

# CLOUD COMPUTING ISSUES AND BENEFITS ON MODERN EDUCATION

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**Abstract:** Cloud computing, a quick developing info technology has brought new amendment & opportunities to that trade and additionally in the sector of education. E-learning platform brings a brand new concept and could be a reasonably network info learning mode referred to as on-line learning to guide education. E-learning emphasizes on the technology to remodel & guide education. E-learning system can use the cloud computing that introduces economical scale mechanism. during this paper we have a tendency to proposed cloud computing to e-learning from the subsequent aspects: its work mode, services, business model, edges . Our results recommend that the introduction of cloud computing to e-learning is possible & to bring larger clarity landscape concerning cloud computing edge

**IndexTerms-** Cloud Computing, E-learning, cloud based,E-learning, business mode.

## I. INTRODUCTION

Since 2007 cloud computing has become hot stock several corporations began to aim to use cloud computing services . With the convenience, economy, high quantifiability and different benefits, cloud computing permits the enterprise liberation from the heavy pressure of the IT infrastructure management and maintenance. Cloud computing amendment the net into a new computing platform could be a business model that achieve purchase on-demand and pay-per-use in network ,includes a broad development prospects . E-learning is an internet –based learning method, using Internet technology to style, implement, select, manage, support and extend learning, which is able to not replace ancient education ways, however can greatly improve the potency of education .AS e-learning includes a lot of benefits like flexibility ,diversity, measuring ,opening so on ,it will become a primary manner for learning within the new century . In ancient web-based e-learning mode, system construction and mainten ance are settled in interior of instructional institutions or enterprises, there left plenty of issues like significant investment required however while not capital gains for them ,that 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 create suppliers and users to attain a win-win situation : on the one hand, the provision firms will use their own technological blessing to make associate degree e-learning system with a lot of stable performance more comprehensive functions and sager options . Meanwhile suppliers will take control in a way therefore as to earn an affordable profit to come funds. On the other hand users is free from the building and maintenance for e-learning system and specifically focus on the appliance of e-leaning system so as to improve teaching quality and management level. In this model, development of cloud computing system is separated from their usage and thru economic leverage there are a unit ample and back-up and maintenance funds to make associate degree feed and e-learning system which make e-leaning system development in to a virtuous circle. Thus emergence of cloud computing opens a new plan to any development of clod computing is facing several critical problems the foremost distinguished is that the security with the growing quality of cloud computing the importance of security show gradual upward trend become a vital consider the event of cloud computing .The aim of this paper is tried to bring bigger clarity landscape regarding cloud computing security.

## II Cloud computing

### a)Definitions

Cloud computing is such a kind of computing where you do not need to pay any cash to create and maintain your IT infrastructure .once you got to use computing resources like application package you just borrow that facility from third party organization, and access that service through web reciprocally you pay the service supplier as you employ the computing power .In short,in cloud setting you do not want to buy any hardware and package to run your business applications thus it helps you minimize your investment on hardware resources and IT maintenance team.

### b)Types of Cloud Computing Service

Currently cloud computing coustmers will expect to induce 3 forms of services from cloud service providers and people are :

**1.Cloud infrastructure as a service-** All the needed hardware to run a business is provided by cloud service suppliers and therefore the customers manage their own application code.

**2.May platform as as a service –** In this kind of cloud computing a client pays to the service supplier to use their platforms as their IT answer. For example if you wish email system or info code for your service that prove email and info solutions.

**3.Application code as a service-** If you merely want to use a selected quite code to induce a output or to perform associate analysis ,then its less expensive to use that code service from a cloud service supplier instead of shopping got putting in and maintaining it.

### c)Cloud Service Providers

Unlike internet hosting solutions there's solely a limited variety of clouding up computing service suppliers.

But the nice news is that everyone the main hardware and software brands of the planet together with Google and Microsoft are already providing cloud solutions .The other major cloud service suppliers are horsepower ,DELL, Amazon and IBM.

### III Knowledge on e-learning

Web based mostly coaching (WBT). These terms express the method of E-Learning teaches them with the advancement of pc technologies day by day, work becomes simplified with the assistance of preprogrammed software system applications. E-Learning is one of the foremost illustrious technologies discovered to make the normal method of education learning easier with the assistance of software system applications and virtual learning environment. The word EI suggest that the electronic method of learning within the E-Learning. There are unit numerous names that are want to categorical the term E-Learning in a very technology world like laptop primarily based coaching (CBT), Internet based coaching (IBT), and lesson to the e-learner. E-learning comes through a network enabled laptop and transfers the data from the net sources to end users machine typically the E-Learning works with the help of software package applications and frequently the information is transferred with the assistance of web, audio/video files, television system, media disks. These materials square measure having the contents like text, image, animation, audio/video to deliver the training materials to E-Learning users several universities and establishment are implementing the e-learning for his or her distance education programmers and conjointly used it to reinforce the ability of alternative academic degree programmers. Cloud computing, mobile learning, communication technology, etc, square measure of facilitate to bring the E-Learning to next level of IT world.

