

ETSCC008 - Improving the RespoCCe Time of M-Learning and Cloud Computing Environments Using a Dominant Firefly Approach

Abstract

Mobile learning (m-learning) is a relatively new technology that helps students learn and gain knowledge using internet and Cloud computing technologies. Cloud computing is one of the recent advancements in the computing field that makes internet access easy to end users. Many Cloud services rely on Cloud users for mapping Cloud software using virtualization techniques. Usually, Cloud users' requests from various terminals will cause heavy traffic or unbalanced loads at the Cloud data centers and associated Cloud servers. Thus, a cloud load balancer that uses an efficient load balancing technique is needed in all the cloud servers. We propose a new meta-heuristic algorithm named the dominant firefly algorithm that optimizes load balancing of tasks among multiple virtual machines (VMs) in the Cloud server, thereby improving the response efficiency of Cloud servers that concomitantly enhances the accuracy of m-learning systems. Our methods and findings used to solve load imbalance issues in Cloud servers, which will enhance the experiences of m-learning users. Specifically, our findings such as Cloud SQL Structured Query Language, querying mechanism in mobile devices will ensure users receive their m-learning content without delay; additionally, our method will demonstrate that by applying an effective load balancing technique would improve the throughput and the response time in mobile and cloud environments.

INDEX TERMS Cloud computing, dominant firefly algorithm, load balancing, Mobile learning (mlearning), virtual machines