

CLOUD COMPUTING FOR E-GOVERNANCE IN LIBRARY STUDIES AND INFORMATION SCIENCE

Shivaraju, M

Research Scholar

Department of Library and Information Science

University of Mysore, Mysore – 570006

E-mail: sraj56120@gmail.com

Khaiser Nikam

Professor

Department of Library and Information Science

University of Mysore, Mysore – 570006

E-mail: khaiser.nikam6@gmail.com

Abstract

This paper mainly highlights the cloud computing for e-Governance in library science, Cloud computing is a method of computing which is formed from the aggregation and development of technologies such as grid computing distributed computing, parallel computing and service-oriented architecture. Furthermore, its aim is to give computing, communication and storage resources in a safe environment based on service, as fast as possible, which is virtually provided via Internet platform. Considering that the provided Services in e-governance are accessible through the Internet, along these lines distributed computing can be utilized as a part of the usage of e-governance design and furnish better administration with the least financial cost utilizing its advantages. So in this article the author briefly explains the levels of computing, Mode of access of Cloud Computing, Action to be taken for cloud computing for e-Governance in Library Science by Government and Advantages of E-Governance in library science

KEYWORDS: Cloud Computing, e-Governance, Library Studies, Library services

1. INTRODUCTION

Use of Cloud computing in the e-Governance and Library science looks like different fields but as a whole it all belongs to information, communication and technology. Here, let us assume library science is concerned with information, cloud computing is concerned with communication and finally e-Governance is technology. Library studies and information science is an interdisciplinary field that applies the practices, perspectives, and tools of management, information technology, education, and other areas to libraries; the collection, organization, preservation, and dissemination of information resources; and the political economy of information. So also E-Governance is a part of information communication and technology for reaching government services, exchange of

information and other services between government-to-customer (G2C), government-to-business (G2B), and government-to-government (G2G) (Saugata & Masud, 2007). Through e-governance, citizens can avail government services in a convenient, efficient and transparent manner. The three main target groups in governance concepts are government, citizens and businesses/interest groups. In e-governance there are no distinct boundaries (Garson, 2006). The some type of services can be developed in libraries.

Further, there are so many kinds of internet based information were available in the field of library science through different sources like Online Public Access Catalogue (OPAC), Institutional repositories, e resource consortia's and others. As lots of resources and services are available librarians can take necessary action for initiate e-Governance in Library and Information centre management. Government needs to encourage whole libraries and librarians in the country to participate by cloud computing.

2. CLOUD COMPUTING

Cloud computing, is a kind of Internet-based computing, where shared resources, data and information are provided to computers and other devices on-demand. It is a model for enabling ubiquitous, on-demand access to a shared pool of configurable computing resources.

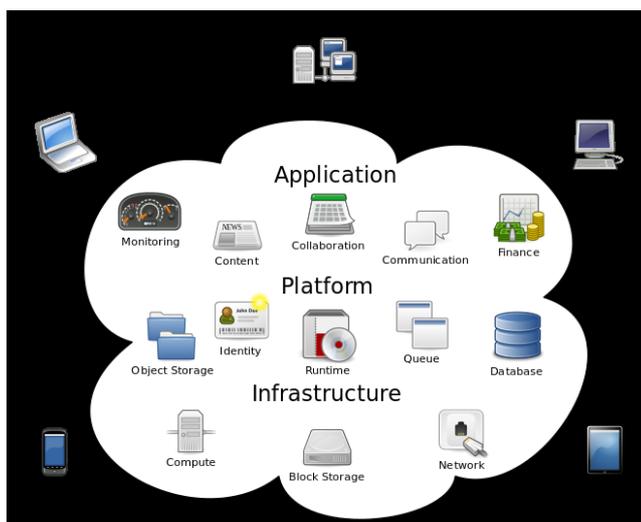


Figure 1: Cloud computing

(Source: https://en.wikipedia.org/wiki/File:Cloud_computing.svg)

3. BASIC MODELS OF CLOUD COMPUTING

Manesh T explained that “there are certain services and models working behind the scene making the cloud computing feasible and accessible to end users. Following are the working models for cloud computing:

Deployment Models:

Deployment models define the type of access to the cloud, i.e., how the cloud is located? Cloud can have any of the four types of access: Public, Private, Hybrid and Community.

