits.

A. Algorithm:

Revenue-Oriented Selection (ROS) Algorithm Which is called Revenue-Oriented Selection (ROS) algorithm. To achieve that, we should obtain the set of accepted ROs and the set of accepted cloud users. We adopt a greedy strategy to obtain the set of accepted ROs. First, we introduce a parameter αr = pr br , where pr = ∑ z∈Z ∑ k∈K q r z,kpk is the income of leasing all r's resources to cloud users. It is obvious that the smaller br is, the larger αr is, when the price pr is fixed. To maximize the revenue of the cloud system, the cloud provider is more likely to accept the RO r which has larger αr. Thus, in our algorithm, we prefer to select the RO with larger αr. The detailed description of the heuristic algorithm is at the beginning of the algorithm, we initialize both of the set of accepted ROs x and the set of accepted cloud users y to empty set. The parameters x ∗ and y ∗ are the temporary caches of x and y, respectively. Then, the parameter or, r ∈ R are calculated. After the initialization step, the process enters the iteration step. We perform |R| iterations in this step, and each of iteration greedily selects the combination of x and y such that the value of p(x,y) is larger, where p(x,y)= P revenue cu − Pro is the revenue when x and y are adopted by the cloud provider. Each iteration index first selects the RO ri such that the value αri is maximized. Then, we set x ∗ ri to 1, that is, the RO ri set to be accepted in x ∗. Next, we obtain the set of accepted cloud users y ∗ by solving IP (1), in which the parameter x is set to x ∗ Revenue management for remanufactured products has not been self-addressed in literature to this point.

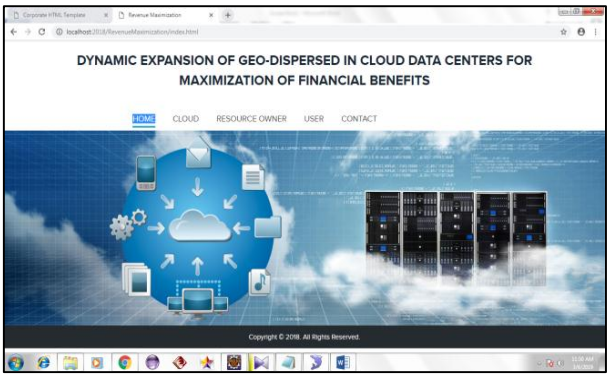
There can be over one quality level of the recovered merchandise, which would draw different prices in the secondary markets.

In this paper, we tend to develop a evaluation model to maximise the expected revenue from the recovered merchandise.

Numerical examples are included for illustration. We propose a method called Selection by Performance Prediction (SPP) which allows one, when faced with a particular problem instance, to select a Branch and Bound algorithm from among several promising ones. This method is based on Knuth's sampling method which estimates the efficiency of a back track program on a particular instance by iteratively generating random paths in the searee

IV. RESULTS AND ANALYSIS

A. Screenshots



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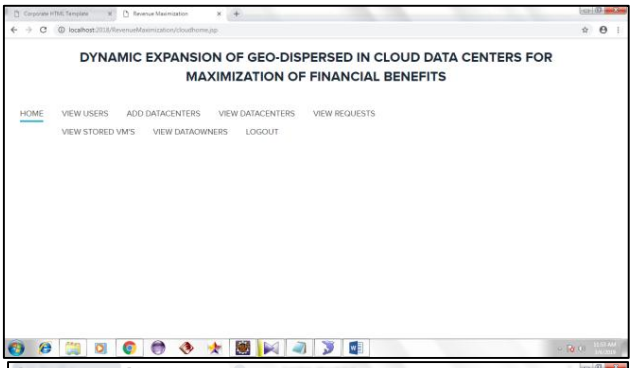

