

A dynamic approach to reliable mobile agents systems using group communication services.

Abstract:

Mobile agent is a process that can transport its state from one environment to another, with its data intact, and be capable of performing appropriately in the new environment. Fault tolerance support of mobile agent execution is essential for achieving a high and reliable performance for the computing process executed by the agent in distributed systems. Most of existing mobile agent systems considers checkpointing or replication as a mechanism in achieving the fault tolerant property. In this paper we present new protocol which employs the benefits gained from combining both mechanisms to achieve reliable mobile agent execution. Our approach uses group communication services to avail different essential issues such as agent's synchronization to facilitate the implementation the protocol. The proposed approach is dynamic in the sense that it allows a flexible membership mechanism to join or leave a mobile agent groups used in achieving the reliable execution.