

# Planning and design on an agent model for cloud service system

鍾立勳、楊豐兆

E-mail: 345154@mail.dyu.edu.tw

## ABSTRACT

Cloud computing is a very popular topic in recent years, not just caused a trend in the IT industry, but also caused fervently discussion in other industries. It is changing use computers' habit for humans, also bring vast business opportunities. For the development of cloud computing, most of technology companies are actively involved to provide various services to users. However, this situation will make the expansion and flooding of cloud services, even the possibility of overload. So, how to find the cloud services that matches user requirements will be a great challenge for user. In this paper we present Cloud Service Agent System (CSAS) framework used by software agents technology, it can help user to find the cloud services that matches user requirements from a large number of cloud services. Users send the service request by interface to CSAS, after process of search, recommendation, and selection, CSAS to provide users the suited cloud services. The contributions of this paper are (1) presenting Cloud Service Agent System framework: We use the development methodology of agent - PASSI Methodology to analysis and design of our system, and use agent technology to combine with existing public cloud services. (2) Using Cloud Service Agent System to recommend cloud service: The purpose of the system is providing the cloud service that matches user requirements, and through recommendation mechanism user can find the cloud services that matches user requirements.

Keywords : Cloud Computing、Agent、PASSI Methodology、Google Cloud Service

## Table of Contents

中文摘要	i	英文摘要	i
ii 致謝		iii 內容目錄	
iv 表目錄		vi 圖目錄	
vii 第一章 緒論	1	第一節 研究背景與動機	1
1 第二節 研究目的	3	第三節 論文研究	3
流程	4	第四節 論文架構	6
討	7	第一節 雲端運算	7
Google API	10	第二節	7
第四節 代理人系統開發方法論	16	第三節 軟體代理人	12
20 第三章 系統需求分析	22	第五節 推薦系統	12
22 第二節 系統需求模型	24	第一節 系統架構	12
31 第一節 代理人社群模型	31	第四章 系統架構分析與設計	12
型	36	第二節 代理人實作模	12
模型	42	第三節 編碼模型	12
開發工具與平台	44	第五章 系統實作	12
第三節 系統操作畫面	47	第一節	12
53 第六章 結論	57	第二節 JADE 代理人實作平台	12
57 第二節 未來研究方向	57	第四節 系統評估	12
59	57	第一節 研究貢獻	12
		參考文獻	12

## REFERENCES

- Armbrust M., Fox A., Griffith R., Joseph A.D., Katz R., Konwinski A., Lee G., Patterson D., Rabkin A., Stoica I., and Zaharia M. (2010, April). Above the Clouds: A Berkeley View of Cloud Computing. A view of cloud computing. Communications of the ACM. Vol. 53, Issue 4. Cossentino M. & Potts C. (2002). PASSI: a Process for Specifying and Implementing Multi-Agent Systems Using UML. Foster I., Zhao YI., Raicu I., & Lu S. (2008). Cloud Computing and Grid Computing 360-degree compared. Grid Computing Environments Workshop. pp. 1 – 10. Gediminas Adomavicius and Alexander Tuzhilin, " Toward the Next Generation of Recommender Systems: A Survey of the State-of-the-Art and Possible Extensions ", IEEE Educational Activities Department, 2005. Huhns M.N. (1994). Agent Societies: Magnitude and Duration. IEEE Internet

Computing. vol. 6, no.1, pp.48-53. Ivaan Cantador<sup>1</sup>, Miriam Fernandez<sup>1</sup> and Pablo Castells<sup>1</sup>, “ A Collaborative Recommendation Framework for Ontology Evaluation and Reuse ” , Universidad Autoonoma de Madrid, Spain, 2006. Luck M., Ashri R., & D'inverno M. (2004, February). Agent-based Software Development. Mell P. & Grance T. (2009). The NIST Definition of Cloud Computing. Version 15. Nwana H. S. (1996). Software Agents: An Overview. Knowledge Engineering Review. Vol. 11, No. 3, pp. 1-40. Russell S. & Norvig P. (1995). Artificial Intelligence: A Modern ApproachH. Prentice Hall. S.M. Han, M.M. Hassan, C.W. Yoon & E.N. Huh (2009),Efficient service recommendation system for cloud computing market, Proceedings of the 2nd International Conference on Interaction Sciences Information Technology Culture and Human ICIS 09, pp.839-845. Wooldridge M., Jennings N. R. and Kinny D. (2000). The Gaia Methodology for Agent-Oriented Analysis and Design. In Journal of Autonomous Agents and Multi-Agent Systems. Vol. 3, pp. 285-312. Google API 大全編委會. (2010). Google API 大程式設計開發實例, 台北:松崗。 Kyle. (2010, June 29). 2010年全球雲端服務市場將超越680億美元, 科技產業資訊室。 楊之瑜、林俊劭. (2009, November 9). 雲端運算為何改變10億人, 商業周刊。 <http://www.nownews.com/2009/11/09/91-2529324.htm> 經濟部. (2010, April 29). 雲端運算產業發展方案。 劉家驊、洪士凱. (2010). 雲端運算資料安全防護機制之研究, 2010電腦視覺、影像處理與資訊技術研討會。 蔡維、楊豐兆(2007), 個人化研討會發佈與推薦管理系統, 商管科技季刊, 10卷1期, pp.145-177。 鄭景俗、陳智賢、蘇勇戩(2008, September), 基於模糊權重資訊檢索整合技術之推薦系統. Journal of e-Business. 第十卷. 第三期. pp. 781~804. 鍾政憲. (2004). 以代理人社群為基礎的主動式知識服務推薦系統之分析與設計, 2004 數位生活與網際網路科技研討會。 竇其仁、林志敏、林正敏 (2005)。網路代理人, 台北:知城數位科技股份有限公司。