Cloud Computing in Local Government: From the Perspective of Four London Borough Councils

Jeffrey Chang, Faculty of Business, London South Bank University, London, UK
Mark Johnston, Metropolitan Police Service, Kent, UK

ABSTRACT

Although there is no precise definition, cloud computing refers to a scalable network infrastructure where consumers receive IT services such as software and data storage through the Internet on a subscription basis, like traditional utilities. Potential benefits include cost savings, simpler IT, and reduced energy consumption. The UK government and local authorities, like commercial organisations, are considering cloud-based services. However, concerns have been raised over issues such as security, access, data protection, and ownership. This paper investigates the likely impact of cloud computing on local government based on a conceptual framework and case studies of four London borough councils. It reveals that the concept of cloud computing is new and not clearly understood. Local authorities, who in the current economic downturn face further cuts in government funding, welcome a cloud-based IT infrastructure which may lead to considerable savings. Yet with their risk-adverse attitude local authorities are more likely to adopt a hybrid approach to implementation. Concerns over data security and privacy may be overcome if relevant laws and standards are complied with.

Keywords: Business Process Change, Cloud Computing, Data Protection and Data Privacy, G-Cloud, Government Information Technology, Information Technology (IT) Innovation, Local Government

INTRODUCTION

Cloud computing is held to offer advantages to organisations such as cost savings, scalable computing services, simpler IT infrastructure and reduced energy consumption. In response to declining IT budgets and the lack of adequate skills, and as part of the e-Government agenda, cloud-based delivery models are rapidly gaining attention by government IT leaders. Software applications, hardware, infrastructure, platforms, services and storage or whether the government should develop its own cloud are key issues that require careful consideration. Key concerns relate to the security and ownership of data, potential impact on employment and the structural and cultural implications of moving to cloud provision. As yet, little research has been carried out on the implications for local government. This paper, based on a conceptual framework and four case studies of London-based borough councils, attempts to
explore the likely impact of cloud computing use within local authorities.

THE CONCEPT OF CLOUD COMPUTING

Cloud computing is a style of computing where IT capabilities are provided as a service delivered over the Internet to a customer’s workplace, similar to utilities such as water and electricity which are ‘piped’ to the customer’s premises. Although there is no universally agreed definition, cloud computing has five key attributes according to a group of researchers at Gartner: service-based, scalable and elastic, shared, metered by use and using Internet Technology (Plummer et al., 2009).

The key advantages of cloud computing are held to be reduced costs, increased efficiency and a significant reduction in energy consumption leading to cost savings and greener IT (Foster, Zhao, Raicu, & Lu, 2008; Vaquero, Rodero-Merino, Caceres, & Lindner, 2008; Aymerich, Fenu, & Surcis, 2009; Grossman, 2009; Korri, 2009; Maggiani, 2009; Nelson, 2009). For potential customers cloud computing presents an attractive alternative to building their own computing infrastructure (Korri, 2009). In the Digital Britain (2009) report, the UK government sees the adoption of cloud computing as critical to the success of its plans to increase efficiency in the public sector.

In the private sector, concerns have been expressed both about the security of data management and loss of organisational control of a key resource (Buyya, Yeo, & Venugopal, 2009; Grossman, 2009). The confidential and sensitive nature of data stored in the public sector makes this issue particularly sensitive (Nelson, 2009).

THE CONCEPTUAL FRAMEWORK FOR IMPLEMENTING CLOUD COMPUTING IN LOCAL GOVERNMENT

The conceptual framework (Figure 1) draws on two models for analysing the change process: Lewin’s model (Lewin, 1947) and PEST. Key issues of cloud computing are outlined using the PEST framework (political, economical, social and technological) to give the general background and the relevance of cloud computing for government organisations. Through

Figure 1. A conceptual framework of implementing cloud computing in local government (Chang, 2011)
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