A NOVEL APPROACH FOR PROFIT MAXIMIZATION IN CLOUD COMPUTING USING MULTI SERVER ENVIRONMENT

CHIPPADA VASAVI LALITHA [#1], V.SARALA [#2]

[#1] MCA Student, Master of Computer Applications,

D.N.R. College, P.G.Courses & Research Center, Bhimavaram, AP, India.

[#2] Assistant Professor, Master of Computer Applications,

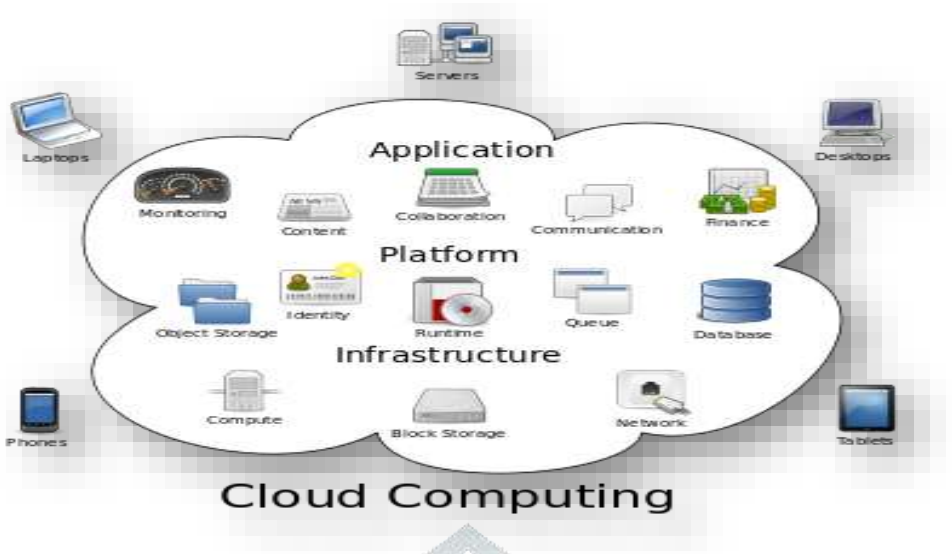
D.N.R. College, P.G.Courses & Research Center, Bhimavaram, AP, India.

ABSTRACT

Now a days cloud computing has become one of the fascinating domain which was accessed by almost all users in order to store ,retrieve and access the data from remote systems rather than from the local machines. Along with the development of cloud computing, an increasing number of enterprises start to adopt cloud service, which promotes the emergence of many cloud service providers. For different type of CSPs, how to configure their cloud service platforms to obtain the maximum profit becomes increasingly the focus that they pay attention to. In this paper, we take customer satisfaction into consideration to address this problem. Customer satisfaction mainly depends on two factors : One is which type of service is allocated for them by the BSP and second one is how much reasonable is the service in terms of cost and space. If these two constraints are achieved ,then the customers will be satisfied and in turn more and more customers can able to join and use this cloud service

1. INTRODUCTION

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation. Cloud computing consists of hardware and software resources made available on the Internet as managed third-party services. These services typically provide access to advanced software applications and high-end networks of server computers.



How Cloud Computing Works?

The goal of cloud computing is to apply traditional supercomputing, or high-performance computing power, normally used by military and research facilities, to perform tens of trillions of computations per second, in consumer-oriented applications such as financial portfolios, to deliver personalized information, to provide data storage or to power large, immersive computer games.The cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing.

PROBLEM STATEMENT

In current days cloud computing has become one of the fascinating domain which was accessed by almost all users in order to store ,retrieve and access the data from remote systems rather than from the local machines. Along with the development of cloud computing, an increasing number of enterprises start to adopt cloud service, which promotes the emergence of many cloud service providers. For different type of CSPs, how to configure their cloud service platforms to obtain the maximum profit becomes increasingly the focus that they pay attention to.In this proposed work, we take customer satisfaction into consideration to address this problem. Customer satisfaction mainly depends on two factors : One is which type of service is allocated for them by the BSP and second one is how much reasonable is the service in terms of cost and space. If these two constraints are achieved ,then the customers will be satisfied and in turn more and more customers can able to join and use this cloud service.

2. LITERATURE SURVEY

Literature survey is the most important step in software development process. Before developing the tool, it is necessary to determine the time factor, economy and company strength. Once these things are satisfied, then next steps are to determine which operating system and language used for developing the tool. Once the programmers start building the tool, the programmers need lot of external support. This support obtained from senior programmers, from book or from websites. Before building the system the above consideration r taken into account for developing the proposed system.

RELATED WORK

1) Optimal multiserver configuration for profit maximization in cloud computing

AUTHORS: J. Cao, K. Hwang, K. Li, and A. Y. Zomaya

As cloud computing becomes more and more popular, understanding the economics of cloud computing becomes critically important. To maximize the profit, a service provider should understand both service charges and business costs, and how they are determined by the characteristics of the applications and the configuration of a multiserver system. The problem of optimal multiserver configuration for profit maximization in a cloud computing environment is studied. Our pricing model takes such factors into considerations as the amount of a service, the workload of an application environment, the configuration of a multiserver system, the service-level agreement, the satisfaction of a consumer, the quality of a service, the penalty of a low-quality service, the cost of renting, the cost of energy consumption, and a service provider's margin and profit. Our approach is to treat a multiserver system as an M/M/m queuing model, such that our optimization problem can be formulated and solved analytically. Two server speed and power consumption models are considered, namely, the idle-speed model and the constant-speed model. The probability density function of the waiting time of a newly arrived service request is derived. The expected service charge to a service request is calculated. The expected net business gain in one unit of time is obtained. Numerical calculations of the optimal server size and the optimal server speed are demonstrated.

