



## **Analysis and Design of Cost Effective Cloud Based E-Learning**

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### **I. INTRODUCTION**

In the ancient time men lived in jungle like animals. But to complete his requirements he started to think. And effort made men superior from animals. This was the certain step in the history of progress. In this development process some inventions changed the life of men. These inventions were fire, wheel and electricity. These three inventions increased the speed of progress and made human life much easier. But to maintain this speed he felt the necessity of a machine which could store the large volume of data and could perform large calculations at very high speed, because this as becoming the big problem, And finally he found the computer which has machine which has changed the life of men and has become the best machine of not only of this century, the best one amongst all the machines which are invented by men up to this time. But all machines, which are invented by men up to this time. But this machine was not invented in one or two years, this is the result of many hundreds of even thousands of years of research.

The computer is the most significant contribution of man in the present century. The present era is the era of devices of science and computer is one out of them. It has wide applicability in the human life. It has made human life faster and precise. In this paper, we introduces the characteristics of E-Learning and analyses the concept of cloud computing.

### **II. CLOUD COMPUTING**

Cloud Computing, a rapidly developing information technology has brought new change & opportunities to IT industry and in the field of education as well as informatics in domains like health, Forest, Disaster management etc. Cloud Computing provides to user's demand to serve a wide and constantly expanding range of information processing needs. Due to tremendous advantages this technology is rapidly used in many applications. The advent of computers with sophisticated software has made it possible to solve many complex problems very fast and at a lower cost.

“Cloud Computing” is the next accepted action in the evolution of on-demand information technology services and products. The cloud computing term was derived from the way the internet is often represented in network diagram. Due to fact it involves the being of data centers that are able to provide services, for all the requests coming from the world wide spread clients, the cloud can be seen as a exclusive access point. In recent years, cloud computing as a new kind of advanced technology accelerates the innovation for the computer industry cloud computing is a computing model based on the internet, whose task is to ensure that users can simply use the computing resources on demand and pay money according to their usage by a metering pattern similar to water and electricity.

### **III. ADVANTAGES IN CLOUD COMPUTING**

- (a). The cost is low or even free in some cases, pay-as-per-use.
- (b). By using internet with minimum software requirements, user can reach the same result because of strong connection exists between the user and personal computer.
- (c). In order to work with the cloud, only the internet connection is required,
- (d). If the client computer or PC crashes, there are almost no data lost because everything is stored into the cloud.
- (e). For some applications, can be used even in the offline mode.
- (f). Cloud computing allows dynamic scalability as demands fluctuate. This help makes data flexibility.
- (g). Accessibility-This help makes data and services publicly available without make vulnerable sensitive information.

### **IV. E-LEARNING**

Since the E-learning technology is a not a new technology, it comes with the combination of latest

technologies to enhance its provisions to e-learners. There are many new forms of e-learning methodologies to provide educational facilities to e-learners with variety of new provisions to enhance the functionality and e-learning environment. After the evolution of web 2.0, e-learning adopted the web 2.0 with the combination of iPLE (Institutional Learning Environment) to bring the new technology called e-learning 2.0.

Therefore, E-Learning 2.0 is nothing but to make e-learning environment to be more efficient than before with lot of new provisions to e-learners using online sources like blogs, wikis, forums, cloud sources, audio/video conferencing etc. There are so many sub forms created for e-learning after the evolution of e-learning 2.0 namely mobile learning, cloud based e-learning, blended learning (Casquero *et al.*, 2010)

## V. ADVANTAGES OF CLOUD BASED E-LEARNING

There are many advantages when the E-Learning is implemented with the Cloud Computing Technology:

**(a). Lower Costs:** E-Learning users need not spend more money for large memory for data storage in local machines. It also need to pay-per-use, so it's cheaper.

**(b). Improved Performance:** When they are working and processes in cloud, client machines don't create problems on performance.

**(c). Instant software updates:** The S/W's are automatically updated in cloud source. So always e-learners get updates instantly.

**(d). Improved document format compatibility:** The cloud based e-learning applications don't have to worry about those kinds of problem when some file format and fonts do not open properly in some PC or mobile phones.

**(e). Benefits for students:** They can take online courses, online exams, get feedback through online to their teachers.

**(f). Benefits for teachers:** Teachers are able to prepare online tests for students, deal and send feedback with students through online forums.

## VI. LIMITATIONS IN CLOUD BASED E-LEARNING

**(a). Charge:** When cloud computing is used for e-learning system, charges are very crucial in the overall system.

**(b). Bandwidth:** Since the cloud e-learning fully depends on the internet sources, band with plays a vital role to deploy the data in internet servers.

**(c). Security:** Security plays a vital role as some of the e-learning materials are confidential.

**(d). User idea:** It will lead to affect the e-learning user's ideology and their acceptance on further development on cloud based e-learning.

**(e). Educational forms and methods:**

**(f). Educational management rules:**

**(g). Resource development:**

## VII. CONCLUSION

The vary objective of this research is to propose and develop a cost-effective cloud computing based model for storing and fetching e-Learning modules including text, audio, Videos and to deploy the same in cloud environment, thus making 'e-Learning model on Demand as a Service' more secure and scalable. The present study aims to analyze, design and to develop an e-Learning model in the Cloud Environment, which can be easily accessed by everyone without any constraints on geographical location.

The study materials are stored in the cloud and through a progressive download approach and without having costly hardware or software infrastructure the learner will use the contents in real time environment. The e-Learning model on cloud will be developed similar to the real classroom environment, wherein a learner has to be present on time to get the complete study of the relevant course he /she has registered for. By providing a smooth and lively streaming of multimedia based e-Learning materials, the learners are benefited with a cost-effective and Virtual Classroom environment.

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