Cloud Computing Technology: A powerful Engine to Promote Economy in Islamic Societies

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Abstract

Cloud computing has emerged as an attractive Internet-based technology through which data is saved in multiple servers and provided on-demand to customers. The cloud services can be accessed through any mobile devices, laptop or computers that is connected to the internet. Cloud computing as a modern technology will have a significant effect on people's living style in the business section. Both, household and industry parts will be affected considerably from the economic effects of cloud computing technology. This technology is able to offer its service with lower costs, enhanced efficiencies and many other advantages which makes organisations interested to adopt it. The enlargement of cloud computing will promote economic development, enhance productivity and change the type of occupations and skills by businesses. This paper aims to assess the efficiencies of cloud computing technology and how it promotes the economic segment at Islamic societies.

Keywords: Cloud computing, Information technology, Economic growth, Islamic societies.

1. Introduction

With the development of online storage and computing services provided by giant companies such as Microsoft and Google, any individual is capable of storing or processing files, documents, photos or any personal data with a basic computer and an internet connection through an easy and simple and commonly free way named cloud computing technology. Cloud computing is considered as the future of information technology [2]. It is expected that the service based solution will be the main engine for transfer of data and information technology functions at both the individuals and companies by the year 2018 [1].

It has properly certified that personal data processing has contributed considerably to economic growth. Such globalization has been improved significantly with the enhanced adoption of cloud computing technology. Cloud computing operates as an efficient engine for the enlargement of businesses throughout the world. The development of cloud computing is encouraged by the larger access to advanced computing resources at a low rate [3]. This article addresses the usefulness of cloud computing technology as a new engine to promote the economy at Islamic societies.

2. Cloud Computing

In this part, the author states the basic concepts relates to cloud computing.

2.1 Technical infrastructure

The NIST defines cloud computing as: "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., network, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction" [4].

There are four types of cloud available in the market which are named, public, private, hybrid and community cloud. Cloud infrastructure in the public cloud is furnished to a large industry group or the general public. An organization is the owner of the public cloud and sells the cloud service [5]. On the other side, in a private cloud, infrastructure is normally designed and managed by an IT department within an organization. The goal of creating a private cloud is to prepare facilities solely for an organization. This model offers a high level of monitoring over the cloud infrastructure and cloud services [6]. But, the cloud infrastructure in hybrid cloud is a combination of two or more different clouds (private, community or public) that stay as unique entities but are connected together by a standard and dedicated technology that facilitates transfer of data and application. A hybrid cloud may comprise of several internal and/or external providers [7]. Besides, with the community cloud, cloud infrastructure is furnished solely to a particular community of consumers by several organizations. The cloud infrastructure may be operated, owned or managed by the organizations or a third party or a composition of them [8].

2.2 Cloud Computing in Application

Cloud computing services are invested and offered by large companies such as Google Amazon, Cisco, Dell, IBM, Sun, Novell, HP, Intel, and Oracle. Cloud computing services may be offered to clients in a number of forms such as Media website, Web-based e-mail, online editing, backup service, banking and financial service, health care and government services. Social Media websites, such as Facebook, Twitter, MySpace and many others are well known usage of cloud computing. Individuals and businesses can share their information or trade with the people who run the service. Another largest cloud computing service is web based email. An email server hosts the data and it is accessible through any computer connected to the Internet. Online editing is another form of cloud services. There are many online services that permit individuals to store and edit documents, such as Google Docs or Zoho Office.

Cloud computing also includes back up service which allows people to maintain their data in the cloud and their own computer. With personal computing, it is possible to lose data if the computer is stolen, destroyed or the storage devices are damaged. This is where a backup is useful. Services like Dropbox and Syncplicity are good examples of backup service through cloud computing. Banking and financial service also may be operated through cloud computing such as maintaining personal financial information or tax records. Furthermore, a number of organisations allocate services to record personal health online such as Google Health and Microsoft Health Vault. They supply to the public to create, maintain and access online personal records through search engine websites. Cloud computing service is also utilised for governmental usage."Apps.gov" was launched in October 2009 by the U.S government is a web site offering cloud based computing services to federal agency usage. It aims at achieving cost savings [9].