#### a) E-Learning Cloud Computing Model

Clearly, The normal e-learning network is made and maintained by colleges or enterprises and their applications also are developed by themselves. Therefore the prices of apparatus investment, development and maintenance area unit afforded by colleges or enterprises themselves which might take plenty of expenditure. If moving e-learning system going out of schools or enterprises, entrusting its construction, maintenance, development and management to vendors, gap it up to multiple users through the Internet and material possession them use of –demand and payment is based on the number of used servers it cannot solely reduce charges for colleges or enterprises but for suppliers it can even succeed economics of scale. This business model e-learning system is termed e-learning cloud model on cloud computing.

#### b) E-Learning Cloud Computing Business Model

In e-learning cloud computing business model, cloud supplier is to blame for building and maintaining e-learning cloud, providing technical support to e-learning cloud. Cloud users paid to cloud supplier for services from e-learning cloud, services accessed on demand. Throughout the cycle support e-learning cloud. what's a fluctuation may be a virtuous cycle.

### IV Cloud based e-learning

Cloud based mostly e-learning is that the sub –division of cloud computing on academic field for e-learning systems. It's the long run for e-learning technology and its infrastructure. Cloud based mostly e-learning technology and its infrastructure. Cloud based mostly e-learning systems are virtualized in cloud servers these materials are on the market for use to students and alternative academic business in the form of rent base from cloud vendors. Cloud based mostly e-learning design.

Cloud based mostly e-learning design is principally divided into 5 layers referred to as hardware resource layer, software resource layer, resource management layer, server layer and business application layer.

#### 1) Hardware resource layer

This is bottom most layer within the cloud service middleware wherever it handles the essential computing things like physical memory and electronic equipment for the whole system. This layer is the most significant for the whole infrastructure of the systems. With the assistance of virtualization, physical servers, network and storage square system platform. To offer the uninterrupted power to the cloud middleware services for the cloud primarily based e-learning systems, physical host pool is expanded dynamically and memory is climbable at any time to feature further memory.

#### 2) Software resource layer

This layer is made with the assistance of operational systems and middleware. With the assistance of middleware the classified interface for the package developers. So, software developers will produce several applications for e-learning system and ready to enter those in cloud, which helps the cloud users to work out those applications through cloud.

#### 3) Resource management layer

This layer plays a very important role on get loose coupling of code and hardware resources. With the help of virtualization and planning plan of cloud computing it brings the uninterrupted on-demand software distribution for various hardware resources.

#### 4) Service Layer

Service layer is split into 3 levels specifically IAAS, PAAS and SAAS. These service layers facilitate to cloud customers to use the assorted types of cloud resources for his or her product like computer code resources, hardware resource, and infrastructure resource.

#### 5) Business application layer

Business application layer differs from all different layers in cloud primarily based e-learning designs, because this layer acts as vital business logic of e-learning, and frames the enlargement of cluster of elements for e-learning. Business application layer chiefly consists of content creation, content delivery, education platform, teaching analysis and education management.

#### a) Key Benefits of Cloud Based E-Learning

There are numerous advantages when the e-learning is implemented with cloud computing technology, they are :

##### 1) Lower cost

E-learning users need not have high end configured computers to run the e-learning applications. They can run the applications. They can run the applications have most of the applications and processes in cloud, client machines don't produce issues on performance when they square measure operating.

##### 2) Improved Performance

Since the cloud primarily based e-learning have most of the applications and processes in cloud, client machines don't produce issues on performance when they square measure operating.

**3)Instant package updates**

Since the cloud primarily based application for e-learning runs with the cloud power, the soft wares square measure automatically updated in cloud supply thus continuously e-learners get updates instantly.

**4)Improved Document format compatibility**

Since some file formats and fonts don't open properly in some PCs/mobile phones ,the cloud powered-learning applications don't have to be compelled to worry about those types of issues because the cloud primarily based e-learning applications open the file from cloud.

**5)Advantages for college students**

Students get a lot of blessings through cloud based e-learning they will take on-line courses ,attend the online exams ,get feedback concerning the course from instructor and send their comes and assignment through on-line to their academics.

**6) Advantages for academics**

Academics additionally get varied advantages over cloud based e-learning academics square measure able to prepare on-line tests for college students ,deal and build higher content resources for college students through content management, assess the tests, homework taken by students through on-line.

**V Cloud Computing issues**

In the previous couple of years ,cloud computing has grown from being a promising business construct to at least one of the quickest growing segments of the IT trade. Now recession hit corporations area unit more and more realizing that simply by sound into the cloud they will gain quick access to best-of-breed business applications or drastically boost their infrastructure resources all at negligible price however as additional and additional information individuals and firms is placed within the cloud concerns area unit commencing to grow regarding simply however safe associate environment.

