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# A Novel Frame Work System Used In Mobile with Cloud Based Environment

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***Abstract*: Recent era efforts have been taken in the field of social based Question and Answer (Q&A) which is used to search the answers for the non – factorial questions. But traditional search engines like Google, Bing is used to answer only for the factorial questions where we can get direct answer from the data base servers. The web search engine for the (Q&A) system does not dependent on the broadcasting methods and centralized server for identifying friends on the social network. The problem is recovered by using mobile Q&A system in that mobile nodes are help full for accessing internet because these techniques are used to generate low node overload, higher server bandwidth cost and highest cost of mobile internet access. Lately technical experts proposed a new method called Distributed Social – Based Mobile Q&A system (SOS) which makes very faster and quicker responses to the asker. SOS enables the mobile user's to forward the question in the decentralized manner in order get effective, capable, and potential answers from the users. SOS is the light weighted knowledge engineering technique which is used find correct person who ready and willing to answer questions hence this type of search are used reduce searching time and computational cost of the mobile nodes. In this paper we proposed a new method called mobile Q&A system in the cloud based environment through which the data has been as been transmitted form cloud server to the centralized server at any time.**

***Keywords:* Question and answer system, On-line social network, Non-Factual questions, Peer to Peer system, clustering technique, cloud computing terminology, and Virtual Local Area Networks (VLANs).**

## I. INTRODUCTION

In earlier traditional search engines like Bing and Google which is used to retrieve answers for the factorial or factual questions through Internet [1]. In order for getting improves the quality, performance and efficiency of the search engines we proposed new method in the search by using keywords of questions itself. Similar interested people may be any particular field can be grouped or clustered in order to refer the historical results. Even though the factual questions can be answered in the form of centralized stored server but this technique is not suitable for non – factual queries answering which is more over subjective (for example, can anyone recommend me a Doctorate professor for doing project in the data mining issues…?) If the required and valid information's is not available in the data base server means the question is forwarded to the human begins which are the most "Intelligent Machine in the universe" [4].

The social search based question & answer system can be categorized in to two types: Centralized server based and Broad casting based. In Centralized server we used to constructs maintains the record of the each social user and user's friends, it also searches required answers from the friends and friends of friends so on. In Broad casting method each question has been broad casted to every single user in the community. Because of rapidly increasing in the development of the smart phone can make use of effective internet access very fast and secured way hence this makes Q&A system more promising and compatible applications [6]. However, the previous centralized and broadcasting techniques are not use full for the mobile supporting (smart phones) because mobile nodes access the nodes with the limited resources and higher bandwidth cost. Later group of technical researchers have proposed SOS method (Distributed Social – based mobile Q&A system) which is used to search the answer based on the friends who are capable and the question ID with social ID are framed

along with the queries [7]. In this paper we proposed new method called mobile Q&A system in the cloud based environment which serves as a mobile cloud computing based on the cloud computing concepts. Cloud computing are used to meet the requirements like adaptability, scalability, availability, and self awareness [8].

The remainder of the paper is organized as follows. In section 2 we presented related works and section 3 discuss about the design of SOS system. Section 4 explains in detail about Architecture Diagram. Section 5 and 6 gives out detail study about Algorithm and Performance Evaluation. We conclude this paper with screenshot and remarks on future work in Section 7 & Section 8 and Section 9 produces References papers.

## II. RELATED WORKS

The first and for most part to design SOS (Distributed Q&A mobile system) is completely and totally based on social networking side which can be extended the lower end mobile system which can tackle correct answer identification. SOS is used find the accurate answer for the identification and quality answer is responsible for the willingness of user to answer another user's question. They proposed similar interest and quality answer based on the previous experience and also based on forward question method. In this paper we proposed new method called mobile Q&A system in the cloud based environment in which server serves as a mobile cloud computing. Cloud computing are used to meet the requirements like availability, scalability, adaptability, availability, and self-awareness.

In this paper [**1**] focus in on specific classification of social search because searchers asks the quires to the group of the people and individually whom they know personally and friendly in the social based networking message updating. When social experiences can also able to do a web search with the help of social information. In fact search engines are used to match of pre – search to post – search questionnaires.

In this paper [**2**] they identified the gratification and dimension of users and user's friends networking sites as a result three kinds of dimensions can be resulted according to connection dimension, friendship dimension and information dimensions. This paper helps to understand friends networking sites which are mediated for the social networking communities that make people with the similar interest to interact. Hence the main purpose of this paper to understand uses and gratification in order to obtain information from the networking sites.

In this paper [**3**] social searching is totally focus on the creations and deletion of links between individuals, friends, group members and associated links between parents and children (parents became collaborator). Hence parents and children can be link to guardian collaborator to his or her child.

In this paper [**4**] the phenomenon used to search social network status message in order to questions. Survey of this paper conveys about asking and answering queries via status – message updates via social networking. This paper gives us clear understanding about informational needs by using general tools like social search tool and crawler tool and online tool which makes status messages to ask questions rather than giving detail descriptions about their current status.

