

Critique Review on Easy learning Based on Cloud Computing

B.R.Vamsi Krishna Naik, Assistant Professor, Swetha Institute of engineering and Technology, Tirupati.
V.Saraswathi Bai, Asst Professor , SOET,Sri padmavati Mahila Vishvavidyalayam, Tirupati

Abstract:

In the Cloud computing infrastructure, the sharable e-Learning platform can be proposed to provide a good learning environment for learners. Three layer architecture of the e-Learning platform is provided to facilitate the sharing, reusing learning objects and interoperability among various learning content efficiently. The middleware layer imports an indexing module and a metadata transformation module to complete metadata exchange among acknowledged e-Learning standards. Therefore, learners can make use of available learning objects without having to be affiliated with other LMS. The proposed e-Learning platform based on Cloud computing infrastructure would allow the independent LMS embedded in different e-Learning standards to share the learning objects. In short, you can say cloud computing will help huge amount of learning objects to be accessed reliably and flexibly over the Internet.

Keywords:

Cloud Computing, Services, Desires, Security, Availability, Latency, Hybrid Clouds, Scalability, Efficiency, Creativity, Simplicity, Research themes.

I. Introduction

Cloud computing has emerged as a potentially disruptive convergence of developments in computing power, data transmission speeds and the use of internet and

mobile communications. At its most basic, it is a form of outsourced shared-resource computing in which computing is pooled in large external data-centers and accessed by a range of customers through the internet.

Internet technology to design, implement, select, manage, support and extend learning, which will not replace traditional education methods, but will greatly improve the efficiency of education. As e-learning has a lot of advantages like flexibility, diversity, measurement, opening and so on, it will become a primary way for learning . In traditional web-based e-learning mode, system construction and maintenance are located in interior of educational institutions or enterprises, there left a lot of problems such as significant investment needed but without capital gains for them, which leads lack of development potential.

In contrast, cloud-based e-learning model introduces scale efficiency mechanism, i.e. construction of e-learning system is entrusted to cloud computing suppliers, which can make providers and users to achieve a win-win situation: on the one hand, the supply companies can use their own technological advantages to build an e- learning system with more stable performance, more comprehensive functions, and more secure features. Meanwhile, suppliers can take charge in some way so as to earn a reasonable profit to return funds. On the other hand, users can be free from the building and maintenance for e-learning system and specifically focus on the application of e-learning system in order to improve teaching quality and management level. In this model, the construction of cloud computing systems is separated from their usage, and through economic leverage there

are sufficient back-up and maintenance funds to build and feed an e-learning system, which can make e-learning system development into a virtuous circle. Thus, emergence of cloud computing opens a new idea to further development for e-learning. But the development of cloud computing is facing many critical issues, the most prominent is the security issue, with the growing popularity of cloud computing, the importance of security show gradual upward trend, become an important factor in the development of cloud computing. The purpose of this paper is attempted to bring greater clarity landscape about cloud computing security.

Definitions of cloud computing

This definition focuses on the cloud as a platform for running applications and whilst this is an important element, it downplays the role of applications that run on these platforms. Alternative definitions, such as those provided by Boss et al. (2007), emphasize both platforms and the types of application that run on them. For them the platform ,dynamically provisions, configures, reconfigures and de-provisions servers as needed', allowing applications to scale through their hosting in large data centers. Applications are ,extended' to be accessible through the internet, thus using the large data centers and powerful servers to host them.

Benefits of cloud computing

Enterprises typically follow developments in the technology marketplace to determine how well aligned these developments are with their own evolving business strategies. The business-led adoption of cloud computing shapes a further key area of the literature on cloud computing in which the most pervasive business benefits attributed to cloud relate to the perceived opportunity to drastically reduce costs and complexity for enterprises. In summary,

cloud computing represents a number of technical innovations which have enabled services which appeal to businesses' desires.

Innovation in data centers also provides opportunity for innovative business opportunities through cloud computing (a theme we explore in detail below). However in contrast to commoditized outsourcing offerings in which cost becomes a key differentiator and driver, our research below suggests cloud services may offer innovation opportunities as well as cost-saving.

The IT industry has however also engaged in significant marketing efforts promoting cloud computing, with many companies rebranding existing offerings as cloud computing. It is thus important to develop tools which enable the evaluation of cloud computing beyond such marketing efforts. The next section describes this paper's desires framework.

II. Knowledge on e-learning

Web based training (WBT). These terms express the way of E-Learning teaches them with the advancement of computer technologies day by day, work becomes simplified with the help of preprogrammed software applications. E-Learning is one of the most famous technologies discovered to make the traditional way of education learning easier with the help of software applications and virtual learning environment. The electronic way of learning in the E-Learning. There are various names that are used to express the term E-Learning in a technology world such as Computer based training (CBT), Internet based training (IBT), and lesson to the e-learner. E-Learning comes through a network enabled computer and transfers the knowledge from the internet sources to end users machine. Usually the E-Learning works with the help of software applications and usually the information is transferred with the help of internet, audio/video files, satellite TV, media disks. These materials are having the contents like text, image, animation, audio/video to deliver the learning

materials to E-Learning users. Many universities and institutions are implementing the e-learning for their distance education programmers and also used it to enhance the ability of other educational degree programmers. Cloud computing, mobile learning, communication technology, etc. are of help to bring the E-Learning to next level of IT world.

