

CLOUD BASED EDUCATIONAL SYSTEMS AND ITS CHALLENGES AND OPPORTUNITIES AND ISSUES

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ABSTRACT

Cloud Computing (CC) is actually is a set of hardware, software, networks, storage, services an interface combines to deliver aspects of computing as a service. Cloud Computing (CC) actually uses the central remote servers to maintain data and applications. Practically Cloud Computing (CC) is extension of Grid computing with independency and smarter tools and technological gradients. Healthy Cloud Computing helps in sharing of software, hardware, application and other packages with the help of internet tools and wireless media.

Cloud Computing, has benefits in several field and applications domain such as Agriculture, Business and Commerce, Health Care, Hospitality and Tourism, Education and Training sector and so on. In Education Systems, it may be applicable in general regular education and other education systems including general and vocational training. This paper is talks about opportunities that provide Cloud Computing (CC); however the intention would be challenges and issues in relation to Education, Education Systems and Training programme.

Keywords: Information, Information Science, Cloud Computing (CC), Cloud Based Education, E-Learning, Online Education, Challenges, Issues, Opportunities, Higher Education, Degree, Hi-Tech Education.

INTRODUCTION

Cloud Computing (CC) is a term that describes the means of delivering information technology from computing power to computing infrastructure, applications, business process and personal collaboration to the end user. Cloud Computing (CC) is the name of a computing system in the field of advance computing and information management.

Cloud Computing (CC) is a kind of virtualization; thus also known as Virtualization Technology [01, 03, 05]. Cloud Computing and its benefits attracts several other field. Education Systems also interacts with Educational applications for Cloud Computing (CC). Cloud Computing (CC) provides several benefits in Educational Systems such as creation of Virtual teaching learning environment, making interacting and speedy smart class room, it also minimizes the time of knowledge collection model preparation and delivery.

Cloud Computing (CC) and its benefits are used around the world and especially in the Western countries. Due to poverty and underdevelopment; Asian and African and other undeveloped countries are still unable to offer such benefits to teachers, student, administrator, instructor and other stakeholders related to education systems [06, 08, 12].

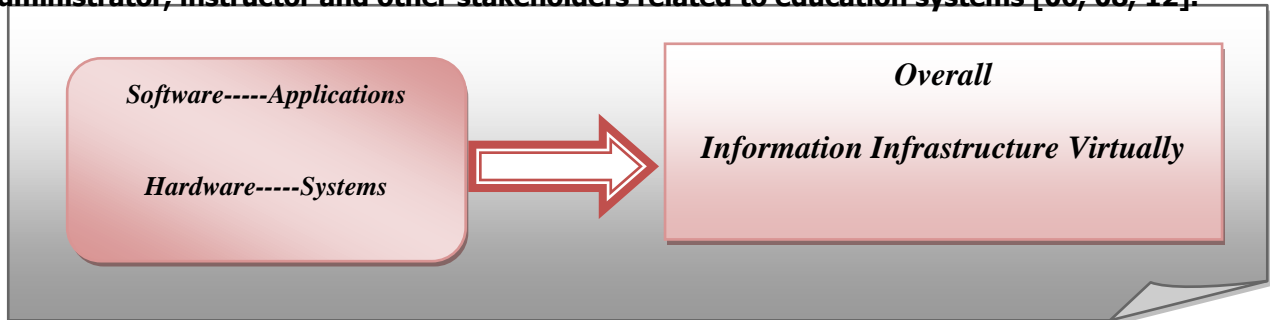


Figure: 1
Backbone of Cloud Platform at a glance

The challenges and issues are one of the important concerns for strong and healthy educational systems powered by cloud computing and virtualization technique.

Objective

The main aim and objectives of this study includes:-

- To learn about Cloud Computing (CC) and its advantages;
- To find out Cloud Computing (CC) and its challenges and issues;
- To find out main application of Cloud Computing (CC) in educational services and systems education, such as-regular education, online and other E-Mode
- To find out main opportunities and challenges of Cloud Computing (CC);
- To find out main solution of Cloud Computing (CC) for allied training and educational services;
- To prepare solution to solve educational applications and Cloud Computing (CC).

