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Infrastructure as a Service with Profit Maximization Scheme for Providing Better Quality of Service Using Cloud Computing

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ABSTRACT: Cloud computing helps to serve services and resources on demand. From cloud service providers' viewpoint, profit is one of the most important scrutiny, and it is mainly decided by the configuration of a cloud service platform under given market request. However, a Single Long-term Renting scheme(SLR) is adopted to configure a cloud platform, which neither guarantees the quality of services but also leads to wastage of resources. In this paper, a queuing model is used in order to provide services to the request made by user. A profit maximization problem is formulated for the double renting scheme which overcomes single renting scheme. The scheme not only guarantees the service quality of all requests, but also maximizes profit than the latter, by solving the profit maximization problem. Finally, in order to find out the profit maximization of the system, a comparison can be conducted with the single renting scheme.

KEYWORDS: Cloud computing, cost-effective, multi-server system, queuing model.

I. INTRODUCTION

Demand for the computing resources and computing services are the factors leading to the rapid growth of cloud computing. Dynamic resource pools, virtualization, and higher availability of resources are provided by cloud providers. In this system user must register himself to get into the mechanism. Registered Users get login functionalities like Virtual computing resources by making a request to server and gains access by sending access request. The server accepts those requests and gives access depending upon the access request status. The server analyses user's utility and consumption and helps to maximize his profit based on the available renting space is free of cost, the user just need to make registration and send his requirement which is granted once when server is free or is available, this reduces resource wastage. Since we are implementing multi-server system where the performance provided ensures better quality of service as the user need not have to wait longer in the queue. Infrastructure as a cloud, is of great demand in the business sector, as to achieve profit is the goal. In our system, the resources are provided in the format of virtual storage wherein the users are provided with a specific portion which helps users to make usage of the resources that is made available for consumption. In this system, user gains access once he registers himself with particular requirement where he needs particular operating system for his own purpose. Once when the user registered he must remember his login credentials to know whether his request is being granted and he is provided with the respective server or URL by which he can gain access to the virtual storage provided by the system.

II. LITERATURE SURVEY

The study helped to find that for finite capacity queuing model, the optimal profit control policy allows a cloud provider to make the optimal decision in the number of servers and system capacity so enhance profit and satisfy the SLAs. When SaaS providers are concerned, to handle the service request and furthermore how to proceed with

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dynamic user service requests providing cost–effective services without any SLA violation is an intractable problem. For understanding tradeoff between profit and customer satisfaction, the services must be provisioned at business service level. A utility model is developed for measuring customer satisfaction using utility theory leveraged from economics. Based on the utility model, authors gave a new type of SLAs between a business service provider and its customers wherein there are two scheduling algorithms for a service provider to make tradeoffs between its profit and customer satisfaction. By using flexible satisfaction targets, algorithmsenable service providers to dynamically optimize their profit according to workload changes and resource price fluctuations.

III. EXISTING SYSTEM

Scheduling Parallel Application on Utility uses the simplest method which uses the Earlier Deadline First Scheduler. This method operates on two nodes, namely, capped and non-capped but the problem with dynamic approach is high runtime overhead. In this system only the on demand services determines profit. BAG+ of –tasks Scheduling under Budget Constraints uses the budget constrained scheduler but the quality of services is not considered, it is benefitted to user.

EXISTING SYSTEM	METHOD	ADVANTAGE	DISADVANTAGE
Scheduling Parallel Application on Utility Grid: Time and Cost Trade-off	Simplest Earlier Deadline First Scheduler [5] Operates two nodes A) Capped b)Non-Capped	Resource Allocation in cloud environment can be performed automatically and dynamically Cost stays under the budget.[8] The model can be trained on one system then applied on different system effectively	Problem with dynamic approach is high runtime overhead. Only on demand pricing model is user Consumer only get profit.[6]
Scheduling Workflow with Budget Constraints	Meta scheduling Min-Min cost time trade-off Max-max cost time trade-off[9]	Minimize the cost trade-off factor indicating level of cost for users [5]	User gets benefits not for service provider.[3] Power consumption is not considered based only on pay on demand pricing model. Other pricing model is not considered.
Resource provisioning with Budget Constraint for Adaptive Application in cloud Computing	Loss and gain Approach [3]	Budget Constraints are satisfied. Simple to execute Better makespan is build[2]	Only considering the time and cost OS and other parameters are not considering.[10] Loss approach takes more times.
Predication of job Resource Requirements for Deadline Schedulers to manage High-level SLAs on cloud	a)self-adjusting predictor[1] b)Analytical Predictor	It contains two predictors. If SAP is not trained, Analytical[7] predictor schedules. It will be executed before the deadline Predict the CPU for jobs	Cost is not Considering. Considering only the execution time. Other parameters are not considering.[11]