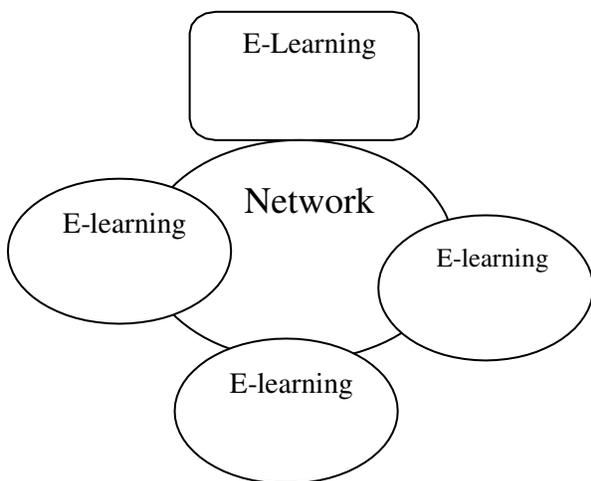


Figure 1: E-Learning systems

E-Learning Cloud Computing Model:

Clearly, the traditional e-learning network is built and maintained by schools or enterprises, and their applications are also developed by themselves. Therefore, the costs of equipment investment, development and maintenance are afforded by schools or enterprises themselves, which would take a lot of expenditure. If moving e-learning system going out of schools or enterprises, entrusting its construction, maintenance, development and management to vendors, opening it up to multiple users through the Internet and letting them use on-demand and payment is based on the amount of used servers, it can not only reduce charges for schools or enterprises, but for suppliers it can also achieve

economies of scale. This business model of e-learning system is called e-learning cloud model on cloud computing

III. Cloud based e-learning

Cloud based e-learning is the sub division of cloud computing on educational field for e-learning systems. It is the future for e-learning technology and its infrastructure. Cloud based e-learning has all the provisions like hardware and software resources to enhance the traditional e-learning infrastructure. Once the educational materials for e-learning systems are virtualized in cloud servers these materials are available for use to students and other educational businesses in the form of rent base from cloud vendors. Cloud based e-learning architecture is explained in the following figure:

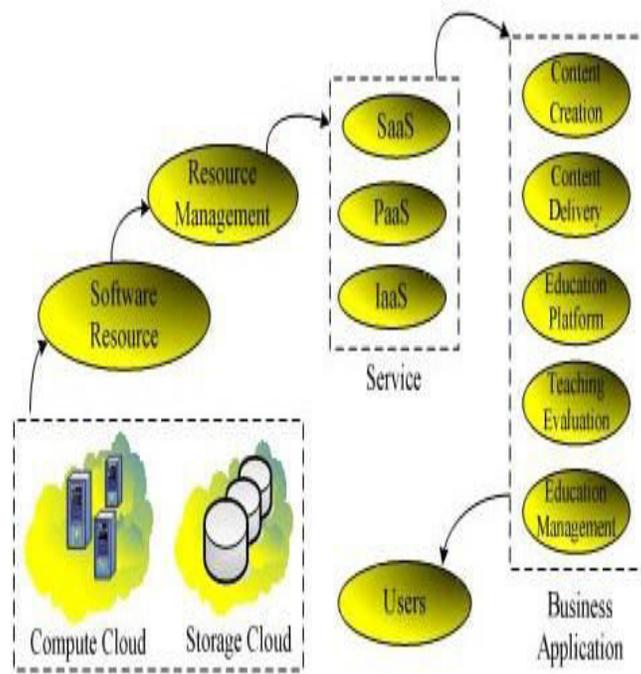
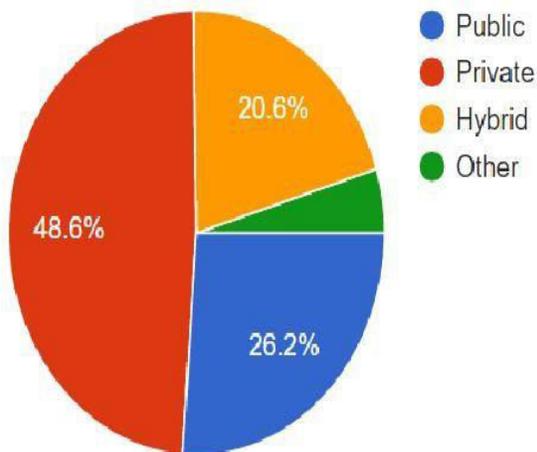


Figure 2: Architecture of e-learning cloud

Cloud based e-learning architecture is mainly divided into five layers called hardware resource layer, software resource layer, resource management layer, server layer and business



application layer.

1) Hardware resource layer

This is bottom most layer in the cloud service middleware where it handles the essential computing things like physical memory and CPU for the total system. This layer is most important for the total infrastructure of the system. With the help of virtualization, physical servers, network and storage are grouped and called it as upper software platform. To offer the uninterrupted power to the cloud middleware services for the cloud based e-learning systems, physical host pool is expanded dynamically and memory is scalable at any time to add additional memory.

