E-LEARNING SYSTEM BASED ON CLOUD APPROACH

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ABSTRACT

The customary educational systems and learning approaches had a significant effect due to the expedious blooming in IT industries. Now a day, e-learning is admired by many organisations and it is a very powerful trend. As the mode of future learning E-learning has been emerged because of the increasing number of users, a wide range of learning services and the growth of education. Cloud computing provides elasticity, dynamic scalability,visualized resources and measured services with the dynamically provision as needed. Computing in cloud i.e. cloud computing is perfectly suited for E-learning.

This paper presents, an E-learning using cloud computing, its benefits based on cloud computing and cloud computing's challenges in E-learning. Specially its core elements in effective e-learning n its architecture.

I INTRODUCTION

Technology plays an increasingly significant role in improving access to education for people. Learning and education is an important component of human life. One of the most promising paradigms for education is e-learning. E-learning alone is currently growing at 14 times the rate of traditional learning. In recent years there is a extensive growth in multimedia applications as well as telecommunication technology which comprise of live video streaming and video/audio conferencing.

This paper reports on the main components of e-learning based on cloud computing. Our research work introduces framework of e-learning based on cloud computing that can face challenges and obstacles of e-learning. An efficient e-learning system should be built and deployed on the cloud. New framework is proposed to ensure the integration of all different components and success factors of efficient E-learning system.

II CLOUDCOMPUTING

Cloud computing is Internet-based computing, whereby shared resources, software and information are provided to computers and other devices on-demand, like the electricity grid. The cloud computing is a culmination of numerous attempts at large scale computing with seamless access to virtually limitless resources.

Cloud computing is a subscription-based service where you can obtain networked storage space and computer resources. One way to think of cloud computing is to consider your experience with email. Your email client, if it is Yahoo!, Gmail, Hotmail, and so on, takes care of housing all of the hardware and software necessary to

support your personal email account. When you want to access your email you open your web browser, go to the email client, and log in. The most important part of the equation is having internet access.

The cloud makes it possible for you to access your information from anywhere at any time. While a traditional computer setup requires you to be in the same location as your data storage device, the cloud takes away that step. The cloud removes the need for you to be in the same physical location as the hardware that stores your data.

This is especially helpful for businesses that cannot afford the same amount of hardware and storage space as a bigger company. Small companies can store their information in the cloud, removing the cost of purchasing and storing memory devices.

2.1 Types of Clouds

There are different types of clouds that you can subscribe to depending on your needs. As a home user or small business owner, you will most likely use public cloud services.

1. **Public Cloud** - A public cloud can be accessed by any subscriber with an internet connection and access to the cloud space.

2. **Private Cloud** - A private cloud is established for a specific group or organization and limits access to just that group.

3. **Community Cloud** - A community cloud is shared among two or more organizations that have similar cloud requirements.

4. **Hybrid Cloud** - A hybrid cloud is essentially a combination of at least two clouds, where the clouds included are a mixture of public, private, or community.

2.2 The Benefits and Challenges of Cloud Computing

In past few years cloud computing has emerged as an main solution offering organizations a potentially cost effective model to ease their computing needs and achieve business objectives.

1. Optimized server utilisation -cloud computing manages the server utilisation to the optimum levelin most of the organizations those typically underutilise their server computing resources.

2. Cost saving - IT infrastructure costs are almost always substantial and are treated as a capital expense. However if the IT infrastructure usually becomes an operating expense. In some countries, this results in a tax advantage regarding income taxes. Also, cloud computing cost saving can be realised via resource pooling.

3. Dynamic scalability - many enterprises include a reasonably large buffer from their average computing requirement, just to ensure that capacity is in place to satisfy peak demand. Cloud computing provides an extra processing buffer as needed at a low cost and without the capital investment or contingency fees to users.

4. Shortened development life cycle - cloud computing adopts the service-orientates architecture (SOA) development approach which has significantly shorter development life cycle that that required by the

traditional development approach. Any new business application can be developed online, connecting proven functional application building blocks together.

