

The 6th International Conference "Distributed Computing and Grid-technologies in Science and Education"



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Modeling of Behavior of the Option. The Formulation of the Problem

Thursday, July 3, 2014 1:00 PM (1 hour)

Object of research: The creation of algorithm for mass computations of options' price for formation of a riskless portfolio. The method is based on the generalization of the Black-Scholes approach[1]. The task is the modeling of behavior of all options and tools for their insurance. This task is characterized by large volume of real-time complex computations that should be executed concurrently

The problem of the research: depending on conditions approaches to the solution should be various. There are three methods which can be used with different conditions: the finite difference method[2], the path-integral approach[3] and methods which work in conditions of trade stop [4]. Distributed computing in these three cases is organized differently and it is necessary to involve various approaches.

In addition to complexity the mathematical formulation of the problem in literature is not quite correct. There is no complete description of boundary and initial conditions[5] and also several hypotheses of the model do not correspond to real market[6].

It is necessary to give mathematically correct formulation of the task, and to neutralize a difference between hypotheses of the model and their prototypes in the market. For this purpose it is necessary to expand standard formulation by additional methods and develop methods of realization for each of solution branches.

References

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