e-Wedding Based on Multi-agent System

Kobkul Kularbphettong, Gareth Clayton, and Phayung Meesad

Abstract. Multi-agent system is continuously utilized in e-Business that want to improve responsiveness and efficiency of systems. In this paper, we propose multi-agent-system and various techniques that are Web service, ontology, and data mining techniques. The multi agent system, which constitutes the backbone of the framework, connects these pieces together and makes them perform properly. JADE is the MAS platform implemented this project. JADE is quite easy to learn and use. Moreover, it supports many agent approaches such as agent communication, protocol, behavior and ontology. This framework has been experimented and evaluated in the realization of a simple, but realistic, prototype of an e-Wedding system. The results, though still preliminary, are quite encouraging.

Keywords: multi-agent system, Web services, ontology, data mining techniques, JADE, e-Wedding.

1 Introduction

Nowadays, the explosion of Internet and the grown-up of e-Commerce have rapidly changed the traditional business operation. Electronic Commerce, commonly known as e-commerce or eCommerce is the development and deployment technology of the commercial transactions electronically so as to meet the ever-growing demands of the modern life. Based on web-based business, the wedding business is one of the important businesses that it be huge and still rapidly expanding. Booming of wedding business has also propelled the enhance of hotels, wedding studios, car hiring companies, flower shops, music, travel agencies, and even media businesses. Due to overwhelming information widely spread on internet and real world environments, it is very time consuming for couple to search appropriate information. Moreover, almost successful e-Commerce systems are still handled by humans to make the important decisions. Therefore, with vastly developed advance mechanisms, in this paper we propose the framework of e-Wedding business applied various approaches like multi-agent, web services, ontology, and data mining techniques.

The remainder of this paper is organized as follows. Section 2 discusses about related literatures and research works. Section 3 presents the methodologies used in this work. Section 4 implements the purposed model with a multi-agent

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framework. This prototype demonstrates the whole idea of adapt multi-agent in e-Wedding. Finally, we conclude the paper with future research issues in section 5.

2 Related Works

A literature search shows that most of the related researches have been deployed multi-agent to develop e-Commerce in various techniques by following this:

According to [1], they showed a prototype of the system using the JADE platform in the context of travel industry. Furthermore, other research works show that agent technologies are deployed as a significant tool for developing e-Commerce applications [2]-[7]. Hence, multi-agent technology, a promising approach, trends to handle internet transaction for customers.

Moreover, other researchers propose an agent-based framework representing in various ways.[8]-[11],[14] For instance, A.Negri, A. Poggi, M. Tomaiuolo, P. Turci [12] integrated the agent technology with other key emerging technologies like semantic Web, Web service, rule engine and workflow technologies and KODAMA [13] is another system based on a multi-agent system and leveraged the Semantic Web services.

From previous literature works, it appears that there are many research studies exploiting various techniques blended with multi-agent technology. Therefore, in order to success on e-Commerce, agent should have abilities to perform as a behalf of user to handle with business tasks such as planning, reasoning and learning. Data mining techniques is the important way to make a reason for agent under uncertainty and with incomplete information situations.

3 The Methodologies

3.1 Multi-agent Systems

Agent is the software program that enables to autonomous action in some environment so as to meet its design objectives. According to N. R. Jennings and M. Wooldridge [15], the essential characters of each agent are following: reactive, pro-active, autonomous, object-oriented and social ability. Each agent can play as a behalf of the user and execute the particular task. However, in open and dynamic environment like internet, a multi-agent system is one of the important means to help reduce cost, increase efficiency, reduce errors and achieve optimal deal.

There are two issues related to the design of MAS: Agent Communication Language and agent development platform. The former concerns with the message interchange between different agent such as KQML, and FIPA ACL. The latter is related with the platform development to provide an effective framework, such as IBM Aglets, ObjectSpace Voyager and etc, for the dispatching, communications, and management of multiple agents in the open and dynamic environment. For