

Hallal, H., Petrenko, A., Boroday, S. and A. Ulrich. "Patterns at Work : Predefined Property Specifications for the Analysis of Distributed Systems" In *Telelogic's 2004 User Group - Americas & Asia/Pacific*. [Online]. Miami, Florida, USA, October 24-27, 2004.

Abstract

The notion of patterns is increasingly being used in the design, test, and analysis of systems, e.g., in the Rational Suite (recently acquired by IBM) and the Bandera project (University of Kansas). In particular, patterns that encode system requirements and can be used in the analysis phase are getting more common in the field of software engineering. Here, we describe an approach that targets the problem of analyzing and testing distributed systems, and whose implementation -within the ObjectGEODE (OG) toolkit of Telelogic- relies on the concept of property specification patterns. The approach consists of using traces of distributed systems to regenerate a model of the system under test in the Specification and Description Language (SDL) and using the property specification language of ObjectGEODE, GOAL, to express properties of interest. The model checker of OG is then used to verify the system against the specified properties. To facilitate the task of developers/debuggers, we construct a library of parameterized property patterns in GOAL that can be used in the verification of various applications. We also discuss how the library of GOAL patterns and the possible manipulations on them can add to the usability of the language and the toolkit.