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Study on a Cloud Computing-Based Sports Teaching Resource Platform

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ABSTRACT: ***The sports teaching resource platform, which is based on cloud computing, was created to enhance sports education. The structure of Cloud Computing and its functions are the first topics covered in this article. The framework and modules of this platform are then described. We explain how this platform is organized in Cloud Computing based on the benefits of Cloud Computing. As a result, this platform can effectively store multimedia content. Teachers may also use this site to exchange sports multimedia content and create dynamic courseware. The platform's GUI allows students to see this changing courseware. As a result, pupils will find it more convenient to study on their own. A kernel for Linux that works on actual hardware. Linux cgroups and namespaces are the core Linux a kernel technology used to separate, secures, and manage the containers. Containerization outperforms virtualization because it does not have the overhead of a hypervisor. IaaS clouds often include significant funds as in a virtual hard librarian, raw frame flash memory, file or object data transfer, cameras, application servers, IP addresses, virtual local area networks (VLANs), and software packages.***

KEYWORDS: ***Cloud Computing, Database, Dynamic Courseware, Multimedia, Sports Teaching.***

1. INTRODUCTION

However, some of the same issues exist in these systems, such as storage limitations for multimedia material and inadequate sharing. Other issues arise as a result of this, such as a lack of system flexibility and a low utilization rate. All of these factors limit the use of information technology in education and are detrimental to both teacher and student learning. Teachers in traditional sports education always demonstrate the athletic activity personally. Even in sports theory classes, courseware is seldom used. This has to do with how sports are taught. At the same time, this is linked to the computer technology that the instructors are familiar with. This training module contains a glaring flaw. If students wish to revisit course material, they will have to rely only on their memories. And if a teacher doesn't fully understand a new sports technology, he won't be able to teach it to his pupils [1].

Institute for Computer Sciences, Social Informatics, and Telecommunications Engineering, Doe the cloud-based sports teaching resource platform is intended to address the aforementioned issues this platform offers cloud computing benefits such as supercomputer processing power, storage capacity, and performance. Teachers may also use this site to exchange sports multimedia content and create dynamic courseware. Teachers may use the platform's cloud computing service to upload multimedia content such as text, images, audio, and video. Platform will take care of everything. It is capable of fully sharing the resource. Teachers may use this

platform to create educational programs and include various kinds of multimedia into them. After that, you'll have a dynamic courseware [2].

The platform's GUI allows students to see this changing courseware. As a result, pupils will find it more convenient to study on their own. Furthermore, the platform may offer a simple program editing feature. The benefits are that it is simple to operate and utilize. Even instructors with little computer experience may create a decent teaching software and multimedia courseware. Cloud Computing does not have a generic idea module. Parallel Computing, Distributed Computing, and Grid Computing are all being developed at the same time. Virtualization, Utility Computing, Iaas Paas, and SaaS are some of the ideas. In general, Cloud Computing may concentrate network resources and offer a variety of services to network users. Users may get service resources at any time and in any location based on real demand. Cloud computing is a relatively new idea. It eliminates the typical module's resource restrictions [3].

Users will get access to supercomputing, storage, and software resources as long as they connect to the network. Cloud computing can manage and plan a large number of computer resources such as hard disks, platforms, and services over a network. This creates a resource pool from which consumers may get services. Physical resource, resource pool, management middleware, and SOA are the fore levels of Cloud Comp ting's architecture.

Computers; storage, network equipment, databases, and software are all examples of physical resources. The resource pool organizes the resources according to various kinds. The primary functions of a resource pool are assembly and management, whereas management middleware controls Cloud Computing resources. It also organizes application tasks and ensures that the resource provides a secure and efficient service. SOA controls Cloud Computing performance by packaging it as a regular web service. The main components of architecture are the resource pool and management middleware. SOA's functions are heavily reliant on external factors. Resource management, task management, user management, and security management are all works of management middleware.

Resource management balances each cloud resource point, identifies failures, and recovers or protects them. Simultaneously, it will monitor and collect resource data. It comprises user task mapping, task scheduling, task execution, and task lifecycle management, among other things. User management is critical for completing the Cloud Computing business module [4].

