Chapter 14

Cost Benefits of Cloud Computing for Connected Government

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ABSTRACT
Adoption of cloud computing is on the increase mainly to take advantage of the benefits offered and the potential utilization of the paradigm in implementing connected government (c-government) systems. Although, world governments have already recognized the usefulness of c-government in improving communication and coordination, service delivery, transparency and citizen’s engagement, they need to also realize the recent development of cloud computing models in order to develop a proper strategy to incorporate cloud computing in implementing c-government. This chapter aims to discuss how c-government can benefit from the recent progress of cloud computing. Of course, cloud computing also brings some challenges. In this context, this chapter first presents the benefit and challenges of cloud computing for c-government implementation and then discusses the cost benefit of cloud computing for c-government and total cost ownership of cloud computing based systems. The chapter also highlights best practices and a migration strategy.

INTRODUCTION
Cloud computing has been gaining popularity in the last few years. This can be seen by the adoption of cloud computing in many sectors. Gartner (2012) forecasts that the adoption of cloud computing will hit $250 billion by 2017. This sets out the tremendous growth and potential utilization of cloud computing. Similarly, utilization of cloud computing for electronic government (e-government) has been growing in most countries around the world and governments have started to capitalize on the cloud. For example, the US government will spend $1.7 billion on private clouds in 2014, with a projected estimate of $7.7 billion for the year 2017 (International Data Corporation, 2013).

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E-government refers to delivering government services and information to citizens and other stakeholders through the Internet, especially through the world wide web (the Web) (Ronaghan, 2002). A similar but more thorough concept is c-government where technology is seen as a strategic tool and enabler. According to United Nations (2008), “The concept of connected government is derived from the whole-of-government approach which is increasingly looking towards technology as a strategic tool and as an enabler for public service innovation and productivity growth”.

Governments around the world are adopting c-government albeit at different levels as shown in UN’s e-Government Readiness Index. The index is a comparative ranking of the countries of the world according to two primary indicators: 1) the state of e-government readiness; and 2) the extent of e-participation. The ranking of the countries changes due to the progress of the countries surveyed.

The users of c-government are government agencies, citizens, business sector and the enterprises. Government agencies (government for short) normally interact either with other government agencies, citizens, businesses or with enterprises to perform various tasks and provision various services. Smitha, Thomas, and Chitharanjan (2012, p. 3817) present four categories of interaction as follows:

1. Government to Government (G2G) – This is interaction between different government agencies. This supports the exchange of information, decision making, fund transfer, shared services, revenue and law enforcement between the inter organisations.
2. Government to Business (G2B) – This is interaction between the government and businesses. This provides the services like registration, tax, filling, transactions and payments of which businesses should be aware.
3. Government to Citizens (G2C) – This refers to interaction between the government and citizens. This provides support for services like registration / land / revenue services, agricultural services, employment and others.
4. Government to Enterprises (G2E) – This is interaction between the government and enterprises. This supports some enterprises like water board, electricity board etc. The government of which some policies and standards are to be enforced controls this.

Cloud computing can support the above four categories of interaction in c-government. In addition, cloud computing provides a platform for efficient deployment of connected government (c-government) systems, where numerous government agencies and other entities mentioned above are connected to the cloud via the Internet.

There is the obvious benefit of cloud-based c-government as government outsource ICT resource to cloud providers, simplifying the overall c-government system (Almunawar & Almunawar, 2014). This means that the government can focus on more important things, such as improving efficiency of governmental processes and providing better services to citizens or other entities. There are some benefits of cloud computing mentioned in the literature that can be applied to c-government system too, such as data scaling, auditing and logging, rolling out new instance, replication and migration, disaster recovery, performance and scalability, reporting and intelligence, policy management, systems integration and legacy software and migration of new technologies, low maintenance and availability (Smitha et al., 2012). These benefits or advantages will be discussed later in this chapter.

The utilization of cloud computing will save money as ownership of ICT resources that can be expensive is not necessary. Governmental budget for ICT expenditures could be decreased by adopting cloud computing (Wyld, 2009). It is important to note that maintenance of ICT resources is the respo-
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