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Cloud Computing: possibilities, challenges and opportunities with special reference to its emerging need in the academic and working area of Information Science.

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Abstract

Cloud computing is actually a model for enabling convenient, limitless, on demand network access to a shared pool of computing resource. This paper describes some aspect of cloud architecture including cloud based information mechanism, especially useful in information system. Paper mention about the challenges and opportunities of cloud based model. At last we mental the main SWOT in respect of information delivery mechanism.

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1. Introduction:-

Cloud computing is actually a mechanism or model for enabling easy,convenient,on demand network access to a shared pool of devices like server,networks,storage devices, application, services and other advance computing devices which are configurable another important feature of cloud computing is the minimum efforts and management cloud model gives us rapid services. It is consider as model and services rather than product or computing devices. Information is the processed data and information mechanism is the way or standard by which collection, selection, organization and dissemination of content and information is possible through scientific mechanism and procedure. Cloud computing model in the field of information and content mechanism provide us easy and convenient information and recourses to the entire information sector.

2. Cloud computing: meaning:-

In simplify manner define cloud is too hard. Many people, technologist, information scientist, researcher defines cloud computing various way and perspective. As Wikipedia define cloud computing as the delivery of computing as a services rather than a product, where by shared resources, software and information are provided to the computer and other devices. Let us check some definition of cloud computing:-

- NIST define cloud computing as "a model for enabling ubiquitous, convenient on demand network access to a shared pool of configurable computing recourses (e.g. Networks,Servers,Storage,Application and services) that can be rapidly provisioned and realized with minimal management effort or services provider interaction.[21]

- According to Frank Osafo, "a key element of cloud computing is that "services operate consistently regardless of the underlying systems".
So from the above definition it is clear that cloud computing is actually nothing but the consumption model required for convenient recourses and content sharing.

3. Cloud computing: Contemporary uses:-

Due to various advancement Cloud Computing model is using in several places like:-
- Today many e-mail service provider using this model for convenient content delivery like- g mail.
- Cloud Computing is useful in web based document management.
- In the field of web-storage, editing and collaboration tools.
- In the e-commerce, e-governance, e-business cloud model is widely used.
- Today in many website the aliveness is the gift of cloud computing.
- Internet and web engineering is the field where application of cloud computing is possible.

4. Cloud computing: advantages:-

There are several advantages possible through the cloud computing such as:-

- It creates a healthy information technology infrastructure.
- Useful to provide and maximize flexibility and efficiency.
- It is possible quick IT delivery through cloud computing.
- It helps to integrate user and company personnel.
- It is provide hassle free maintenance of software and hardware.
- Cloud computing reduction in IT and computing cost.
- Cloud computing gives opportunities to harness the power technologies in the new and creative way without over spending on IT budget. [11]
- It creates wonderful platform for service, technology.
- It provides a new kind of user experience.
- It is reliable and user convenient

5. Cloud computing means cloud society: opportunities:-

Due to several advantage like flexibility, efficiency, green benefits, convenience cloud computing provides a wonderful opportunities to the following entries.

The developing countries like India, China, South Africa may get wonderful benefit from cloud computing for several reasons like-

- Money saving.
- Doing several works through cloud is possible. So ultimately it needs less manpower and technological support:-
- It enables and maximizes the capacity of small and medium business.
- Without large IT infrastructure, cloud computing provides big facilities for small organization.
- The government offices, universities, NGO, bank, hospital provides reduction in IT cost.
- It is provides efficient, reliable, convenient digital and online content and information management.
- The user using internet from low capacity may use this for fastest service.
- Using internet from mobile phones is also helpful from cloud computing.
- Through the distributed infrastructure and server the web service will grow significantly.
- It needs cheaper devices low storage capacity as well as processing power.

