

COMP 567 CASE STUDY

Initial Description of Problem

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Setting up wireless base stations

Introduction

One wireless service provider currently has smaller service region than Rido does. Such disadvantage was used by Rido in its commercials which won them some customers back. Now the provider wants to fight back by locating more wireless base stations so as to provide a larger service region than Rido can. The provider needs a plan to achieve this goal which involves enlarging the service region by optimizing the spent on equipments and the locations of new wireless base stations, so as to maximize its profits.

Problem Statement

Maximize the provider's total profits of the next three years by choosing a certain number of wireless base stations to be installed.

Constraints

Size of the new service region

The new service region should be at least as large as Rido's.

Amount of the available funding

There is an upper bound of the funding can be used to install base stations.

The service capacity constraints

The amount of new coming customers can not exceed the service capacity of the installed equipments.

The compatibility constraints

The new installed equipments have to be compatible with the existing ones.

The maintenance constraints

The maintenance requirements have to be achieved on time according to equipments manual.

Data

The service region data can be found on www.fido.ca and www.telus.com . We can use fido and telus service region as a reference. The other technical data could be found mainly from www.cisco.com and www.huawei.com.cn .