

Preface

IT-supported service provisioning is of major relevance for almost all industries and IT domains. And with the evolution of ecosystems where everything can become a service and the actual IT provisioning is virtualized, the importance of service-related infrastructures will further increase. The so-called clouds already have the buy in from industry, resulting in terms like everything-as-a-service, scale out, multi tenancy, and pay-as-you-go become increasingly popular to describe this new approach, showing on the one hand the business model behind the cloud offerings and on the other hand underlining its commercial character. From a research perspective, this somehow young discipline offers a large variety of topics and novel topics will certainly emerge.

The research project SLA@SOI (funded under the Seventh Framework Programme with grant number FP7- 216556) provides a major milestone for the further evolution towards a service-oriented economy, where IT-based services can be flexibly traded as economic good, i.e. under well-defined and dependable conditions and with clearly associated costs. Eventually, this will allow for dynamic value networks that can be flexibly instantiated thus driving innovation and competitiveness. SLA@SOI created a holistic view for the management of service level agreements (SLAs) and provides an SLA management framework that can be easily integrated into a service-oriented infrastructure.

Europe has set high goals in becoming the most active and productive service economy in the world. Especially IT supported services evolved into a common utility which is offered and consumed by many stakeholders. Cloud computing gained significant attention and commercial uptake in many business scenarios. This rapidly growing service oriented economy has highlighted key challenges and opportunities in IT-supported service provisioning. With more companies incorporating cloud-based IT services as part of their own value chain, reliability and dependability become a crucial factor in managing business. Service level agreements are the common means to provide the necessary transparency between service consumers and providers.

SLA@SOI as a major European project addresses the issues surrounding the implementation of automated SLA management solutions for service oriented infras-

structures and evaluates their effectiveness. As of today, SLAs are in general either not yet formally defined, or they are defined by a single party, mostly the provider, without further interaction with the consumer. Or SLAs are negotiated in a lengthy process with bilateral human interaction. For a vivid IT service economy, better tools are necessary to support end-to-end SLA management on a holistic scale.

SLAs are particularly relevant to cloud computing, an increasingly important and relevant deployment model for infrastructure, services, or platforms. SLA@SOI allows such services to be described by service providers through formal template SLAs. Once these template SLAs are machine readable, service composition can be established using automatic negotiation of SLAs. Moreover, the management of the service landscape can focus on the existence and state of all necessary SLAs.

A major innovation of SLA@SOI is the multi-layered aspect of the service stack. Typically, a service is dependent on many other services. For example, the offering of a software service requires infrastructure resources, software licenses or other software services. The SLA framework developed by SLA@SOI supports the configuration of complex service hierarchies with arbitrary layers. This allows end-to-end management of resources and services for the business value chain.

This book covers a large number of topics related to Clouds and service oriented infrastructures that are relevant for researchers and practitioners. It is divided into eight parts, as there are ‘Introduction to Service Level Agreements in Service Oriented Infrastructures’, ‘Foundations for Service Level Agreements’, ‘Scientific Innovations’, ‘Core Components of the Service Level Agreements Framework’, ‘Management of the Business Layer’, ‘Management of the Software Layer’, ‘Management of the Infrastructure Layer’, and ‘Selected Business Use Cases’. Comprising 21 chapters in total, this book addresses fundamental topics related to service provisioning and SLAs, it tackles scientific challenges including the modelling of the relationships between SLA properties, and it introduces a generic management framework, as well as its layers and components, that can be applied to a large variety of use cases. Last but not least, the book highlights four such use cases to demonstrate the applicability of the framework and to give users and IT providers hints on how to integrate and provide services governed by guarantees on service-quality.

We hope that readers benefit from the results of three years of research and development conducted by SLA@SOI and, at the same time, enjoy the book.

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*Philipp Wieder
Joe M. Butler
Wolfgang Theilmann
Ramin Yahyapour*

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Wieder, P.; Butler, J.M.; Theilmann, W.; Yahyapour, R.
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