SOA Governance: Exploring Challenges & Benefits from an Autonomic Perspective

J. A. Parejo, Pablo Fernandez, and Antonio Ruiz-Cortés

University of Seville, Spain japarejo@us.es

Abstract. Both Academy and Industry agree in the importance of having an adequate management of the Service Oriented Architecture (SOA) to adapt and scale to meet the evolving needs of the organization. In order to face this problem, SOA Governance is defined as the set of policies and principles that manage the operations related with the SOA and allow an appropriate evolution aligned with the business goals of the organization. These are both human-oriented and infrastructure-oriented and can be applied within the overall life-cycle of the service: from designtime to run-time. Currently, some seminal works have been proposed to create a reference model for SOA Governance and some infrastructures of Governance have been proposed; current approaches rely on human-oriented tasks in governance without advanced autonomic behaviors. This paper shows SOA Governance automation as a challenge in the autonomic computing area, and analyzes how the different self-* properties of autonomic systems could be applied to this context, identifying desirable capabilities and open issues.

1 Introduction

Service Oriented Architecture (SOA) adoption by organizations is growing fast [1]. However, it inherently brings a various orders of magnitude increase on the number components of the architecture and their dependences, and consequently a dramatic growth of the effort needed to properly manage and control it [2]. In this context, SOA Governance is defined as the management process to deliver the SOA promise of effective reuse, business goals support and change responsiveness [3] [4]. Consequently, both industry and academia have identified recently SOA Governance as a hot spot [4][5].

Autonomic Computing is defined as system self-management to overcome the growing complexity of current systems as they evolve and scale [6]. In this context, the essence of Autonomic Computing is imbricated on the SOA Governance framework and its unavoidable need of automation [7]. Additionally, in a SOA, complexity and management needs come not only from computing systems, but also from the organizational structure, business processes and goals. As a consequence, a proper SOA Governance Model should seamlessly incorporate people management, organizational management, processes management and IT management. Currently our research group is working on different ways to support autonomic SOA governance as presented in this paper: (i) A governance policy enforcement mechanism based on QoS and SLA management infrastructures is under development with some initial results [25][26]. (ii) An automatic service protocol adaption engine with QoS-aware capabilities for an open source JBI compliant ESB [27] is on design phase. (iii) A policies management and enforcement model and infrastructure supported by (i) that extends the approach presented in [24] based on multi-agent systems is conceptualized.

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