

THE ESSENCE AND PURPOSE OF QUEUING IN THE ECONOMY

In practice, the study of operations often has to deal with systems, which are designed for repeated use in solving similar problems. This can be a turn to the cinema or car service stations, turn the warehouse during loading or unloading goods, and so on. The processes that occur at the same time are called service processes and systems – queuing systems.

Scientific analysis of queuing processes in many cases is difficult. You cannot always rely only on intuition, when you assess influence on the mode of the systems indicators such as the frequency of the request for service, maintenance time requirements, the number and location of the various components of a complex service, etc.

The level of complexity of the optimization problem depends on the structural characteristics of the queuing system and on such questions as how wide the range of alternatives is that we want to analyze.

The main task of queuing theory is the study of mode of operation serving system and study of the phenomena occurring during the service. Thus, one of the characteristics of the system is the time of requirement in line. Obviously, this time can be reduced by increasing the number of service devices.

However, each additional device requires certain material costs, while increasing service system idles time due to the lack of requirements for maintenance, which is also a bad thing. So in theory there is a queuing systems optimization problem: how to achieve a certain level of service at minimal cost associated with downtime of servicing devices.

Currently, there is no single approach to solve optimization problems in the field of queuing. In most cases, to solve each specific task a narrow target guideline method of optimization is used (i.e. the method is suitable only for solving this class of problems). If the system is too complex, we will use methods of simulation.

If the system is simple, we will use analytical methods, but if the system is too complex, the methods of simulation.

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