In this paper [**5**] Peer to peer networking architecture makes a way to store and share resources based on the decentralized manner by using IP (Internet Protocol) multicasting method data have been encrypted and then transmitted to known user for the authorize information. This paper gives brief knowledge about the P2P which has no server to control and transfer data to another system, so the peer should wait until they get data from root node which is developed by the binary tree. Peer to Peer communication is more secured because it performs the operation in the centralized manner. Increase in efficiency and minimizing of the bandwidth consumption is the main disadvantage in the P2P network. Senders and receivers have the secret key word which is acquired by the Encryption and Decryption.

In [**6**] authors have proposed about the usage of multimedia content in the Peer to Peer architecture. The basic design in order to support P2P multimedia sharing forums based on Multimedia board (M - Board). Multimedia content are widely used because of increasing of bandwidth and storage of resource as well as multimedia materials as high pictures resolutions for the third party services providers like you tube etc. Hence it is most and more beneficial for developing multimedia content in an easy manner, low cost and efficient manner.

In this paper [**7**] authors have proposed a new technique called SOS (Social based Mobile Q&A system) with low cost and node so that very quick response to the quires. When the asker indentified potential answers by means of previous answer

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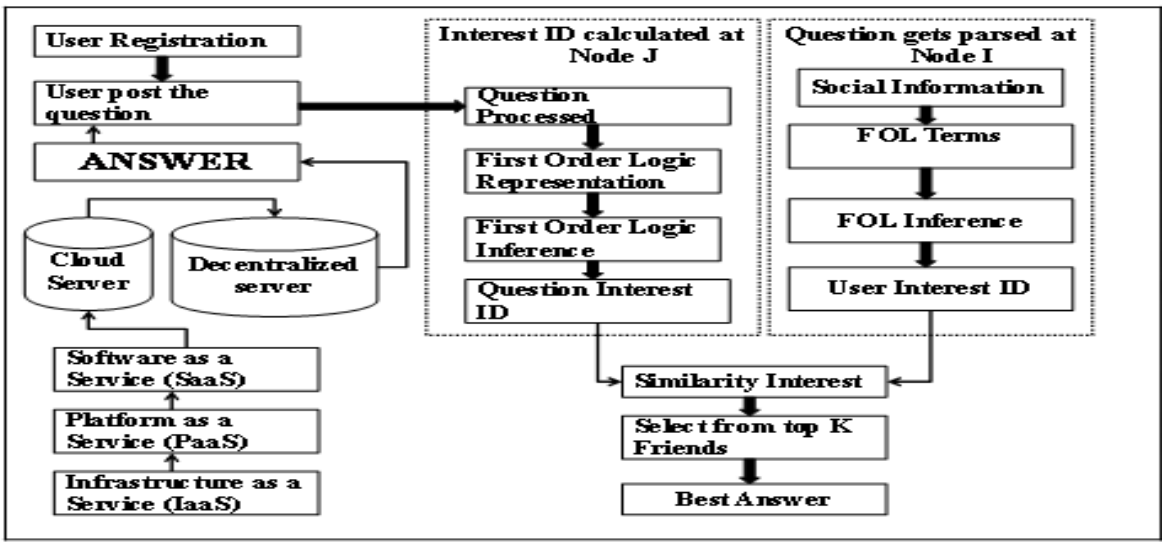
quality from friends or friends of friends. Tools like Natural Language Processing (NPL), First Order Logic representation (FOL) and Registration Server.

In this paper [**8**] we have learnt about the detail how the networking server scan and search nearby user who can really give out potential answer based on the similar interest description and hence makes requests based on the mobile resources sharing. Mobile clouds are capable of extracting to translate them into the English language.

## III. SOS (SOCIAL BASED MOBILE Q&A SYSTEM)

SOS (Social based Mobile Q&A system) in a distributed way with low over node and lower system cost, which can make quick responses to the queries. SOS techniques enables the mobile users in order to forward the questions to the potential users who can answer the question from the friend list, the resulting operation can be done through decentralized manner before resorting to the server. High performance of SOS and Q&A services result can be obtained in the real time application with the help of analytical result. The queries can be forwarded along with the online social networking tool with number of hops then to sever. The heart of the distributed Social based Mobile Q&A system is that it can makes issues usually with the persons closely related with the his / her social life along with the simple interest. Mobile cloud nodes are basically based under the cloud computing concepts which used to access the Centralized database server with the help of cloud based server at any time anywhere. Hence the mobile cloud computing meets the requirements of availability, scalability, and adaptability.

## IV. ARCHITECTURE DIGRAM




### *A. Registration Server:*

Registration Server technique refers to the continues and compulsory recording of the information together with the certain type of descriptive or identifying character formats with certain concerns between them, as provided by the laws and regulation of each country specification. SOS incorporates on the online social networking sites, where social links are connected by the interconnecting nodes. User Registration work as been carried out in the Registration Server hence user is represented with the Similar Interest ID, So that user can share his/her common interest with their friends and friends of friends.