- The information technology infrastructure and market growing rapidly with the help of cloud computing.
- Computer users became less dependent on specific and needed software as the cloud model provide many applications through the network.
- Ultimately the economically poor countries, less information and computing countries may choose the cloud computing model for their efficient and fast data delivery.
- Due to transformation and inter exchange of information the availability and easy access of information helps to move on information society from the traditional society.
- The cloud computing model helps to up-lift of the states and countries.
- The cloud computing model also helps to create knowledge economy.
- The social networking sites also take the help of cloud computing in generally.
- The dynamic provisioning is possible through the cloud computing.

6. Cloud computing and its integration with Information Science: possibilities and Indian scenario-

According to *Information Scientist Broko*, Information Science is an interdisciplinary science that investigates the properties and behavior of information, the forces that govern the flow and use of information, and the technique, both manual and mechanical, of processing information for optimal storage, retrieval and dissemination.

Information science is actually a field of fields many subjects have great influence to make a separate discipline called information science. Information science mistakenly consider as computer science or library science or information technology. However this subject practically an interdisciplinary academic area which is constituent with Information Technology, Computer Science, Management Science and information perspective of library science or documentation. So it is full-fledged interdisciplinary subject with its own recognition. The cloud computing approach or model may apply in diverse academic field of information science and many working and institutional areas like:-

- Information Networks.
- Information System.
- Knowledge Grid and Networks.
- Information Centre and Data Centre.
- Information Analysis Centre, Documentation Centre and so on.

India has thousand of information and computer network for the purpose of institute, enterprise, foundation, academic institute or universities. As a full-fledged information system and network the following are giving their best like-

- National information System for Science and Technology.
- Education and Research Network.
- National Information Centre Network and so on.

But still during our literature survey and questionnaire review it is observed that there is a unwillingness towards application of cloud model in Information System and Network and similar. Some of the area where cloud model can use in ISN and Similar foundation such as:-

- To coordinate between one information centre to another or their apex body.
- To coordinate and sharing of information, book, document and even other recourses including hardware, software and so on.
- To work with the approaches of Top Level Management to Lower Level Management or vice versa

Now let us see some probable area of traditional area of Information Science, where cloud or virtualization model is applicable like:-

- For preparing auto indexing and auto abstracting, fuzzy based IRS.
- In document delivery Services, Current Awareness, Selective Dissemination of Information.
- To interact and designing website of Information Science school, college and Information Networks.
- In GUI based search engines it can be used.
- In auto classification and proper class number distribution this model useful.
- In the journal and consortium it may be used.
- In collection, selection, organization of knowledge.

7. Cloud computing: challenges:-

Though cloud computing gives wonderful benefit and limitless information mechanism but it has several issue and problems like-

- Government grant and assistance towards cloud based model is an emerging issue.
- Many foundation, establishment, government agencies are not aware about the cloud benefit.
- In many services cloud performance is an important issue.
- Unwillingness to changes, funding and finance is important challenges.
- Cloud computing needs high quality broadband connection other wise the whole efforts will be value less.
- In many website cloud based system may not work properly.
- Connection and speed in MB and GB format is an emerging issue.
- Delay of processing information that means latency is challenging fact as far as cloud computing is concerned.
- It needs front and backbone infrastructure and appropriate quality of services.
- Appropriate cyber law, act and policy should be frame for correct and right cloud model.
- Many cloud services are costly so for developing countries like India this is an emerging issue.

Cloud divide is also challenging because in many developing and developed countries are still not able to provide high speed broad band connection

8. Conclusion:-

No doubt cloud computing provide us cheaper, greener, faster, flexible, efficient environment. Apart from government, the NGO's, universities, higher educational institute, research centre can get benefit from this model. Though in many undeveloped countries cloud computing interest is minimum due to availability of foreign cloud service provider. But it is essential in the age of globalization that either a country should pay faith on Foreign Service provider or countries should try to develop a shelf sufficient cloud services of their own. But the actual service benefit should also need to keep in mind. So no doubt with the help of cloud computing we can create a healthy cloud based knowledge economy and healthy informatics practice through advancement of Information Science.

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