2) Software resource layer

This layer is created with the help of operating systems and middleware. With the help of middleware technology, many software solutions combine to offer the grouped interface for the software developers. So, software developers can create many applications for e-learning system and able to embed those in cloud, which helps the cloud users to compute those applications through cloud.

3) Resource management layer

This layer plays an important role on get loose coupling of software and hardware resources. With the help of virtualization and scheduling idea of cloud computing, it brings

the uninterrupted on-demand software distribution for different hardware resources.

4) Service layer

Service layer is divided into three levels namely IAAS, PAAS, and SAAS. These service layers help to cloud customers to use the various forms of cloud resources for their products like software resource, hardware resource, and infrastructure resource.

5) Business application layer

Business application layer differs from all other layers in cloud based e-learning architecture, because this layer acts as important business logic of e-learning, and frames the expansion of group of components for e-learning. Business application layer mainly consists of content creation, content delivery, education platform, teaching evaluation and education management.

IV.LIMITATIONS IN CLOUD SERVICE MODELS

Two key limitations may effect on deploying applications under SaaS model: data locality, and integrity. Generally, the user does not know where the service provider stores data and how can be assured that no one can modify it. The lack of trust between cloud user and provider is a critical issue that should be addressed when using SaaS.

As a result, to avoid data leakage in the educational institutions the computer center in the university may host the SaaS application on its own private server or deploy it on infrastructure services provided by trusted third-party provider such as Amazon, Google, etc. For these reasons, most of higher educational institutions involved in this survey are using a private cloud, rather than public or hybrid

Figure 3: Cloud models deployed in surveyed in e-learning cloud.

V. RECOMMENDATIONS

At the end of this study, a few baseline recommendations for cloud administrators within universities for adapting secure cloud computing are presented.

1. The first consideration is to educate the stakeholders adequately on cloud services used in their own network and provide them primary notifications related to security issues. It is recommended to follow security-related guidelines and standards for achieving secure environments such as NIST guidelines for security and privacy.
2. The institution's network must be prepared for cloud computing. This means the network equipment such as routers and firewalls should be configured with critical rules to make cloud network more secure and reach the expected performance. Additionally, setup up network isolation techniques like VPN, VLAN, etc.
3. Make sure that IT administrator able to control and manage cloud's items and services when concluding the contract agreement with the service provider.
4. An agreement with a third party to perform audits on a regular basis to monitor the performance and compliance of the service provider to the agreed terms.
5. Monitor periodically the performance of available cloud services and resources that have been launched and make a change as required. This procedure may reduce security threats and risks.

VI. Challenges in E-learning in a cloud

a) Privacy

Different from the traditional computing model, cloud computing utilizes the virtual computing technology, users' personal data may be scattered in various virtual data center rather than stay in the same

physical location, even across the national borders, at this time, data privacy protection will face the controversy of different legal systems. On the other hand, users may leak hidden information when they accessing cloud computing services. Attackers can analyze the critical task depend on the computing task submitted by the users.

b) Reliability

Servers in the cloud have the same problems as your own resident servers. The cloud servers also experience downtimes and slowdowns, what the difference is that users have a higher dependent on cloud service provider (CSP) in the model of cloud computing. There is a big difference in the CSP's service model, once you select a particular CSP, you may be locked-in, thus bring a potential business secure risk.

c) Legal Issues

Regardless of efforts to bring into line the lawful situation, as of 2009, supplier such as Amazon Web Services provide to major markets by developing restricted road and rail network and letting users to choose "availability zones" [10]. On the other hand, worries stick with safety measures and confidentiality from individual all the way through legislative levels.

d) Open Standard

Open standards are critical to the growth of cloud computing. Most cloud providers expose APIs which are typically well-documented but also unique to their implementation and thus not interoperable. Some vendors have adopted others' APIs [11] and there are a number of open standards under development, including the OGF's Open Cloud

Computing Interface. The Open Cloud Consortium (OCC) is working to develop consensus on early cloud computing standards and practices.

e) Compliance

Numerous regulations pertain to the storage and use of data require regular reporting and audit trails, cloud providers must enable their customers to comply appropriately with these regulations. Managing Compliance and Security for Cloud Computing, provides insight on how a top-down view of all it.

VII.CONCLUSION

Cloud computing represents an opportunity for universities to take advantages of the enormous benefits of cloud services and resources in the educational process. However, the cloud users remain concerned about security issues that represent the major obstacle that may prohibit the adoption of cloud computing on a large scale. In this paper, the authors have provided an overview of cloud computing benefits for key stakeholders in the higher educational institution. The limitations of cloud service models were investigated in addition to challenges and risks threaten cloud computing. This study shows that the stakeholders are not familiar with possible security risks or procedures used to protect data or cloud application. In this paper we discuss a cloud computing based e-learning. Describe its definition, benefits & some issues. There is no doubt that the introduction of cloud computing

into e-learning is feasible & brings us the approximately infinite computing capability, good scalability, benefits & so on.

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