

A New Behavioural Pattern for Mobile Code

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Nowadays, mobility in data processing has started being approached and applied in several domains: collect of information, system administration, and intrusion detection system… Nonetheless, the implementation of mobile features has to be robust, simple, secure and easily understandable. Therefore, in our research -- based on the autonomous and mobile agent as well as the intrusion detection system -- we decided, in the first place, to build a mobile agent pattern in order to provide a clean and easy way to develop an agent based application; mainly in an open and on a large scale distributed environment, such as Internet and application areas and E-commerce, as well. In our study, we chose Java Technology for the implementation because it is more suitable, secure OS independent for the development of such kind of code; it contains also a security manager mechanism that is customizable by a host accepting a mobile agent. Thus, any attack or evasion method will not perturb the behaviour of the host. In short, the host will be safer. Besides, we used JINI (Java Intelligent Network Interface) as a usable API dedicated to a user protocol.

References

- [1] "Design Patterns, Elements of Reusable Object-Oriented Software," by Gamma, Helms, Johnson, and Vlissides. Addison Wesley 1995.
- [2] D. Bonura, R. Culmone and M. Angeletti, A Pattern for Reactive Mobile Agent in Genome Database Annotation (Poster), NETTAB02 Agents in Bioinformatics, Bologna, 2002.
- [3] D. Deugo, F. Oppacher, J. Kuester, and I. Von Otte. Patterns as Means for Intelligent Software Engineering. In Proceedings of The International Conference on Artificial Intelligence, ICAI’ 99, pages 605–611. CSREA Press, 1999.
- [4] “Mobile agent for the database management using Jini “ Fabrice Mourlin, Jaouad Skaita, ICAI '2004 - 6th International Conference on Applied Informatics to be held in Eger, Hungary January 27-31 2004.
- [5] Andreea Barbu, Fabrice Mourlin "SLP-Modeling using Higher Order Pi-Calculus",Workshop JIP meets PORTA, Oldenburg, Germany, Dec. 16-18, 2001.
- [6] Andreea Barbu and Fabrice Mourlin "Higher Order Pi-Calcul Specification for a Mobile Agent in JINI". In W. Dosch, editor, 4th International Conference on Software Engineering Artificial Intelligence, Networking, and Parallel/Distributed Computing (SNPD'03). pages 250-256, ACIS, 2003.