E-Learning Using Cloud Computing: A Study of Coastal Andhra Pradesh

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Abstract- E-Learning, the use of Electronic Media and Information and Communication Technologies (ICTs) in education, facilitates the forms educational technology in learning and teaching. Under the system of cloud computing, a large number of computers connected through a real-time communication network can be maintained in order to facilitate the scopes of E-Learning. Hence, the situation pertaining to E-Learning has become phenomenal with the massive use of cloud computing. The issues like lack of e-content, infrastructure and knowledge and socio-economic barriers are posing potential threats to the proliferation of cloud computing usages for E-Learning in India. Here, the researcher has attempted to explore the scope and limitation of cloud computing usages in E-Learning in India in general, coastal Andhra Pradesh in particular. Here the researcher has adopted the case study method to examine the use of cloud computing for E-Learning in two colleges of Coastal Andhra Pradesh.

Key Words: Cloud Computing, E-Learning, Infrastructure, Knowledge, Computer

1. Introduction

The education system has undergone a sea change in the global arena with the introduction and massive use of computers. The use of computer is not limited to the higher education, but also linked to schools. The critical opinion has appeared concerning the use of computers by children and adolescents, especially in education at the primary and high school levels. It is also seen that computers seem to be excellent tools for learning is the attraction they exercise upon children and teen-agers. It is a great fallacy that children and young people have to learn computers now because otherwise they will fall behind in their future search for professional jobs. Computers are becoming so easy to use and learn, on-line tutorials and helps are becoming so powerful, that any person will be able to learn how to use computers very fast at any age [1]. Therefore, E-Learning is on the rise in India.
Despite several advantages of cloud computing, the issues like lack of e-content, infrastructure and knowledge and socio-economic barriers are posing potential threats to the proliferation of cloud computing usages for E-Learning in India.

Many education institutions do not have the resources and infrastructure needed to run top E-Learning solution. E-Learning is widely used today on different educational levels: continuous education, corporate trainings, academic courses, etc. There are various E-Learning solutions from open source to commercial. There are at least two entities involved in an E-Learning system: the students, faculties and the trainers [4].

The models of clouding computing are public, private and hybrid. So far as clouding computing with respect to E-Learning is concerned, public cloud is of paramount importance. It is the factors of applications, storage, and other resources which is putting this model ahead in educational institutions. Generally, public cloud service providers like Amazon AWS, Microsoft and Google own and operate the infrastructure and offer access only via the Internet [5].

The public cloud can be the best option based on the following options - A public cloud is the obvious choice when standardized workload for applications is used by lots of people; to test and develop application code; to have SaaS (Software as a Service) applications from a vendor who has a well-implemented security strategy; to have incremental capacity. Here is the ability to add computer capacity for peak times when the more number of students access to e-content.

2. Review of Literature

Paul Pocatilu, Felician Alecu and Marius Vetrici (2012) point out that cloud computing becomes very popular because it moves the processing efforts from the local devices to the data centre facilities. However, they suggest that metrics system needs to be developed in order to measure the efficiency of cloud computing based E-Learning solutions [4].

Utpal Jyoti Bora and Majidul Ahmed (2013) stress that cloud computing is an significant alternative in today’s educational perspectives. However, they underline that this system suffers from security, privacy, flexibility and accessibility. Therefore, these issues must be addressed [6].

Masud Md. Answar Hossain and Huang Xiaodi (2012) assert that through cloud computing facilitates high availability, high security and virtualization. However, they claim that the existing E-Learning system is not dynamically scalable and hard to extend the integration with other E-Learning system is very expensive. In addition, they also emphasize other issues like openness, scalability and development or customization costs [7].

Deepanshu Madan, Ashish Pant, Sunnet Kumar and Arjun Arora (2012) claim that it is difficult to complete the mass data storage, business intelligence processing and the like. They have suggested a special model based on mass data storage, high speed computing capabilities, sharing mode of resources [8].

A.Ghazizadeh (2012) clarifies that cloud computing has many benefits in education. Cost effectiveness for the implementation of the hardware and software and this technology has been most importantly for all the time. It can improve quality of current system of education at an affordable cost [9].

Hua Zheng (2012) argues that with the help of cloud computing efficient management of large number, diverse cloud resource relies on a flexible, scalable and robust information service. It can also help us or at least manage our infrastructure costs better and allow availability of our application and data over the Internet [10].

M.Phankokkruad (2012) asserts that because of cloud computing, E-Learning systems can deliver the learning contents to learners who have different backgrounds, interests, and locations away from a classroom in order to maximize the effectiveness of learning. Needless to say,
the classical e-learning system is based on client/server architecture thus they lack of the scalability, flexibility and interoperability. It makes the learning resources cannot share, and the system improvement is not easily [11].

