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Modification of the load balancing system for a heterogeneous distributed computing system

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The improvement of the server load balancer in distributed computing systems based on the BOINC platform is being considered. Such a grid system includes an application server, a database, a task scheduler, and client software installed on the nodes. The efficient operation of the scheduler determines the use of computing resources and minimizes node downtime. Simulation modeling using the ComBoS simulator is used to analyze and modify scheduling algorithms, as well as reduce overhead costs. The use of ComBoS makes it possible to study in detail the behavior of a heterogeneous system in a controlled environment, avoiding the costs and limitations associated with the actual functioning of the grid system. As part of the work, computational experiments were conducted to simulate the scenarios of the grid system based on historical data from the RakeSearch project. During the simulation, the capacity of client resources varied, as well as the complexity of tasks. Analyzing the status of clients throughout the simulation allowed us to identify and minimize task waiting intervals, which led to an increase in the efficiency of using available computing power.

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