### *B. First–Order Logic Representation:*

FOL is a very powerful technique for to describe objects and their relationship hence it serves as base to the inference technique. First Order Predicate (FOP) calculus is used to build analyses of different type of architectures. FOP method is very declarative and descriptive representation of driving information and knowledge from the database. Flexibility as more limitation when more than module added to the common database unfortunately hence it maintains monotonic for consistency learning process. FOP logic uses different kinds of statements for composing atomic symbols in order to

predicate function with multiple arguments. This type of representation are used to allow little amount of flexible knowledge but sensitivity and efficiency makes way for weakness in the large knowledge database.

***C. First – Order Logic Inference:***

Inference is a method which is used to attack user's sensitive data from the complete database. Inference is a data mining techniques which is used to find hidden information from the user perspective. Verification of data mining together with various level of security attack is concluded for protections of the hidden levels are used in Inference technique. Gaining knowledge illegitimately from the database for analysis purpose is performed in the inference attack hence it builds inference structure and inference goal for connecting FOL symbols with respective goals. Each and every node in the lattice inference structure represents connective between syntax symbols of the social information and fuzzy database.

***D. Natural Language Processing:***

Natural Language Processing (NPL) is a technique which is used to translate human languages into Computer understandable language. It is a method for a computer to understand a text without any sort of calculations and clues henceforth this technique automates selection answer process by forwarding the question from one mobile node to another in the SOS system. In order to parse the question, the mobile node used to first process the queries or question in the Natural Language Processing (NLP) and then initiate the question to the FOL format then follows inference technique in order to infer user question to the similar interest people. Finally, the question has been changed into numerical string formats.

***E. Question Interested Id:***

Question Interested ID is introduced in order to generate question ID and interest ID in the numerical string format. Hence the top of the line list contains all user interest ID categories in the database server. The different types of interest are categorized in alphabetic order in the category's column and each category represent by its entry index. While generating the numerical string format each and every category checked and tabled therefore if a user ask a question with a similar interest category people then the entry index of similar interest people in his/her profile is identified using digits in the numerical string of the corresponding position.

***F. Best Answer Module:***

Social networking sites which are used to directly indicate the willingness and similar interest people in order to answer or forward the question to the user's friends and friends of friends recently works of social networking has studied about the effectively calculation of the social closeness and similar interest between different user's. However this technique is wholly based on the network topology where energy is consumed. But social online networking changes very often therefore network topology calculation is not mostly suitable for the mobile device for SOS techniques. In order to reduce the over load on the mobile node each user in the SOS (Social based Mobile Q&A system) manages to find information of the quality answer based on his/her interest of their friends. As the performance of the SOS depends on knowledge based on user I, hence User I considers as the number answer received from the User J and also quality answer of User J was calculated hence we call it has feedback mechanism calculation. SOS initially makes the users to indicate the answer quality and value of a newly added friend for each received answers therefore an asker can rate the quality of the answer based on the FOL format. By considering high dimensionality of online social networking sites user can answer to the question and rate the quality answer from the another user reviews. In this way a mobile node can able to quickly note the active answers which are passive before and we can able to identify them as the potential answer to the question.

***G. Cloud Computing:***

Cloud Computing is a recently emerging technical computing terminology which is based on the consumption and utility of computer resources. Cloud computing are mostly involved in deploying of the Remote Servers and Software Networks which makes centralized data storage and online access of resources or computer services.

***a. Characteristics Of Cloud Computing:***

**AGILITY:** Agility is used to improve user's ability to re-establish or re-provision infrastructure resources of the mobile computing.

**APPLICATION PROGRAMMING INTERFACE (API):** Application Programming Interface used to access software which enables computers and mobile devices to interact with the cloud software. Cloud computing used to represent Representational State Transfer (REST).

**COST:** Cloud computing makes a way from capital expenditure to operational expenditure. Device and Location Independence: Enables to access system by using web browser regardless of devices and locations (eg personal computer, mobile phones). If the infrastructure is off-site (typically accessed by third party) via internet hence user can connect from anywhere.

**MAINTENANCE:** Installation is very much easier than any other device because there is no need to install on each user's computers.

**MULTIENANCY:** Enables different kinds of sharing devices and manages lower cost across a large number of pools of user's.

**PERFORMANCE:** Performance is monitored in a very consistent manner hence architecture as been loosely coupled and constructed using web service as the system interface.

**PRODUCTIVITY:** Productivity is increased whenever multiple user access on the same data simultaneously rather than waiting for a data to be saved and emailed. Information need not to be re-entered when the data is not irrelevant to the given topic neither user doesn't need install software application in order to upgrade version.

**RELIABILITY:** Reliability increases when multiple users uses redundant sites which makes well defined and designed cloud computing suitable for the business community.

**SECURITY:** Centralization of data can be improved due to secured resource factors but due to loss of control over the sensitive data can make lack security for the kernels stored in the database.

***b. Service Models Of Cloud Computing:***

**INFRSTRUCTURE as a SEVICE (IaaS):** In order to deploy Virtual Local Area Networks (VLANs) and Software on the cloud infrastructure applications cloud users install operating system images and virtual machines (oracle, VMware, servers, storage, load balancers and network).