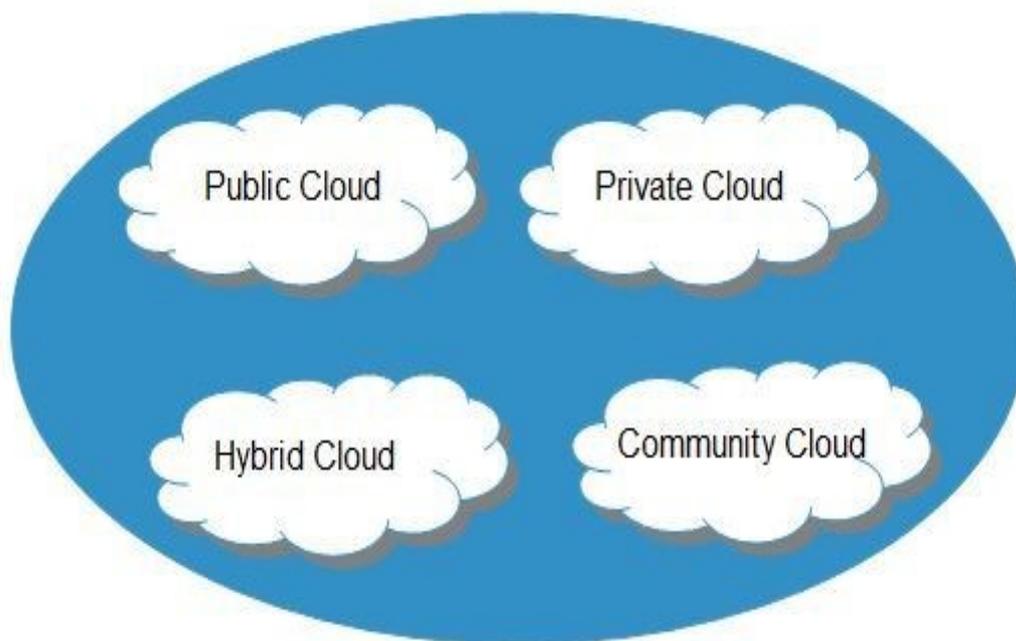


Figure 2: Models of Cloud computing

(Source: <https://faculty.psau.edu.sa/m.thankappan/page/4098>)

Public Cloud

The Public Cloud allows systems and services to be easily accessible to the general public. Public cloud may be less secure because of its openness, e.g., e-mail.

Private Cloud

The Private Cloud allows systems and services to be accessible within an organization. It offers increased security because of its private nature.

Community Cloud

The Community Cloud allows systems and services to be accessible by group of organizations.

Hybrid Cloud

The Hybrid Cloud is mixture of public and private cloud. However, the critical activities are performed using private cloud while the non-critical activities are performed using public cloud.”

4. LEVELS OF CLOUD COMPUTING

There are three levels of cloud computing as shown below

- 1) Infrastructure as a Service – IaaS
- 2) Platform as a Service – PaaS
- 3) Software as a Service – SaaS

1) Infrastructure as a Service – IaaS

This is the basic model of cloud service. It refers to physical computing resources, location, data partitioning, scaling, security and backup etc. By using this module the customer avoids purchasing and managing the hardware and software infrastructure components, and is provided with all resources virtualized through a service interface (Al-Rashedi , 2014).

2) Platform as a Service – PaaS

In the PaaS models, cloud providers deliver a computing platform, typically including operating system, programming-language execution environment, database, and web server. By using this model you can reduce the cost and full management complexity. The customer can manage his required software components of the platform (Al-Rashedi , 2014).

3) Software as a Service – SaaS

In the software as a service (SaaS) model, users gain access to application software and databases. Cloud providers manage the infrastructure and platforms that run the applications. By using this model you can reduce the cost of hardware and the software development, maintenance and operations (Al-Rashedi , 2014).



