Enhancement of E-learning using Cloud Computing and Information Technology

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Abstract—E-learning is a concept in which user can teach as well as learn through electronic media. Nowadays e-learning is a very new and innovative technique, and has a great future due to its credibility and extra ordinary efficiency. E-learning is a new education system in which different types of technologies and tools are integrated and play a major role to make e-learning such a wonderful system. E-learning is and will play a very important role in all universities, colleges and schools in the context of learning. Cloud computing can be a crucial component in the backbone for the infrastructure used for e-learning system implementation. Information and Communication Technology (ICT) plays a vital role in e-learning and hence this education system is called ICT education system and IT based education system. In this paper, we emphasis on e-learning concept in today's education system with the use of cloud computing since it enhances the learning to a new direction. E-learning also provides flexibility and cooperative education paradigm.

Keywords- E-learning, Cloud, Cloud Computing, Information Technology

I. INTRODUCTION

E-learning is a new concept and a wonderful approach to today's modern education system. E-learning is a new brilliant approach in which computational and other technologies are used for collecting the data and organizing the same to increase knowledge in a structural manner. E-learning is a new education system which includes web learning, distributed learning, e-classrooms, and industry based learning, flexible learning etc. E-learning helps in collection of data and preparing contents in an organized manner to deliver knowledge [2]. Although universities had adopted this e-learning concept quite earlier, but nowadays many colleges and schools have adopted and/or adopting e- learning for getting more benefits of this magnificent technology.

II. E-LEARNING : AN INSIGHT

E-learning stands for Electronic Learning. E-learning can be considered as a combination of electronics and other computational devices that work together to achieve a delightful learning experience. Practically, learning by the use of technologies and modern education system, it makes e-learning much more flexible and simple in access. Many other education system also comes under this category such as online education, web based education, virtual classroom etc. E-learning reduces the geographical boundaries [3]. Everyone can get knowledge at his/her own place by the use of e- learning. E-learning provides smooth, fast and easily accessible education.

Compared to distance learning education, e-learning has more benefits. E-learning has the potential to completely transform learning and teaching, and also extends the lifetime involvement in learning..

III. E-LEARNING ROLE

E-learning provides the facility of electronic learning and also provides the simplicity of learning. It gives many benefits on learning which comprises of:

- Virtual classrooms created for e- learning
- In universities, colleges and schools smart classroom are made for e-learning
- For teaching and learning, projectors and other multimedia are in used
- It gives the facility of web based learning
- It reduces the time in collection of knowledge
- It gives economic benefits to the learners as well as universities, institutes and school
- Smartphones are one of the best medium for learning
- The updates became very easy with ease of e-learning

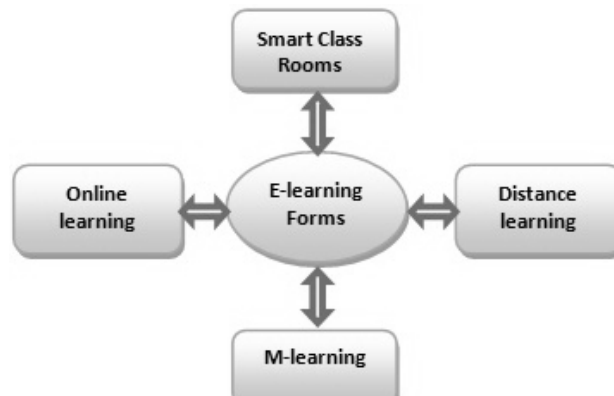- E-learning is available 24 hours in a day with the use of internet

Figure 1. E-learning Related Forms

IV. E-LEARNING AND INFORMATION TECHNOLOGY

Advance Computing and information Technology play a very vital role in each and every field nowadays. Also it gives enhancement in current education system to become better and more flexible and easily accessible [5]. Information technology comprises various different elements such as network technology, wireless sensor network, web based technologies, multimedia system, software technologies and wireless communication technologies, and all of these are helpful in delivery of knowledge and making a better education system. So these technologies are such a great boon for the development of modern education system.

