AN ONLINE SOCIAL NETWORK BASED QUESTION AND ANSWER SYSTEM

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ABSTRACT:

Question and Answer (Q&A) systems play a vital role in our daily life for information and knowledge sharing. Users post questions and pick questions to answer in the system. Due to the rapidly growing user population and the number of questions, it is unlikely for a user to stumble upon a question by chance that (s)he can answer. Also, altruism does not encourage all users to provide answers, not to mention high quality answers with a short answer wait time. The primary objective of this paper is to improve the performance of Q&A systems by actively forwarding questions to users who are capable and willing to answer the questions. To this end, we have designed and implemented Social Q&A, an online social network based Q&A system. Social Q&A leverages the social network properties of common-interest and mutual-trust friend relationship to identify an asker through friendship who are most likely to answer the question, and enhance the user security. We also improve Social Q&A with security and efficiency enhancements by protecting user privacy and identifies, and retrieving answers automatically for recurrent questions. We describe the architecture and algorithms, and conducted comprehensive large-scale simulation to evaluate Social Q&A in comparison with other methods. Our results suggest that social networks can be leveraged to improve the answer quality and asker's waiting time. We also implemented a real prototype of Social Q&A, and analyze the Q&A behavior of real users and questions from a small-scale real-world Social Q&A system.

I. INTRODUCTION

Traditional search engines like Google, Bing, and Yahoo provide information for factual queries. These do not provide any answers for nonfactual queries which are specific, imaginary, subjective and multi-dimentional. So inorder to enhance the performance of search engines, social search engines are proposed. The social search engines gather and group the people of similar interest and initiate the search query to the relevant person in the group. Although the search engines answer factual queries that are already stored in centralized server hence this technique is not suitable for answering non factual queries. For example, "can anyone recommend me a Doctorate professor for doing my project in social network...?" If the valid information is not found in database then we need to forward these queries to the human, which are the most "intelligent machines". The persons who are expertise in that particular topic can give perfect answer.

The advent of Social Web is clearly a game-changer, on numerous fronts. The rush of social web to implement and focus on marketing specially Versus the business is more universal, "social media

marketing" is just the latest technique in marketing, but the truth is it is a new way that can be used to market and promote your services and products. It also concentrates on interaction with colleagues, latent customers as well as current clients and helps to spread message in a serene and conversational way. It also results in many costly disturbances to users by sending queries that cannot be answered and hence increasing the workload by looking on the queries through the pool of queries. It leads to high server bandwidth and high query congestion and maintenance costs. To enhance the askers satisfaction, researchers focused on systems in which the users post and answer in social network. SOS (Social based Q&A system) is such system in which the answerers in the network are connected socially. SOS also leverages a lightweight technique to transform the users closeness and their interests. So that the question is forwarded to the answerer who are close and have similar interests. By which, the node overload is reduced and a quick response is received within low cost. As the answerers have similar interest, the accuracy of answer is also increased. SOS transforms the question into ID's, so that the node can easily compare it with the social ID. Then the node forwards the question to the particular person with that social ID. After receiving the questions the answerer can answer if he knows the answer or if he doesn't, he can forward the question to his friends. As the answerers are socially related to askers, the willingness to answer the question is more compared to the strangers. By choosing the potential answerer from the friends list, the question is finally answered. SOS uses NLP and FOL techniques to calculate questions ID. NLP technique will divide the question into groups of related words (e.g., wh-type). First order logic will parse the question into tokens. In SOS, the question is forwarded to friends in the friend list. The question can be forwarded to TTL number of hops, so that if the askers' friends don't know the answer they can forward to their friends hop. By this the accuracy of getting an answer is improved.

II. Social Q&A

SQA sites exemplify the Web 2.0 model of user-generated and user-rated content.Anyone can ask and answer questions, rate content submitted by others, and view the community's aggregate assessment of which questions, answers, and users are best. Sites featuring answers by experts are not strictly social Q&A, though many SQA sites offer a function to identify contributors as peer experts, given users' assessments of their past contributions in particular topic areas. In their proposal for a social Q&A research agenda, Shah et al. (2009) propose a working definition of social Q&A as a site or service requiring:

A method for users to present an information need in the form of a natural language question (as opposed to a keyword query)

• A forum for public response

• A community, based on participation level, in which the above transactions are embedded

They identify three primary research areas in social Q&A: user motivation and behavior, information quality assessment, and design and technological factors impacting participation.

In 2002, South Korean company NHN launched what is generally credited as the first SQA site, Knowledge-iN, as a component of its popular Naver search engine. The first SQA site in the United States was Answerbag, launched in April 2003, but whenYahoo! Answers launched in December 2005 (after a 6-month beta test), with its installed base of information-hungry searchers, SQA became popularized and institutionalized (Table 1). From its inception, Yahoo! Answers was by far the most widely used SQA site, with a reported peak of 62 million unique visitors per month in the United States alone in 2010. Only recently have competing SQA sites begun to challenge its popularity; after Answers.com merged several other properties into its overall database, its traffic approached Yahoo! Answers' level at approximately 50 million unique visitors per month in the United States.