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BAG+ of –tasks Scheduling under Budget Constraints.	Budget constrained scheduler[7]	Does not exceed the budget user can determine the budget	Quality of services is not considered. User is only benefitted.

IV. PROPOSED SYSTEM

A queuing model is built for our multi server system with varying system size by which the users requests are granted. In the existing systems, though the services could be made possible to gain access but the users have to wait longer due to an inevitable situation , such as the service needed by one user is already in use. And then, an optimal configuration problem of profit maximization, i.e., the provided services are free of cost. So users who need the services must send their requirement and the admin accepts and provides with the necessary requirement avoiding resource wastage. Many factors are taken into considerations, such as the market demand, the workload of requests, the cost of servers is free thus enabling maximized profit over usage of resources or service. Providing Infrastructure as service, so the user need not have to buy software for using it or install different OS but they can get access to the service by sending request to the server which was not available in the existing one (**cost-saved**) ,the services are provided depending upon the ram requirement or the Operating system which the user wants. Multi-server system (message transfer rate) is implemented, so when one server is busy, the other server serves the services. Thus improving the quality of service provided to user by the proposed system.

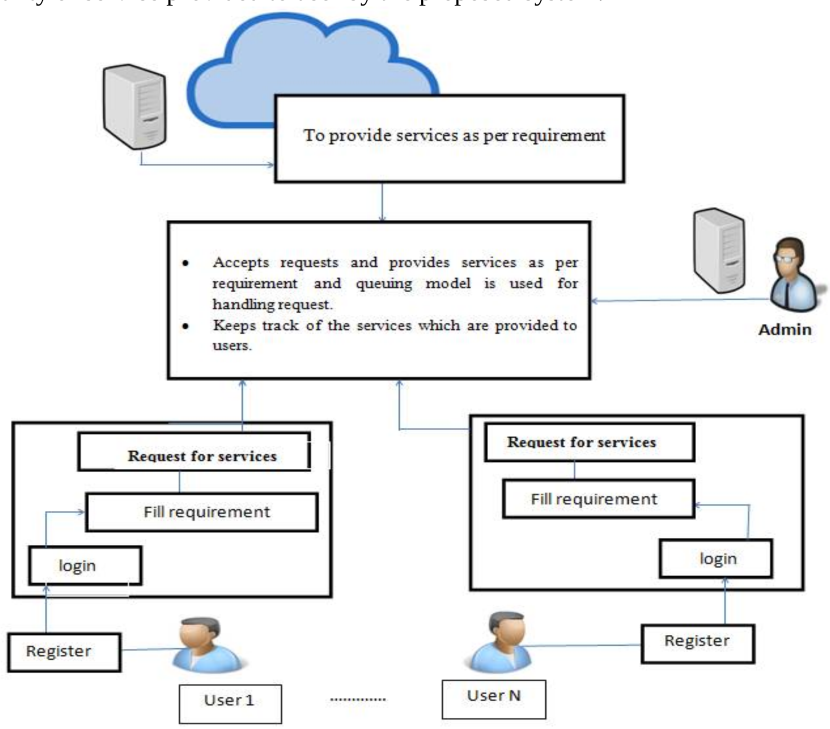

Fig1.1:System Architecture

The implementation for the proposed system needs a user to register in order to make use of the resources. The steps are as follows:

Step 1: The user enters his/her information in the registration page and thus registers them to use the services provided by the proposed system.

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Step 2: The registered users data are collected at the admin portal.

Step 3: The registered user sends request for the Infrastructure which they wanted.

