

Topic 7: Trust and Reputation

1 Guidelines

Trust can be seen in every aspects of daily life. Whenever we do something, we expect a good result caused by such an action. In other words, we trust our action. No one except crazy people wants to do harmful things. On the other hand, whenever we do business with someone, we trust them on the success of our business. For example, we trust doctors for their advices on our health; we trust mechanical engineers for maintaining our cars; we trust structural engineers for building our houses... To some extend, our society can not exist without trust. Since trust plays an important role in our life, it has been extensively researched in many sciences from sociology, psychology, philosophy to economics, political and computer science.

As mentioned above, if we do a business, we trust our business partner. However, how can we know that our partner is good in business to trust him? Let see an example as follows. Assume that we want to set up a new company and look for a skillful director to manage the company on behalf of us since we are busy, and we already have a candidate. If in some ways we know that the candidate used to manage many companies successfully, we can hire him. However, if we know that he is a cheater, definitely we don't hire him. The criterion we used to measure our trust in our partner in this example is the reputation of our partner.

A computer or Peer-to-Peer system can be considered as a small society in which each computer or peer is an individual in the society. In this society, trust is a belief of one computer or peer to another one in the successful of a transaction while reputation of a computer or peer is evaluated from transactions it has done in the previous time. The purpose of trust management in Peer-to-Peer systems is to detect malicious peers by checking their behaviors. Additionally, this technique can help to encourage good transactions between peers in the system. This topic should introduce the way trust and reputation is applied in Peer-to-Peer systems, and all of its aspects. In special, you should first give definitions of trust, reputation, and properties and values of trust. After that, you should present trust models and concrete systems using them. Then, you can focus on the way reputation of peers is managed in the system. Finally, you should show existing frameworks and protocols supporting trust management.