A Resource Optimization Strategy for CPU (Central Processing Unit) Intensive Applications

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Abstract : On the basis of traditional resource allocation strategies, the usage of resources on physical servers in cloud data center is great uncertain. It will cause waste of resources if the assignment of tasks is not enough. On the contrary, it will cause overload if the assignment of tasks is too much. This is especially obvious when the applications are the same type because of its resource preferences. Considering CPU intensive application is one of the most common types of application in the cloud, we studied the optimization strategy for CPU intensive applications on the same server. We used resource preferences to analyze the case that multiple CPU intensive applications run simultaneously, and put forward a model which can predict the execution time for CPU intensive applications for a machine. Experiments show that the model can predict the execution time accurately for CPU intensive applications. To improve the execution efficiency of applications, we propose a scheduling model based on priority for CPU intensive applications. Extensive experiments verify the validity of the scheduling model.

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