

Properties of Modeling Techniques for Agent-Based Systems

Onn Shehory

*IBM Research Lab in Haifa – the Tel-Aviv Site
IBM Building, 2 Weizmann St. – Tel Aviv 61336, ISRAEL
Phone: 972-3-697-9180 – Fax: 972-3-691-4736
ONN@il.ibm.com*

The discipline of Agent Oriented Software Engineering (AOSE) has emerged during the last decade. In this domain, methodologies and modeling techniques have been suggested in order to support the development process of agent-based systems. Both the scientific and industrial communities have recognized the potential advantages of agent-based systems. Nevertheless, the number of deployed commercial agent-based applications is not large. We hypothesize that one of the reasons for this is weaknesses of the existing techniques. To examine our hypothesis, we review several existing techniques. In particular, we address the following questions: (1) Which agent-based system characteristics and software engineering principles are addressed within AOSE modeling techniques, and to what extent? (2) What should be the properties of the future agent-oriented modeling techniques? In this talk we provide answers to the first question, and carefully attempt to answer the second one. Answers are provided via the review of agent-oriented modeling techniques, and evaluation of these according to both software engineering criteria and agent-based system characteristics. From this evaluation we draw conclusions regarding the extent to which the examined agent modeling techniques address developers' needs. In addition, we examine the need for additional modeling features and extensions.

Based on our observations regarding weaknesses of existing modeling techniques, we are developing a technique that should overcome these weaknesses. Initial results of this new attempt will be presented.