Dividing agents on the grid for large scale simulation

Ho D.P., Bui T.D., Do N.L.
College of Technology, Vietnam National University, Hanoi

Abstract: Multi-agent based simulation is an important methodology that uses models incorporating agents to evaluate research conclusions. When the simulation involves a large number of agent, however, it requires extensively high computational power. In that case, all agents in the simulation model should be distributed in a way so that agents can be run in parallel on multiple computational nodes to gain the required performance speed up. In this paper, we present a framework for large scale multi-agent based simulation on grid. We have modified the desktop grid platform BOINC for multi-agent based simulation. Assuming that the agents interact locally with the environment, we proposed an approach to divide the agents for grid nodes so that we can keep load balancing for the distributed simulation while optimizing the communication between grid nodes and the grid server. We have implemented the food foraging simulation to evaluate the feasibility of the framework. ?? 2008 Springer Berlin Heidelberg.
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Authors with affiliations:

1. Ho, D.P., College of Technology, Vietnam National University, Hanoi
2. Bui, T.D., College of Technology, Vietnam National University, Hanoi
3. Do, N.L., College of Technology, Vietnam National University, Hanoi

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