Abstract

This work tackles issues related to the specification and the guarantee of non-functional requirements of quality (or QoS) for distributed systems based on components or services. The subject is fundamental in some areas of current interest, such as ubiquitous computing, autonomic computing, and auto-adaptable systems.

In particular, starting from the original CR-RIO framework (Contractual Reflective - Reconfigurable Interconnectable Objects), which offers support to the specification and QoS contract management for applications, we refined its support infrastructure, delimiting the responsibilities of its elements and optimizing the configuration of its architecture. In addition, we have considered some formal aspects required for the consistent interpretation of the contract language integrated in the framework.

The new version of the CR-RIO framework was used for the development of some example applications, which allowed us to verify its suitability for the management of the services offered by these applications.