CLOUD COMPUTING (CC): MEANING AND ADVANTAGES

Cloud Computing (CC) is a kind of virtualization method, which includes designing and building hardware and software systems for large and wide range of purpose. Practically Cloud Computing (CC) provides several opportunities and benefits over conventional IT and Computing [05, 09, 12, 13]; thus it can create a better administration and governance for government as well as private corporate houses. Cloud Computing (CC) provides several opportunities and benefits such as:-

- Concerned organization need not install IT or hardware or software of their own. The service provider give all such services;
- With the help of Broadband and healthy connection any where and any time services are possible;
- Large number and amount of data, infrastructure can be availed by Cloud Computing (CC);

- Cloud Computing (CC) gives opportunities to harness the power technologies in the new and creative way with out extra budget on IT[15, 16];
- It allows consumer to get only those services which are needed at the moment;
- As far as running Cloud Computing (CC) less IT Infrastructure is required; thus in-house staff and other cost is saved;
- It provides massive, web scale, abstracted infrastructure;
- Dynamic allocation, scaling, movement of applications are possible;
- It provide an effective and creative service delivery model;
- Cloud Computing (CC) model does not support any long term commitments.

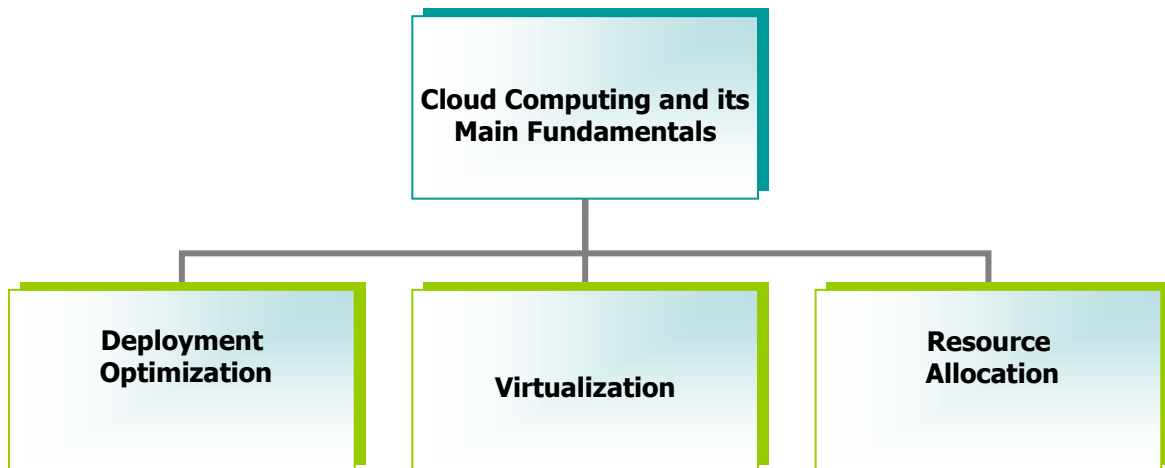


Figure: 2
 Depicted Way to utilise Cloud Computing *Benefits*

Cloud Computing (CC) Based Education: Challenges and Issues respect to opportunities:-

- Cloud Computing (CC) based education systems provide several opportunities; however it provides so many problems and issues which are essential to take care. The online and e-learning systems may gain rapidly with the help of Cloud Computing (CC); the aspects such as online question paper distribution, paper collection, full text book and module delivery is possible with Cloud Computing (CC) [17, 18]. However, it is important to note that, Cloud Computing (CC) installation is not possible in all type of educational programmes and degrees and particularly in educational systems. Cloud Computing (CC) based educational system may also fall in problems regarding secure exam systems; for that private cloud deployment may be needed.
- Social Computing such as Social 2.0 powered web technologies is also a kind of Cloud Computing (CC); which allows sharing of educational data, text, notes and recorded video with out extra support. The challenges of such systems are mainly people awareness, student awareness, teachers and faculty towards sharing and creation of group of learner. Many teachers and students may not aware about IT and Social Networking usages [19].
- Today, creation of smart class room, online and continuing education university education has come to the door step of learner. Here Cloud Computing (CC) is used in several cases [20].