**PLATFORM as a SERVICE (PaaS):** Cloud providers a delivers web server, database, programming language execution environment and operating system. Cloud application developers used to run software application on low cost. Cloud environment can manage hardware/software layers and complexity issues.

**SOFTWARE as a SERVICE (SaaS):** Cloud providers are used to install and operate software applications in the cloud environment where users access the software from the software clients. Cloud users need not to manage infrastructure and platform where the application runs hence we can eliminate installing of cloud software from users own computer which used to simplifies support and maintenance. Cloud application is very different from another application therefore scalability is achieved by using cloning task with multiple virtual machines during run time. Load balancers are used to distribute the working task over to different set of virtual machine at different place this process is very much transparent to the cloud server which access single point. In order to accommodate a very huge amount of cloud users multitenant technique, that is any machine servers can able to access more than one cloud user organization at a time.

## V. ALGORITHM 1

Pseudo code of the best answer identification executed by node *i*:

1: **Input:** *IDi*, *IDj* , $Q(i,j)$ ($j \in Fi$)
2: **Output:** top-*K* best answerers
3: //*Periodically update* $Q(i,j)$ ($j \in Fi$)
4: **for** each time identifying new friend (friend *j)* initiated with friend list *Fi* **do**
5: Equation (2) has been updated based on $Q(i,j)$ Question (user (*i*), user friend (*j*))

6: **end for**
7: **if** the question cannot be answered by the Q(*i*) **then**
8: **if** TTL>0 **then**
9: **for** each friend *j* in friend list *Fi* **do**
10: Using *IDqi* and *IDj* Similarity has been calculated *S*(*qi*,*j*) based on
Equation (1)
11: Calculate Best Answer (*BA*(*i*,*j*)) using *Q*(*i*,*j*) and Similarity (*S*(*qi*,*j*)) based on
Equation (3)
12: Add Best Answer *BA*(*i*,*j*) to a list *List* **do**
13: **end for**
14: QuickSort partition around the *Kth* largest element in *List*
15: Then tofind the top-*K* friends who are having the highest *BA*(*i*,*j*)
16: TTL-=1
17: Send the Question to the identified *K* friends
18: **end if**
19: **end if**
20: **if** the user does not received answers from its created Question
21: Forward Question to the centralized server for the answer from node *j*
22: **end if**
23: Then after receiving the correct answer from node *j*
24: By Default extracted answer is saved in the cloud server which is the accessed by centralized server when ever and where ever
25: **end if**

Algorithm 1 shows the pseudo code process for selecting the best answer from the node *j*. If the node *i* could not able to identify the correct answer to the created question during the time corresponding to TTL, it waits for the centralized server for resorting the correct answer. Lines 4 – 6 are used eventually update the answer quality of each user's friends. Line 8 – 13 calculates the every single friend's best answer and used to generate metric values for the further classifications. Line 14 – 17 manages to identify the top K – friends who have the highest best answer metric value. Lines 24 – 26 are used to save correct answer in the cloud server which is then accessed by the centralized server.

## VI. PERFORMANCE EVALUATION

SOS system has been evaluated using crawled questions from Yahoo! Answers. Since Yahoo! Answer does not have any type of information about user profile, hence we crawled four different types of user's in the decentralized way. We then used one user as the seed and used as first breadth search in order to crawl another user's profile. Users are clustered using social clustering methodology. User's profiles contain information about user's education, hobbies and interests and their First Order Logical (FOL) representation and then finally encoded as a numerical strings. In this experiment we have focused on the question evaluating into three related fields computer science, history, and world geography and Indian polity.

Since the facebook dataset is not relevant to the Yahoo! Answer dataset, we cannot able to correctly and directly identify which is capable of answering the questions. Therefore in order to make the experiments very operable we manually created 100 questions with the keywords which can be mapped to a facebook user's profile interest. For each of 100 questions we randomly assigned 70 questions for the computer science and each 10 questions to history, world geography and Indian polity. We have used answer quality indication by the Yahoo! Answer methodology in our experiments hence the best answer has five rating, the spam answer has one rating and all other type as three ratings. The 100 questions have been replicated by 10 times randomly. We set $\beta$ to 0:5 to balance interest similarity and answer quality $\alpha$ to 0.3 by default impact factor. In order to make the correlation between the user, we imported educational database, Thus by mandatory when a question is asked by user A, the inference engine can automatically searches the correct answer. As a result, Inference engine with SOS collaboration can handle the matching answerers without an inference engine.

By default, we have chosen four users to select for forwarding the question. We are using RLA in order to denote the number of Relevant Answer for the questions and RTA is used to determine ReTrieved Answers in the SOS system. In the following experiments we have deployed four different types of matrices.

**EXTRACT RATE:** A measurements in order to Extract Returned Rate results which is represented by |RTA| / (|RLA Ω RLA|).

**COMPLETE RATE:** A measurements is obtained in order to know completeness of the returned results which is represented by |RLA| / (|RTA Ω RTA|).

