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A fuzzy multi-objective model for capacity allocation and pricing policy of provider in data communication service with different QoS levels. (English) Zbl 1307.90165
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Summary: Data communication service has an important influence on e-commerce. The key challenge for the users is, ultimately, to select a suitable provider. However, in this article, we do not focus on this aspect but the viewpoint and decision-making of providers for order allocation and pricing policy when orders exceed service capacity. It is a multiple criteria decision-making problem such as profit and cancellation ratio. Meanwhile, we know realistic situations in which much of the input information is uncertain. Thus, it becomes very complex in a real-life environment. In this situation, fuzzy sets theory is the best tool for solving this problem. Our fuzzy model is formulated in such a way as to simultaneously consider the imprecision of information, price sensitive demand, stochastic variables, cancellation fee and the general membership function. For solving the problem, a new fuzzy programming is developed. Finally, a numerical example is presented to illustrate the proposed method. The results show that it is effective for determining the suitable order set and pricing policy of provider in data communication service with different quality of service (QoS) levels.

MSC:

- 90C29 Multi-objective and goal programming
- 90C70 Fuzzy and other nonstochastic uncertainty mathematical programming
- 90B18 Communication networks in operations research

Cited in 5 Documents

Keywords:

pricing policy; quality of service (QoS); order allocation; fuzzy set theory

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