- More importantly, Cloud Computing (CC) based education systems saves cost by centralised IT Infrastructure, rapid transfer, elasticity, flexibility and other benefits in education [21, 22].
- Cloud Computing (CC) also promotes some new educational mode such as-corporate learning, industry integrated learning programme; where students get knowledge and classes from online media in his/her office or corporate house. It is helpful for the working students. But for that a mutual understanding between education service provider and corporate agency is essential. The main reason behind this is, space for projection, tools and technological and electricity support and so on.

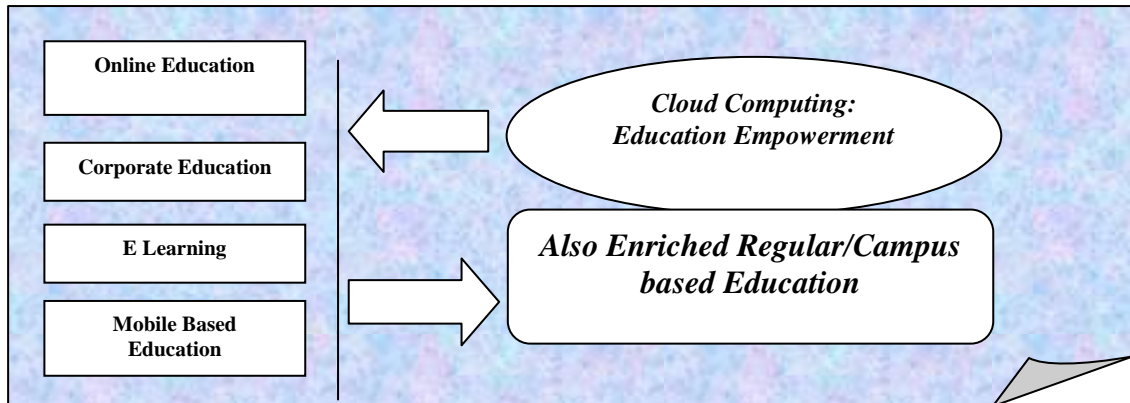


Figure: 3
Showing Importance of Cloud Computing based Education at a glance

- Countries like India has near about 20000+ colleges, 600+ universities and around 300+ central institute which offer Degree, Diploma and other higher educational programmes. It is not possible to ensure Cloud Computing (CC) in most of these institutes; due to lack of IT infrastructure, technological supports and most important financial problem [08, 23, 24].
- Cloud Computing (CC) does not require healthy and heavy IT at the educational institutes; but the basic infrastructure is an important challenge, to avail benefits. Awareness, campaigning and interest towards launching Cloud Computing (CC) based educational systems in developing countries are very much limited. Thus, educationalist and their interest is very much minimum in several cases.
- Availability of tools and software is also an important issue, most of the Cloud Computing (CC) supported software are costly; thus availability of cost effective software and application packages is an important concern. Cloud Computing (CC) based several open source software creation and development is an important issue.
- Availability of software, and systems which supports educational programme is also an important truth to look into;
- There should be adequate planning and initiative from institute level and from some centrally funded and controlled agency such as UGC, AICTE, PCI, BCI, DCI, MCI and so on[25, 28].

- Adequate service provider in Cloud Computing (CC) is also an important issue; which is also essential to checkout; it is not possible to deploy private Cloud Computing (CC) from the institution level; thus public Cloud Computing (CC) facility is needed.
- The Cloud Computing (CC) needs to checkout its secrecy and thus it is important to note that the service provider should be reliable and maintains quality.
- The Cloud Computing (CC) is essential to include in National Information and allied mission and programme for complete development.
- Adequate and healthy broadband service is essential for sophisticated Cloud Computing (CC) service.

