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Identifying the Performance of Resource Allocation Policies of Cloud Environment

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Abstract

The cloud computing is a set of hardware, networks, storage, service and interfaces that combine to deliver aspects of computing as a service. The cloud simply represents the internet. Continuous changes occur autonomously and unpredictably and are out of control of cloud provider. Hence to adopt these technologies in cloud platform advanced solutions have to be developed and to provide continuous services and However only the performance and energy trade offs are considered as weakest link in early cloud providers. The aim of this paper is to provide resource allocation policies for cloud environments to identify performance and energy trade-offs to the end user.

1. Introduction

Cloud computing has the capability of projecting vast part in Information Technology by using software and also shapes the IT hardware. The cloud simply refers to the service provided to the Users over the internet (www)[1]. The services which are referring themselves are called as software as services. There are 3 types of cloud servers available,

- Private cloud which is used within an organization.
- Public cloud is the one which provides services to outside world.
- Hybrid cloud is the combination of private and public clouds.

Some of the examples of cloud providers are Yahoo, Google, Amazon, etc. In modern cloud systems evolving of new and dynamic world, constant changes occur in the environment will also satisfy the performance requirements. Hence an advanced solution has to be developed to manage the cloud systems and must guarantee the performance. Some challenges to be faced by the cloud providers are, low cost, increasing the performance, enhance the Accessibility and Reliability.

2. Related Works

In this paper[2], QOS has direct impact on Cloud Providers. Workload is proportional to internet QOS requirements. We balance workload in our paper to provide quick response from the cloud server. Based on the user request, workloads vary continuously and virtualisation used for dynamic resource allocation. This paper focuses on resource allocation and admission control optimization problems in virtualized server. In this paper[3], capacity allocation algorithm is used in controlling multiple resources in distributed cloud environment. The cost is reduced using virtual machines. With the help of distributed solutions workloads can be optimized.

This optimization problem is provided with the solution of traffic predictive models[1].

The paper[4], addresses the issues of number of tasks concurrently sharing the resources which increases the server throughput. But thrashing occurs meantime. Admission control mechanisms are used to solve this

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problem. This concurrency is allowed using multiprogramming limit which will in turn increase the server efficiency.

The paper[5], concentrates on dynamic resource management in large-scale cloud environment, i.e dynamically it will maximize the usage of CPU and memory constraints and also it avoids global synchronisation. The concept of cloud middleware is used to resolve this problem and fair resource allocation of CPU and memory time is effectively done.

3. Proposed System

In our proposed model we implement an innovative and creative concept which schedules and balances the work load allotted for different servers. Our proposed model contains a virtual monitor which is similar to the common user.[2] The user has to register with the system and can upload files for different operations.

Two different operations are performed by our cloud service and one is image resizing and the other is file format conversion. The file uploaded by the user is been landed to the central manager. The central manager allocates the different tasks to different application managers.[3] The application manager allocates the different application to the respective servers. The server performs the allocated process and stores the result into the server repository.

The user can retrieve the output from the repository. [4]This methodology is very much scheduled and in an organized manner. Difficult tasks like allocation of several process is been handled in proper way. Thus a single server is involved in performing the task and the Application is placed in a scheduled manner. Hence the achieved results are higher than the expected ones[5].

4. Architecture Diagram

The Virtual monitor is going to login the system with username and password. Then the control is transferred to the central manager[6]. The Central Manager issues an ID to the Virtual Monitor. Virtual Monitor is similar to that of user who wants to use the application and gets the Service. The central Manager manages the Input request and it is then transferred to the appropriate Application Manager. The Application Manager performs here Load Balancing by scheduling Operation. It is then transmitted to the Server based on Application. In this project we are implementing two applications. Uploading an image and resizing into any format and file format conversions. Thus

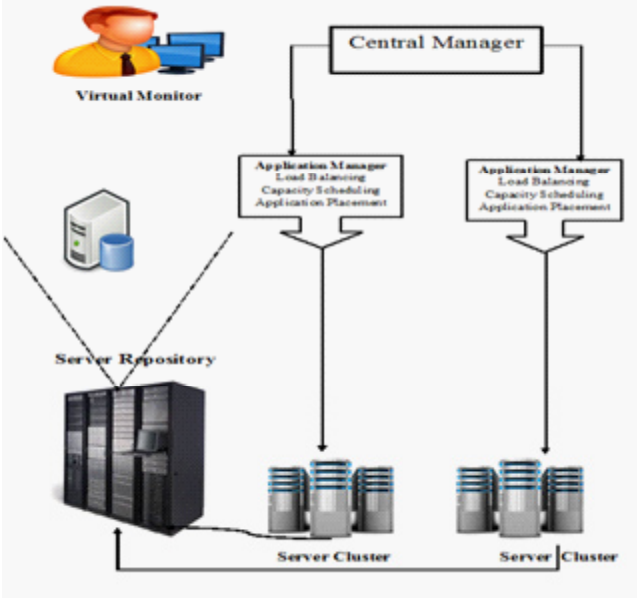

Figure 1. Represents the load balancing mechanism and the architecture diagram is explained.

by scheduling in a single server the sites are partitioned into 'n' server for executing the application[7].

Thus load balancing is achieved in our project which reduces the latency and provides the user a convenient way to access in cloud. Accurate results are obtained which is not achieved in existing system.[8]

4.1 Cloud Configurations

Cloud storage has become more efficient in storing large amount of data as well as confidential data. Initial stages of cloud storage experienced various issues such as leakage of data, space allocation problem, storage of confidential data and many more[9]. After so many stages cloud has emerged as a vital medium of storage with complete security for the data and easy access of data and effective medium for sharing of data. In our project we have implemented a service providing cloud where the user can resize an image a convert a file to zip format online through cloud services.[10]

4.2 Scheduling and Load Balancing

Virtual Monitor who is similar to the public user has to upload the image to be resized as well as the file to be converted to zip format in respective panels.[11] These requests are loaded into the central manager and the request id is been given to the user. The central manager schedules the loaded application to different application manager by balancing the load pending with each

application manager. Image resizing and the file format conversion is been scheduled separately for the application manager by the central manager[12].

4.3 Application Placement and Application Process and Delivery

Scheduled applications are loaded to the application managers and they in turn place the application to the respective servers[13]. Image resizing tasks are assigned to the respective server and the file format conversion is been allocated to the respective server by each application manager respectively. The application placement is also done by considering the pending work of each server for the particular task. Applications allocated by the application manager are processed by the respective servers and is stored into the server repository.[14] The respective solution for each request is been delivered to the user from the server repository. By our project model, the application processing in cloud has been enhanced and is been performed with proper scheduling and allocation in quick time.[15]

5. Conclusion

In this paper we have proposed resource allocation policies for virtualized cloud environments that satisfy performance and availability guarantees that minimize energy cost in very large cloud service centre. A hierarchical model behaves as a dual timescales and offers accessibility guarantee as the executing application was formulated. The strength of our approach has been evaluated by conceiving realistic workloads. In future our system can be enhanced by allocating different process to a single server so that the number of servers can be reduced and the installation cost is also minimized. When different applications are performed by a single server the scheduling must be done more efficiently. This adaptation will certainly reduce the cost of installation and also the complexity to more extent. Since the requirement for cloud storage is been increasing by day the new implementations into the cloud systems will certainly uphold the process.

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