**OVER REVIEW:** Technique used to extract number of messages being transmitted in the system during overall simulation process.

In our evaluation part, the users are used to answer the question in the different approaches but the correct and relevant answer to the question has been traced out from Q&A educational database. We have classified the answerers in the trace out data formats hence we have two different approaches for denoting FOL inference engines.

1. SOS – W/ - Infer (SOS with Inference)
2. SOS – W/O – Infer (SOS without Inference)

We had compared the routing performance of SOS with two different techniques Flooding and Random walk. Flooding method represent broadcasting techniques which is used to forward question to the entire user friend's. In Random method node forwards the question to the users when it gets the correct Answer.

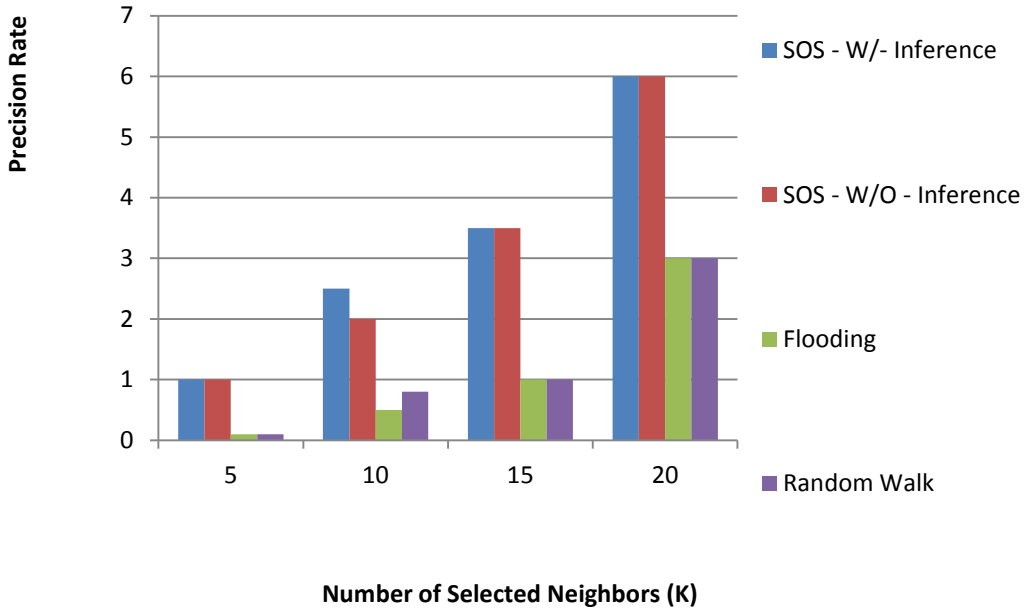



**Fig.2 QUERY PRECISION RATE VERSUS K**

The number of selected friends K for each node as been increased in the each step we have seen SOS as the highest query precision rate because SOS used to identify social relationship. In the Flooding type node used to forward the question to all the user's friends therefore the precision will become low. In the Random Walk, a question being sent randomly to the user's henceforth low precision rate has been generated. Precision rate decrease in both SOS – W/- Infer (SOS With Inference) and SOS – W/O – Infer (SOS With Inference) when K value is increased.

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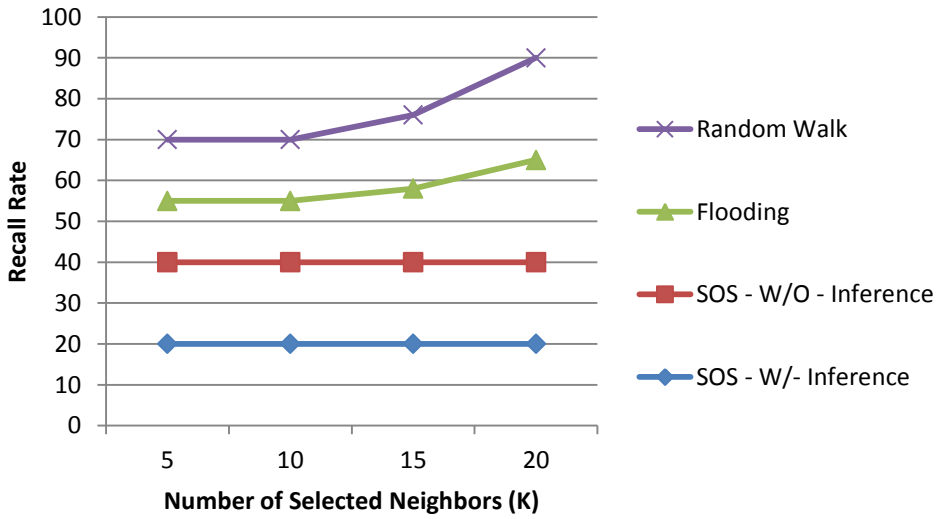


**Fig.3 QUERY RECALL RATE VERSUS K**

The resulted value of recall rate has been compared in the four system formation. Flooding approaches used to forwards the question to the user's friends and friends hence it provides highest Query Recall Rate, therefore recall rate of Random Walk also increased this because many user's friends receives questions.

