

数学与系统科学研究院

计算数学所学术报告

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报告题目:

**An Efficient Linear Programming
Rounding-and-refinement Algorithm
for Large-scale Network Slicing
Problem**

邀请人: 刘亚锋 副研究员

报告时间: 2021 年 4 月 16 日 (周五)

下午 14:30-15:30

报告地点: 科技综合楼

311 教室

摘要:

In this paper, we consider the network slicing problem which attempts to map multiple customized virtual network requests (also called services) to a common shared network infrastructure and allocate network resources to meet diverse service requirements, and propose an efficient two-stage algorithm for solving this NP-hard problem. In the first stage, the proposed algorithm uses an iterative linear programming (LP) rounding procedure to place the virtual network functions of all services into cloud nodes while taking traffic routing of all services into consideration; in the second stage, the proposed algorithm uses an iterative LP refinement procedure to obtain a solution for traffic routing of all services with their end-to-end delay constraints being satisfied. Compared with the existing algorithms which either have an exponential complexity or return a low-quality solution, our proposed algorithm achieves a better trade-off between solution quality and computational complexity. In particular, the worst-case complexity of our proposed algorithm is polynomial, which makes it suitable for solving large-scale problems. Numerical results demonstrate the effectiveness and efficiency of our proposed algorithm.

欢迎大家参加!