Organization Methods Of E-Education Based On Modern Technologies
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Abstract

With the popularity of Internet learning, building a perfect web-based learning environment has become one of the hot spots in distance education research. Recently, teachers and students can easily

Share their materials through cloud-based services. This allows students to gain more independence and access learning materials more easily and quickly. E-learning systems usually require many hardware and software resources. There are many educational institutions that cannot afford such investments, and cloud computing is the best solution. This article presents the positive impact of using cloud computing architectures on the development of e-learning solutions. Emphasis placed on the benefits of cloud computing for e-learning solutions and the challenges of e-learning project management if these architectures are used. Recently, with the popularization of the Internet, there has been an increase in research and distance learning to create a perfect online learning environment. Cloud computing is rapidly developing with applications in any field, including education. E-learning systems often require a large amount of hardware and software. There are many educational institutions that cannot afford such investments, and cloud computing is the best solution. This article presents the positive impact of cloud computing architecture on e-learning solutions. With the use of these architectures, the benefits of cloud computing for educational solutions and the challenges of managing educational projects highlighted.

Keywords: cloud computing, e-learning, distribution, information technology

Cloud technology allows processing efforts moved from on-premises devices to data center facilities. Software appears as a service, and applications and data are stored on multiple servers accessible from the Internet. Educational institutions have become dependent on information technology (IT) to support the delivery of skills to students. Schools often lack the resources or skills to make full use of information technology. One of the newest technologies in the IT world is cloud computing, which has a significant impact on teaching and learning. Cloud technology offers a way to expand access to education, especially in remote and underserved communities. Students and teachers have quick access to various application platforms and resources through on-demand web pages.

Access can provided through virtual classrooms, with students attending classes at home on their computers, while the teacher is hundreds of miles away. Many schools are already moving in this direction. In addition, e-learning systems need to keep up with technology, so the new direction is to use cloud computing. There are several cloud computing service providers that offer support for educational systems. These include Amazon, Google, Yahoo, Microsoft, etc. An example can given. The following sections focus on cloud computing concepts and the benefits of cloud computing for e-learning solutions. Also, the impact of cloud computing on e-learning solutions based on project management is analyzed. This is very important for the development of e-learning solutions based on cloud computing.

In terms of methodology, the article uses a literature review approach, where existing studies and literature on the topic analyzed by synthesis. It provides examples of how cloud computing is being used in e learning in different institutions and countries. The article highlights the benefits of using cloud technology in e learning such as cost savings, scalability, flexibility and increased collaboration between learners and teachers. Challenges and concerns related to the implementation of cloud-based e learning, such as data security, privacy and reliability, also discussed.

Cloud technology. Cloud technology is an emerging computing model where users can access their applications from anywhere through any connected device. The concept of cloud has evolved from the concepts of grid computing, utility computing, and software-as-a-service (saas). It is a model where the user has access to their applications from anywhere at any time through their connected devices. A user-centric interface makes the cloud infrastructure supporting applications transparent to users. Applications

reside in massively scalable data centers where computing resources can be dynamically provisioned and shared to achieve significant economies of scale. Thanks to a robust service management platform, the management costs associated with adding more IT resources to the cloud

Can be significantly lower than those associated with alternative infrastructures. Vendors across the IT industry have announced cloud computing efforts with varying capabilities, and there is growing interest among enterprise customers in infrastructure aspects of the cloud, core processes as a service, and next-generation distributed computing. Cloud technology is both a business delivery model and an infrastructure management methodology. The business delivery model provides a user experience through which hardware, software, and network resources are optimally used to deliver innovative services over the Web, and servers are provisioned according to the logical needs of the service using advanced, automated tools. The cloud then allows service creators, application administrators, and others to consume these services through a Web-based interface that abstracts away the complexity of the underlying dynamic infrastructure. The infrastructure management methodology allows IT organizations to manage a large number of highly virtualized resources as a single large resource. It also allows IT organizations to massively increase their data center resources without significantly increasing the number of people traditionally required to support that growth. For organizations currently using traditional infrastructures, the cloud will enable users to leverage IT resources in the data center in ways never before possible. Companies using traditional data center management practices know that IT resources can take a long time to become available to the end user. It involves many steps, such as purchasing equipment; find raised floor space and sufficient power and cooling; separation of administrators for installation of operating systems, middleware and software; network provision; and environmental protection. Most companies find that this process can take up to two to three months. IT organizations re-provisioning existing hardware resources estimate that this will still take several weeks. The cloud dramatically alleviates this problem by implementing automation, business workflows, and resource abstraction that allow a user to browse a catalog of IT services, add them to a shopping cart, and submit an order. After the administrator approves the order, the cloud does the rest. This process reduces the time required to make those resources available to the customer from months to minutes.

Cloud technology is not a single product unit but provides different services. These services have proposed 3 models: software as a service (SAAS), platform as a service (PAAS) and infrastructure as a service (IAAS).

SAAS - Managed by a cloud service provider and mostly used by organizations. Available to users via the Internet.

PAAS - A tool used by developers to develop websites without installing any software on the system (Windows, LINUX) and can be run without any administrative experience.

IAAS - Managed, maintained and managed by cloud service providers that support various operations such as storage, hardware, servers and network.