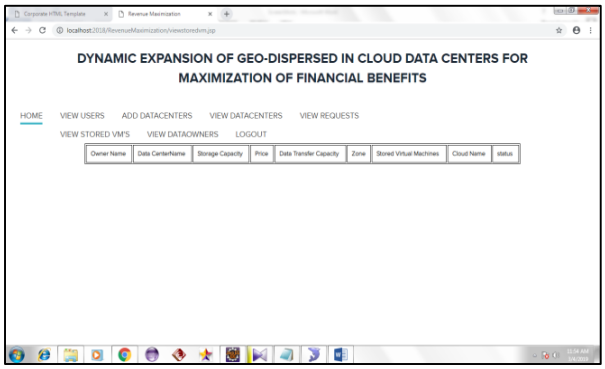

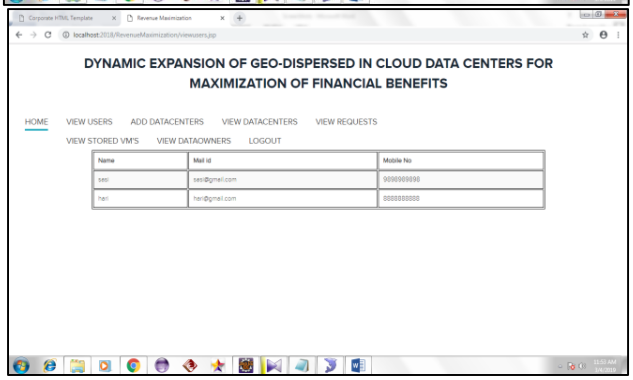

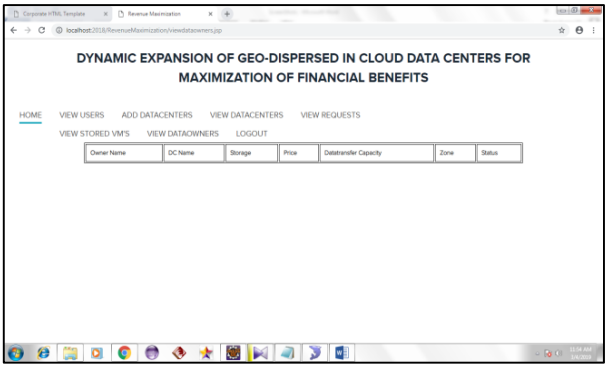

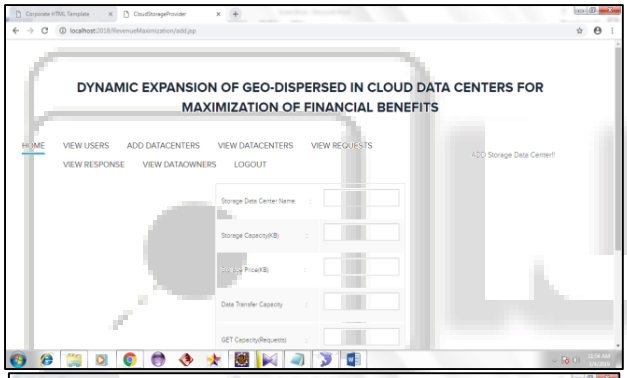

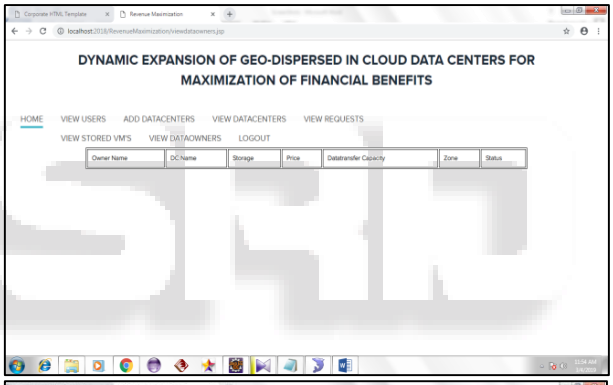

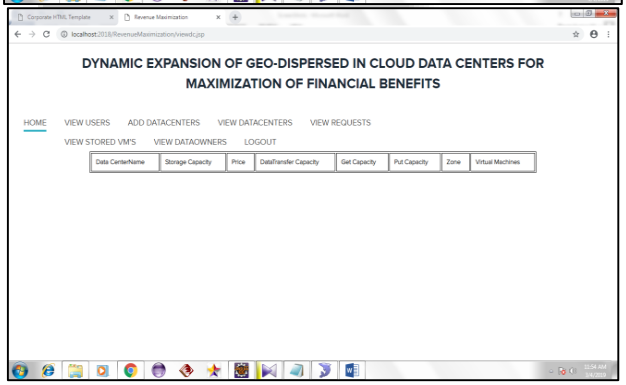

