

# CLOUD BASED E-LEARNING: A WALKTHROUGH

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**Abstract:** The world today is rapidly progressing on the road to utilization, with the ever increasing number of technical applications that are used to communicate and pass on knowledge. E-learning is an umbrella term that is used to describe a wide variety of electronic ways that enable access to education, and the process in itself. These include: virtual classrooms, web-based learning, computer-based learning, and digital collaboration, video and audio recordings, interactive TV and many more. This paper provides an insight of how the cloud computing helped in the growth of E-learning sector and reviews models that were proposed on cloud based E-learning.

**Keywords:** E-learning, Cloud computing, LMS

## I. E-LEARNING

The new information technologies have changed the way of teaching and learning. Being the state of the art in education means that the institutions providing e-learning should offer new opportunities for self-regulated e-learning consistent with the new expectations and needs of nowadays digital learners. The last decade transformed e-learning radically. In the early days, courses offered for e-learning were typically custom created, by groups of programmers who were aided by software creating tools. Advancement in technology led to the creation of worldwide web, making the creation of e-learning courses a simpler task that anyone without programming knowledge could complete. Changes in technology brought new hardware like portable computers, which made it very easy for learners to access course material online [1][2]. Today, many people are using tablets and smart-phones for online classes and web seminars or webinars. E-Learning can be classified by the ways in which it is shared from the instructor, to the student. An informal distribution form of e-learning is one in which the students are trusted to view the available course material, and are not tracked or tested, for completion. In the formal distribution form of e-learning, instructors usually keep track and make recordings of learner progress and results. Most educational institutions that offer certifications for students have specific systems and standards for gauging the scores for students. Learning Management Systems or LMS is used for tracking scores and to ensure that the students' standards for each course are maintained [3][4]. They are platforms that enable users to create good online courses; and also the students to be able to access these courses. These platforms are of different types and they have different capabilities. Some are free while others are offered at a fee.

**[5] [6] Some common elements of E-Learning are as follows:**

1. The role played by the teacher/instructor is vital. He/she is necessary to offer necessary feedback to students. He/she is also sometimes responsible for keeping students' progress or scores.
2. A well-organized Learning Management System is necessary. It should be easily navigable by both the student and the instructor.
3. The learning material is the key feature in e-learning. Usually, course material is formatted in a way that is simple and easily accessible for students.

4. Communication is important for learning. To be able to access online coursework from the instructor, students have to use one or more of the many modes of communication or delivery methods.

5. There is a myriad of devices today that allow teachers and learners to share knowledge. The trainer connects to viewers or listeners interactively, using multimedia, voice communications, videos (live or pre-recorded), presentations, product demonstrations and text chats, mostly over the internet.

## II. ADVANTAGES OF E-LEARNING

The impact of the rapidly evolving technological world on ways which learning is delivered is immense. Today, many institutions of higher learning are offering off-premise schooling since it has many advantages over on-campus learning. One of the major reasons for this is space [7][8]. Through e-learning, schools can accommodate as many students as they wish for courses offered, since factors like accommodation space and classroom space are no longer limiting factors.

**1. Flexibility:** E-learning is very flexible as learners can access material at any time they want. Students who reside at places that is distant to the physical classrooms or those who do not have the time to be with the instructor, have the luxury of choosing a time of their convenience, to go through school coursework.

**2. Wider variety of fields to choose from:** There are thousands of school course-works, online degrees and certifications being offered online, today. E-Learning does not limit students' access to fields of study that traditional face-to-face mode of learning did. It is now possible for a student in Africa to access and complete course work that is not offered in their school, but in a school that is located in a different continent. That is the power of E-learning.

**3. Cost effectiveness:** E-learning alleviates the need for students and instructors to be located in a central place for learning to take place. This saves money that could be spent on travelling, accommodation and other uses that school-based learners cannot escape from. Time that would be spent commuting to class could be used for other duties too.

**4. Better participation and individual instruction:** Students are freer to interact with online tutors as opposed to a physical classroom meeting. This helps students to understand concepts they are getting trained on better. The instructor can offer complete attention, for a longer time, to a single student online, which is quite difficult in a conventional classroom.

**5. Consistency in course delivered:**Teaching in a classroom is different every day. Unlike online tutoring, teachers in a physical classroom present information to students in varied ways, every day. These results in differences in the input that the learner receives – it may be qualitative on some occasions and not so effective at other times. However, e-learning like a previously taped performance is delivered without varying every time and this provides a constant consistency in coursework.

