Middleware for Communications

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Edited by

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To all those who helped in the creation of this book in one way or another

Contents

Preface

Middleware has emerged as a critical part of the information technology infrastructure. The need for it stems from the increasing growth in network-based applications as well as the heterogeneity of the network computing environment. Communications systems such as computer and telecommunications networks are composed of a collection of heterogeneous devices whose applications need to interact. Middleware systems are used to mask heterogeneity of applications that are made up of several distributed parts running on different computer networks and telecommunications systems. In addition, middleware systems provide value-added services such as naming and transaction services, as well as tools and APIs that offer uniform high-level interfaces to application developers so that applications can be easily constructed. The importance of middleware will continue to grow as long as computing and communications systems continue to be heterogeneous.

All existing books on middleware concentrate on a specific area: fundamentals of middleware, comparing some middleware technologies such as CORBA, RMI, and DCOM, or surveying middleware products that exist on the market. The aim of this book is to fill the gap by providing a state-of-the-art guide to middleware. The book covers all aspects of middleware by including chapters on concepts and fundamentals for beginners to get started, advanced topics, research-oriented chapters, and case studies.

This book provides convenient access to a collection of exemplars illustrating the diversity of communications problems being addressed by middleware technology today and offers an unfolding perspective on current trends in middleware. The lessons learned and issues raised in this book pave the way toward the exciting developments of next generation middleware.

Audience

This book is aimed at students, researchers, and practitioners. It may be used in undergraduate and graduate courses on middleware. Researchers will find the book useful as it provides a state-of-the-art guide to middleware technology, and offers an unfolding perspective on current and future trends in middleware. Practitioners will find the book useful as a means of updating their knowledge on particular topics such as Message-Oriented Middleware (MOM), Adaptive and Reflective Middleware, Transaction Middleware, Middleware for Mobile Computing, Middleware for Peer-to-Peer Systems, QoS-enabled Middleware,

Grid Middleware, Model Driven Middleware, Real-time Middleware, Middleware for Smart Cards, Middleware Performance, and Middleware Security.

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Finally, I would like to thank my wife, Reema, and son Yusef for putting up with my strenuous schedule over the past several months.

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June 2004

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