

網路服務與智慧型代理人社群協同合作之研究

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摘要

邁入整合異質性系統平台的時代，使用XML技術發展的網絡服務(Web Services)逐漸重要。本論文目的是將代理人社群(agent society)的協同合作機制應用於網絡服務架構，進而提昇服務的重複使用率。本研究透過註冊中心代理人(RCA)、服務提供代理人(SPA)與服務索取代理人(SRA)在網絡服務架構中協助服務的發掘、呼叫與組合。當新的服務被部署，註冊中心代理人會根據提供者與索取者事先設定的資訊，將適當的服務資訊傳送給需求者。透過建置網路書局的實證，使用者確實可以便利的發掘所需書籍資訊。本研究建置的WSIAF系統，具體貢獻如下：(1)結合網絡服務與智慧型代理人社群兩個異質性平台；(2)服務提供者透過系統的協助，可以方便的完成服務提供並且註冊服務；(3)服務索取者可以在註冊中心取得服務描述檔後，直接與服務提供者建立聯繫並且取得服務。

關鍵詞：網絡服務、代理人、代理人社群、網絡服務描述語言

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參考文獻

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2. 伍石能，運用智慧型代理人編製網路教案初探-國中生活科技為例，中山大學資訊管理研究所碩士論文，(2001)。
3. E. Newcomer, Understanding Web Services: XML, WSDL, SOAP, and UDDI, HK: Pearson, 2002.
4. F. Curbera et al., "Unraveling the Web services web: an introduction to SOAP, WSDL, and UDDI," Internet Computing IEEE, Vol. 6, No. 2, pp. 86-93, Mar/Apr 2002.
5. G. Steve, S. Simeon and B. Toufic, Building Web Services with Java Making Sense of XML, SOAP, WSDL, and UDDI, USA: SAMS, 2001.
6. T. Jepsen, "SOAP cleans up interoperability problems on the