**6. Flexible timetables:**In a school-based learning system, timetables are rigid. In a two-hour-class for example, students have to sit through the whole class. In e-learning, the students have the luxury of pausing halfway through the tutorial, and resume at a later time, or date.

Although e-learning is most widely used for school, it has found a variety of uses in the corporate world as well. Firms are increasingly turning to e-learning, to train their staff in skills that they may lack. This not only helps firms to educate their staff while cutting costs, but also helps save on time.

In a fast-pacing, technology-oriented world of today, people are adopting technology and finding new ways to integrate it in support of education. E-learning is leading the way, redefining ways in which knowledge is acquired[9].

### III. CLOUD COMPUTING

The term cloud computing came into existence in the late of 2007. In its model application and documents are transferred from the traditional desktop platform to interact platform to the cloud [4], users then can access and share their data and applications easily from a remote "Cloud" on demand and according to their convenience, they will be changed only based on their consumption.

Cloud computing is the emerging trend where we have number of resources available for users like infrastructure and storage.

It leads to low cost for computation and storage. if you are addicted to online services like watching movies, play games, using email than you can take full benefit of cloud computing.

There are number of organisations running cloud computing services, including government agencies to non profits organisations.

Here are a few of the things you can do with the cloud:

1. Create new apps and services
2. Store, back up and recover data
3. Host websites and blogs
4. Stream audio and video
5. Deliver software on demand
6. Analyse data for patterns and make predictions

### IV. MAJOR ADVANTAGES OF CLOUD COMPUTING

Following are the major advantages of cloud computing:

1. **Cost-effective system:** There is no need to buy costly hardware and software. This setup needs not much resources and no more infrastructure.
2. **High speed:** You can download large amount of data in few seconds. It gives you the large amount of data storage services.
3. **Highly scalable:** Due to cloud computing you do not need much more resources if you expand your business.
4. **High Performance:** The services of cloud computing run over the vast global network, which can be regularly, updated with the latest technology trends.
5. **Highly reliable:**Nowadays, people using cloud computing for their backup services. The data can be store at redundant locations for reliability.

### V. CLOUD BASED ELEARNING SYSTEM

Now we are merging the cloud with eLearning technology. ELearning is used for internet-based education, and provides educators an apparatus for growth; the maintenance responsibilities inhibit mass adoption [10][11].

[12] [13] Cloud computing can also be called as on demand computing based on its service or internet as platform is currently one of the new technology trends will induce a major impact on teaching and learning environment in coming days. The cloud computing is more advantageous when applied in collaboration with E-Learning this brings improvement in the performance of PC's, lowers the maintenance costs, reduces the hardware requirements for user, Its infrastructure cost are lowered, lower software cost, increased computing power, improved compatibility between operating system, increased data security, easily accessible from a range of devices, portability of document and easier group collaboration [14][15].

**Problem:** In education system, we have large amount of data and always new information comes in every second. we also need more infrastructure , servers to run highly productive system. There is no centralized system work to provide the automatically updated and interactive data to users. we need a system which give us the high speed data with newly updating and on a centralized system so we can share and use it to large number of users.

So we can approach towards the ELearning for its centralized advantage and cloud computing to have the big data storage for large number of problem areas

When we can merging both these technologies we have highly productive system which gives various benefits to our users.

The system can clear all the hurdles for making a strong centralized big updated data system for learners.

**1. Always stay updated:** Highly productive software's are running to make the data automatically updated and keep the copies of updated data on different locations.

**2. Great Collaboration between emerging Technologies:** Both can give their best to the users, updated and latest, material for learning. It also gives interactive features to learners like quizzes and group discussions.

**3. Reducing the cost:** Scholarly institutions are not the only benefactors of eLearning technology; By uploading their eLearning content to the cloud, organizations will not only experience significant reduction in expenses, but will gain better insight into the impact.

**4. Big Data Collection:** Large amount as well as updated data provides by the ELearning technology in various problem areas to make the system unique and effective.

**5. Establish Global Education system:** Cloud and ELearning both are globally established technologies, both have flexibility to provide data to each and every user to eliminate the various barriers and constraints.

### V. CONCLUSION

First of all, we can explain the concept of eLearning, its benefits and go for a walkthrough of cloud computing. We can combine two emerging technologies Cloud computing and E Learning for make the learning cost effective. Advantage of Cloud gives a flexible internet based storage space and E learning gives extra boost for learners over net. For the both technologies updated data is always available all the time. Cloud computing can store big data including multimedia there is no bandwidth limitation. In addition to this paper we also covered the overall benefits of both technologies and named them cloud-based e-learning.

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