Service-Oriented Software System Engineering: Challenges and Practices

Zoran Stojanovic
Delft University of Technology, The Netherlands

Ajantha Dahanayake
Delft University of Technology, The Netherlands
# Table of Contents

Preface ........................................................................................................................................... vi

Section I: Core Service Concepts and Technologies

Chapter I
Technical Concepts of Service Orientation .............................................................. 1  
  Humberto Cervantes, Laboratoire LSR Imag, France  
  Richard S. Hall, Laboratoire LSR Imag, France

Chapter II
Beyond Application-Oriented Software Engineering: Service-Oriented Software  
  Engineering (SOSE) ..................................................................................................... 27  
  Jiehan Zhou, VTT Technical Research Centre of Finland, Embedded Software, Finland  
  Eila Niemelä, VTT Technical Research Centre of Finland, Embedded Software, Finland

Chapter III
Service Composition: Concepts, Techniques, Tools and Trends ......................... 48  
  Boualem Benatallah, University of New South Wales, Australia  
  Remco M. Dijkman, University of Twente, The Netherlands  
  Marlon Dumas, Queensland University of Technology, Australia  
  Zakaria Maamar, Zayed University, United Arab Emirates

Section II: Service-Oriented Architecture Design and Development

Chapter IV
UniFrame: A Unified Framework for Developing Service-Oriented, Component-Based  
  Distributed Software Systems ......................................................................................... 68  
  Andrew M. Olson, Indiana University Purdue University, USA  
  Rajeev R. Raje, Indiana University Purdue University, USA  
  Barrett R. Bryant, University of Alabama at Birmingham, USA  
  Carol C. Burt, University of Alabama at Birmingham, USA  
  Mikhail Auguston, Naval Postgraduate School, USA
Chapter XIII
Service-Oriented Agents and Meta-Model Driven Implementation ........................................ 270
Yinsheng Li, Fudan University, China
Hamada Ghenniwa, University of West Ontario, Canada
Weiming Shen, Fudan University, China

Section IV: Security in Service-Oriented Systems

Chapter XIV
Security in Service-Oriented Architecture: Issues, Standards and Implementations 292
Srinivas Padmanabhi, Software Engineering and Technology Labs,
Infosys Technologies Limited, India
Hemant Adarkar, Ness Technologies, India

Chapter XV
A Service-Based Approach for RBAC and MAC Security .............................................. 317
Charles E. Phillips, Jr., United States Military Academy, West Point, USA
Steven A. Demurjian, University of Connecticut, USA
Thuong N. Doan, University of Connecticut, USA
Keith H. Bessette, University of Connecticut, USA

Section V: Service-Orientation in Practice

Chapter XVI
Engineering a Service-Oriented Architecture in E-Government ..................................... 340
Marijn Janssen, Delft University of Technology, The Netherlands

Chapter XVII
Web Services for Groupware .......................................................................................... 353
Schahram Dustdar, Vienna University of Technology, Austria
Harald Gall, University of Zurich, Switzerland
Roman Schmidt, Swiss Federal Institute of Technology, Lausanne, Switzerland

Chapter XVIII
Building an Online Security System with Web Services ............................................. 371
Richard Yi Ren Wu, University of Alberta, Canada
Mahesh Subramanium, Oregon State University, USA

About the Editors ............................................................................................................. 398

About the Authors .......................................................................................................... 399

Index ............................................................................................................................... 410