

Chapter 4.6

Using Semantic Web Services in E-Banking Solutions

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ABSTRACT

Offering public access to efficient transactional stock market functionalities is of interest to all banks and bank users. Traditional service oriented architecture (SOA) technology succeeds at providing reasonable, good Web-based brokerage solutions, but may lack extensibility possibilities. By introducing Semantic Web Services (SWS) as a way to integrate third party services from distributed service providers, we propose in this chapter an innovative way to offer online real-time solutions that are easy-to-use for customers. The combined use of ontologies and SWS allows different users

to define their own portfolio management strategies regardless of the information provider. In deed the semantic layer is a powerful way to integrate the information of many providers in an easy way. With due regard for more development of security technological issues, research on SWS has shown that the deployment of the technology in commercial solutions is within sight.

INTRODUCTION

When operating on the stock market, investors make their decisions on the basis of huge amount of information about the stock evolution, economic and politic news, third parties recommendation and other

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kind of sources. Thanks to the proliferation of the Internet banks the profile of an average investor is changing from a financial expert to common people making small investments on the online stock market. In addition to the business generated around the stock market operations, banks use their online stock market application to attract new and to reinforce the customer commitment.

Banks, as any other commercial organization, needs to optimize the deployment of new products and services to the market. The deployment time of new services or applications is an important issue in a highly competitive market, since it defines the future market share and revenues. Online banks are looking for technologies and architectural paradigms that would allow them to design, implement and deploy new services on a low cost basis and in a short time period. New services often imply integration of many already existing applications, some of them internal and others external to the organization.

This is the case of online stock brokerage solutions adopted by online banks. An online stock brokerage application proposes to the user to buy and sell its stock options via a computerized network. Banks are willing to offer an easy to use application including as much information and as many options as possible without incurring large development costs. We will show that the use of the Semantic Web technology, combined with a service-oriented architecture (SOA), greatly reduces the cost and effort of developing and maintaining an online stock brokerage solution.

A broker based on a semantic service oriented architecture has all the advantages of a service oriented architecture (e.g. modularity, reusability) combined with the advantages of Semantic Web technologies. Semantic Web technology main advantage is to give a clear semantic inside (and eventually outside) the enterprise which reduces the communication confusions (technical or human). This also leads to higher maintainability of the products and to a better automatisations of the system mechanisms. These advantages applied to

SOA will be extended in the proposed solution of this chapter. Next section will first exposes the current situation of brokerage applications based on classical SOA.

CURRENT SITUATION: BROKERAGE APPLICATION BASED ON WEB SERVICES

Banking companies have invested heavily in the last few years to develop brokerage solutions based on a new dominant paradigm in the IT World: service oriented architecture (SOA). The concept of this paradigm is not new: propose a loosely coupled distributed system architecture where independent services provide functionality, so that the difficulty is divided which leads to reduce the development cost and improve the reusability. But the technologies to implement this paradigm are relative new. Web Services are one of the solutions that appeared a couple of years ago and that made the success of this paradigm. For this reason Web Services are often confused with the SOA paradigm.

In this section we first present in more detail the business case for the brokerage application that we propose. We will then explain why a service oriented architecture implemented using Web Services technologies is a suitable solution. The solution properties will be detailed and it will be shown that this kind of architecture is suitable for brokerage application. We then present what the benefits of such an architecture are from both, a technical and a business point of view.

Web-Based Brokerage Applications

Introduction

As a major interface between the financial world and the non-financial world, banks always try to improve their services related to the stock market. As the Internet represents one of the most

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