ABSTRACT

Autonomic Computing arose to address issues of complex systems configuration. However research and applications of Autonomic Computing have spread to other areas. This workshop seeks to investigate and extend the introduction of adaptable decision processes within complex and adaptive interactive systems with mixed initiatives to reduce software-maintenance complexity and allow for quicker updates of current best practice by the instantaneous, distributed deployment of decision models via Cloud computing technology. The workshop will attempt to bring together researchers from HCI and Autonomic Computing in order to address the needs of distributed, adaptive systems both for the designers of such systems and their users.

1. INTRODUCTION

This workshop will identify the needs for adjustable decision processes within complex, interactive system as being essential in realizing the many benefits they may. Decision models that are easy to adapt both reduce software maintenance costs and, due to their instantaneous, distributed deployment, allow for quicker updates of current best practice, thereby improving task efficiency.

Over recent years, Autonomic Computing has emerged as a cross-disciplinary computing paradigm, which provided mechanisms for autonomous management/handling of systems’ complexity in highly dynamic operating environments. For example in eHealth, healthcare professionals interactions with eHealth systems ought to be intuitive, seamless and transparent whatever the context, environment or location of the interaction. Initially, most of such mechanisms were of a centralised nature; to maintain, via feedback control models, predictable systems behaviour. However, the widespread adoption of autonomic principles in large-scale decentralised SOA, P2P networks and/or grids, has rendered (or is now challenging the applicability of) current autonomic designs, which are inefficient in dealing with the scale, complexity and unpredictable dynamics of such systems. In order to meet future demands and provide the required functionality eHealth systems will inevitably follow a Cloud computing model, where distributed services and data will need to be autonomously managed and available to the clinicians in forms tailored to the users specific needs at the time of requesting. To this end, much research is underway leveraging the science of complex systems and self-organisation to support large-scale autonomicity.

However, little is known, about its impact on the engineering of techniques for development, deployment and management of large-scale complex software systems; for example in engineering self-organisation, addressing complexity/robustness trade-offs or addressing global emergence. This includes the scalability and complexity concerns inherent in such paradigms as the Internet of Services model, which may be delivering the eHealth functionality through a computational Cloud. This workshop aims to provide a forum to share the latest foundational results and/or empirical evaluations of autonomic, self-organising or scientific principles to support large-scale (service-oriented) software engineering for a principled approach to providing massively scalable autonomic computing for.

2. SCOPE

The workshop will seek to build upon advances made on recently completed projects in the field of HCI with large scale. For example, 2Nrich (www.cms.livjm.ac.uk/2nrich/), reporting on the effectual limits of current self-* tools and techniques to support self-organisation for autonomic computing in eHealthcare and/or addressing the future direction of autonomic computing and its continuing relevance to emerging trends, architectures and technologies at larger scales. Original research work is sought reporting on advances in (and/or limits of) the state-of-the-art in autonomous and self-organising computer science at large-scales, such as seen in Cloud computing, for interaction. Topics of interest include, but are not limited to:

- Foundational elements of autonomic computing systems and how they support interactive systems design.
- Global service modelling, design, deployment, and management of service-oriented computing systems for HCI via a computational Cloud.
- Self-organisation and the principles of emergent outcome for large assemblies of services, applications, etc. in supporting adaption to users’ needs.
- Security, trust and social issues in systems where privacy is a vital concern, such as eHealth applications, and their autonomic systems subject to emergent self-organisation.
- Comparison of centralised autonomic computing vs. decentralised emergent self-organising approaches in providing a transparent and seamless human-computational Cloud interaction whatever the context.
- Languages and tools to support autonomic response via self-organisation.
3. AUDIENCE AND POTENTIAL PARTICIPANTS

The workshop is aimed at two main audiences in general HCI and Software Engineering. In HCI we aim to attract those interested in adaptable and intelligent interfaces that wish to engage with researchers in Autonomic Computing. Conversely we which to attract researchers in Autonomic Computing who are interesting in seeing how their work meets the challenges posed by complex, interactive systems.

4. WORKSHOP PROCEDURE

The workshop will require the submission of a 2-4 pages position paper. Papers will be assessed for the timeliness, quality and relevance of their research to the workshop topic. Accepted papers will be posted on the web and authors invited to read the submissions to promote pre-workshop discussions. The organisers will generate a summary paper bringing out the main points of the submissions. We expect these pre-workshop activities will generate a list of research topics and challenges. We will identify key issues raised for further discussion at the workshop.

Delegates will then be asked to give short 10-15 minute presentations at the workshop in the morning session. In the afternoon we will break up into smaller groups to discuss the key issues raised from the pre-workshop activities and the morning presentations. Each group will report back on their discussions.

In the longer term we expect to issue a call for journal papers following the workshop. This will be a general call not limited to workshop attendees.

5. Indicative References