Step 4: The admin allocates the resource as the request arrives and the remaining users are said to be in wait until the system is available.

Step 5: The user is allocate with the IP address to access the service.

Step 6: By clicking on the IP , they are directed to the service page and now the system is in use by the user.

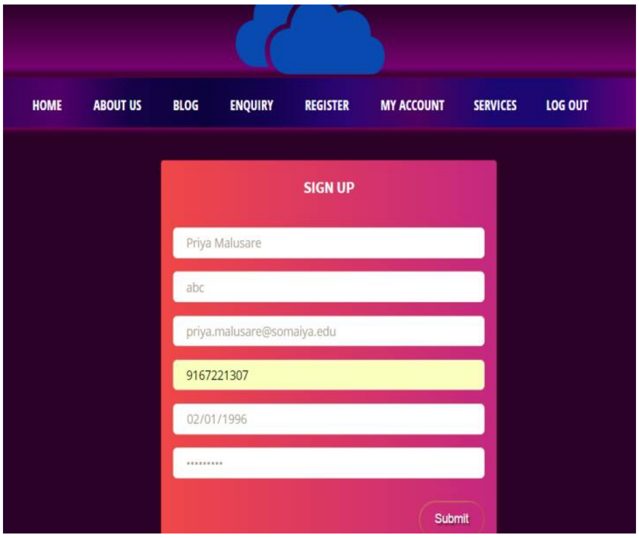

Fig 1.2: Registration Page

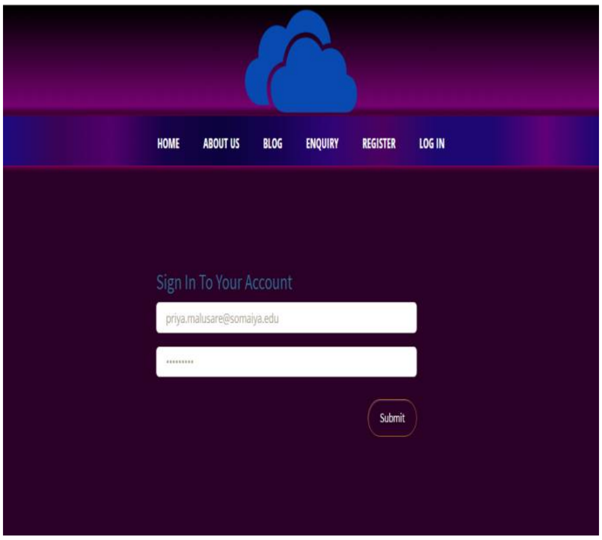

Fig 1.3: Log-in Page

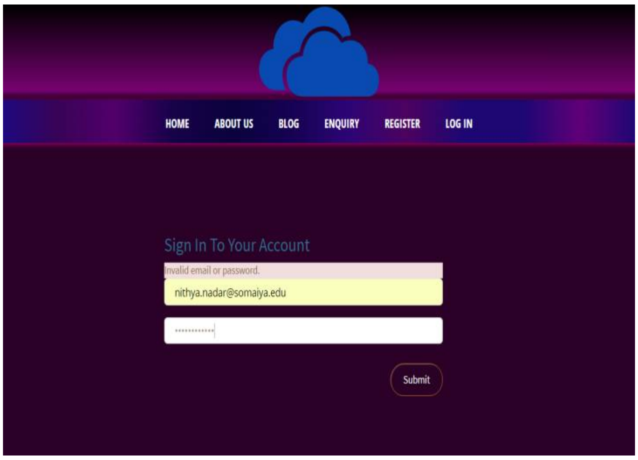

Fig 1.4: Access is only for registered user

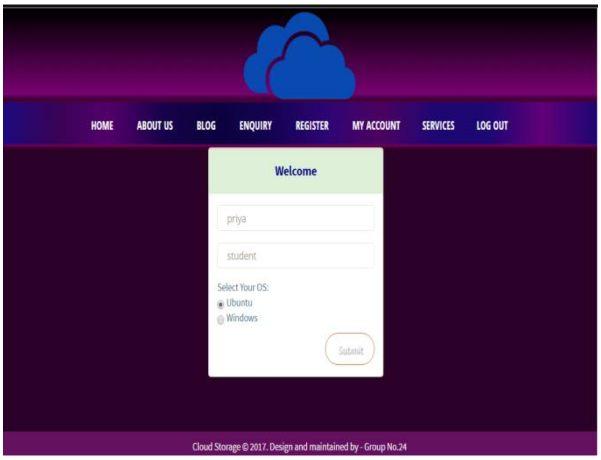

Fig 1.5: My Account Page which enables to send request

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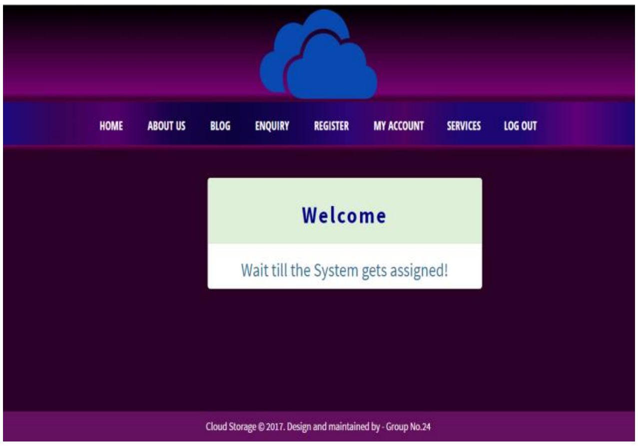

