A Controlled Natural Language Assisted Approach for the Design and Automated Processing of Service Level Agreements

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Abstract : The management of outsourcing relationships between IT service providers and their customers proofs to be a critical issue that has to be stipulated by means of Service Level Agreements (SLAs). Since service requirements differ from customer to customer, SLA content and language structures vary largely, standardized SLA templates may not be used and an automated processing of SLA content is not possible. Hence, SLA management is usually a time-consuming and inefficient manual process. For overcoming these challenges, this paper presents an innovative and ITIL V3-conform approach for automated SLA design and management using controlled natural language in enterprise collaboration portals. The proposed novel concept is based on a self-developed controlled natural language that follows a subject-predicate-object approach to specify well-defined SLA content structures that act as templates for customized contracts and support automated SLA processing. The derived results eventually enable IT service providers to automate several SLA request, approval and negotiation processes by means of workflows and business rules within an enterprise collaboration portal. The illustrated prototypical realization gives evidence of the practical relevance in service-oriented scenarios as well as the high flexibility and adaptability of the presented model. Thus, the prototype enables the automated creation of well defined, customized SLA documents, providing a knowledge representation that is both human understandable and machine processable.

Keywords : automated processing, controlled natural language, knowledge representation, information technology outsourcing, service level management