RESEARCH ARTICLE

Preference Based Resource Allocation and Sharing of Infrastructure Resources in Social Cloud via Social Networks

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Abstract—Today most of the social networks platforms changed the way the people communicate and their interaction .They are participating, communicating, sharing of resources, digital communicating These are the some of the activities are performing the social networks ,and also there are various application are available for sharing of resources in social networks. Due to this reason we adapted social cloud where resources are providing based on the friend relationship. In social cloud there are various resources offered, they are virtual resources or smart devices like mobiles and computer equipments' etc. But in order to share the resources from one user to another user in social cloud users may have complex preferences like whom they want to share their resources or whom they do not share. In the context of social cloud in order to allocate the resources to other users we adapted preference based resource allocation algorithm. The main important concept behind this paper is how social networks are allocating the resources based on the presence of user interest level.

Key words— "Social Cloud", "Social Networks", "Preference Based Resources Allocation", "Complex Preferences", " Friend relationship".

I.   INTRODUCTION

A. Social Networks

Social networks are structure of two or more entities are interconnected through various relationship. Here entities nothing but user's, the relationship between one user to another user may have different names across the social networks such as best friend, close friend intermediate friend, degree friend and causal friend etc. By these relationship users share the resources, messages, video and audio. There exit number of online social networks such as Facebook, Twitter, YouTube, LinkedIn, Flicker, eHarmony.

B. Cloud Computing

Cloud computing refers to dynamic environment where providing the resources ranging from application to data centres based on the pay for model. Cloud typically have number of characteristics such as : pay for model ,on demand delivery of resources ,service level agreement between consumer and provider, accessible across the various internet-devices. Cloud computing offering many types of services among them essentially category into three types they are software-as-service, platform-as-service and infrastructure-as-service. Software-as-a-service describes a cloud application that is hosted in cloud and it is provided to users via the internet. This model avoids the need to install the application on the end user's system and lowers the software cost through usage pricing. Platform-as –a-service provides software development life cycle this include the develop environment and run the application. Infrastructure –as-a service provides services such as storage, network, hardware, data centres .In addition above cloud computing provides four types of deployment modules they are private, public, hybrid and community cloud. Private cloud can be used by individual organization. Public clouds are less secure than the other clouds so that it can be used by any organization. Hybrid cloud provides combination of private cloud and public cloud services. Community cloud provides mixing of private, public, and hybrid cloud.

C. Social Cloud

Social cloud is dynamic environment where resources are providing based on the friend relationships. As we know that there are various relationships exit between users in social cloud they are best friend, close friend, intermediate friend and degree friend like this friend will be category into different kinds. Our main aim of social cloud is to share the resources based on the presence of user interest level, it means that whenever the user or consumer wants to share the resources, user request to another user then at the provider side preference will be given to each user based on the interest level we are going to share the resources.

D. Need for Social Cloud

Nowadays online relationships are mostly based on the social networks websites which are based on the real world relationship. As there are various real world relationships that exit in social networks are best friend, classmate friend, close, friend, intermediate friend like friend will be category into different kinds. Therefore there is high level of trust and accountability between the users or consumer and provider. So we enable users to share their resources on social networks based on the friend relationship. Social networks communities provide a platform for sharing resources and establish the relationship between them. Examples for the social networks are YouTube provide for sharing of videos and audios, facebook provide authentication and trust and accountability.

In the next structure of paper consists of following sections, section II System Module describes overview architecture , Section III shows the problems of the Social cloud, IV shows the proposed method, next shows Conclusion and Feature work.

II. SYSTEM MODULE

The following figure shows architecture of social cloud, it mainly consists of the following components. They are Social database, resource database, preference modules and matching mechanisms and Seattle.

A .Social Data Base

 It shows how many members is available in social networks.

B. Resources Data Base

It shows how many resources are available in social cloud and how many resources are available at each user.

C. Seattle

Seattle is educational platform and it is open source that can downloaded and run directly into end user systems in a safe and contained manner, It support of several platforms. Sandbox is established on the user's computer to control the consumption of resources such as memory, CPU, storage, and network bandwidth. Programs are only allowed to operate inside of a sandbox. This allows researchers and students to safely run code without impacting performance or security.

