

CEC04 Tutorial

"Trust and Reputation Management in Peer-To-Peer Networks"

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Abstract

The problem of encouraging trustworthy behavior in P2P online communities by managing peers' reputations has drawn a lot of attention recently. The key presumptions of emerging "reputation systems" are that the participants of an online community engage in repeated interactions and that the information about their past doings is informative of their future performance and as such will influence it. Thus, collecting, processing, and disseminating the feedback about the participants' past behavior is expected to boost their trustworthiness. Many empirical studies confirm this expectation.

The design of P2P reputation systems must be done with great care. There are many dimensions of the problem that must be taken into account. The most important ones include: the trust related semantics (how precisely a given model contributes to building trust), the implementation overhead (including the communication and storage overhead and the relevant information aggregation costs) and the assumed behavior of the peers (e.g. utility maximizing behavior). In this tutorial we classify the existing approaches along these three dimensions, identifying their strong points and potential drawbacks and point the possible ways to proceed in order to construct reputation systems with clear trust semantics, low implementation overhead, that are robust enough against various misbehaviors of the peers.

Biography

I was born April 30, 1969 in Valjevo, Serbia and Montenegro (former Yugoslavia). I am currently a citizen of Serbia and Montenegro. In 1989 I moved to Belgrade for studies and graduated from Faculty of Electrical Engineering (Computer Science Direction) of University of Belgrade, Serbia and Montenegro in 1995. After graduating I worked for almost four years for Yugoslav Chamber of Commerce and Industry. The main focus of my work there was Web development under at that time emerging Java and XML technologies. I had several publications, mostly on Java, and gave numerous courses on this programming language. In 1999 I moved to Switzerland, EPFL - Swiss Federal Institute of Technology in Lausanne, where I first completed the pre-doctoral program at the Communication Systems Department (1999-2000), working on a project related to emerging public key cryptographic schemes. Since September 2000 up to now I am a Ph.D. student and teaching assistant at Distributed Information Systems Laboratory at EPFL, Computer Science and Communication Systems Faculty. I work on the problem of enabling e-commerce in P2P networks. The main focus of the work is on designing P2P reputation systems, on the one hand, and P2P-suitable exchange and trading mechanisms, on the other.