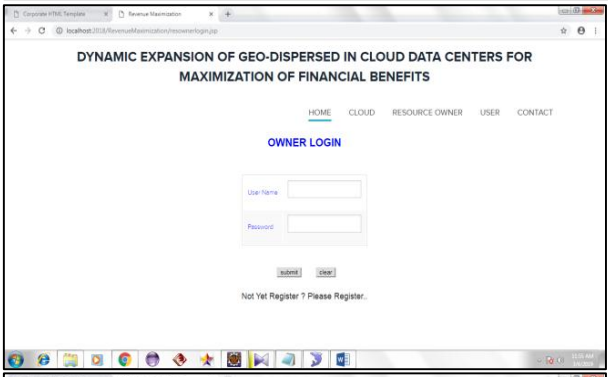

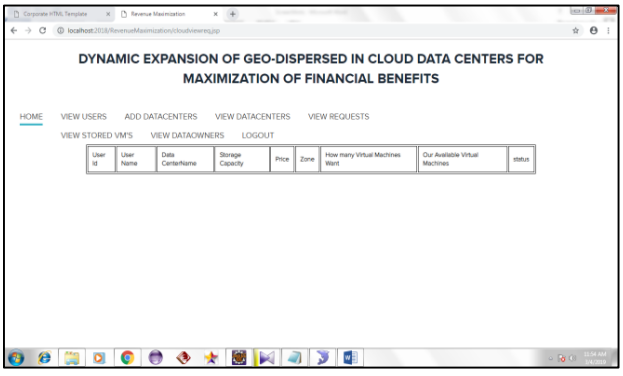

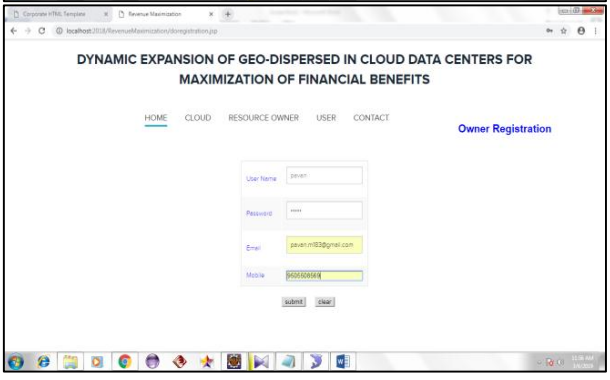

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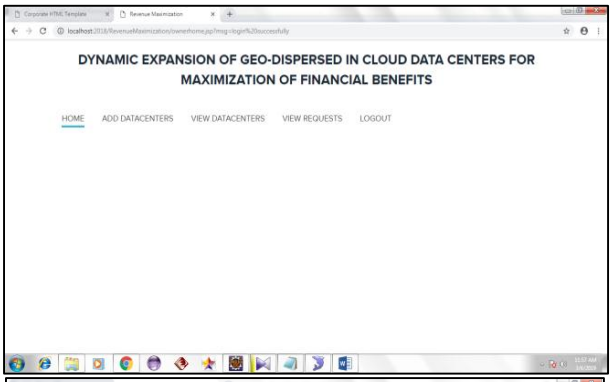