2) A profit maximization scheme with guaranteed quality of service in cloud Computing

AUTHORS:J. Mei, K. Li, A. Ouyang, and K. Li

As an effective and efficient way to provide computing resources and services to customers on demand, cloud computing has become more and more popular. From cloud service providers' perspective, profit is one of the most important considerations, and it is mainly determined by the configuration of a cloud service platform under given market demand. However, a single long-term renting scheme is usually adopted to configure a cloud platform, which cannot guarantee the service quality but leads to serious resource waste. In this paper, a double resource renting

scheme is designed firstly in which short-term renting and long-term renting are combined aiming at the existing issues. This double renting scheme can effectively guarantee the quality of service of all requests and reduce the resource waste greatly. Secondly, a service system is considered as an M/M/m+D queuing model and the performance indicators that affect the profit of our double renting scheme are analyzed, e.g., the average charge, the ratio of requests that need temporary servers, and so forth. Thirdly, a profit maximization problem is formulated for the double renting scheme and the optimized configuration of a cloud platform is obtained by solving the profit maximization problem. Finally, a series of calculations are conducted to compare the profit of our proposed scheme with that of the single renting scheme. The results show that our scheme can not only guarantee the service quality of all requests, but also obtain more profit than the latter.

3) An experimental study of customer effort, expectation, and satisfaction

AUTHORS:R. N. Cardozo

Results of a laboratory experiment indicate that customer satisfaction with a product is influenced by the effort expended to acquire the product, and the expectations concerning the product. Specifically, the experiment suggests that satisfaction with the product may be higher when customers expend considerable effort to obtain the product than when they use only modest effort. This finding is opposed to usual notions of marketing efficiency and customer convenience. The research also suggests that customer satisfaction is lower when the product does not come up to expectations than when the product meets expectations.

3. EXISTING SYSTEM

All the existing cloud servers try to store the data in a plain text manner rather than in a encrypted manner. Here the file content as well as file related information is stored in the form of plain text manner and hence there is no security for the data which is stored in the existing clouds.In the existing cloud service providers, all the data is stored under single server configuration model, which is a major problem where the profit is not achieved upto the mark for the customers.All the data plans are based on infra structures chosen by cloud users and some times there will be huge maintenance burden for the pre-defined un-used services There is no optimal technique to reduce the storage cost and maintenance cost in the current or primitive CSPs.

LIMITATION OF EXISTING SYSTEM

The following are the limitation of existing system. They are as follows:

1. There is no accuracy and efficiency for data stored in the primitive cloud servers
2. All the data is stored in the form of plain text and even the file related information is also stored in the plain text manner.
3. So there is no level of security for the end users data in the primitive CSPs.
4. All the primitive cloud service providers use the single server configuration model rather than multi-level server configuration model.

4. PROPOSED SYSTEM

The customer behavior depends on if the cloud service is attractive enough to them. To configure a cloud service platform properly, the cloud service provider should know how customer satisfaction affects the service demands. Hence, considering customer satisfaction in profit optimization problem is necessary. To address the problem, this paper adopts the thought in Business Administration, and firstly defines the customer satisfaction level of cloud computing.

ADVANTAGES OF THE PROPOSED SYSTEM

The following are the advantages of the proposed system. They are as follows:

1. Here in the proposed system we try to use RSA algorithm for encrypting the cloud information like incoming user request from business service providers(BSP) and Cloud service Providers (CSP)
2. Here we try to use multi server configuration model in order to allocate the resources in a multi environment model
3. Here we achieved a high level of optimization of cloud resources by various cloud customers and hence it is a profit maximization approach

The proposed mechanism is a proof of model in which a lot of customers can gain profit in allocating resources under this model and we have show a simulation for this optimization problem

5. SOFTWARE PROJECT MODULES

Implementation is the stage where the theoretical design is converted into programmatically manner. In this stage we will divide the application into a number of modules and then coded for deployment. We have implemented the proposed concept on Java programming language with JEE as the chosen language in order to show the performance this proposed novel IPath protocol. The front end of the application takes JSP,HTML and Java Beans and as a Back-End Data base we took My-SQL Server. There are 4 modules in the application

1. Customer
2. Business Service Provider
3. Infrastructure Service Provider
4. Service Level Agreement

Now let us discuss about each and every module in detail as follows:

5.1 Customer Module

In this module, Initially customer have to register their details and after registering the account activation mail will be send to the customer mail id.Then customer can login into the module and he/she will select the cloud server

according to the storage limit and plan then the request will send to the Business Service Provider after request granted customer can upload files in the allocated storage.

5.2 Business Service Provider Module

In this module, Business Service Provider will view all the customer details and activate their accounts then the account activation mail will send to the customer. Business Service Provider also can view the server storage details allocated to the customer.