V. E-LEARNING PROS AND CONS

Advantages of e-Learning are:

- Even if you are around your work and family, your class work can be scheduled.
- For off-campus learners there is a significant reduction in travel cost and time.
- As per the level of interest and knowledge, the students are provided with options to choose from their learning materials.
- To study, students are not bound by location. They just need to have an access to a PC with an internet connection and they can study anywhere.
- The students are allowed to work at their own pace of learning because of the self-paced learning modules.
- There are bulletin board threaded discussion areas with flexible joining at any time and/or students can communicate with their instructors as well as classmates in chat rooms.
- There are so many different learning styles and facilitate learning through a variety of activities contained in eLearning.
- During eLearning, the learners develop the knowledge of the computers skills and Internet, which is going to help throughout their careers, what so ever, and lives.
- After the successful completion of computer-based or online courses, it builds self-confidence and self-knowledge in students and inspires them to take charge for their learning.
- Students might skim or test out over resources, they have already become proficient at and they can also solidify their efforts in understanding fields having fresh information and/or skills.

Disadvantages of e-Learning are:

- Students with little inspiration or poor study habits might fall behind.
- Learners might get mislaid or feel chaotic about course activities and deadlines.
- Students might feel isolated from the instructor and classmates.
- Whenever the students are seeking help during their study, the instructor might not be available always.
- Older PCs and not so fast internet connections might make the process of accessing course content annoying.
- For the learners with novice-level computer skills, management of computer files and online learning software can become complex sometimes.
- In a virtual classroom, it is quite difficult to simulate the lab work or practical work experience.

VI. METHODS OF ONLINE COLLABORATION

Online collaboration can be performed basically using two fundamental methods as given below:

1. Synchronous or Real Time:

Synchronous or Real Time method for online collaboration can be performed with the help of technical implementations such as Chat, Instant Messaging, Virtual Classrooms, Audio/Video Conferencing, and Phone Conferencing [7]. The simplest of above said implementations are Chat and Instant Messaging, while the Virtual Classrooms are said to be the most complex of all above.

2. Asynchronous or Not Real Time:

Asynchronous or Not Real Time method for online collaboration can be performed with the help of technical implementations such as Email, SMS Messaging, Forums, Threaded Discussions, Bulletin Boards, and Document Management System (which includes upload, approval, publish and version check-in & check-out). The simplest of above said implementations are SMS Messaging and Email, while Document Management System as a whole is said to be the most complex one.
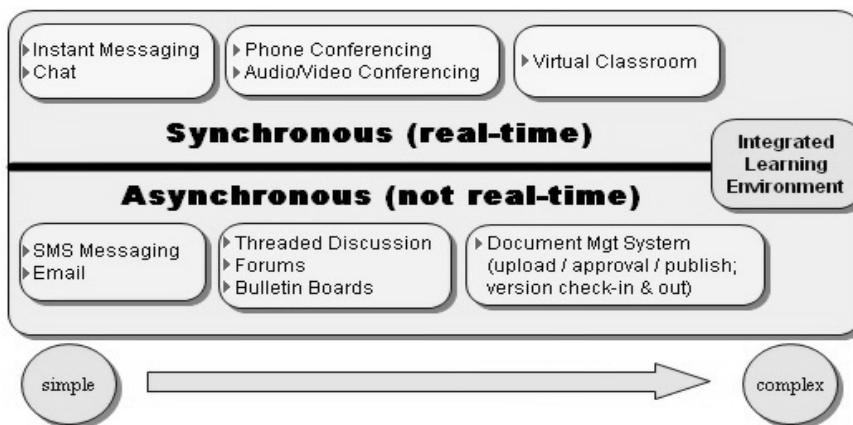

Figure2. Methods of Online Collaboration

When both of the above said methods of online collaborations are merged together, they form a wonderful Integrated Learning Environment.

