

A RESEARCH PAPER ON “THE STUDY AND SCOPE OF CLOUD COMPUTING IN ENGINEERING INSTITUTE”

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ABSTRACT: The cloud computing is a rapidly developing and powerful technology in this era, which has brought significant changes and opportunities to different sectors in our country India as well as in the whole world. It is a spreading computing paradigm that has revolutionized how Information Technology infrastructure and services can be delivered throughout an area or a group of people. There is a growing interest around the utilization of cloud computing in the education sector specially in engineering sector. Present study is an attempt to provide an overview of the cloud computing model and its applications for collaboration between academia and student in our engineering institute “Malout institute of management and information technology” situated in malout punjab .In this paper we proposed cloud computing to e-learning from the following aspects: its services, benefits and issues. This paper is an analytical study on the role of cloud computing in engineering institutes. For this purpose we conduct a small survey in our institute MIMIT malout. The survey was

based on how cloud computing can be used to manage and enhance the working style of education through e learning which reduces cost as well as it is secure and very much near to student reach. For this , I worked upon my institute library and take a survey how much student prefer e learning in comparison to textbook based learning . and in this survey I found that approximately 60-70 % students prefer e-learning. There are also some issues in this methodology according to questionnaires. But finally this process is very much effective and less expensive.

KEYWORDS:-Cloud Computing, Learning Service Models of cloud computing, Software as a Service(SaaS), Infrastructure as a service(IaaS),Platform as a Service.

INTRODUCTION:-

Nowdays e-learning tools seem to be growing and are becoming widely accepted learning method.(Ewuzie & Usoro, 2012). In the last couple of years "cloud computing" has increasingly been discussed in the various

forums (Krelja Kurelovic, E., Rako, S., & Tomljanovic, J., 2013). Cloud computing is not a completely new concept but a mixture of new and old (existing) technologies. The cloud computing is a disruptive and evolving technology, which brings power of computing, a large storage area, uses and services to user via Internet. This new computing trend The cloud computing has three major Hybrid, but it has various characteristics such as Client-Server Model, Grid Computing, Fog Computing, peer-to-peer computing. All these cloud deployment models offer various services such as Infrastructure as a service (IaaS), Platform as a service (PaaS) and Software as a service (SaaS).

Infrastructure as a Service (IaaS):- In this cloud service model the service provide hosts all the required necessary hardware and the Internet connectivity link. The user only share responsibility for the virtual machine hosted on this hardware and the software's(include operating system) which runs on it. the last (bottom) layer and the software applications run on it. This service provides on demand infrastructure which is storage, computing, networking, management and support components (virtual servers). This infrastructure is accessed via Internet,

focuses on user's requirements, and also driven by the vast use of different mobile devices, Laptops, Tablets and Smartphones.

REVIEW OF CLOUD SERVICE MODELS:-

deployment models which are enabling organisations to move their data to cloud. this cloud service model the user supplies the application which they wish to deploy, and the cloud service provider supplies all the components required to run this application which is also called as application hosting. As shown in the figure, this is the middle layer between SaaS and IaaS. It provides operating systems and application development platform which can be accessed and utilized via the Internet. Developers use this platform to develop, test, deploy and host web applications as a service via the internet. E.g. providers of such platforms as a service are Google Application Engine, Microsoft Windows Azure and International Business Machine (IBM).

Platform as a Service (PaaS):-

Software as a Service (SaaS):- In this cloud service model the service provider supplies the software application and all the components required for its execution. SaaS is designed to be a turnkey solution for the customers. Many web-ERP software solutions are hosted on the SaaS cloud and provide accounting and business Information to the user or customer. As shown in the figure 1, this is the top-most layer of cloud computing. This layer involves

applications such as text processors, video editors and databases to be hosted by cloud service provider and is made readily available to the users on demand via Internet. Few examples of software as a service includes customer relation management (CRM), email messaging, Google Document (Doc) etc.

ROLE OF CLOUD IN EDUCATION:-

The administrator, a teacher, a student, or the parents, now have a great time to explore how cloud-based applications can benefit Students and Institute or University. Many Universities / Institutes offer complete online education programs using hybrid cloud model. These Universities / Institutes implement cloud-based solutions for their IT infrastructure. The main use of cloud-sourcing is for E-mail, calendaring, collaboration, videoconferencing, ERP (enterprise resource planning) and learning management systems.

METHODOLOGY:-

This research is performed in Malout institute of management and information technology(MIMIT),which is situated in malout region of Punjab.The scope of this research is that there is a growing interest around the utilization of cloud computing in the education sector, specially in engineering sector.In this paper we proposed cloud computing to e-learning from the following aspects;its services,benefits and issues. For this purpose I refer to our college library, collect all the data regarding it and conduct a small survey. Based on this survey I prepared questionnaires considering the issue.