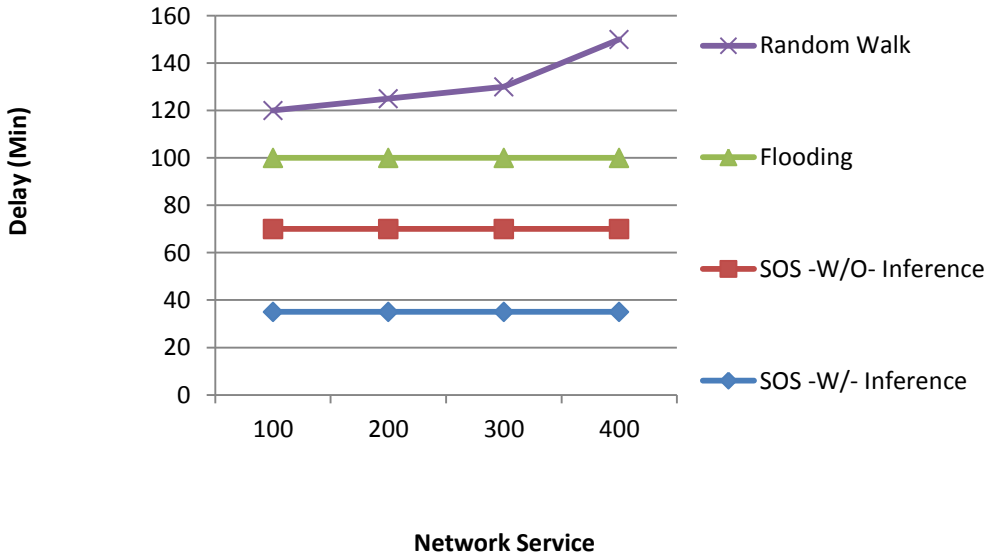


**Fig.4 COMMUNICATION DELAY**

Communication overhead has been measured by using number of queries with different types of network services or size. N size has been crawled using with different users and network with same topology. In, Flooding terminology queries or question forwarded to all the neighbors of users, hence it leads to the high overhead and recall rate has been improved. Random Walk has a low overhead when compared to the flooding. But SOS remains constant with overhead, Potential answer can be efficiently and effectively located therefore network size does not need to increase the number of forwarding question hops.

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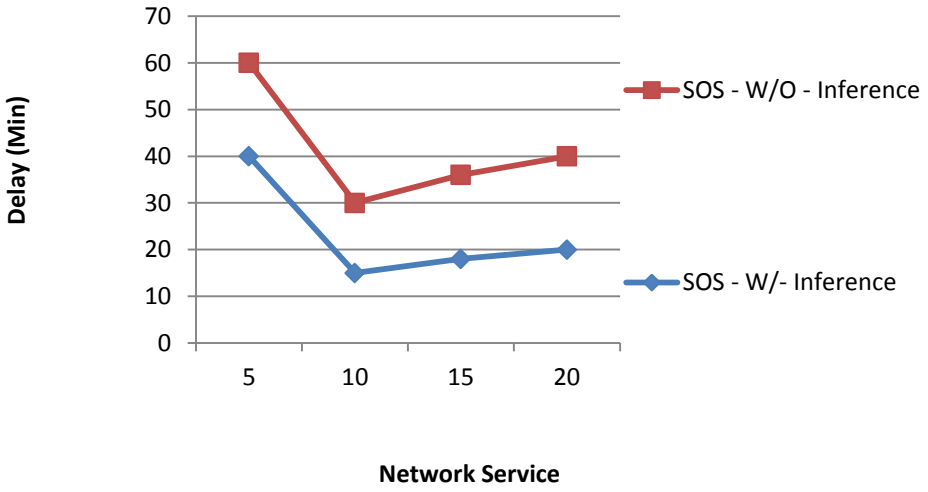
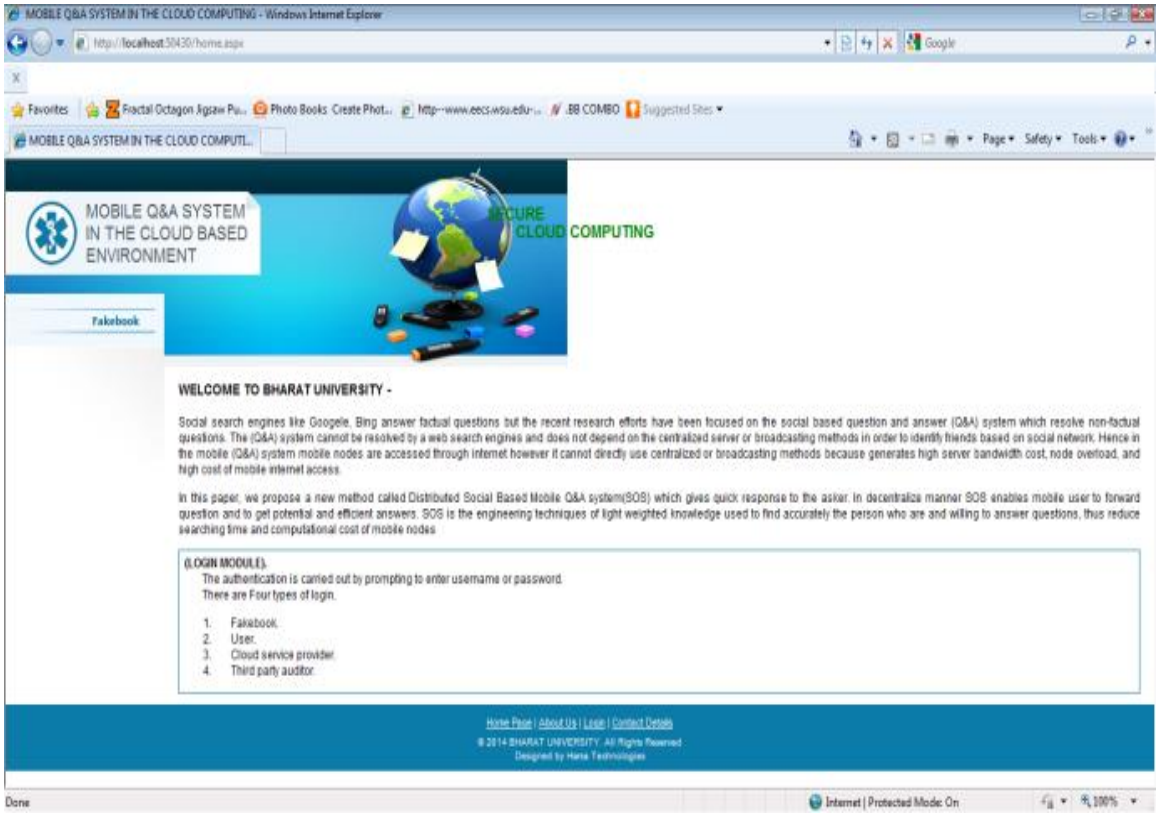



