A Review on "Service Level Agreements for Cloud Computing"

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Abstract

This article reviews following book:

Service Level Agreements for Cloud Computing.

By Philipp Wieder, Joe M. Butler, Wolfgang Theilmann and Ramin Yahyapour

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An offering of measured analysis to the discussion on cloud computing and, in particular, the complexities involved in the management of service level agreements (SLAs) for the cloud is *Service Level Agreements for Cloud Computing,* published by Springer. This thorough guide serves to elaborate on the work of the SLA@SOI project. The chapters examine reference architectures for SLA management, highlighting how these pertain to the deployment of cloud computing solutions; they present the foundations required for SLAs, as well as a framework designed to support complex configuration of collections of services. The book also helpfully includes a number of case studies of SLA implementation to illustrate its principles and insights to SLA management.

SLA@SOI, composed of European institutes representing industrial, academic, and research sectors, is a project that has emerged from the European Union's (EU) Seventh Framework Programme, which is geared towards utilizing research to boost economic growth and opportunity for the EU. SLA@SOI has as its defining focus to understand, develop, and manage initiatives pertaining to the service economy, as manifest through SLAs, cloud computing, and service-oriented infrastructures (SOIs).

In the introduction the editors define the impetus for their work clearly: the prevalence of a multitude of critical services reliant on information and communications technology (ICT), including cloud computing, has driven a need to determine a comprehensive approach/model/framework to more efficiently and effectively manage such services when they come together in complex systems. Therefore, it is important to develop, as the authors assert, "a holistic SLA management framework," that allows organizations to better understand the conditions and requirements of particular agreements so that they are intelligible, negotiable, and manageable, and further, to have a way to zoom out and see the whole chain of service activity (stated as "consistent SLA management across all layers of an IT stack," p.33). Such a framework will also provide a means to illustrate relevant involved stakeholders and various business steps together in an actionable, cogent schema.

Service Level Agreements for Cloud Computing delves into the complexity of SLAs by demonstrating how the particular conditions of one SLA are often not translatable or even capable of equivalence. The need to develop a coherent SLA Model stems from the need for a reconciliation between the competing requirements for an SLA framework (that can reflect domain-independent matters in granular detail), and yet also retain customizability as well as open-endedness in supporting domain-specific requirements.

In order to utilize IT infrastructure with efficacy, it is important to be able to specify and set the requirements, for instance, of top-level SLAs and determine how those high-level SLAs play upon and

affect SLAs at other levels, thereby allowing view of "a synchronized SLA hierarchy," (p.35). This is a key means for organizations to be responsive and adaptive, recognizing violations of agreements as well as anticipating potential incongruities, and planning proactively.

Edited by Philipp Wieder, Joe M. Butler, Wolfgang Theilmann, and Ramin Yahyapour, a critical part to the offerings of this text are the business and management lessons, technical explorations, and descriptions of use cases that display the SLA@SOI framework. This work presents usable information for both the community of researchers involved in pointing a critical eye towards ICT services and their accompanying SLAs *as well as* for practitioners in need of a insightful, comprehensive analysis to support healthy design and understanding for their business architectures and their own service webs.

After providing a firm overview of the project's goals, the chapters proceed as follows:

Part I provides a high-level understanding of the reference architecture for multi-level SLA management.

Part II continues on with developing the foundations for Service Level Agreements, thoroughly identifying the intricacies of SLA agreements, presenting template agreements, placing required terms in their proper context, as well as addressing service construction through an overview of features of the current software landscape and discussion of the associated monitoring infrastructure and its impact on agreement terms.

Part III, Scientific Innovations, takes a close-hand look at the SLA@SOI architecture implementation, examining monitoring, reporting, and violations and penalties management processes; it returns to a higher level of abstraction to cover the subject of deploying better monitoring for SLAs.

The latter portion of the text (Parts IV-VII of the book) are characterized by an examination of distinct key aspects of SLA management and service contracts. Appended here also is an examination of matters of business continuity management (BCM). One of the central issues with cloud computing is the potential for capricious disruption of service performance, spurring the need to have a comprehensive and clear analysis in the form of a BCM framework that articulates responses for the potential threats inherent within IT systems. In producing an exemplary model framework (p.231-248), this section clarifies the work of continuity managers and facilitates astute risk management. This is best achieved with a thorough template that evenly encompasses the various domains of an enterprise (including human resource requirements, IT infrastructure, service composition, and

business processes, p.232), and shows a cross-domain, dynamic, and macroscopic view in parallel that relates the overarching aims of business continuity to specific roles. Concluding this exhaustive work, various business case scenarios selected to speak to various of qualities of SLA implementations and the issues related therein.

Densely packed with valuable information, this work charts the intricacies of SLAs and comprehensively diagrams important concepts, with the end result being a thorough read that positions managers of cloud services adeptly for understanding and negotiating SLAs with providers. *Service Level Agreements for Cloud Computing* commands appreciation for how complex a discussion of SLAs can, and should, be with regard to the components of the relevant architecture hierarchies.