After reviewing the above literature, it is know that even though cloud computing is essential for E-Learning, it suffers from various short-comings. Therefore, the issues must have to be addressed.

3. Hypothesis

The use of cloud computing can bring phenomenal changes in E-Learning with proper infrastructure and overcoming socio-economic barriers.

4. Research Objectives

1. To study the use of cloud computing in E-Learning
2. To understand the problems pertaining to cloud computing
3. To examine the factors responsible for improving cloud computing for E-Learning

5. Research Questions

1. What are the usages of cloud computing in E-Learning?
2. What are the problems pertaining to cloud computing?
3. What are the factors responsible for improving cloud computing for E-Learning

6. Research Methodology

Here the researcher has adopted the case study method to examine the use of cloud computing for E-Learning. The researcher has taken two autonomous colleges - Maris Stella College, Vijayawada and St. Joseph’s College for Women, Visakhapatnam. The various phases of E-Learning using cloud computing has been taken into consideration. For this study, interviews with students, faculties and technical persons have conducted.

7. Case Study of Maris Stella College and St. Joseph’s College for Women

Coastal area of Andhra Pradesh includes the coastal districts of Andhra Pradesh between the Eastern Ghats and the Bay of Bengal, from the northern border with Odisha to south of the delta of the Krishna River. It includes the districts of Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari, Krishna, Guntur, Prakasam and Nellore.

Maris Stella College is a college situated at Vijayawada in coastal Andhra Pradesh. Founded in 1962 at Vijayawada, Maris Stella College, a Catholic Christian Minority Institution for Higher Education, has been a first-rate college, which has focused on the education of women and is the first Women’s college in the District. From the outset Maris Stella was a first grade college offering courses in Humanities and Sciences both in Pre-University and Degree level – with Economics, History, Political Science, English, Mathematics, Physics, Chemistry, Computer Science, Botany and Zoology. Telugu, Hindi and French were offered as second languages.

Established in the 1958, St. Joseph’s College for Women, Visakhapatnam, a grant-in-aid institution, with a campus area of 7.5 acres and student strength of 1250, offering four Intermediate courses, eight Undergraduate courses in BA, B.Com and B. Sc and four Postgraduate courses.

8. Findings

After studying this particular case to understand the use of cloud computing for E-Learning, the researcher has found the following in the selected college i.e., Maris Stella College.

Maris Stella College is being benefited because of massive E-Learning storage. It results in east and faster accessibility of e-content to the student via the Internet. The students are being exposed to open education resources in a greater extent. It is also observed that data of dynamic kind is being accessed. Dynamic content having properties of interactivities is paving the ways for better learning process on the part of students, faculties and researchers. Gain based knowledge has become easy for them. Even though the college is situated at small city of Andhra Pradesh, the major advantages of E-Learning through cloud computing has been feasible in this college. However, the college suffers from various pitfalls in connection to E-Learning through cloud computing. Sometimes, lack of adequate infrastructure causes technical snags. It is often observed that lack of Internet connectivity, students, researchers and faculties are facing problems to tap and retrieve the existing e-content on the cloud. Moreover, they are not equipped with latest technological advancements to cope with the changes in global arena. It is also observed that lack of motives on
the part of students, faculties and trainers is creating hindrances on the path to E-Learning. Things are getting worse besides the Department of Computer Science in various colleges.

When the researcher compared Maris Stella College with St. Joseph’s College for Women, he found that there is a huge difference on the ground of infrastructure, utilization, accessibility and technological upgradations. It is observed that Visakhapatnam is a developed city compared to Vijayawada. However, there is no significant change in various departments of the college.

9. Conclusions and Suggestions

It is found that like in Maris Stella College, many colleges in coastal Andhra Pradesh are grappling with numerous problems pertaining to E-Learning through cloud computing. Hence, it is also observed that E-Learning is enjoying certain advantages and suffering from certain disadvantages in various colleges of coastal Andhra Pradesh.

Owing to trouble-shoot the existing problems in E-Learning through cloud computing, there should be proper infrastructure which should cope and enhance the learning process. It leads to downsize the cost of hardware in the educational institutions. It can be only possible when there is huge accessibility to technology and knowledge. Researchers and faculties should prepare minimum e-contents for the students to make the E-Learning a success one. Indian version of e-content is the need of the hour. In order to create the attitude towards E-Learning, professional motives should be fostered at the college level in all the disciplines even in core departments including Computer Science.

10. References