Fig 1.6: After the request for service is sent

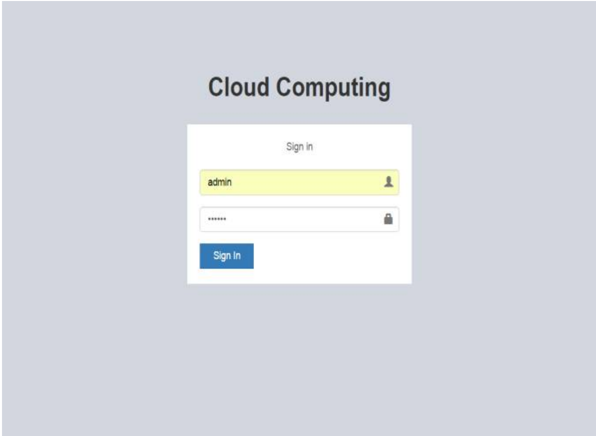

Fig 1.7: Admin login Page

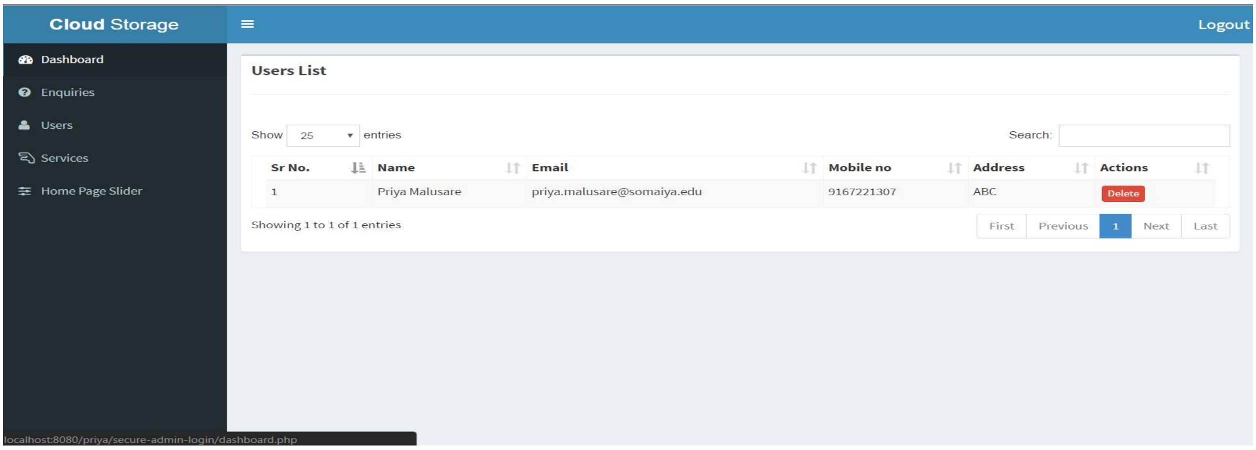

Fig 1.8 : Registered users is maintained at the administrator's portal

