Abstract

A mobile agent is a computer program that runs autonomously on behalf of a user and travels through a certain itinerary in a network of computers. When compared with normal client/server architecture, mobile agent paradigm adds up additional reliability problems since agents programs could be totally or partially lost due to failures that come from bad communication or computer agent’s crash with the recent increase of considering mobile agent in different E-World applications, reliability is considered as a crucial issue to be faced. Most of existing mobile agent systems considers check pointing or replication as a mechanism in achieving reliable and fault tolerant execution. In this paper we present new model which employs the benefits gained from combing both mechanisms to achieve reliable mobile agent execution. Our model 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.
The Modeling and Implementation of Reliable Mobile Agent Systems using Group Communication Services


Index Terms

Computer Science
Communication Systems

Keywords
Mobile Agent  Fault Tolerance  Reliability  Replication  Check-pointing  Group
Communication