Definition of a Description Language for Business Service Decomposition

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Abstract. In the last few years, service-oriented computing has become an emerging research topic in response to the shift from product-oriented economy to service-oriented economy and the move from focusing on software/system development to addressing business-IT alignment. From an IT perspective, there is a proliferation of methods and languages for describing Web services. There has not been as much work in defining languages or ontologies for describing services from business perspectives.

In this paper, we analyze the landscape of service representation and discuss the needs of having a description language for business services. By leveraging existing work on describing service capabilities and properties, we define a specific description language that explicitly addresses the decomposition of business services and their non-functional properties. The language is defined both informally (as a list of descriptive concepts) and formally (by means of meta-modeling and declarative modeling).

Keywords: Service-Oriented Computing, Service Engineering, Strategic Alignment, Business-IT Alignment, Description Language, Meta-modeling.

1 Introduction

In the past ten years, software and system modeling have become rapidly growing and high profile topics in the field of information systems. The proliferation of methods for modeling software and systems has expanded dramatically to many different paradigms, including: component-based software development, rapid application development, iterative and incremental development.

Currently, there are two emerging topics of interest: service-oriented computing and enterprise architectures, the focus has shifted from software and system development to the convergence of enterprises, organization and information systems. We deal with not only software and system development, but also the way they are exploited to make business more efficient and effective. Enterprise architecture deals with the alignment between business and Information Technology.

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(IT) in order to make the enterprise more competitive (e.g. more cost-effective, better client support) [13]. In service-oriented computing, the goal is to produce a more modular and loosely coupled organizational system, where changes within the organization is managed in a less risky fashion than more traditional major change systems [9].

From an IT perspective, there is a proliferation of methods and languages for representing Web services. There has not been as much work in defining languages or ontologies for describing high-level services from a business perspective. In a broader context, we need a new approach in describing the long-term strategy of an organization and the way it is aligned to high-level business services. There is a need to understand the degree of strategic alignment of a service portfolio to support service re-alignment in the face of changing strategic landscapes.

Motivated by the needs of describing business services from a pure business perspective, we define a specific description language that explicitly addresses the decomposition of business services and their non-functional properties. We base this work on existing work that established basic description for service capability and properties.

The remainder of this paper is structured as follows. Section 2 discusses the needs of a dedicated description language for business services and their decomposition. The description language that we propose for business services is defined in Section 3. Section 4 presents work related to the representation of business services. Section 5 ends the paper by drawing some conclusion remarks and discussing future work.

2 The Needs of Describing Business Services and Their Decomposition

In this section, we discuss why we need a specific description language for business services. Subsection 2.1 addresses the landscape of service representation within which the representation of business services is positioned. Subsection 2.2 describes an example that will be used for formulating the requirements of such a description language. Requirements of a description language for business services are presented in Subsection 2.3.

2.1 Representation of Services

Figure 1 illustrates a description continuum of strategy, goals, services and processes that would be necessary for describing an organization. This continuum has two ends that correspond to the specification and the operationalization of an organization. High-level specifications and long-term strategies appear to the left most side of the spectrum. The granular detail increase towards the right of the figure until operationalization of high-level specifications and strategies is achieved.