5.3 Infrastructure Service Provider Module

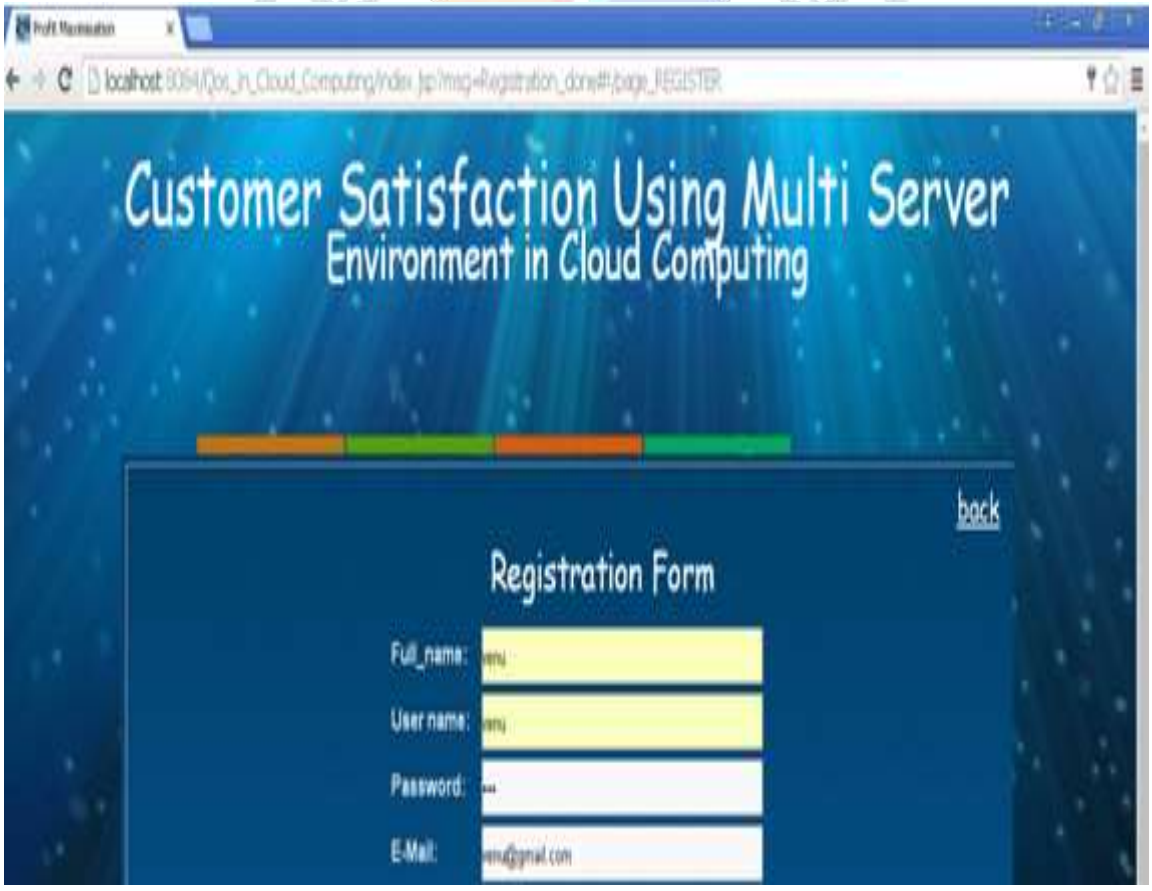
In this module , Infrastructure Service Provider can view storage server details and file details uploaded on the cloud server.

5.4 Service Level Agreement Module

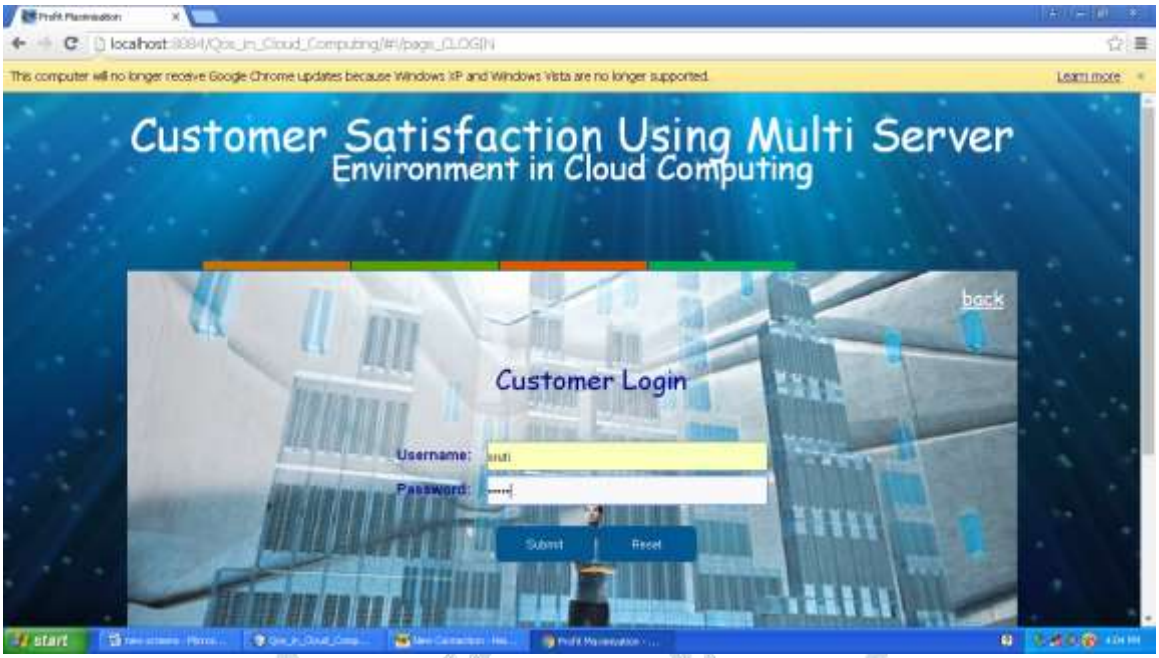
A service level agreement (SLA) is a contract between a service provider (either internal or external) and the end user that defines the level of service expected from the service provider

