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Usage of Cloud Computing Technology to Impart Quality Education in Affiliated College of Pune University.

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Abstract **- Now days plenty of resources are available which are assisting educators to impart quality higher education in the field of management and Information Technology. The latest technology "Cloud Computing" had change the face of traditional implementation of industry and hence "Cloud Computing" can change the way of delivering quality education also. Through this paper we will find out, how Cloud-based tools can be implemented to enable rapid innovation across educational environments in the affiliated college of Pune University.**

I. INTRODUCTION:

Cloud computing is used to provide a new technological way for elastic computational resources and software applications by enabling people to have timely access to resources and services, with reasonable cost. This vision is attractive to research and educational groups in many educational institutes where even big academic and research institutions are still lacking resources (and funding for acquiring resources) to sufficiently support their research and education activities. For research and educational groups without adequate computing resources in various institutes, cloud computing offerings could be a viable solution. However, for their research and teaching activities these groups face not only with common issues in accessing large computational resources and having short-time research plans, but also several other constraints in terms of technological infrastructure like network performance, educational objectives like mastering advanced technologies and economy (e.g., lack of money even for a short research plan).

II. THE CLOUD

A model for delivering on-demand services, infrastructure, and application software using the network.

Different types of cloud deployment models

- **Public cloud:** Cloud infrastructure shared or accessible by all, with applications and services delivered through the Internet.
- **Private cloud:** Restricted cloud infrastructure operated by or on behalf of a specific organization, available exclusively to approved users affiliated with that organization; cloud services are delivered using a private network.
- **Community cloud:** Multitenant, private cloud infrastructure that supports a specific community, consisting of two or more organizations.
- **Hybrid cloud:** Combination of two or more of the preceding cloud types.

III. CHALLENGES IN HIGHER EDUCATION

High expectations on the part of students and faculty are now driving IT focus and investment at colleges and universities around the world. Students increasingly come to campus with their own mobile devices and expect to use them to access coursework, content, and school services. Faculty members increasingly rely on wireless digital and video-based content, as well as the ability to easily connect and collaborate with colleagues. These expectations place intense pressure on IT organizations in higher education. With fixed budgets and a range of possible solutions, it can be challenging to determine which solutions best meet the needs of students, faculty, administrators, and research partners. In response to increasing demands, an individual department may purchase an

application that is difficult to integrate, requires frequent maintenance, overwhelms the campus network, or exposes the institution to security breaches. In this challenging environment, the requirement of institutes is

1) Teaching Learning Process: In most of the institutes the student – resource ratio is very high(per student less resource is available) . Even most of the resources are available in a fixed time frame only.
2) Research Process: Institutes have small and scattered resources to solve scientific or research based problem.

What Cloud can facilitate in Higher education

1) Cost saving: Organizations can reduce IT expenditures and decrease ongoing operating expenses by paying only for the services they use.
2) Easy to Implement: Without the need to purchase hardware, software licenses, or implementation services, an organization can deploy cloud computing rapidly.
3) Scalability: Organizations using cloud computing need not scramble to secure additional higher-caliber hardware and software when user loads increase, but can instead add and subtract capacity as the network loads dictate.
4) Core competencies: Cloud computing can make it much easier to reduce or shed these functions, allowing organization to concentrate on critical concerns such as the policy and planning for constantly improving the learning environment.

Challenges:

1) Implementation of cloud relates to trust, confidence and safety and to implement a cloud parallel is somewhat tough to implement.
2) The main aspect is data privacy, the end user do not know where their data is being stored and in which format or in encrypted format.
3) The amount of control that the user has over the cloud environment varies greatly.
4) All access to the cloud is completed through internet, which can introduce time lag into every communication between the user and the system.
5) Cloud is new concept and lot of things to be implemented for interoperability.

IV. CURRENT SITUATION OF AFFILIATED COLLEGES OF PUNE UNIVERSITY:

1) Most of the institutes are having latest infrastructure but yet there is lot to implement in cloud of their working.
2) Few institutes had used private vendors to deploy their study material or conferences resources on cloud.
3) We see rapid growth in "public" clouds offering many different application, computing, and storage services such as email or document creation
4) Few Giant institutes are having separate websites and separate datacenters even they are working under one education society, having several sister institutes.
5) Now a day's lots of study material is available on networks and internet, students and faculties trying to access this create lot of pressure on traditional IT - infrastructure of institutes.
6) Institutes does not have any common platform and do not have access to adequate resources for research and training and development activities.

V. ADVANTAGE OF IMPLEMENTING CLOUD FOR HIGHER EDUCATION

1) High speed delivery of services:

Cloud enables institutions to quickly deploy applications that deliver coursework and lectures, help attract the best students and faculty, offer lifetime learning, and reach new students beyond the campus, and increase safety and security.

2) Increase flexibility:

IT can automate management and implementation of cloud-based services to simplify operations, save time, and help reduce costs. High scalability eliminates the time needed for purchasing and deploying additional infrastructure.

3) Reduce costs:

Virtualization and other features of Unified Data Center and Cloud Intelligent Network enable service delivery at a lower cost than traditional infrastructures, which allows colleges and universities to achieve the economies of scale and efficiency delivered by cloud computing.

4) Reshape teaching and expand collaboration:

Cloud services can expand the learning environment to all and provide faculty and students with a rich, interactive eLearning environment. These cloud services can also help institutions control IT costs, manage energy expenses, and reduce travel time and costs.

VI. CONCLUSION

The following are the areas where we can increase the efficiency of working between universities and colleges and reduce the cost by implementing cloud

1. University Correspondence, news and instructions.
2. Examination form filling and updating.
3. Computing cycles, Data Storage.
4. Cooperative library collection development.
5. Smooth Inventory Transfer and control.
6. Virtualization of study centers and Labs
7. Sharing resources for teaching and learning Process

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