# On price based network provisioning: Challenges and approaches

Vladimir Marbukh
*Advanced Network Technologies Division*
*National Institute of Standards and Technology*
*100 Bureau Drive, Stop 3460*
*Gaithersburg, MD 20899-3460, USA*

**Abstract**

It is known that unlimited price competition among service providers for the user demands as well as competition among users for the network resources may result in undesirable equilibrium resource allocation. We are discussing effect of competition among service providers for the user demands on the equilibrium prices and service availability for the users. We are looking at both, Nash and evolutionary concepts of equilibrium. Pricing for social welfare (aggregate utility) optimization has been considered by F. Kelly et. al. We discuss possible extensions of this work to pricing network resources and network contracts for developing distributed network management schemes intended to maximize the aggregate utility.

*Joint work with Robert Van Dyck.*