Cloud Computing-Best Solution to Avoid Malpractices in Research Areas

Prof. Manojkumar S.Langote[1] and Dr. B.B.Das[2]

[1]Asst.Prof., PIRENS Technical Campus, Loni

[2]Director,PIRENS Technical Campus, Loni

ABSTRACT

In India itself, there are more than 1000 universities (State/Deemed etc) and many research centers doing work in various areas. There are large number of areas and millions of researchers doing research in various areas across the world. There might be interdisciplinary research like bioinformatics which is an application of biology and information technology. This creates new problem. For interdisciplinary research it becomes very much complicated to search proper guidance and existing work.

To avoid malpractices in Research field there are some existing software like plagiarism, but still there are some problems.

This creates new opportunity for creating common platform for all researchers across India, which can minimize the malpractices in Research area.

Drawbacks of existing system

1. Violation of copy rights

2. Different authorities to award Ph.D.

3. Lack of communication in Research students and guides

4. Availability of Resources, Laboratories, infrastructure and literature

5. Uncommon Norms

In this research we want to suggest new Cloud based Module to minimize the malpractices in research areas, which could be helpful to Universities, Government of India and UGC and budding researchers.

Key words: Cloud computing, malpractices, violation, research.

Introduction

The term *doctorate* comes from the Latin docere, meaning "to teach."A doctorate is an academic degree or professional degree that, in most countries, qualifies the holder to teach at the university level in the specific field of his or her degree, or to work in a specific profession. The research doctorate, or the Doctor of Philosophy (Ph.D.) and its equivalent titles, represents the highest academic qualification. In India, generally a Masters degree is required to gain admission to a doctoral program. Direct admission to a Ph.D programme after bachelors is also offered by the IITs, the NITs and the ACSIR. In some subjects, doing a Masters in Philosophy (M.Phil.) is a prerequisite to starting a Ph.D. For funding/fellowship, it is required to qualify for the National Eligibility Test for Lectureship and Junior Research fellowship (NET for LS and JRF) conducted by the federal research organization Council of Scientific and Industrial Research (CSIR) and University Grants Commission (UGC).In the last few years, there have been many changes in the rules relating to a Ph.D in India. According to the new rules, most universities conduct entrance exams in general ability and the selected subject. After clearing these tests, the shortlisted candidates need to appear for an interview by the available supervisor/guide. The students are required to give presentations of the research proposal at the beginning, submit progress reports, give a pre-submission presentation and finally defend the thesis in an open defense viva-voce.But since last few months and years we are listening about some fake Ph.D. The private university (CMJ University), established in 2009 in the state capital Shillong, handed out 434 PhDs during the 2012-13 academic year despite its small faculty. If we consider the case of CMJ University, A PhD at this University takes between two to five years and costs 127,000 rupees ($2,250), according to its website. But in a good faith, the universities were given permission to operate, but some seem to have taken this for a ride and this is distressing. The basic reason behind this Credentials fraud is, due to huge demand for qualifications, endemic corruption and poor regulation of the ultra-competitive and fast-growing education sector. The Times of India reported that PhDs from CMJ were on sale for between $4,000-10,000, with the amount paid determining how quickly the qualification would be granted. Actually Research area is really a vast, uncountable and most important area for the improvement and development of Industry, Education, Society and indirectly a Nation. So there should have some transparency and unlimited scope to new researchers.Its recession hit period where Government, education and industries are sorting out ways to overcome the downturn. Industries are looking for economical computing styles that could cut down the infrastructural cost and maximize entrepreneurial scalability. Cloud computing has emerged as one such concept that allows an

entrepreneur to avoid capital expenditure (CapEx) on hardware, software and services, and pay the provider only for what they use. Cloud computing offers a virtual computing environment that enables use of web service interfaces to launch instances with a variety of operating systems, loading them with the required custom application environment, managing the network, and using the entire setup using as many or few systems as viable.

Following are six Phases in research:

1. Existing System

2. Some Drawbacks in existing System

3. Proposed automation using cloud computing

4. Advantages

5. Risk Analysis in Proposed System

6. Conclusion

Existing System

Already have explained somewhat about existing system, but as per my survey less number of persons are involved in this process. Mainly Research Student, Guide and three or more referees from same or other Universities. Role of Dean and higher authority is for administration purpose. Higher authorities set the guidelines for Research work.

