

Using Integer Linear Programming to Clear Payments

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(joint work with David Romero and Francisco Solís)

In the last decade payment systems have received a great deal of attention. This is due mainly to their importance in reducing the risk and increasing the efficiency in the financial markets. The amount of monetary resources that flow through the payment system of a modern country in a week is about the same size of the annual gross domestic product.

An important part of any payment system is its clearing and settlement subsystems. Those are the parts of the system where finally the payment is done. Modern systems work in almost real time and therefore it is required that payments flow as fast as possible. In order to achieve this some amount of credit is necessary; the lesser the better. Thus, some heuristics to process the payments queue have been devised by the experts. Recently a number of countries started a different course of action. They approach the queue processing as an optimization problem. Besides a recent paper by Guntzer, Jungnickel and Leclerc, which describes the German experience, almost nothing is known about how other countries are solving the problem.

In this talk we show the Mexican approach for the high value payment system called SPEUA.