Business Cost Budgets: A Methodology to Incorporate Business Impact into Service Level Agreements

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ABSTRACT

In this work the authors address an IT service customer’s challenge of selecting the cost-optimal service level agreement among different options offered by an external provider. They model the customer’s optimization problem at distinctive levels of detail with regard to the description of service quality aspects. At each level of detail they explicitly consider the potential negative monetary impact of different service quality levels on a customer’s business process – reflected via the concept of “business cost.” First, they analyze which information a customer typically bases service level agreement decisions upon today and elaborate on the question which additional information a rational customer would need to take a well-founded decision. Second, the authors define a set of concepts that a customer should consider when selecting service level agreements. Third, the authors apply these concepts to develop a “business cost budget method” that enables a customer to compare multiple service level agreements and to select the cost-optimal solution of its optimization problem – assuming customer and provider to collaborate. Introducing this approach, they suggest that both parties jointly define “business cost budgets” as an additional kind of service indicator describing service quality’s adverse business impact instead of only service quality.

Keywords: Adverse Business Impact, Service Incident, Service Level Agreement, Service Level Engineering, Service Level Management

1. INTRODUCTION

The management of IT service quality, the central objective of service level management, is a major challenge for many companies today. Especially in conjunction with IT outsourcing relationships, i.e., with external service providers involved, there are many issues which require advanced methods and concepts (Unterharnscheidt & Kieninger, 2010). Service customers in particular struggle to identify the cost-optimal service level agreement (SLA) for services they purchase, i.e., the combination of service quality levels (one service quality level
for each service quality dimension) at which the sum of the financially quantified business impact and the price at which the SLA is offered reaches its minimum.

In practice, service quality levels for IT services are often determined in an ad-hoc and heuristic way (Taylor & Tofts, 2005), which is sometimes even referred to as “pure guesswork” (Sauvé et al., 2005). In addition, current approaches used to define service quality parameters and corresponding target values often lack the end-user business perspective (Mason, 2002) and do not sufficiently consider the business impact induced by the usage of services. As a result, service levels are often set inappropriately, leading to inadequate service cost compared to the business benefit (Taylor & Tofts, 2005).

In order to identify the cost-optimal SLA, customers have to assess various offers by external providers, which usually have different impacts on their business processes and different prices. For customers, however, it is difficult to identify the efficient trade-off between service price and business impact (measured in terms of “business cost”), as important information is often not available or not sufficiently considered: as a consequence, the cost-optimal SLA is only accidentally agreed on.

In this work, we address the service customer’s challenge of selecting the cost-optimal SLA for an end-to-end IT service (directly supporting customer business processes) among different options offered by an external service provider. Hereto, we model the customer’s optimization problem by considering the potential negative monetary impact of different service levels on the customer’s business processes – reflected via the concept of business cost. First, we analyze which information SLA decisions are typically based upon today and elaborate on the question which additional information a rational customer would need to take a well-founded decision. Second, we derive and define a set of concepts that a customer should apply when selecting SLAs. Third, we use these concepts to develop a “business cost budget method” that enables a customer to compare different SLAs regarding their business impact and, thus, to select the cost-optimal solution of its optimization problem – assuming the service customer and its risk-neutral provider collaborate.

The following section elaborates on literature related to our work. Then we introduce the base scenario addressed. Afterwards, we describe the customer’s optimization problem of selecting the cost-optimal SLA using today’s service level indicators. After that, we analyze the impact of single service incidents on the performance of a customer’s business process. The description of the customer’s optimization problem is refined subsequently. Next, we present the business cost budget method that supports the customer in selecting the cost-optimal solution of its optimization problem. Finally, we discuss our approach and outline next steps towards the incorporation of business impact into SLAs.

2. LITERATURE REVIEW

The following literature review was conducted following the methodology proposed by Webster and Watson (2002). In an extensive forward and backward search without temporal restriction, Google Scholar and CiteSeer served as the main sources of search. Keywords used were, among others, “service level objective,” “service level agreement,” “service level management,” “optimal choice,” “business impact,” “incident management,” “decision theory,” and “customer.”

Focusing on the research field of IT (outsourcing) we identified five papers as directly related to our approach aiming to support the consideration of business impact in SLA design. None of these works, however, covers all requirements and characteristics of our scenario and approach, namely: (i) We monetarily measure the business impact of SLAs, (ii) by quantifying the incurred business cost resulting from the occurrence of combinations of service incidents, (iii) considering non-constant marginal business cost functions, and (iv) in a setting with a customer and a provider both
Self-Management of Applications and Systems to Optimize Energy in Data Centers
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