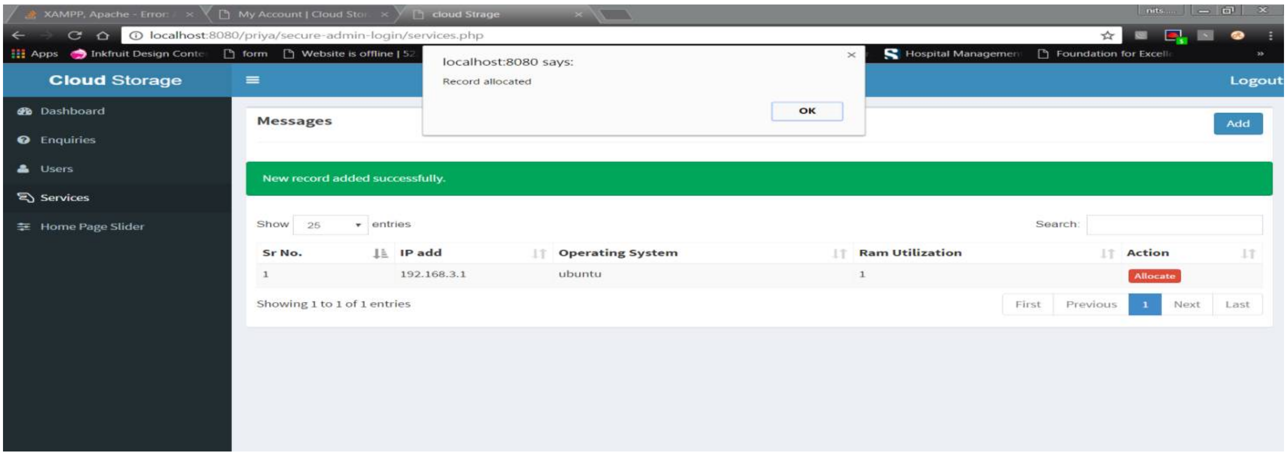

Fig 1.9 : The request from the sender is recorded and the Ip address is allocated

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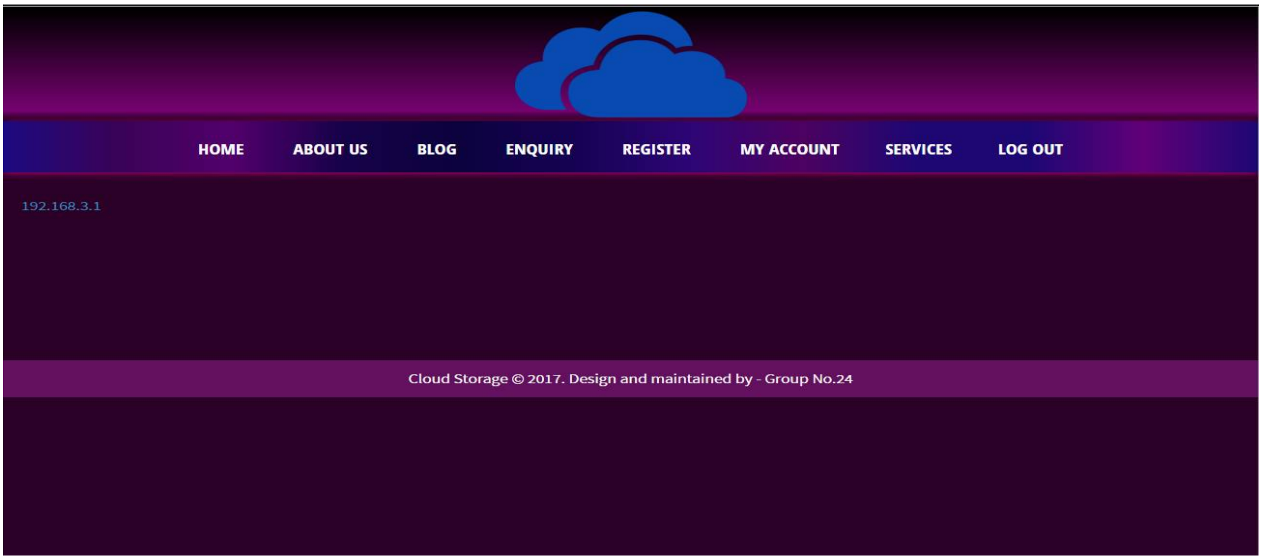