Web," IT Professional, Vol. 3, No. 1 , pp. 52-55, Jan/Feb 2001. 7. R. Perrey and M. Lycett, " Service-Oriented Architecture," in Proceedings Applications and the Internet Workshops 2003, pp. 116-119, Jan. 2003. 8. B. Benatallah, Q. Z. Sheng and M. Dumas, " The Self-Serv environment for Web services composition," Internet Computing, IEEE, Vol. 7, No. 1, pp. 40-48, Jan. 2003. 9. T. M. Chester, " Cross-platform integration with XML and SOAP," IT Professional, Vol. 3, No. 5, pp. 26-34, Sep. 2001. 10. R. V. Engelen, G. Gupta and S. Pant, " Developing Web services for C and C++," Internet Computing IEEE, Vol. 7, No. 2, pp. 53-61, Mar. 2003. 11. M. Ouzzani and A. Bouguettaya, " Efficient access to web services," Internet Computing IEEE, Vol. 8, No. 2, pp. 34-44, 2004. 12. M. Pierce and G. Fox, " Computing, Making scientific applications as web services," in Science & Engineering, Vol. 6, No. 1, pp.93-96, Jan/Feb 2004. 13. B. Benatallah, F. Casati and F. Toumani, " Web service conversation modeling~a cornerstone for e-business automation," Internet Computing IEEE, Vol. 8, No. 1, pp.46-54, Jan/Feb 2004. 14. B. Chaib-Draa and F. Dignum, " Trends in Agent Communication Language," Computational Intelligence, Vol. 2, No. 5, pp. 89-101, May 2002. 15. S. A. DeLoach, M. F. Wood and C. H. Sparkman, " Multiagent System Engineering," International Journal on Software Engineering and Knowledge Engineering, Vol. 11, No. 3, pp. 231-258, Mar. 2001. 16. H. Laukkanen, H. Helin and M. Lamanen, " Supporting Nomadic Agent-based Applications in the FIPA Agent Architecture," in Proceedings of the first international joint conference on Autonomous agents and multi-agent system, Bologna, Italy, pp.1348-1355, 2002. 17. C. James, R. W. Shawn and D. W. Stephen, " A Distributed Multi-Agent System for Collaborative Information Management and Sharing," Proceedings of the ninth international conference on Information and knowledge management, United States Virginia : McLean, pp. 382-388, Nov. 2000. 18. J. Hendler, " Agents and Semantic Web," IEEE Intelligent systems, Vol. 16, No. 2, pp. 30-37, Mar/Apr 2001. 19. W. H. Turkett, J. R. Rose and M. N. Huhns, " Massive deliberation [Web agents]," Internet Computing, IEEE, Vol. 7, No. 1, pp.72-751 Jan/Feb 2003. 20. Y. Yunwen, " Programming with an intelligent agent. Intelligent Systems," IEEE [see also IEEE Expert], Vol. 18, No. 3, pp. 43 -47, May 2003. 21. S. Russell and P. Norvig, " Artificial Intelligence A Modern Approach," New Jersey : Prentice Hall, Upper Saddle River, 1995. 22. D. B. Fogel, " Evolutionary entertainment with intelligent agents Computer," IEEE, Vol. 36, No. 6, pp. 106 -108, Jun. 2003. 23. K. Sycara et al., " Dynamic discovery and coordination of agent-based semantic Web services," Internet Computing, IEEE, Vol. 8, No. 3, pp. 66-73, May/Jun 2004. 24. E. K. Mugisa, " A reuse triplet view of UML, SoutheastCon," in Proceedings IEEE, pp. 126 – 133, Apr. 2003. 25. R. B. France et al., " A UML-based pattern specification technique," Software Engineering, IEEE Transactions on, Vol. 30, No. 3, pp. 193-206, Mar. 2004. 26. M. Bjerkander and C. Kobryn, " Architecting systems with UML 2.0 Software," IEEE, Vol. 20, No. 4, pp. 57-61. Jul/Aug 2003. 27. P. Green and S. Essa, " Integrating the synchronous dataflow model with UML, Design," Automation and Test in Europe Conference and Exhibition, 2004. Proceedings, Vol. 1, pp. 736-737, Feb. 2004. 28. W. Liu, Z. T. Liu and K. Shao, " UML-based domain ontology modeling for multi-agent system," Machine Learning and Cybernetics, 2003 International Conference on, Vol. 1, pp 407-412. Nov. 2003. 29. M. N. Huhns, " Agent societies. Magnitude and duration," Internet Computing IEEE, Vol. 6, No. 1, pp79-81, Jan/Feb 2002. 30. D. Geer, " Taking steps to secure Web services Computer," Internet Computing IEEE, Vol. 36, No. 10, pp14-16, Oct. 2003. 31. C. WebFarkas and M. N. Huhns, " Making agents secure on the semantic," Internet Computing IEEE, Vol. 6, No. 6, pp. 76-79, Nov/Dec 2002. 32. M. Luck, R. Ashri and M. D ' inverno, Agent-based Software Development, USA: Artech House, Feb. 2004. 33. J. Davies, D. Fensel and F. V. Harmelen, Towards The Semantic Web: ontology-driven knowledge management, England : Wiley, Aug. 2003. 34. Michael Wooldridge, An Introduction to MultiAgent Systems, England : John Wiley & Sons Ltd " Agent Technology Green Paper. 35. Object Services and Consulting, Inc, " Agents for the Masses," <http://www.objs.com/agility/tech-reports/9902-agents-for-the-m asses.doc> 36. P. A. Huhns et al., " Inside an agent," Internet Computing, IEEE, Vol. 5, NO. 1, pp. 82-86, Jan/Feb 2001. 37. H. Suguri, " A standardization effort for agent technologies: The Foundation for Intelligent Physical Agents and its activities," in Proceedings of the 32nd Annual Hawaii International Conference, pp. 10, 1999. 38. Feng-Chao Yang and Yu-Kuen Ho, " Cooperative Distributed Problem-Solving Management Framework for Office Automation Systems," Concurrent Engineering: Research and Applications, Vol. 5, No. 1, Mar. 1997. 39 . Feng-Chao Yang and Yu-Kuen Ho, " An Object-oriented Cooperative Distributed Problem Solving Shell with Groupware Management Ability," Software-Practice and Experience, Vol. 27(11), pp. 1307-1334, Nov. 1997. 40. Cooperative distributed problem solving, (2004).
<http://dis.cs.umass.edu/research/cdps/>