Social Networks

Social networking has become a new culture and spawned several social networking systems. Social networking sites offer a virtual medium for people to come together and socialize by allowing them to share their profiles, photos, play games and make connections.

Social Search is another emerging area in the world of social networking sites. The concept is to perform a search from a people’s circle of friends and their friends. Sometimes questions are complicated and subjective and it is hard to find answers to some questions by googling for the answers. So you really need a person or an expert who you can have a short exchange with. And the results will be more relevant when they come from people closer to you in the social network.

System Model and Design

We design an algorithm to effectively route questions and answers in social networks. Our Algorithm has two parts:
1. Algorithm for creating hook group that forwards the question on behalf of querier. The idea is similar to Crowds.
2. Routing algorithm to pass the question through the social network and to find experts.

Assumptions
• A user has access list of his/her friends in the social network and members in his/her hook.
• No one knows interests of others.

Peer-to-Peer Aardvark

Routing messages and Finding Experts
1. The question is initially forwarded within the hook for a random number of times.
2. One hook member randomly decides to pass the question to his/her social network.
3. Using probabilistic algorithm avoids flooding the network by a question.
4. Each node makes a decision to forward a question by flipping a coin.
5. Each node knows the predecessor node and the successor nodes but not the querier and responder.
6. The answer will be routed backward using the same path that was used for forwarding the messages.

Privacy and Anonymity:
• Ideas is similar to the Crowds[3] in providing anonymity to senders and receivers.
• Since the querier does not directly pass the question into the network, but to one hook member, k-anonymity[4], where k is the number of hook members, is provided.
• Because each node only knows that its predecessor forwarded a question, he has no idea about the source.
• Similarly, within the social network, the question is forwarded amongst the nodes in the social network.

Future Directions

• Applying all the proposed attacks to Crowds and social networks such as the predecessor and the intersection attacks.
• Implementing key distribution amongst the nodes of the peer-to-peer Aardvark to maintain message integrity.
• Optimizing the routing algorithm so that questions are routed to the people that are Experts by implementing a reputation system.
• Taking a semantic view of the questions asked and relating topics according to the question asked and not just the topic.

References