Cloud computing: effectiveness, shortages and prospects for small businesses

Technology

Abstract

Cloud computing, in its present form, is a fairly new and evolving paradigm and as an industry it is showing huge growth potential. This is due mainly to the sheer attractiveness of providing very expensive server computingtechnologyto smaller businesses that find it completely impractical to invest in this type of infrastructure when their needs are, for the most part, sporadic with usage requirements that are difficult to forecast. It is also useful for the larger companies that have their own servers for day to day operations, but require increased computing power for relatively short periods of time in their business cycles (Chee & Franklin, 2010). The ability to pay for the services as required without the costly infrastructure expenses is a good business model.

Introduction

According to Antonopoulos & Gillam (2010), cloud computing is the technology behind multiple computers from any geographical parts of the world being connected and communicating real time through a network basically internet. This solution offers ease incommunicationbetween individuals, groups of people with common interest like organization and the whole population in general. Cloud computing supports services that are network based. The services appear to be provided by a physical hardware somewhere yet it is actually virtual but simulated by software that runs on one or more physical/real machines.

This report study discusses the issues in the cloud computing architecture, particularly in relation to its effectiveness, shortages and prospects for the small and medium businesses in supporting their internet-based businesses.

Cloud Computing: A Definition

The services offered by providers that deliver either hardware or software over the internet are referred to as cloud computing (Armbrust et al., 2010). Cloud computing provides business access to off-site resources that are efficient and agile (what is needed, when it is needed).

Marstona et al. (2011) define cloud computing as:

An information technology service model where computing services (both hardware and software) are delivered on-demand to customers over a network in a self-service fashion, independent of device and location. The resources required to provide the requisite quality-of-service levels are shared, dynamically scalable, rapidly provisioned, virtualized and released with minimal service provider interaction. Users pay for the service as an operating expense without incurring any significant initial capital expenditure, with the cloud services employing a metering system that divides the computing resource into appropriate blocks.

Mell & Gance (2011) of National Institute of Standards and Technology in the United States drafted a lengthy definition of cloud computing, including this first line:

As noted by Chee & Franklin (2010), cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of

configurable computing resources (e. g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

Body

Effectiveness

The potential for business growth will increase if more small and medium enterprises adopt cloud-computing technology. This virtual servers can be easily moved, scaled either up or down without actually affecting end users. Cloud computing enables sharing of resources achieving economies of scale and coherence. These resources are not only shared by a specified number of users since they are dynamically reallocated according to prevailing demand to promote efficiency and flexibility. Telecommunication is fore-front in embracing cloud computing where client-server models have been implemented enabling users to access, alter and make any changes on the same system simultaneously (Rittinghouse & Ransome, 2010).

One of the major advantage of cloud computing is reduced number of devices any organization can purchase and implement their IT systems. This saves the organization the heavy cost of infrastructure. Traditional complex and diverse architectures are simplified and optimized into a virtualenvironmentbasically from end to end. All applications can be supported in the same environment hence efficiency. The Unified Computer Systems greatly simplify and speed of accessing enterprise applications. Cloud data center provides fully embedded management of all hardware and

software components. Configuration of multiple servers in a cloud data center is easy and very fast (Chee & Franklin, 2010).

Armbrust et al. (2010) explain how a ' pay as you go' utilization of accessing an external server for utility computing makes more economic sense than tying up capital resources in a server that will be under-utilized much of the time. Cloud computing now permits a business to purchase server hours on demand and as needed, such as for peak load times or when the organization needs additional server time to perform batch analytics. In addition, when a business is unable to determine how much server time or capacity they may require (e. g., during a new Web startup), cloud computing does not require up-front commitments.

Shortages

The relative newness of this type of service, while highly beneficial, has the potential for huge risks for the customers including security risks. This paradigm is a network in which the primary users have minimal control of the structure, shared users, and overall security, particularly in relation to data that is processed or stored in the external servers (Samson, 2008).

While the benefits of cloud computing delivering business-supporting technology are vast, there are a number of issues and security challenges that must be acknowledged and addressed. Marstona et al. (2011) insist there is an " urgent need for understanding the business related issues surrounding cloud computing."

The Cloud Security Alliance (2013) and Samson (2013) identify and discuss nine top threats to security as a result of cloud security The ' Top Threats

Working Group' conducted a survey of industry experts and compiled a list of nine critical threats to cloud security (ranked in order of severity):

1. Data Breaches

2. Data Loss

3. Account Hijacking

4. Insecure APIs

5. Denial of Service

6. Malicious Insiders

7. Abuse of Cloud Services

8. Insufficient Due Diligence

9. Shared Technology Issues

Prospects for small businesses

Small businesses are constrained by the resources. Cloud computing will address issues of scalability and availability related to large scale applications storage and access. Small business can use cloud computing architecture to scale their business, increase productivity and efficiency of business processes. Small businesses will reduce operation costs of acquiring extra I. T resources. As concluded by Marstona et al. (2012), cloud computing offers ease management of business resources from a central point and low expenditure on I. T hardware and software. Cloud computing

will enable small business to accommodate the increase of data. Small businesses can manage cloud computing services from a single point and manage data load effectively.

Conclusion

Cloud computing is a new architecture in information technology. The architecture has given rise to the creation of storage and network systems which are reliable, scalable and available. The large self-managed storage servers minimise management headache and reduce overhead. The services delivered by a cloud computing architecture can be increased and decreased depending on the business needs of a small enterprise. Cloud computing is a valuable technology for small and medium sized businesses. It helps in providing affordable and effective IT infrastructure tools, making business processes to be more productive. Cloud computing helps small and medium business entities to minimise costs of acquiring technical equipment and in-house IT resources.

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