



Literature Survey on Resources Provisioning for Cloud-Based E-Learning Platforms

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ABSTRACT

The use of e-learning technologies is growing even faster due to the existing conditions where virtual setups temporarily replace traditional classroom environments. Service infrastructure support for e-learning has moved to the cloud. For this reason, the efficient provisioning of resources for such platforms, which is achieved through prediction, is very related.

In the abstract, all nodes involved in the resource distribution process have exact calculated user requests. This can be obtained straight from the total amount of resource demands. As a result, the effectiveness of resource scheduling largely depends on the calibre of user requests. In order to deliver results for resource scheduling in cloud computing, we provide a thorough assessment of recent research in the literature in this study. To help the IT industry, cloud computing incorporates several technologies. Resource distribution and management are difficult in cloud computing. The primary goal of cloud computing is to enable efficient resource scheduling for cloud providers and customers. The sharing of resources among numerous users is a component of resource management. Resource management, Cloud computing, and resource scheduling are some related terms.

1. Introduction to Resources Provisioning

1.1 Introduction

Due to the wide variety of computational devices available today, the computational world has been growing. This change has producedIt is given in response to the user's requirements.

The cloud model makes advancements based on service demand. VM provisioning based on user demand. These comprise a significant number of optimization problems with a wide range and degree of uncertainty in the needs and goals of several users. But in order to develop new, useful approaches that can improve upon the existing ones based on past studies, it is necessary to analyse the existing techniques and procedures. the development of new standards for cluster computing, availability, and deployment models, which are made up of three service models and four service models. The main characteristic of cloud computing that makes it more advantageous is its elasticity, or how dynamic it is.

This study will further enhance understanding of the efficiency and variety of resource scheduling in cloud computing.

The following are the primary results and findings of this study:

1. It offers comprehensive methods and techniques for cloud computing resource scheduling.
2. It clarifies a number of issues and variables that different researchers utilise to assess resource scheduling methodologies.
3. It emphasises ongoing research and important open issues that require attention.

1.2 Motivation

- i. Basically resource provisioning is a sub-topic of cloud computing.
- ii. Cloud computing is forever trending topic.
- iii. It's a Fascinating topic.
- iv. It teaches us how to protect computer operating systems, networks, and data from cyber-attacks. An IT Student should have the basic knowledge about the cloud computing.
- v. I have a personal interest in cloud computing and providing resource is having a lot of scope in the future.

1.3 Aim and Objective of the work

In the cloud computing, management and distribution of resources are not easy. The main aim of cloud computing is to provide well-organized scheduling of resources for both cloud providers and users.

The project began with four aims:

- i. *This is essential because e-learning tools continuously migrate to the cloud software companies offer their services to the cloud*
- ii. *However, there is no detailed monitoring of the resource consumption of these services.*
- iii. *the idea was to list examples of the popular e-learning system types and determine which one might be the most popular*

Project objectives:

- i. The algorithms is to guarantee (QoS) Quality of service, increasing performance, and improvement in return on investment.
- ii. The purpose of this project is The autoscaling as well as management approaches help providers de-provision and provision virtual resources.
- iii. The Monitor step filters as well as collects the data collected by the analyzes, sensors, and compares the performance against its objectives

2. Scope of cloud in Resource provisioning

Applications of cloud computing with resource provisioning have increased across a variety of fields in recent years as a result of the explosion in computing power and available data. The scientific process, from data analysis to modeling, has benefited from the application of these techniques.

Cloud computing provides unlimited storage space for any kind of data. The data is stored in various data storage types. These data can be stored in the cloud for backup and restore purposes. Cloud computing enables organizations to save money by reducing the need for hardware upgrades.

