

Chapter 85

Cloud Computing in the 21st Century: A Managerial Perspective for Policies and Practices

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ABSTRACT

The constant changes in technology has posed serious challenges to top management teams, employees, and customers on how to collect, store, and process data for competitive advantage and to make better decisions. In this chapter, to address this issue, we present the managerial perspective of cloud computing that provides the infrastructure and/or tools for decision making in the 21st century. Since the year 2000, the interest in cloud computing has had a steady increase. (Mason, 2002) Not only has cloud computing substantially lowered computing costs for corporations, it continues to increase their abilities for market offerings and to access customers' information with ease. Cloud computing has allowed managers to focus more on their business plans and bottom line to enhance competitive advantage.

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INTRODUCTION

The constant changes in technology has posed serious challenges to top management teams, employees, and customers on how to collect, store, and process data for competitive advantage and to make better decisions. To address this issue, we present the managerial perspective of cloud computing that provides the infrastructure and/or tools for decision making in the 21st century. Since the year 2000, the interest in cloud computing has had a steady increase. (Mason, 2002) Not only has cloud computing substantially lowered computing costs for corporations, it continues to increase their abilities for market offerings and to access customers' information with ease. Cloud computing has allowed managers to focus more on their business plans and bottom line to enhance competitive advantage.

Imagining the Internet, we often think of a big cloud connected to network maps. Prior to the popularity of cloud computing, these network maps occupy physical spaces and would show routers, servers, users, mainframes, etc., connected to the Internet, which was represented by the big cloud. The cloud was also a representation of "everything else" that was on the Internet, outside of the corporate network. Essentially, cloud computing can employ processing power, storage, applications, cost efficient, almost unlimited storage space, easy access to information, and various services over the Internet. Cloud computing has become the way of organizing the "everything else" (i.e., data collection, data use, data storage, data processing, and so forth) on the Internet.

For cloud computing, the data storage and processing is done on a remote server. This means that the users don't have to install any software, store any data, or run programs, allowing for applications to be ran on a web browser. Thus, allowing users to access the information with ease from any part of the world. Most people using the Internet have likely used cloud computing. For example, most popular email providers like Gmail, Hotmail or Yahoo mail are all examples of cloud computing. This is also referred to as Software as a service (SaaS), or on-demand software that allows users to access applications over the Internet through automatic software integration. Hence, as long as the user has access to the Internet, they can connect to their applications and online data.

History and Evolution

The history of cloud computing can be dated back almost as early as computers themselves, when the ability for computers to connect through a mainframe was first introduced in academia and business corporations during the 1950s. At this time these terminal computers, or "static terminal" were only able to communicate, but did not possess any processing abilities relating to data collection, data storage, and data use for competitive advantage. These large-scale mainframes were very costly, occupies lot of space, produce lot of heat, and to improve cost efficiency and space availability users shared devices as well as time on the CPU-Central Processing Unit- so the devices were constantly being used. This practice became known in the industry as time-sharing, but in the 1970s was known as RJE-Remote Job Entry (Weik, 1961).

It was in the 1960s that John McCarthy stated that computation would be available to public someday to improve data collection and usage (Simson, 2011). It wasn't until the 1990s that telecommunication companies began offering Virtual Private Network (VPN) services to save cost. A VPN allows users to send private information and data across a public network, through means like encryption that would protect the information as though it were on a private network. However, it would have the benefit of superior functionality and services of a public network (Mason, 2002).

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