## A Bee Colony based Multi-Objective Load Balancing Technique for Cloud Computing Environment

{tag}

{/tag} International Journal of Computer Applicatio<u>ns</u> © 2015 by IJCA Journal

Volume 114 - Number 4

Year of Publication: 2015

Authors:

Ashish Soni

Gagan Vishwakarma

Yogendra Kumar Jain

10.5120/19967-1825

{bibtex}pxc3901825.bib{/bibtex}

## Abstract

With the recent development of open cloud systems a surge in outsourcing assignments from an internal server to a cloud supplier has been seen. The Cloud can facilitate its clients enormous resources hence even during heavy load conditions. Since the cloud needed to be handle multiple clients workload at same time and each client may have different resource requirements hence choosing proper resources for given workload in such a system, in any case, is a difficult problem. This paper addresses this streamlining issue in a cloud system with different client's priority groups and resource requirements and proposes a bee colony based Multi-Objective load balancing technique, to attain efficient load scheduling over virtual machines under cloud. The proposed algorithm assigns the workload on the virtual machines in such a way that it minimizes the total processing cost in cloud without sacrificing priority of tasks and load management performance.

## ences

1/3

Refer

- Ali Khajeh-Hosseini, David Greenwood, Ian Sommerville, 2010 "Cloud Migration: A Case Study of Migrating an Enterprise IT System to IaaS", Proceeding CLOUD '10 Proceedings of the IEEE 3rd International Conference on Cloud Computing Pages 450-457.

- Alexander Lenk, Markus Klems, Jens Nimis, Stefan Tai, Thomas Sandholm, 2009 "What's Inside the Cloud? An Architectural Map of the Cloud Landscape", Proceeding CLOUD '09 Proceedings of the ICSE Workshop on Software Engineering Challenges of Cloud Computing Pages 23-31.

- Rajkumar Buyya, Rajiv Ranjan, Rodrigo N. Calheiros, 2010 "InterCloud: Utility-Oriented Federation of Cloud Computing Environments for Scaling of Application Services", ProceedingICA3PP'10 Proceedings of the 10th international conference on Algorithms and Architectures for Parallel Processing - Volume Part I.

- Shu-Ching Wang, Kuo-Qin Yan, Wen-Pin Liao and Shun-Sheng Wang, 2010 "Towards a Load Balancing in a Three-level Cloud Computing Network", Computer Science and Information Technology (ICCSIT), 2010 3rd IEEE International Conference on (Volume:1): 9-11.

- Abhishek Gupta, Osman Sarood, Laxmikant V Kale, Dejan Milojicic, 2013 "Improving HPC Application Performance in Cloud through Dynamic Load Balancing", Cluster, Cloud and Grid Computing (CCGrid), 2013 13th IEEE/ACM International Symposium on13-16.

- Ratan Mishra and Anant Jaiswal, 2012 "Ant colony Optimization: A Solution of Load balancing in Cloud", International Journal of Web & Semantic Technology (IJWesT) Vol. 3, No. 2.

- Nidhi Jain Kansal, Inderveer Chana, 2012 "Cloud Load Balancing Techniques: A Step Towards Green Computing", IJCSI International Journal of Computer Science Issues, Vol. 9, Issue 1, No 1, ISSN (Online): 1694-0814.

- Ruben Van den Bossche, Kurt Vanmechelen and Jan Broeckhove, 2010 "Cost-Optimal Scheduling in Hybrid IaaS Clouds for Deadline Constrained Workloads", IEEE 3rd International Conference on Cloud Computing.

- Ambika Mishra, Prof. Susheel Jain and Prof. Anurag Jain, 2014 " A Hierarchical Resource Switching and Load Assignment Algorithm for Load Balancing in Cloud System", International Journal of Scientific & Engineering Research, Volume 5, Issue 3.

- T. Casavant and J. G Kuhl, 1988 "Taxonomy of scheduling in general-purpose distributed computing systems", IEEE Transaction on Software Engineering, vol. 14, issue 2, pp 141-154.

- Dušan Teodorovi?, 2009 "Bee Colony Optimization (BCO)", Innovations in Swarm Intelligence Studies in Computational Intelligence Volume 248, Pages 39-60.

- Dhinesh Babu L. D., P. Venkata Krishnab, 2013 "Honey bee behavior inspired load balancing of tasks in cloud computing environments", ELSEVIER Applied Soft Computing 13,Pages 2292–2303.

Computer Science

Index Terms Distributed Systems

## Keywords

Cloud Computing Scheduling Load Balancing Bee Colony Optimization