6. RESULTS (OUTPUT SCREENS)

CUSTOMER REGISTRATION:

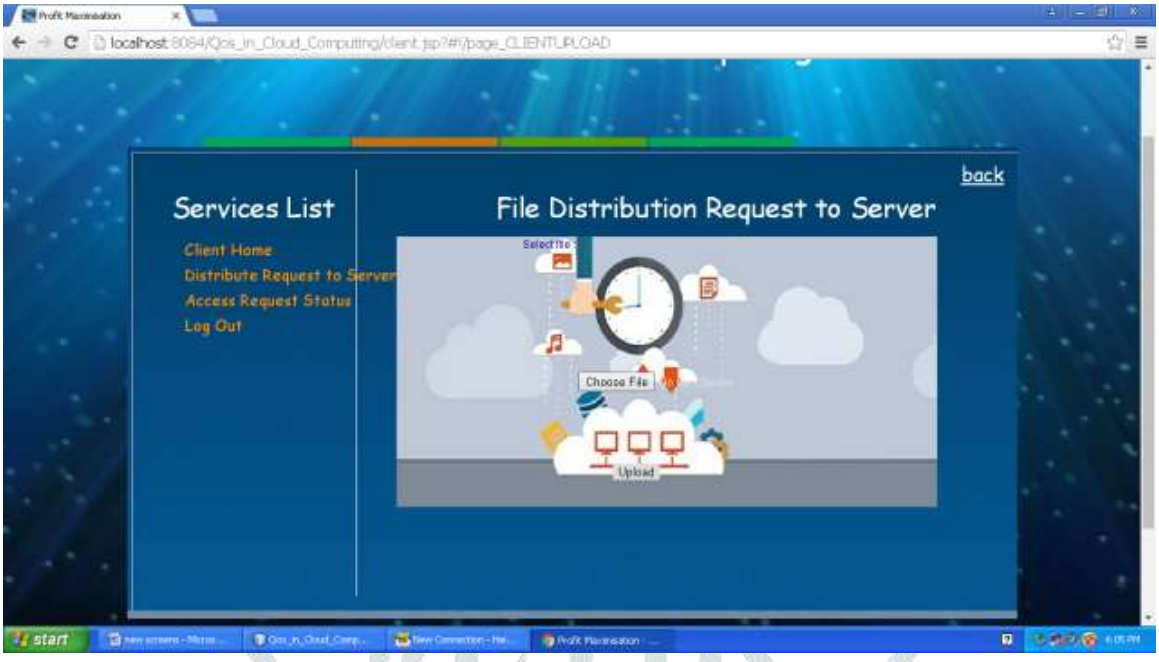


CUSTOMER LOGIN

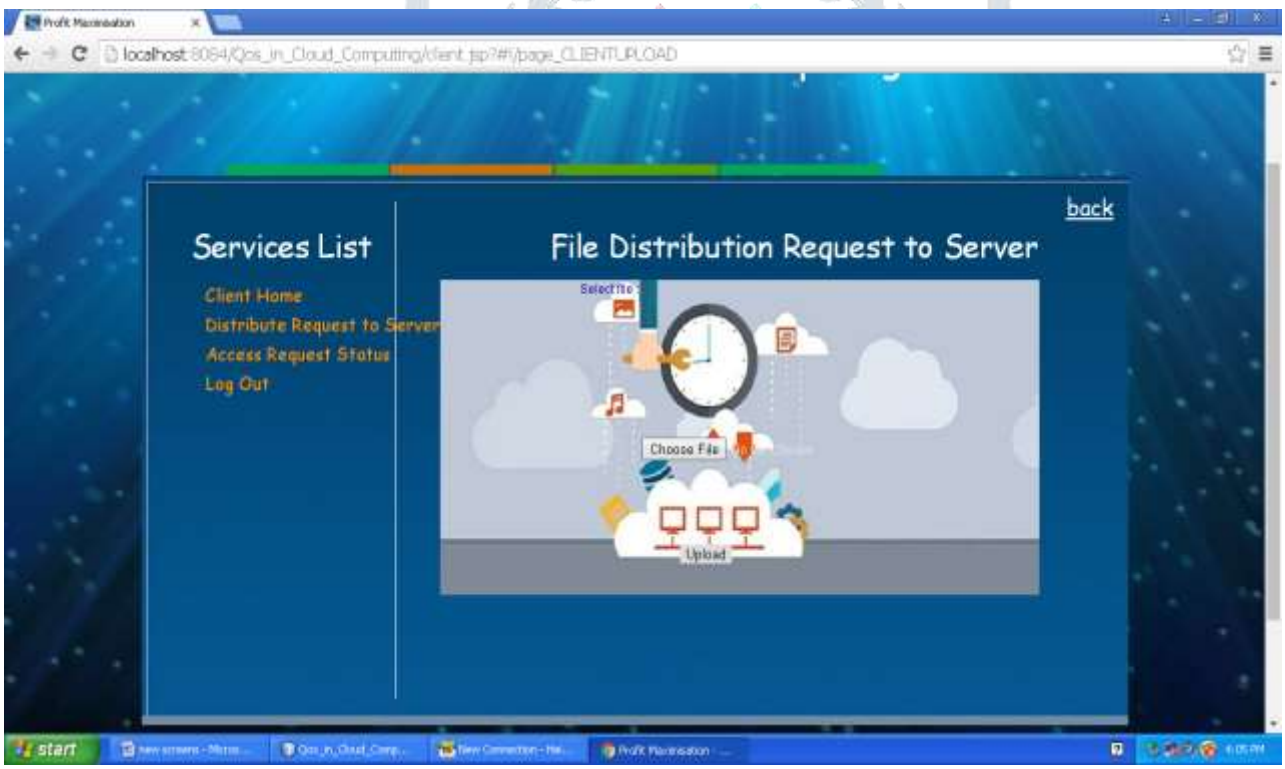


