

A VIEW OF CLOUD COMPUTING ADOPTION IN JORDANIAN BUSINESSES

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ABSTRACT

Cloud computing provides a computing platform that is able to dynamically allows users to use a web browser to receive computing services via the internet. It offers through internet dynamic virtualized resources, bandwidth and on-demand software's to consumers and promises the distribution of many economic benefits among its adapters. It also helps consumers to reduce the usage of hardware, software license and system maintenance. Hence by using internet consumers are able to use service application on clouds, and consumers can get benefit in the form of cost, on-demand self-services, and can access broad network.

Cloud computing is expanding rapidly as a service used by a great many individuals and business firms internationally. This paper will demonstrate the status of some of the adopting users in Jordan, and the issues that will impede adoption of cloud computing in Jordan, and shows an examples of how firms in Jordan are using cloud computing.

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KEYWORDS

Cloud computing, adoption issues.

1. INTRODUCTION

Cloud computing is a general term for anything that involves delivering hosted services over the internet; it refers to the provision of computational resources (services) on demand via a computer network. The name cloud computing was inspired by the cloud symbol that's often used to represent the internet in flowcharts and diagrams (Aaron &Roche 2012)

A cloud service is sold on demand, typically by the minute or the hour; it is elastic—a user can have as much or as little of a service as they want at any given time; and the service is

fully managed by the provider. Cloud computing is already being used by millions of people around the world and the number of people interested in cloud computing is increasing because of the significant innovations in virtualization and distributed computing, as well as improved access to high-speed internet and weak.

2. CLOUD COMPUTING

Cloud computing can be divided into three models in terms of who owns and manages the cloud, public, private and hybrid. These models have different key features that might make one model a better choice to meet your business IT needs. A public cloud is the traditional model that everyone thinks of when they envision cloud computing. A public cloud sells services to anyone on the internet. A public cloud also called as external cloud, in which cloud computing services are made available to the general public on payment demand (Jaeger et al 2008).

(Currently, an Amazon web service is the largest public cloud provider). A private cloud is a proprietary network or a data center that supplies hosted services to a limited number of people. A private cloud also refers as internal cloud. The third type is hybrid clouds pertain to a setup where an organization owns its core information technology resources and services. They are hosted and provided in-house. Non-critical services are outsourced to outside providers (Themistocleous et al.,2001). When a services provider uses public cloud resources to create their private cloud, the result is called a virtual private cloud. Private, hybrid or public, the goal of cloud computing is to provide easy, scalable access to computing resources and IT services.

Cloud computing is in on-demand internet structure that is broken up into multiple categories including infrastructure-as-a-service (IaaS), platform-as-a-service (PaaS) and software-as-a-service (SaaS).

Infrastructure-as-a-service like Amazon web services provides virtual server instance (APIs) to start, stop, access and configure their virtual servers and storage. In the enterprise, cloud computing allows a company to pay for only as much capacity as is needed, and bring more online as soon as required (Armbrust et al 2010).

Because this pay-for-what-you-use model resembles the way electricity, fuel and water are consumed; it's sometimes referred to as utility computing.

Platform-as-a-service in the cloud is defined as a set of software and product development tools hosted on the provider's infrastructure. Developers create applications on the provider's platform over the internet. PaaS providers may use

APIs, website portals or gateway software installed on the costumer's computer. Google Apps is an example of PaaS.

In the software-as-a-service cloud model, the vendor supplies the hardware infrastructure, the software product and interacts with the user through a front-end portal. SaaS is a very broad market. Services can be anything from web-based email to inventory control and database processing. Because the service provider hosts both the application and data, the end user is free to use the service from anywhere

3. ADOPTION ISSUES IN CLOUD COMPUTING

There are different adoptions issues occur in cloud computing (kim, 2009), some of the most important issues that effects Jordanian users are discussed below:

Outage issues

Some of the users of cloud service in Jordan faced a temporary or permanent outage which means that a cloud computing service provides goes out of business or faces a temporary problem that might happen several times a year which push the cloud computing users to take several types of precautions.

Some users in Jordan tries depend on critical applications in their business and to keep backups of applications and data on their servers, or to backups in other cloud services providers

Security issues

Large firms in Jordan are moving towards installing their own applications and data in on-premises computing systems. Securing computer system 100% is impossible as hackers can easily these days break into just about any computer system.

Furthermore, banks in Jordan and large firms are much more concern about their data security, so they are using the best security technologies and processes to ensure that the data is in safe place.

Actually, security is one of the most significant issues in adopting cloud computing that has an important technical security issues such as browser security, cloud malware injection attack, flooding attack, data protection, incomplete data deletion, and data lock-in issues. (Qaisar & Khawaja 2012)

Performance issues

Many users of cloud computing nowadays found that they need to increase the communications bandwidth and the internet speed in their firms before adopting cloud services to increase the business performance. The performance can be enhanced by improving the communications time between the user computer and the web server in the cloud.

Integration

Usually when firms used cloud computing, they must develop their IT infrastructure and integrate applications and data on multiple public clouds. New systems such as enterprise systems can be adapted to address the cloud integration issues.

Cost

Firms and people usually in the cloud computing pay for what they only use and this is a part of the marketing definition of cloud computing.

