Chapter 5
Service-Oriented Collaborative Business Processes

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ABSTRACT

The ability to rapidly find potential business partners as well as rapidly set up a collaborative business process is desirable in the face of market turbulence. Traditional linking of business processes has a large ad hoc character. Implementing service-oriented business process mashup in an appropriate way will deliver the collaborative business process more flexibility, adaptability and agility. In this chapter, we describe new landscape for supporting collaborative business processes. The different solutions and tools for collaborative business process applications are presented. A new approach for supporting situational collaborative business process, process-oriented mashup is introduced. We have highlighted the security and scalability challenges of process-oriented mashups. Further, benefits of using process-oriented mashup are discussed.

INTRODUCTION

Modeling and managing collaborative business processes that span multiple organizations involves various challenges. The main challenges are regarding the ability to cope with change, decentralization, and the required support for interoperability. We will have to deal with a raising complexity of collaborative business processes and a demand to configure those processes to allow them to respond to changing environments and requirements.

The Internet lies at the core of a connected world, acting as a conduit for the exchange of information, allowing tasks to be processed collaboratively. It enables the formation of communities amongst users with similar interests. An Internet interconnected world has increased both
business and personal efficiency and performance (Litan & Rivlin, 2001).

As the business environment changes rapidly the ability to rapidly find potential business partners as well as rapidly set up a collaborative business process is desirable in the face of market turbulence. Collaborative business processes are increasingly driven by the need for business agility, adaptability, and flexibility. To stay competitive in the global market and a company and its systems need to be able to adapt to the continuously changing business conditions. This leads to increased pressure to be able to build collaborative business applications quickly in order to respond to situational needs of the business.

Collaborative business applications include both data-oriented and process-oriented applications. Within the context of collaborative business applications, data-oriented applications deal with where the data comes from, where it goes to, and how data is processed. A process-oriented application handles a different kind of collaborative business applications. A process-oriented application is not centered around the processing of data, but the control of the data, activities, and state plays a central role. For example when, where and how to process data or trigger activities by whom. Cross organizational workflow systems and business process management systems are the typical systems that support process-oriented applications.

Service-orientation allows a way of thinking of business process management in terms of computational infrastructures, services, service-based development and outcomes of those services (Papazoglou & Georgakopoulos, 2003). Service-oriented architecture (SOA) is a significant computing paradigm and is being embraced by organizations worldwide as the key to business agility. Web 2.0 technologies such as AJAX enable efficient user interactions for successful service discovery, selection, adaptation, invocation and service construction. SOA and Web 2.0 technologies also balance automatic integration of services and human interactions, separating content from presentation in the delivery of the service. Another Web technology, such as Web services, implements functionality using predesigned building blocks. Integrating SOA, Web 2.0 technologies and Web services into a service-oriented application connects business processes in a horizontal fashion.

In the context of a web based service-oriented environment, the tools and applications for handling data-oriented applications are widgets, gadgets, pipes and data-oriented mashups. The traditional tools and applications for handling process-oriented applications are workflow systems and business process management systems, e.g. ERP, CRM, and SCM systems. These are heavyweight systems that are far from trivial to reconfigure for new processes. Inspired by the ideal of data-oriented mashups, i.e., supporting end users, easy usage, integrating web resources and data sources, and good virtualization, we propose a new concept, a process-oriented mashup, which allows users to specify their needs, find related web resources, and eventually execute the resulting process for rapidly building business processes. Users are enabled to automate their own processes without the active involvement of IT specialists.

In this chapter, we examine the capabilities for building collaborative business using service computing technologies. We first identify potential Internet technologies, present background information and a motivated example, and the needs for supporting collaborative business processes. We provide existing solutions for the motivating example and analyze the problems of using existing solutions. This is followed by discussion on process-oriented mashup and key issues. Comparison between similar technologies is also explained. We highlight process-oriented mashup challenges on security and scalability in the chapter. A preliminary design of the process-oriented mashup is introduced. An enterprise application is used to explain benefits of using the process-oriented mashup. Finally, we outline the future research directions and conclusions.