**a)Security**

Where is your knowledge safer on your native hard driver or on high security servers within the cloud. Some argue that client knowledge is safer once managed internally, whereas others argue that cloud providers have a powerful incentive to keep up trust and as such use the next level of security .However in the cloud your knowledge are going to be distributed over these individual computers in spite of wherever your base repository of information is ultimately keep .Industrious hackers will invade just about any server and there area unit the statistics that show that third of breaches result from taken or lost laptops and alternative devices and from employees accidently exposing knowledge on the net with nearly sixteen percentage because of corporate executing stealing.

**b)Privacy**

Different from the normal computing model, cloud computing utilizes the virtual computing technology users personal knowledge could also be scattered in various virtual knowledge center instead of keep within the same physical location even across the national borders at this time ,knowledge privacy protection can face the controversy of various legal systems. On the opposite hand users could leak hidden data once they accessing cloud computing services. Attackers will analyze the importance task depend upon the computing task submitted by the users.

**c)Reliability**

Servers within the cloud have an equivalent issues as your own resident servers. The cloud servers conjointly experience downtimes and slowdowns ,what the difference is that users have a better enthusiastic about cloud service supplier(CSP) within the model of cloud computing there is a giant distinction within the CSP's service model once you decide on a specific CSP you may be locked in so bring a possible business secure

**d)Legal Issues**

Regardless of efforts to bring into line the lawful situation ,as of 209 provider like Amazon net Services give to major markets by developing restricted road and rail network and property users to choose "availability zones". On the opposite hand , worries keep on with safety measures and confidentiality from individual all the approach through legislative level.

**e)Open Standard**

Open Standard area unit important to the expansion of cloud computing .Most cloud suppliers expose genus API's which area unit generally well documented however additionally distinctive to their implementation and so not practical .Some vendors have adopted others genus API's and there area unit a number of open standards beneath development including the OGF's Open Cloud Syndicate (OCS) is functioning to develop agreement on early cloud computing standards and practices.;

**f)Compliance**

Numerous rules pertain to the storage and use of knowledge need regular coverage and audit trails, cloud suppliers should alter their customers to comply suitable with these rules. Managing compliance and security for cloud computing provides insight on however a top down read of all IT resources inside a cloud –based location will deliver a stronger management and social control of compliance polices additionally to the necessities to that customers area unit subject the information center maintained by cloud suppliers may be subject to compliance requirements

**g)Freedom**

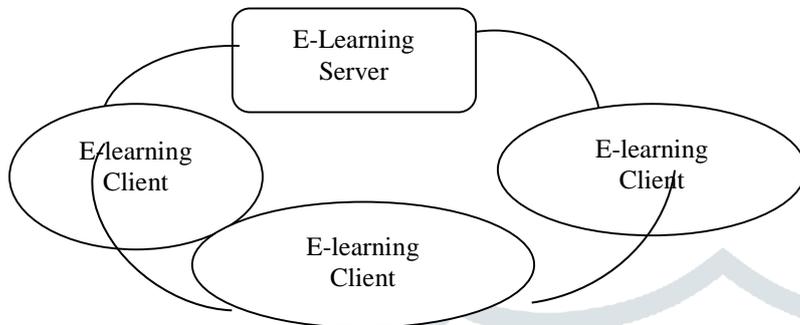
Cloud computing doesn't permit users to physically possess the storage of the information deed the data storage and management within the hands of cloud providers .Customers can contend that this can be pretend fundamental and affords them the power to retain the own copies of information during a type that retains the freedom of alternative and protects them against sure problems of their management while realizing the tremendous advantages cloud computing will bring.

**h)Long –term Viability**

You should make sure that the info you set it the cloud can never become invalid even your cloud computing supplier go poor or get non heritable to swallowed up by a bigger company . "Ask potential providers however you should get your information back and would be in an exceedingly format that you just may import into a replacement application.

**i)Solution**

To advance cloud computing the community must take proactive measures to ensure security .The Berkeley papers solution is the data encryption .Before storing it at virtual location ,encrypt the data with your own keys and make sure that a vendor is ready for security certifications and external audits .Identity management ,access control ,reporting of security incidents, personnel and physical layer management should be evaluated before you select a CSP .And you should minimize personal information sent to and stored in the cloud.CSP should maximize the user control and provide feedback .Organizations need to run applications and data transfer in their own private cloud and then transmute it into public cloud. While there are many legal issues exist in the cloud computing .Cloud Security Alliance should design relevant standards as quickly as possible.



*1)E-Learning System*

**VI Conclusion**

Cloud Computing is a recently developed advanced Internet based computing model .By combination of cloud computing and e-learning ,building cloud based e-learning in this paper we discussed a cloud computing based e-learning .Describes its definition , benefits and some issues .There is no doubt that the introduction of cloud computing into e-learning is feasible and brings us the approximately infinite computing capability , good scalability ,benefits and so on.

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