

Chapter 4

Structuring SOA Governance

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ABSTRACT

Companies' IT Systems are confronted with constantly changing market conditions, new competitive threats and a growing number of legal regulations. The service-oriented architecture (SOA) paradigm provides a promising way to address these challenges at the level of a company's IT infrastructure. These challenges, as well as the management of the newly introduced complexity and heterogeneity, are targeted by SOA Governance approaches. In recent years, a number of concrete frameworks for SOA Governance addressing these issues have been proposed. There is no holistic approach considering all proposed elements, consolidating them in order to form a universally applicable model. In this contribution, we motivate SOA Governance, investigate and compare different approaches, identify common concepts, and derive a generic model for governance of Service-oriented Architectures.

1. INTRODUCTION

In recent years, governance approaches for Service-oriented Architectures (SOA) have been intensively discussed. Due to the complexity and heterogeneity of SOA systems, governance is

considered crucial to successful long-time operation and control of a SOA. However, a consensus concerning a uniform approach has not been achieved yet. This article gives an overview of current proposals, and introduces a first approach to structuring SOA Governance.

The remainder of this contribution is structured as follows. After a short introduction on SOA and

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its characteristics as a background, we outline the motivation for SOA Governance and discuss new challenges of SOA systems concerning control and supervision. Next, we provide a comparing literature review of SOA Governance approaches, identify major common concepts, and introduce a generic governance model for SOA. A summary and outlook on future work concludes the article.

1.1 Service-Oriented Architectures

Today, we live in a highly competitive and globally distributed economy. As a result, modern enterprises face additional requirements which affect existing and future enterprise information technology (IT) architectures, with the following two being very important (Josuttis, 2007; Krafzig, Banke, & Slama, 2004; Newcomer & Lomow, 2004):

- Achieving a high agility of business processes and their underlying IT.
- The capability of integrating heterogeneous systems.

These are particularly important, as flexible IT systems are needed to support dynamic business processes, which are subject to rapid changes. As companies merge or increase cooperation, it becomes crucial to integrate both various heterogeneous legacy systems and different systems of business partners.

However, many enterprise software solutions in use do not address these requirements, as continuous changes seriously affect the systems' ability to adapt. In addition, enterprise IT appears as a very special field, as, unlike many other domains of IT, enterprise software is developed and maintained in very close collaboration with the end customer, where usually multiple and very different departments are involved. Here, highly political scenarios and very heterogeneous teams face a multitude of requirements, many of which are either coming into conflict with each other,

are unclear, or both. However, the challenge is less of a technical nature than an organizational one (Krafzig et al., 2004). Due to changing business models, mergers, and acquisitions, many EAs could not be realized as they were planned in advance and rather grew organically into their current state over time. This usually results in a vertically organized architecture with a so-called pillar or silo structure. These are quite sophisticated and particularly suit the support of operational sequences in their domain (Melzer, 2007). Difficulties and even serious problems arise if this structure has to be modified significantly. Common side effects include data redundancy and multiple implementations of the same functionality in different places. A reason for these silos is the fact that many IT systems used to serve only a single department or business unit—something true even until 1990. This raised the well-known issue of integration, which has challenged IT departments for decades (Newcomer & Lomow, 2004). It is a further example for the need of tight coupling of an enterprise's business to the underlying IT. Although it is more of a technical problem in the end, the main reasons behind integration can be found on the business side. Key business drivers include but are not limited to the following (Krafzig et al., 2004):

- Mergers and acquisitions,
- Internal reorganization,
- System consolidation,
- New business regulations,
- Compliance with new government regulations, and
- Streamlining business processes.

Within this context, the introduction of new software—maybe even across department borders—usually causes huge problems which can outweigh the actual advantages of integrated systems. To resolve the challenges discussed above, the Service-oriented Architecture (SOA) paradigm allows enterprise IT to be aligned with

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