1) Features of Seattle: Community driven and free, open source, scalable architecture, it is safe for end users, cross platform support like windows, Mac OS and Linux.
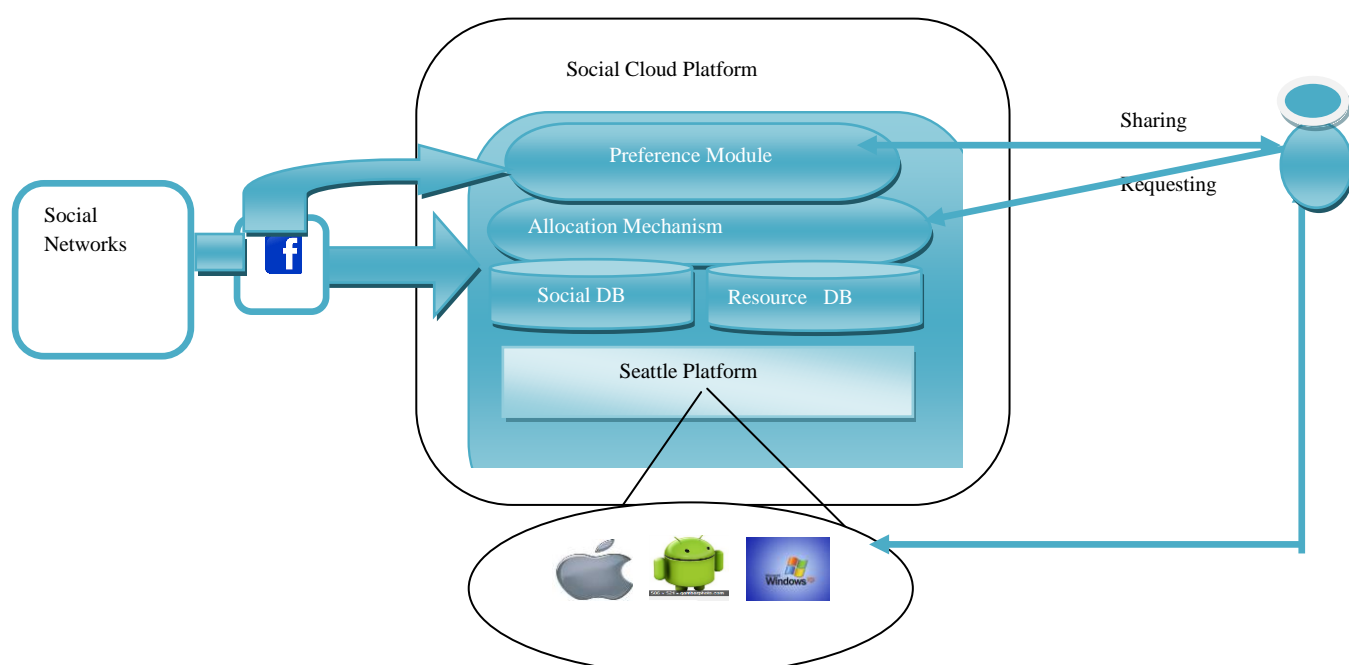

Fig 1 .A Social Compute Cloud and its Components

Coming to architecture of Seattle consists of mainly three parts they are Seattle API .Sandbox, Node manager, In the Seattle API provides a programming API for low-level operations like writing to files and sending network message over the networks. The API consists of five types categories: file, network, timer, locking and miscellaneous. Coming to second part Sandbox provides security to the user code, it mainly concentrates on controlling resources, controlling of security action. Coming to third part Node manager provides the following functionalities which program is running, who is access permission to run the program.

D. Allocation Mechanism & Preference Modules

There are two types of preference modules can be used they are as follows.

1) Random Manner : In this method preference will be given to each user as follows Preference "0"- Indicate that no preference, "-1"- indicate unwillingness to access resources, next 1 will be given to all users(same preferences to all user).

2) Incremental Manner : In this method preference are given as follows "0"- indicate no preference, "-1"- indicate unwillingness to access resources, higher preference will be given to higher friend relationship(like "1"- preference will be given to best friend, "2"-preference will be given to classmate friend and so on).

III. PROBLEMS OF SOCIAL CLOUD

1. The main problem for the social clouds resources are shared based on the Random method, it means to all the users preferences are given to all users is same.

2. Due to this reason unable to manage the resources whenever all the persons are requesting at the same time.

3. There is no trust ability between one user to another user.

4. At time of providing the resources there is chance of the third party can access the resources because preference are given to all user in same manner, they are requesting at the same time.

In Order to overcome above problems we are using Incremental manner method.

IV. PROPOSED METHOD

In social cloud in order to share the resources preferences are given incremental manner Like 1, 2, 3.... And so on. In the context of social cloud that we want to give the preferences are given as follows, the first preference will be given to best friend, next high preference will be given classmate friend, and next high preference will be given to intermediate friend and so on.

V. RELATED WORK

The following methods are used in social cloud in order to share the resources they as follows

A. Monetary-Based Mechanism

In this method exchange and sharing of resources can be done by through monetary payments, It means whenever we want to resources we have pay amount to another user, some of the examples are fixed price systems, cloud market place etc.

B. Credit Based Mechanism

It is similar to the monetary based mechanism, but the difference between two approaches is that credit based system do not involve real money. For example users can gain credit by providing resources for other users, and

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use that credit to consume resources in return. A key purpose of credit based system is management of currency with respect to credit value.

C. Best-Effort and Volunteer Mechanism

In this method resources are shared without involving credits or monetary or preferences for other users. Examples are Trophy-based system in which users can gain certain trophies for sharing resources, another example for this method is Volunteer computing projects such as BONIC.

D. Decentralized Mechanism

It is another way for sharing of resources, in this method leave resources allocation to the users themselves.

VI.   PREFERENCE BASED RESOURCE ALLOCATION ALGORITHM

Preference based resource allocation algorithm having the following steps.

Step 1: Begin

Step 1: For each user of requester or Provider set preferences

Step 2: if   more than hundred users are available split the users into two or more groups into relative size like $,$-1

Step 3: create random preference list.

Step 4: For each user in a group X generate   incremental manner to each user.

Step 5: for each user in a group Y generate preference to each user by incremental manner.

Step 6: Delete if same preference is given two users by using probability function pD

Step 7: Now determine preferences if any tie occurred or not this can be check by using parameter ψ , if any preferences are found then.

Step 8: set the preference to each user to all user in incremental manner.

Step 9: End

The above algorithm parameters specify as follows. Deletion Probability pD = (L-1) where L is the length of preferences .The parameter "ψ" Max length of ties preferences. X,Y parameter relationship between one user to another. The parameter "$" indicate how many people available in social cloud.

VII.   CONCLUSION

Conclusion for this paper is in this way we are sharing of resources then trust ability between one user to another user and relationship between one user to another user in genuine manner.

VIII.   FUTURE WORK

In social cloud in order to share the resources we are given preferences by using in incremental method, so additional or feature work for this paper is giving the preferences additional way and allocating the resources based on the user preference level. One example for this method is Clustering method combing all the people into one group.

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BIOGRAPHY

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