Chapter 15

A Conceptual Model for Cloud Computing Adoption by SMEs in Australia

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ABSTRACT

Cloud Computing is an increasingly important worldwide development in business service provision. The business benefits of Cloud Computing usage include reduced IT overhead costs, greater flexibility of services, reduced TCO (Total Cost of Ownership), on-demand services, and improved productivity. As a result, Small and Medium-Sized Enterprises (SMEs) are increasingly adopting Cloud Computing technology because of these perceived benefits. The most economical deployment model in Cloud Computing is called the Public Cloud, which is especially suitable for SMEs because it provides almost immediate access to hardware resources and reduces their need to purchase an array of advanced hardware and software applications. The changes experienced in Cloud Computing adoption over the past decade are unprecedented and have raised important issues with regard to privacy, security, trust, and reliability. This chapter presents a conceptual model for Cloud Computing adoption by SMEs in Australia.

INTRODUCTION

Cloud Computing is an increasingly important area in the development of business services. Gartner Consulting defines Cloud Computing as “a style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service using Internet technologies” (Plummer et al., 2009). Cloud Computing provides different types of services delivered under different deployment models on demand, and uses a pay-as-you-go method. Many developed countries are moving quickly to ensure the rapid adoption of Cloud Computing (Mudge, 2010).

In general, companies obtain Cloud Computing services (e.g. Software as a Service (SaaS)) from a Cloud Computing environment; they then have the opportunity to take advantage of new devel-
opments in IT technologies at an affordable cost. Therefore, Cloud Computing is a cost effective IT solution which can benefit small, medium and larger organisations as well as governments and public services. For example, economies of scale for data centers (facilities used to house computer systems and associated components) can deliver cost savings of 5 to 7 times compared to typical total costs of computing (Armbrust et al., 2010). Cloud Computing provides shared computing resources, software, storage and information on demand to Cloud Computing users.

“Cloud Computing” could potentially revolutionize the entire Information Communication Technology (ICT) industry (Tuncay, 2010). The actual size of the Cloud Computing market is unknown. WinterGreen Research (2010) estimated the global Cloud Computing markets at US$36 billion in 2008, and anticipated it would reach US$160.2 billion by 2015. Herhalt and Cochrane (2012) reported that the adoption of Cloud Computing in Australian organisations lagged behind the US levels by a year or more. A survey by Frost and Sullivan (2011) suggests that, in 2011, 43 per cent of businesses in Australia were using some form of cloud computing services, which was up from 35 per cent in 2010. In fact, the Australian Cloud Computing market is forecasted to reach US$3.33 billion in 2016 (Philsandberg, 2012).

SMEs play a critical role in any nation’s economy as it is the fastest growing sector of most economies around the world and represents a high portion of all businesses and GDP (Paik, 2011). Similarly, SMEs in Australia account for 95 per cent of all businesses (MacGregor & Kartiwi, 2010). With considerably lower start-up costs, Cloud Computing benefits SMEs and reduces their need to purchase an expensive array of advanced hardware technology and software applications (Sultan, 2010; Chang 2013). Cloud Computing is a novel business model in terms of economy and flexibility, which is particularly valuable for SMEs, as Cloud Computing can be adopted with limited investment in infrastructure (Mudge, 2010). Cloud Computing is commercially viable for many SMEs due to its flexibility and pay-as-you-go cost structure (Sultan, 2011), however, within the SME sector and despite potential benefits, the adoption rate of Cloud Computing is still relatively low in Australia compared to other countries in the Asian region (ACCA, 2012). This chapter presents a conceptual model for Cloud Computing adoption by SMEs in Australia. The issues of Cloud Computing adoption are explored within the chapter with the aim of identifying likely key factors that motivate or inhibit its use by SMEs. A further overarching research objective is to design and propose a model suitable for the adoption of Cloud Computing by SMEs in Australia by looking at the motivators and inhibitors of Cloud Computing adoption.

BACKGROUND

Cloud Computing Overview

Cloud Computing extends the current use of Information Technology as a service over the network, especially through the Internet (for instance, Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS). Its major goal is reducing the cost of IT services while increasing efficiency, flexibility, reliability, availability and processing. Cloud Computing has been defined differently by industry experts and researchers. So, the definition of Cloud Computing is also “Cloudy”.

The National Institute of Standards and Technology (NIST) proposed a definition for Cloud Computing, “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. This Cloud Computing model promotes availability and is composed of five essential characteristics