The predominance of Yahoo! Answers as a data source in the literature is primarily because of the combination of its dominant market share and the ready availability of a subset of its data through a public application programming interface (API) (http://developer.yahoo.com/answers/). Other SQA sites are less forthcoming with their data, and researchers are limited to the data and tools available through the sites' public interfaces

However, with the amount of data sharing and crossover traffic between sites, unique visitors per month is a less and less meaningful metric. SQA sites have created widgets or Facebook apps allowing users to access relevant topicfocused content from other sites, and there are differences in the rules and mechanics of site interaction that also have an effect on traffic. For example, Yahoo! Answers limits the length of time a question is open, from as little as four hours to a maximum of 8 days, and restricts the number of questions, answers or comments less experienced members can submit. Some systems allow askers to declare an answer the best, while others aggregate ratings and responses from other users indefinitely, and present the highest-rated answers first.

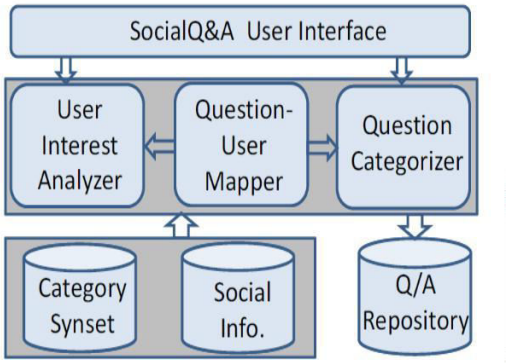
III. Conceptual Frameworks

The relative novelty of SQA sites has understandably yielded largely of descriptive, empirical research in the form of case studies and comparisons, but attempts to articulate theoretical frameworks surrounding SQA have begun to emerge. Understanding SQA requires considering broader questions about the value of socially produced information; from a pure supply-and-demand standpoint, the ease of creation and vast archive of existing information on the Web would seem to make SQA information essentially valueless. However, in a situation of oversupply, the same criteria people use to make relevance judgments and filter unwanted information are a starting point for analysis of the value created and derived from SQA information. Raban (2007) summarized four overlapping frameworks for assessing the value of information: descriptive, rational, behavioral, and social. Following the work of Benkler (2006), Raban argues that the publishing and access of user-generated content has not fundamentally changed from traditional publication models, and that content vetting and selection have simply shifted to other actors and technologies.

In a study of online travel communities, Lueg (2008) conceptualizes information seeking within online communities as not simple information exchange, but as a mediated interaction whereby the community, or individuals within it, help seekers understand and reconceptualize their information needs. While the day-to-day practices of asking, answering, and interacting imagined by the creators of SQA sites are where these structural negotiations play out, Rosenbaum and Shachaf (2010) also mention users engaging in "meta-conversations about the community and its rules" as more explicit evidence of user agency, echoing the literature on Usenet interaction patterns. Gazan (2009) identified 177 of these meta-conversations in the Answerbag SQA site, which included rituals of indoctrination and membership, debates about normative behavior, and the formation of subcommunities of like-minded users. These expressions of community self-awareness were associated with increased levels of participation from high-ranking users, but also increased levels of conflict. The answers, comments, and conversations surrounding these meta-questions served as public spaces where competing ideas about appropriate content, rules, and behavior were debated.

IV. SYSTEM ARCHITECTURE:

When a question is posted by the user, the node processes the question using NLP (Natural Language Processing) and then represent the in first order logic format by dividing question into tokens keywords then apply inference rules on the tokens to infer the questions interest. Finally a question id is created based on the interest. This question id is compared with the friends Interest id and if the id's match, question is forwarded to those friends. When a question is posted by the user, the node processes the question using NLP (Natural Language Processing) and then represent the in first order logic format by dividing question into tokens keywords then apply inference rules on the tokens to infer the questions interest. Finally a question id is created based on the interest. This question id is compared with the friends Interest id and if the id's match, question is forwarded to those friends. After finding the friends with similar interest, it will select k number of best answerers among those friends. It will select the k answerers based on the feedback or performance of the users. If they have a good response feedback then they are selected among k friends



V. CONCLUSION

In this paper, we present how these Q&A system can accurately identify the best answerers who are expertise in that area. SOS leverages lightweight techniques to identify the related friends. This system also provides answers to non-factual queries which are specific and multi-dimentional. It uses FOL for the retrieval of interest of the user and the question. It also earns high user satisfaction ratings for the accurate answers. SOS generates very less overhead with limited question forwarding. Since each user is connected to several social groups, it selects most probable answerers and forward to an answerer that

can provide an answer We can also get response from any location by accessing through internet by means of cloud server which provides storage of large resources. All the question and answers are stored in the cloud. The future of Q&A system in cloud is demandable and scope full

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