

Design and Implementation of a Web Services-Based Framework Using Remoting Patterns

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Abstract: In the recent years, Web services technology has been playing an important role as a middleware for distributed systems such as peer-to-peer computing, grid computing as well as interoperability transactions. As the technology continues to evolve, a number of specifications are being proposed to address the areas necessary to support Web services. These specifications are designed modularly, therefore it is necessary to have a framework to supply an efficient way for developers in building Web services-based distributed applications. The aim of our approach is to combine and integrate appropriate Web service specifications within one framework; thus, distributed applications can be built on this framework regardless of these specifications. In our previous work, a Web services framework in which Web services-based interoperability transactions can be executed in reliable, effective, and secure manner have been proposed. In this paper we present the design and implementation of modules for the framework based on remoting pattern approach. Remoting patterns are used since they provide a systematic way in developing distributed object middleware solutions and they can link to other patterns in the context of distributed applications. By using remoting pattern language, our framework can be easily integrated to Web services-based distributed systems as well as extended additional functionalities in future. A case study of e-banking transactions based on our framework has been developed to illustrate how our framework can be used in practice.

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