

Abstract:

Dynamic networks are a challenge for the deployment of distributed applications on autonomous machines. But, these networks can meet problems with implementation of services such as routing and security in general. In this sense, the multi-agent systems are well suited for the design of distributed systems where several autonomous agents interact or work together to perform some set of tasks or satisfy some set of goals and moving the problem of analyzing from a global level to a local level and then reduce the complexity of the design (Ferber, 1997) In this paper we present a generic model Multi Agent system that we adapt to develop a new routing protocol for ad hoc networks. Wireless ad hoc networks are infrastructureless networks that comprise wireless mobile nodes able to communicate each other outside wireless transmission range. Due to frequent network topology changes in one hand and the limited underlying bandwidth in the other hand, routing becomes a challenging task. In this paper we present a novel routing algorithm devoted for mobile ad hoc networks. It entails both reactive and proactive components. More precisely, the algorithm is based on ant general behavior, but differs from the classic ant methods inspired from Ant-Colony-Optimization algorithm (Dorigo, Birattari and Stutzle, 2006). We do not use, during the reactive phase, a broadcasting technique that exponentially increases the routing overhead, but we introduce a new reactive route discovery technique that considerably reduces the communication overhead