

Introduction to SEAMS

An increasingly important requirement for a software-based system is the ability to self-manage by adapting itself at run time to handle such things as changing user needs, system intrusions or faults, a changing operational environment, and resource variability. Such a system must configure and reconfigure itself, augment its functionality, continually optimize itself, protect itself, and recover itself, while keeping its complexity hidden from the user.

The topic of self-adaptive and self-managing systems has been studied by various communities, including software architectures, fault-tolerant computing, robotics, control systems, programming languages, and biologically-inspired computing. The goal of this workshop is to bring together researchers and practitioners from many of these diverse areas to discuss the fundamental principles, state of the art, and critical challenges of self-adaptive systems. Specifically, we intend to focus on the software engineering aspects, including the methods, architectures, algorithms, techniques, and tools that can be used to support dynamic adaptive behavior.

Self-adaptation in self-managing systems represents a major new concern for software engineering. While in the past methods, tools, and notations have focused on the problem of preventing defects from occurring in our fielded systems, increasingly this is not enough. In addition, systems must take a much more aggressive role in handling and adapting to run time problems. A central concern then becomes the engineering mechanisms that can support self-adaptation. Too often today's systems achieve run time flexibility only by hard wiring in special-purpose, low-level code (like exceptions and time outs) that is difficult to change, reuse, or analyze.

The ICSE 2006 SEAMS workshop is a continuation of a number of successful workshops in the area of self-managing systems held at ICSE and FSE in recent years, including the FSE 2002 and 2004 Workshops on Self-Healing (Self-Managed) Systems (WOSS), ICSE 2005 Workshop on Design and Evolution of Autonomic Application Software (DEAS), and the ICSE 2002, 2003, 2004 and 2005 Workshops on Architecting Dependable

Systems (WADS). The objective is to consolidate the interest in the software engineering community on autonomic, self-managing, self-healing, self-optimizing, self-configuring, and self-adaptive systems through this new integrated workshop. This will be the first of several workshops to assess progress and identify challenges in this important area.

We have received 22 submissions from academic and industrial contributors. Each paper was reviewed by at least 3 members of the Program Committee, and a total of 13 full papers have been accepted for presentation. We are thankful for the support and dedication of the Program Committee members towards making this workshop a success. The Program Committee consisted of:

Gordon Blair (University of Lancaster, UK), Cristina Gacek (University of Newcastle upon Tyne, UK) Mike Hinchey (NASA Goddard, USA), Marin Litoiu (IBM Toronto, Canada), Neno Medvidovic (University of Southern California, USA), John Mylopoulos (University of Toronto, Canada), Masoud Sadjadi (Florida International University, USA), Dennis Smith (SEI, USA), Roy Sterritt (University of Ulster, UK), Alexander Wolf (University of Lugano, Switzerland), Kenny Wong (University of Alberta, Canada).

In addition, we would like to thank Onyeka Ezenwoye and Javier Torres for helping in reviewing process.

We look forward to an interesting and stimulating workshop.

Organizing committee of ICSE 2006 SEAMS.

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