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Consideration of the efficiency of Layered Server-Client topology for parallel distributed GA on large problem. (English) [Zbl 1157.68524](#)

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Summary: In most of the popular implementation of parallel GAs the whole population is divided into a set of subpopulations, each subpopulation executes GA independently and some individuals are migrated at fixed intervals on a ring topology. In these studies, the migrations usually occur 'synchronously' among subpopulations. Therefore, CPUs are not used efficiently and the communication do not occur efficiently either. A few studies tried asynchronous migration but it is hard to implement and to set proper parameter values.

The aim of our research is to develop a migration method which is easy to implement, which is easy to set parameter values, and which reduces communication traffic. In our previous research, we proposed Elite Migration on the Server-Client topology and Layered Server-Client topology. In this paper, we consider the effectiveness of Layered Server-Client topology on large problem, especially on TSP with 2392 cities.

For the entire collection see [[Zbl 1154.68012](#)].

MSC:

[68W10](#) Parallel algorithms in computer science

[68T05](#) Learning and adaptive systems in artificial intelligence

Keywords:

Layered Sever-Client topology; parallel distributed genetic algorithm; large problem