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Improvement of Power Consumption and Execution Time in Cloud Computing Approach to Resource Allocation and Tasks Scheduling

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ABSTRACT

Scientific workflows are one of the famous ways of modeling cloud applications. One of the most challenging research issues in this context is how to schedule the different tasks onto the available resources so that we can reduce completion time of workflow's tasks. On the other hand one of the major and challenging issues in cloud computing is to reduce the power consumption of data centers. The problem is contradicts these qualitative criteria that many algorithms try to optimize them. In this article to reduce power consumption and reduce completion time of tasks, resource allocation has been done on two levels: At first, at the infrastructure level, we allocate physical resources to virtual machines so that we have increase resource utilization and reduce power consumption in the data center. Next we schedule applications on these virtual machines so that we decrease completion time of tasks. Our Experiments show that this method is successful.

Keywords: Cloud Computing, Tasks' Graph, Tasks Scheduling, Resource Allocation, Power Management.