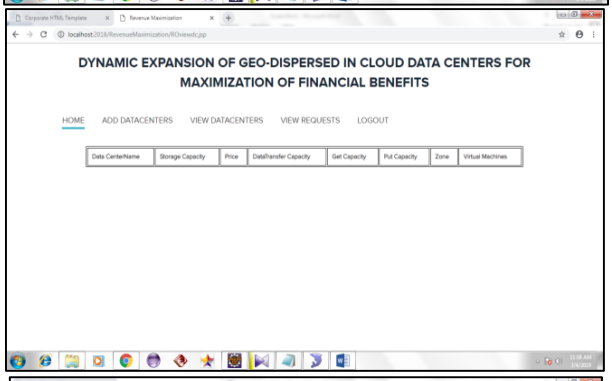

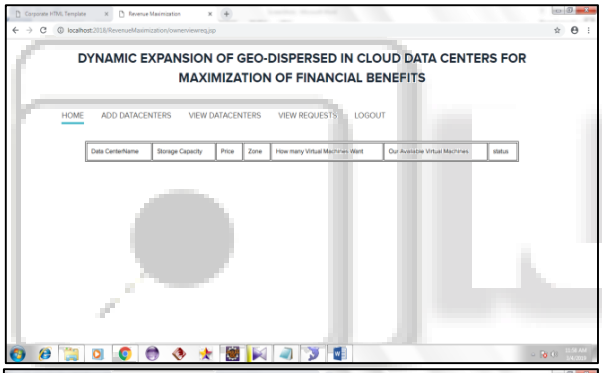

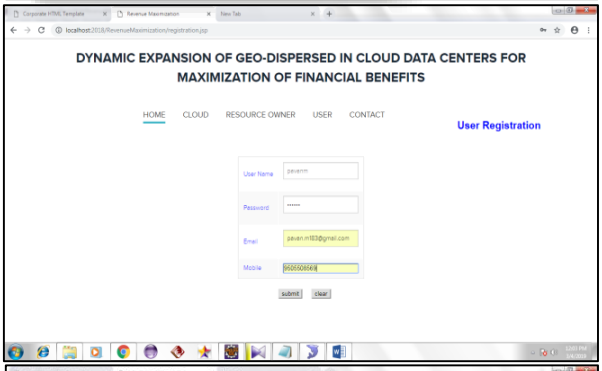

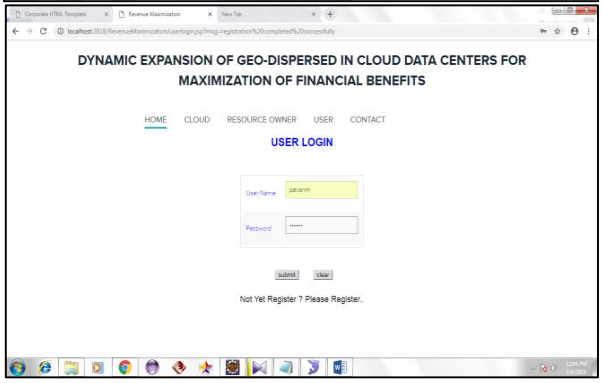

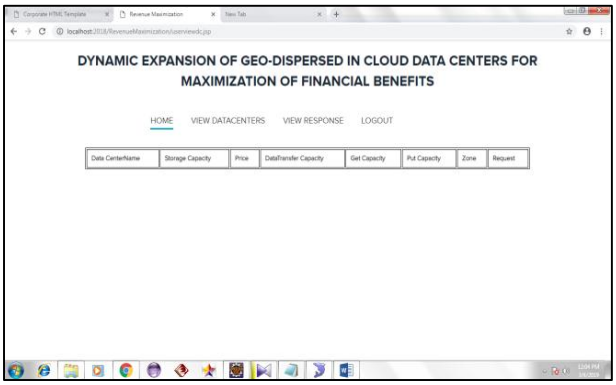

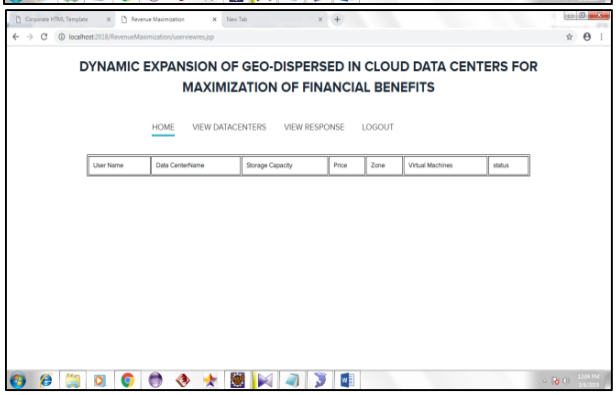

V. CONCLUSION

The deficiency in cloud resources and data centers, there exists a lot of bad user experiences for cloud users, such as high response latency and the VM requests being refused. In this, we investigate the technology of dynamically expanding the scale of geo-distributed clouds. First, we tend to propose a cloud system model, in which the cloud provider rents hardware resources from other resource owners (ROs), who have redundant resources and are willing to lease them. For maximizing the revenue of the cloud system, we define two problems of expanding geo-distributed clouds with two service modes, as well as revenue-oriented and service-oriented

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