5. Reduced time for implementation - cloud computing provides the processing power and data storage as needed at the capacity required. This can be obtained in near-real time instead of weeks or months that occur when a new business initiative is brought online in a traditional way.

For all the above benefits of cloud computing, it also incorporates some unique and notable technical or business risk as follows:

1. Data location - cloud computing technology allows cloud servers to reside anywhere, thus the enterprise may not know the physical location of the server used to store and process their data and applications. Although from the technology point of view, location is least relevant, this has become a critical issue for data governance requirements. It is essential to understand that many Cloud Service Providers (CSPs) can also specifically define where data is to be located. Data encryption is another control that can assist data confidentiality.

2. Cloud security policy / procedures transparency - some CSPs may have less transparency than others about their information security policy. The rationalisation for such difference is the policies may be proprietary. As a result, it may create conflict with the enterprise's information compliance requirement. The enterprise needs to have detailed understanding of the service level agreements (SLAs) that stipulated the desired level of security provided by the CSPs.

3. Disaster recovery - it is a concern of enterprises about the resiliency of cloud computing, since data may be commingled and scattered around multiple servers and geographical areas. It may be possible that the data for a specific point of time cannot be identified. Unlike traditional hosting, the enterprise knows exactly where the location is of their data, to be rapidly retrieved in the event of disaster recovery. In the cloud computing model, the primary CSP may outsource capabilities to third parties, who may also outsource the recovery process. This will become more complex when the primary CSP does not ultimately hold the data.

Businesses are under increasing pressure to sharpen their business practices. Too few people are aware of the security threats that are emerging. Nevertheless, they are responsible for ensuring that sensitive data will remain authentic, accurate, available, and will satisfy specific compliance requirements. Thus, it is essential for an organisation to understand their current IT risks profile in order for them to determine the company's levels of IT risk tolerance and IT risk policies, and oversee management in the design, implementation and monitoring of the risk management and internal controls system.

III E-LEARNING

E-learning is the use of technology to enable people to learn anytime and anywhere. Basically e-learning is the ability to learn via electronic media, typically on internet or even standalone computers. It is network- enabled and transfers the skills and knowledge by using electronic applications and processes to learn.

E-learning was first called "Internet-Based training" and then "Web-Based Training".

E-learning can be considered as a contribution to modern educationby the use of technology.It is a method of creating a creative,interactive learning methodswhich creates interest in studying and enhancing the customary teaching methods.

3.1The Benefits and Challenges of E-Learning

3.1.1 Benefits of E-learning

Saves time: There are many benefits of e-learning one of them is that it saves time.one can study online n gets education at anytime anywhere. It is convenient. Downloadable lectures are there it mean that students are no longer bounded by the timetable of lectures.

Personalized Learning: Students arealready doing a lot to create their own personal learning experience either by sharing notes using online tools, collaborating through social media with like-minded learners or most recently, downloading educational apps

Minimize travel cost: Neither are students restricted by their physical location. With an Internet connection, they can attend live online tutorials, participate in dedicated discussion forums or download course material and notes regardless of where they are.It minimizes the travel cost

Communication: Another advantage of e-learning is that it encourages and enables students to collaborate and communicate with their fellow students as well as their tutors.

Increased productivity: Because e-learning is not bound by geography or time, you can control training's impact on production by training people during down times. In addition, with the current economy, you're asking people to do more with less. So e-learning is a great way to give them the tools and skills needed to enhance their performance.

3.1.2 Challenges in E-learning

Some of the challenges faced by E-learning system are listed below:

Lack of proper infrastructure

Lack of curriculum

Change management

Awareness

Training

Lack of assessment system

Technology support

Continuous improvement

IV E-LEARNING BASED ON CLOUD APPROACH

In above points, we reviewed benefits and challenges of cloud computing in addition, we reviewed the E-Learning concepts and how it has changed the traditional education system over past few years.

E-Learning and cloud computing, both concepts are growing at a very rapid rates.One of the most interesting application of cloud computingis educational cloud. The educational cloud computing canfocus the power of thousands of computers on one problem,allowing researchers search and find models and makediscoveries faster than ever. The universities can also opentheir technology infrastructures to private, public sectors forresearchadvancements.