Fig 1.10: The User gets the allocated IP in their Account

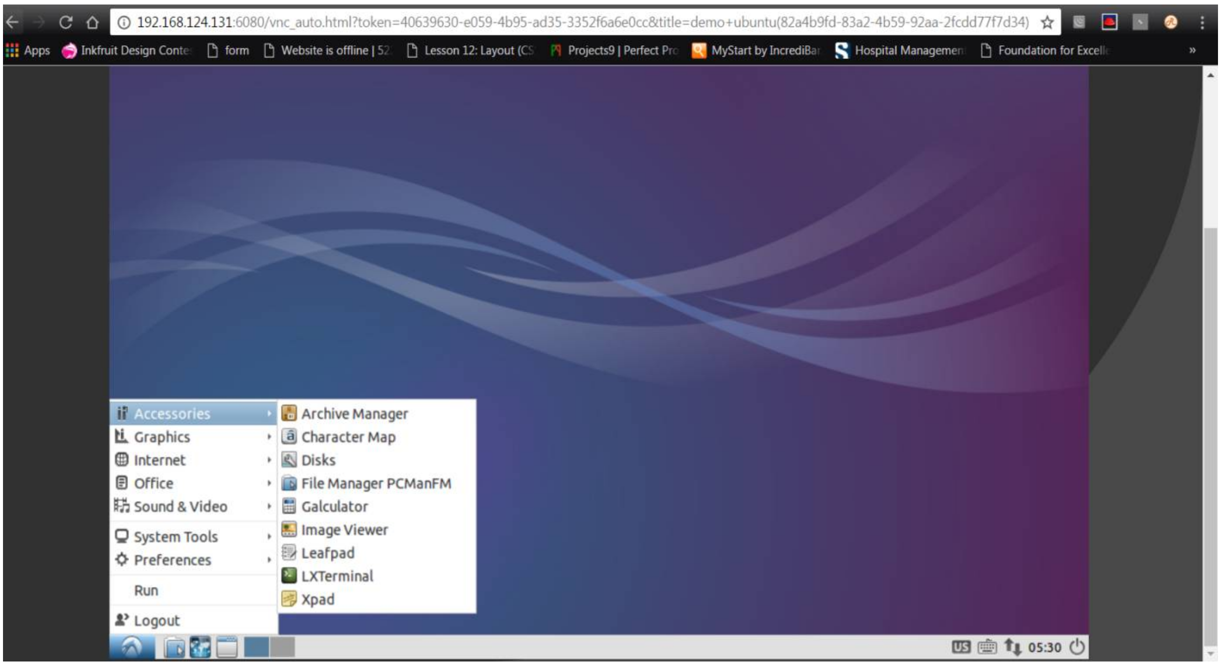

Fig 1.11: Request for ubuntu redirects to the ubuntu image and now the user gains access to the system