2.3   Advantages of cloud computing

With cloud computing infrastructure, enterprises can achieve more efficient utilisation of their IT hardware and software investments. A cloud service can be a cost saving model for delivering information increasing responsiveness, developing innovation, and decreasing IT management complexity. Many clients are concerned with cloud services to render as platform for innovation, especially in regions that intend to promote the progress of a highly skilled and high tech work [10].

In General, the advantages of cloud computing services are: removal or reduction of spending massive amounts of capital, economies of scale, better resource utilisation, reduced additional manpower and training costs, flexibility and scalability on demand, quality of service, convenient implementation, guaranteed service levels, assists smaller institutes compete, technical support, anywhere access and disaster recovery/ backup [11].

3. Role of Information Technology in Islamic Societies

The role of information technology in Muslim countries cannot be disregarded. One of the them is spreading the Islamic literature through the internet. A few decades ago, Islamic literature including Hadith, Quran, its translation and other Islamic literature was only provided in text format. Many of people in developing countries are not able to read books due to their illiteracy. In order to assist this kind of people limited Islamic literature was produced in audio cassettes. Later, translation of Quran, Tafseer, Hadith and Figh written by prominent scholars in multiple language is simple and freely provided and available online in different forms of video, audio and other electronic form. Now, Muslim's communities have discovered the significant role of information technology in their lifestyle. Numerous Islamic associations, chat rooms, websites are provided on the Internet where the Muslims and non-Muslims can join them conveniently throughout the world [12].

4. How Cloud Computing Effect on the Economy of Islamic Countries

The nature of cloud computing is to allow the free flow of information. This unrestricted flow of data raises competition in business operations. In running business activities such as development, research and, design, production, sales and support services all over the world, corporations will benefit from transborder data flows as they can get the best rate and services from the best providers. The transitive nature of cloud computing facilitates it to be positioned in a place where the labour, infrastructure, and government policies are more impressive in assisting in the growth businesses. As such, cloud computing technology makes available wide and innovate choices for all types of businesses across all sectors of the economy. Although this technology has been especially advantageous to big organisations, it has also benefited small and medium sized entities which lack IT resources. A nation which has limited access to technological infrastructures can benefit tremendously from cloud computing as it supplies everyone equal opportunity to access to the same quality of software applications [13].

It is explicit that the transborder flow of information has become important and critical in daily business deals throughout the world. Such flows help in raising the productivity of a company. Nevertheless, the transmission of data from through cloud services which currently is driven mainly by economic and networking considerations has major policy implications [14].

Cloud computing technology is also an appropriate mechanism for Islamic banking. Islamic banking is a system of banking compliant with the principles of Islamic law (Shariah) which is operating in a numerous of the Muslim and non-Muslim regions. A major economic benefits of cloud computing is to change capital expenses to operating expenses of the bank. In addition, customers will be connected to a powerful service layer that runs user-generated analysis tasks [15].

5. The Way Forward

Although transborder flow of data under cloud computing offer several benefits, it also creates some unexpected problems for personal data such as the issue of storing personal data in many jurisdictions and under different jurisdictions [16].
There are more than sixty countries with data protection or privacy laws that regulate the transborder flow of the data. Some regulations were approved to monitor personal data processing at international levels for a specific group of countries or communities such as European Data Protection Directive 1995 or The APEC Pivacy Framework 2004. They are monitoring and controlling such processing in their relevant area. For instance, under the Data Protection Directive, any transfer of data to countries outside European communities that does not provide "an adequate" level of protection is prohibited [17].

Therefore, It seems that processing personal data at Islamic societies needs to be monitored and regulated by an appropriate and comprehensive data protection law. However, some of the Islamic countries such as Malaysia is provided already its data protection law, a unit data protection regulation as such provided in the Europe may assist to protect the processing of data all over the Islamic communities. Availability of a unit and comprehensive data protection law monitoring the processing of data throughout the Islamic regions will assist to increase the confidence and trust of people to rely on such processing.

