

Chapter 4

Cloud Computing Implementation Level in Portuguese Companies

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ABSTRACT

The Information Technology (IT) has suffered many advances in recent years due to the development of new hardware and software solutions. These major changes have been noted in recent times in how we interact with applications and services in IT. Cloud computing provides services and applications over the Internet with the promise of infinite capacity and service models of “pay-as-you-go”. In this chapter we describe the main characteristics of Cloud computing, future expectations and analyzes the state of knowledge and implementation in Portuguese companies.

INTRODUCTION

In the society of the twenty-first century, technology is constantly evolving, with a production and sharing information as never seen before. With a view to preserving and sharing such information, companies turn to technology as support equipment, because never like today was the processing power of computers so great and telecommunications links were so cheap and reliable, never like today was possible to store so much information in so little space.

The IT sector is one that undergoes more changes and evolves more rapidly in a short period of time. The requirements that are beginning to emerge are increasingly diverse and technologies have covered more areas. When the business needs begin to emerge in greater quantity, companies have to keep pace with the evolution and are thus more competitive.

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This is a relatively new technology, and there is still some confusion with other currently available technologies such as Grid Computing and Virtualization. Initially, this confusion is acceptable, since the Cloud computing takes advantage of the specific features of those two technologies, but it goes further.

Currently there is no consensus on the definition of Cloud computing, however it is commonly agreed that the definition made by the National Institute of Standards and Technology is the closest and the more accurate. NIST defines Cloud computing as "a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction. For Gartner (the world's leading research and advice on Information Technology): *"Cloud computing is a style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service to external customers using Internet technologies."* (Gartner, Inc., 2011)

In a more detailed description, Cloud computing refers to the access of computing resources that are generally owned and operated by an external supplier with a well-established infrastructure in multiple data centers. These vendors have a set of resources that can be used on the form of pay-as-you-go, leading to a minimum initial investment and can go up and down according to the needs of the organization. All services are delivered over the Internet and users don't have to know how it works or how they are deployed, they only need to know how to use it and how much it costs.

This chapter aims at an introduction to Cloud computing, talking about the technologies that preceded it, its main characteristics and conducts an assessment to the level of implementation in the Portuguese companies.

OVERVIEW

Until the emergence of Cloud computing, other technologies, each with its own specificities, were already used separately or together so that organizations were able to optimize their IT resources.

Cloud computing appears as a combination of all of these technologies, gathering from them some major capabilities in order to give users a better experience. And to accomplish that, Cloud computing is composed by five essential characteristics, three models of service and five deployment models.

MAJOR TECHNOLOGIES

The evolution of computing has suffered some changes through out the years. At some point of this evolution some other technologies were born and used. To help understand the importance of our current transition into a computing world dominated by Cloud computing, it was important to mention them.

VIRTUALIZATION

Virtualization is one of those technologies, consisting of the technique used to hide the physical characteristics of computing resources so that other systems, applications or end users can interact with these features. It was implemented by IBM in 1972 with the system 370. This was the first commercial computer entirely designed for virtualization, with the operating system CP / CMS, allowing running multiple instances simultaneously. (IBM, 2010)

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