INDERSCIENCE PUBLISHERS
Linking academia, business and industry through research

Title: Load balancing in cloud computing using cuckoo search algorithm

Authors: Brototi Mondal

Addresses: Department of Computer Science, Sammilani Mahavidyalaya, University of Calcutta, Kolkata, India

Abstract: A competent cloud load balancer should modify its approach to the dynamic environment and the different types of tasks. Load balancing (LB) in cloud computing can be viewed as an optimisation problem. As load balancing in cloud is an NP-complete problem, the best solution cannot be found using gradient-based methods that look for optimal solutions to NP-complete problems in a reasonable amount of time. Therefore, evolutionary and meta-heuristic methods should be applied to tackle the load balancing issue. In this paper, a novel load balancing method based on cuckoo search (CS) algorithm is proposed. This method successfully distributes the load among the available virtual machines (VMs) while maintaining a low response time (RT) overall. Thus, its simulation is performed, and comparative simulation results reveal that the suggested approach outperforms existing tactics like round robin (RR), stochastic hill climbing (SHC), and genetic algorithm (GA).

Keywords: cloud computing; load balancing; cuckoo search algorithm; response time.

DOI: 10.1504/IJCC.2024.139594

International Journal of Cloud Computing, 2024 Vol.13 No.3, pp.267 - 284

Received: 06 Feb 2023
Accepted: 08 Jun 2023
Published online: 04 Jul 2024 *