Figure No. 3 Levels of cloud computing

(Source: <http://pubs.sciepub.com/ajis/2/1/1/figs>)

5. KEY CHALLENGES

According to the Gartner, Inc. (NYSE: IT) website “Cloud computing forces you to wrestle with three key strategic, operational and people challenges:

Governance:

Cloud computing enables speed, agility and innovation. You need to move from the drawing board to deployment. Is your organization ready to adapt?

Cloud Computing Environments:

You need to choose a cloud computing environment that's right for your organization. Should you consider private cloud, public cloud or a hybrid cloud solution? Which vendors play in this space? Will they be in business 12 months from now?

Security & Privacy:

If someone else is running your computers and software, you need strategies to stay secure. Your security policy depends on how many pieces you control – the more you own, the more you control. Are you ready to extend your enterprise security policy to the cloud?”

4. MODE OF ACCESS OF CLOUD COMPUTING

- Desktop computers
- Laptops
- Tablets
- Smart phones and
- Any Ethernet enabled device

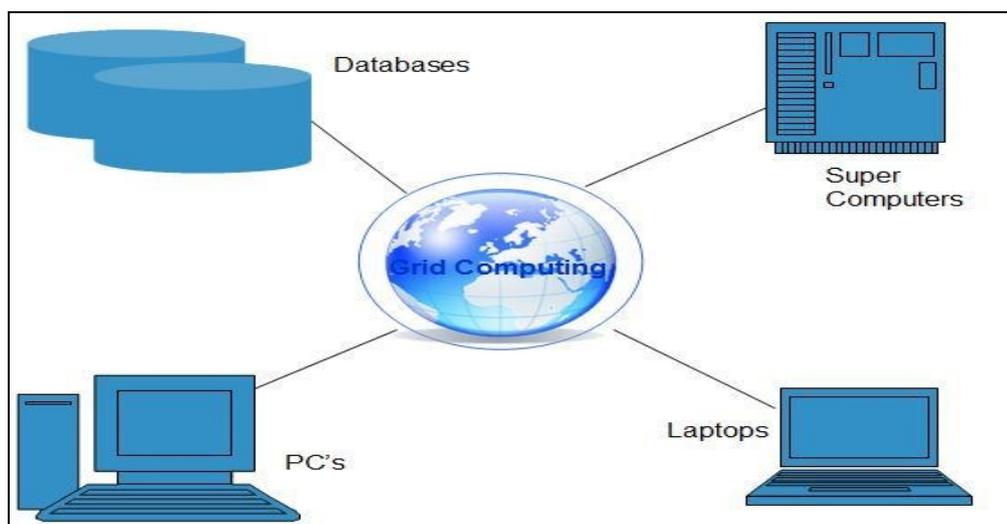


Figure No. 4 Grid computing

(Source: <https://faculty.psau.edu.sa/m.thankappan/page/4098>)

6. ACTION TO BE TAKEN FOR CLOUD COMPUTING FOR E-GOVERNANCE IN LIBRARY SERVICES

- Form a committee
- Analyze the situation of libraries, librarians and library and information sources and services
- Develop a plan to reach goals
- Allot budget
- Frame Mandatory rules and regulations
- Encouragement and Training
- Provide all kind of facility including with manpower