CUSTOMER HOME PAGE

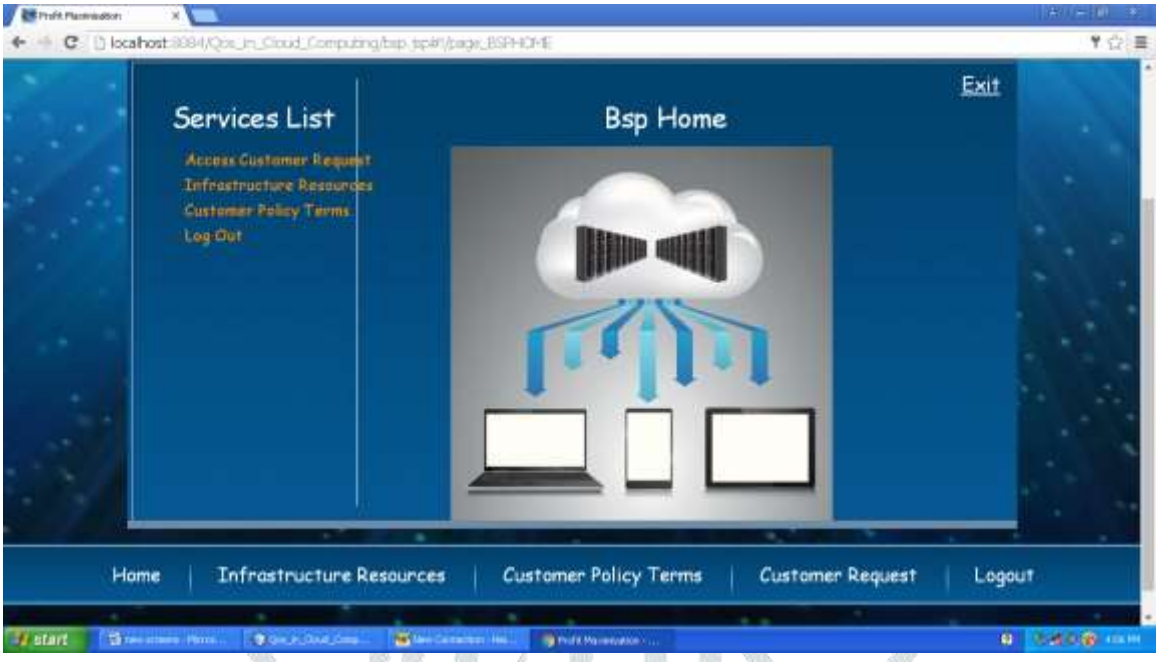
CUSTOMER DISTRIBUTED REQUEST TO SERVER



