Chapter 81

A Hybrid Cloud Model for Cloud Adoption by Multinational Enterprises

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ABSTRACT

As a new IT paradigm for users, cloud computing has the potential to transform the way that IT resources are utilized and consumed. Many multinational enterprises (MNEs) are interested in cloud computing but do not know how to adopt and implement cloud computing in their enterprise settings. In an effort to help MNEs understand cloud computing and develop successful enterprise adoption strategies for cloud computing, the authors propose a hybrid cloud model for MNEs and illustrate the utility of this model by using two case studies. Insights for adopting and implementing this model in international settings are provided as well.

1. INTRODUCTION

Cloud computing has recently attracted significant attention by academia, industry, the government, and the military. Many organizations are turning toward actual cloud adoption and deployment. The research firm IDC (2013) predicted that that the worldwide cloud services market will be worth more than $107 billion by 2017. Cloud computing is the Internet- ("cloud-") based development and use of computer technology (Lin, Fu, Zhu, & Dasmalchi, 2009; Sultan, 2011). Cloud computing describes a new supplement, consumption, and delivery model for IT services based on the Internet, and it typically involves the provision of dynamically scalable and often virtualized resources as a service over the Internet (Gruman 2009; Zhang, Cheng, & Boutaba, 2010). In general, cloud computing refers to a new IT paradigm for users (Voas & Zhang, 2009) who can access data whenever and wherever they want.

Cloud computing has the potential to be the next major driver of business innovation, since it promises to enable new business models and services across almost all industries (IBM, 2009; Armbrust, 2010; He, Cernusca, & Abdous, 2011; Iyer & Henderson, 2012; Kuo, 2011; Wang, He, & Wang, 2012; Weinhardt et al., 2012; Xu, Xu, & Basl, 2012; Yang & Tate, 2012).

Although cloud computing is a popular topic in media and is gaining rapid adoption by small and medium-sized enterprises (SMEs), large enterprises such as multinational enterprises (MNEs) have been relatively slow to adopt cloud computing (Staten, 2008; Loebbecke, Thomas, & Ullrich, 2012). A survey (F5 Networks, 2009) examining the adoption of cloud computing by enterprise IT managers reveals that more than 80 percent of respondents from large enterprises are interested in cloud computing deployment. Despite this strong interest, many MNEs do not have a good understanding about how to adopt and implement cloud computing in their international settings. Confusion still remains about exactly what cloud computing really means (F5 Networks, 2009; IBM, 2010; Madhavaiah, Bashir, & Shafi, 2012), when it is useful (Armbrust et al., 2010), and how to build the infrastructure behind the cloud (F5 Networks, 2009). Few studies have been conducted to examine the adoption and implementation of cloud computing for MNEs from both the international business perspective and the international information systems perspective. Despite the growing acceptance of cloud-based services in a wide range of industries, guidelines and strategies regarding the adoption and implementation of cloud computing for MNEs are still lacking. To help MNEs reduce their concerns and better adopt cloud computing, this paper examines the literature in the areas of international business, international information systems, and cloud computing to come up with an adoption model and associated guidelines. On one hand, theories developed in international business can be useful in providing guidance for strategic planning and analysis of information systems in international settings. On the other hand, technical solutions, strategies, and architectures in international information systems and cloud computing can offer directions for technology adoption and implementation in international settings. Important lessons can be learned by examining the implementation of international information systems for MNEs. Particularly, in the past three years, many large technology-based companies such as IBM, Intel, HP, Dell, Infosys, Amazon, and Microsoft have announced their cloud computing strategies, architectures, and solutions for large enterprises in the form of white papers or technical documents. A review of these white papers and technical documents can help discover some insights that can lead to new strategies for the adoption of cloud computing in multinational settings.

During the past decade, little research has been done on Internet-based information technologies for MNEs in international settings. According to Lehmann and Gallupe (2005), over the last 30 years, less than 1% of published IS studies are related to information systems in international settings. Thus, research on cloud computing in international settings is critically needed as cloud computing market continues to grow. Our paper proposes a cloud adoption model for MNEs and offers useful guidelines to help MNEs adopt and implement cloud-based services across country boundaries based on the literature review in purposefully selected areas. As exploratory research, this paper contributes to the literature of cloud computing and international information systems by extending our understanding of cloud adoption by MNEs in the international context. We hope to assist CIOs and IT managers of MNEs to integrate cloud computing as a part of their IT strategy planning. It is also our hope that this paper will induce more research on cloud adoption and implementation issues in an MNE environment.

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