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RESEARCH ARTICLE

Online Optimization for Scheduling Preemptable Tasks on IaaS Cloud Systems

S. Gandhimathi[1], M. Madhushudhanan[2], A. Srivishnu Paraneetharan[3]

[1]Department of Computer Science, PGP College of Arts and Science, Periyar University, India
[2]Department of Computer Science, PGP College of Arts and Science, Periyar University, India
[3]Department of Computer Science, PGP College of Arts and Science, Periyar University, India

[1] gandhipgp@gmail.com; [2] mshudhanan@gmail.com; [3] vishnu_sri@yahoo.com

Abstract— In Infrastructure-as-a-Service (IaaS) cloud computing, computational resources are provided to remote users in the form of leases. For a cloud user, he/she can request multiple cloud services simultaneously. In this case, parallel processing in the cloud system can improve the performance. When applying parallel processing in cloud computing, it is necessary to implement a mechanism to allocate resource and schedule the execution order of tasks. Furthermore, a resource optimization mechanism with preemptable task execution can increase the utilization of clouds. In this paper, we propose two online dynamic resource allocation algorithms for the IaaS cloud system with preemptable tasks. Our algorithms adjust the resource allocation dynamically based on the updated information of the actual task executions. And the experimental results show that our algorithms can significantly improve the performance in the situation where resource contention is fierce.

Full Text: http://www.ijcsmc.com/docs/papers/July2013/V2I7201354.pdf