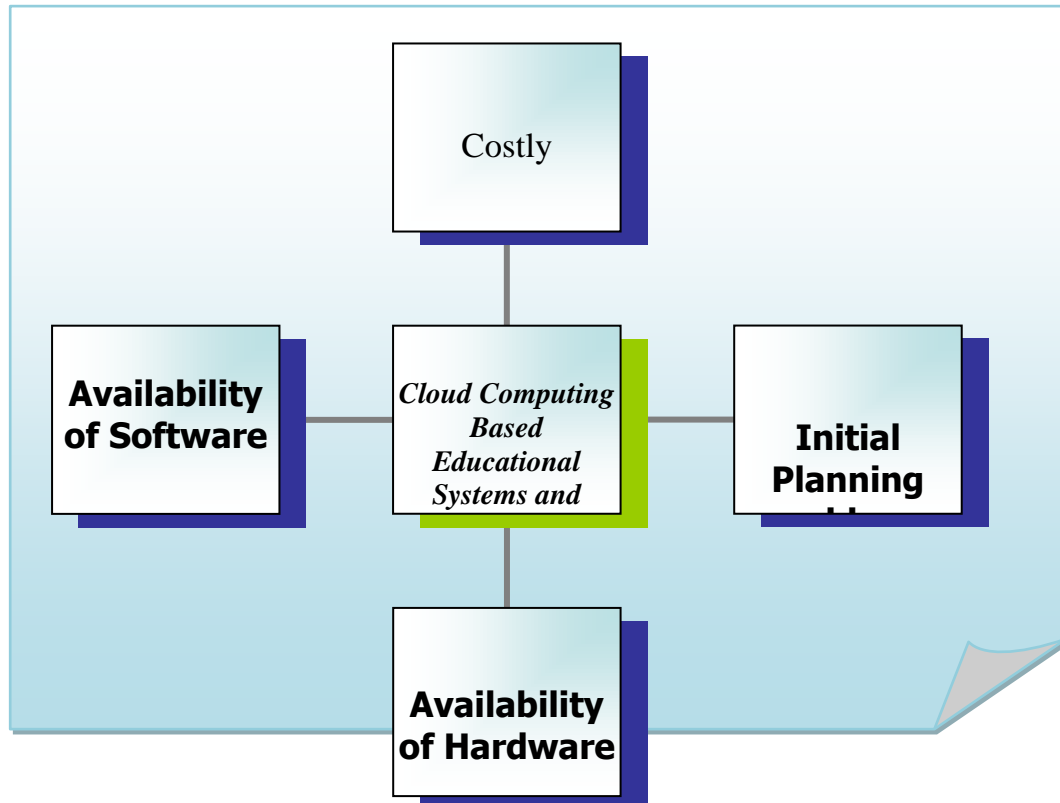


Figure: 4
illustrates the core burden of Cloud Computing Based Education at a glance

FINDINGS

- Cloud Computing (CC) is gaining popularity in educational systems, specially in online education and corporate education[09, 29];
- E-Learning is gaining popularity through web 2.0 platform of Cloud Computing (CC);
- Still in India, higher educational institutes are not moving towards healthy Cloud Computing (CC) solutions;
- Governmental grants, non availability of software and packages related to educational field are important issues.

SUGGESTIONS

- Government, IT organization and education houses should cooperate each other for further development of the applications;
- Universities, Engineering colleges, and other higher educational institutes should go for Cloud Computing (CC) and virtualization;
- Proper funding and planning are essential for healthy Cloud Computing (CC) packages;
- Proper and adequate training programme on Cloud Computing (CC) need to be introduced.

CONCLUSION

E-Learning or online education is need of hour [15, 31, 33]. Today several modes of education have originated with the help of IT and computing. It provides several opportunities; Cloud Computing (CC) plays an important role for overall IT infrastructure development. Regular education may also benefit from Cloud Computing (CC). The small room, mobile based education is the wonderful gift of IT and especially Cloud Computing (CC).

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He has credited so many writing/research first and few among the Indian Researcher which including; written first paper on Cloud Computing Applications in Information Science, Systems, Information Centre/ Green Computing or Green IT in Information Field/ I-Schools aspects/ Usability Engineering in Information Science and Services/ HCI in Information Uses/ Information Science Educational aspects/ Information Science and Technology [IST]/ Information Scientist/ Geo-Information Science/Information Prgrammes and so on. He is in Editorial Board Member of so many National and International Journals like- IJASE (Associate Editor in Chief), IJIDT (Editorial Board Member), and so on.

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