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The Use of Cloud Computing in SMEs

Dario Assante^a, Manuel Castro^{b*}, Ileana Hamburg^c and Sergio Martin^b

^a *Università Telematica Internazionale Uninettuno, Corso Vittorio Emanuele II 39, Rome I-0086, Italy*

^b *DIEEC – UNED, Juan del Rosal, 12, Ciudad Universitaria, Madrid 28040, Spain*

^c *IAT, Westfälische Hochschule GE, Gelsenkirchen 45886, Germany*

Abstract

Small and medium sized enterprises (SMEs) assure economic growth in Europe. Generally, many SMEs are struggling to survive in an ongoing global recession and are often reluctant to release or pay for staff training. Cloud Computing offers many opportunities and could help companies to improve their business and use technology more efficiently. In this chapter, learning methods particularly E-Learning in European SMEs is described in part 1. In this paper a short presentation of Cloud Computing and advantages for SMEs (part 1), the objectives of the European project IN-CLOUD (part 2) and the work in progress within this project are presented.

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* Corresponding author. Tel.: +34-91-398-6476;
E-mail address: mcastro@ieec.uned.es

1. Introduction

Small and medium sized enterprises (SMEs) assure economic growth in Europe. In the European Union 28 (EU28), in 2013 some 21.6 million SMEs employed 88.8 million people and generated 3.666 trillion in values added¹. The last financial crisis and the economic recession have hit SMEs hard in the EU28 and the economic conditions remain difficult.

Cloud Computing offers many opportunities and can help companies improve their business and use technology more efficiently. Marston et al² define Cloud Computing as “an information technology service model where computing services (both hardware and software) are delivered on-demand to customers over a network in a self-service fashion, independent of device and location”. Agility, elastic scalability, low costs are some benefits of using Cloud Computing; data can be moved smoothly without boundaries.

Recent studies emphasise the potential cloud computing prides on in terms of boosting SMEs’ growth and encouraging entrepreneurial practices at all levels. Still, market trends indicate European SMEs are not making the best of the cost-effective solutions cloud computing has to offer. Smaller businesses can avoid large investments into hardware and software, entering the market more easily due to the cost-efficient, integrated cloud computing services. Universities themselves can greatly benefit from cloud computing, as its storage capacity and economic viability ensure more efficient research management techniques in all fields (business, medical, scientific etc.). Cloud computing is thus an optimal solution for the innovation-driven alliance between universities and companies.

While cloud computing arises a great interest in the corporate sector, several researches evidence a lack of professionals able to work in this field. According to the analyst firm IDC³, in 2012 more than 1.7 million cloud computing jobs have remained unoccupied and the trend should lead to more than seven million cloud-related vacancies worldwide in 2015.

The European Commission has started several initiatives supporting the investment in entrepreneurship-boosting Information and Communication Technologies (ICT) and, more specifically, in September 2012 has adopted a strategy for “Unleashing the Potential of Cloud Computing in Europe”. The European Cloud Computing Strategy⁴ includes three key actions; the most relevant is the creation of a “European Cloud Partnership” providing strategic options to turn cloud computing into an engine for sustainable economic growth, innovation and cost-efficient public and private services.

The main aim of this paper is to analyze the survey results obtained from different stakeholders of 7 European countries to identify a set of topics where there is a relevant lack of knowledge and there is a need to improve skills or opportunity to create new competences.

In this paper after a short presentation of Cloud Computing and advantages for SMEs (part 1) the objectives of the European project IN-CLOUD (part 2) and the work in progress within this project are described.

2. State of the Art

The NIST (National Institute of Standards and Technology) definition of Cloud Computing is as follows⁵: “Cloud computing is 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”.

Useful characteristics of Cloud Computing^{5, 6} for SMEs are: On-demand self-service, broad network access, resource pooling, rapid elasticity and measured service. Cloud can have any of the four types of access: Public, Private, Hybrid, and Community.

Service Models are the reference models on which the Cloud Computing is based. These can be categorized into three basic service models as listed below⁵:

- Cloud Software as a service (SaaS). Cloud Service Providers (CSP) applications running on a Cloud infrastructure are accessible from various client devices through a thin client interface such as a web browser.
- Cloud Platform as a service (PaaS). The user develops on the Cloud infrastructure or acquires applications created using programming languages and tools supported by the provider.

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