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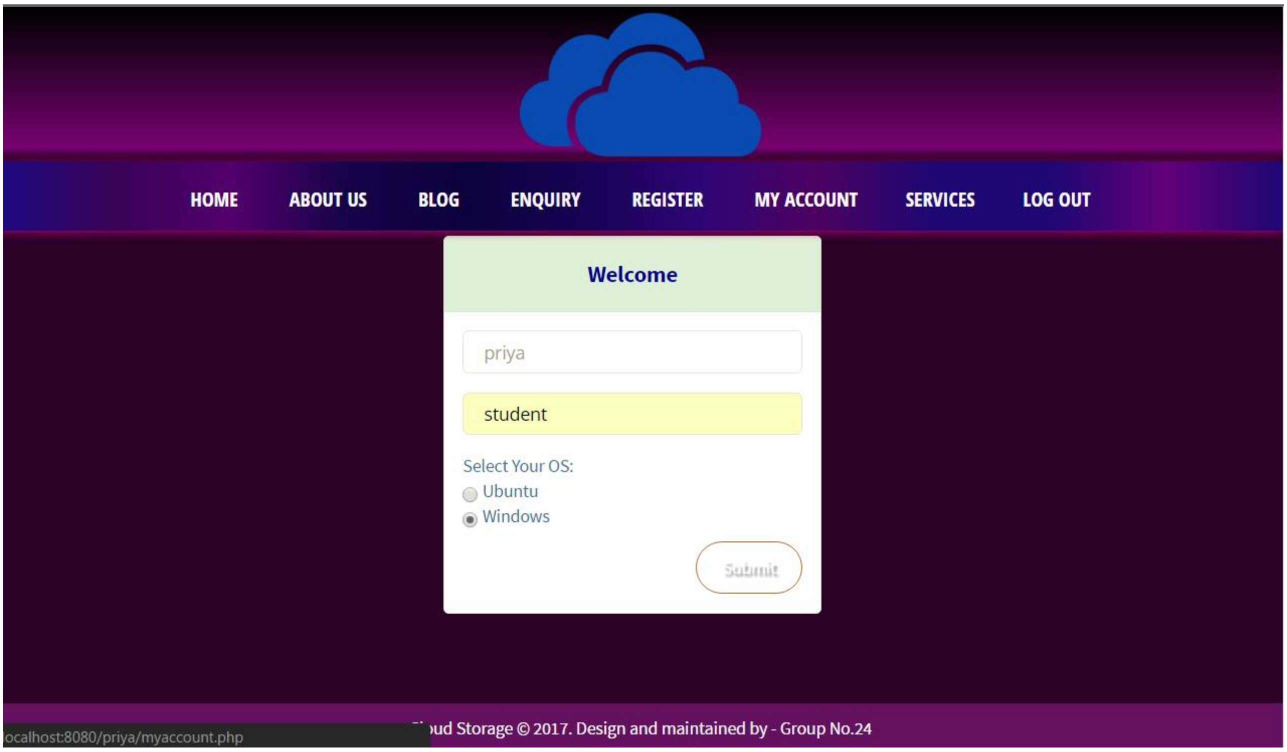

