Proceedings of the Third International Workshop on Autonomic and Self-Adaptive Systems WASELF'10

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PREFACE

Traditionally, handling changing requirements, faults, or upgrades on different kinds of software-based systems have been tasks performed as a maintenance activity conducted by human operators at design/development time. However, factors such as uncertainty in the operational environment, resource variability, or the critical nature of some systems which cannot be halted in order to be changed, have lead to the development of systems able to replan and reconfigure their structure and behaviour at run time in order to improve their operation without any human intervention.

This kind of systems which typically operate using an explicit representation of their structure and goals has been studied within different research areas of software engineering (e.g., component-based development, requirements engineering, software architectures, etc.) and described with different names (self-adaptive, self-healing, self-managed, autonomic systems, etc.).

Another promising approach to systems able to dynamically adapt themselves is self-organizing systems. These are typically composed by a large number of constituent components which operate according to a set of local rules, rather than with an explicit representation of its structure and goals. In this case, the emergent behaviour derived from component interaction stabilizes the system in the event of faults or changes in the environment which need to be handled.

Although most research efforts in both approaches have been isolated and lacked specific forums for discussion until recently, there is a thriving international community currently involved in the study of self-* systems, laying out the foundations that will enable their systematic development. Likewise, the goal of this workshop is gathering software engineering researchers from fields related to the development of self-* systems in order to identify critical research challenges, as well as discussing models, techniques, tools, industrial cases, and methodologies for the development of complex systems able to dynamically adapt their behaviour. Moreover, the aim of the workshop is addressing all these topics stressing the importance of integrating different achievements and devising generic approaches to self-* systems engineering.

These are the proceedings of the Third Workshop on Autonomic and Self-Adaptive Systems, affiliated with the CEDI 2010, held in Valencia, Spain, from September 7th to 10th, 2010. These proceedings contain the 4 papers selected for participating in the workshop.

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