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The Architecture and Analysis of a New Cloud Collaborative Commerce Model

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ABSTRACT

Cloud Computing IT infrastructure has the potential to be particularly suitable for collaborative commerce (c-commerce) applications; because it generally requires less efforts and interferences for development, customization, integration, operation, and maintenance than other traditional IT infrastructures (e.g., on-premises and data centers). However, upgrading c-commerce applications running on traditional IT infrastructures, to run efficiently on cloud computing infrastructure, faces a number of challenges, mainly, lack of effective and reliable architectural model. This paper presents a description of a new architectural model for developing cloud computing based c-commerce applications; which is denoted as cc-commerce model. The model is an basically based on the standard cloud computing model, and it consists of six main components; these are: client, provider, auditor, broker, security and privacy, and communications network. The new model is implemented in a simple and flexible Web-based test tool, namely, the cc-commerce test (3CT) tool, which is used to evaluate the performance of the model through measuring the response times for four different configurations. The analysis of the obtained results demonstrates that the cc-commerce model can provide better response time than equivalent c-commerce models.

Keywords: Cloud Collaborative Commerce, Cloud Commerce, Cloud Computing, Collaborative Commerce, Electronic Commerce

1. INTRODUCTION

Electronic commerce (e-commerce) is one of the fastest growing applications for the Internet, which represents the sales aspect of electronic business (e-business) (Schneider, 2010; Turban, 2010). E-commerce is about performing transactions on the Web, such as purchasing and selling products, procurement, supply chain management, and training. While these fields have evolved somewhat independently over the past few decades, they have a lot to contribute to each other, i.e., collaborate. Organizations have realized that effective collaboration is a key to