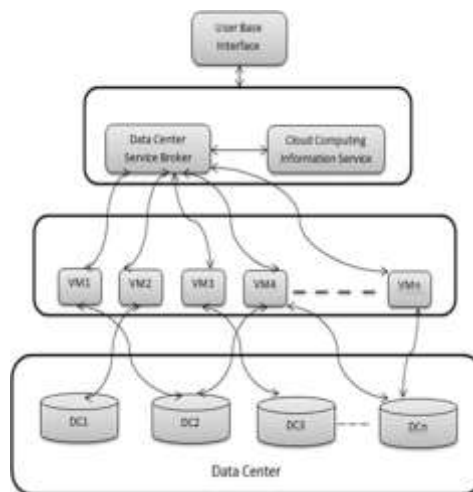
2.1 Specifications

- 1) Virtualization Layer Network Stability
- 2) API for Creation, Deletion, Cloning of Instances
- 3) Application Layer Interoperability
- 4) State Layer Interoperability
- 5) Application Services (e.g. email infrastructure, payments infrastructure)
- 6) Automatic Scale (deploy and forget about it)
- 7) Hardware Load Balancing
- 8) Storage as a Service
- 9) "Root", If Required

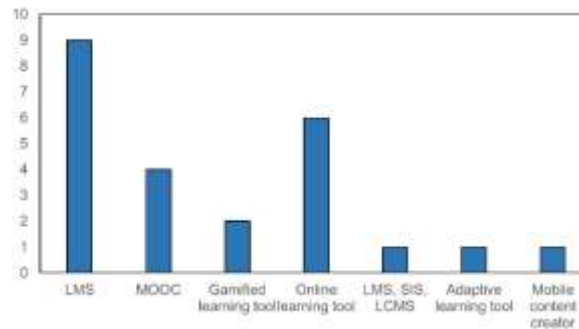
2.2 Features

- i. With Reduced IT costs. Moving to cloud computing may reduce the cost of managing and maintaining your IT systems.
- ii. Scalability.
- iii. Business continuity.
- iv. Collaboration efficiency.
- v. Flexibility of work practices.
- vi. Access to automatic updates.

2.3 Illustrations:



Resource scheduling in cloud computing



Distribution of the examined e-learning systems

2.4 Methodology

With the cloud, dependable services with guaranteed resource allocation are delivered. In cloud computing, customers can simultaneously request a variety of services. Therefore, in order to deliver all resources, it is necessary to meet cloud consumer requirements in an organised manner.

Due to the rise in cloud popularity, many researchers are becoming interested in the theory of resource scheduling in cloud computing. Resourcescheduling matches each user request with the right resource based on the requirements for standardsbased quality. The efficient use of all the resources at hand should not compromise the SLA. Three stages can be used to generalise the cloud scheduling process:

- i. Finding and Sorting Resources – The datacenter service broker searches the resource pool for resources and determines the status of those resources.
- ii. Resource Selection
Specific resources are chosen among the discovered resources based on the required parameters. All resource decisions are made at this point
- iii. The cost, Makespan, Execution cost, Execution time, Response time, Bandwidth/speed, Priority, Workload, Availability, Throughput, Reliability, Recovery time, SLA, and Utilization have all been emphasised in resource scheduling methods.
- iv. Batch mode, load-based, and auction-based are these techniques.

2.6 Enhancement

- i. There are a few drawbacks to the paper as this technique is very costly and is not possible for every country to use it. So, we can work on the project to reduce the cost.
- ii. As we know this paper's research do not support or is applicable to topic. So, there is a scope to enhance in this field, so we can predict values.
- iii. This architecture is efficient and effective but slow.

- iv. It is somewhat difficult to understand.
- v. It is difficult to operate for a non-technical person.
- vi. As this technology has less accuracy, by embedding cloud algorithms it can be improved.
- vii. Hence it should be made easy to operate and understand.

3. Conclusion

In Developing well-organized resource planning remains an exciting task in the cloud as workloads increase rapidly. Available scheduling techniques provide better results for common resource allocation requirements, but the techniques may fail or cause degraded quality of service when workloads increase rapidly. This paper investigated various resource scheduling techniques for user demands in a cloud computing environment. Resource planning plays a big role in cloud computing. A simple procedure to improve the resource planning technique is to consider different services of cloud service models, as, platform as a service, software as a service or infrastructure as a service [1]. We have discussed various open challenges through benchmarking that require careful attention in their application to cloud resource planning. Further research will focus on designing an efficient resource scheduling technique by adding additional attributes that can increase the performance of the cloud system.

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