Computer Resource Pools, Storage Resource Pools, Network Resource Pools, Database Resource Pools, and Software Resource Pools are all examples of resource pools. Computer, storage, network equipment, database, and software are all examples of physical resources. Research on a Cloud-Based Sports Teaching Resource Platform Cloud Computing offers a suitable environment for sports teaching resource platforms since it has superior performance, capability, security, and transparency for users. Its application interface allows it to efficiently handle large amounts of multimedia data. We don't consider the hardware while placing an application on the server since it is more invisible to the user. This may help you save time and money on development. Figure 1 discloses the Architecture of cloud computing [5]**.**

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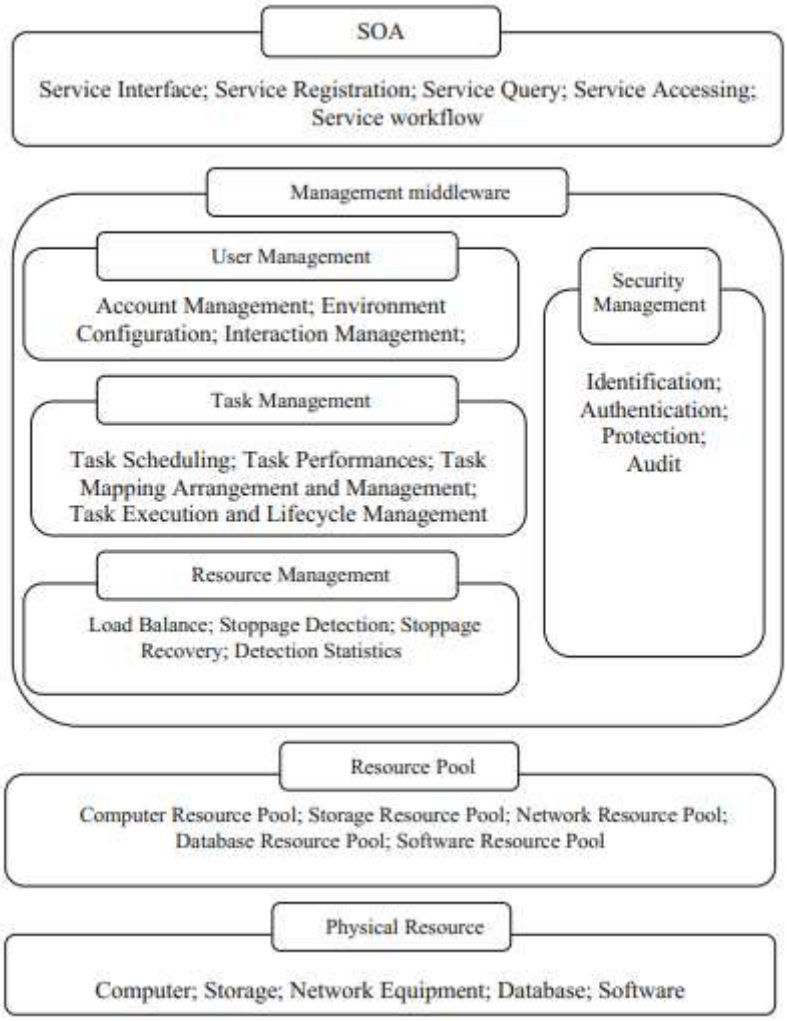

Figure 1: Architecture of cloud computing.

2. DISCUSSION

For databases will be part of the data resource layer. The system database will store information about the system, such as user information. The usual instructional materials, such as text and images, will be stored in the resource database. Special multimedia content, such as speech and video, will be stored in the file database [5].

The finished teaching program will be stored in the teaching program database. This format allows the data to be separated from its logic and makes database organization easier. The logic between resource data and the instructional program will be realized by the logical function layer. It will process data in accordance with its kind. It will accept the user's service request and provide the result to the user at the same time [6].

This layer has two modules: Material Database Management; Teaching Program Management; System Database; Resource Database; File Database; Teaching Program Database Courseware Querying and Reading Program for Students Material and Teaching Program Management Data Resource Logical Function Application for Teachers.

(a) The material database module. This module will handle the multimedia content database, including adding and removing material, as well as creating, modifying, and deleting material types and querying material.

(b) The instructional program's module. This module allows the user to create a teaching program, choose suitable content from the database, and add it to the program. As a result, we are presented a dynamic courseware. The process will include adding, modifying, and deleting program content, as well as saving and distributing the program. For each user, the application layer will offer a distinct service interface. Through the student interface, students may query and read the courseware program.