5. Conclusion

In this paper, role of cloud computing in Islamic societies has been discussed. Cloud computing as a new application of information technology may cause to increase the economic development in the Islamic communities. One of the major economic benefits of cloud computing in Muslim community could be the transborder flow of data. Furthermore, cloud computing infrastructure can be also an appropriate engine to rise up the Muslim brotherhood through social media websites. Although, the impact of cloud computing technology in enlargement of the Islamic societies should not be disregarded, appropriate policies must be in place to safeguard the rights of people.

6. References

[1]   D. Constantine, Cloud computing: the next great technological innovation, the death of online privacy, or birth?, Georgia State University Law Review, Vol. 28, No. 2, p. 500, 2012.

[2]   J A. Harshbarger, Cloud computing providers and data security law: building trust with United States companies, Journal of Technology Law & Policy, Vol. 16, No. 2, p. 230, 2011.

[3]   W B. Chik, The lion, the dragon and the wardrobe guarding the doorway to information and communications privacy on the internet: a comparative case study of Hong Kong and Singapore - two differing Asian approaches, International Journal Law Info Tech, Vol. 14, No. 1, p. 58, 2006.

[4]   I. Sriram and, A. Khajeh Hosseini, Research Agenda In Cloud Technologies, p 2. Sep. 2012. [online]. Available: http://arxiv.org/ftp/arxiv/papers/1001/1001.3259.pdf

[5]   J. Soma, M. Nichols, M. Mosley and, A. Gutierrez, Chasing the clouds without getting drenched: a call for fair practices In cloud computing services, Journal of Technology Law & Policy, Vol.16, No. 2, pp. 196-197, 2011.

[6] K. Bakshi, Point Of View White Paper For U.S Public Sector, USA: Cisco Cloud Computing – Data Center Strategy, Architecture, And Solutions, p. 5, 2009, 1st Edn.

[7]   J. Jaatmaa, Financial aspects of cloud computing business models, Master thesis, Aalto University of Finland, pp. 94, 2010.

[8]   P. Mell and, T. Grance, The NIST Definition of Cloud Computing. Recommendations of the National Institute of Standards and Technology. U.S. Department of Commerce. USA: NIST Special Publication, pp. 3, 2011.

[9]   M. Gordon and, K. Marchesini, Examples of Cloud Computing Services, University of North California. Aug, 2010. [online]. Available:
http://www.unc.edu/courses/2010spring/law/357c/001/cloudcomputing/examples.html

[10] G. Boss, P. Malladi, D. Quan, L. Legregni and, H. Hall, Cloud computing, IBM corporation, pp. 4, 2007.

[11] R. Lovell, White paper: introduction to cloud computing, ThinkGrid. Sep, 2012. [online]. Available: http://www.thinkgrid.com/docs/computing-whitepaper.pdf

[12] M T. Ashraf, The role of information technology in Islam, Canadian Journal on Network & Information Security, Vol. 1, No. 7, pp. 70, 2010.

[13] SIIA White Paper, Guide to Cloud Computing for Policymakers, pp. 4-5, 2011.

[14]   A. Rouhani, Cloud computing: legal issues in relation to the Malaysian personal data protection act 2010, Master thesis, University Kebangsaan Malaysia, pp. 78, 2013.

[15]   Islamic banking on the cloud. Sep. 2012 .[online]. Available:
http://bankingonthecloud.blogspot.com/p/poster-paper.html

[16]   A. Rouhani, Cloud computing: legal issues in relation to the Malaysian personal data protection act 2010, Master thesis, University Kebangsaan Malaysia, pp 78-82, 2013.

[17]   C. Kuner, Regulation of Transborder Data Flows under Data Protection and Privacy Law: Past, Present, and Future, Netherlands, Tilburg University, pp 5-6.