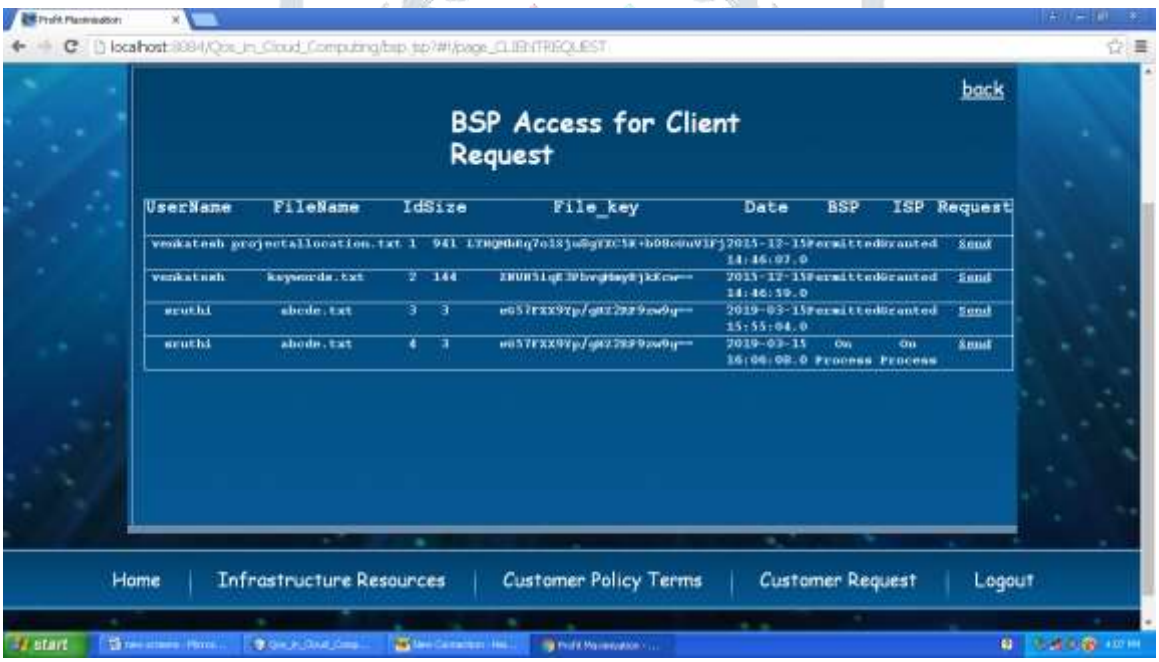
BSP LOGIN



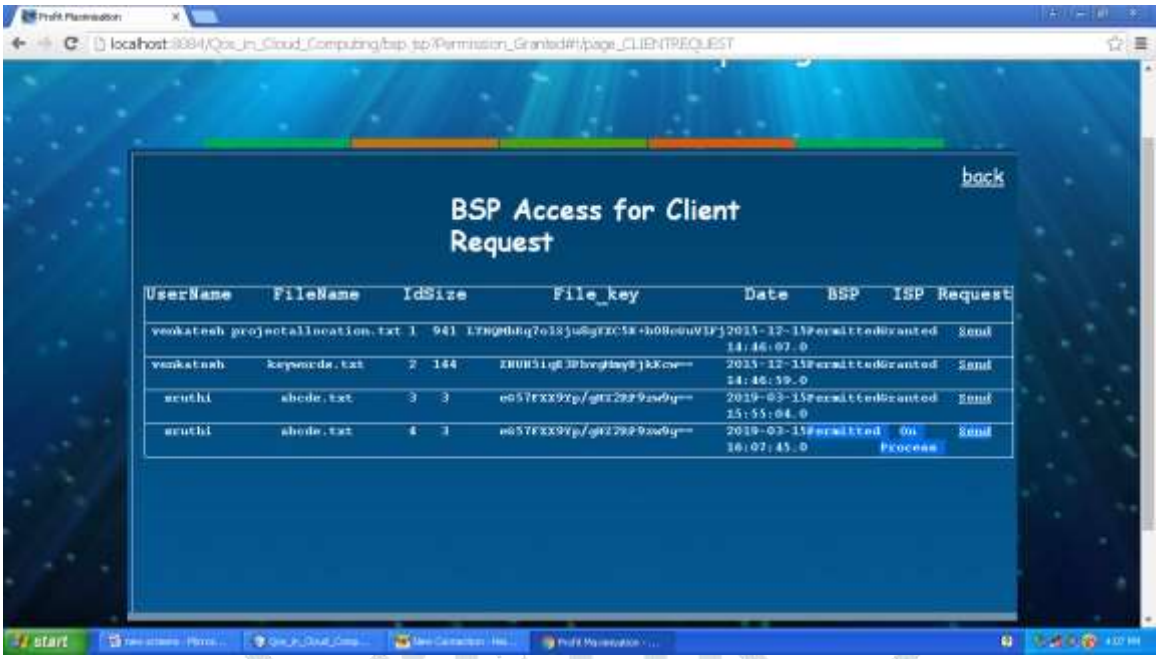
BSP HOME PAGE



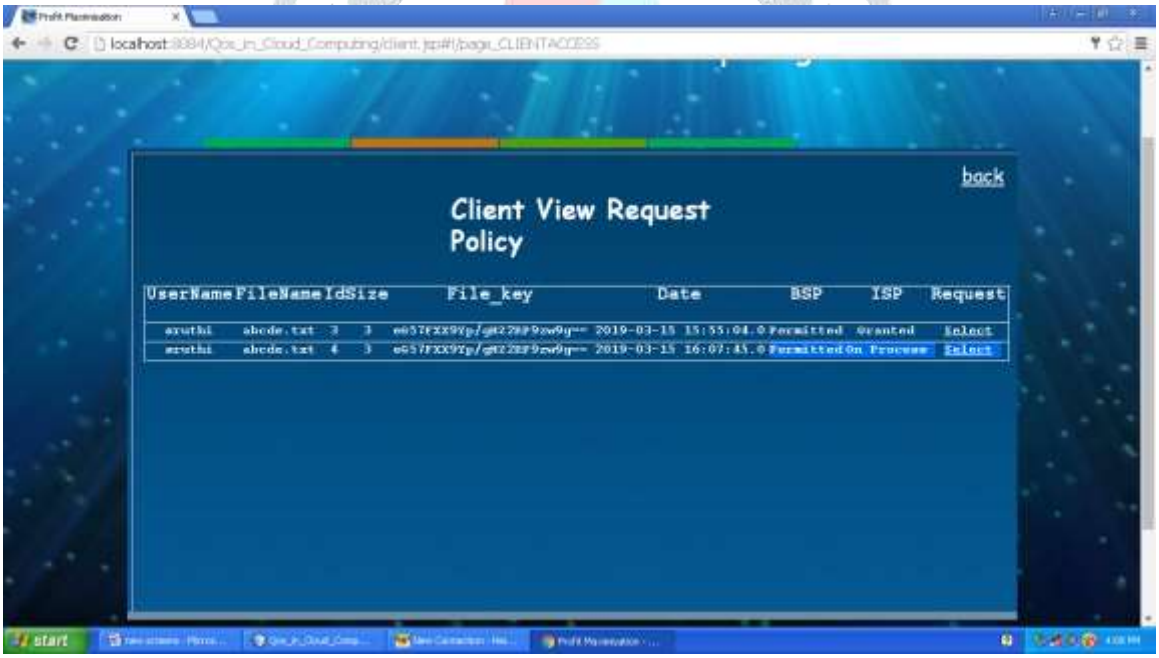