Teachers may maintain their own course and material database using the teacher interface. Teachers who teach the same course may share the course's content database and make changes to their own lesson plans. Sports Teaching Resource Database Development Multimedia Material Resource Development This is the system's core development. Multimedia information comes in a variety of formats and contains a significant amount of data [7].

It's difficult to store in a standard database. Students are particularly interested in animation and video in sports. Text-only courseware is not suitable for classroom use. Cloud computing also has a lot of computing power. It is capable of effectively managing and storing multimedia data. At the same time, it has querying, uploading, and downloading capabilities. The instructor is in charge of the material resource. There is a director for each course. The multimedia content will be checked by this director. Other instructors who are teaching the same course may post and exchange multimedia materials.

A feature of the system is the instructional program resource. The standard CAI software automatically adds all multimedia content to the courseware. This is inconvenient when it comes to updating, storing, and transmitting information. In this section, we present a Cloud Computing-based approach for teaching a program. Teachers are unable to modify courseware on a page-by-page basis. This courseware will be phased out in favor of a class program. Its resources will be sourced from the Cloud Comp ting’s multimedia content library. Teachers simply need to select an appropriate resource from the database and connect it to the program when creating a class program. After that, a dynamic courseware is created. It will also be saved in a database. Students enrolled in this course may use the portal to query these instructional modules [10].

When students wish to study a certain part of the class program, they will be presented the information associated with that segment. If the instructors discover better content, they will simply change the link to this program, not the whole program. Research on a Cloud-Based

Sports Teaching Resource Platform 119This platform is built on the cloud computing platform. It has the potential to increase resource sharing and construction [6].

It can also integrate large-capacity, high-speed storing features for multimedia content. Clients can only access the instructional material via a browser and cannot install any other software. A Cloud Computing Platform may be used to upload the server software. It can save money on hardware purchases and offer high-quality information services. Figure 2 discloses the Framework of sports teaching resource platform [8].

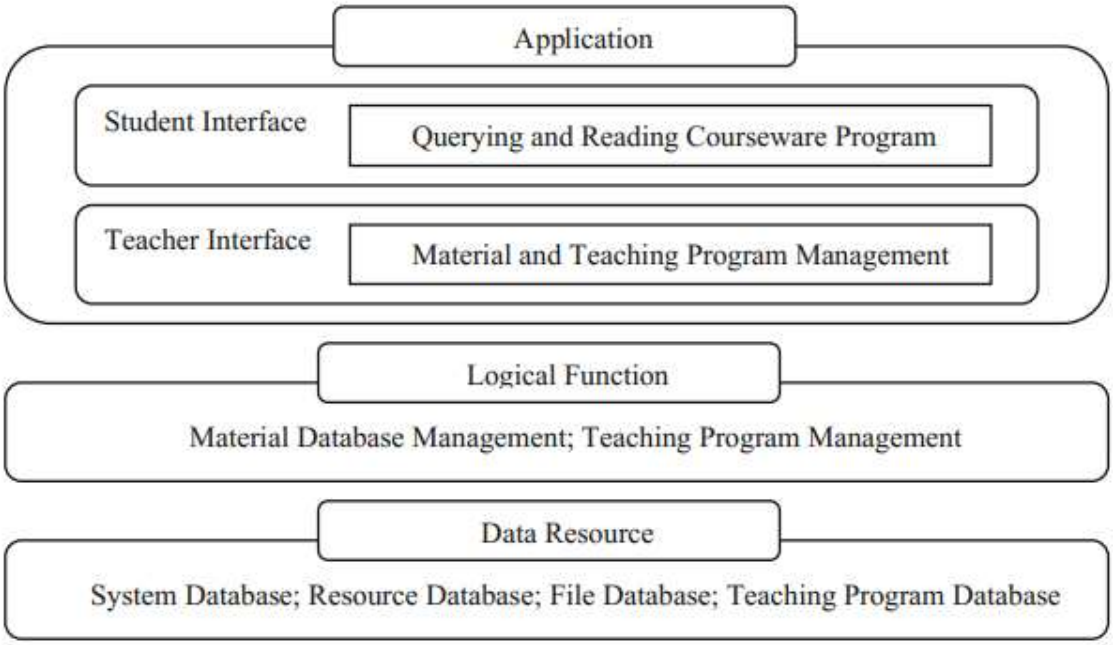

Figure 2: Framework of sports teaching resource platform.

