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**A PARETO-BASED GENETIC ALGORITHM FOR OPTIMIZED ASSIGNMENT OF VM REQUESTS ON A CLOUD BROKERING ENVIRONMENT**

**Abstract:**

In this paper, we deal with cloud brokering for the assignment optimization of VM requests in three-tier cloud infrastructures. We investigate the Pareto-based meta-heuristic approach to take into account multiple client and broker-centric optimization criteria. We propose a new multi-objective Genetic Algorithm (MOGA-CB ) that can be integrated in a cloud broker. Two objectives are considered in the optimization process: minimizing both the response time and the cost of the selected VM instances to satisfy the clients and to maximize the profit of the broker. The approach has been experimented using realistic data of different types of Amazon EC2 instances and their pricing history. The reported results show that MOGA-CB provides efficiently effective Pareto sets of solutions.