BSP ACCESS FOR CLIENT REQUEST



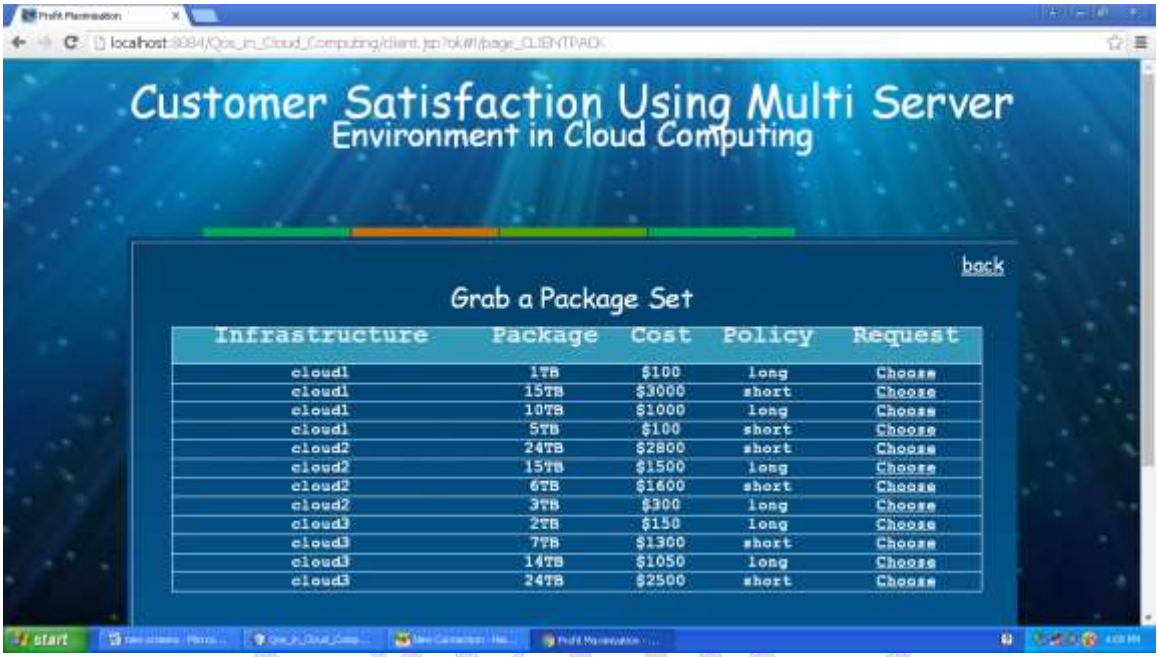
BSP ACCESS FOR CLIENT REQUEST IS PERMITTED