**Fig. 5 QUERY PRECISION WITH NUMBER OF SOCIAL HOPS**

Fig (5) Precision rate has been calculated with different social hops. We have seen that 80 percent of the answers are retrieved from direct friends, this happens because social network used to cluster friends with common Interest ID. SOS – W/- Infer (SOS with Inference) has the high recall and precision rate hence SOS – W/O – Infer (SOS with Inference) identify the potential answer with information inferred from user's and question.

## VII. HOME PAGE




This figure represents our project home page were we are creating initial network for our project. We are made fakebook for the Bharath University so that top professional to the student can register their personal information along with their interest. Any student can post their question and get answer regarding subject knowledge. The best answer is given by the rating based. Finally we are connecting relevant application with the cloud environment.

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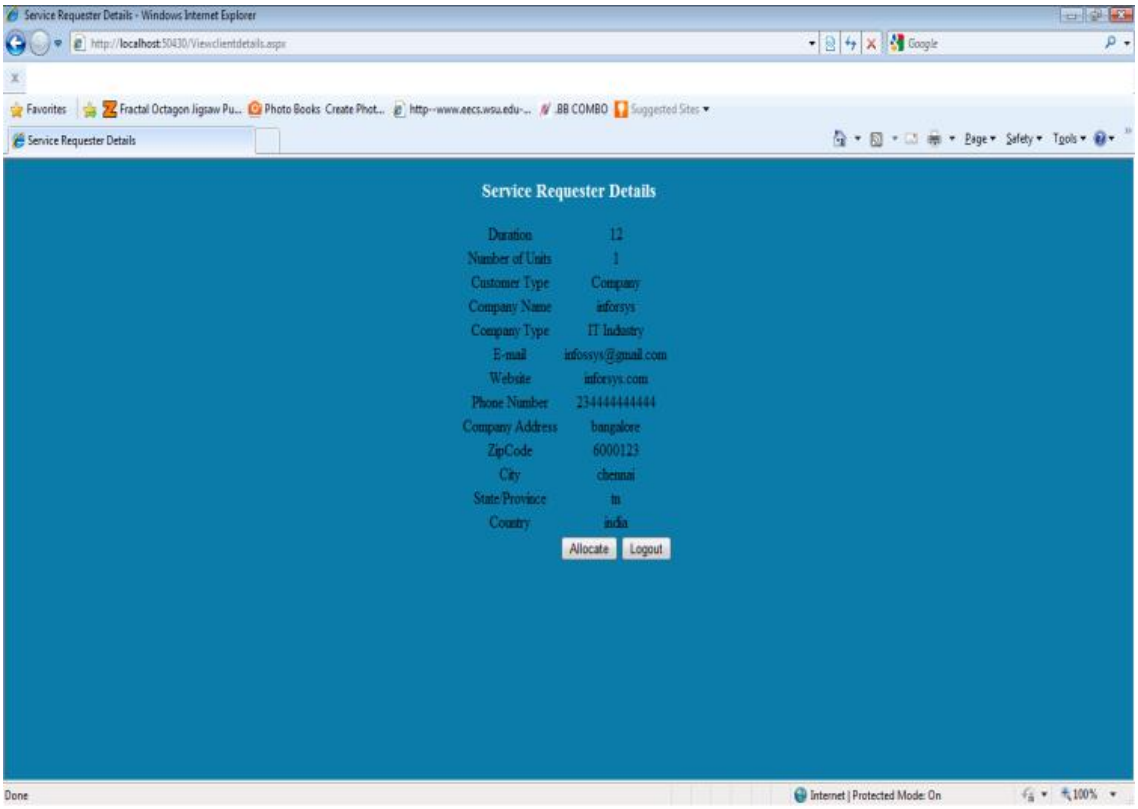
### *A. Registration Page:*


