



Usage of Cloud Computing Technology in Education System

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Abstract— Now a days cloud computing is the vast growing area in each area due to which we can minimize the required computing resources, minimize the cost and enhance the performance. We can use cloud computing technology under education system to enhance the quality of education. Many colleges run under one roof(University) with same syllabus, exam system, admission system. So if we apply cloud computing technology in education system we can make it more transparent system that it minimizes the communication gap between student and faculty and student and parent.

Keywords— Education, IaaS, PaaS, SaaS, Virtualization.

I. INTRODUCTION

In past days we used to use central computer system (Mainframe) where each job used to execute at central location, but if it was too expensive, heavy in size, was not affordable to each organization. So distributed computing system came into the picture where each computing resources are separated which were small in size, less expensive and affordable but there was redundancy of data, cost of managing each system with s/w and h/w up gradations. So we performed backtracking method i.e. selection of old approach with new way means central computing system called as data centres where n no of computing resources and hardware resources can be placed to handle each end user provided with internet connection which will minimize resources (s/w & h/w) cost required by end user.

Cloud computing is the delivery of computing resources over the internet by sharing pool of resources.

e.g. Facebook, Gmail, Google Docs etc are using cloud technology to handle the operations.

Cloud computing is secure because of high security techniques applied by third party.

Today if we observe most of the student and faculty are having smart phones which can be used to enhance the quality of education.

Cloud Computing characteristics

- a) **Shared infrastructure:** - physical resources like servers/w, database, services can be shared among array of computers to solve particular task.
- b) **Dynamic provisioning:** - sharing of resources among array of computers happens dynamically so even if some of the computer systems are off or under maintenance it doesn't matter.
- c) **Reliability:** - cloud computing is more reliable because of divide and conquer method. So job will be divided among array of available computers (even if some are under maintenance it doesn't matter.)
- d) **Network Access:**-End user can deal with cloud server if internet connection provided.
- e) **Managed Metering:**-it gives billing information depend on the services availed by the cloud user.
- f) **On-Demand Self Service:**-cloud service is possible anytime (24*7),anywhere and by any device (Laptop, Desktop, Smart Phone etc)
- g) **Rapid Elasticity:**-Depend on end user choice he/she can select /de-select the services.
- h) **API :-** Application Programming Interface would be provided to cloud user through which he/she can perform the operations.
- i) **Cost Reduction:**-Cloud computing reduces the cost as they owned by third party.
- j) **Resource usage:**-It improves the utilization of resources.

Types of cloud Models:-

- a) **Public cloud:**- As many colleges run under one university we can go for public cloud which will be less expensive than other cloud models. Public doesn't mean access to anyone without identification.
- b) **Private cloud:**-will be applicable for particular college, will be more expensive.
- c) **Hybrid cloud:**-will be applicable for group of colleges, group of universities whose requirements are same.

Types of cloud Services:-

- a) **IaaS:-** Infrastructure As a Service means it is the hardware layer on which cloud server will work.
- b) **PaaS:-** Platform As a Service means it is layer where student can design new software's on pre-installed, upgraded software platform stored on cloud server. Student not required thinking for storage space which will be again provided by cloud server.
- c) **SaaS:-** Software As a Service means here student, faculty can use pre-installed, upgraded software's stored on cloud server to perform operations.

Virtualization:-

Virtualization is the key behind cloud computing concept. Due to virtualization n no of virtual images can be created and provided to the cloud users.

II. IMPLEMENTATION OF CLOUD COMPUTING TECHNOLOGY UNDER EDUCATION SYSTEM

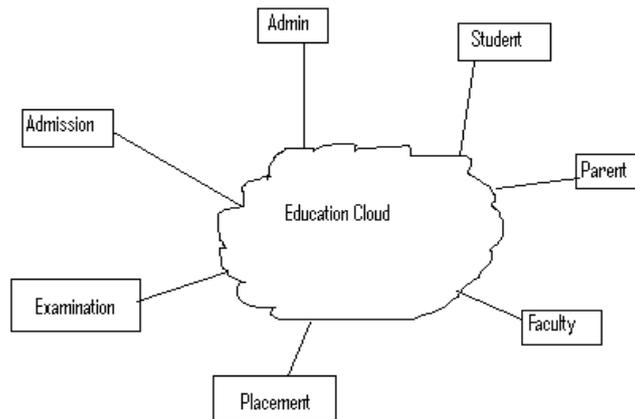


Fig. 1 cloud for Education system

As many colleges run under one university with same syllabus, exam etc. Even if with same syllabus we run individual teaching system. So there will be central cloud server where all the computing (s/w and h/w) resources will be there where each end user can communicate through API and perform the appropriate operation.

Admin:- Super person i.e. administrator to all sub-administrators. There will be one admin assigned to each college to handle college activities. Super admin will have all the authorities.

Student:- Student will be able to see his/her own attendance, assignments given by faculty, sample question papers, projects, result, video lecture, can put up query anywhere, anytime and any type of device. So that even if some of the lectures missed out due to genuine reason it can be done by video lectures. Here we can minimize student-faculty communication gap.

Faculty:- Faculty can put up attendance of student, upload video lectures (even if some student don't understand/recall the can refer particular lecture video file.), upload assignments, sample question papers, sample solution to the answers, result of the student etc.

Parent:- Parent can also communicate to the cloud server to check the performance of his/her child like attendance, result etc. Here we minimize student-parent communication gap.

Placement:- In which details of placement companies would be provided so that student can understand the industry requirement.

Examination:- where student exam details can be put up. Student can also see their results.

Admission:- In which all student details can be maintained.

III. FUTURE WORK

Research work can also be attached to the cloud server to enhance research work by student and faculty.

IV. CONCLUSION

By using cloud computing technology we can save the paper work.

Process can be executed by cloud user anytime, anywhere and on any type of device provided with internet connection. It saves the cost of resources required by colleges (like licensed s/w & their maintenance).

If we apply education cloud concept resources cost will be the cloud provider headache.

If we made the process online student can save Xerox cost made by many students for the assignments, notes etc.

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