Chapter 11
Adaptive Development and Management of Business Collaborations

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ABSTRACT

The IT infrastructure of organizations must be agile and dynamic in order to respond quickly to the new business models and requirements. This has led to an increasing demand from individual organizations for corporate business services that can easily adapt to changes through business collaboration. Popular solutions for business collaboration development and management do not properly cater for the specification of new collaborations nor do they facilitate the management of existing ones. In this book chapter we present a rule based approach for collaboration development and management. The proposed approach allows organizations to capture the requirements for their business collaborations in an explicit, manageable and uniform manner in the form of rules. These rules can then be used to drive and constrain the development and management of needed business collaboration models. Practical feasibility of the approach is demonstrated in the context of a complex insurance claim scenario using prototype tooling.

INTRODUCTION

Today's business climate demands a high rate of change with which Information Technology (IT)-minded organizations are required to cope. Organizations are facing rapidly changing market conditions, new competitive pressures, new regulatory fiats that demand compliance, and new competitive threats. All of these situations drive the need for the IT infrastructure of an organization to respond quickly in support of new business models and requirements. Organizations must therefore be agile and dynamic, for only in this way can they gear towards the world of fast occurring, hopefully automated, and complex

electronic transactions. This has led to an increasing demand from individual organizations for corporate business services that can easily adapt to changes.

Unfortunately, current business collaboration solutions are too narrowly focused and are not capable of addressing the requirements of adaptive business collaboration development and management. Firstly, there is a lack of a coherent and cohesive vision on business collaboration development. Consequently there is no solution that is capable of designing collaborations where all different types of requirements (and dependencies between them) can be specified. Secondly, as a result these solutions for business collaboration design are unlikely to succeed as they can only offer limited support for adaptive development and management. As such, it is a costly and time-consuming effort to determine whether the developed business collaborations are compliant with the requirements as well as consistent with individual business processes. This is particularly the case when the impact of changes on the compliance and overall consistency of existing business collaborations need to be assessed.

In this book chapter we argue that the adaptive development and management of business collaborations can be achieved using a rule based approach. The idea behind the proposed approach is to make the business collaboration requirements of organizations explicit in the form of rules, and then use these rules to drive and constrain the development and management of business collaboration designs. As a result, design becomes a runtime activity where the business collaboration shapes itself to its specific circumstances by applying the appropriate rules. As such, business collaborations can be generated dynamically rather than statically pre-defined. This makes business collaboration adaptive in two ways: a) design of business collaborations is governed by explicitly defined and thus manageable rules, which can be further chained and used for making complex decisions and diagnoses; and b) business collaborations can be readily changed during design time and runtime by adding new rules and/or re-defining existing rules. Simultaneously, rules can also be applied to ensure that the generated business collaborations are and remain consistent.

Specifically, the chapter addresses the following questions: 1) what is the context in which business collaborations take place? 2) how can we represent the context of business collaborations in terms of formal models; 3) how do we make the development and management of business collaboration models adaptive; and 4) how can we ensure that business collaborations models are and remain conform to the requirements as well as consistent among themselves? In order to provide answers to these questions the chapter is structured as displayed in Figure 1.

As indicated in the road-map the chapter consists of eight sections. In the first part of the chapter the emphasis is on acquiring a clear picture with regard to the means that organisations currently lack for cohesive and agile business collaboration. This is twofold in nature: following the end of this introduction we start by investigating the exact requirements for business collaboration development and management. Subsequently, we survey the existing work in this area and contrast it with the identified requirements. On the one hand this will give us insight into what has already been done and how this positively contributes to facilitating business collaboration development and management. On the other hand it will allow us to identify the shortcomings of existing business collaboration solutions with regard to compliance, agility and consistency.

After these two sections the focus of the chapter shifts towards the rule based approach we developed to tackle the identified shortcomings. We start by discussing the Business Collaboration Context Framework (BCCF), which defines a comprehensive view on the context in which business collaboration takes place. On top of the BCCF we then introduce a model based approach with which organisations can capture their business collaboration context. A set of business collaborations models are generated

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