In the Registration Page we are making user ID and login information for the initial stage of creating database. After login page identification we are making Sign up page and getting information about the user. Once user registered their details they can login any time anywhere.

### *B. Cloud Service Provider:*




This screen a shot describes about cloud service provides detailed information. After the data has been entered in database, the following database server is connected to cloud service provider.

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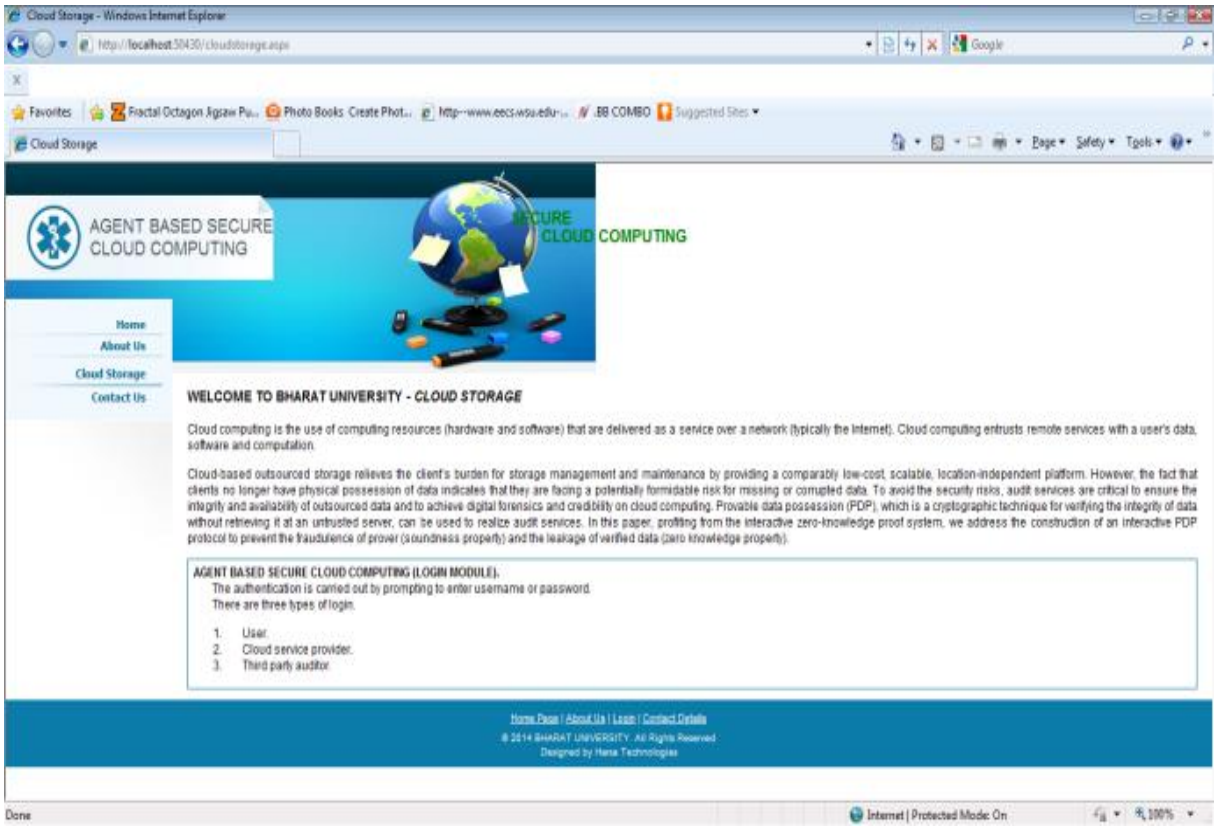
### *C. Cloud Service:*




Finally the distributed database server has been connected to the Cloud Server for the real time application protocol.

## VIII. CONCLUSION

SOS system used to enable nodes to find the friends who can accurately answer the question. FOL representation and inference engine are used to find capability and willingness person who is ready to give the correct answer for the question. We compared four different types of metrics like extract rate, complete rate, over reviewed, and delay in time for getting the correct answer. Therefore by understanding the following concept we proposed new method called "Mobile Q&A System in the Cloud based Environment. Cloud server acts as bridge for connecting centralized server without a disturbance at any cost and time. The future enhancement of this project can be done in Cloud security environment because there is lot security threat for the cloud server by hackers.

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