There are four types of cloud technology models: private cloud, public cloud, hybrid cloud, and community cloud:

Public Cloud: It is for the general public where resources, web applications, web services are provided over the Internet and any user can access the services from the cloud. Public Organizations help provide the infrastructure to run the public cloud.

Private Cloud: Used internally by organizations and is for an organization, anyone within the organization can access data, services and web applications, but users outside the organizations cannot access the cloud. The infrastructure of the private cloud is completely managed and the corporate data is fully maintained by the organization itself.

Hybrid Cloud: A cloud is a combination of two or more clouds (public, private and community). It is mainly used in an environment where there are multiple internal or external providers of cloud services. It

is used by most of the organizations.

Community Cloud: A cloud is basically a mix of one or more public, private or hybrid clouds shared by multiple organizations for a single purpose. The infrastructure must be shared by several organizations within a specific community with common security. Compliance purposes. Managed by a third party or internally managed. It costs less than public cloud but more than private cloud.

Advantages of e learning. Many educational institutions lack the resources and infrastructure needed to implement the best e-learning solution. That is why the biggest players in e-learning software, Blackboard and Moodle, now have cloud-based versions of their main applications. E learning is widely used today at various levels of education: continuing education, company training, academic courses, etc. There are various e-learning solutions available, from open source to commercial. There are at least two sides to an e-learning system: students and trainers.

Students - take online courses, take exams, give feedback, and submit homework, projects.

Teachers - manage content, prepare tests, evaluate exams, assignments, projects submitted by students, give feedback, and communicate with students (forums)

An E-Learning Application Model Based on Cloud Computing. With the progress and application of technology, the emergence of cloud computing provides good opportunities to develop e-learning, so we are sure that it can also properly solve the above-mentioned problem. It is not necessary for the school or enterprise to worry about the establishment of the e-learning software and equipment environment, nor to spend large capital and human and material resources for the establishment of the system. All these issues can outsourced to e-learning cloud service providers who can customize it for users. In the e-learning cloud model, data storage is highly distributed, data management is highly centralized, and data service is highly virtualized, all of which offer a more secure data service. Building a smart business policy. The electronic-oriented cloud environment provides a large data center with massive data storage, high-speed computing. This architecture for the cloud platform provides various forms of user interface, such as Web Service interfaces, Java interfaces, C interfaces, Shell interface, etc. The cloud computing platform provides resource services in the form of rental to teachers and students. A module based on consumption billing developed to ensure that users pay only for the resources they use. The promise of cloud technology is that virtualization will reduce the number of servers required. Therefore, the main issue is to determine the user to meet the expected demand for the infrastructure needed to balance the amount of cloud: very few computing resources, the request from the user must wait for the release of resources or reject these requests until more hardware is provided. Added to the medium. Excessive computing resources, hardware costs, and other costs will negate the cost-cutting promises of cloud technology. In the cloud platform, teachers and administrators enter their requests for IT resources (server, software, storage, etc.) On the website, and immediately know if these resources are available. If resources are available, submit a request that is immediately and automatically routed to the cloud administrator for approval. This process is automated, so it can be met in a very short time. Resource utilization planning and management are important cloud activities. If properly managed, the plan will provide the necessary computing resources to create new solutions and meet application performance goals, promoting teaching and research goals.

VDC-OS extends the three-dimensional virtual infrastructure. First, it provides a set of infrastructure services to seamlessly connect servers, storage, and networking as a pool of local cloud resources and allocate them to the applications that need them most. Second, it provides a set of software services to provide the right level of availability, security, and scalability to all applications, regardless of the operating system, development frameworks, or architecture they are built to run on. Third, VDC-OS provides a number of cloud services. Unlike a traditional OS that is optimized for a single server, supports applications written only on its interfaces, VDC-OS serves as the OS for the entire data center, and supports the full diversity of any application written on any OS, starting with legacy Windows. Applications to modern distributed applications running in mixed operating system environments.

With one of a number of available resources expressed as virtual resources.Virtual resources will select physical resources to achieve requirements based on defined criteria. A data center is a facility used to house computer systems and related components such as telecommunications and storage systems. This generally includes redundant or backup power supplies, redundant data communications, and a growing trend in the IT world is server virtualization. That is, software can be installed that allows you to use multiple instances of virtual servers. So we can have multiple virtual servers running on one physical server. Virtualization allows multiple operating systems with different virtual machines to run independently on the same physical machine running in parallel. Each virtual machine has its own set of virtual hardware, which can be loaded on the hardware operating system and software. Regardless of the actual physical hardware components used, the operating system will treat them as a consistent, standardized set of hardware.

Conclusion

The emergence of cloud technology is today recognized as an effective paradigm for managing and delivering services over the Internet. The rise of this technology is rapidly changing the landscape in the information technology space, making the promise of public computing a reality long overdue. Cloud computing can help international organizations and countries transform education. A whole world of knowledge can be made available to teachers and students through cloud-based services that can be accessed anytime, anywhere and from any device. Therefore, cloud technology has the potential to improve learning experiences by providing greater accessibility and flexibility in education. In addition, cloud-based learning can increase student achievement and lead to greater efficiency in education by providing students with personalized learning experiences. Therefore, cloud technology plays an important role in modern education systems.

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