4.1 E-Learning Challenges Solved by Cloud Approach

E-Learning's challenges can be solved in this paper with the use of some benefits of cloud computing they are as follows:

4.1.1 Infrastructure

As mentioned above that lack of infrastructure is the most common challenge of E-Learning programs. Cloud computingtechnology removes this obstacle from several merits. The centralized infrastructure modelreduces the amount of infrastructure work that needs to bedeployed in each and every school which reflects directly on thecost and time needed to build the infrastructure.

4.1.2Digital curricula

The major challenge in any E-Learning program is curriculum. Impact of cloud in this obstacle of E-Learning can be measured from two aspects. First is to give ease of use to tutors or teachers and for the students to access it from anywhere at any time. Operational cost is the second aspect. By reducing the operational cost, a corporation can redirect the saved money to develop more content.

4.1.3change management

The changes related to the management are the most challenging in E-Learning. The very first aspect of change is learning and training which give its audience its own custom training that addresses its current job routine.

The second aspect is related to change management is the deployment pace; more people will realize that they need to utilize it in their daily lives when the system is deployed and spread over the organization.

Ease of access is the third aspect. Teachers and educators does not have enough time to play and test the system, this is the main reason why many organization-wide system fails. By providing home access, we can increase the time spend on the system and hence reduce the change resistance in the organization.

4.1.4Training and Awareness

Training and awareness plays important role to the full launch and can determine the success of the system. Organizations are now capable of building a cost effective training and awareness systems with the help of cloud technology.

4.2 Some Reasons Why Should One Go Cloud

1. It is cost-effective, scalable and provides flexible model that does not tieschools to out-of-date infrastructure orapplication investments.

2. For today's and tomorrow's teachers and students it Offers the flexibility to meet the requirements of changing software.

3. Updates are easily available and allows software standardization, a shared pool of applications for use school, organisations or district wide, and is easy to maintain through centralizedlicensing and updates.

4. Cloud enables fast development anddeployment of complex solutionswithout the need for in-house expertise.

5. Cloud computing supports multiple client platforms.

V BENEFITS OF CLOUD BASED ON E-LEARNING

When e-learning is implemented with cloud technology, many merits comes into consideration they are:

1. It lowers the cost: users need not to have high end configured computers to run e-learning applications. Through cloud they can run the applications through their mobile phones, PC, tablet PC with internet connection.as the data created is accessed in the cloud, the user need not to spend more money on storage devices for large memory in local machines. And organizations also need to pay for per use, so it's cheaper.

2. Improved performance: Due to cloud based e-learning applications, client machines do not create problems on performance when they are working.

3. Instant software updates: The software are automatically updated in cloud source. So the users can get the updates instantly.

4. Benefits for students: Students get more advantage of e leaning based on cloud as they can enhance their skills by taking online courses, attending online exams, getting feedback from their instructor, and can send their assignments and projects online to their teachers.

5. Benefits for teachers: Teachers also gets the privilege of e-Learning based on cloud computing. As they can prepare online tests, deals with their students online, assess the tests, and sends the feedback and communicate with students online.

6. Data security: security of data is a very big concern. Cloud computing provides major benefits for security of data of individual and an organization that are using e-learning solutions.

VI CONCLUSION

In today's educational perspective cloud computing has made an exciting approach. Administrative as well as students can take the privilege of the opportunity to quickly and economically access through web pages on-demand. Due to this the opportunity cost is minimized automatically. In this paper we learned about the e-learning based on cloud approach. Brief study of there definition and some benefits and challenges. Cloud based learning will help students, trainers, teachers, institutions also and students from the rural parts or any part of the world can gain knowledge shared by different teachers and professor on any part of the world. Government can

also take initiatives to introduce this system in colleges as well as in schools by this students can be creative and it willcreate interest in studying and enhance the traditional teaching methods. E-learning programs can help the organizations in enhancing the traditional methods of e-learning.

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