It firms maintain on-premises backup or secondary cloud services in order to cushion the impact of occasional outages this eventually will adds to the cost, and if the firm increase communications bandwidth as discussed before in the OUTAGE part to maintain a desired performance level also adds to the cost.

Furthermore, cloud computing does not mean that adopt cloud services can totally depend on the service providers for meaning the applications, virtual machines and storage. The firms still need to monitor the performance and availability of the virtual computing resources which add to the cost. There are various monitoring tools, both commercial and open source. Monitoring requires staff time, and possibly commercial tools (Wu &Huang 2011; Dhar 2012)

4. ADOPTION OF CLOUD COMPUTING IN JORDAN

Cloud computing in Jordanian firms specially medium and large became an important and viable step in the evolution of information technology. The authors have visited some of the well-known firms in Jordan and we found that some firms are currently use as commercial cloud computing Amazons Elastic Compute Cloud (EC2)<http://aws.amazon.com/s3> which allows customers to 'rent" compute cycles in Amazons data center. Typically, this service is used in conjunction with Amazons Simple Storage Services (S3) <http://aws.amazon.com/s3> which provides data storage services. For s3, costs are straightforwardly computed in terms on disk storage used on a monthly basis and additional charges for data transfer. This is

attractive for users, since they only pay for space they use, with additional capacity available on demand.

A number of startup firms use Amazon's services with regularly, and even established companies have found these services to be useful.

Another pharmaceutical firm in Jordan is using a web service combined with their ERP system. ERP is enterprise resource planning systems that attempt to integrate all the departments and the main functions across the firm onto a single information system that can serve all those different departments ' particular needs. Typically, a department with specialized functions and needs may have its own information system, customized to its particular procedures and duties. Nonetheless, the main effort of an ERP implementation is to combine as many functionalities as possible into a single, integrated software program that runs on a single database, in order that the various department can easily share information's and communicate with each other.

This approach can have a tremendous payback if firms implement the software properly. Customer order is an illustrating example of a process benefiting from implementation of such systems.

Normally, when a customer places an order, it begins a mostly paper-based journey around the company, often being transferred into different soft ware systems along the way. This process may insure delays and errors. Meanwhile, access to critical order information is not directly available to everyone involved when needed. The combination of traditional ERP functions enriched with business process management and SCM functionalities substitutes specialized department operation software systems, reducing costs, complexity and information inconsistency. Most vendors ' ERP software is flexible enough to provide modular implementation capabilities. ERP systems can accelerate business processes execution times, such as that of ordering process.

Web-services combined with ERP provide an integrated, multi-component applications software platform ideal for forming multiple business function. One of the services used is training the employees about ERP and business functions. This was done by using web-based e-learning systems.

4.1 ERP DESCRIPTION

Using ERP in cloud is an essential concept. This section emphasize the importance of ERP systems in business. An ES is a standardized software package designed to integrate the data used throughout an entire organization (Davenport, 1998).

According to Nah (2002), the American Production and Inventory Control Society (APICS) defines ES as: A method for the effective planning and controlling of all the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company. The APICS definition extends the concept of ES from an IT system towards a technology to manage and organize the processes of an enterprise. It should be noted that there is no agreement on terms and definitions regarding ES. This is a rapidly evolving concept.

Architecturally, ERP systems generally are based on a relational database system, such as Oracle. Using a relational database and appropriate process redesign allows the firm to capture data once they are generated. Then, reports can be generated so that all users have access to the same information. This allows for “information congruence,” e.g., so that each functional area makes use of the same sales forecast, resulting in fit between key areas of the firm, such as marketing and production. As a result, some knowledge management may be able to exploit the underlying information and database structure.

Most ERP software available on the market is structured into different modules. Typical modules include accounting, human resources, manufacturing, and logistics. Each module is business process-specific, accesses a core/shared database, and can be considered a single application from both a user interface and software structure point of view. This structure enables users to develop module-specific competencies and vendors to swiftly modify software structure with new release updates. One of the major features of ERP software is the integration between modules, data storing/retrieving processes, and management and analysis functionalities. ERP provides the same functionalities of previous stand-alone systems while allowing access to enterprise-wide information by employees throughout the entire company on a controlled basis.

So ERP systems provide firms with the ability to integrate across functional areas and operations. As an example, SAP, the ERP with the largest market share, has a number of different modules including financial management, controlling, treasury, project system, production planning, plant maintenance, sales and distribution, human resources, and materials management. Rather than functioning as isolated or independent functional or operational activities, these modules are integrated so that when one piece of information is updated, each application has updated information. That single database with multiple views is generally regarded as one of the most important aspects of the system.

Perhaps the best known of the ERP systems include those known as the ERP “big four”: SAP, PeopleSoft, Oracle Applications, and J.D. Edwards. Other well-known systems include Lawson, Great Plains, and Platinum.

5. Conclusion

Cloud computing will stimulate the use of shared resources and will definitely reduce the cost. The authors predict that cloud computing in Jordan will grow, so we argue developers to take it into account and try to overcome the obstacles and issues that were discussed in this paper. Cloud computing in Jordan has helped some firms to establish an online e-learning service that helped employees to uncover the importance of significant information systems such as ERP, SCM, CRM and data management system.

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