Abstract

Computational grid is a potential technology mainly used for distributed environment. The major issues related with Grid are resource discovery, heterogeneity, fault tolerance and task scheduling. Grid task scheduling is an integrated component of computing which effectively utilizes the idle time of resources. Efficient scheduling algorithm is needed to utilize the resources effectively and reduce the overall completion time. This paper analyzes the performance of scheduling algorithms from different point of view such as makespan, execution time, completion time and load balancing. First, the general view of World Wide Web grid computing environment and its functions are discussed. Then this paper examines the performance of four scheduling algorithms such as Min-Min, Max-Min, Minimum Completion Time and Minimum Execution Time. Based on the comparative study of various algorithms, some common issues are proposed. The conventional Max-Min grid task scheduling algorithm effectively utilizes the resources and minimizes the makespan than other scheduling algorithms. This survey shows that Max-Min grid task scheduling algorithm outperforms the other algorithms in both task and resource heterogeneous environment.

References

- Ian Foster, Carl Kesselman, Steven Tuecke. 2001. The Anatomy of the Grid Enabling
Computing and Technologies Computer Society of India.
- Braun, T.D., Siegel, H.J., Beck, N., Boloni, L.L., Maheswaran, M., Reuther, A.I.,
Robertson, J.P., et al. 2001. A comparison of eleven static heuristics for mapping a class of
independent tasks onto heterogeneous distributed computing systems. Journal of Parallel and
Distributed Computing, Vol. 61, No. 6, pp.810–837.
- Buyya, R., Abramson, D. and Giddy, J. Nimrod/G: architecture of a resource
Management and scheduling system in a global computational Grid. 2000. High Performance
Computing Asia 2000, Beijing, China, May 14-17, pp.283-289.
- HE Xiaoshan, Xian –He sun, Gregor von Laszewski. Qos Guided Min-Min Heuristic for
- Raksha Sharma, Vishnu Kant Soni, Manoj Kumar Mishra, Prachet Bhuyan. 2010. A
Survey of Job Scheduling and Resource Management in Grid Computing, World Academy of
Science, Engineering and Technology 64.
- T.Kokilavani, Dr.D.I.George Amalarethinam. Load Balanced Min-Min Algorithm for static
Applications, Volume 20 – No.2.
- Kamalam.G.K and Muralibhaskaran.V. A New Heuristic Approach:Min-Mean Algorithm
For Scheduling Meta-Tasks On Heterogenous Computing Systems . 2010. IJCSNS
Model based on Grid Environment. IEEE Proceedings of the First international Conference on
Number 4.
- Sameer Singh Chauhan, R.C.Joshi. Qos Guided Heuristic Algorithms for Grid Task
International Journal on Computer Science and Engineering, ISSN: 0975-3397 Vol. 3 No. 2.
Priority Grouping. 2006. In the Proceedings of the Fifth International Conference on Grid and
Cooperative Computing (GCC’06), IEEE.
Scheduling. 2007. The Third IEEE/IFIP International Conference on Internet, Uzbekistan.
- Ullah Munir. E, Li. Jianzhang, and Shengfei, Shi. QoS Sufferage Heuristic for
- Geoffrey Falzon, Maozhen Li. Enhancing list scheduling heuristics for dependent job

Index Terms

Computer Science
Distributed Computing
Keywords
Grid Computing  Task scheduling  Heterogeneous computing  Makespan