Some Drawbacks in existing System

1. There might be violation of copy rights

2. Different authorities to award Ph.D.

3. Lack of communication in Research students and guides.

4. Availability of Resources, Laboratories, infrastructure and literature

5. Uncommon Norms.

Proposed automation using cloud computing

About Cloud computing in brief: Traditional business applications like those from SAP, Microsoft, and Oracle have always been too complicated and expensive. They need a data center with office space, power, cooling, bandwidth, networks, servers, and storage. A complicate software stack and a team of experts to install, configure, and run them. They need development, testing, staging, production, and failover environments. When one multiply these headaches across dozens or hundreds of apps, it's easy to see why the biggest companies with the best IT departments aren't getting the apps they need. Small businesses don't stand a chance. Hence, required 'Cloud computing'.

Figure 1: Overall Architecture of Cloud

Types of Clouds

IT department can choose to deploy applications on public, private, or hybrid clouds, each of which has its trade-offs. The terms *public*, *private*, and *hybrid* do not dictate location. While public clouds are typically "out there" on the Internet and private clouds are typically located on premises, a private cloud might be hosted at a collocation facility as well.

Public clouds: Public clouds are run by third parties, and applications from different customers are likely to be mixed together on the cloud's servers, storage systems, and networks. Public clouds are most often hosted away from customer premises, and they provide a way to reduce customer risk and cost, Cloud architects and end users. Indeed, one of the benefits of public clouds is that they can be much larger than a company's private cloud.

Public cloud (also referred to as 'external' cloud) describes the conventional meaning of cloud computing: scalable, dynamically provisioned, often virtualized resources available over the Internet from an off-site third-party provider, which divides up resources and bills its customers on a 'utility' basis.

An example is ThinkGrid, a company that provides a multi-tenant architecture for supplying services such as Hosted Desktops, Software as a Service and Platform as a Service. Other popular cloud vendors include Salesforce.com, Amazon EC2 and Flexi scale.

Private cloud: Private clouds are built for the exclusive use of one client, providing the utmost control over data, security, and quality of service. The company owns the infrastructure and has control over how applications are deployed on it. Private clouds may be deployed in an enterprise datacenter.

Private cloud is also referred to as 'corporate' or 'internal' cloud and can be built and managed by a company's own IT organization or by a cloud provider. In this "hosted private"

model, a company such as Sun can install, configure, and operate the infrastructure to support a private cloud within a company's enterprise datacenter.

*Hybrid clouds***:** Hybrid clouds combine both public and private cloud models. They can help to provide on-demand, externally provisioned scale. The ability to augment a private cloud with the resources of a public cloud can be used to maintain service levels in the face of rapid workload fluctuations. This is most often seen with the use of storage clouds to support Web 2.0 applications. A hybrid cloud also can be used to handle planned workload spikes. If the data is small, or the application is stateless, a hybrid cloud can be much more successful than if large amounts of data must be transferred into a public cloud for a small amount of processing.

Services provided by cloud computing

SaaS (Software-as-a-service) products provide complete hardware infrastructure and software applications. User has to interact with it using front-end tool no matter where he is, e.g. salesforce.com

PaaS (Platform-as-a-service) products provide some softwares and development tools also. Users can create their application in provider's infrastructure at any place, e.g. GoogleApps.

IaaS (Infrastructure-as-a-service) products provide virtual server and memory. Users have to use providers API to start stop access and configure their virtual server, e.g. Amazon web services.

**DaaS (**Desktop-as-a-service) enables us to use our desktop virtually from anywhere.

Role of Cloud Computing in Research Field

We have discussed the concept of Cloud computing. We don't want to implement exact one type (private/public/hybrid) of Cloud. The main concept behind our research is to avail common H/W and S/W resources to all researchers, Research Centers and universities for improving the quality in research in terms of time, cost and accuracy.

Computer has high speed of computation, searching and unlimited data storage capacity. We want to take an advantage of these characteristics of computer in the field of Research.