Fig 1.12: User sends request for windows Os

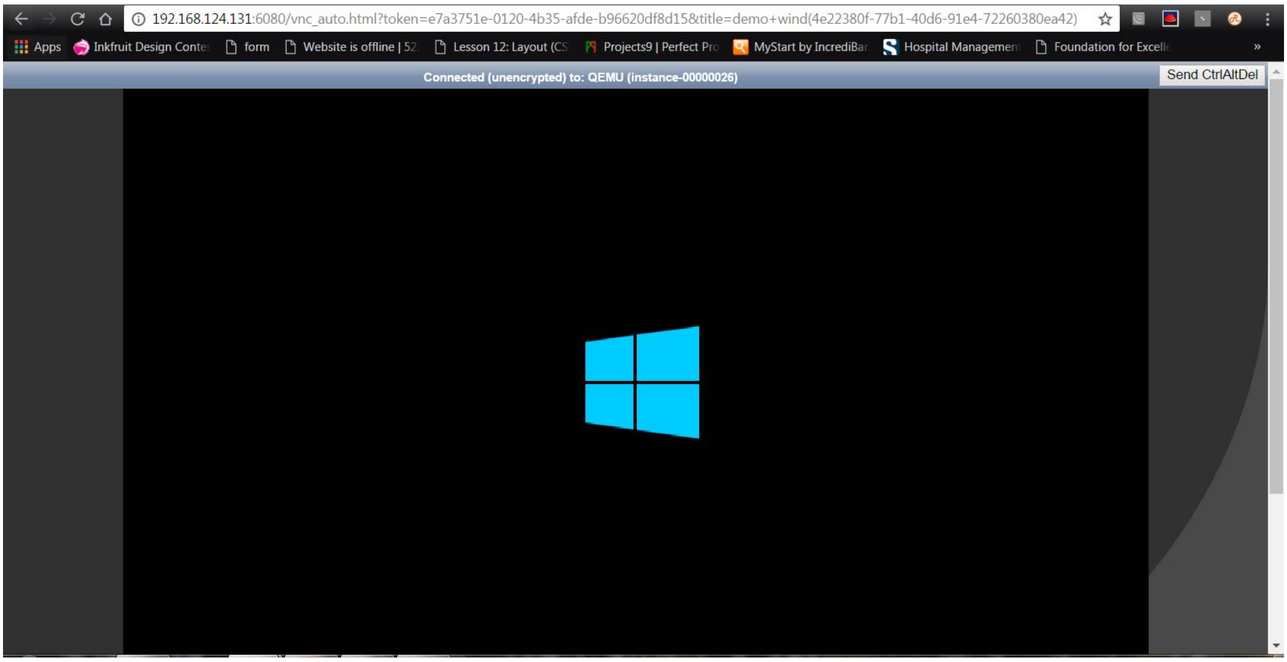

Fig 1.13 : The windows image is loading

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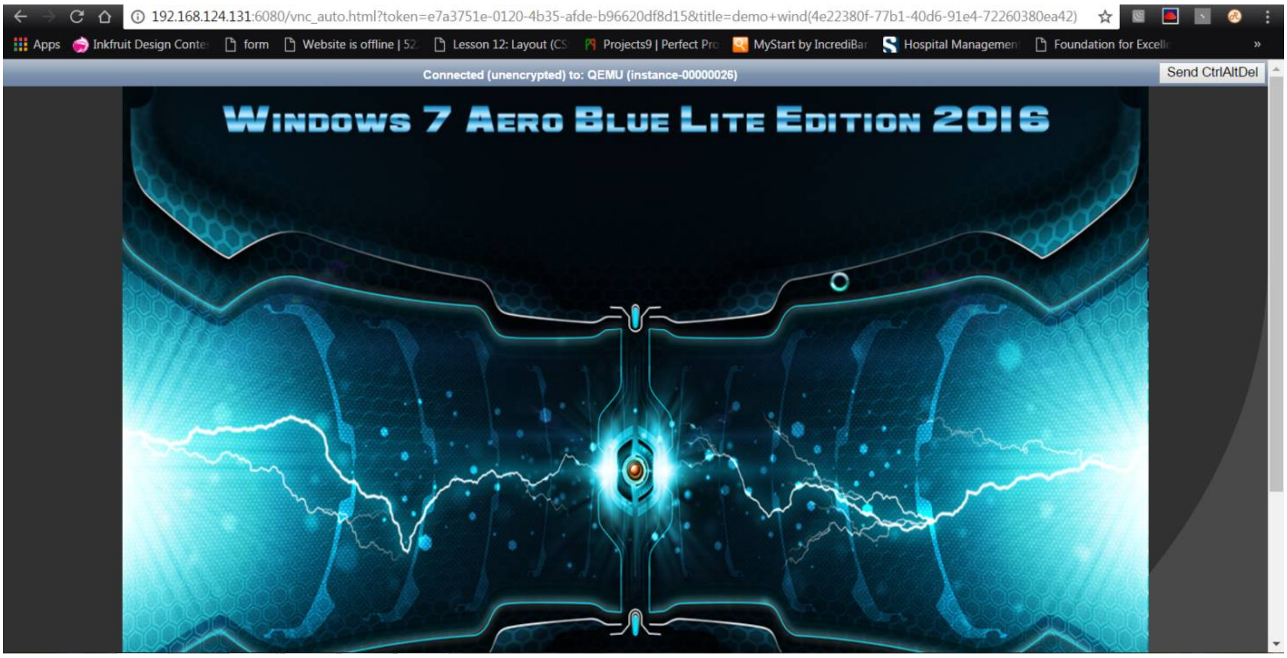

Fig 1.14: The windows image is allocated to the user

V. CONCLUSION AND FUTURE WORK

The services are provided without a renting scheme which increases the profit of users who avails the resources with no loss. Furthermore the proposed system is to be implemented on a heterogeneous environment which was complicated in the earlier systems. Here for handling the input requests a queuing model is built which helps to provide services thus ensuring better quality of service with maximized profit.

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