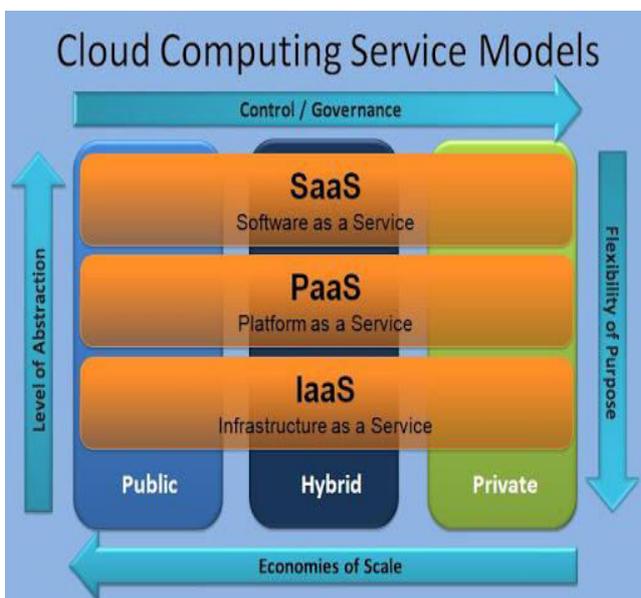


Fig no-1

Table: 01
Benefits

Description

Less expensive or subscription based textbooks

The post graduate level textbooks are expensive and have less number of copies in library .Cloud based textbooks can solve this problem by converting them into digital content format,which are less expensive than printed. This will help the lower income group students to have access to quality learning materials .

No more outdated learning materials

Many times , the expensive printed textbooks which students are using from library are outdated. Also due to financial concerns or budget provisions ,replacement of these outdated resources becomes an issue.In cloud based materials are easy to update on real time basis ,so that students get access to the latest learning resources.

Less hardware expenses

Cloud based applications runs on internet browsers and they are also compatible with with the mobile devices.This means that learner does not necessarily need to own an expensive computers /laptops, a smartphone or tablet can access these applications . Learner doesn't need to buy any storage devices ,as the data can be stored on to cloud like google drive.

No expensive software required

One of the biggest advantages of cloud computing is the SaaS model.Many software applications based on Android based devices are now available either free or on a low- cost subscription basis.

Student reach

Cloud computing has opened a world of new possibilities for learner and academia . Now the learner can earn their diploma via opting online instruction medium .

Environment

Cloud computing not only reduce costs, but also create an environment where all learner have access to high-quality education resources. Such online cloud based environment creates collaboration amongst academia and student or learner.

Table no-2:-

Issue	Description
Security	The customer argument that the data is more secure when managed internally on local hard disk or Lan Storage. Also the location of data storage is unknown in the cloud environment
Privacy	Unlike traditional computing model, the cloud computing utilizes the virtual computing technology where user data may be scattered at various virtual data centres, which might be located geographically at different location. Where there could be controversy in data privacy protection in the locational legal systems.
Reliability	In cloud computing servers also experience downtimes and slowdowns and users have a higher or complete dependent on cloud service provider.
Attacks, Hacking, Theft	Hackers can invade virtually in to any server, and the statistics show that one third of breaches result from stolen or lost devices. The other reason is from employees accidentally exposing data on the internet. Attackers have ability to analyze the critical task submitted by the users on the cloud.
Open Standard and APIs	The open standards are critical to the growth of cloud computing. Most cloud service providers expose API switch are unique to their implementations and are not interoperable.
Long term Viability	User should develop some mechanism to ensure that the data they put into the cloud will never become invalid even if cloud provider shuts or get acquired by other company.

Table no-3:

Media of study material distribution to students	Total
Text books	30,000
Printed journals	80
CD'S/DVD's(learnings)	3500
PDF's(ebooks)	300
E-journals	3000+
Newspapers	10
Bound periodicals(vol.)	627
	470
Others(audio's/video's)materials	

QUESTIONNAIRE:-The data we collected from teachers, engineering students from first year(mechanical, cse, it, ece).The sample size was 100. The questionnaires contains questions regarding accessibility, availability, less expensiveness.

Do yoy find cloud computing is insecure medium (reliability factor)?

What cloud based services our institute has adopted?

What factor affects the adoption of cloud

computing?

Finally, will cloud computing play a major role in the collaboration at our institute?

Data: the data used for this research was obtained from our institute (MIMIT) library, academic journals etc. The data from these resources were useful in developing the literature review, the research objectives and research plan.On the basis of sample I got final results.

Table no-4: Result:-

Role of Cloud Computing	Percentage
Yes	60
No	15
Never thought about it	20
Neutral	5

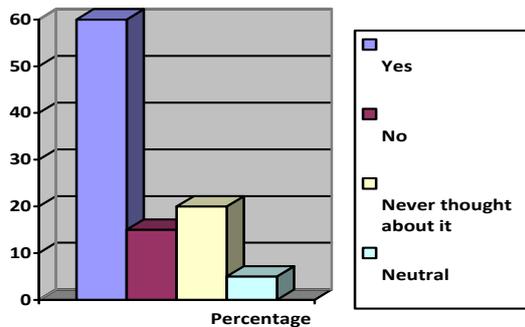


Fig no-2: result in form of bar chart

CONCLUSION:- Finally we can say, with the combination of e-learning using cloud computing opens up new ideas for further development. In this paper I have discussed a cloud computing based e-Learning, benefits and issues. According to survey 60% students are agree with cloud based e-learning, 20% are unaware means they never thought about it. 15% are not agree with this because of security, hacking, theft attacks that's why they prefer traditional method of learning. 5% of students are neutral. So we can say majority of responding students believe that easy accessibility, availability, less expensiveness would be the major factor which will affect overall cloud adoption.

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