Design Patterns for Concurrent and Distributed Objects

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Due to the importance of distribution, object technologies, and the Web, infrastructures for Distributed Object Computing and Component-based middleware have become commonplace. However, it is not sufficient to just read the specification of standards such as Java RMI, EJB, or CORBA, and then to build applications using these standards. On one hand the transparency provided by these platforms helps to master the complexity of building distributed systems, but on the other hand it is inevitable to know the infrastructure's internal architectural design to leverage it efficiently. Unfortunately, the architectural principles behind infrastructures are not documented anywhere. Here, patterns come to our rescue. They do not only enable the solution of recurring problems in software development, but also help us to look inside existing software in order to understand and leverage it efficiently. Thus, the goal of the tutorial is to show the basic principles behind Distributed Object Computing and component-based Middleware. Patterns will be introduced step-by-step to reveal the overall architecture of these infrastructures. These patterns will not only help to understand middleware, but will also be applicable for the development of distributed and concurrent software systems.

Michael Stal works as a Senior Principal Engineer for Siemens Corporate Technology where he is head of the Middleware & Application Integration Team. His main research areas include Object-Oriented Middleware, Patterns, Software Architecture, Web Technologies, and Component-based Software Development. Michael is Siemens-representative at the OMG, and former member of the C++ standardization working group X3J16. He is co-author of the books "Pattern-Oriented Software Architecture – A System of Patterns" as well as "Pattern-Oriented Software Architecture - Vol. 2: Patterns for Concurrent and Networked Objects". In addition, he serves as editor-in-chief of the German Java Spektrum magazine. Michael has published articles in many magazines and given talks at many conferences world-wide.