VII. CLOUD COMPUTING

Cloud computing is a kind of computing system in which various hardware, software and applications share their facilities over the internet. In general cloud computing is a technology based on virtual technology. It is a technology in which virtual techniques are used to perform many tasks through the use of Internet only [11]. Cloud computing is the technology which can be used only through internet. It provides a strong mechanism for retrieving the information by the advance computing and the virtual technology with the use of information technology. Cloud computing acts as central remote server to update the information and maintain data records. It gives the rights for storage and process of centralized data. So far, for the effective use of cloud computing, we require internet connection by the cost effective service of computing.
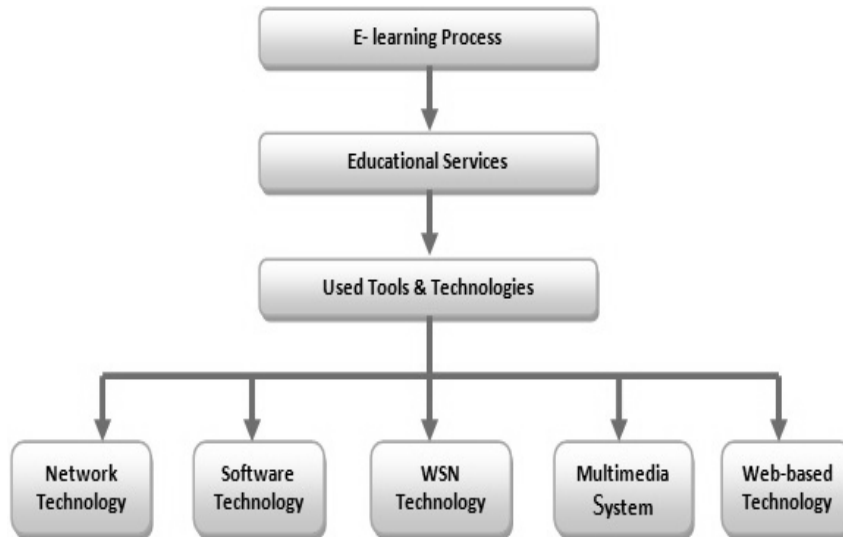
Figure3. Education By IT and Computing

VIII. E-LEARNING BY CLOUD COMPUTING

Cloud Computing has become a very strong technology in the current scenario and many business firms are getting influenced by it. It is also getting more attention in the area of education system and current education programs. E–learning is made possible through software, hardware and other multimedia systems. Currently all the modern devices and smart devices use cloud computing or advance computing in their gadgets.
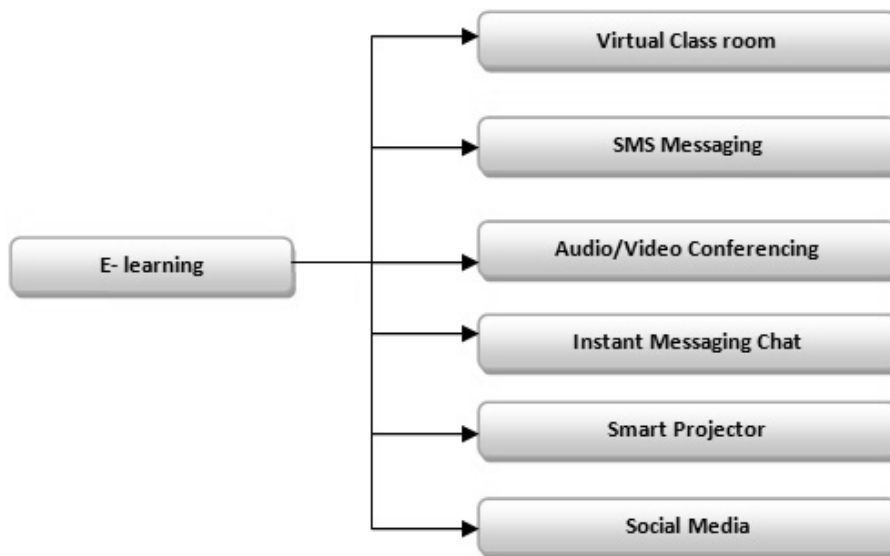

Figure4. Types of E-learning

There are many fields in which cloud computing is being used. Some of those are:

- The web based education system in which collection of paper, distribution of paper, notes delivery, notes sharing; assignment submission is implemented by cloud computing through internet.
- For many educational activities such as designing, development of software, we can use information technology and/or such techniques which are based on cloud computing.
- With the use of smart classrooms and virtual classrooms, we can enhance knowledge of the learner in the universities, collages as well as school also, and of course the backbone will be cloud computing
- The social network is one of the medium for learner in which he/she can gain knowledge and update their information by the use of cloud based web 3.0

- Cloud computing is also helpful in cost cutting by the use of centralization and Information Technology based structure, which provides simplicity and flexibility in the education system.

IX. CONCLUSIONS

E-learning is the better education system to the current generation. It includes many activities such as delivery of knowledge, advance education system, good documentation, regular updates in information etc. E-learning is totally dependent upon information technology infrastructure and advance computing such as cloud computing. Cloud computing is certainly helpful in education system to make it global and simple, flexible and easily accessible. So we can conclude that today's education system requires cloud computing to make it more advanced and a better education system.

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