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Trust in Social and Sensor Networks

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Trust In Social and Sensor Networks

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Introduction

Trust can be defined as the perception of the trustor about the degree to which the trustee would satisfy an expectation about a transaction constituting risk.

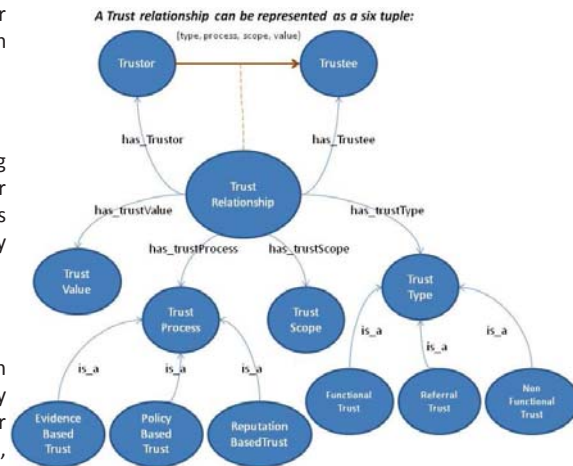
Motivation

Trust plays a pivotal role when the risk in believing incorrect information is high. With Web 2.0 where user generated content and real time interactions dominate, the openness of data contribution may hinder the quality of information we can get.

Semantics of Trust

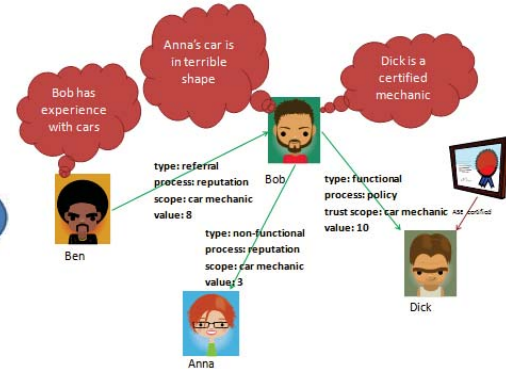
Trust is a perception that we have in our mind about an entity. Even though trust is subjective and not directly measureable we quantify trust in an agent, content or resource via other features like popularity, influence, authority, reliability etc.

Trust Ontology



Trust in Social Networks

Social networks are widely used not only as a conversational media but also as a means of sharing valuable information on health, product advice, real time events etc. With the openness and size of data being generated, there is no way to control the quality of content. Trust is crucial when there is a decision to be made by a person in the presence of uncertainty or contradicting information from various sources.



Trust Model

There has been a lot of research in the area of trust in recommender systems, P2P networks, sensor networks, and social networks. Our model conceptualizes trust in terms of concepts such as type, process, scope and value(between trustor and trustee). Trust process is a way by which we arrive at the trust values. It can be policy based, reputation based, and evidence based. Trust type is the type of trust relationship. It is one of functional, non-functional or referral. Trust scope captures the context for which the trust relationship is established. Trust value quantifies trust for comparison purposes. The output of trust process is the trust value for a given trust type and scope.

Trust in Sensor Networks

Large sensor networks built from cheap, low quality sensors generate billions of observations. It is crucial to infer highly reliable conclusions from these observations. Semantic Web technologies facilitate an explicit representation of the domain of sensors and integrate observations from heterogeneous sensor networks.

References

Krishnaprasad Thirunarayan, Pramod Anantharam, Cory Henson, Amit Sheth, 'Some Trust Issues in Social Networks and Sensor Networks,' In: Proceedings of 2010 International Symposium on Collaborative Technologies and Systems (CTS 2010), Chicago, IL, May 17-21, 2010.

