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**A HYBRID BIO-INSPIRED ALGORITHM FOR SCHEDULING AND RESOURCE MANAGEMENT IN CLOUD ENVIRONMENT**

**Abstract:**

In this paper, we propose a novel HYBRID Bio-Inspired algorithm for task scheduling and resource management, since it plays an important role in the cloud computing environment. Conventional scheduling algorithms such as Round Robin, First Come First Serve, Ant Colony Optimization etc. have been widely used in many cloud computing systems. Cloud receives clients tasks in a rapid rate and allocation of resources to these tasks should be handled in an intelligent manner. In this proposed work, we allocate the tasks to the virtual machines in an efficient manner using Modified Particle Swarm Optimization algorithm and then allocation / management of resources (CPU and Memory), as demanded by the tasks, is handled by proposed HYBRID Bio-Inspired algorithm (Modified PSO + Modified CSO). Experimental results demonstrate that our proposed HYBRID algorithm outperforms peer research and benchmark algorithms (ACO, MPSO, CSO, RR and Exact algorithm based on branch-and-bound technique) in terms of efficient utilization of the cloud resources, improved reliability and reduced average response time.