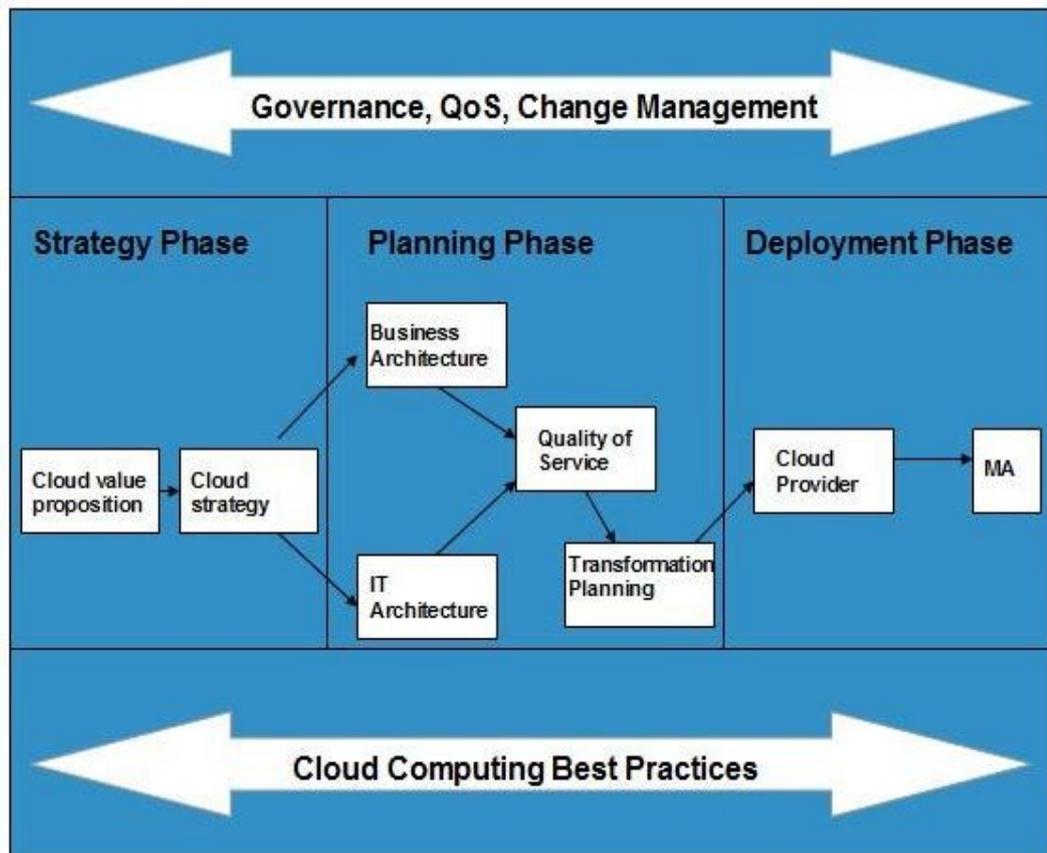


Figure No. 5 Cloud computing best practices

(Source: <https://faculty.psau.edu.sa/m.thankappan/page/4098>)

7. ADVANTAGES OF E-GOVERNANCE IN LIBRARY STUDIES

Following are the advantages of E-Governance

- Speed: Technology makes communication speedier. Internet, Phones, Cell Phones have reduced the time taken in normal communication.

- **Cost Reduction:** Most of the Government expenditure is appropriated towards the cost of stationary. Paper-based communication needs lots of stationary, printers, computers, etc. which calls for continuous heavy expenditure. Internet and Phones makes communication cheaper saving valuable money for the Government.
- **Transparency:** Use of ICT makes governing process transparent. All the information of the Government would be made available on the Internet. The citizens can see the information whenever they want to see. But this is only possible when every piece of information of the Government is uploaded on the internet and is available for the public to peruse. Current governing process leaves many ways to conceal the information from all the people. ICT helps make the information available online eliminating all the possibilities of concealing of information.
- **Accountability:** Once the governing process is made transparent the Government is automatically made accountable. Accountability is answerability of the Government to the people. It is the answerability for the deeds of the Government. An accountable Government is a responsible Government.

