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Design and implementation of a service for performing HPC computations in cloud environment.

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Cloud computing became a routine tool for scientists in many domains. In order to speed up an achievement of scientific results a cloud service for execution of distributed applications was developed. It obviates users from manually creating and configuring virtual cluster environment or using batch scheduler and allows them only to specify input parameters to perform their computations. One of the key parameters that this service aims to help users with is virtual cluster configuration. For most applications it is difficult to tell the optimal number of cluster nodes, amounts of their threads per node and memory so that application would have a minimal execution time. In this work an approach to optimization of cluster configuration has been proposed and software system for launching HPC application in a cloud has been presented.

Primary author: KUCHUMOV, Ruslan (Saint Petersburg State University)

Co-author: Dr KORKHOV, Vladimir (St. Petersburg State University)

Presenter: KUCHUMOV, Ruslan (Saint Petersburg State University)

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