



# **A Study of E-Learning in Distance Education using Cloud Computing**

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*Abstract: In present condition learning, teaching and educations are on-line. During this regard the role of E-learning system design supported Cloud computing is extremely necessary. Low price computers, web property and made education content has created a world development during which data and communication technology (ICT) is getting used to remodel education. Currently the need of enhance the education system permanently result. This paper introduces the characteristics of the present E-Learning and then analysis the idea of cloud computing and describes the design of cloud computing platform by combining the options of E-Learning. This analysis paper is specialize in the importance of cloud computing.*

*Keywords — E-learning, Cloud Computing, Information Technology (IT), Distance Learning, SaaS, PaaS, IaaS.*

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## **I. Introduction**

In epoch assesses education is required and also the distance learning is one among the growing potential ways of education. For establishments to produce data technology that supports analysis and development cloud computing models need to be modified to accommodate mobile devices, service frameworks and development models. Cloud computing presents itself as an on- demand computing with that users are allowed to own access to information, applications and services anyplace. This is often distinguished victimization personal and public clouds which might present services within and out of doors the organization. To accelerate the access of academic computing to every and each corner of this world, the utilization of performance tools, that permits users to use applications while not installation of private files is promoted. whereas the normal client- servers models relied on dispatching requests and response, the cloud computing model represents high powerful computing, dynamic virtualized resource. quality paradigms plays a significant role in attempting to access academic computing, the data and Communication technologies provides an infrastructure that acts as a paradigm in shaping services anyplace and anytime. SaaS provides a sensible approach in victimization completely different services. Distance learning is that the modest and effective method of realizing that goal. Distance learning, generally referred to as e-learning, could be a formalized teaching and learning system specifically designed to be applied remotely by victimization transmission. as a result of distance learning is a smaller amount valuable to support and is not affected by the other. In present the tutorial institutes, businesses and lots of different.

## II. Industries are choosing the services of cloud computing attributable to the future reasons

**Low Cost:** one among the foremost appealing reasons to modify to the cloud is that the value savings feature. With the cloud, the user can pay for applications only required and lots of applications are enclosed freed from charge.

**Scalability:** one in all the foremost reasons for exploitation cloud computing is it's measurable. Cloud computing permits universities, schools and IT industries to simply up market or down-market IT needs as and once needed.

**Ease of access:** Quite merely, cloud computing is simple to urge up and running. Rather than having to transfer and/or install software system yourself, within the cloud it is all finished you.

**High Performance:** For exploitation the cloud computing the performance should be increased.

## III. Cloud-Based Learning Architecture

The construct of Cloud computing design in distance learning may be a technique that may be implemented to enhance the performance and superior and similarly as flexibility, but this model can integrate the standard schoolroom to become a lot of dynamic and operational. To implement this model the cloud services act as a middle ware, pc physical memory and a processor. These units has to be integrated with a lot of versatile tools that a collection up for academic institutes, field network architectures and net based mostly technologies at terribly less value and improve the information and increase the qualification . The planned model can cowl varied blessings like powerful computing ways and huge storage capability, high security and visualization, the planned design uses terribly restricted resources. Learners and practitioners will move by initial by causation REQUEST to the server, the server sick then manifest the user request and providing the service, once causation AN acknowledgment to the user.

## IV. Interconnection between cloud computing and academic Institutes

**1. Implementing Cloud Computing In Distance Learning:** Essential involvement shared by practitioners, learners and associations in implementing cloud computing services is however well they integrate into their systems. Cloud computing depends on subsisting technologies like grid computing, virtualization, net services and in fact the web, to supply on-demand services. These technologies should work harmoniously. Primarily there are 3 foundations upon that universities will implement cloud computing. These are multifariously mentioned as Infrastructure as a Service, PaaS and SaaS. IaaS permits the cloud to be used as a digital website wherever knowledge is keep and guarded. It permits university directors to additional potency management their resources at a lot of reduced prices .With IaaS, universities will avail access to huge processing power, voluminous space for storing moreover as networking elements and middleware.

- Platform as a Service permits the cloud to be used as a platform wherever access to alternative services, and additional advanced and additional dedicated applications, is created. Indeed, PaaS not only permits users to access advanced services however additionally permit creation of distinctive and new services which may successively be hosted on the platform themselves .It is this terribly construct that produces cloud computing very versatile permitting users to use the cloud as a spring board wherever users will either use it to access alternative services, produce that application or service, or both. Software as a Service permits cloud computing users to form use of a large varies of applications and package on-line. Typically, the web hosts thousands of applications on-line a number of that is free whereas others are not. SaaS offers users access to all or any these. To implement cloud computing, the academic institutes can ought to conduct business analysis, build a business case, supply a cloud service supplier (CSP), set up and implement the result, presumably with the activity of a third party system measuring device. the most considerations throughout the implementation part is to confirm that the cloud meets business necessities in terms of practicality and performance, offer the expected prime quality and edges, adequately defend institutional info, adjust to legislative and regulative necessities and integrate with existing processes and systems.