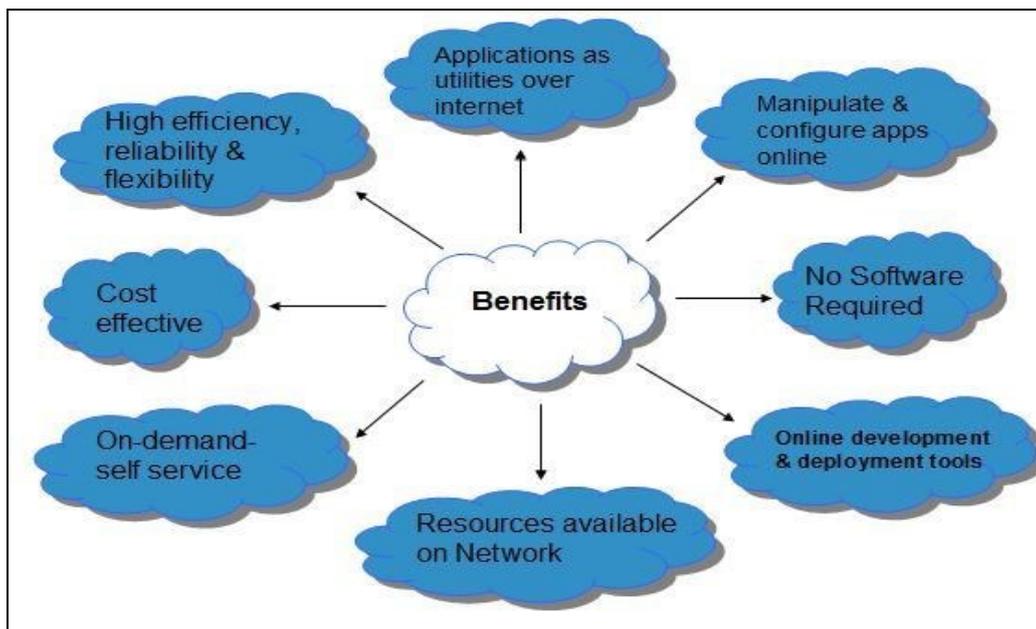


Figure No. 6 Benefits of cloud computing

<https://faculty.psau.edu.sa/m.thankappan/page/4098>

8. CONCLUSION

E-government automatically provides an integrated management with cloud computing by solving resolution problems and helps to reduce the budget based on the actual use of the data. The cloud architecture can help the government to reduce repetitive operations and increase the effective use of resources, in the global arena. These matters in their turn have an effective aid to create a green government, reduce pollution and waste management. Currently companies and small businesses are using the benefits of cloud

based on pay-as-you-use service model which is available in a wide scale and Cloud computing technologies have many benefits in different parts of e-government. This technology is currently the best option for e governance. Thus the best option for developing countries that have not yet fully implemented e-governance is leading government towards cloud architecture. This will reduce costs and increase the efficiency and user satisfaction. Also the importance of benefits such as data integrity, acceleration of processes and the flexibility of cloud in government should not be ignored that these benefits can meet many challenges of governments to implement e- governance.

It seems that participation is key to success, especially in this period of time to create the e- governance based on cloud computing. However, special attention may be given to providing infrastructures, Telecommunications and communications equipment for increasing internet's bandwidth for realization of the e- governance by using cloud computing.

From this paper it could be concluded that developing and even developed countries have critical need to create e-governance to reduce costs and also having Sustainable Development in this economic and critical situations and the best way to accomplish this matter is the use of green and cheap technology which is the cloud computing. Undoubtedly, the participation of countries with each other on technical and legal issues is code key for achieving e-government based on cloud computing as soon as possible. And it can fix and or minimize the existing problems and challenges on the way and therefore an E-government is created which interest and participation of people to use its services is enormous.

References

1. Al-Rashedi, A.A.(2014). E-Government Based on Cloud Computing and Service Oriented Architecture. International Journal of Computer and Electrical Engineering, 6(3), 201-206. <http://www.ijcee.org/papers/822-M702.pdf>
2. Figures index: Cloud Computing: A New Era in the Field of Information Technology Applications and its Services: Science and Education Publishing. (n.d.). Retrieved May 12, 2016, from <http://pubs.sciepub.com/ajis/2/1/1/figs>
3. Garson, D.G. (2006). Public Information Technology and E-Governance. Sudbury, MA: Jones and Bartlett Publishers
4. Saugata, B., and Masud, R.R. (2007). Implementing E-Governance Using OECD Model (Modified) and Gartner Model (Modified) Upon Agriculture of Bangladesh. IEEE. 1-4244-1551-9/07.
5. Siva Rama P.R., and Atukuri V.R. (2012). Cloud Computing Technology for Effective e-Governance. International Journal of Computer Science and Information Technologies, 3(1), 3241-3244.
6. Gartner, Inc. (NYSE: IT). <http://www.gartner.com/technology/topics/cloud-computing.jsp>
7. Manesh T. Cloud Computing. <https://faculty.psau.edu.sa/m.thankappan/page/4098>