

{tag} International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

[Volume 175](#)

-
[Number 7](#)

Year of Publication: 2017

Authors:

Fernanda Aparecida Rocha Da Silva

10.5120/ijca2017915597

{bibtex}2017915597.bib{/bibtex}

Abstract

Background: A promise of SOA is to make business processes be quickly adapted to organizations dynamic through flexible software. For this, it is essential to have a support for services identification in order to meet the business goals. However, many available services found on the web environment are too specific and can hardly be reused in different applications. This happens because there is a lack of systematic approaches to support generic services identification in a systematic way. Objective: To present a strategy for identifying generic services that support business processes. The identification is supported by Goal Diagrams and Business Process Models and is composed by a set of guidelines which assist the domain engineer in extracting the services. The identified services are generic enough to be reused in similar applications of a specific domain. Methodology: To elaborate the proposed strategy some domain-specific business processes were analyzed, aiming at extracting key tasks and turning them into generic web services. This analysis was supported by an extended version of goal diagrams (GTR) and conventional BPM models. Results: As a proof-of-concept we applied the strategy for identifying services in the planning processes domain and we

developed a real e-gov web portal based on the identified services. The web portal was used successfully by two different schools for elaborating their planning processes. Conclusion: We claim that the strategy is generic and can be applied to other business processes providing software suitability to the organization dynamics. In addition, it can be potentially reused with services in different instances of the same business process.

References

1. H. Estrada, I. Morales, A. Martinez, O. Pastor, Transforming Service-Oriented Business Models into Web Service Specifications. In: International Conference on Software Engineering & Knowledge Engineering. July 2010. pp. 225--230.
2. E. Ramollari, D. Dranidis, A. Simons, A Survey of Service Oriented Development Methodologies. In Proceedings the 2nd European Young Researchers - Workshop on Service Oriented Computing. Leicester, 2007, pp 75--80.
3. L. G. Azevedo, F. Santoro, F. Baião, J. Souza, K. Revoredo, V. Pereira and I. Herlain, A Method for Service Identification from Business Process Models in a SOA Approach. In 10th International Workshop on Business Process Modeling, Development, and Support. Springer. North-Holland, Amsterdam. 2009. pp. 99-112.
4. S. Kim, M. Kim, S. Park, Service Identification Using Goal and Scenario in Service Oriented Architecture, IEEE Computer Society, 2008, pp. 419-426.
5. N. Fareghzadeh, Service Identification Approach to SOA Development. In: Proceedings of World Academy of Science, Engineering and Technology, vol. 35, 2008, pp. 258--266.
6. K. Klose, R. Knackstedt, D. Beverungen, Identification of Services - A Stakeholder-based Approach to SOA Development and its Application in the Area of Production Planning. In: ECIS 2007, 2007, pp. 1802--1814.
7. Cai, S., Liu, Y., Wang, X.: A Survey of Service Identification Strategies. In IEEE Asia-Pacific Services Computing Conference. IEEE Computer Society, 2011, pp. 464--470.
8. C. Ling, L. Xin, Achieving Business Agility by Integrating SOA and BPM Technology. In: International Forum on Information Technology and Applications – IFITA, IEEE Computer Society, May 2009, pp. 334-337.
9. A. I. Antón, C. Potts, The use of goals to surface requirements for evolving systems. In 20th International Conference on Software Engineering. vol. 2, IEEE Computer Society, 1998, pp.157--166.
10. S. L. Tan, L. Liu, Performance Analysis of Reusable Components with Hybrid Modelling of Strategies and Processes: A Real World Case Study. In IEEE 36th Annual Computer Software and Applications Conference Workshops (COMPSACW). 2012. pp 302-309.
11. D. Bolchini, P. Paolini, Goal-driven requirements analysis for hypermedia-intensive Web applications. In 12th IEEE international Conference on Requirements, IEEE Computer Society, 2004, pp.85--103.
12. V. Perrone, D. Bolchini, Designing Communication Intensive web Applications: Experience and Lessons from a Real Case. In: Proceedings of WER 2004. Tandil, Argentina.
13. E. Yu, Modeling Organizations for Information Systems Requirements Engineering. In 11th International symposium on requirements engineering, IEEE Computer Society, 2003, pp. 34--41.
14. E. Yu, P. Giorgini, N. Maiden, J. Mylopoulos, Social Modeling for Requirements Engineering, 2011, Cambridge: MIT Press.

15. M. Hammer, J. Champy, Reengenharia: repensando a empresa em função dos clientes, da concorrência e das grandes mudanças da gerência. 1 ed. 1994. Rio de Janeiro: Campus.
16. BPMN. Specification of Business Process Modeling Notation.http://www.omg.org/bpmn/Documents/BPMN_1-1_Specification.pdf
17. Notation extended of AWARE model. <http://lapes.dc.ufscar.br/aware.html>
18. F. Goethals, M. De Backer, W. Kemahieu, M. Snoeck, J. Vandenbulcke, Identifying Dependencies in Business Processes. Proceedings of the LAP-CCBP (Communication and Coordination in Business Processes). Research Center for Management Informatics - LIRIS, 2005, pp.17-31.
19. L. Wen, J. Wang, J. Sun, Detecting Implicit Dependencies Between Tasks from Event Logs. Frontiers of WWW Research and Development - APWeb. Springer Berlin / Heidelberg, 2006, pp. 591-603.
20. K. Kang, S. Cohen, J. Hess, W. Nowak, S. Peterson, Feature-Oriented Domain Analysis (FODA) Feasibility Study (Report). Software Engineering Institute, Carnegie Mellon University, 1990, CMU/SEI-90-TR-21.
21. G. A. Steiner, What Every Manager Must Know, 1979, New York: Free Press.
22. A. A. Fischmann, M. I. R. Almeida, Planejamento estratégico na prática, 1991, São Paulo: Atlas.
23. M. C. Tavares, Planejamento Estratégico: A Diferença entre Sucesso e Fracasso Empresarial, 1991, São Paulo: Harbra.
24. D. P. R. Oliveira, Estratégia empresarial & vantagem competitiva: como estabelecer, implementar e avaliar, 2001, São Paulo: Atlas.

Index Terms

Computer Science

Information Sciences

Keywords

Service-Oriented Architecture, Business Process Management, Goal-Oriented Requirements Engineering