- The business analysis can result in the creation of a business model can facilitate universities verify factors like performance and resource necessities, life cycle price estimation, and needed risk treatment measures. The Institute should think about however they'd counter cloud service disruption or cancellation. Towards this finish, they must place in suit powerful business continuity and tragedy recovery procedures. Throughout this analysis stage variety of alternative concerns ought to even be understood. These embrace the user characteristics, the information characteristics in terms of size and amount, the typical usage rates or transactions per second, usage changes for the varied system actors and scaling over time in terms of range of users.
- The other concern is an assessment of risks and the way they impact on the worth proposition this can change the establishments to determine the standard of the cloud answer, it's worth for cash, its ability to seamlessly integrate while not business or technical difficulties and its ability to change business continuity when a disaster.
- The business analysis and therefore the risk assessment give a basis for determinative needs in terms of practicality, industry-recognized standards, performance, flexibility, security and compliance with legislative and regulative obligations. Useful needs for IaaS, can relate to the supply of process speeds, memory, storage and operational systems. Those for PaaS can specify the event and operational atmosphere SaaS needs are laid out in an equivalent manner as those of non-cloud solutions. Performance is especially examined from the user's perspective and metrics of interest from this attitude embody convenience, dependableness, responsiveness and outturn. Flexibility is considered primarily from the purpose of its ability to piece and manage cloud-based services. A security assessment ought to contemplate confidentiality, unity, authentication, authorization and danger management. Establishments should conjointly build a business case that has justification for cloud answer weighed against alternative alternatives like non-cloud solutions. The business case also will give a point of reference for re-evaluation in future. Ensuing step would be to arrange an exit strategy that documents the establishments contingency decide to migrate records firmly from one answer to a different whereas maintaining business continuity. The migration is also from a non-cloud to a cloud platform or contrariwise.
- Also to be conspicuously enclosed is however knowledge keep by the cloud service supplier are going to be archived, wherever it will be archived, the tactic to transfer it, however it will be destroyed and the way destruction are verified beside the protection necessities related to these processes. Liabilities on either party ought to be clearly per the contract stipulations and canopy breaches on the far side the lifetime of the agreement. It can't be immoderate that before a binding contract is signed, previous understanding of the institute's terms can offer a basis to make sure its business and security necessities are adequately met and maybe exceeded. With the preceding settled, the establishment ought to then confirm the foremost acceptable model. Choices for thought embody managed services, outsourcing, in-house conveyance, cloud computing or a hybrid of either. The last decision depends on the business downside being addressed. With this done the establishment can then proceed to place in suit internal capabilities and resources required to manage the cloud service on a everyday. These operations embody observation performance and repair levels, responding to incidents and repair disruption managing configuration documentation and coordinative planned upgrade and system outages.

## V. Conclusion

Learners and practitioners expertise the advantages of distributed systems on the web round the world. futurist advancement of cloud computing can aim at attaining integrated multicore processors and powerful implementation of visualization so investing the powerful hardware, expandable information measure for communication, which can more notice explosion of distance learning application domains. This can be adequate in resource contribution to distance learning. The design of Cloud computing reflects diversity, flexibility and quantifiability. In its implementation cloud computing will be effective in academic computing at a lower price.

## References

- [1] M. Jalgaonkar, A. Kanojia, "Adoption of Cloud Computing in Distance Learning", International Journal of Trends in Computer Science and Engineering, Vol.2 , No.1, pp 17-20, 2013.
- [2] S.Satpute, B.Deora," Cloud-Based Storage for Education. Journal of Advanced Research in Computer Science and Software Engineering Vol 4 is 3 pp 77-80.
- [3] K.Verma, S.Dubey, M.Rizvi,"Mobile Cloud A New Vehicle For Learning: m-Learning Its Issues And Challenges". International Journal of Science and Applied Information Technology (2012).Vol 1.No.3.
- [4]. Madan, A.Pant, S.Kumar A.Arora"E-learning based on Cloud Computing" International Journal of Advanced Research in Computer Science and Software Engineering.2012 Vol 2(2)
- [5] N. Sultan, "Cloud computing for education: A new dawn?" International Journal of Information Management, vol. 30, pp. 109-116 2010.
- [6] Wu, C. Dan, A. M'hammed, "Exploring Cloud Computing for Distance Learning", Online Journal of Distance Learning Administration, vol. 14, 2011.
- [7] A. Fernandez, D. Peralta, F. Herrera, and J.M. Benitez "An Overview of E-Learning in Cloud Computing", Workshop on Learning Technology for Education in Cloud (LTEC'12), pp 35-46, 2012.
- [8] J.Cappos I.Beschastnikh, A.Krishnamurthy, T.Anderson. Seattle: A Platform for Educational Cloud Computing.
- [9] ajaei, A.Aldakheel, 2012. "Cloud computing in computer science and engineering education" American Society for Engineering.
- [10] M. Al-Zoube,S.El-Seoud, M. Wyne. Cloud Computing based E-learning system. International Journal of Distance Education Technologies, Vol 8(2), 2010.pp 58-71.