1. Student/Guide Module

Figure shows the overall hierarchy of Research Work under UGC. As per my opinion we want to store and manipulate all databases in a cloud which could be maintained logically at UGC. To avoid overloading of server, we can use n-tire technology. Also we can maintain data at university level. And this data can be shared by other universities. Different algorithms can be used to search appropriate information.
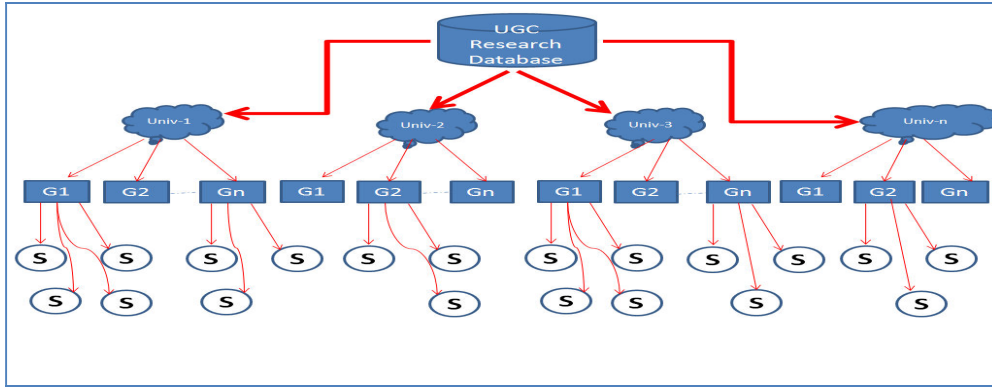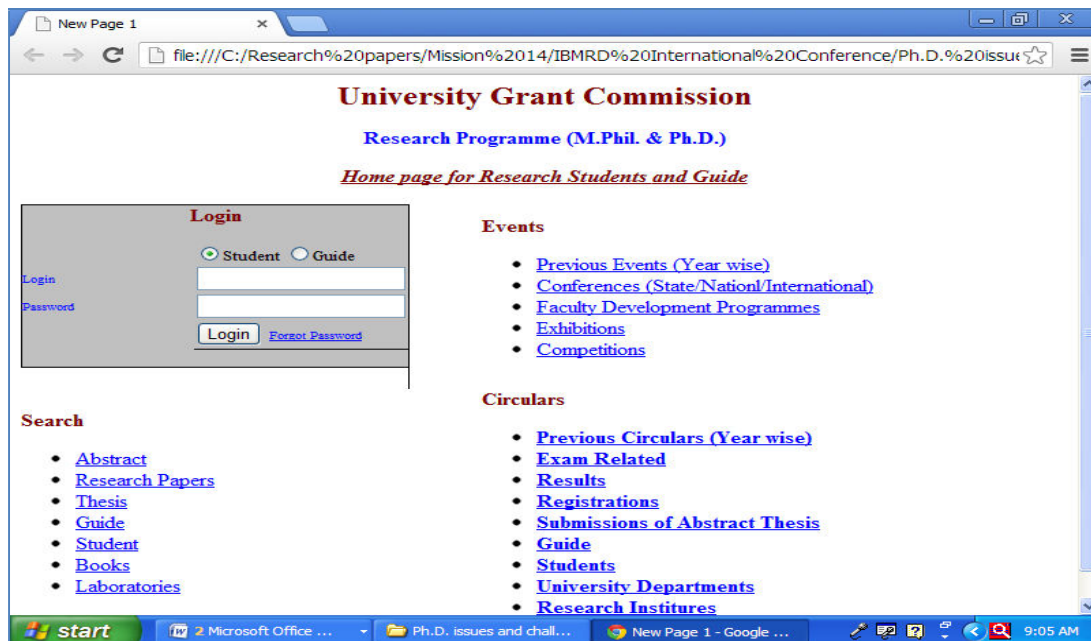
Figure 2: Student-Guide Module

As far as interdisciplinary research is concern some research student might require guidance from multiple streams and guides. These guides might be available in different universities in India. This is the week point of the existing system. We can overcome the problem partially by using internet connectivity among these users.