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This architecture can take use of Cloud Comp ting's resource sharing and service capabilities. The complex and diverse construction data source can provide users with the information they need. At the same time, intelligence will be the resource service. The final scope of resource sharing will be determined. Figure 3 discloses the design of sports teaching resource platform.

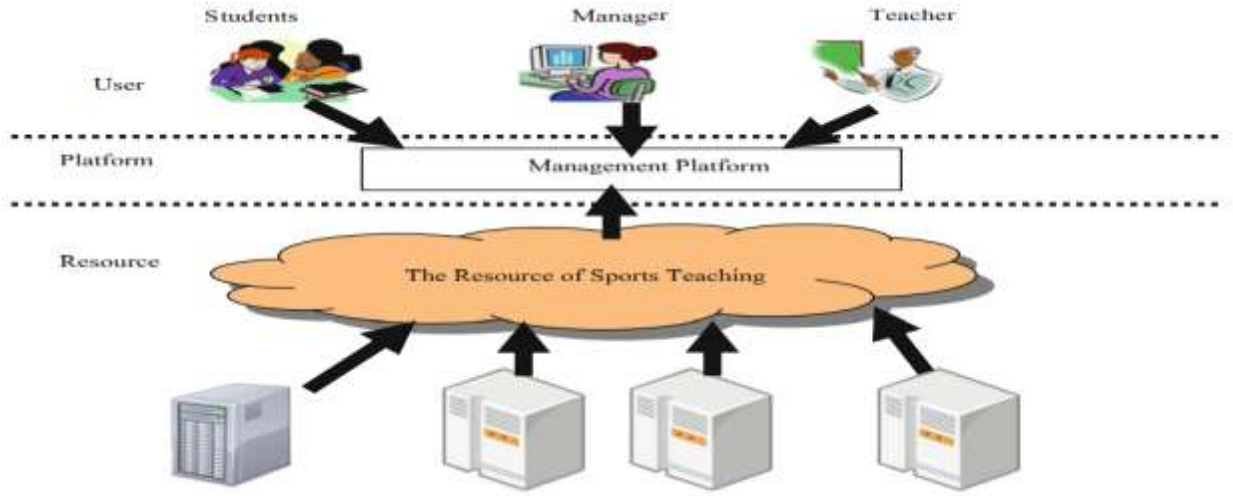

Figure 3: The design of sports teaching resource platform

3. CONCLUSION

This paper proposes a cloud-based sports teaching materials platform and discusses the platform's structure and configuration. The sports instructional materials may be concentrated and integrated using cloud computing services.It may offer network users with an open resource sharing service. Placing teaching resources on the cloud is an excellent method for ultimate teaching resource sharing.

Infrastructure as a service (IaaS) refers to online services that provide high-level APIs for abstracting different low-level aspects of underlying network infrastructure, such as physical computer resources, location, data partitioning, scalability, security, backup, and so on. The virtual computers are operated as guests by a hypervisor. Large numbers of virtual machines may be supported by pools of hypervisors inside the cloud operating system, as well as the flexibility to scale services up and down based on client needs. Linux containers are separate partitions of a single Linux kernel that runs on real hardware.

The underlying Linux kernel technologies utilized to isolate, secure, and manage the containers are Linux cgroups and namespaces. Because there is no hypervisor overhead, containerization provides better performance than virtualization. Additional resources such as a virtual-machine disk-image library, raw block storage, file or object storage, firewalls, load balancers, IP addresses, virtual local area networks (VLANs), and software packages are often available in IaaS clouds.

IaaS is defined by the National Institute of Standards and Technology (NIST) as "where the customer has the ability to install and operate any software, including operating systems and applications. The customer has no control over the core cloud infrastructure, but does have

control over operating systems, storage, and installed applications, as well as potentially limited control over certain networking components. These resources are available on demand from IaaS-cloud providers' vast pools of equipment in data centers. Customers may utilize the Internet or carrier clouds for wide-area connection Cloud customers install operating system images and application software on the cloud infrastructure to deploy their applications. The operating systems and application software are patched and maintained by the cloud user under this approach. IaaS services are usually billed on a utility computing basis by cloud providers. The quantity of resources provided and used is reflected in the cost.

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