Improving the Usability of Cellular Charging Solutions

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Abstract

Finding an effective resource sharing mechanisms for wireless internet access networks remains a difficult yet important scientific problem. This problem is based on the real world demand: The capacity of today's cellular networks is not enough to fulfill the increasing communication demand of smart phone and tablet users.

In general, spare resources are efficiently shared monetary means. The price of the spare resource is gained by a market and those who are willing to pay the actual price of the resource will be able to buy it. However, in case of mobile internet access this mechanism fails as most end user contracts are of long duration and their pricing is inflexible. Thus, economic incentives do not seem to be suitable for short term capacity problems as the impact of changed prices on resource consumption can be seen rather after months. As a consequence, various other technical control schemes are applied to control resource consumption and resource sharing in wireless networks.

Besides pure technical solutions, we believe that also end users can be convinced to change their surfing behavior in order to save scare resources in times of overload. Dynamic changing prices are a straight forward scheme to control resource consumption. Of course, if the users – used to hassle free flat rates – cannot be convinced to change to a dynamic pricing scheme easily. The process of checking prices regularly takes times and users might not want to spend more time for pricing and payment.

In our opinion charging solutions for cellular networks can be made a lot more simple and user friendly by reducing the users' interaction time. In the talk, we will highlight a set of simplification measures that enable us to greatly reduce the transaction costs of cellular charging solutions, increase the comparability of different pricing schemes, reduce the user interaction time, reduce financial risks and increase the easiness of observing and control transactions and contracts.

As a consequence, end users can agree on changing prices and modified contracts within seconds. As a result, they are included in the loop of demand and usage. This helps to make the network be used more efficient and – in the end – reduce cost of providing network capacity.