Some of the major tasks to be needed for the Research student are listed below

1. Literature Survey:

2. Guide searching

3. Information of National / International Seminars

4. Different Circulars regarding Research and Development

5. Existing Status of the work

Figure 3: The skeleton for Research Student/Guide
2. Administrative Module

This is a most important part of our System, which includes the following tasks,

1. Circular Management Module

2. Event Management Module
3. User Management and Authentication Module
4. Master data maintenance
5. Backup , Restore and Security issues related work
6. Plagiarism detection software to verify the originality of work

3. University and Research Institute Module

This is a portal for University department and Research Center where the actual Research takes place. This module includes,

1. Approval for Research Student and Guide
2. Guide Student Searching and Allocation logics
3. Arranging and processing for National / International/State level Conferences
4. Examination System for Researchers from Entry to Exit
5. Fess collection and other Account related work
6. Lab and Laboratory maintenance

Table 1: Important required database

Sr.No.	Table Name	Important Contents	Description
1.	Research Student	StudentCode, Name, Qualification, Branch, ResearchArea , Date of Registration etc.	All Student Details
2.	Guide	GuideCode, Name, Designation, CollegeName, DeptName, Specialization, Qualification, Branch, RegistrationDate etc.	Details about Guide
3.	Research Area	ResearchAreaCode, Description, Branch	Subject wise Research areas
4.	Research Paper	ResearchPaperCode, Title, AuthorCode, ResearchAreaCode	Research Papers published in National & International Journals
5.	Book	BookCode, Name, Author, Branch, Theory/Practical	Details of Book
6.	Event	Event Code, EventName, Level, DateOFEventFrom, DateOFEvenTo, Venue, Fees	Events announced time to time
7.	Circular	CircularFrom, CircularTo, CircularRefNo, Dept, CircularType, PDF,	Circular published day by day
8.	Journal	JournalCode, Name, Duration, Publisher, IndexFactor, ResearchArea, Type, IssueNumber, Year	Research Journals
9.	Journal Article	JournalCode, IssueNumber, Year, ArticleCode, ArticleName, AuthorName1, AuthorName2, PDF	Details about articles published in Journal
10.	Abstract	AbstractCode, Name, ResearchArea, AuthorName,Email, mobile, Address, PDF File	Details of Abstract
11.	Thesis	AbstractNumber, Title, Author, GuidedBy, University,DateOfPub. ,ResearchArea, PDF File	Thesis Details
12.	University	UniversityCode, UniversityName, Address, WebSite, Email, FAX	University Details
13.	Research Center	ResearchCenterCode, Name, Address, CenterHead, Email, WebSite State	Research Institute Details
14.	Qualification	QualificationCode, Qualification, Branch	Qualification details

Advantages

1. Uniformity in Research Field across India

2. Similar procedure for M.Phil., Ph.D procedures to all Universities

3. Less Violation of Copy Rights

4. Intellectual Interaction through Internet (Discussion Forum, Audio/Video/Text Chat, Email, Blogs etc)

5. Proper Guidance to the students

6. Large volume of Literature will be available on single Click.

7. Minimum Cost of H/W and S/w for all Researchers, Research Institutes and Universities.

Risk Analysis in Proposed System

1. Research data and information cannot be made confidential (By default it could be in public domain) This could be harmful for Military / Defense and Scientific Research

2. Security of all this soft copy of literature. Because it could be very much difficult to identify the changes made by malwares in stored database

Conclusion

Among the other benefits, cloud computing avails shared infrastructure and costs, low management overhead, time sharing approach enabling low barrier to entry and most importantly, immediate access to a broad range of applications.

We can resolve the risk by applying some security features on cloud. If we observe the core banking, communication field, most important data has been stored and manipulated by millions of customers across the world 24 hrs everyday throughout year.

This solution could become milestone in Research Field for improving the quality and quantity.

References

www. howstuffworks.com, Accessed on 10th June 2013.

www.ibm.com, Accessed on 28th May 2013.

www.technodemand.com, Accessed on 11th June 2013.

www.netforbeginners.about.com, Accessed on 10th June 2013.

www.ugc.ac.in, Accessed on 11th June 2013.