CLIENT VIEW REQUEST POLICY

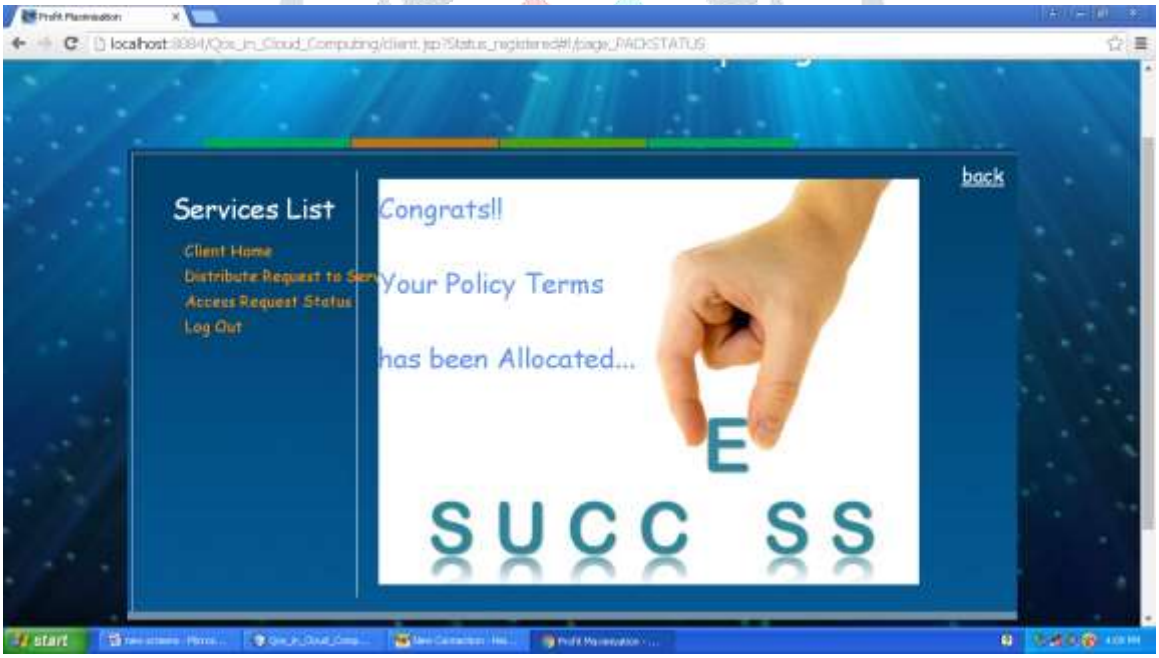


CUSTOMER PACKAGE SELECTION



Infrastructure	Package	Cost	Policy	Request
cloud1	1TB	$100	long	Choose
cloud1	15TB	$3000	short	Choose
cloud1	10TB	$1000	long	Choose
cloud1	5TB	$100	short	Choose
cloud2	24TB	$2800	short	Choose
cloud2	15TB	$1500	long	Choose
cloud2	6TB	$1600	short	Choose
cloud2	3TB	$300	long	Choose
cloud3	2TB	$150	long	Choose
cloud3	7TB	$1300	short	Choose
cloud3	14TB	$1050	long	Choose
cloud3	24TB	$2500	short	Choose

CUSTOMER SELECTION SUCCESSFUL

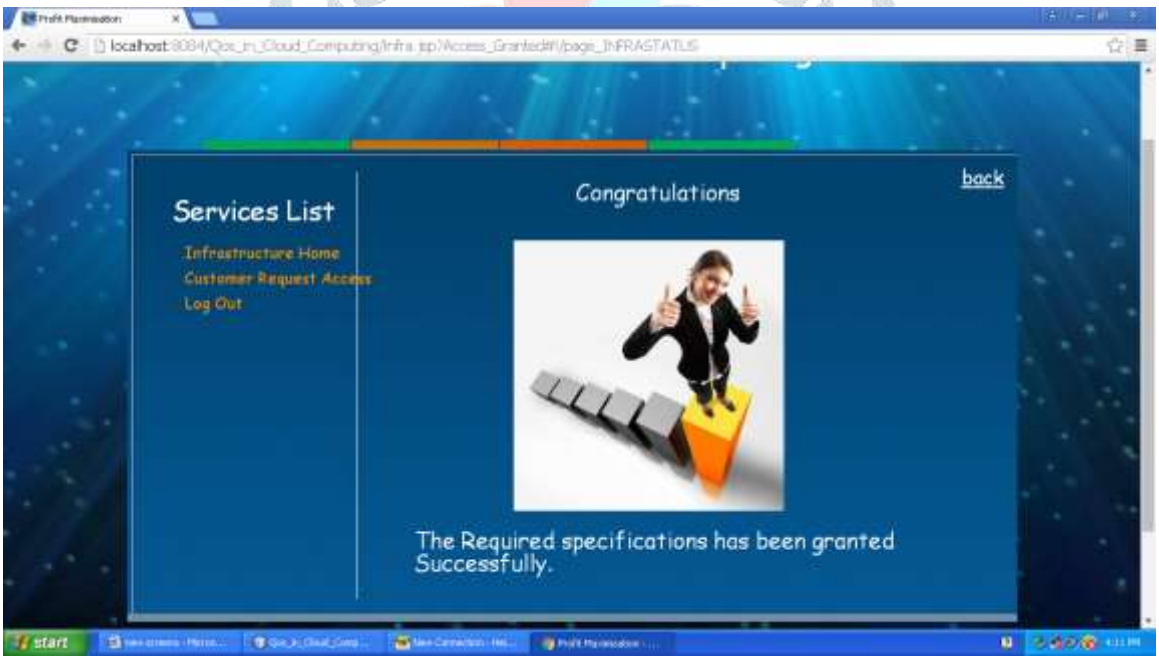


ISP LOGIN

ISP HOME PAGE

ISP ACCEPETENCE

ISP ACCEPT REQUEST SUCESSFUL



7. CONCLUSION

In this project, we consider customer satisfaction in solving optimal configuration problem with profit maximization. Because the existing works do not give a proper definition and calculation formula for customer satisfaction, hence, we first give a definition of customer satisfaction leveraged from economics and develop a formula

for measuring customer satisfaction in cloud. Based on the affection of customer satisfaction on workload, we analyze the interaction between the market demand and the customer satisfaction, and give the calculation of the actual task arrival rate under different configurations. In addition, we study an optimal configuration problem of profit maximization. The optimal solutions are solved by a discrete hill climbing algorithm. Lastly, a series of calculations are conducted to analyze the changing trend of profit. Moreover, a group of calculations are conducted to compare the profit and optimal configuration of two situations with and without considering the affection of customer satisfaction on customer demand. The results show that when considering customer satisfaction, our model performs better in overall.

8. REFERENCES

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